APPENDIX A:

APPENDIX A-1:

PHASE 1: DEVELOPMENT OF PROJECT IDEA (TABLE 1) STEPS

APPENDIX A-2

EXAMPLE PROJECT IDEA (TABLE 1)

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INSTRUCTIONS FOR USING THE TRUST'S ONLINE PORTAL

APPENDIX A-1: PHASE 1: DEVELOPMENT OF PROJECT IDEAS (TABLE 1) STEPS

Phase 1 includes the development of Table 1 ideas that undergo a review process coordinated by the Trust using CBP review criteria. This Phase 1 step begins with the annual approval of confirmed funding levels for the currently Federal Fiscal Year (FFY). After funding levels are confirmed, the GITs are notified to begin collaboratively developing new project ideas for the current FFY. The GIT Workgroups, Coordinators, and Staffers start or continue soliciting project ideas from their team members for the Project Ideas. The Trust provides training to submit project ideas into the portal and then EPA provides space for a Project Idea *Brainstorming Meeting* to promote cross-GIT collaboration and share project ideas as well as communicate and gain input from *key functional areas of CBP*. The *key functional areas* include the Communications Workgroup, the Geographic Information Systems (GIS) Team, the Information Technology (IT) Team, the Web/Creative Team, and the Science Prioritization Team. Project Ideas are modified after the *Brainstorming Meeting* and then submitted into the Trust portal. After the project ideas are submitted, the Trust pulls the project idea applications from the portal and reviews and provides comments on the Project Ideas to ensure projects are unique and not duplications of past projects. Once comments are addressed, the Final Project Ideas are submitted into the Trust Portal and a *Project Ideas Scoring Meeting* is initiated and led by EPA. The GIT Chairs, Coordinators and Staffers attend this *Project Ideas Scoring Meeting* to present the Project Ideas, and again, ensure no duplicate projects. After the *Project Ideas Scoring Meeting,* all GIT Chairs, Coordinators and Staffers score each project idea using a scoring rubric and instructions provided by EPA at the meeting. All scores are submitted into the Trust Portal and results are provided to the GIT Chairs. The GIT Chairs will collaborate to form a consensus set of prioritized projects based on available funding levels and will submit a list of proposed projects for funding to the CBPO Director for approval. A sample Phase 1 Project Idea is included in Appendix A-2.

A.1 Initial Steps to Prepare a Phase 1 Project Idea

Goal Implementation Team Description – The first step of a Phase 1 Project idea is to identify one of the six GITs or STAR associated with the Project Idea, as approved and defined by the CBP. After at GIT is described, a GIT Technical Lead for the Project Idea should be identified. If this Project Idea is ultimately selected to move forward, the person identified as the GIT Technical Lead will be responsible for reviewing and recommending the selected contractor and will also review and approve the selected contractor's work for the duration of the project. The table below provides guidance for the GIT Section.

Content	Description and Guidance
Goal Implementation Team (GIT)	As defined by the Chesapeake Bay Program and described below: • Sustainable Fisheries Goal Implementation Team (GIT 1) • Habitat Goal Implementation Team (GIT 2) • Water Quality Goal Implementation Team (GIT 3) • Maintain Healthy Watersheds Goal Implementation Team (GIT 4) • Fostering Chesapeake Stewardship Goal Implementation Team (GIT 5) • Enhance Partnering, Leadership and Management Goal Implementation Team

	(GIT 6) • Scientific, Technical Assessment and Reporting (STAR) Team Communications Team

Proposed GIT Technical Lead: Projects selected for funding will be assigned a GIT Technical Lead by the GIT Chair during Phase 1, who will work with the Trust to prepare the selected projects for the contracting phase and overseeing the project through to completion. The GIT Technical Lead may be the individual who submitted a project idea or another individual that is technically competent as assigned by the GIT Chair. The table below provides guidance for the GIT Technical Lead Section.

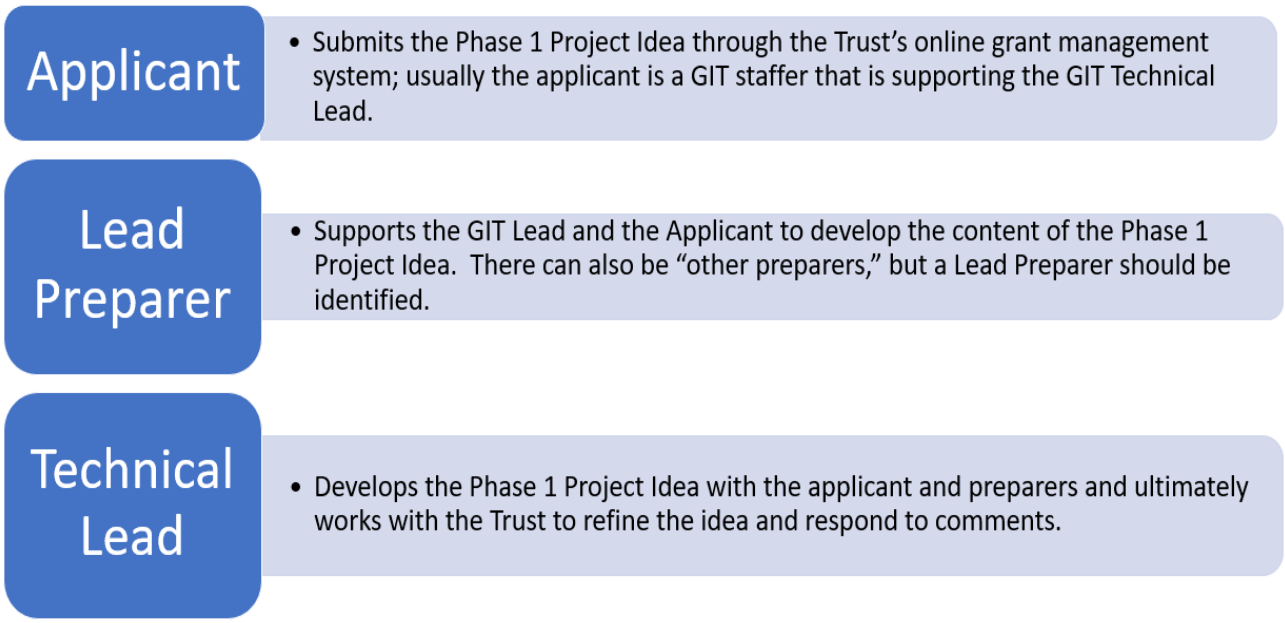
Content	Description and Guidance
Proposed GIT Technical Lead	A GIT Technical Lead should be identified at the time the Table 1 is submitted. If this project idea is selected to move forward for funding, the person identified as the GIT Technical Lead will work with the Trust to refine the project idea into a detailed scope of work (Table 2). GIT Technical Leads provide overall management of the project, from the idea phase in Table 1 to ultimately overseeing the project through to completion. GIT Technical Leads cannot be a part of the bidding team or financially be involved in the project. Provide the following for the GIT Lead: 1) First and Last Name, 2) Organization, and 3) email address.

Preparers: In addition to the GIT Technical Lead described above, a GIT Applicant and GIT Preparers are also identified to submit and author the Project Idea. The Phase 1 Project Idea is submitted by the GIT Applicant through the Trust's Online Grants Management System Portal (online portal) as directed by the GIT Technical Lead, GIT Lead Preparer, and any other Preparers. It is important to note that *only* the GIT Applicant can access and submit the form (it is possible for the Trust to transfer the form to someone else's account, if necessary). During Phase 1, the GIT Applicant, GIT Technical Lead, and GIT Lead Preparer can be the same contact. All three of the contacts will receive email notifications throughout the Phase 1 process from the Trust's online portal. The table below provides guidance for the *Preparers* Section. See Appendix A-3 for instructions on using the Trust's online portal.

Content	Description and Guidance
Preparers	List names of all parties who were part of developing the content of this table; list first the lead preparer (the point of contact for questions/clarification). These entities will not be allowed to bid on the scope of work during the Request for Proposals (RFP) stage. Provide the following for each Preparer: 1) First and Last Name, 2) Organization, and 3) email address.

Avoiding a Conflict of Interest: During this initial stage it is acceptable for any team member to suggest a project idea. However, after Phase 1 is complete, a GIT Preparer must step aside if either: the GIT Preparer's organization will submit a bid for the project idea OR an organization affiliated with a GIT Preparer(s) will submit a bid for the project idea. Additionally, a GIT Coordinator/Staffer must step aside if an organization affiliated with a GIT Coordinator/Staffer(s) will submit a bid for the project idea.

The illustration below describes the roles of the Applicant, Lead Preparer, and GIT Technical Lead:



Project Title: The next step is to determine a succinct but informational project title in ten (10) words or less. The table below provides guidance for the *Project Title* Section.

Content	**Description and Guidance**
Project Title (10 words or less)	The title should be short and give a high-level view of what the project is trying to accomplish. Creative and catchy is fine only if it also captures the real purpose of the work. (Recent examples from previously funded GIT projects include: *Development of Cost-Effective Methods to Measure Site-Specific Denitrification Rates for the Proposed Oyster Restoration Best Management Practices*; *Cultivating and Strengthening Partnerships with Underrepresented Stakeholders*; *Synthesis of Shoreline, Sea Level Rise, and Marsh Migration Data for Wetland Restoration Targeting*).

Project Type: The last initial step is to describe the type of project that is proposed, including describing whether the project is a Metric Development and Tracking Project (and if so, what type) and/or a Logic and Action Plan Implementation Project (and if so, what type). The table below provides guidance for the *Project Type* Section.

Content	**Description and Guidance**	
Example Project Type (Describe the type of project submitted)	<u>Metric Development and Tracking Projects:</u> Support for science needed to develop metrics Metric/indicator development Performance measure development Monitoring/tracking program	<u>Logic and Action Plan Implementation Projects:</u> Economic modeling Database development Policy research and recommendations Training Mapping, lands assessment

	development Data collection program development Assessments of data to evaluate metric progress Modeling support Other (please describe)	Baseline analyses Environmental monitoring/demonstration Other (please describe)

A.2 Next Steps to Describe Project Outcomes and Provide Justification for Project Idea

Proposed Project Outcomes: The next steps in the Phase 1: Development of Project Ideas includes describing how the project idea will address components of the outcome's management strategy and logic and action plan by responding to needs, gaps, factors, planned actions or barriers that have been identified. Project Outcomes are described as the changes you expect to see as a result of the work being completed. The table below provides guidance for the *Proposed Project Outcomes* Section.

Content	Description and Guidance
Proposed Project Outcomes	Project outcomes are the changes you expect to see as a result of the work being completed. Examples of Project *Outcomes* could be increased knowledge around how fish are changing habits/will change habits due to climate change; future fish ladders will be more successful due to readily available improved design standards; future fish passage policies will be reflective of resulting research.

Project Justification: The project justification is very similar to the project rationale or the project background and basically answers the questions: Why is this project important and why does it need to be completed? Write the project justification carefully to be able to support the arguments with facts and data that are specific and necessary to explaining the project to colleagues. The project justification should explain the questions below:

- Why is the project necessary and what it will do?
- What benefit will the project have in making progress on elements of the Management Strategy and Logic and Action Plans?
- Which problems, issues, or barriers will be solved or overcome by the project?
- To what extent does the project build on, continue, or improve previous work?
- How is this project important to the other GITs?

Because you are justifying the project to your colleagues, this is the most important section of Phase 1. If you can explain that there is a good reason to fund the project and that there is a need that it will address, the project idea has a much better chance of being funded. Project justification is about explaining why we need to implement a particular solution to a problem, issue, or barrier.

Content	Description and Guidance
Project Justification (500 words or less)	This is the elevator speech - why is this work important to the over-arching goals? Why is it important to the other GITs? How does this work build on previous work? Be detailed but succinct in the answer.

This content of the *Proposed Project Outcomes* and *Project Justification* in Phase 1 is important because if the project is approved, it becomes the basis for the *Purpose and Outcomes* in Phase 2, which defines the expectations of the anticipated work for the project. The table below provides guidance for the *Project Justification* Section.

A.3 Defining Project Steps and Project Cost

Proposed Project Steps and Timeline: In this section, describe in detail all of the *major steps* required to accomplish the proposed outcomes and address the problem, issue, or barrier identified in the P*roject Justification* Section above. It is sometimes useful to start with the project goals and work backwards. Include any meetings with GIT teams and other relevant stakeholders in this section. The table below provides guidance for the *Project Steps* Section.

Content	Description and Guidance
Proposed Project Steps and Timeline	List all the steps required to accomplish the project goals. Make sure to include any meetings with GIT teams and other relevant stakeholders (try to quantify number of meetings anticipated); a step to review draft deliverables by relevant stakeholders; and a step for the contractor to refine the deliverables after draft review. Indicate whether the methods by which a contractor will be expected to undertake the work are well known or whether you intend for the bidders to propose the methodology. Assume that work will start in June 2022.

Estimated Costs: After the *Projects Steps* are defined, the initial cost for the overall project can be estimated. The table below provides guidance for the *Estimated Costs* Section.

Content	Description and Guidance
Estimated Costs	Provide an estimate of the project cost (generally $25,000-$100,000). Estimating accurate budgets can be a challenge. Some tips to improve budget accuracy: to start, estimate number of the hours and other costs like supplies and travel that it would take to accomplish each of the steps identified above. Contractors can range from approximately $50 to $150 per hour (when indirect costs are factored in). Include the time it would take for the contractor to attend any meetings. Finally, account for contractor time to revise final products to incorporate stakeholder feedback.

A.4 Coordinating with the CBP Functional Areas

The CBP functional areas that must be consulted early in project formulation include the Communications Workgroup, the Geographic Information Systems (GIS) Team, the Information Technology (IT) Team, the Web/Creative Team, and the Science Prioritization Team.

The table below provides guidance for the *Creative Team Components* Section.

Content	Description and Guidance
CBP Functional Areas (Yes or No)	Does this project involve components that require input from the following functional areas: Web/Creative, GIS, Communications, IT, and/or Science Prioritization Teams? It is important to get the project reviewed and vetted by these functional areas early in the GIT process. For example, if you are creating a new Website, coordination with the Web Team needs to occur in the Phase 1 Process so a plan can be devised for where the website will be housed and who will undertake long-term maintenance, etc. Similarly, if you are creating a new GIS data layer, coordination with the GIS Team needs to occur in the Phase 1 Process so a plan can be devised for the minimum requirements, where the layers will be housed, and who will undertake long-term maintenance, etc.

Source: https://www.chesapeakebay.net/documents/CBPO_Quality_Manual_Final_08April2020.pdf and https://www.chesapeakebay.net/documents/0643_001.pdf

Ensure that if the project idea involves components that require input from the functional areas, communication and coordination by the GIT Lead Preparer occurs at the Phase 1 step with the applicable Teams. Current contact information for each of the functional areas is included in the table below. Functional areas will not be scored or weighted, but coordination needs to occur. For the Table 1 Phase, there is a checkbox that confirms that the GIT Lead Preparer has coordinated with the appropriate functional areas (Yes or No to document that coordination has occurred).

Current Contact Information for EPA CBP Functional Areas		
Web/Creative Team Director of Development: Guy Stephens University of Maryland (410) 295-1316 gstephens@chesapeakebay.net	IT Team Data Center Manager: Brian Burch Environmental Protection Agency (410) 267-5736 burch.brian@epa.gov	GIS Team Leader: John Wolf U.S. Geological Survey (410) 267-5739 jwolf@chesapeakebay.net
Communications Team Coordinator: Rachel Felver Alliance for the Chesapeake Bay (410) 267-5740 rfelver@chesapeakebay.net	Science, Technical Analysis and Reporting (STAR) Chairs Bill Dennison UMCES dennison@umces.edu Scott Phillips, USGS swphilli@usgs.gov Strategic Science and Research Framework (SSRF)	GIT Funding Staffer (general questions): Caroline Johnson Chesapeake Research Consortium (410) 267-5721 Johnson.Caroline@epa.gov

A.5 Submitting the Phase 1 Project Idea

The Phase 1 Project Ideas will also be completed through the Trust's online portal: https://www.GrantRequest.com/SID_1520?SA=SNA&FID=35447.

See Appendix A-3 for instructions on using the Trust's online portal.

A.6 Summary of Components Required for Phase 1 Development of Project Ideas

The Phase 1 Development of Project Ideas required components are described in the table below:

Required Components of the Phase 1 Development of Project Ideas (Table 1)	
Goal Implementation Team (GIT)	As defined by the Chesapeake Bay Program and described below: • Sustainable Fisheries Goal Implementation Team (GIT 1) • Habitat Goal Implementation Team (GIT 2) • Water Quality Goal Implementation Team (GIT 3) • Maintain Healthy Watersheds Goal Implementation Team (GIT 4) • Fostering Chesapeake Stewardship Goal Implementation Team (GIT 5) • Enhance Partnering, Leadership and Management Goal Implementation Team (GIT 6) • Scientific, Technical Assessment and Reporting (STAR) Team • Communications Team
Proposed GIT Technical Lead	A GIT Technical Lead should be identified at the time the Table 1 is submitted. If this project idea is selected to move forward for funding, the person identified as the GIT Technical Lead will work with the Trust to refine the project idea into a detailed scope of work (Table 2). GIT Technical Leads provide overall management of the project, from the idea phase in Table 1 to ultimately overseeing the project through to completion. GIT Technical Leads cannot be a part of the bidding team or financially be involved in the project. Provide the following for the GIT Lead: 1) First and Last Name, 2) Organization, and 3) email address.
Annual Weighting Factors to Consider	Each year, annual weighting factors will be described, depending upon current program needs. In FY21, the following annual weighting factors are described for the Phase 1 Project Idea: 1. Project addresses a Diversity, Equity, Inclusion, and Justice (DEIJ) need. 2. Project addresses a Climate Change need. 3. Project addresses a Local Engagement need. 4. GIT Priority Project (one priority project identified per GIT). 5. Projects that address outcomes that are lagging in outcome attainability. Describe the extent to which the project addresses: 1. Diversity, Equity, Inclusion, and Justice; 2. Climate Change, and/or 3. Local Engagement ; 4. describe if your project is a GIT Priority, and 5. Describe if your project addressees an outcome lagging in attainability.
CBP Functional Areas (Yes or No)	Does this project involve components that require input from the following functional areas: Web/Creative, GIS, Communications, IT, and/or Science Prioritization Teams? If yes, have you communicated the project idea with the applicable functional areas and incorporated input (Yes or No)?
Preparers	List names of all parties who were part of developing the content of this table; list first the lead preparer (the point of contact for questions/clarification). These entities

	will not be allowed to bid on the scope of work during the Request for Proposals (RFP) stage. Provide the following for each Preparer: 1) First and Last Name, 2) Organization, and 3) email address.	
Project Title (10 words or less)	The title should be short and give a high-level view of what the project is trying to accomplish. Creative and catchy is fine only if it also captures the real purpose of the work. (Recent examples from previously funded GIT projects include: *Development of Cost-Effective Methods to Measure Site-Specific Denitrification Rates for the Proposed Oyster Restoration Best Management Practices*; *Cultivating and Strengthening Partnerships with Underrepresented Stakeholders*; *Synthesis of Shoreline, Sea Level Rise, and Marsh Migration Data for Wetland Restoration Targeting*).	
Example Project Type (Describe the type of project submitted)	<u>Metric Development and Tracking Projects:</u> Support for science needed to develop metrics Metric/indicator development Performance measure development Monitoring/tracking program development Data collection program development Assessments of data to evaluate metric progress Modeling support Other (please describe)	<u>Logic and Action Plan Implementation Projects:</u> Economic modeling Database development Policy research and recommendations Training Mapping, lands assessment Baseline analyses Environmental monitoring/demonstration Other (please describe)
Proposed Project Outcomes	Project outcomes are the changes you expect to see as a result of the work being completed. Examples of Project *Outcomes* could be increased knowledge around how fish are changing habits/will change habits due to climate change; future fish ladders will be more successful due to readily available improved design standards; future fish passage policies will be reflective of resulting research.	
Project Justification (500 words or less)	This is the elevator speech - why is this work important to the over-arching goals? Why is it important to the other GITs? How does this work build on previous work? Be succinct in the answer.	
Proposed Project Steps and Timeline	List all the steps required to accomplish the project goals. Make sure to include any meetings with GIT teams and other relevant stakeholders (try to quantify number of meetings anticipated); a step to review draft deliverables by relevant stakeholders; and a step for the contractor to refine the deliverables after draft review. Indicate whether the methods by which a contractor will be expected to undertake the work are well known or whether you intend for the bidders to propose the methodology. Assume that work will start in June 2022.	
Estimated Costs	Provide an estimate of the project cost (generally $25,000-$100,000). Estimating accurate budgets can be a challenge. Some tips to improve budget accuracy: to start, estimate number of the hours and other costs like supplies and travel that it would take to accomplish each of the steps identified above. Contractors can range from approximately $50 to $150 per hour (when indirect costs are factored in). Include the time it would take for the contractor to attend any meetings. Finally, account for contractor time to revise final products to incorporate stakeholder feedback.	
Cross-Outcome Benefits	List any cross-outcome or cross-goal benefits succinctly (Appendix A-2 includes examples).	

APPENDIX A-2: EXAMPLE PROJECT IDEA (TABLE 1)

Public Access Research - Benefits and Barriers Across the Chesapeake Bay Watershed	
Goal Implementation Team (GIT)	Fostering Chesapeake Stewardship Goal Implementation Team (GIT 5)
Proposed GIT Technical Project Lead	Jackie Kramer Jackie_Kramer@nps.gov National Park Service
CBP Areas of Focus	This project would address the following areas of focus: • Diversity, Equity, Inclusion, and Justice through identification of underrepresented populations not currently engaged in public access and by determining what barriers prevent traditionally underserved populations from utilizing public access sites. • Local Engagement through increasing the number and diversity of local citizen stewards and instilling a civic responsibility to maintain and restore the Bay's natural resources • This project is a GIT Priority Project for GIT 5
CBP Functional Areas (Yes or No)	Yes, coordination has occurred.
Preparers	Olivia Wisner, Chesapeake Research Consortium, wisnero@chesapeake.org
Project Title (10 words or less)	Public Access Research - Benefits and Barriers Across the Watershed
Project Type (Describe the type of project submitted)	<u>Metric Development and Tracking:</u> -Performance measure development -Monitoring/tracking program development -Data collection program development <u>Logic and Action Plan:</u> -Economic modeling -Policy research and recommendations -Mapping -Baseline analyses
Proposed Project Outcomes	This project has two proposed outcomes. First is increased knowledge around how residents in the Chesapeake Bay Watershed utilize public access sites and the relationship between usage and practicing stewardship behaviors. The second is increased knowledge around what barriers, real or perceived, prevent traditionally underserved populations from utilizing public access sites. Stewardship behaviors include taking individual actions that restore local streams, reduce pollution, protect the environment, improve their communities, etc. The final deliverable of this project is a report of recommendations that outlines how residents utilize public access sites, how to encourage stewardship behaviors in users, and how to better address the barriers to public access that impact underserved populations of the watershed. This final report will be distributed to the states in the watershed where they will determine the best way to implement the recommendations. To achieve the first outcome of this project the selected contractor will research how residents of the watershed use public access sites. The contractor will be responsible for determining how input from residents will be gathered. The watersheds within the Chesapeake Bay watershed will be randomly selected for analysis. A mix of urban and rural watersheds should be represented. Some questions that the workgroup is interested in answering are: How are residents utilizing public access sites? If they do utilize access sites, what are the benefits they receive? What behaviors are associated with those that utilize public access? Are public access users adopting stewardship behaviors? This can help us determine how using or not using access relates to attitudes and predispositions related to restoration and protection of natural resources.

	To achieve the second outcome of this project the selected contractor will research how underserved populations are utilizing or not utilizing public access sites. The contractor will identify what barriers prevent underserved populations from using public access sites. The contractor will determine how underserved populations are defined and involved in the project. Barriers could include factors such as financial constraints, cultural background, language, transportation, proximity, instructional/engagement programing, equipment, or lack of information on availability of sites. Understanding how residents use public access sites, understanding the relationship between usage and stewardship behaviors, and identifying barriers to access will allow the contractor to formulate recommendations in a report that could enable more residents to access the water. The two outcomes paired with the report of recommendations, will guide jurisdictions as they design and develop new sites or augment existing sites in order to reach a wider audience. The project would not include obtaining a list of new access sites currently being planned. Annually, the workgroup collects new access sites that have been opened by the jurisdictions that signed on to the 2014 Watershed Agreement. Because many factors determine where to construct public access sites, we envision that the contractor will identify geographic areas that are underutilized rather than specific locations.
Project Justification (500 words or less)	There is currently limited information on specific barriers that may be preventing residents of the watershed from utilizing public access. While generalizations do exist, specific information and/or attitudes and predispositions from underserved populations are not readily available. This project would be helpful in determining what needs to be done in order to engage underserved populations in enjoying the Bay's resources and increasing a new and expanded group of watershed stewards that represent the regions diverse population. Moving users to stewards is critical to the health of the Bay and its tributaries. The data will also be used to help inform future public access site development/enhancement and provide support for greater financial/capacity for site development and maintenance as well as programing and educational efforts."
Proposed Project Steps and Timeline	Step 1: 3/1/2021 to 3/31/2021 A virtual meeting will be held with the selected contractor and the Public Access Workgroup will confirm project scope and schedule with the selected contractor. Step 2: 3/1/2021 to 5/1/2021 Contractor will develop methodologies to better understand how residents are using public access sites, how residents of under-resourced communities are using public access sites, barriers to public access for under-resourced populations, and how the use of public access sites relates to participating in stewardship behaviors. Step 3: 5/1/2021 to 6/1/2021 Contractor will hold a workshop with the Public Access Workgroup to review methodologies chosen and to ensure a cross section of the watershed population is represented as outlined in Step 2. Public Access Workgroup will provide feedback to the Contractor and Contractor will make adjustments to the methodologies as needed. Step 4: 6/1/2021 to 10/30/2021 Contractor will conduct research in Step 2 and report results to the Public Access Workgroup. Results will be presented in a preliminary written report (Word Document) and presented via a workshop. Deliverables include workshop with the Workgroup and a draft report that includes an introduction, methods, results, conclusions and recommendations. Step 5: 11/1/2021 to 5/30/2022 The contractor will conduct additional research as required in response to Workgroup comments on preliminary report. Step 6: 6/1/2022 to 6/30/2022 Contractor will provide response to Public Access Workgroup relative to comments received about preliminary report including any additional research undertaken to response to Workgroup comments.

	Step 7: 7/1/2022 to 7/30/2022 Contractor will finalize research and develop final report that documents comments from Workgroup members, data collected, conclusions and identifies recommendations. The Final report should include methodologies, data collected, analysis of data collected, as well as recommendations on how to address barriers to public access. Step 8: 8/1/2022 to 8/31/2022 The Public Access Workgroup will distribute the report of recommendations to the states throughout the watershed. Individual jurisdictions will then determine how to best implement the suggestions.
Estimated Costs	$75,000.00
Cross-Outcome Benefits	•Identifies underrepresented populations not currently engaged in public access (Diversity outcome) •Increases the number and diversity of local citizen stewards and instills a civic responsibility to maintain and restore the Bay's natural resources (Citizen Stewardship, Environmental Literacy, Land Conservation, Diversity, Habitat, Water Quality, Healthy Watersheds •Enhances CBPO Cross GIT Mapping efforts to inform future conservation/restoration priorities"

APPENDIX A-3: INSTRUCTIONS FOR USING THE TRUST'S ONLINE PORTAL

GIT Table 1 Submission Instructions

1. Access the GIT Table 1 online form through the Chesapeake Bay Trust Portal using this link: https://www.grantrequest.com/SID_1520?SA=SNA&FID=35447

2. Log in or create an account:

   - If you have used the Trust's online portal before, log in with your email address and password.
   - If you have not used the Trust's online portal before, create a new account by clicking on the "New Applicants click here" button.
     - If you receive the following error message, "Invalid e-mail or password," when trying to create a new account, it means that you already have an existing account.
   - To reset your password, click on the "Forgot Password" button. You will receive an email with a temporary password. Use the temporary password to sign into your account. You will be prompted to change your password. Enter the temporary password in the "current password" field and enter your new password in the "password" and "confirm password" fields.

3. Complete the Table 1 online form:

   - The form may be saved and returned to later by clicking on the "save & finish later" button.
   - Contact Information Tab
     - Enter the contact information for the lead and other preparers and the GIT technical project lead.
   - Project Information Tab
     - Enter the project information including the GIT, project priority #, CBPO creative team component, project title, estimated costs, project type, project outcomes, cross-goal benefits, justification, project steps and timeline
   - Review and Submit Tab
     - Review your submission. When you are ready, click on the "Submit" button at the bottom of the page. To check that your submission was submitted successfully, click on return to your account and toggle the "show" drop down menu to "submitted applications."

After the deadline, the Chesapeake Bay Trust and EPA will review the project idea submissions. The Lead Preparer listed on the form will receive an email notification on whether or not their submission will move forward. The ones that are selected to move forward will be invited to complete the Table 2 online form. The Table 2 online form will be accessed by logging into the Trust's online portal with the same email address and password used to submit the Table 1 online form.

GIT Table 2 Submission Instructions

If your Table 1 project idea has been selected to move forward to Table 2, you will receive an email notification inviting you to complete the Table 2 online form.

1. Log in through the Chesapeake Bay Trust Portal using this link: https://www.grantrequest.com/SID_1520?SA=AM.

    - Enter your email address and password that was used to submit the Table 1 online form.
    - If you forgot your password and need to reset it, click on the “Forgot Password” button. You will receive an email with a temporary password. Use the temporary password to sign into your account. You will be prompted to change your password. Enter the temporary password in the “current password” field and enter your new password in the “password” and “confirm password” fields.

2. Click on the link titled "Chesapeake Bay Program GIT Project Idea Submission Table 2" to open the Table 2 form. If you have multiple Table 1 project ideas that were selected to move forward to Table 2, you will see multiple of these links. You will need to open each link and submit that project idea's Table 2 form.

3. The Table 2 form will pre-populate with information from your Table 1 project idea submission. You may update or replace this pre-populated text, as needed. When you are ready to submit your Table 2, click on the submit button.

You may click on the "Return to My Account" button at any time to return to the home page and access any other Table 2 forms.

If you have any questions or need assistance, please contact the Chesapeake Bay Trust at 410-974-2941 or grantadmin@cbtrust.org.

APPENDIX B:

APPENDIX B-1:

PHASE 2: REFINEMENT OF PROJECT IDEAS INTO SCOPES OF WORK STEPS (TABLE 2)

APPENDIX B-2: EXAMPLE SCOPES OF WORK (TABLE 2)

APPENDIX B-3:

EPA QUALITY ASSURANCE PROJECT PLANT (QAPP) PROCESS

APPENDIX B-1: PHASE 2 REFINEMENT OF PROJECT IDEAS INTO SCOPES OF WORK STEPS (TABLE 2)

The Phase 2: Refinement of Project Ideas into Scopes of Work will outline exactly what the proposed project will accomplish, why the project is important, what methods should be used, how the outputs will be used, the general timeline and milestones, and details regarding all requested deliverables. As you develop the Scope of Work, fully consider the project, the work needed to successfully complete the project, and the final product that will result from this effort. A review by a colleague not as familiar with the topic will identify areas where the scope of work may be vague to a contractor responding to the RFP. The Trust can also serve as a reviewer for draft scopes of work and provide feedback to the GIT lead. Successful Scope of Work documents will clearly convey to the potential applicant what you need the work to accomplish in order for them to compile the appropriate team members to complete a scope of work within the budget allotted and develop the deliverables that are needed. At Phase 2: Refinement of Project Ideas into Scopes of Work, preparers are no longer selling or justifying the project idea to colleagues but creating the foundation on which the project will be advertised to solicit bidders and to implement the project by contractors. A sample Phase 2: Refinement of Project Ideas into Scopes of Work is included in Appendix D.

B.1 Purpose and Project Outcomes

The purpose and *Project Outcomes* section should clearly define the expectations of the anticipated work for the project. This section also provides a project overview, including background information and applicable context for potential bidders. The goals of the project and the anticipated *Project Outcomes* should be clearly described. In this section, also outline the appropriate scale of the project, whether it is a Chesapeake Bay Watershed-wide project or a more locally focused restoration project. Finally, define the priority audience and/or the end-user that will use the final deliverables proposed for the project. The table below provides guidance for the Purpose and Project Outcomes Section.

Content	Description and Guidance
Purpose and Outcomes of the Project	Purpose and Need of the work –Why is this work needed? How does this project relate to current GIT efforts? Has any sentinel work been completed that would support this effort or be a starting point for the responding team? If so, please provide references. Are there any known barriers or obstacles for the proposed work? If so, please provide these barriers or obstacles. Overview and Background – Provide applicable context from any past work that has been completed that will inform this project. Goals of the project – What do you want this project to ultimately accomplish? How will this project help the Bay achieve the goals? Anticipated Outcomes –What do you expect the awarded contractor to accomplish? What do you need to be provided to you as an outcome of the work? Outline the appropriate scale of the project to assist the applicant to meet the project purpose and stay within the budget guidelines. Define the Geographic Area – Is the geographic scope of the project the Chesapeake Bay Watershed or a regionally-defined project area? Describe the End-User or Audience – Who will ultimately be using the information or data that are generated by this project? Detail how this product will be used by the

Content	Description and Guidance
	GIT or the priority audience or other end-user.

B.2 Project Steps and Timeline

This section describes the detailed steps and duration of the work to be accomplished (in months) by the contractor to produce the final deliverable(s). List all of the steps required to accomplish the project goals. It is important to include *any interim deliverables to each step if applicable to build up to the final document/deliverable.* The GIT Applicant should provide up to eight steps and dates of requested deliverables as well as the project beginning and end dates. Begin by describing each step (and any associated deliverables) in chronological order of completion. Critically think about each step and map out how the project will ultimately be completed successfully. Also, consider how the project will be completed or could be phased (e.g., Step 1 is research, Step 2 is pilot program, and Step 3 is monitoring) to work towards completion, which is also useful when updating or confirming the budget. Describe the steps in detail but avoid being too prescriptive if you want professional input in the applicants' response to the RFP. Ensure time is allowed for review and refinement with appropriate stakeholders (if input from a group is necessary to make a decision to move forward). As stated above in Section 6.1, the maximum bid amount should also be finalized and adjusted while writing the Project Steps and Timeline; however, any adjustments that raise the cost are not guaranteed to receive funding at this stage. The budget can be estimated using the Trust's Financial Management Spreadsheet located here: https://cbtrust.org/forms-policies/. Estimating labor (most consultants charge between $85 to 150/hour), materials, equipment, etc. for each of the Project Steps can help confirm that the tasks and timeline are consistent with the proposed budget and the maximum bid amount is both appropriate and realistic. The table below provides guidance for the Project Steps and Timeline Section.

Content	Description and Guidance
Project Steps (including Methods) and Timeline	Provide the detailed steps and timeline of the work to be accomplished by the contractor, including information on methods, duration (in months), and due dates. List all of the steps required to accomplish the project goals. Include a project timeline, including the start date and the end date. **Assume that work will begin 1 May 2022**. *Add deliverables to each step as necessary to build up to the final document/deliverable.* **How do you expect this project to be completed?** Detail the steps that will be needed to develop the deliverable(s). List any process methods (e.g., perform a literature review, conduct a workshop with experts in the field, develop the final recommendations) that should be included in the effort. **Will data be collected? If so, list what kind of data will be gathered and what type of protocols should be used for data compilation and analysis?** Consider requesting an experimental design to ensure that the applicant will measure and monitor the project in a scientifically valid manner that produces robust results. Examples include: Stakeholder meetings will be used to vet the product and receive end user feedback for final product refinement Research will be conducted on rainfall patterns in the coastal zone Workshops will be held to bring experts together and reach consensus on "X" issue Investigate abundance of fish for living shoreline practices compared to bulkheads

	over the last ten years. Deliver the raw data with the final report. **What methods do you want the contractor to use?** Detail any standard operating procedures or best practices in the field that must be followed. Also, list any methods or data that should be avoided. This is where preparers detail what methods are known for the body of work needed. **Are the tasks and timeline being requested consistent with the proposed budget?** Breaking down the project into individual steps can help determine if the maximum bid amount is both appropriate and realistic. **Do you want to see draft deliverables before the final deliverables and project end date?** If you want the contractor to respond to your feedback and update their deliverable(s) accordingly you can request phased deliverables in each of the project steps that the contractor can build into their application and timeline. If you requested a final report as one of the deliverables, account for time before the project end date for revisions between contractor and GIT, if you anticipate and want to provide comments that will be addressed and included in the deliverable(s). Consider developing due dates based on any upcoming GIT meetings or any other internal milestones where this information could be used, such as: Step 1: Contractor sends draft recommendations (Word) from workshop convening coastal erosion experts Step 2: GIT responds to draft recommendations Step 3: Contractor revises and provides final recommendations in a presentation to the GIT and a final report as a word document.

B.3 Will my Project Require a QAPP?

Environmental data gathered used by Chesapeake Bay scientists, researchers, and policy makers must be technically sound and scientifically defensible. Organizations funded by EPA that generate, compile, or use existing environmental data are required to establish and implement a quality system. This section identifies if there is a need for a Quality Assurance Project Plan (QAPP). A QAPP is required when data are collected directly by a contractor or in some cases, when secondary data are used.

The QAPP is developed by the contractor and approved by the Quality Assurance Officer at the CBPO. The QAPP describes the activities of environmental data operations for projects involved with acquisition of environmental information whether generated from direct measurements, collected from other sources, or compiled from computerized databases. The QAPP documents the results of the technical planning process in one place (i.e., the QAPP) to provide a clear and complete plan for the environmental data operation and the quality objectives. The QAPP provides project specific details that include project management, data sources and acquisition, assessment and oversight, and data review and usability. The QAPP provides up-front planning that is clearly communicated to all parties the specifications for implementation of the project to ensure the quality objectives are met. QAPPs must be nested under approved Quality Management Plans (QMPs) written by the contract organization.

The QAPP is an important tool. Consider if your project will use existing data or collect new data in the proposed scope of work. The detailed instructions for determining whether your project needs a QAPP is included in Appendix B-2. The table below provides general guidance for the QAPP Process and additional information.

Content	Description and Guidance
Quality Assurance Project Plan (QAPP) Requirement	This section identifies if there is a need for a Quality Assurance Project Plan (QAPP). General guidance on QAPP's can be found on the Environmental Protection Agency (EPA) QAPP website: https://www.epa.gov/osa/elements-quality-assurance-project-plan-qapp-collecting-identifying-and-evaluating-existing. If data originates from sources other than federal reports and peer reviewed journals, a statement on data quality suitability will be required in the final report. When submitting a proposal for a scope of work that requires a QAPP, the Bidder should understand and account for any costs associated with completing this component of the work. Additional information about QAPP's can be found in the following documents: 1. *EPA Requirements for Quality Assurance Project Plans*, QA/R-5, March 2001 *2. Guidance for Quality Assurance Project Plans*, QA/G-5, December 2002 (http://www.epa.gov/quality/qs-docs/g5-final.pdf) In some cases when secondary data are used, a QAPP is required. Guidance for developing a QAPP for secondary data can be found at https://www.epa.gov/quality/quality-assurance-project-plan-requirements-secondary-data-research-projects.

B.4 Project Deliverables

List and explain the deliverables that are required for the project. Detailed deliverables should be defined in each of the project steps and overall produces should be described in the Deliverables section. To the extent possible, describe the format in which information should be delivered in draft and final products. Specify what interaction, technical input, comment periods and follow-up responses, will be required during the development of the product. If data is generated, provide guidance on data delivery to the GIT. The table below provides guidance for the Overall Project Deliverables and additional information.

Content	**Description and Guidance**
Overall Project Deliverables	This section outlines the specific final products that will need to be submitted and approved by the GIT and Trust teams in order to successfully meet the terms of the contract. **What format is expected for the information to be delivered to the GITs?** Describe data specifications and format requirements to allow bidders to develop a proposal and budget to accommodate them. Examples include: • Map of the sample sites and the GIS files associated with the map • White paper with annotated bibliography • Supporting research should be from the last 10 years only • Final report in Word Format • Excel spreadsheet • GIS data layer (with requirements described) • Website development **If the project collects data, do you want the data and in what format would you like the data delivered?** You may consider requesting an experimental design in the methods section to make sure that the applicant captures all the factors needed to answer the question posed. Consider if the project will use or collect data that will be required to develop a Quality Assurance Project Plan

	(QAPP). QAPPs are covered in the Section 6.2.3 above. Finally, the experimental design, methods, data collected, and data analysis must be carefully considered and conducted to produce useful deliverables for the project. Example can include: • Raw data is required with the final report • Summary of data that was used for the findings is required with the final report submission Map of the study area including the sample sites and associated GIS files are required with the final deliverables

B.5 Stakeholder Participants

This section lists the project participants that will need to be engaged throughout the project to meet the deliverables of the scope of work. List all stakeholders that will be consulted during each phase of the project. Include names of working groups, steering committees, etc. Provide the following: 1) First and Last Name, 2) Organization, and 3) email address.

Content	**Description and Guidance**
Stakeholder participants	**Who do you think should be involved with the project? Who is the audience? Are there certain audiences that should be targeted for this effort?** Examples include: • Local governments; Communities vulnerable to sea level rise; Researchers that specialize in fish abundance of the Chesapeake Bay coastal zone **What *Outcomes* will be developed with the stakeholder participants?** List any anticipated or required stakeholder groups that should be included in the study.

B.6 Qualifications of Bidders

Provide the expertise and qualifications of the team of experts that will be needed to do this work. Describe the expertise that will be needed for the project. Determine and list the skills that are needed to successfully conduct the work. List clear qualifications and any certifications based upon the project type (curriculum development survey implementation, software development, etc.). It is best to be specific about what skills, abilities, and/or experience do you want the bidders to have based on each Scope of Work (if a model is the final deliverable ensure that qualification includes past experience with this model). Also, consider any certifications that bidders should have on their team (does an engineer or designer with a PE in the State of MD need to be in the qualifications section?). The table below provides guidance for the Qualifications of Bidders and additional information.

Content	**Description and Guidance**
Qualifications of Bidders	**What skills, abilities, and/or experience do you want the bidders to have?** **How do you want these skills, abilities, and/or experience to be conveyed?** List the qualifications needed by the project team to successfully complete the work. For example, if the scope of work requires understanding and using the Chesapeake Bay model, then the project team will require knowledge of the Chesapeake Bay model and a team with expertise in modeling. Examples

	include: • Professional engineer is needed to review the data gathered and compile the final recommendations • Project team must include one or more modeler(s) that are familiar with the CBPO Estuary Model Behavior change professional must conduct this work

B.7 List of Potential Bidders

Provide the contact information (name, organization, and email address) for at least three (3) entities or groups that you think can do this work successfully. The Trust will then provide the RFP to these groups. Per the federal procurement guidelines, the project ideas ***must*** be open to competitive bidding. GIT leads should also send the RFP, when open for bids, to their network and specific entities they think would be a good fit for their scope of work. The Trust advertises the RFP well beyond the bidders list, including the below:

- Sends to all HBCUs and DBE organizations in the Chesapeake Bay Watershed
- Sends to all current and past Trust contractors in applicable and similar programs.
- Posts advertisement on the Chesapeake Network (https://www.chesapeakenetwork.org/)

[Avoiding a Conflict: Bidders provide must not have been involved in the development of Phase 2: Refinement of Project Ideas into Scopes of Work].

B.8 List of Potential Reviewers (of Submitted Applications)

The Trust uses external reviewers to evaluate the bids (proposals submitted. Provide contact information (name, organization, and email address) for at least three (3) potential reviewers beyond the GIT Technical Lead. These reviewers should be experts in the field. In addition, these reviewers should not have a conflict of interest with the potential bidders, such as a financial stake in the potential bidder company, be on the staff of a potential bidder, or assist the potential bidders with their proposal. The Trust will reach out to the reviewers to complete reviews in order to select the most qualified bidder and report the results to CBP.

B.9 Submitting the Phase 2: Refinement of Project Ideas into Scopes of Work

The Phase 2 Scopes of Work are submitted by the GIT Applicant through the Trust's Online Grants Management System Portal (online portal) as directed by the GIT Technical Lead, GIT Lead Preparer, and any other Preparers.

APPENDIX B-2: EXAMPLE SCOPE OF WORK (TABLE 2) FOR A DATA-FOCUSED PROJECT

Forage Indicator Development - Using Environmental Drivers to Assess Forage Status	
Goal Implementation Team (GIT)	Sustainable Fisheries Goal Implementation Team (GIT 1)
Maximum Bid Amount	$60,000.00
Purpose and Outcomes	Forage is a critical component of the Chesapeake Bay ecosystem as prey for key species including striped bass and blue crabs. Tracking and assessing the status of the forage base is an important outcome of the Chesapeake Bay Watershed Agreement, to ensure that there is enough prey available to sustain predator populations (https://www.chesapeakebay.net/documents/FINAL_Ches_Bay_Watershed_Agreement.withsignatures-HIres.pdf). To achieve this outcome, the Chesapeake Bay Program's Forage Action Team has committed to developing a suite of indicators that will evaluate the status and trends of key forage species and associated habitat throughout the Bay. Forage indicator development is a top priority of the Forage Action Team and is a primary action listed in the 2020-2021 Forage Fish Outcome Logic and Action Plan (https://www.chesapeakebay.net/documents/22031/2020-2021_forage_logic_and_action_plan_.pdf). The goal of this project is to develop population status indicators for two key forage taxa in the Chesapeake Bay based on quantitative relationships with environmental drivers. Diet analyses conducted as part of the 2014 Scientific and Technical Advisory Committee Workshop identified bay anchovy (*Anchoa mitchilli*) and polychaetes (Subphylum Polychaeta) as the most important finfish and benthic prey for key predators in the Bay and will therefore be the focus of this project (https://www.chesapeakebay.net/documents/22031/final_stac_forage_workshop.pdf). The primary environmental factors examined as part of this project should be the rate of springtime warming (i.e. how quickly water temperatures reached a threshold in spring) and the Atlantic Multidecadal Oscillation (AMO), as a previously-funded study determined that these factors significantly affect the summer abundance of key forage taxa in the Chesapeake Bay (https://www.chesapeakebay.net/documents/Forage_Final_Report_2017_final-draft_24oct17.pdf). Therefore, these environmental factors and their quantitative relationships with summer abundance can be used to develop an indicator of forage status in the Bay. Understanding how environmental factors affect forage abundance is important for understanding the broader ecosystem health of the Chesapeake Bay. Forage indicators can also be used in fishery and habitat management to guide decision-making using an ecosystem-based approach. These environmental factors and, consequently, forage abundance will also be directly affected by climate change. By coordinating indicator development efforts with the Climate Resiliency Work Group (CRWG), we can ensure that this project develops informative, useful indicators that can be used by both the Forage Action Team (FAT) and the CRWG. For example, a forage indicator based on springtime warming or the AMO climate index can also provide insight into the effects of climate change on prey availability (i.e., forage abundance or biomass) in the Chesapeake Bay. This project will improve understanding of environmental effects (e.g., water temperature and warming rates, climate indices) on the population status (i.e., abundance, biomass) of two key forage taxa in the Chesapeake Bay. The forage indicators developed as a result of this project can be used to inform fishery and habitat management decisions in an effort to maintain prey availability for ecologically and

	economically important finfish predators. In addition to providing a stepping stone toward ecosystem-based management, these indicators will also improve understanding of climate change effects on forage populations and, consequently, the Chesapeake Bay ecosystem.
Project Steps and Timeline	**Step 1: 3/15/2021 to 4/21/2021** Meet with the Forage Action Team (FAT) at project initiation to discuss the project goals, deliverables, timeline, data sources, and analytical approach. The FAT will act as the steering committee for this project, with additional input from other stakeholders throughout the project period. The contractor will meet with the FAT at the end of each project quarter to discuss progress. The GIT Lead will work with the FAT Coordinator and the contractor to schedule and coordinate the kick-off and quarterly progress meetings. In addition to quarterly meetings, progress reports will also be submitted to the Chesapeake Bay Trust (CBT), the GIT Lead, and the FAT at the end of each project quarter. During this timeframe, the contractor should also prepare and submit a draft Quality Assurance Project Plan (QAPP) to the Environmental Protection Agency (EPA), allowing 30 days for review. After receiving EPA feedback on the draft QAPP, the contractor should submit a final QAPP with appropriate edits and the necessary signatures back to the EPA for final approval. Guidance for developing a QAPP for secondary data can be found at https://www.epa.gov/quality/quality-assurance-project-plan-requirements-secondary-data-research-projects. This project will be covered under the Chesapeake Bay Program Quality Management Plan (QMP), so the following statement should be included in the QAPP: "All data-related tasks being carried out as a part of this project are covered by the U.S. EPA Region 3 Quality Management Plan." Deliverables for this Step include: • Editable draft QAPP • Final (signed) QAPP in PDF format • Quarterly progress reports, including a project update, issues and concerns, and any additional information that will improve the project going forward, submitted to the CBT, FAT, and the GIT Lead as a PDF at the end of each project quarter
	Step 2: 4/21/2021 to 6/14/2021 Compile all relevant biological and environmental data into a database (e.g., Excel, Access). This should include the Atlantic Multidecadal Oscillation (AMO), water temperature data, and bay anchovy and polychaete abundance/biomass data from the Chesapeake Bay (both MD and VA) and its tributaries. The contractor may choose to examine additional environmental variables (e.g., flow, dissolved oxygen/hypoxia), time-permitting, with the approval of the GIT Lead and the FAT. The FAT and other CBP partners and stakeholders can provide support for identifying and accessing appropriate datasets. Once all the appropriate data are collected and examined, the contractor should develop an analytical framework including the data, variables, models, and spatial/temporal scales that will be used to assess the effects of environmental conditions on forage populations. The contractor should expect to present this framework to the FAT and GIT Lead at the progress meeting at the end of the first project quarter. Suggested data sources include (but not limited to): - Chesapeake Bay Fishery-Independent Multispecies Survey (Bay anchovy) - Chesapeake Bay Long-Term Benthic Monitoring and Assessment Program (Polychaetes) - Chesapeake Bay Multispecies Monitoring and Assessment Program (Bay anchovy) - Chesapeake Bay Program Water Quality Data (Water temperature) - MDNR Juvenile Striped Bass Survey (Bay anchovy) - MDNR Upper Bay Winter Trawl Survey (Bay anchovy) - NOAA Physical Sciences Laboratory Climate Data (AMO) - VIMS Juvenile Fish and Blue Crab Trawl Survey (Bay anchovy)

- VIMS Juvenile Striped Bass Seine Survey (Bay anchovy)

Deliverables for this Step include:

- Excel or Access database of all biological and environmental data and sources, submitted to the GIT Lead as an editable electronic file by the end of the first project quarter (6/14/2021)
- Presentation and PDF of the proposed analytical framework, submitted to the FAT and the GIT Lead by the end of the quarter
- Progress report, submitted to the CBT, FAT, and the GIT Lead as a PDF at the end of the quarter

Step 3: 6/15/2021 to 9/14/2021

Conduct analyses of environmental factors driving forage abundance using R statistical software. Statistical analysis will likely include the development of generalized linear models and delta-generalized linear models to predict summer forage abundance as environmental conditions change. Again, the contractor should primarily focus on springtime warming (water temperature) and the AMO as drivers of bay anchovy and polychaete populations, and should use the previous GIT-funded study as a reference for analysis and modeling methods (https://www.chesapeakebay.net/documents/Forage_Final_Report_2017_final-draft_24oct17.pdf).

Deliverables for this Step include:

- R modeling/analysis script (code) and model outputs, submitted to the GIT Lead as both an R file and a PDF by the end of the second project quarter (9/14/2021)
- Progress report, submitted to the CBT, FAT, and the GIT Lead as a PDF at the end of the quarter

Step 4: 9/15/2021 to 10/1/2021

Meet with the FAT and other CBP partners and stakeholders (e.g., Climate Resiliency Work Group, Fish Habitat Action Team) to discuss and coordinate indicator development options based on the results of the analyses. The team must decide if the environmental factors examined are in fact suitable indicators of bay anchovy and polychaete summer abundance in the Bay, and if a stand-alone indicator can be developed for each variable and taxa, or if composite indicators should be developed (e.g., if there is an interaction between the environmental variables). The experts in these workgroups should provide the contractor with advice for how to move forward with indicator development. The current vision is that the contractor will at least develop a time series of the environmental factors and the abundance/biomass of forage taxa. Ideally, the analyses would also identify thresholds at which environmental conditions significantly impact forage populations such that other more easily interpreted indicators can be developed (e.g., stoplight chart; red=bad/over threshold, yellow=neutral/near threshold, green=good/below threshold).

Indicator examples/resources:
- Chesapeake Bay Report Card (UMCES, Integration and Application Network)
https://ecoreportcard.org/report-cards/chesapeake-bay/bay-health/
- Bay Barometer (Chesapeake Bay Program)
https://www.chesapeakebay.net/documents/bay-barometer-18-19_final.pdf
- Indicators: Characteristics, Qualities, and Options
https://www.chesapeakebay.net/channel_files/23830/2016indicators_ppt_tango_star_sept.pdf100011

Step 5: 10/1/2021 to 12/14/2021

Develop indicator(s) of forage status for bay anchovy and polychaetes using the environmental factors deemed important in the analysis and in consequent discussions with the FAT. The data manipulation and visualizations should be conducted using R statistical software.

Deliverables for this Step include:

- R indicator script (code) and visualization outputs, submitted to the GIT Lead as both an R file and a PDF by the end of the third project quarter (12/14/2021)

	• Progress report, submitted to the CBT, FAT, and the GIT Lead as a PDF at the end of the quarter
	Step 6: 12/15/2021 to 3/14/2022 Prepare the final report for the project. The final report should include all R code and outputs in addition to the analytical approaches used, the results, and the final indicators developed. A draft report should be submitted to the GIT Lead and the FAT six weeks prior to the end of the project period. The team will provide edits and feedback in preparation for the final report. Deliverables for this Step include: • Editable draft report, submitted to the GIT Lead and the FAT by 2/1/2022 for review and feedback prior to developing the final report • Final report package, including the editable database, the R files and PDFs of all R scripts and outputs for modeling/analysis and indicator development, and the final indicator graphics, submitted to the CBT, FAT, and the GIT Lead by 3/14/2022
	Step 7: 12/15/2021 to 3/14/2022 Present the final project results to relevant stakeholders across the CBP such as the Sustainable Fisheries Goal Implementation Team and the Scientific, Technical Assessment, and Reporting team at either in-person meetings or via webinar. Final meeting with the CBP and NOAA Chesapeake Bay Office communications teams to discuss the project and results so they can develop communication products aimed toward the CBP and the general public. Deliverables for this Step include: • Presentation of final project results, submitted to the GIT Lead in PDF format by 3/14/2022
Stakeholder Participants	Stakeholders include: • Forage Action Team • Sustainable Fisheries Goal Implementation Team • Climate Resiliency Work Group • Scientific, Technical Assessment, & Reporting (STAR) Team • Fish Habitat Action Team • Habitat Goal Implementation Team
Deliverables	1. Editable draft QAPP 2. Final, signed QAPP in PDF format 3. Quarterly progress reports in PDF format 4. Excel or Access database in the form of an editable electronic file that includes all biological and environmental data used in the analyses and the sources 5. Presentation and PDF of the proposed analytical framework including the data, variables, models, and temporal/spatial scales to be used 6. Editable R file and PDF of the R modeling/analysis script (code) and model outputs 7. Editable R file and PDF of the R indicator script (code) and visualization outputs 8. Editable draft of the final project report 9. Presentation of the final project results in PDF format 10. Final report package that includes the editable database, the R files and PDFs of all R scripts and outputs for modeling/analysis and indicator development, and the final indicator graphics
Quality Assurance Project Plan (QAPP) Requirement?	Yes, a QAPP will be required for this scope.
Qualifications of Bidder	• Experience with fisheries and benthic survey data • Knowledge of R programming software • Experience developing indices and using various statistical models:

	- Generalized Linear Models (GLM) - Delta-Generalized Linear Models (ΔGLM) - Generalized Linear Mixed Models (GLMM) - Generalized Additive Models (GAM) • Proficiency with database software and development • Strong written and verbal communication skills • Familiarity with the concept of degree-days preferred • Experience writing QAPPs preferred
List of Potential Bidders	Virginia Institute of Marine Science (VIMS); mfabrizio@vims.edu University of Maryland Center for Environmental Science (UMCES); secor@umces.edu Smithsonian Institute; ospmail@si.edu Tetra Tech; bob.murphy@tetratech.com Anchor QEA; kolsen@anchorqea.com EcoAnalytics; rscott@ecoanalyticsllc.com
List of Potential Reviewers	Mandy Bromilow, ERT Inc and NOAA Chesapeake Bay Office, mandy.bromilow@noaa.gov Shadaesha Green, sgreen@umces.edu Gina Hunt, gina.hunt@maryland.gov David Bruce, david.bruce@noaa.gov Steering Committee Representatives: Maryland Department of Natural Resources (MD DNR) Virginia Marine Resources Commission (VMRC) Potomac River Fisheries Commission (PRFC) Atlantic States Marine Fisheries Commission (ASMFC)

APPENDIX B-2: EXAMPLE SCOPE OF WORK (TABLE 2) FOR A TRAINING-FOCUSED PROJECT

Increasing Diversity in the Chesapeake Bay Program Partnership Through Cultural Competency Training	
Goal Implementation Team (GIT)	Fostering Chesapeake Stewardship Goal Implementation Team (GIT 5)
Maximum Bid Amount	$15,000
Project Outcomes	This project will allow a total of 60 CBP partnership members and staff[1] to participate in a full-day Cultural Competency Training that would increase their capacity to understand, respect and embrace cultural diversity. Enhanced capacity is key to meeting the Diversity Outcome in the Chesapeake Bay Watershed Agreement , which is to "Identify stakeholder groups that are not currently represented in the leadership, decision making and implementation of current conservation and restoration activities and create meaningful opportunities and programs to recruit and engage them in the Partnership's efforts." These two trainings of 30 participants each will be specific to the needs of the Partnership, as informed by the Diversity, Equity and Inclusion (DEI) Strategy[2]. The training will help participants uncover any unconscious biases, and articulate personal points of view about DEIJ (Diversity, Equity, Inclusion, and Justice) in their lives and work, all while building skills to connect productively across differences to achieve organizational goals and foster a more inclusive environment. Enhanced capacity and an inclusive environment to meet the CBP Diversity Indicator target of increasing racial and ethnic diversity representation in the partnership to 25%, with 15% in leadership positions, by 2025. [1]Members and staff to include those who actively work for or participate in the CBP, including members of the Management Board, Principal's Staff Committee, GIT Chairs, Staffers and Coordinators, and other members of workgroups and the partnership. The Diversity Workgroup's staff will work with the contractor to identify participants. [2]The CBP Diversity, Equity, and Inclusion (DEI) Strategy will be completed and available by late 2019 and will help inform this training.

Project Steps and Timeline	**Step 1: 10/1/2019 to 12/31/2019** • Diversity Workgroup staff to review CBP DEI Strategy and outcomes of the initial cultural competency training held in Fall 2019 and communicate results with Contractor for this Scope. • Diversity Workgroup staff will strategically identify members of the partnership who should participate in the upcoming 2020 trainings and provide to Contractor for this Scope. **Step 2: 3/1/2020 to 3/13/2020** • Participate in a 1-hour phone call with Diversity Workgroup staff to gain familiarity with the DEI Strategy and products and assessments of the previous GIT Funding project. **Step 3: 3/16/2020 to 4/3/2020** • Work with Diversity Workgroup staff to tailor training curriculum to CBP audience, based on the DEI Strategy and previous assessments (from Fall 2019). • The Diversity Workgroup will identify training date options and location(s), and will provide funds to pay for the training space. **Step 4: 4/6/2020 to 6/30/2020** • Contractor will administer a pre-training assessment of the DEI views of participants as they relate to their work, and to identify perceived and actual barriers (i.e., one barrier raised by many is the lack of control over hiring practices). • Contractor will create materials for workshop (i.e., handouts and a presentation) and submit to the Diversity Workgroup staff prior to the training. • Contractor will conduct two, full-day in-person trainings of 30 participants each, to train a total of 60 participants. **Step 5: 6/30/2020 to 7/30/2020** • Contractor will administer a follow-up assessment to determine how participants' views, actions, and decisions change as a result of the trainings and materials. • Compare the post-training assessment with the pre-training assessment to analyze how participant views and actions changed as a result of the trainings and materials. • Contractor will create a transferability package (in PDF format) for participants: o The transferability package should enable participants and other members of the partnership to replicate the training or conduct a similar one, to reach a wider audience and achieve organizational goals related to DEIJ. o The package should include presentation slides, if given during the training. o The package should be sent to participants no more than two weeks after each training. **Step 6: 7/30/2020 to 8/31/2020** • Contractor will provide an evaluation and final report that summarizes findings from the trainings. The report should be a 2 to 5-page PDF that includes information on the total number of people engaged, description of goals and outcomes that were met, how they contributed to the CBP DEI strategy, and next step recommendations for the partnership.
Stakeholder Participants	Chesapeake Bay Program staff and partners: Management Board, Principals' Staff Committee GIT Chairs, Coordinators and Staffers Diversity Workgroup Communications Workgroup CBP Creative/Web Team Members of other GITs and workgroups, strategically chosen to achieve greatest reach. (i.e., particularly engaged members of GITs/workgroups)
Deliverables	1. Develop a training curriculum tailored to the CBP audience, by incorporating input from

	products and assessments of previous project (e.g., CBP DEI Strategy, DEI Readiness Assessment) and input from Diversity Workgroup staff. 2. Create and administer a pre-training assessment of the DEIJ views of participants. 3. Create materials for workshop (i.e., handouts and a presentation) and submit to the Diversity Workgroup staff prior to the training. 4. Conduct two full-day and in-person trainings for 30 participants each, in line with the goals of the CBP DEI Strategy that will be available in late 2019 (60 total participants will be trained). 5. Create and administer a post-training assessment of the DEIJ views of the participants; 6. Compare the post-training assessment with the pre-training assessment to analyze how participant views and actions changed as a result of the trainings and materials. 7. Develop a transferability package of the trainings to conduct similar, future trainings. 8. Provide a final report to summarize the results (2 to 5 pages, PDF) as described in the project timeline and steps section.
QAPP Requirement	A QAPP will not be required for this Scope.
Qualifications of Bidder	• Expertise in diversity, equity, inclusion, and justice awareness; background and experience in social science (required). • Ability to communicate effectively with diverse populations; strong verbal and written communication skills; ability to create reports, summaries, and resources (required). • Experience providing DEIJ skill development training to at least three clients over the past three years; experience providing DEIJ trainings to environmental organizations (preferred).
List of Potential Bidders	• Platinum PR, Sandy Dubay, info@platinumpr.com • Ecologix Group, Inc., info@ecologixgroup.com • Green Fin Studio, Paula Jasinski, paula@greenfinstudio.com • Public Engagement Associates, Steve Brigham, steve@publicengagementassociates.com • Kearns & West, Jason Gershowitz, jgershowitz@kearnswest.com • American Planning Association (post through their bid list)
List of Potential Reviewers	• Francesca King; king.francesca@epa.gov • Amy Handen; amy_handen@nps.gov • Kristen Diggs; kdiggs@cbf.org

APPENDIX B-3: EPA QUALITY ASSURANCE PROJECT PLANT (QAPP) PROCESS

The QAPP is developed by the contractor and approved by the Quality Assurance Officer at the CBPO. The QAPP describes the activities of environmental data operations for projects involved with acquisition of environmental information whether generated from direct measurements, collected from other sources, or compiled from computerized databases. The QAPP documents the results of the technical planning process in one place (i.e., the QAPP) to provide a clear and complete plan for the environmental data operation and the quality objectives. The QAPP provides project specific details that include project management, data sources and acquisition, assessment and oversight, and data review and usability. The QAPP provides up-front planning that is clearly communicated to all parties the specifications for implementation of the project to ensure the quality objectives are met. QAPPs must be nested under approved Quality Management Plans (QMPs) written by the contract organization.

The QAPP is an important tool. Consider if the project will use existing data or collect new data in the proposed scope of work. In either case, the contractor should describe their quality systems in an approved QAPP. QAPPs must be approved prior to the start of the project's data collection. If a QAPP is or may be required, this requirement should be stated in the scope of work in order for the contractor to add the time and budget necessary to develop and finalize the QAPP. Below is the process for determining if a QAPP and/or a QMP is required for the project:

1. Consider if a QAPP will be required for the project-If the project will generate environmental data or use secondary data, a QAPP may be required. Review the Chesapeake Bay Quality Assurance Program website for more QMP and QAPP details at https://www.chesapeakebay.net/what/programs/chesapeake_bay_quality_assurance_program
2. If you think a QAPP will be required, the GIT Technical Lead should reach out to Durga Ghosh to confirm a QAPP will be required ***AND*** to determine if a separate QMP will be required for the project:

    - All QAPPs are required to be accompanied by a QMP. In the past some of the projects have been carried out and/or reviewed by CBP staff and consequently covered by the Bay Program QMP (now EPA Region 3 QMP).
    - If appropriate, a combined QMP/QAPP may be submitted if all elements included in the QAPP lend themselves to it being classified as such a combined document.
    - QMPs define the role played by the grantee agency in establishing a plan for all QA-related activities being carried, hence one QMP may be used for several projects and/or several QAPPs. Several Trust projects have input from CBP workgroups prior to the generation of the final product and as a result their QAPPs are covered by our QMP.

QAPP/QMP Contact:
Durga Ghosh, Ph.D.
QA Coordinator/Chemist
Chesapeake Bay Program/USGS
410-267-5750
dghosh@chesapeakebay.net

- If the work is covered by the Bay QMP, include the following statement in the QAPP; All data-related tasks being carried out as a part of this project are covered by the U.S. EPA Region 3 Quality Management Plan.

3. EPA requests 30 days to review a QAPP and provide comments – this time should be built into the project schedule for the Contractor to generate a draft and final (approved) QAPP/QMP.

    - Include a Draft QAPP and Final/Approved/Signed QAPP in the Project Deliverables Table.
    - Submit Draft QAPP and allow 30 days for review; EPA will provide edits to Draft QAPP.
    - Once the edits are complete, resubmit QAPP with all necessary signatures in place and EPA will sign off on it, thus completing the process for an approved QAPP.

APPENDIX C:

EXAMPLE FFY20 REQUEST FOR PROPOSALS (RFP)

CHESAPEAKE BAY TRUST

REQUEST FOR PROPOSALS

CONSULTANT SERVICES
TECHNICAL ASSISTANCE TO SUPPORT CHESAPEAKE BAY PROGRAM GOALS AND OUTCOMES - FISHERIES, HABITAT, WATER QUALITY, STEWARDSHIP, LEADERSHIP, AND CLIMATE

Table of Contents

SECTION I - INTRODUCTION

1.1 Purpose

The purpose of this Request for Proposals (RFP) is to invite entities experienced in various aspects of fisheries, watershed science and policy, watershed stewardship, outreach and training, climate resilience, submerged aquatic vegetation (SAV), and other watershed issues to submit proposals to the Chesapeake Bay Trust (the Trust). The Trust has been designated to receive federal funds from the U.S. Environmental Protection Agency (EPA) as part of the Chesapeake Bay Program (CBP) Goal Implementation Team Project Initiative. The work to be supported will advance specific outcomes from the 2014 Chesapeake Bay Watershed Agreement that have been identified as top priorities to address, and these stretch across all Goal Implementation Teams (GITs) and workgroups.

This RFP includes twelve "projects" that have been separated into twelve individual Scopes of Work (Scopes #1 through #12). Offerors can bid on one or more of the individual scopes of work, with each scope of work addressed in a separate proposal. The twelve individual scopes of work are listed below, and scope details and qualifications of Offerors are described in more detail in Appendix A. A maximum bid amount is listed for each project scope. Cost will be a factor in evaluation of bids as described in Section IV.

The Trust has been designated to receive federal funds from the United States EPA as part of the CBP GIT Project Initiative to advance specific outcomes from the 2014 Chesapeake Bay Watershed Agreement. Awards under this RFP will be issued as "contracts." The Trust will establish and manage the contracts in compliance with Title 2 Code of Federal Regulations (CFR) 200 and the terms of the federal funding by the United States EPA (CFDA# 66.466) through the Cooperative Agreement (Federal Award Identification Number) 96374201 dated 3/13/2020.

The source of the CBP GIT Project Initiative is federal funding. Therefore, awarded projects must adhere to federal requirements regarding contracting, including contracts with consultants and the purchase of supplies and equipment. For example, contractors shall obtain multiple estimates/bids for subcontracted services over $3,000 and use good-faith efforts to engage Disadvantaged Business Enterprises (DBEs), including Minority Business Enterprises (MBEs), Women Business Enterprises (WBEs), and Small Business Enterprises (SBEs).

1.2 Services/Scopes of Work and Offeror's Minimum Qualifications

A list of the Scopes of Work is provided below with details for each scope of work including the maximum bid and minimum qualifications provided in Appendix A.

List of Scopes of Work:

Scope #	FFY20 Scope Title	Maximum Bid Amount
Scope of Work 1:	Public Access Research - Benefits and Barriers Across the Chesapeake Bay Watershed	$75,000
Scope of Work 2:	Chesapeake Bay Program Social Science Assessment and Integration Road Map Development	$75,000
Scope of Work 3:	Maintaining Forests in Stream Corridor Restoration and Sharing Lessons Learned	$90,000
Scope of Work 4:	Planning for Clean Water - Local Government Workshops	$70,000
Scope of Work 5:	Management Approaches to Reduce Stressors of Stream Health	$47,500
Scope of Work 6:	Modeling Climate Impacts on Submerged Aquatic Vegetation (SAV) in the Chesapeake Bay	$75,000
Scope of Work 7:	Forage Indicator Development - Using Environmental Drivers to Assess Forage Status	$60,000
Scope of Work 8:	Synthesis of Shoreline, Sea Level Rise, and Marsh Migration Data for Wetland Restoration Targeting	$72,500
Scope of Work 9:	Methods to Integrate Co-Benefits of Toxic Contaminant Reduction into Decision-Making Tools	$56,000
Scope of Work 10:	Developing Standards and Metrics to Target the Conservation of "Green Spaces" in Underrepresented and Low-Income Urban and Rural Communities	$70,000
Scope of Work 11:	Cultivating and Strengthening Partnerships with Underrepresented Stakeholders	$65,000
Scope of Work 12:	Development of Cost-Effective Methods to Measure Site-Specific Denitrification Rates for the Proposed Oyster Restoration Best Management Practices	$80,000

Note, where applicable, draft reports, data, and deliverable products should be provided to the technical leads sufficiently in advance of the end of the contract date such that an effective iterative process can take place before the contract terminates. These materials, depending on the nature of the deliverable, should be provided in draft report form or in the form of a GIT or workgroup summary presentation. This will allow technical leads, GITs, workgroups and other CBP partners to review, provide comments, ask questions, and get clarification related to the project directly from the awardee. The draft review process should be reflected

in all RFP responses where applicable; awardee hours should be allocated to the oral presentation of final draft results to the CBP via one webinar. The appropriate CBP lead, in cooperation with the awardee, will determine when that presentation would be most advantageous. Any substantive comments, questions or edits received through this process should be incorporated into the final deliverable products. Develop a timeline that will account for this iterative process.

SECTION II – BUDGET AND ADDITIONAL SERVICES

Amount Available: It is anticipated that as a result of this procurement action, one contract will be awarded for each Scope. Each successful bidder for each Scope may be engaged in one additional phase of work through this procurement action. **Awards will be managed as firm-fixed-price contracts.**

Additional Services. The Contract Officer may request ancillary or additional services within the capacity of the Contractor as may be useful or necessary in the interests of the Trust and the Project for the above Scope of Work.

ADD/DEDUCT: The Trust reserves the right to add or remove items from the base bid proposal during the contract and modify or adjust scope of work and payment as needed.

SECTION III - PROPOSAL FORMAT AND SUBMISSION INFORMATION

3.1 Principal Solicitation Officer and Issuing Office:

Contract Officer:	Sarah Koser
Telephone Number:	410-974-2941, ext. 106
E-Mail	skoser@cbtrust.org
Address:	Chesapeake Bay Trust 108 Severn Avenue Annapolis, MD 21403

The sole point of contact for the purpose of this RFP is the Contract Officer.

3.2 Prospective Offerors: An "Offeror" is a person or entity that submits a proposal in response to this RFP.

3.3 Cancellation; Discretion of Contract Officer: This RFP may be canceled in whole or in part and any proposal may be rejected in whole or in part at the discretion of the Contract Officer. In addition, the Contract Officer has the right to negotiate separately with any Offeror in any manner which will best serve the interests of the Trust. The Contract Officer may waive any mandatory condition or minimum qualification if the Contract Officer determines that such action is in the best interest of the Trust.

3.4 Submission Instructions/Proposal Closing Date: Offerors must submit proposals using our Online Application System, located at: https://www.grantrequest.com/SID_1520?SA=SNA&FID=35071 no later than **4:00 p.m.** on **Friday, January 22, 2021** (the "**Closing Date**"). Requests for extensions will not be granted, late applications will not be accepted, and the online funding opportunity will close promptly at 4:00 pm EST. **Offerors are strongly encouraged to submit at least a few days prior to the deadline** given potential for high website traffic on the due date. The Trust cannot guarantee availability

of Online Application System technical assistance on the deadline date. If email confirmation of submission is not received within two business days, please contact the Principal Solicitation Officer listed in Section 3.1.

Proposals are irrevocable for 90 days following the Closing Date.

3.5 **Proposal Format**: A project narrative and a project budget are required, as described below.

a. Project Narrative. You will be asked to submit a narrative. Each proposal (i.e., a submission in response to each Scope of Work) must include responses to items 1 through 7 in a concise (≤ 5 page) description. Items 8 and 9 may be addressed outside of the 5-page limit and may be attached as additional pages. All material must be submitted as one electronic file. Organize your proposal as follows:

1. Names of individuals providing the services and number of years of experience in such areas.
2. Scope number for which the Offeror is bidding (Scopes #1 through #12).
3. The individual's proposal for how to address the elements of the Scope of Work and required outcomes described in the deliverables section.
4. Response to the qualifications section: a description of the experience to provide services in the topics described in the bidder qualifications section.
5. Names, phone numbers, and email addresses of three references.
6. A deliverables schedule using the table format below, including details for each deliverable format (e.g., excel spreadsheet). A template is provided for the first deliverable. Add rows for additional deliverables and include total cost in the last row. **Awards will be managed as firm-fixed-price contracts.**

Table X. Project deliverables and timeline.			
Report # and Reporting Period	**Project Deliverables**	**Date of Delivery**	**Amount**
Report #1: X/X/20XX to X/X/20XX	The deliverables include: • (add name of deliverables here, along with format of each deliverable)	X/X/20XX	$
Report #1: X/X/20XX to X/X/20XX	The deliverables include: • (add name of deliverables here, along with format of each deliverable)	X/X/20XX	$

7. Description of subcontracting process, if applicable. For contracts only, if a subcontractor is proposed for services over $3,000, describe how you will or have met the below criteria for subcontractual work as described in items "7a" or "7b" (whichever is appropriate for your project, and is consistent with Section 3.8):
    a) If the subcontractor has already been identified by attaining at least three estimates or through a competitive bid process and using good faith efforts to reach MBE/WBE/DBE firms, describe the process and results, e.g., describe the bid process used to obtain bids, including length of time the bid was open for responses, a description of the selection process/criteria used to select the winning bidder (e.g., low bidder, qualifications, criteria, etc.), and reason(s) for selection of the winning contractor (lowest qualified bid, etc.).
    b) If the subcontractor has not already been identified describe the process you will take to secure the subcontractor, e.g., describe the bid process to be used to obtain

bids, including length of time the bid was open for responses, a description of the selection process/criteria used to select the winning bidder (e.g., low bidder, qualifications, criteria, etc.), and reason(s) for selection of the winning contractor (lowest qualified bid, etc.).

8. The resume or CV of the individual(s) providing the service.
9. Any other information which the Offeror considers relevant to a fair evaluation of its experience and capabilities.

b. Project Budget: You will be asked to upload your budget using the "Application Budget" worksheet of the Chesapeake Bay Trust's Financial Management Spreadsheet (FMS), an excel file template. The template is available in the online application and can be found by visiting www.cbtrust.org/forms where you can also watch a video with instructions on how to complete the FMS. The budget is a spreadsheet that is uploaded separately into the online application. For your budget request:

1. The resources requested in your budget should be able to be accomplish the body of work described in your proposal; be as detailed as possible.
2. The Offeror shall submit a budget including total number of hours and hourly rate of compensation for the services to be performed during the term of the contract broken down by direct rate, benefit rate, indirect rate, profit, and direct expenses; any additional costs required to complete the project; and total compensation. Under this program, food and beverage costs will not be supported.
3. **If your proposed indirect rate is higher than 10% of the direct costs, please provide the Negotiated Indirect Cost Rate Agreement (NICRA) documentation in your proposal**.
4. Matching/leveraged resources are encouraged but not required. Indicate whether each match entry is applied for, pledged, or in-hand. Indicate in the narrative whether your organization has requested financial support from any other sources for the project not listed as match in the budget submitted.
5. Use the "Additional Budget Justification" section in the online application to justify and explain costs. Budgets that are detailed, justified, and itemized are ideal.
6. The proposed rates of compensation will be irrevocable for a period of 90 days from the Closing Date, or if modified during negotiations, for a period of 90 days from the date such modified rates are proposed by the Offeror.

3.6 Professional Liability Insurance: The Offeror shall agree to maintain in full force and effect during the term of the Contract usual and customary amounts of liability insurance coverage in connection with the performance or failure to perform services under the Contract.

3.7 Eligible Organizations: No entity may enter into a Contract with the Chesapeake Bay Trust under this funding opportunity if the entity is listed in www.sam.gov as debarred, suspended, or otherwise excluded and unless the entity has provided its DUNS (Dun & Bradstreet) number to the Trust. You will be asked to submit your DUNS number in the online application form.

3.8 Subcontracting Opportunities and Procurement: This solicitation will result in one "contract" per Scope of Work. The Offeror should specify the intent to procure subcontracting services and demonstrate compliance with federal procurement guidelines for all subcontracting

services between $3,000 and $150,000, including:

a. Obtain three estimates for subcontracted work or
b. Obtain subcontracted services through a competitive bid process.

For all subcontracted work, the Offeror shall be able to demonstrate that Good Faith Efforts were used to engage minority/disadvantaged/women/small business enterprises (MBE/DBE/WBE/SBE) by reaching out to MBE/DBE/WBE/SBE firms to obtain estimates or bids. The following websites may be helpful in identifying MBE/DBE/WBE/SBE firms in states/districts within the Chesapeake Bay Watershed:

DC	https://dslbd.secure.force.com/public/
DE	https://deldotcivilrights.dbesystem.com/FrontEnd/searchcertifieddirectory.asp
MD	https://mbe.mdot.maryland.gov/directory/
NY	https://ny.newnycontracts.com/frontend/searchcertifieddirectory.asp?
PA	http://www.dgs.internet.state.pa.us/suppliersearch
VA	https://www.sbsd.virginia.gov/directory/
WV	http://apps.sos.wv.gov/business/corporations/searchadvanced.aspx

All subcontractors must be verified by checking at www.sam.gov to ensure that they have not been suspended, debarred, excluded, or disqualified to do work with federal government resources.

SECTION IV - EVALUATION PROCEDURE

4.1 Qualifying Proposals: The Contract Officer will review each proposal for compliance with the minimum qualifications set forth in "Offeror's Minimum Qualifications."

4.2 Deviations and Negotiation: The Contract Officer shall have the sole right to determine whether any deviation from the requirements of this RFP is substantial in nature, and the Contract Officer may reject non-conforming proposals. In addition, the Contract Officer may waive minor irregularities in proposals, allow an Offeror to correct minor irregularities, and negotiate with responsible Offerors in any manner deemed necessary or desirable to serve the best interests of the Project.

4.3 Evaluation: Proposals shall be evaluated by a review committee composed of technical experts and facilitated by the Contract Officer. Evaluation will be made on the basis of the evaluation criteria discussed below and may include any oral presentation that may be required by the Contract Officer, through a recommendation by the technical review committee, at his or her discretion. The Contract Officer reserves the right to recommend an Offeror for contract award based upon the Offeror's proposal without oral presentations or further discussion. However, the Contract Officer may engage in further discussion if he or she determines that it might be beneficial. In such case, the Contract Officer will notify those responsible Offerors with whom further discussion is desired. In addition, the Contract Officer may permit qualified Offerors to revise their proposals by submitting "best and final" offers.

4.4 Evaluation Considerations: Proposals by Offerors who meet the minimum qualifications set forth in Appendix A will be evaluated by the technical review committee on the basis of the following factors:

a) Proposed Team (Specific Individual(s) Responsible for Performance of Contract). Evaluation of the qualifications, reputation, and compatibility with needs of the Trust and the Project of the individual or individuals who will perform the Contract.
b) Proposed Approach. Evaluation of the work to be performed to accomplish the goals outlined in the Scopes of Work in Appendix A.
c) Experience of Offeror. Evaluation of the quality and quantity of the Offeror's experience and expertise in the areas proposed, supported by references.
d) Capacity. Evaluation of the Offeror's ability and commitment to meet timeline for the Project.
e) Price and Hours. Hourly rate, number of hours to be devoted to the project, and indirect rate. Budget line items and associated costs per line item must: a) support the scope of work and b) be appropriate and cost-effective. Ensure compliance with federal procurement guidelines (Federal funds will support this work), including Title 2 CFR 200 and ensure that all subcontractual work was or will be secured by attaining at least three estimates or by using a competitive bid process and that Good Faith Efforts to engage MBE/DBE/WBE/SBE firms have been documented. Cash and in-kind match are not required but leveraging funds to make a project more robust is encouraged.

SECTION V: OTHER INFORMATION

5.1 Disclosure: Proposals submitted in response to this RFP may be provided to government agencies and be subject to disclosure pursuant to the provisions of the Access to Public Records Act of the State Government Article of the Annotated Code of Maryland (the "Public Information Act") or equivalent for your area. Offerors must specifically identify those portions of their proposals, if any, which they deem to contain confidential or proprietary information and must provide justification why such materials should not, upon request, be disclosed by the State under the Public Information Act.

5.2 Quality Assurance Project Plan: Several of the scopes of work listed in Appendix A will require a Quality Assurance Project Plan ("QAPP"). General guidance on QAPP's can be found on the EPA QAPP website: https://www.epa.gov/osa/elements-quality-assurance-project-plan-qapp-collecting-identifying-and-evaluating-existing. If data originates from sources other than federal reports and peer reviewed journals, a statement on data quality suitability will be required in the final report. When submitting a proposal for a scope of work that requires a QAPP, the Offeror should understand and account for any costs associated with completing this component of the work.

5.3 Expenses: The Trust and the Contract Officer are not responsible for any direct or indirect expenses that an Offeror may incur in preparing and submitting a proposal, participating in the evaluation process, or in consequence of this solicitation process for any reason.

5.4 Acceptance of Terms and Conditions: By submitting a proposal in response to this RFP:

a) the Offeror accepts all of the terms and conditions set forth in this RFP;
b) the Offeror, if selected for award, agrees that it will comply with all federal, State, and local laws applicable to its activities and obligations under the Contract;
c) the Offeror shall be deemed to represent that it is not in arrears in the payment of any obligation due and owing the United States Government or the State or any department or unit thereof, including, without limitation, the payment of taxes and employee benefits, and, if selected for

award, that it shall not become so in arrears during the term of the Contract; and

d) the Offeror, acknowledges that they are compliant with federal employment and non-discrimination laws and have not been debarred, convicted, charged or had civil judgment rendered against them for fraud or related offense by any government agency (federal, State, or local) or been terminated for cause or default by any government agency (federal, State, or local).

5.5 Minority Business Enterprise (MBE) Program, the Disadvantaged Business Enterprise (DBE) Program, Women Business Enterprise (WBE), and Small Business Enterprise (SBE) Program Participation: This RFP encourages the participation of MBE/DBE/WBE/SBE firms (members of a group as defined in the State Finance and Procurement Article of the Annotated Code of Maryland (the "Procurement Article"), Section 14-301(f)(i)(ii)). The Trust encourages MBE/DBE/WBE/SBE firms who meet the minimum qualifications to respond to this RFP.

5.6 Parties to the Contract: The contract to be entered into as a result of this RFP (the "Contract") shall be between the successful Offeror (the "Contractor") and the Trust and may be subject to EPA approval prior to Contract award.

5.7 Contract Documents. The Contract shall include the following documents: this RFP, the Contractor's Proposal (to the extent not inconsistent with the RFP or the Contract), and the Contract. In the event of an inconsistency, the Contract shall have priority over the other documents and specific conditions of the Contract shall have priority over General Conditions.

5.8 Contract Term. The Contract term shall commence as of a date to be specified in the Contract and, unless sooner terminated in accordance with the Contract, shall end when all work authorized under the Contract has been successfully completed by the project end date, unless the Contract is renewed or extended at the sole option of the Contract Officer.

5.9 Billing Procedures and Compensation.

a) Method: The Contracts to be entered into as a result of this RFP will not exceed the small procurement threshold fixed at 41 U.S.C. 403 (11) (currently $150,000). The Contractor(s) must comply with billing procedures as may be required by the Contract Officer and US EPA. These may entail monthly reporting of time and eligible expenses or may be based upon satisfactory completion of benchmark tasks.
b) Records: The Contractor(s) shall submit invoices in a form acceptable to the Contract Officer and maintain records relating to the costs and expenses incurred by the Contractor(s) in the performance of the Contracts for a period of three years from the date of final Project payment under the Contracts.

5.10 Certification. The Offeror shall certify that, to the best of its knowledge, the price information submitted is accurate, complete, and correct as of the Closing Date, and if negotiations are conducted as of the date of "best and final offer."

5.11 Branding. All products (outreach materials, events) will be branded with the United States EPA and Chesapeake Bay Trust logos.

FFY20 Goal Implementation Team (GIT) Projects

APPENDIX A: Scopes of Work

Table of Contents

Overview of Scopes of Work

The tables below present the descriptions of twelve scopes of work, including but not limited to expected deliverables and minimum qualifications of Bidders. Each scope of work is presented in the format below:

Goal Implementation Team (GIT)	This section indicates the Goal Implementation Team **(**GIT) that is presenting the scope of work for bid.
Purpose and Outcomes	This section provides the purpose of the work and the expected outcomes of the work. This section provides background information and context for potential Bidders.
Maximum Bid Amount	This section identifies the maximum bid amount allowed for the scope of work.
Project Steps and Timeline	This section outlines the specific steps and proposed timeline of work that should be accounted for by the Bidder. The Bidder should also account for and provide detail regarding any additional steps or work that may be undertaken to deliver the final products as listed in the "Deliverables" section of the table for that scope of work. Additional project steps and extended timelines may be added throughout the project as agreed upon by the chosen Contractor, the GIT team, the Chesapeake Bay Program (CPB), and the Chesapeake Bay Trust (Trust).
Stakeholder Participants	This section lists the project participants that the Bidder will need to engage throughout the project to meet the deliverables of that scope of work.
Deliverables	This section outlines the specific final products that will need to be submitted and approved by the GIT and Trust teams in order to successfully meet the terms of the contract. Additional deliverables may be added throughout the project as agreed upon by the chosen Contractor, the GIT team, the CPB, and the Trust.
QAPP (Quality Assurance Project Plan) Requirement	This section identifies if there is a need for a Quality Assurance Project Plan (QAPP). General guidance on QAPP's can be found on the Environmental Protection Agency (EPA) QAPP website: https://www.epa.gov/osa/elements-quality-assurance-project-plan-qapp-collecting-identifying-and-evaluating-existing. If data originates from sources other than federal reports and peer reviewed journals, a statement on data quality suitability will be required in the final report. When submitting a proposal for a scope of work that requires a QAPP, the Bidder should understand and account for any costs associated with completing this component of the work. Additional information about QAPP's can be found in the following documents: 1. *EPA Requirements for Quality Assurance Project Plans,* QA/R-5, March 2001 *2. Guidance for Quality Assurance Project Plans,* QA/G-5, December 2002 (http://www.epa.gov/quality/qs-docs/g5-final.pdf) In some cases when secondary data is used, a QAPP is required. Guidance for developing a QAPP for secondary data can be found at https://www.epa.gov/quality/quality-assurance-project-plan-requirements-secondary-data-research-projects. If data originates from sources other than federal reports and peer reviewed journals, a statement on data quality suitability will be required in the final report.
Qualifications of Bidder	This section outlines the experience required by the Bidder's personnel assigned to perform under the Contract.

Scope of Work 1: Public Access Research - Benefits and Barriers Across the Chesapeake Bay Watershed

Goal Implementation Team (GIT)	Fostering Chesapeake Stewardship Goal Implementation Team (GIT 5)
Maximum Bid Amount	$75,000.00
Purpose and Outcomes	The Public Access Outcome of the 2014 Chesapeake Bay Watershed Agreement sets a goal that 300 new public access sites, with a strong emphasis on providing opportunities for boating, swimming and fishing will be added to the Chesapeake Bay Watershed by 2025. The 2013 Chesapeake Bay Watershed Access Plan was developed to implement that goal and establish a baseline of public access sites. Since 2013 date, 194 new public access sites have been added increasing access to the Bay and its waterways. While the number of access sites has increased at a reasonable rate, the increase in the number of sites does not tell us whether or not an increased number of individuals are using the sites or if those new sites are serving under-resourced populations. In addition, the plan identified public access use as a strategy for engaging citizens in stewardship behaviors. The long-term success of the Public Access goal is to not only achieve 300 new public access sites by 2025 but to insure that under-resourced populations have public access sites near their communities, the barriers to using those access sites are minimized as much as possible, and that stewardship behaviors are practiced by all users. There is currently limited information on specific barriers that may be preventing residents of the watershed from utilizing public access. While generalizations do exist, specific information and/or attitudes and predispositions from underserved populations are not readily available. This project would be helpful in determining what needs to be done in order to engage underserved populations in enjoying the Bay's resources and increasing a new and expanded group of watershed stewards that represent the regions diverse population. Moving users to stewards is critical to the health of the Bay and its tributaries. The data will also be used to help inform future public access site development/enhancement and provide support for greater financial/capacity for site development and maintenance as well as programing and educational efforts. The geographic scope of this project is the Chesapeake Bay Watershed. The research metrics should include representation from all states in the Watershed while recognizing the Watershed is most predominate in Pennsylvania, Maryland, and Virginia and may require more data in those states to get an accurate picture. This project has two proposed outcomes. First is increased knowledge around how residents in the Chesapeake Bay Watershed utilize public access sites to waterways and the Bay and the relationship between usage and practicing stewardship behaviors. The second is increased knowledge around what barriers, real or perceived, prevent traditionally underserved populations from utilizing public access sites. Public access is defined by the 2013 Chesapeake Bay Watershed Access Plan as "Public access sites are locations owned and managed by a public entity or non-profit organization in an agreement with a public entity providing one or more the following: • Boat-related access: boat ramps, car-top boat launches, soft launches supporting paddle craft, motorized boats, and/or sail boats. • Swimming access: designated areas appropriate for swimming • Fishing access: piers, bank facilities or easements and parking adjacent to the water • Viewing access for water, wildlife, and shore areas: nature trails, hiking or biking trails, waterfront trails, boardwalks, and observation decks located at or leading to the water's edge." Stewardship behaviors include taking individual actions that restore local streams, reduce pollution, protect the environment, improve their communities, etc.

Purpose and Outcomes (continued)	To achieve the second outcome of this project the selected contractor will research how underserved populations are utilizing or not utilizing public access sites. The contractor will identify what barriers prevent underserved populations from using public access sites. The contractor will determine how underserved populations are defined and involved in the project. In general, underserved populations could be identified by looking at the following criteria: the number of children, number of senior citizens, density, race, linguistic isolation, public transportation access, and the average income of a Census Tract Block Group. Maryland's Park Equity is a good example of how underserved populations are determined and defining access to parks. Barriers to using public access sites could include factors such as financial constraints, cultural background, language, transportation, proximity, instructional/engagement programing, equipment, or lack of information on availability of sites. Understanding how residents use public access sites, understanding the relationship between usage and stewardship behaviors, and identifying barriers to access will allow the contractor to formulate recommendations in a report that could enable more residents to access or view waterways in the Chesapeake Watershed or the Chesapeake Bay. The two outcomes paired with the report of recommendations, will guide jurisdictions as they design and develop new sites or augment existing sites in order to reach a wider audience. The project would not include obtaining a list of new access sites currently being planned. Annually, the work group collects new access sites that have been opened by the jurisdictions that signed on to the 2014 Watershed Agreement. Because many factors determine where to construct public access sites, we envision that the contractor will identify geographic areas that are underutilized rather than specific locations.
Project Steps and Timeline	**Step 1: 3/1/2021 to 3/31/2021** A virtual meeting will be held with the selected contractor and the Public Access Workgroup will confirm project scope and schedule with the selected contractor. Deliverable for this Step includes: • Summary of the meeting notes and attendees.
	Step 2: 3/1/2021 to 5/1/2021 Contractor will develop methodologies to better understand how residents are using public access sites, how residents of under-resourced communities are using public access sites, barriers to public access for under-resourced populations, and how the use of public access sites relates to participating in stewardship behaviors. Deliverables for this Step include: • Research project methodologies identified of how residents are using public access sites, how residents of under-resourced communities are using public access sites, barriers to public access for under-resourced populations, and how use the use of public access sites relates to participating in stewardship behaviors.
	Step 3: 5/1/2021 to 6/1/2021 Contractor will hold a workshop with the Public Access Workgroup to review methodologies chosen and to ensure a cross section of the watershed population is represented as outlined in Step 2. Public Access Workgroup will provide feedback to the Contractor and Contractor will make adjustments to the methodologies as needed. Deliverable for this Step includes: • Summary of meeting notes and attendees to workshop.
	Step 4: 6/1/2021 to 10/30/2021 Contractor will conduct research in Step 2 and report results to the Public Access Workgroup. Results will be presented in a preliminary written report (Word Document) and presented via a workshop. Deliverables include workshop with the Workgroup and a draft report that includes an introduction, methods, results, conclusions and recommendations. Deliverable for this Step includes: • Summarized meeting notes including questions and comments presented by Workgroup attendees and a list of attendees

Project Steps and Timeline (continued)	**Step 5: 11/1/2021 to 5/30/2022** The contractor will conduct additional research as required in response to Workgroup comments on preliminary report. Deliverable for this Step includes: • Provide results on additional research to the Workgroup via a word document.
	Step 6: 6/1/2022 to 6/30/2022 Contractor will provide response to Public Access Workgroup relative to comments received about preliminary report including any additional research undertaken to response to Workgroup comments. Deliverable for this Step includes: • Response will be presented and submitted as a Word document
	Step 7: 7/1/2022 to 7/30/2022 Contractor will finalize research and develop final report that documents comments from Workgroup members, data collected, conclusions and identifies recommendations. The Final report should include methodologies, data collected, analysis of data collected, as well as recommendations on how to address barriers to public access. This deliverable of should outline how residents utilize public access sites and recommendations on how to encourage stewardship behaviors in users and how to better address the barriers to public access that impact underserved populations of the watershed. This final report will be distributed to the states in the watershed where they will determine the best way to implement the recommendations. Deliverable for this Step includes: • The contractor will present the final report at a workshop with the Public Access Workgroup.
	Step 8: 8/1/2022 to 8/31/2022 The Public Access Workgroup will distribute the report of recommendations to the states throughout the watershed. Individual jurisdictions will then determine how to best implement the suggestions. Deliverables for this Step include: • Virtual Workshop with Public Access Workgroup to discuss final report/recommendations • Summary of meeting notes and attendees.
Stakeholder Participants	Stakeholders include the Public Access Workgroup: • Scott Bollinger, PA Fish and Boat Commission, scbollinge@pa.gov • Bill Crouch, Rappahannock River NWR, william_crouch@fws.gov • Diane Davis, District Department of the Environment, diane.davis2@dc.gov • Andy Fitch, National Park Service - Chesapeake Bay Office, afitch@chesapeakebay.net • Lisa Gutierrez, MDNR, lisa.gutierrez@maryland.gov • Mark Hohengasser, NY State Parks, Mark.Hohengasser@oprhp.state.ny.us • Caitlyn Johnstone, Alliance for the Chesapeake Bay, cjohnstone@chesapeakebay.net • Brandon, Keplinger,WV Div of Natural Resources – Fisheries, Brandon.j.keplinger@wv.gov • Jackie Kramer, National Park Service - Chesapeake Bay Office, Jackie_Kramer@nps.gov • Michael Krumrine, DE Division of Parks and Recreation, Michael.Krumrine@state.de.us • Danette Poole, VA Dept of Conservation and Recreation, Danette.Poole@dcr.virginia.gov • Marcia Pradines, U S Fish and Wildlife Service, marcia_pradines@fws.gov • Jake Whalen, WV Division of Natural Resources, Jake.M.Whalen@wv.gov • Robbie Rhur, VA Department of Conservation and Recreation, robbie.rhur@dcr.virginia.gov • Kelly Rossiter, PA DCNR - Bureau of Recreation and Conservation, krossiter@pa.gov • Mark Scott, WV Division of Natural Resources, Mark.T.Scott@WV.gov • Charlie Stek, Citizens Advisory Committee, charliestek@gmail.com • Tammy Stidham, National Park Service-National Capital Region, tammy_stidham@nps.gov • Uwe Weindel, VA Dept of Game and Inland Fisheries, Uwe.Weindel@dgif.virginia.gov • Ed Woltmann, NY Dept of Env Con-Bureau of Fisheries, efwoltma@gw.dec.state.ny.us • Erik Zlokovitz, MDNR - Fisheries Service, Erik.Zlokovitz@maryland.gov

Deliverables	1. Summary of meeting notes and attendees from initial meeting with Public Access Workgroup (Step1, Word document) 2. Methodologies to determine how residents in the Chesapeake Bay Watershed utilize public access sites (Step 2, Word document) 3. Methodologies to ascertain barriers to public access (Step 2, Word document) 4. Methodologies to determine how underserved communities utilize public access sites. (Step 2, Word document) 5. Workshop with Public Access Workgroup (stakeholders) to discuss methodologies. Workshop may be virtual. Provide a summary of meeting notes and attendees (Step 3, Word document) 6. Analysis of data collected on how residents in the Chesapeake Bay Watershed utilize public access sites (Step 4, Excel spreadsheet and summarized in PowerPoint) 7. Analysis of data collected on how underserved communities utilize public access sites (Step 4, Excel spreadsheet and summarized in PowerPoint) 8. Analysis of data collected regarding barriers to public access (Step 4, Excel spreadsheet and summarized in PowerPoint) 9. Draft preliminary report that includes methodologies, data collected, analysis of data collected as well as recommendations on how to deal with barriers to public access (Step 4, Word document) 10. Workshop with Public Access Workgroup to discuss preliminary report. Workshop may be virtual. Provide a summary of meeting notes and attendees (Step 4, Word document) 11. Provide results of additional research to the Workgroup (Steps 5 and 6, Word Document) 12. Recommendations on how to encourage stewardship behaviors in all users and how to better address the barriers to public access that impact underserved populations of the watershed (Step 7, Word document) 13. Final report (Step 7, Word document and summarized in PowerPoint) 14. Workshop with Public Access Workgroup to discuss data from final report and recommendations; provide a summary of meeting notes and attendees (Step 8, Word document)
QAPP Requirement	No, a QAPP will not be required for this scope.
Qualifications of Bidder	• Experience engaging with communities to conduct research and collect information on people's opinion, attitudes and actions related to outdoor recreation; an example project should be included in application to show experience • Experience working in urban areas, and underserved and underrepresented communities, • Experience summarizing research and developing recommendations based on findings • Strong written and verbal communication skills • Fluent in English and Spanish • Knowledge in outdoor recreation including hiking, boating and fishing • Familiarity with the geography of the Chesapeake Bay watershed is helpful but not required

Scope of Work 2: Chesapeake Bay Program Social Science Assessment and Integration Road Map Development

Goal Implementation Team (GIT)	Fostering Chesapeake Stewardship Goal Implementation Team (GIT 5)
Maximum Bid Amount	$75,000.00
Purpose and Outcomes	Over the last year, there has been a significant increase in interest among EPA Goal Implementation Teams (GITs) and Workgroups in utilizing social science strategies to implement their Watershed Agreement outcomes. Social science enables us to better understand human behavior and ultimately make our conservation and restoration efforts both effective and long lasting. Without a better understanding of why the 18 million people that live in the watershed think and behave the way that they do, it will be difficult to maintain long-term success in Chesapeake Bay restoration, regardless of our expertise in biology, chemistry, ecology or other natural sciences. A comprehensive effort is needed to better understand how the Chesapeake Bay Program (CBP) partnership can most effectively and efficiently utilize social science frameworks, theories, and tools. This scope includes completing an assessment to develop a narrative report that functions as a road map for social science integration at key levels of the partnership, setting the course for a more intentional long-term effort to prioritize and integrate social science theory and practice. The report for this scope will detail specifically: (1) which outcomes have the greatest need and opportunity to leverage social science application at this time (we will consider things like presence or absence of discrete goals, number and size of audiences/ stakeholders, willingness to change relevant strategies and longstanding policies, as well as willingness to re-evaluate existing interventions), (2) to what degree social science theory (behavior or systems theories) are already being implemented and what has informed the work to date, and (3) which social science theories and frameworks are best-suited to achieve high priority outcomes. The audience for this work will be the CBP and its leadership as well as the Workgroups that are prioritized through this process. The recommendations adopted for the report will be operationalized by those Workgroups that are prioritized. This scope will be accomplished with assistance from a project lead, a steering committee, and the Stewardship GIT. A steering committee will be convened by the GIT Technical Lead to review and approve materials, offer expert opinions, and to share ideas. The steering committee will be made up of representatives from the social science discipline as well as other disciplines across the partnership. The project will be completed as part of the scope of the Stewardship GIT, which will ensure the contractor has assistance navigating the CBP structure. Once this project is completed successfully, the Chesapeake Bay Program Partnership will have clear direction on how to prioritize resources to accelerate implementation of social science within the Workgroup structure over the next 3 to 5 years. Improved processes and increased knowledge and skills of CBP staff and Workgroup leads/members will enable them to design more effective approaches (based in social science theory) to accomplish their goals and outcomes as described in the Watershed Agreement. Social science frameworks, theories and tools will be adopted by practitioners, in the prioritized Workgroups to accelerate implementation of Watershed Agreement outcomes.
Project Steps and Timeline	**Step 1: 3/1/2021 to 4/1/2021** Hold kick-off meeting with the steering committee of bay program partnership members (as determined by the project lead) that will provide feedback and guidance to contractor through the project. Kick-off meeting will serve to provide input to enable contractor to complete the Final Project Schedule, which should include: (1) Schedule for deliverable due dates and project completion including timeline for soliciting feedback from the steering committee (identified by project lead), Stewardship Goal Team and other Chesapeake Bay Program

Project Steps and Timeline (continued)	partnership stakeholders, (2) schedule and timeline for regular meetings throughout the project timeframe. Meetings to be organized by the GIT Technical Lead and to be held bimonthly through completion of Deliverable 3, and then monthly thereafter. Deliverable for this Step includes: Final Project Schedule (Deliverable 1)
	Step 2: 4/1/2021 to 6/1/2021 Complete the Draft Assessment Methodology, which will be the overall process for conducting formative research and collecting data to identify opportunities for social science integration. The Draft Assessment Methodology should include the following: 1. Overall process for conducting formative research and collecting data to identify opportunities for social science integration at three levels of the partnership (partnership leadership, the goal teams, and the Workgroup level (including outcomes)). Engagement with partnership goal teams and Workgroups with varying levels of capacity will require an organized process with clear expectations communicated to teams by the contractor. 2. List of specific data and factors to be collected to determine opportunities for social science integration, including but not limited to: (1) data that would indicate presence or absence of frameworks and theories that have historically been applied within the partnership, (2) data that would indicate understanding of social science frameworks, and (3) data that indicate the ability or capacity of partnership entities to apply social science frameworks. 3. Specific goal teams, Workgroups, and watershed agreement outcomes to be included in the assessment. Workgroups will receive tailored levels of assessment depending on their specific function and goals. All 36 Workgroups will be assessed at a high level, and a sub-set of the Workgroups (up to 28) will be assessed in greater detail in order to answer degree of need and potential return on investment for social science integration and technical support. 4. Prioritization of factors to determine how to identify and rank opportunities for integration of social science into partnership. 5. Method and instrument used to collect information from Workgroup members and partnership leadership representatives, including interviews, focus groups and other qualitative assessment methods. 6. Method for matching social science frameworks and theories to opportunities that is dependent on initial assessment and need prioritization. Opportunities to be identified as part of the assessment will include ongoing efforts in: • collaboration, • high conflict situations and negotiation, • public involvement, • cross-cultural work, • governance and understanding systems, • behavior change (including persuasive communication theories), and • political communications. Deliverable for this Step includes: • Draft Assessment Methodology (Deliverable 2)
	Step 3: 6/1/2021 to 7/1/2021 Address comments to the draft and submit the Final Assessment Methodology. Utilize feedback received from steering committee and relevant CBP partner in final methodology. Deliverable for this Step includes: • Final Assessment Methodology (Deliverable 3)
	Step 4: 7/1/2021 to 11/1/2021 Begin data collection (including raw data in spreadsheet or other form), draft prioritization and recommendations, including quantitative and qualitative analysis, and matrices matching social science theories and strategies to opportunities identified during data collection. Match social science theories and frameworks with opportunities, depending on prioritization/needs from methodology including: • Frameworks such as social marketing, community based participatory research, social and behavior change communication, and collective impact theory.

Project Steps and Timeline (continued)	• Theories including cognitive biases theories, organizational theories, and behavioral adoption theories; and • Interventions and individual social science tools including public commitment statements, normative theory, and pledges. Deliverable for this Step includes: Submit Results of Data Collection (Deliverable 4)
	Step 5: 11/1/2021 to 2/1/2022 Complete the Draft Report, which should identify and prioritize social science frameworks, theories, and tools necessary to address challenges best influenced by social science frameworks/strategies. The Draft Report should include the above information contained in Deliverables 3 and 4. The Draft Report must also include an ongoing assessment strategy to track the adoption of recommendations across the Workgroups over time and ultimately how progress is being made integrating and prioritizing social science within partnership. Deliverable for this Step includes: • Draft Report (Deliverable 5)
	Step 6: 2/1/2022 to 3/1/2022 Presentation to the Management Board, which should include methodology and draft recommendations based on results of data collection and analysis. The contractor should facilitate discussion among Management Board members to receive feedback and input to incorporate into the final report. Deliverable for this Step includes: • Presentation to the Management Board (Deliverable 6)
	Step 7: 3/1/2022 to 5/1/2022 The Final Report should include the information contained in Deliverables 3, 4, and 5 as well as the steering committee and relevant CBP partner feedback and input. Deliverable for this Step includes: • Final Report (Deliverable 7)
Stakeholder Participants	Stakeholders include: • Citizen Stewardship Workgroup • Kacey Wetzel, CBT, kwetzel@cbtrust.org • Suzanne Etgen, WSA, setgen@aacps.org • Amy Handen, EPA, handen.amy@epa.gov • Lucinda Power, EPA, power.lucinda@epa.gov • Emily Trentacoste, EPA, trentacoste.emily@epa.gov • Stewardship Goal Team • Science and Technical Assessment and Reporting Team • Other relevant Goal Teams identified as participating in assessment
Deliverables	1. Final Project Schedule (Deliverable 1) 2. Draft Assessment Methodology (Deliverable 2) 3. Final Assessment Methodology (Deliverable 3) 4. Submit Results of Data Collection (Deliverable 4) 5. Draft Report (Deliverable 5) 6. Presentation to the Management Board (Deliverable 6) 7. Final Report (Deliverable 7)
QAPP Requirement	No, a QAPP will not be required for this scope
Qualifications of Bidder	• Experience with broad-scale assessment work and comprehension of social science theory and practice, including frameworks like social marketing, community-based participatory research, social and behavior change communication, and collective impact theory. • Experience with and comprehension of theories including cognitive biases theories, organizational theories and behavioral adoption theories. • Understating of interventions and individual social science tools including public commitment statements, normative theory, and pledges.

Scope of Work 3: Maintaining Forests in Stream Corridor Restoration and Sharing Lessons Learned

Goal Implementation Team (GIT)	Water Quality Goal Implementation Team (GIT 3)
Maximum Bid Amount	$90,000.00
Purpose and Outcomes	With growing interest and implementation of stream restoration practices in the Chesapeake Bay Watershed, there is an increasing need for research about the "trade-off" value for these practices and the existing forest buffers. Forest buffers are critical for stream health. They improve the stability of stream banks, provide shade, filter nutrients and sediments, and contribute organic material for aquatic food webs. Qualifying conditions for stream restoration Best Management Plans (BMPs) offer some protection for riparian vegetation but these conditions have not been consistently met. Because there are large goals for stream restoration and forest buffers in state Watershed Implementation Plans (WIPs) and the 2014 Chesapeake Bay Agreement, it is imperative to better synergize our efforts and investments to minimize negative trade-offs impacts/outcomes. This scope will involve the Urban Stormwater, Stream Health, Wetlands, and Forestry Workgroups to comprehensively assess how forests are accounted for at multiple stages of stream restoration. The contractor will conduct a literature, policy, and permit review, as well as interviews with regulators, practitioners, and local governments. Spatial analysis of a subset of the watershed using new high-resolution land use change and hydrography datasets will help quantify the impacts stream restoration has had on forest buffers and the extent and speed with which riparian forests recover post-restoration. The focal locations, projects, and time frame for this analysis will be determined based on data availability. Spatial analysis will be coupled with existing monitoring efforts to evaluate the implications of stream restoration for riparian forest structure and function. The contractor will also complete a resulting synthesis report that will recommend ways to better incentivize practices that minimize unintended adverse outcomes to riparian forests and identify opportunities for coupling these practices to improve water quality and habitat improvements. These practices should include innovations with earthen or woody dams, beaver analogues, and similar types of innovation that reconnect the floodplain, maintain trees and woody material *in situ* without extensive earth moving and clearing of riparian vegetation and sediment. This report, as well as the latest information on design, placement, permitting and monitoring of stream restoration projects to meet the water quality, stream health and forest buffer goals of the Chesapeake Bay Program (CBP) partnership would be part of culminating webcasts (likely to be state-by-state) to help improve the selection, permitting, and funding processes for these projects. The goal is to look at past stream restoration projects successes and failures in the watershed in relation to forest and riparian area recovery and provide this in writing (as a final report) considering the following: 1) overall project parameters with regard to size, cost, area impacted, etc.; 2) assess any vegetation removal using Geographic Information Systems (GIS) and also revegetation success 3) calculate expected water quality benefits using Chesapeake Assessment Scenario Tool (CAST) and 4) any ancillary data that may be relevant to quantify the impacts stream restoration has had on forest buffers and the extent and speed with which riparian forests recover post-restoration. <u>The Project Outcomes of this scope include the following:</u> As a result of recent public input and the ongoing need for information on this topic related to stream restoration practices and "trade-off" for existing forest buffers, this scope will take a closer look at processes and protocols in parts of watershed to determine what impact these projects have on existing riparian ecology and forest buffers. The contractor will comprehensively assess how forests are accounted for at multiple stages of stream restoration assessment which, for context, could be used to address the following questions:

Purpose and Outcomes (continued)	1. Project planning: How are forests considered in the site selection and project design process? How is the type of restoration agreed upon? What inventory requirements are in place and how are these inventories used in project planning? Are forest agencies engaged and how? The contractor will outline project steps for the states of MD, PA and VA to identify leverage points to improve consideration of buffers in project planning. 2. Permitting: How are existing forests addressed in project permits and how can the functions and values they currently provide be incorporated into baseline site analysis? During what stage(s) of permitting should forestry agencies be engaged to maximize benefits for the Bay and how? How can impacts to existing forest corridors be better enforced? The contractor will outline permit requirements related to riparian forests to enable an evaluation of how closely permits are followed throughout a project lifecycle. 3. Implementation: What impact has stream restoration had on riparian forests? How are losses to riparian forest cover tracked and can we measure the functional change from stream restoration projects? How are discrepancies between project design and implementation (such as expected vs actual forest change) handled? The contractor will summarize data collected to provide clarity on where and why buffers are removed and improve understanding of reported cases where projects are not implemented according to their approved design. The main outcome would be a more complete report and best practices document. Post-restoration: How and to what extent are trees and other vegetation being re-planted and managed after restoration to restore riparian forest functions? What are the parameters for this work? Who is responsible for monitoring? To what extent is riparian tree cover and structure restored after restoration and how quickly does this occur? The main outcome would be a more complete report and best practices document. Qualifying conditions for revegetation as documented in the Stream Restoration Expert Panel report offer some protection for riparian vegetation and one outcome of this project is to see how effectively the states of PA, MD, and VA are enforcing revegetation protocols and/or how they could improve enforcing revegetation protocols. Restoration sites in both urban and rural areas will be examined as determined in conjunction with the project team. This project will be undertaken as two phases: • Phase 1 – Riparian Forest Buffer/Stream Restoration Study and Synthesis Report (Project Steps 1 through 5 described below) • Phase 2 – Deliver Information (Project Steps 6, 7, and 8 described below) Some overlap is anticipated in the timing for the two phases, with planning for the webcast (Phase 2) beginning before the Phase I Riparian Forest Buffer Study is complete. It is estimated that Phase 1 will cost $75,000 and Phase 2 will cost $15,000.
Project Steps and Timeline	**Step 1: 3/15/2021 to 6/10/2021** Project planning and preparation: Kick-off meeting with project team. Discuss contents of the draft QAPP. After kickoff meeting, contractor to provide draft list of documents (documents such as state and local policies, permits, site design, etc.) to review, individuals to be interviewed and to identify the focal area(s) and time frame for spatial analysis. Develop and refine interview questions in consultation with the project team. Develop and refine spreadsheet with key information to extract from documents to be reviewed in consultation with the project team. Contractor to outline entire project and review with team. The contractor will maintain close communication with the project team throughout the project period, with periodic check-in meetings to review progress for all Project Steps. The contractor should also review best practices for local and state governments to consider when planning for stream restoration in the mid-Atlantic region, including innovative, low-impact, and cost-effective practices with proven benefits to habitat and water quality. <u>Deliverables for this Step include</u>: • Project plan including documentation of lists and planning information • Draft Report of Best Practices for local governments for review and discussion **Step 2: 5/17/2021 to 12/15/2021** Review policies in MD, VA, and PA, and also policies and procedures at identified counties where stream restoration has been occurring. Conduct interviews with 4-6 individuals in each jurisdiction who are considered experts on these topics by those in this field (stream

Project Steps and Timeline (continued)	restoration and/or forest buffers). Outline typical process for site selection in each state including the intersection of forest resources, compile key insights from interviews for review by the project team for a thorough understanding of what the different jurisdictions require. Contractor to submit a draft list of documents to be reviewed to project team for approval/comment prior to their review. Develop a draft QAPP no later than July 2021 and submit to EPA (Final QAPP due in September 2021).
	General guidance on QAPP's can be found on the EPA QAPP website: https://www.epa.gov/osa/elements-quality-assurance-project-plan-qapp-collecting-identifying-and-evaluating-existing All data-related tasks being carried out as a part of this project are covered by the EPA Region 3 Quality Management Plan (QMP). The contractor will receive comments from EPA within 30 days and must resubmit a final QAPP with necessary signatures in place to EPA and receive approved QAPP. Deliverables for this Step include: • Draft QAPP/QMP • Final (signed) QAPP Word document summarizing interview findings and Excel spreadsheet with results of the documents review
	Step 3: 5/17/2021 to 1/14/2022 Contractor to acquire details and high-resolution spatial data of 12 projects (4 in each state) previously selected with project team and representing both rural and urban projects. Work with the project team to link spatial analysis with existing monitoring efforts to evaluate changes to riparian community composition during and after restoration projects. Deliverables for this Step include: • Maps, details of selected projects including evaluation of riparian area vegetation change, and other water quality and habitat implications of the selected projects.
	Step 4: 1/17/2022 to 3/30/2022 Contractor to collect input from the project team based on their review of the preliminary findings from the individual tasks to guide the development of the draft report. Contractor to synthesize findings from the interviews, document review (Step 2), and spatial analyses into a report that includes recommendations on opportunities to improve consideration of forests in stream corridor restoration projects to minimize any unintended adverse consequences. The contractor should complete the following: 1. Through the review of literature and CAST, evaluate resource tradeoffs of forest buffers and compare benefits to various stream restoration methods (Natural Channel Design, Floodplain Restoration, Beaver Analog, Regenerative Stormwater Conveyance, etc.). 2. Identify key leverage points in different jurisdictions where safeguards could be improved to minimize the loss of riparian forest cover and forest structure during and after stream restoration projects. 3. Review common practices for stream project selection and design and identify where protection of beneficial land cover such as riparian forests is or should be incorporated. This will also provide insights into how CBP buffer goals are accounted for in local decision making. The goal is to learn from past stream restoration practices using collected data (such as aerial imagery, interviews from local official or similar, and/or site visits with photos) and provide a summary that considers the following: 1) overall project parameters with regard to size, cost, area impacted, etc., 2) assess any vegetation removal using GIS and also revegetation success, 3) calculate water quality benefits using CAST, and 4) any ancillary data that may be relevant to quantify the impacts stream restoration has had on forest buffers and the extent and speed with which riparian forests recover post-restoration. The draft report should synthesize data from the above steps and identify opportunities to improve consideration of forests in stream corridor restoration projects and other means to minimize adverse consequences. Report sections should include executive summary, introduction, literature review of effective stream restoration techniques, methods used to assess riparian impact, data generated, results and analysis, and conclusion. The report should use simple language to easily be understood by local government managers. Deliverable for this Step include: • Draft Report

Project Steps and Timeline (continued)	**Step 5: 4/11/2022 to 7/10/2022** Project team will provide input on draft report within one month of delivery. Contractor to revise final report to incorporate edits and address questions from the project team. Work with the project team to disseminate the report to key stakeholders such as state and local government managers, program staff in affected fields of habitat and water quality, engineers, practitioners, regulators. Deliverables for this Step include: • Final Report • Final Best Practices document for Local Governments
	Step 6: 7/1/2021 to 3/1/2022 This is the first step of *Phase 2: Deliver Information*. The contractor will work with project team to plan three half-day web conferences (one in each PA, MD, and VA, is anticipated). Contractor will develop a draft and, after review, final agenda for the conference, recruit and confirm speakers (no funding provided for speaker fees), and handle all other aspects of webcast logistics, including electronic advertising, registration, website support, and evaluations. Contractor to invite key stakeholders to participate (target of 40 to 60 attendees for each webcast). Stream restoration techniques are constantly evolving, and a conference/ webcast is one mechanism for knowledge transfer and to begin the conversation to improve these BMPs to minimize impacts to habitat and maximize water quality benefits. For the culminating web conference, outreach will occur to a broad audience including Bay partners, stream restoration practitioners, and local officials involved with stream restoration at the state and local level. Web conferences will aid practitioners, partners, regulators, and funders in addressing both pollutant and ecological issues. These webcasts (and perhaps future forums) will help establish a framework for addressing the CBP Science Needs for stream health. Deliverables for this Step include: • Draft and Final Agenda • Draft and Finalize Invitations • List of speakers and their bios • Documentation of completed half-day web conferences such as recordings, summary notes, etc. (minimum of three)
	Step 7: 1/2/2022 to 8/1/2022 Follow-up is required after each web conference, which will include the contractor providing a summary of what was learned from comments, questions, and evaluations received from the webcasts. The contractor to suggest next steps to project team according to what was learned by working in each state, such as what did you hear and what can you recommend as next steps based on what you know, based upon what we consider now to be important topics? The summary should include consideration of the following: • Establishment of guidelines and relationship among stream corridor restoration activities and functional lift, including biological lift. This information will support project selection, design, construction and monitoring to produce better stream health outcomes. • Identification of the extent to which water quality stressors and sources of impairments associated with a TMDL may limit recovery of stream health • Best Practices document for local governments considering stream restoration Deliverable for this Step includes: • "Next Steps" and Best Practices Documents
Stakeholder Participants	Stakeholders include: • Urban Stormwater Workgroup, David Wood, Wood.CSN@outlook.com • Stream Health Workgroup, Megan Ossmann, mossmann@chesapeakebay.net • Forestry Workgroup, Nora Jackson, njackson@chesapeakebay.net • Erik Michelsen, Anne Arundel County, pwmich20@aacounty.org • Mike Lovegreen, Bradford County CD, mike.lovegreen@pa.nacdnet.net • MDE, VADEQ, PADEP (contacts to be identified) • Angela Sowers, Army Corps of Engineers, Angela.Sowers@usace.army.mil • Carin Bisland, EPA, bisland.carin@epa.gov

Deliverables	Phase 1- Research: 1. Comprehensive prospectus after initial consultation with project team 2. Literature review and interview findings (Word document and Excel spreadsheet of reviewed documents) 3. Six meetings (1.5 hrs each) with project team throughout the course of the project 4. Draft and Final (signed) QAPP/QMP 5. Spatial analysis of projects combined with field data to evaluate changes to riparian community composition during and after selected restoration projects. 6. Draft report 7. Final report Phase 2- Deliver Information 8. Establish and facilitate an expanded project team and meet to discuss three webinars 9. Plan and execute three half-day web conferences 10. Work with expanded project team to produce state-specific webcasts in MD, PA, and VA
QAPP Requirement	Yes, a QAPP will be required for this scope.
Qualifications of Bidder	• Demonstrated knowledge of the following: stream biogeochemistry; tree regulations at federal, state, and local level; mapping software and analysis/synthesis of that data; stream restoration BMPs including general knowledge of stream restoration science and design evolution over the last ten years, site selection, permitting, construction, and monitoring; tree/buffer research, CAST • Experience in systems thinking, policies and protocols for large-scale restoration projects • Expertise in research, writing, and presentations.

Scope of Work 4: Planning for Clean Water - Local Government Workshops

Goal Implementation Team (GIT)	Enhance Partnering, Leadership and Management Goal Implementation Team (GIT 6)
Maximum Bid Amount	$70,000.00
Purpose and Outcomes	The Chesapeake Bay Program (CBP) Local Engagement Needs and Resource Assessment (https://www.chesapeakebay.net/channel_files/39926/iv_local_engagement_needs_and_resource_assessment.pdf) found that local government planners are a key audience for nearly all of the Goal Implementation Teams (GITs). Planners play an essential role in land use, sustainable development, land preservation, stormwater management, water resource management and more. Achieving the outcomes of the Chesapeake Bay Agreement will require significant buy-in and support from the local government planning community. Currently, the Local Leadership Workgroup (LLWG) focuses on local leaders who are the decision-makers, including elected officials, appointed officials and senior staff. In many local governments, these decision makers rely on their local planners for expertise. Within the LLWG, planners are widely acknowledged as a valuable liaison between subject matter experts and local leaders. Indeed, local government planners are often one of the trusted sources that local officials look to for information and guidance on clean water issues. This project will jumpstart the Bay Program's efforts to engage local government planners by: Step 1) identifying local planner's needs; Step 2) convening three workshops of planners and CBP staff to discuss mutual goals and best practices; and Step 3) widely share the results of the workshop within the planning community. It is anticipated that this project will engage local government planners from all of the Chesapeake Bay watershed jurisdictions (Maryland, Pennsylvania, Virginia, New York, West Virginia, District of Columbia, and Delaware). The Project Outcomes for this scope include the following: • Build stronger ties between the local government planning community and the CBP by

	increasing relationships between these two groups. • Engage CBP Partners, including GIT/Workgroup chairs, coordinators, staffers and/or members, in a deeper understanding of local planner priorities. • Increase understanding within local government planning staff about: 1) the Bay Agreement Outcomes; 2) the planning tools that they can use to further those outcomes; and 3) the value that meeting the outcomes can bring to their community. • Increase capacity of local government planners to champion clean water issues related to the Bay Agreement, incorporate strategies and recommendations into their comprehensive plans and provide examples of implementation tools and best practices that enhance water quality and living resources.
Project Steps and Timeline	**Step 1: 3/1/2021 to 7/1/2021, Identify Local Planner Needs** Task 1: Meet virtually with technical lead at project initiation for a kickoff meeting to discuss the full suite of project deliverables, timeline, potential trusted sources for planners, and the role and expectations of the contractor. The technical lead is responsible for initiating contact and scheduling the meeting. In partnership with the LLWG and Project Steering Committee (Steering Committee), identify the trusted sources for planners in each jurisdiction (examples: American Planning Association State Chapters, Planning District Commissions, Associations of County Planning Officials, etc.) and create a spreadsheet with key contact information. For purposes of this project, 'planners' is a broad term that includes local government staff within planning departments, public works departments, stormwater divisions, urban planning, and regional planning bodies. Task 2: Host virtual information gathering session (about 1 hour) with representatives from the identified trusted sources to learn about local planner priorities, challenges, needs, opportunities, etc. Contractor will facilitate the discussion to identify obstacles and explore workshop topics that can help address these needs. Further refine the information gathered with a follow-up query or other technique. Task 3: Compile a short report that summarizes findings from the information session and includes the spreadsheet of contact information for planner trusted sources. The report should give an overview of the clean water topics that are most important to planners and include draft materials for each of the three workshops described below. Deliverables for this Step include: • Report summarizing the findings from the trusted sources information session and includes: 1) spreadsheet of contact information for planner trusted sources,2) an overview of the clean water topics that are most important to planners; and 3) draft materials for each of the three workshops (Deliverable 1) • Presentation to LLWG and GIT Coordinators/Staffers to increase CBP understanding of the role of local government planners and their local priorities (Deliverable 2)
	Step 2: 7/1/2021 to 10/1/2021, Convene Workshops for Local Government Planners Task 1: In partnership with CBP Coordinators/Staffers, the LLWG, the Steering Committee, GIT 6, the Local Government Advisory Committee (LGAC) and identified trusted sources, the contractor will ***organize, host, and facilitate three, day-long workshops for local government planners and Bay Program representatives*** (including all meeting logistics, agenda preparation, coordinating with speakers, inviting attendees, registering attendees, etc.). Bids should be flexible enough to hold either in person or virtual workshops; in-person is preferred, but virtual may be necessary depending on the extent of COVID-19 in 2021. Based on preliminary conversations, planning associations are generally receptive to the idea of a co-sponsored workshop that will bring the latest Bay science to the planning community by sharing practical strategies and tools for enhancing water quality and living resources. Ideally, the workshops will be in person, but, if needed, may be conducted virtually. Bid should include venue costs, honorarium for speakers, and mileage reimbursement for local government planner attendees. Assume 50 vehicles would request mileage reimbursement for a total mileage cost of $2,875 (50 vehicles*100 miles*$0.575 = $2,875). Each workshop should include 30 to 50 participants or 90 to 150 total participants from 30 to 50 local governments that represent a variety of communities (large, small, urban, rural, etc.). The locations/topics of the three workshops will be determined based on the results of the information session (Step 1), but could be divided up by jurisdiction (e.g., Pennsylvania,

Project Steps and Timeline (continued)	Maryland, and Virginia), by dominant land use (e.g., coastal, upland rural, urban) or by some other criteria. If deemed appropriate, the workshops may be held in conjunction with existing trusted source events (i.e., conferences). If possible, the workshops would ideally fulfill a Certification Maintenance (CM) Credit for the America Institute of Certified Planners (AICP). It is anticipated that each workshop will have a unique agenda. Final agenda items will be determined based on the findings of the information session but should include a diversity of speakers including local government planners, state level planners, subject matter experts, and others (Step 1). Potential agenda items could include, but are not limited to: • Blue economy (linking water issues such as resilience, fish production, transportation and commerce to economic development) • Enhance Municipal Codes, Policies & Processes (2016 LGAC Planning Forum Recommendation) • Tools for integrating forestry practices into local planning (for example, the Forest Friendly Codes and Ordinances Worksheet and the Financing Urban Tree Canopy Programs Guidebook) • Incorporate green infrastructure into hazard mitigation planning • Insights from new high-resolution land use data • Opportunities for forestry practices (including riparian forest buffers and urban tree canopy) • Opportunities for Wetland Restoration and Enhancement • Policies, incentives, and planning tools for land conservation (Conservation Land Use Policy Toolkit) • Protecting drinking water through land conservation • Using CAST for local planning After the workshops, participants will complete an evaluation to gather additional feedback. *NOTE: It is not anticipated that the contractor will be an expert on these agenda topics. Instead, the contractor will work with the Steering Committee to identify experts from both the local government planning community and the Chesapeake Bay Program who can speak on these topics.* Task 2: With guidance from the Steering Committee, compile a report that summarizes findings from the workshop, including challenges, successes, lessons learned, opportunities, key takeaways, etc. Present to LLWG and Coordinators/Staffers to share the outcomes of the workshop. As requested, present results to GIT 6, LGAC, and/or other CBP stakeholders. Report and presentation should specifically include: a. A summary of the major connections between Bay Program goals/objectives and local planner's programs and projects b. Recommendations to improve alignment of Bay Program goals/objectives and local planner's programs and projects c. Gaps at the local planning/implementation level d. Identification of the major sources of those gaps (e.g., different priorities, lack of staff capacity, funding, etc.) <u>Deliverables for this Step include:</u> • Report that summarizes findings from the workshop, including challenges, successes, lessons learned, opportunities, key takeaways, etc. The report should specifically include: a summary of the major connections between Bay Program goals/objectives and local planner's programs and projects; gaps at the planning/implementation level, and identification of the major sources of those gaps (e.g., different priorities, lack of staff capacity, funding, etc.). The report appendices should include the workshop agendas, copies of the workshop presentations, list of attendees and any other workshop materials. (Deliverable 3) • Present findings to the LLWG and Coordinators/Staffers to share the outcomes of the workshop. Presentation should specifically include: 1) A summary of the major connections between Bay Program goals/objectives and local planner's programs and projects; 2) Gaps at the local planning/implementation level; and 3) Identification of the major sources of those gaps (e.g., different priorities, lack of staff capacity, funding, etc.) (Deliverable 4)

Project Steps and Timeline (continued)	**Step 3: 10/1/2021 to 7/1/2022, Amplify Impact with Presentation** Task 1: With guidance from the Steering Committee, create an engaging webinar/conference presentation that highlights key takeaways from the workshop and includes several local government planner speakers (likely a video that is 60 to 90 mins in length). The webinar/ presentation must be available in an on-demand training format and would ideally fulfill a Certification Maintenance (CM) Credit for the America Institute of Certified Planners (AICP). Task 2: In partnership with the identified trusted sources, share the webinar/conference presentation with local government planners in at least three jurisdictions (e.g., Maryland, Pennsylvania, Virginia, New York, West Virginia, District of Columbia, Delaware). Task 3: Make the webinar/presentation widely available to trusted sources for replication at their meetings/conferences as appropriate. Deliverables for this Step include: • Presentation/webinar, including an on-demand option, that highlights key takeaways from the workshop and is specifically designed for an audience of local government planners; this deliverable should include all conference materials presented (Deliverable 5) • Documentation of distribution of the presentation/webinar to local government planners in at least three Bay jurisdictions (Deliverable 6)
Stakeholder Participants	Stakeholders include: • Local Leadership Workgroup (LLWG)/Contact: Laura Cattell Noll, LLWG/ Coordinator/lnoll@allianceforthebay.org • Local Government Advisory Committee (LGAC)/Contact: Jennifer Starr, LGAC Coordinator/ jstarr@allianceforthebay.org • Project Steering Committee, comprised of LLWG members, LGAC members and representatives from the CBP/Contact: Laura Cattell Noll, LLWG Coordinator/ lnoll@allianceforthebay.org • EPA GIT Coordinators/Staffers (C/S)/Contact: Garrett Stewart, Staffer, stewartg@chesapeake.org • Enhance Partnering, Leadership and Management Goal Implementation Team (GIT 6)/Contact: Chantal Madray, Staffer, Madray.Chantal@epa.gov
Deliverables	Step 1: Identify Local Planner Needs 1. Deliverable 1: Report summarizing findings, including 1) spreadsheet of contact information for planner trusted sources; 2) an overview of the clean water topics; and 3) draft materials for three workshops. 2. Deliverable 2: Presentation to LLWG and GIT Coordinators/Staffers. Step 2: Convene three workshops for Local Government Planners 3. Deliverable 3: Report summarizing the findings from the workshop. 4. Deliverable 4: Presentation to LLWG and GIT Coordinators/Staffers to share outcomes workshop. Step 3: Amplify Impact with Presentation 5. Deliverable 5: Presentation/webinar to an audience of local government planners and all final materials from three workshops. 6. Deliverable 6: Documentation of distribution of the presentation/webinar
QAPP Requirement	No, a QAPP will not be required for this scope
Qualifications of Bidder	• Deep knowledge of local government planning community • Experience partnering with local government planners in two or more Bay watershed jurisdictions - Maryland, Pennsylvania, Virginia, New York, West Virginia, DC, Delaware • Familiarity with the Chesapeake Bay Watershed Agreement • Experienced meeting facilitator, including virtual facilitation • Able to offer Certification Maintenance (CM) Credit for American Institute of Certified Planners (AICP) Accreditation

Scope of Work 5: Management Approaches to Reduce Stressors of Stream Health

Goal Implementation Team (GIT)	Habitat Goal Implementation Team (GIT 2)
Maximum Bid Amount	$47,500.00
Purpose and Outcomes	Despite the millions of dollars spent annually to reduce nutrient and sediment pollution to the Chesapeake Bay, there remains a significant information gap and management need to identify the extent to which management actions improve stream health and the multiple stressors that affect it. As a result, the Chesapeake Bay Program (CBP) Stream Health Work Group (SHWG) and the U.S. Geological Survey (USGS) developed a three-phased Work Plan to comprehensively understand stressors affecting stream health and how management actions (e.g., BMPs) may alleviate stressors beyond their intended goal (e.g., nutrient or sediment reduction) to help restore stream health throughout the Chesapeake Bay Watershed. The first phase of the Work Plan is currently being completed by USGS; **this scope includes completing the second phase of the Work Plan**. The first phase of the Work Plan includes a literature review that is currently being completed by the USGS to identify which in-stream stressors are most affecting stream health, defined for this project as the health/integrity of the benthic macroinvertebrate community: https://www.chesapeakebay.net/channel_files/39966/factorsaffectingstreamhealth_5sept2019v2.pdf This USGS literature review has identified the following category of stressors: flow, physical habitat, sediment, salinity/ions, dissolved oxygen, nutrients, acidity/pH, stream temperature, toxics (mercury, pesticides, metals, PCBs, other). The results of the review are expected to be completed prior to the start of this project and will be made available to the successful contractor. Preliminary results from the literature review suggest toxic contaminants (e.g., pesticides or polycyclic aromatic hydrocarbons (PAHs)) and altered flow regimes are often the primary stressors impacting benthic macroinvertebrate communities in urban landscapes, whereas degraded physical habitat and toxic contaminants (e.g., pesticides) are important in agricultural landscapes. The preliminary regulatory data analyses suggest sediment and turbidity, salinity, nutrients, and habitat degradation to be commonly identified stressors across the watershed. Co-occurring impairments suggest several multi-stressor groupings, related to 1) sediment/nutrients and habitat, 2) contaminants, and 3) metals and acidity. The contractor will use the results of the USGS literature review to identify the stressors on which to focus their own literature review and data analyses. Additional research is needed to identify which of the stressors can be alleviated through management actions, especially those management activities that align with the practices identified in the Phase 3 Watershed Implementation Plans (WIPs). This scope will address an information gap of the effectiveness of BMPs to reduce or eliminate the impact of stressors on stream health. A proposed approach to narrow down the list of potential stressors and BMPs is likely needed, given the potential breadth of the topic: *stressors on stream health*. This will be a topic of discussion at the kickoff meeting (see timeline) as part of this scope along with developing an outline for the synthesis report. The Chesapeake Stormwater Network and the Minnesota Pollution Control Agency provide example reports summarizing similar types of information: -http://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2016/02/Toxics-Report-1.pdf -http://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2016/03/Final-Report-on-Ag-and-Wastewater-Toxics.pdf -https://www.pca.state.mn.us/sites/default/files/wq-ws1-26.pdf The proposed project outcome for this scope is to develop a synthesis report, based on the USGS literature review and data analyses, identifying watershed management actions (e.g., structural and non-structural BMPs), their attributes (e.g., size, depth, vegetation, pre-

Purpose and Outcomes (continued)	treatment, etc.), functions, and capacity to address stressors affecting stream health. The project outcomes will be critical to take advantage of current Bay Program approved nutrient and sediment reduction practices to improve stream health conditions. Currently, restoration professionals evaluate and prioritize management actions based on their cost effectiveness (e.g., pounds phosphorus reduced/acre impervious treated), yet monitoring to evaluate the effectiveness of the implemented action is based, in part, on the improvement of stream health (e.g., benthic macroinvertebrates). It is acknowledged that the amount of existing and available research may vary by stressor. The gaps in research or information are important to identify as part of this report. The results may help restoration professionals identify the management actions that have the greatest potential to improve stream health by not only reducing nutrients and sediments but other factors that impact stream health. The results of this work will provide jurisdictions with more information on the co-benefits of management actions beyond nutrient and sediment reductions to improve stream health. Additional benefits include a more in-depth understanding of the impact of managements on stream health and the potential trajectory of recovery depending on the extent to which stressors are addressed. These results will contribute to concurrent work by USGS, the Healthy Watersheds GIT and the Urban Stormwater Work Group to understand how management actions may impact stream health and why the response of stream functions and processes are, or are not, observed post restoration efforts. Finally, the project will broaden the information used to identify appropriate management actions needed to improve stream health and metrics to evaluate stream health. There are multiple target audiences that would benefit from these results to include State agencies responsible for Bay and local Total Maximum Daily Loads (TMDLs) and the local jurisdictions implementing practices to meet the load reductions for these TMDLs. Both urban and rural jurisdictions may benefit from this research depending on the stressor (e.g., pesticides, polychlorinated biphenyls (PCBs), flow, chloride). Additionally, the results will address information and research gaps identified by the Toxic Contaminants Workplan, Urban Stream Restoration Expert Plan Reports and Verification documents, and the Healthy Watersheds GIT Healthy Watersheds Assessment.
Project Steps and Timeline	**Step 1: 3/15/2021 to 4/30/2021** Project initiation with kickoff meeting and formation of a Technical Advisory Group (TAG) to include SHWG Chair, CRC staffer, invitations to USGS and other members of SHWG, Healthy Watersheds GIT, Toxics Work Group, USWG, and other organizations as applicable. Deliverables for this Step include: • Meeting agenda and minutes • TAG membership
	Step 2: 4/1/2021 to 5/31/2021 Draft outline and data sources for proposed work Deliverable for this Step includes: • Reference database (digital format) and report outline
	Step 3: 6/1/2021 to 6/30/2021 Present outline and data sources to TAG & SHWG and revise with feedback. Deliverables for this Step include: • Participation and presentations to the TAG • Meeting agenda and minutes • Final report outline
	Step 4: 7/1/2021 to 10/31/2021 Conduct literature review and data analysis. identifying watershed management actions (e.g., structural and non-structural BMPs), their attributes (e.g., size, depth, vegetation, pre-treatment, etc.), functions, and capacity to address stressors affecting stream health. The stressors being addressed should be a subset of those that were identified in the USGS literature review that will be provided to the successful contractor as well as being reflective of the feedback received in Steps 1 and 3.

Project Steps and Timeline (continued)	Deliverables for this Step include: • Draft synthesis report that includes an executive summary, a literature review, data analyses, visual representations of results, key findings, and recommendations. The report should reference the three-part SHWG-USGS workplan on "Factors Affecting Stream Health and Implications for Management Decisions."
	Step 5: 11/1/2021 to 11/30/2021 Present preliminary results of literature review and data analysis to TAG & SHWG Deliverables for this Step include: • Participation and presentations to the TAG and SWHG • Meeting agenda and minutes
	Step 6: 12/1/2021 to 12/31/2021 Draft report and distribute for comments to TAG & SHWG. Begin coordination with Chesapeake Bay Program Communications Team, as needed. Deliverable for this Step includes: • Draft Report
	Step 7: 1/1/2022 to 1/31/2022 Revise report based on comments received from TAG, SHWG, and Chesapeake Bay Program Communications Team. Deliverable for this Step includes: • Revised report and summary response to comments
	Step 8: 2/1/2022 to 2/28/2022 Final report/deliverable and presentation to a combined TAG & SHWG Deliverables for this Step include: • Final synthesis report that includes an executive summary, a literature review, data analyses, visual representations of results, key findings, and recommendations. The report should reference the three-part SHWG workplan on "Factors Affecting Stream Health and Implications for Management Decisions." The stressors identified in the USGS literature review, from Part 1 of the work plan (including flow, physical habitat, sediment, salinity/ions, dissolved oxygen, nutrients, acidity/pH, stream temperature, and toxics), should form the basis of, but may not be limited to, this work (digital copy). The target audience is focused on restoration science and management professionals. • Participation and presentations to the TAG and SWHG • Meeting agenda and minutes
Stakeholder Participants	Stakeholders include: • Julianna Greenberg, Chesapeake Research Consortium, Greenberg.julianna@epa.gov • Neely Law, Fairfax County, neely.law@fairfaxcounty.gov • Alison Santoro, Maryland Department of Natural Resources, alisona.santoro@maryland.gov • Sara Weglein, Maryland Department of Natural Resources, sara.weglein@maryland.gov • Scott Phillips, USGS (Representing the Toxic Contaminants Working Group), sphilli@usgs.gov • Matthew Cashman, USGS, mcashman@usgs.gov • Jonathan Witt, Fairfax County Government, jonathan.witt@fairfaxcounty.gov • Chris Ruck, Fairfax County Government, christopher.ruck@fairfaxcounty.gov
Deliverables	1. Draft and final synthesis report; the target audience is focused on restoration science and management professionals. 2. TAG membership 3. Participation and presentations to the TAG and SWHG for a total of 5 meetings 4. Meeting agenda and minutes 5. Reference database (digital format)
QAPP Requirement	No, a QAPP will not be required for this scope

Qualifications of Bidder	• Familiarity with topical subject matter (e.g., stormwater management BMPs and stream restoration, relationship of ecological stressors and ecosystem response) • Demonstrated experience completing professional, peer-reviewed, literature reviews, and synthesis documents • Competency in secondary data analyses and statistical expertise • Ability to translate scientific data into relevant management recommendations • Strong internal QA/QC process • Access to scientific literature • Experience developing documents and incorporating edits from multiple reviewers • List up to three examples of projects completed in the past five years

Scope of Work 6: Modeling Climate Impacts on Submerged Aquatic Vegetation (SAV) in the Chesapeake Bay

Goal Implementation Team (GIT)	Scientific, Technical Assessment and Reporting (STAR)
Maximum Bid Amount	$75,000.00
Purpose and Outcomes	Submerged Aquatic Vegetation (SAV) is a vital habitat of the Chesapeake Bay, and achieving and sustaining historical abundance and distribution is an important restoration goal of the Chesapeake Bay Watershed Agreement. Recently, the Chesapeake Bay Program (CBP) supported a multi-institutional effort that synthesized over 30 years of SAV, water quality, and land-use data. Results of the study titled: *Long-Term Nutrient Reductions Lead to the Unprecedented Recovery of a Temperate Coastal Region* by Lefcheck et al. (Proceedings of the National Academy of Sciences Apr 2018, 115 (14) 3658-662; DOI:10.1073/pnas 1715798115) empirically demonstrated that management efforts to reduce nutrient pollution are responsible for the recovery of tens of thousands of acres of SAV in the Bay. While the validation of environmental policy is rewarding and provides necessary incentive to stay the course to ensure additional future recovery, the role of emerging climate stressors was not included or accounted for in this study, and the question of these threats to the Chesapeake Bay ecosystem, and to SAV specifically, still lingers. This project will address the role of climate stressors on Chesapeake Bay SAV, including warming temperatures, rising sea levels, chronic low oxygen concentrations, and increased runoff driven by greater precipitation and more frequent, intense storm activity. Balancing current successful nutrient management strategies with these emerging stressors will be one of the biggest challenges that the Chesapeake Bay management community faces. Complicating this task will be the variety of SAV species in the Bay and their potentially contrasting responses, as was demonstrated during the 2019 Bay-wide SAV survey. The excessive precipitation in 2018 and 2019 increased nutrient loading to the Bay and also affected salinities. This had a dramatic and negative impact on SAV in the southern, saltier portion of the Bay in 2019 where thousands of acres of SAV were lost, but SAV in the upper portion of the Bay and tributaries continued to recover and expand in most areas. This does not suggest that freshwater SAV communities are impervious to poor water quality; rather it highlights the necessity to identify the ecological tipping points or levels of stress these communities can endure before they collapse. Furthermore, these results suggest that it may be beneficial to tailor future management strategies to the various SAV communities present in the Bay. Specifically, the objective of this project will be to model interactions between nutrient loading and emerging climate stressors, including warming temperatures, oxygen minimum zones, sea-level rise, greater precipitation, and reduced water clarity in determining future SAV abundance and recovery potential, and to determine species and community-level

Purpose and Outcomes (continued)	tipping points. Final project products will include a detailed report of model outcomes and potential SAV recovery trajectories under various climate change scenarios. Additionally, a software application will be developed for use by the Chesapeake Bay research and management community that will allow users to explore and determine the relative impact of various stressors on future community-specific SAV abundance. The software application will be developed with the flexibility to determine site-specific SAV restoration potential in future versions.
Project Steps and Timeline	**Step 1: 3/15/2021 to 5/30/2021 (Month 1 - 3: submit draft QAPP; kick-off meeting with GIT lead; steering committee formation and meeting)** Task 1: Meet virtually with GIT lead at project initiation to discuss the full suite of project deliverables, timeline, potential steering committee members, and the role and expectations of the contractor and steering committee and draft QAPP development. The GIT lead is responsible for initiating contact and scheduling the meeting. Task 2: Develop a draft QAPP no later than mid-month 2 and submit to EPA. General guidance on QAPP's can be found on the EPA QAPP website: https://www.epa.gov/osa/elements-quality-assurance-project-plan-qapp-collecting-identifying-and-evaluating-existing. All data-related tasks being carried out as a part of this project are covered by the EPA Region 3 Quality Management Plan (QMP). Task 3: Receive comments from EPA and make edits to QAPP document (EPA requests 30 days for review of draft QAPP). Resubmit a final QAPP with all necessary signatures in place to EPA and receive approved QAPP. We assume 2 weeks for revisions and 2 weeks for EPA to give final approval. This must be done before data collection and analysis can occur. Task 4: Recruit steering committee members from the CBP partnership, including members of the SAV Workgroup, the Modeling Workgroup, the Climate Resiliency Workgroup and the STAR team. The GIT lead will suggest potential steering committee members, as well as provide contact information for each Chesapeake Bay Program workgroup/team so that the successful bidder can independently solicit additional membership if needed. Develop a list of organizations and individuals contacted (name, organization, email address) that will be due to the GIT lead prior to the virtual steering committee meeting; individuals who agreed to participate in the steering committee should be identified. Task 5: Convene virtual kick-off meeting with steering committee, in consultation with the GIT lead. The contractor will present the project overview, timeline, the contractor's role, and what is expected from the steering committee. During the meeting, the contractor, GIT lead, and steering committee will work together to further refine project goals based on steering committee input. The GIT lead will be responsible for scheduling and hosting the virtual meeting. Deliverables for this Step include: • Draft QAPP (Task 2, Deliverable 1) • Final (signed) QAPP (Task 3, Deliverable 2) • List of organizations and individuals contacted and individuals that will participate in the steering committee as both an editable electronic file and PDF; (Task 4, Deliverable 3) • Editable electronic copy of the presentation, meeting notes, and meeting recording will be submitted within one week of the kick-off meeting. The contractor will receive a consolidated written set of comments within 30 days of receiving the presentation copy, notes, and meeting recording (Task 5, Deliverable 4)

Project Steps and Timeline (continued)	**Step 2: 6/1/2021 to 8/31/2021 (Month 4 - 6: data collection and statistical analyses)** Task 1: Assemble long-term observational datasets (1984 - 2020) on SAV cover and species distribution from the VIMS SAV Aerial Survey (http://web.vims.edu/bio/sav/) Task 2: Assemble long-term observation datasets on water quality from CBP's Water Quality Monitoring Program and rainfall and streamflow datasets through 2020: https://www.chesapeakebay.net/what/programs/monitoring https://www.usgs.gov/centers/cba/data-tools) Task 3: Fit generalized additive models (GAMs) or other appropriate nonparametric statistics to assess non-linear interactions between SAV habitat parameters and climate stressors, including but not limited to temperature, DO, nitrogen and phosphorus concentrations, salinity (precipitation), depth (sea level), and Secchi depth/total suspended solids, and control for other key covariates (like area of habitable bottom) and temporal and spatial autocorrelation. Fit each model separately to quantify community and species-specific trends. Task 4: Meet with GIT lead and steering committee during month 6 to discuss progress and results to date as well as the predictive approach intended. Contractor is responsible for initiating contact and scheduling the meeting. The contractor will receive a consolidated written set of comments within 30 days of the meeting. Deliverables for this Step include: • Editable electronic copy of the meeting notes and meeting recording will be submitted within one week of the second quarterly meeting. The contractor will receive a consolidated written set of comments within 30 days of receiving the notes and meeting recording (Task 4, Deliverable 5) • Electronic summary report of statistical analysis/model output data will be due by the end of month 6 (Task 3, Deliverable 6)
	Step 3: 9/1/2021 to 11/30/2021 (Month 7 - 9: development of predictive models) Task 1: Determine future SAV abundance and recovery potential and where possible, fit each model separately to quantify community and species-specific trends. Identify the significant correlation associated with historical changes in SAV cover and their relative importance. Use outputs from global climate and sea-level rise models and the Chesapeake Bay Watershed Model (based on current and future land use/management scenarios) to re-fit the models and generate predictions of SAV cover under different scenarios of global change. Task 2: Meet with the GIT lead and the steering committee during month 9 to discuss progress, results, and success or failures of the predictive approach to date. Contractor is responsible for initiating contact and scheduling the meeting. Deliverables for this Step include: • Editable electronic copy of the meeting notes and meeting recording to be submitted within one week of the second quarterly meeting; contractor will receive a consolidated written set of comments within 30 days (Task 2, Deliverable 7) • Summary report of predictive model output data by end of month 9 (Task 1, Deliverable 8)
	Step 4: 12/1/2021 to 2/28/2022 (Month 10 - 12: software development) Task 1: Develop software application, such as a Shiny app in R, to display model predictions. From this app, end users should be able to select various inputs into the model (for example, different expected increases in average global temperature) and determine the trajectory of SAV recovery into the future. Task 2: Convene meeting with GIT lead and steering committee to review software application and initial results. During this meeting, report preparation will also be discussed. Contractor is responsible for initiating contact and scheduling the meeting. Task 3: Meet with GIT lead for end-of-year check-in during month 12 to discuss progress to date. Contractor is responsible for initiating contact and scheduling the meeting. Deliverables for this Step include: • Draft software application (Task 1, Deliverable 9) • Editable electronic copy of Task 2 meeting notes and meeting recording submitted in one week of the meeting. The contractor will receive a consolidated written set of comments within 30 days of receiving the notes and meeting recording (Task 2, Deliverable 10)

Project Steps and Timeline (continued)	**Step 5: 3/1/2022 to 5/30/2022 (Month 13 - 15: draft report)** Task 1: Submit draft report to GIT lead and steering committee. Draft report should include an introduction to the SAV and climate change issues in Chesapeake Bay, analytical methods used to determine combined impacts of nutrient pollution and climate stressors on Chesapeake Bay SAV, results, discussion, and conclusion regarding the future potential of SAV recovery in the Bay. A description of the software developed should also be included, as well as an appendix describing how to obtain and use the software. Task 2: Meet with GIT lead during month 15 to discuss progress to date. Contractor is responsible for initiating contact and scheduling the meeting. Deliverables for this Step include: • Editable electronic draft report by the end of Month 15. The GIT lead and steering committee will review report and the contractor will receive a consolidated set of comments within 30 days of submission (Task 1, Deliverable 11)
	Step 6: 6/1/2022 to 8/31/2022 (Month 16 - 18: submit final report and final software application; present findings to steering committee and CBP stakeholder community) Task 1: Convene meeting with the GIT lead and steering committee to review final analysis and communicate final results; and present draft presentation prepared for CBP community and stakeholder groups (see Task 4). Task 2: Submit final report (see Task 5, Step 1 for components to include). Task 3: Submit final software application. Task 4: Present final results to the SAV, Climate Resiliency, and Modeling Workgroups, as well as the Habitat and Fisheries GITs and STAR during webinar. Deliverables for this Step include: • Editable electronic copy of the Task 1 draft presentation, meeting notes, and meeting recording will be submitted to the GIT lead within one week of the meeting; the contractor will receive one consolidated written set of comments from the GIT lead within 14 days of the presentation (Task 1, Deliverable 12) • Editable final report provided by Month 18 (Task 2, Deliverable 13.) • Final version of the software application by Month 18 (Task 3, Deliverable 14) • Editable electronic copy of the Task 4 final presentation and meeting recording submitted within one week of the final meeting (Task 4, Deliverable 15)
Stakeholder Participants	Stakeholders include: • Science, Technical Assessment and Reporting (STAR) team/Scott Phillips, Chair, swphilli@usgs.gov • Submerged Aquatic Vegetation Workgroup/Brooke Landry, Chair, brooke.landry@maryland.gov • Climate Resiliency Workgroup/Julie Reichert-Nguyen, Coordinator, julie.reichert-nguyen@noaa.gov • Modeling Workgroup/Lewis Linker, Coordinator, linker.lewis@epa.gov
Deliverables	Interim Deliverables 1. Draft QAPP 2. Electronic summary of model output data 3. Electronic summary of predictive model output data 4. Draft software application to be presented to the GIT lead and steering committee 5. Editable electronic draft report Final Deliverables 6. A final (signed) QAPP 7. A list of organizations and individuals contacted and a list of individuals that will participate in the steering committee 8. Editable electronic copies of all presentations and meeting recordings 9. An editable electronic final report 10. A final version of the software application 11. Final presentation
QAPP Requirement	Yes, a QAPP will be required for this scope.

Qualifications of Bidder	• Extensive and proven knowledge of SAV in Chesapeake Bay • Knowledge and understanding of CBP's water quality monitoring program • Knowledge and understanding of climate impacts on SAV • Knowledge and expertise for global climate and sea-level rise models and the Chesapeake Bay Watershed Model • Expertise/Experience in statistical analysis (generalized additive models, nonparametric statistics) and statistical software (SAS, R) • Expertise/Experience in software development, such as Shiny app in R • Familiarity with writing quality assurance project plans (QAPP) or other procedural documents on environmental monitoring data collection and quality control • Bidder should provide at least one example of a software application that has been developed by the bidder in the past five years • Bidder should also provide at least one example of a peer-reviewed article detailing SAV recovery and/or response to environmental conditions or management actions

Scope of Work 7: Forage Indicator Development - Using Environmental Drivers to Assess Forage Status

Goal Implementation Team (GIT)	Sustainable Fisheries Goal Implementation Team (GIT 1)
Maximum Bid Amount	$60,000.00
Purpose and Outcomes	Forage is a critical component of the Chesapeake Bay ecosystem as prey for key species including striped bass and blue crabs. Tracking and assessing the status of the forage base is an important outcome of the Chesapeake Bay Watershed Agreement, to ensure that there is enough prey available to sustain predator populations (https://www.chesapeakebay.net/documents/FINAL_Ches_Bay_Watershed_Agreement.withsignatures-HIres.pdf). To achieve this outcome, the Chesapeake Bay Program's Forage Action Team has committed to developing a suite of indicators that will evaluate the status and trends of key forage species and associated habitat throughout the Bay. Forage indicator development is a top priority of the Forage Action Team and is a primary action listed in the 2020-2021 Forage Fish Outcome Logic and Action Plan (https://www.chesapeakebay.net/documents/22031/2020-2021_forage_logic_and_action_plan_.pdf). The goal of this project is to develop population status indicators for two key forage taxa in the Chesapeake Bay based on quantitative relationships with environmental drivers. Diet analyses conducted as part of the 2014 Scientific and Technical Advisory Committee Workshop identified bay anchovy (*Anchoa mitchilli*) and polychaetes (Subphylum Polychaeta) as the most important finfish and benthic prey for key predators in the Bay and will therefore be the focus of this project (https://www.chesapeakebay.net/documents/22031/final_stac_forage_workshop.pdf). The primary environmental factors examined as part of this project should be the rate of springtime warming (i.e., how quickly water temperatures reached a threshold in spring) and the Atlantic Multidecadal Oscillation (AMO), as a previously-funded study determined that these factors significantly affect the summer abundance of key forage taxa in the Chesapeake Bay (https://www.chesapeakebay.net/documents/Forage_Final_Report_2017_final-draft_24oct17.pdf). Therefore, these environmental factors and their quantitative relationships with summer abundance can be used to develop an indicator of forage status in the Bay. Understanding how environmental factors affect forage abundance is important for understanding the broader ecosystem health of the Chesapeake Bay. Forage indicators can also be used in fishery and habitat management to guide decision-making using an ecosystem-based approach. These environmental factors and, consequently, forage abundance will also be directly affected by climate change. By coordinating indicator development efforts with the Climate Resiliency Work Group (CRWG), we can ensure that this project develops

Purpose and Outcomes (continued)	informative, useful indicators that can be used by both the Forage Action Team (FAT) and the CRWG. For example, a forage indicator based on springtime warming or the AMO climate index can also provide insight into the effects of climate change on prey availability (e.g., forage abundance or biomass) in the Chesapeake Bay. This project will improve understanding of environmental effects (e.g., water temperature and warming rates, climate indices) on the population status (such as abundance, biomass) of two key forage taxa in the Chesapeake Bay. The forage indicators developed as a result of this project can be used to inform fishery and habitat management decisions in an effort to maintain prey availability for ecologically and economically important finfish predators. In addition to providing a steppingstone toward ecosystem-based management, these indicators will improve understanding of climate change effects on forage populations and, consequently, the Chesapeake Bay ecosystem.
Project Steps and Timeline	**Step 1: 3/15/2021 to 4/21/2021** Meet with the Forage Action Team (FAT) at project initiation to discuss the project goals, deliverables, timeline, data sources, and analytical approach. The FAT will act as the steering committee for this project, with additional input from other stakeholders throughout the project period. The contractor will meet with the FAT at the end of each project quarter to discuss progress. The GIT Lead will work with the FAT Coordinator and the contractor to schedule and coordinate the kick-off and quarterly progress meetings. In addition to quarterly meetings, progress reports will also be submitted to the Chesapeake Bay Trust (CBT), the GIT Lead, and the FAT at the end of each project quarter. During this timeframe, the contractor should also prepare and submit a draft Quality Assurance Project Plan (QAPP) to the Environmental Protection Agency (EPA), allowing 30 days for review. After receiving EPA feedback on the draft QAPP, the contractor should submit a final QAPP with appropriate edits and the necessary signatures back to the EPA for final approval. Guidance for developing a QAPP for secondary data can be found at https://www.epa.gov/quality/quality-assurance-project-plan-requirements-secondary-data-research-projects. This project will be covered under the Chesapeake Bay Program Quality Management Plan (QMP), so the following statement should be included in the QAPP: "All data-related tasks being carried out as a part of this project are covered by the U.S. EPA Region 3 Quality Management Plan." Deliverables for this Step include: • Editable draft QAPP • Final (signed) QAPP in PDF format • Quarterly progress reports, including a project update, issues and concerns, and any additional information that will improve the project going forward, submitted to the Trust, FAT, and the GIT Lead as a PDF at the end of each project quarter
	Step 2: 4/21/2021 to 6/14/2021 Compile all relevant biological and environmental data into a database (e.g., Excel, Access). This should include the Atlantic Multidecadal Oscillation (AMO), water temperature data, and bay anchovy and polychaete abundance/biomass data from the Chesapeake Bay (both MD and VA) and its tributaries. The contractor may choose to examine additional environmental variables (e.g., flow, dissolved oxygen/hypoxia), time-permitting, with the approval of the GIT Lead and the FAT. The FAT and other CBP partners and stakeholders can provide support for identifying and accessing appropriate datasets. Once all the appropriate data are collected and examined, the contractor should develop an analytical framework including the data, variables, models, and spatial/temporal scales that will be used to assess the effects of environmental conditions on forage populations. The contractor should expect to present this framework to the FAT and GIT Lead at the progress meeting at the end of the first project quarter. *Suggested data sources include (but are not limited to):* - Chesapeake Bay Fishery-Independent Multispecies Survey (Bay anchovy) - Chesapeake Bay Long-Term Benthic Monitoring and Assessment Program (Polychaetes) - Chesapeake Bay Multispecies Monitoring and Assessment Program (Bay anchovy)

Project Steps and Timeline (continued)	- Chesapeake Bay Program Water Quality Data (Water temperature) - MDNR Juvenile Striped Bass Survey (Bay anchovy) - MDNR Upper Bay Winter Trawl Survey (Bay anchovy) - NOAA Physical Sciences Laboratory Climate Data (AMO) - VIMS Juvenile Fish and Blue Crab Trawl Survey (Bay anchovy) - VIMS Juvenile Striped Bass Seine Survey (Bay anchovy) Deliverables for this Step include: • Excel or Access database of all biological and environmental data and sources, submitted to the GIT Lead as an editable electronic file by end first project quarter (6/14/2021) • Presentation and PDF of the proposed analytical framework, submitted to the FAT and the GIT Lead by 6/14/2021 • Progress report, submitted to the CBT, FAT, and the GIT Lead as a PDF by 6/14/2021
	Step 3: 6/15/2021 to 9/14/2021 Conduct analyses of environmental factors driving forage abundance using R statistical software. Statistical analysis will likely include the development of generalized linear models and delta-generalized linear models to predict summer forage abundance as environmental conditions change. Again, the contractor should primarily focus on springtime warming (water temperature) and the AMO as drivers of bay anchovy and polychaete populations and should use the previous GIT-funded study as a reference for analysis and modeling methods. Deliverables for this Step include: • R modeling/analysis script (code) and model outputs, submitted to the GIT Lead as both an R file and a PDF by the end of the second project quarter (9/14/2021) • Progress report, submitted to the Trust, FAT, and the GIT Lead as a PDF by 9/14/2021
	Step 4: 9/15/2021 to 10/1/2021 Meet with the FAT and other CBP partners and stakeholders (e.g., Climate Resiliency Work Group, Fish Habitat Action Team) to discuss and coordinate indicator development options based on the results of the analyses. The team must decide if the environmental factors examined are in fact suitable indicators of bay anchovy and polychaete summer abundance in the Bay, and if a stand-alone indicator can be developed for each variable and taxa, or if composite indicators should be developed (e.g., if there is an interaction between the environmental variables). The experts in these workgroups should provide the contractor with advice for how to move forward with indicator development. The current vision is that the contractor will at least develop a time series of the environmental factors and the abundance/biomass of forage taxa. If possible, the analyses will identify thresholds at which environmental conditions significantly impact forage populations such that other more easily interpreted indicators can be developed (e.g., stoplight chart; red=bad/over threshold, yellow=neutral/near threshold, green=good/below threshold). *Indicator examples/resources:* - Chesapeake Bay Report Card (UMCES, Integration and Application Network) https://ecoreportcard.org/report-cards/chesapeake-bay/bay-health/ - Bay Barometer (Chesapeake Bay Program) https://www.chesapeakebay.net/documents/bay-barometer-18-19_final.pdf - Indicators: Characteristics, Qualities, and Options https://www.chesapeakebay.net/channel_files/23830/2016indicators_ppt_tango_star_sept.pdf100011
	Step 5: 10/1/2021 to 12/14/2021 Develop indicator(s) of forage status for bay anchovy and polychaetes using the environmental factors deemed important in the analysis and in consequent discussions with the FAT. The data manipulation and visualizations should be conducted using R statistical software. Deliverables for this Step include: • R indicator script (code) and visualization outputs, submitted to the GIT Lead as both an R file and a PDF by the end of the third project quarter (12/14/2021) • Progress report, submitted to the CBT, FAT, and the GIT Lead as a PDF by 12/14/2021

Project Steps and Timeline (continued)	**Step 6: 12/15/2021 to 3/14/2022** Prepare the final report for the project. The final report should include all R code and outputs in addition to the analytical approaches used, the results, and the final indicators developed. A draft report should be submitted to the GIT Lead and the FAT six weeks prior to the end of the project period. The team will provide edits and feedback in preparation for the final report. Deliverables for this Step include: • Editable draft report, submitted to the GIT Lead and the FAT by 2/1/2022 for review and feedback prior to developing the final report • Final report package, including the editable database, the R files and PDFs of all R scripts and outputs for modeling/analysis and indicator development, and the final indicator graphics, submitted to the Trust, FAT, and the GIT Lead by 3/14/2022
	Step 7: 12/15/2021 to 3/14/2022 Present the final project results to relevant stakeholders across the CBP such as the Sustainable Fisheries Goal Implementation Team and the Scientific, Technical Assessment, and Reporting team at either in-person meetings or via webinar. Final meeting with the CBP and NOAA Chesapeake Bay Office communications teams to discuss the project and results so they can develop communication products aimed toward the CBP and the general public. Deliverable for this Step includes: • Presentation of final project results in PDF format by 3/14/2022
Stakeholder Participants	Stakeholders include: • Forage Action Team • Sustainable Fisheries Goal Implementation Team • Climate Resiliency Work Group • Scientific, Technical Assessment, & Reporting (STAR) Team • Fish Habitat Action Team • Habitat Goal Implementation Team
Deliverables	1. Editable draft QAPP 2. Final, signed QAPP in PDF format 3. Quarterly progress reports in PDF format 4. Excel or Access database in the form of an editable electronic file that includes all biological and environmental data used in the analyses and the sources 5. Presentation and PDF of the proposed analytical framework including the data, variables, models, and temporal/spatial scales to be used 6. Editable R file and PDF of the R modeling/analysis script (code) and model outputs 7. Editable R file and PDF of the R indicator script (code) and visualization outputs 8. Editable draft of the final project report 9. Presentation of the final project results in PDF format 10. Final report package that includes the editable database, the R files and PDFs of all R scripts and outputs for modeling/analysis and indicator development, and the final indicator graphics
QAPP Requirement	Yes, a QAPP will be required for this scope.
Qualifications of Bidder	• Experience with fisheries and benthic survey data • Knowledge of R programming software • Experience developing indices and using various statistical models: - Generalized Linear Models (GLM) - Delta-Generalized Linear Models (ΔGLM) - Generalized Linear Mixed Models (GLMM) - Generalized Additive Models (GAM) • Proficiency with database software and development • Strong written and verbal communication skills • Familiarity with the concept of degree-days preferred • Experience writing QAPPs preferred

Scope of Work 8: Synthesis of Shoreline, Sea Level Rise, and Marsh Migration Data for Wetland Restoration Targeting

Goal Implementation Team (GIT)	Habitat Goal Implementation Team (GIT 2)
Maximum Bid Amount	$72,500.00
Purpose and Outcomes	The Chesapeake Bay has nearly 10,000 miles of tidal shoreline that is vulnerable to changing climatic and sea level conditions. Sea level rise (SLR) is inundating higher elevations resulting in marsh migration inward or loss at lower elevations due to drowning. In some areas, hardened shorelines or the nearby landscape make it impossible for marshes to migrate further inland and complete loss of wetlands may eventually occur. Existing data are available related to marsh elevation, shoreline hardening, marsh migration corridors, adjacent land use, and sea level rise throughout the Bay watershed, but often from separate organizations or academic institutions without cohesion or synthesis. A comprehensive set of all available data in the Chesapeake Bay Watershed related to these parameters and synthesis analysis for decision-making is lacking. This project will compile existing information about SLR inundation, topography, shoreline condition, wetland area and migration corridors from Chesapeake Bay Program (CBP) partners and other organizations and provide a methodology for synthesizing and translating this information to assist with marsh conservation and restoration decisions under changing sea level rise scenarios. Additionally, where available, information on groundwater flow, subsidence and irrigation ditch networks should be included since these features can influence decisions related to marsh migration and restoration strategies. The final deliverable for this scope will include a full list of available data sources in the tidal regions of the Chesapeake Bay for the parameters mentioned above. From the compiled list of data sources, a specified geographic location that includes various marsh (e.g., conservation, restoration, migration) and land-use (e.g., preserving existing wetland habitat or converting agricultural, forested, or developed land to marsh) decisions related to SLR will be selected. Adjacent land use data can help inform decisions on areas available for marsh and an evaluation of tradeoffs in having to re-designate land use to allow marsh migration. The project team (including the contractor) will choose a location to inform the development of the data synthesis methodology that could also be utilized in other locations in the watershed. The general area of the project team's interest is the Middle Peninsula of Virginia, but the exact location chosen will depend on the results of the data collection. If available, demographic and socio-economic data for the chosen (selected) location will also be included in the analysis to better understand the community and social dynamics that may affect marsh migration, restoration, and conservation planning. The selected location will serve as a pilot for developing a methodology and applying the synthesized information to address various local decision-making needs on employing wetland conservation, restoration and/or adaptation strategies related to projected SLR conditions. The major project goals are to compile and synthesize data in a format informed by pilot location end-users to ensure suitability for use by decision-makers for wetland restoration and conservation targeting in other watershed communities given impacts from SLR. Pilot location end-users could include landowners, local, state, and federal wetland regulators, and land trusts. Results of the project's data and methodology could be used in a broader sense, as an example, to guide the development of the Virginia Coastal Climate Resilience Master Planning Framework and Coastal Resilience Master Plan which seek to use marsh migration information to develop new Chesapeake Bay Program Act guidance to address the anticipated inland migration of regulated areas as sea level rises, amend the Tidal Wetlands Act guidance to accommodate the inland migration of tidal wetlands as sea level rises, and inform the "Conserve Virginia" effort to map and preserve wetlands with above average resilience indicating greatest long-term potential for adaptive response based on projected sea level rise.

Purpose and Outcomes (continued)	Project Outcomes for this scope include the following: • A compilation of available studies, data, GIS layers, and metadata (brief descriptions of data) related to SLR, topography, shoreline condition, wetland area, migration corridors, subsidence, groundwater flow, irrigation ditch networks, and adjacent land use from the Virginia Institute of Marine Science (VIMS), U.S. Geological Survey (USGS), state agencies, and other partners and organizations in the tidal portion of the Chesapeake Bay watershed should be completed. Gathering this information will allow future studies to be more accurate and comprehensive and will prevent duplicate work. • A proposed data synthesis methodology informed by potential end-users that applies this information for various wetland restoration and conservation decisions related to SLR at a finer scale in a chosen geographic location within the Chesapeake Bay watershed. Ideally, the selected location will have features that would support decisions involving marsh migration/loss prevention and different landscape and adjacent land use considerations (e.g., elevation, shoreline condition, adjacent land-use type). It is also expected that the methodology will involve GIS analysis. This methodology will serve as an example for how decision-makers can target resources toward wetland conservation or restoration that will strategically build more resilience in a changing climate in two distinct ways: 1) identifying where tidal wetlands will migrate with SLR helps identify upland areas to conserve or re-designate land use and 2) evaluating existing tidal wetlands for resilience to SLR and climate change helps identify areas to restore and/or protect. This methodology will demonstrate an approach that can then be implemented in this community or applied to other areas in the watershed. This project will help the Climate Resiliency Workgroup by supporting data synthesis that can help inform adaptation strategies and decision-making. The deliverables of this project will help target areas where those adaptation projects should be implemented (if associated wetlands are present), and the data sources and studies compiled in this project will help inform the state adaptation plans. The Wetland Workgroup can serve as a partner on these adaptation projects and plans to share the results of this project with larger networks of wetland practitioners, such as at the annual Marsh Resiliency Summit. *This RFP encourages participation of minority/disadvantaged/women/small business enterprise (MBE/DBE/WBE/SBE) firms and the Trust encourages MBE/DBE/WBE/SBE firms who meet the qualifications to respond to this scope. For all subcontracted work, the applicant should demonstrate that Good Faith Efforts were used to engage MBEs/DBEs/WBEs/SBEs by reaching out to MBE/DBE/WBE/SBE firms to obtain estimates or bids*
Project Steps and Timeline	**Step 1: 3/15/2021 to 8/31/2021 (Month 1-6)** Complete QAPP, complete the initial meeting and conduct data compilation. Task 1: Meet with technical lead, project team, and appropriate members of the Wetland and Climate Resiliency workgroups (as determined and invited by project team) for a project kick-off meeting to discuss the full suite of project deliverables, timeline, and GIS data the project team proposes be collected and analyzed. Prior to the start of the project, CBP Partnership staffers will provide a list of points of contact related to data for sea level rise, topography, shoreline condition, wetland area, migration corridors, land use, subsidence, water flow, and ditch networks and existing synthesis of this data in the Chesapeake Bay. The CBP will be responsible for initiating contact and scheduling the kick-off meeting. The contractor will be responsible for taking meeting minutes. From here on out, the "project team" will refer to the project technical lead, preparers of this proposal, and the contractor team. The "steering committee" will refer to an expanded group that includes the same members of the project team, plus representatives from the Wetland Workgroup, Climate Resiliency Workgroup, GIS team, Local Government Advisory Committee, and other individuals that the project team identifies as important to be involved.

Project Steps and Timeline (continued)	Task 2: Before any data collection begins, the contractor must develop and receive approval of a Quality Assurance Project Plan (QAPP). All data-related tasks being carried out as a part of this project are covered by the EPA Region 3 Quality Management Plan (QMP). The contractor will submit a draft QAPP to the Technical lead by 4/15/2021. EPA will provide comments within 30 days. Task 3: Revise the QAPP based on the received feedback and will resubmit the QAPP with all necessary signatures in place. Once EPA approves the final QAPP, the project can begin. Task 4: The contractor will use the list of contacts provided in Task 1 as a starting point to conduct a literature review and gather and compile a list of available data sources, GIS layers, synthesis tools, and models with predictive data (including all associated metadata), related to the above topics from Task 1 in an Excel spreadsheet. Task 5: Using Deliverables 3 and 4, the contractor will develop a document summarizing each relevant source of data, including the source, the type, a brief description, a link and/or instructions for how to access, associated metadata, and a description of its usefulness for marsh conservation/migration decisions. The desired format is similar to this draft metadata factsheet (https://www.chesapeakebay.net/channel_files/40806/chesmmap.pdf) from the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP). Deliverables for this Step include: • Draft QAPP (word document) due by 4/15/2021 (Task 2, Deliverable 1) • Final QAPP (electronic editable document and PDF) by 6/1/2021 (Task 3, Deliverable 2) • Excel spreadsheet containing a list, link, and brief description of the available data sources, GIS layers, synthesis analyses, and models by the end of Month 6; contractor will receive one consolidated set of comments within 30 days (Task 4, Deliverable 3) • Draft literature review with brief descriptions of studies related to the compiled information from Deliverable 3 will be due by the end of Month 6 (word document); the contractor will receive one consolidated set of comments within 30 days (Task 4, Deliverable 4) Draft electronic editable document containing a metadata fact sheet for each data source will be due by the end of Month 6; the contractor will receive one consolidated set of comments within 30 days (Task 5, Deliverable 5)
	Step 2: 9/1/2021 to 10/31/2021 (Month 7-8) Meet with steering committee virtually to review first two deliverables and work with the steering committee to choose a location that captures various marsh conservation/migration and land-use decisions under SLR scenarios. Task 1: In Month 7, the contractor will initiate a meeting with the steering committee to review the list of data sources and discuss a preferred location to inform the development of the data synthesis methodology that could also be utilized in other locations in the watershed. The general area of the project team's interest is the Middle Peninsula of Virginia, but the exact location chosen will depend on the results of Step 1. The steering committee will also discuss who are the intended end-users of this data synthesis product in the chosen location and will provide the contractor with a list of people they would like to invite to the feedback meetings to be involved in this project. The contractor will be responsible for getting stakeholder and end-user approval and commitment from the selected location to participate in feedback meetings during the development of the data synthesis methodology. Task 2: Once a location is chosen by the steering committee and agreed to by the stakeholders/anticipated users of this data, the contractor will identify data sources that are available for that location and develop conceptual options for a synthesis product (e.g., static maps that identify and prioritize migration corridors in relation to adjacent land use and SLR; indices that assess resilience of existing wetlands to SLR). If available, the contractor will also gather demographic, economic, subsidence, groundwater flow, and ditch network information for this location to inform the analysis. At this stage, these conceptual options are not intended to encompass the entire synthesis analysis but are meant to represent simplified examples of what form the results can take. Deliverables for this Step include: • Three to four conceptual ideas for the final synthesis methodology and format for the selected location to the steering committee for their review and consideration. Potential approaches include static maps and descriptions, integration of spatial data into an existing

Project Steps and Timeline (continued)	portal, graphical visualization of data, vulnerability indices, etc. (Task 2, Deliverable 6) Examples of synthesis analyses to help with generating ideas for this product (it is not expected that the product will look like these examples): - EnviroAtlas Use Cases: www.epa.gov/enviroatlas/enviroatlas-use-cases - NOAA Vulnerability Assessment: https://repository.library.noaa.gov/view/noaa/16136 - Chesapeake Conservancy Optimal Solar Siting for Maryland: A Pilot for Baltimore County and City: www.chesapeakeconservancy.org/wp-content/uploads/2020/10/CC-Report-Solar-Siting-Methodology-FINAL.pdf - Protecting Drinking Water through Land Conservation: https://storymaps.arcgis.com/stories/60e766d82e224d29a696955530bd161c - NFWF Coastal Resilience Evaluation and Siting Tool (CREST): https://resilientcoasts.org/#Examples
	Step 3: 11/1/2021 to 12/31/2021 (Month 9-10) Meet with stakeholders (in-person, if able, or virtually, if necessary) and anticipated end-users of data to obtain feedback during development of the data synthesis product) Task 1: The contractor will identify the relevant stakeholders and anticipated users of this data from the selected location. This may include, but is not limited to, local government officials and staff, wetland practitioners, and SLR and resilience experts. Ideally, a member of the Local Government Advisory Committee will serve on the steering committee of this project and can help identify trusted sources already established in our network and advise on navigating communications with local government officials. Task 2: The contractor will schedule a full or half-day in-person meeting with the identified stakeholders to present conceptual options for the data synthesis methodology and potential product formats for application in the selected location. The contractor will invite the steering committee to participate in this meeting. The group will provide feedback on marsh and land use decisions they would need to consider. They will also be asked to provide feedback on the methodology, format, and design of the data synthesis product and discuss strategies for application to inform a user guide. The contractor will be responsible for taking meeting notes. If there are still restrictions on in-person meetings, then this meeting will occur virtually. Include flexibility for in-person or virtual meeting options in your proposal. Deliverable for this Step includes: • A list of participants and meeting notes (word document) 2 weeks after the meeting. Within two weeks of this meeting, the project team will discuss the feedback received and decide on which synthesis methodology/format to move forward with (Task 2, Deliverable 7)
	Step 4: 1/1/2022 to 2/28/2022 (Month 11 – 12) Conduct data synthesis analysis for the selected location incorporating feedback from the stakeholder/end-users; complete draft of synthesis product) Task 1: The contractor will build off the conceptual options that were started in Step 2 and the stakeholder/end-user feedback in Step 3 and apply the data synthesis analysis for the selected location. Using GIS or another method of spatial analysis, they will determine areas of high and low suitability for wetland restoration and land conservation based on projected sea level rise, marsh migration capacity, shoreline condition, land use, demographic and economic data, and other factors based on available data. Task 2: Based on the feedback received on the potential formats of the results in Step 3, the contractor will develop a deliverable that synthesizes the data and analysis in the pilot area in the format desired by the anticipated end-users that were consulted in Step 3. Deliverables for this Step include: • A zip file of the analysis including the project file, raw data, shapefiles, models, scripts, GIS layers, JPEGs of maps, and any other data used to complete the analysis will be due to the Technical lead at the time the final report is submitted (if the file is too large to be transferred over email it can be provided on a USB) (Task 1, Deliverable 8) • Draft product that showcases the data synthesis and analysis conducted in the selected location will be due by the end of Month 12. The contractor will receive one consolidated set of comments from the technical lead within 30 days and will make any identified corrections and/or updates within two weeks of receipt of comments (Task 2, Deliverable 9)

Project Steps and Timeline (continued)	**Step 5: 3/1/2022 to 3/31/2022 (Month 13)** Follow-up with an in-person meeting (if able or virtually if necessary) with stakeholder and anticipated end-user group). The contractor will organize a follow-up full or half-day in-person meeting with the same group in Step 3, as well as any additional stakeholders identified through the project, to get user feedback on the product/analysis and determine if it fulfills their decision-making needs. Include flexibility for in-person or virtual meeting options in proposal. Deliverable for this Step includes: • A list of participants and meeting notes (word document) is due within 2 weeks after the meeting occurs (Deliverable 10).
	Step 6: 4/1/2022 to 5/31/2022 (Month 14-15) The contractor will prepare a report containing the following sections: 1) table of contents, list of figures, and list of appendices; 2) introduction and background sections; 3) discussion of the data and methods used, intent, and results of the analysis; 4) final data synthesis product and any visuals that were created; 5) a "user guide" that discusses the applicability of using the methodology throughout the Chesapeake Bay Watershed and clearly outlines steps for replication of the analysis in other regions; 6) feedback on user application; 7) lessons learned; 8.)description of any limitations/caveats on the final deliverable; and 9) suggestions for improving the process when conducting similar analyses in other locations using the data factsheets created in Step 1. One consolidated set of comments from the technical lead will be provided within 30 days. Deliverable for this Step includes: • A draft report (editable electronic document) by the end of Month 15 (Deliverable 11).
	Step 7: 6/1/2022 to 7/31/2022 (Month 16-17) Incorporate edits received from technical lead into draft final products; present results of project and near-final products to steering committee Task 1: Incorporate edits received from the technical lead for the compiled dataset (Deliverable 3), the literature review (Deliverable 4), the metadata factsheets (Deliverable 5), the draft synthesis product (Deliverable 9), and the draft report (Deliverable 11). Task 2: The contractor will virtually present the results of the project detailed in the report and the near-final draft products to the steering committee. The contractor will incorporate feedback received during the meeting into the final products. Deliverable for this Step includes: • The revised deliverables (draft final products) by the end of Month 17; the contractor will receive a consolidated set of comments within two weeks (Task 1, Deliverable 12)
	Step 8: 8/1/2022 to 8/31/2022 (Month 18) Incorporate final edits received from the technical lead and steering committee into final products; create final package for project close-out; present products and deliverables to Wetland Workgroup and Climate Resiliency Workgroup at their first available meeting date. Task 1: Incorporate edits received from technical lead and steering committee on draft final products into final products. Task 2: Create final project package. The final project package will be delivered to the technical lead at the end of Month 18 and will include editable and PDF copies of all documents; a zip file of the pilot project analysis including the project file, raw data, shapefiles, models, scripts, GIS layers, JPEGs of maps, and any other data used to complete the analysis (if the file is too large to be transferred over email it can be provided on a USB); and an editable electronic copy of the presentation given to the Wetland and Climate Resiliency workgroups. Task 3: Present results of project to the Wetland Workgroup and Climate Resiliency Workgroup after project is completed. The contractor will work with the technical lead to schedule a presentation. Meetings: The project team will have one-hour virtual check-in meetings with the contractor scheduled for the end of each month to make sure the project is on track and discuss any questions and issues that arise. The contractor will meet with the steering committee (virtually) as specified in Steps 1, 2, and 7. The contractor will schedule two in-person meetings with the focus group of stakeholders as specified in Steps 3 and 5. If an in-person meeting is unable to occur, then the meetings will be held virtually.

Project Steps and Timeline (continued)	Deliverables for this Step include: • The final project package will be delivered at the end of Month 18 and should include the following: the final, approved QAPP, Excel spreadsheet containing the compiled list of data sources and metadata as described previously, editable electronic copy and PDF of the literature review, editable electronic copy and PDF of the metadata factsheets for each data source, editable electronic copy and PDF of the synthesis product of the pilot location, editable electronic copy and PDF of the Final Report. The Final Report should include: 1) table of contents, list of figures, list of appendices, etc.; 2) introduction and background sections; 3) discussion of the data and methods used, intent, and results of the analysis; 4) final data synthesis product and any visuals that were created; 5) a "user guide" that discusses the applicability of using the methodology throughout the Chesapeake Bay Watershed and clearly outlines steps for replication of the analysis in other regions; 6) feedback on user application; 7) lessons learned; 8) description of any limitations/caveats on the final deliverable; and 9) suggestions for improving the process when conducting similar analyses in other locations using the data factsheets created in Step 1 (Task 2, Deliverable 13). • Editable electronic copy of the presentation will be submitted two weeks before the scheduled presentation. The contractor will receive one consolidated set of final comments within one week of the presentation and make revisions (Task 3, Deliverable 14) • Editable electronic copy of the final presentation will be submitted at the time of the presentation (Task 3, Deliverable 15)
Stakeholder Participants	Stakeholders include: • Technical Lead: Kevin Du Bois, PWS, PWD, CFM; DoD Chesapeake Bay Program; kevin.dubois@navy.mil • Preparers: Megan Ossmann; Chesapeake Research Consortium; ossmann.megan@epa.gov; Emily Farr; NOAA Office of Habitat Conservation; emily.farr@noaa.gov; Julie Reichert-Nguyen; NOAA Chesapeake Bay Office; julie.reichert-nguyen@noaa.gov; and Breck Sullivan; Chesapeake Research Consortium; bsullivan@chesapeakebay.net • Anticipated Users of Data/Focus Group (TBD) • Members of Wetland Workgroup and Climate Resiliency Workgroup; GIS team, Local Government Advisory Committee, and other members of the steering committee (TBD)
Deliverables	Draft Deliverables: 1. Draft editable electronic copy of the QAPP. 2. Excel spreadsheet containing the compiled list of data sources and metadata 3. Editable electronic copy of the literature review. 4. Editable electronic copy of the metadata factsheets for each data source (provided as one document). 5. Three to four conceptual ideas for the final synthesis product for the pilot location. 6. Editable electronic copy of the synthesis product of the pilot location. 7. Editable electronic copy of the final report (see above in Step 8 for report components). 8. Editable electronic copy of the presentation to be given to the Wetland Workgroup and Climate Resiliency Workgroup. Final Deliverables (after feedback is incorporated): 9. Editable electronic copy and PDF of the approved and signed QAPP 10. An Excel spreadsheet containing the compiled list of data sources and metadata. 11. Editable electronic copy and PDF of the literature review. 12. Editable able electronic copy and PDF of the metadata factsheets for each data source. 13. Editable electronic copy and PDF of the synthesis product of the pilot location. 14. Zip file of the pilot project analysis including the project file, raw data, shapefiles, models, scripts, GIS layers, JPEGs of maps, and any other data used to complete the analysis (if the file is too large to be transferred over email it can be provided on a USB) 15. Editable electronic copy and PDF of the final report (see Step 8 for report components). 16. Editable electronic copy of final presentation to the Wetland Workgroup and Climate Resiliency Workgroup.
QAPP Requirement	Yes, a QAPP will be required for this scope.

Qualifications of Bidder	• Extensive and proven knowledge of tidal wetlands, marsh migration, and SLR in the Chesapeake Bay Watershed. • Knowledge and understanding of the effects of climate change on wetlands • Expertise in geospatial analysis, particularly with climate/SLR/wetland and land-use data and models • Experience in graphic design, layout, and the capacity to develop aesthetically and graphically compelling factsheets, maps, reports, and data synthesis product • Preferred qualifications for the bidders' team: one certified professional wetland scientist; one certified floodplain manager; one professionally certified geospatial analyst • A diverse project team is a preferred qualification, specifically incorporating a HBCU and/or an MBE/DBE/WBE/SBE-certified firm as either the applicant or as the subcontractor(s)

Scope of Work 9: Methods to Integrate Co-Benefits of Toxic Contaminant Reduction into Decision-Making Tools

Goal Implementation Team (GIT)	Water Quality Goal Implementation Team (GIT 3)
Maximum Bid Amount	$56,000.00
Purpose and Outcomes	Contaminants in urban areas such as polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs), and polycyclic aromatic hydrocarbons (PAHs) have caused fish consumption advisories and degraded the health of fish. In some areas, a portion of people's diet depend on consuming locally caught fish that are a risk to eat. State agencies and local governments who manage water quality and recreational fishing need improved information to mitigate toxic contaminants, and information on how they can take advantage of ongoing nutrient and sediment reduction efforts. The scope will develop methods and provide improved information on the removal efficiencies for select urban contaminant Best Management Practices (BMPs), and contaminant reductions associated with wastewater discharge related to treatment plant and system maintenance improvements, into Chesapeake Assessment Scenario Tool (CAST) and other appropriate management tools in order to better quantify toxic contaminant reduction. The primary contaminants of interest are PCBs, since they contribute to fish consumption advisories in many jurisdictions in the Chesapeake Bay watershed and degrade the health of fish. Additional urban contaminants should be considered if information is available in studies where PCBs were also assessed. The findings from the study will provide needed information for improved decision making by states and local governments in the Chesapeake Bay watershed on the co-benefits of nutrient and sediment practices to reduce contaminants, improve habitat conditions for fisheries, help address local water-quality impairments due to toxic contaminants, and make fish safer to consume by diverse groups in urban areas. The findings will also further inform the co-benefits of outcomes being addressed by the Chesapeake Bay Program (CBP) Water Quality, Fisheries, and Habitat Goal Teams. The project builds from efforts previously supported by the Toxic Contaminant Workgroup (TCW) of the Chesapeake Bay program to assess the Potential Benefits of Nutrient and Sediment Practices to Reduce Toxic Contaminants in the Chesapeake Bay watershed (Schueler and Youngk, 2015; 2016; https://www.chesapeakebay.net/documents/Final_Report_on_Urban_Toxic_Contaminants.pdf; https://www.chesapeakebay.net/documents/Final_Report_on_Ag_and_Wastewater_Toxics.pdf) and Benefits of Wastewater Treatment Plant Nutrient Control Upgrades on Toxic Contaminants (Tetra Tech, 2019; https://cbtrust.org/wp-content/uploads/14564_Assessing-Benefits-of-Wastewater-Treatment- Plant-Nutrient-Control-Upgrades.pdf). Despite the exhaustive literature review conducted in urban, agricultural, and wastewater sectors, there was little

Purpose and Outcomes (continued)	evidence at that time of published effectiveness of nutrient and sediment practices to remove toxic contaminants, and rather conclusions were made about probable effective management practices using sediment removal as a surrogate for hydrophobic contaminants (such as PCBs) than reporting of direct measurements of contaminant reductions. Additionally, discussions with the CBP modeling team about CAST suggested without the quantitative information on BMP effectiveness of toxic contaminants, they could not be included into the tool. These issues (lack of BMP effectiveness data and the best way to package research information into decision tools) greatly limited progress on identifying potential co-benefits of nutrient and sediment practices to also reduce toxic contaminants, which is a critical part of the Toxic Contaminant Research Outcome. There is new and growing body of information to overcome these limitations for developing co-benefits between nutrient, sediment, and toxic contaminant reduction. A workshop hosted by the Chesapeake Bay Program Scientific Technical Advisory Committee (STAC) held in May 2019 (Majcher and others, 2020; https://www.chesapeake.org/stac/document-library/integrating-science-and-developing-approaches-to-inform-management-for-contaminants-of-concern-in-agricultural-and-urban-settings/) revealed ongoing advances in the use of stormwater practices for toxic contaminant removal, especially for PCBs, one of the toxic contaminants that drive many fish consumption advisories nationwide. These advances have largely been driven by the implementation of toxic contaminant total maximum daily loads (TMDLs) in urban areas, particularly in the west/northwestern United States. While many of the advances have occurred outside the Chesapeake Bay watershed such as in the San Francisco Bay area and Portland, OR, and Spokane, WA, researchers within the Chesapeake Bay watershed and the Department of Defense have advanced experiences more locally. The new and expanding body of information on the topic provides a timely opportunity to make progress on the toxic contaminant research outcome by identifying a roadmap for inclusion of PCBs in CBP decision tools.
Project Steps and Timeline	**Step 1: 3/15/2021 to 6/15/2021** Conduct project kickoff meeting (not to exceed 2 hours) to discuss project startup and hold bimonthly meetings (not to exceed 1 hour) to track progress with the technical project leads. With input from the GIT Technical Leads during the kickoff meeting, the contractor should form a technical advisory panel (which has generally already been completed) at the beginning of the project following the kickoff and engage CAST and watershed model staff within CBP, representatives from the wastewater, urban stormwater and toxic contaminant work groups, as well as a state and local jurisdiction representative(s) that is or plans to implement PCB (and possibly other toxic contaminant) TMDLs. The panel should meet at least quarterly to ensure that approaches, information gathered, and findings are consistent with information required for inclusion in various decision tools available and will be useful to stakeholders. Generate an advisory panel member list with commitment to participate throughout duration of project (expect up to five, 90-minute meetings) and record meeting minutes with action items and any decision points and resolution noted from each meeting of the advisory panel. The minutes from meetings with the advisory panel are expected for the duration of the project and should be included as an appendix to the final summary report Deliverables for this Step include: • Kick-off meeting minutes • Technical advisory panel member list • Summary of meeting minutes from technical advisory panel meetings throughout project
	Step 2: 3/15/2021 to 6/15/2021 Conduct pre-meeting with CBP Quality Assurance (QA) Officer to outline needs and requirements for the QAPP. Draft a project specific QAPP and submit to CBP Quality Assurance (QA) Officer to obtain approval. Write draft QAPP and submit for review; address comments via a response to comments document, revise, and resubmit the QAPP and obtain approval of project QAPP. This requirement is in place since there will be use of environmental data from literature ("secondary data") in the development of the methods and approaches.

Project Steps and Timeline (continued)	Deliverables for this Step include: • Coordination with the EPA QA officer • Draft and Final (signed) QAPP
	Step 3: 3/15/2021 to 6/15/2021 Work with CBP staff to identify urban areas for the project and associated BMP information. The CBP staff, in conjunction with the Toxics Contaminant Workgroup have previously identified areas with PCB impairments in the CB watershed: http://chesbay.maps.arcgis.com/apps/MapSeries/index.html?appid=704ecbbb9f5943eca87d59b349edf1ab The contractor will work with CBP staff to identify the urban areas that will be the focus for the study, with an emphasis on areas with approved PCB TMDLs. In these selected areas, the contractor will work with the CBP staff to obtain stormwater BMPs and practices most implemented in pervious and impervious urban areas. The contractor will also work with CBP staff to identify wastewater effluent discharges of PCBs in these urban areas of the watershed. This information will be combined to suggest a targeted list of BMPs and wastewater practices for inclusion in the study and should be presented to and obtain concurrence from the technical advisory group. The contractor should establish criteria for BMPs, land use, and contaminants with technical advisory panel and develop listing/table by state of most implemented or planned BMPs and wastewater practices in these areas with PCB impairments. Include impairments for other toxic contaminants in these waterways, if present. Deliverables for this Step include: • Develop a listing/table by state of most implemented or planned BMPs and wastewater practices in these urban areas with PCB impairments, and a list of wastewater plants with PCB discharge information; in the urban areas with PCB TMDLs, also tabulate additional toxic contaminant impairments, if present.
	Step 4: 6/15/2021 to 9/15/2021 Review literature and existing case studies and complete Tasks 1 through 3: Task 1: Review and determine decision tools most conducive to inclusion of contaminant fate and transport and inventory options for inclusion of contaminants explicitly or using surrogates within the tool. At a minimum, modeling tools explored should include CAST but other model tools that may offer benefits over CAST with respect to contaminant inclusion and should be assessed with advantages and disadvantages noted (e.g., tools in addition to CAST could include but not limited to Stormwater Management Model [SWMM] and Field Doc, or others). Model tool specific input parameters (some may be site specific) related to contaminant removal within BMPs identified in Step 3 above should be summarized for each tool. Information gathered should provide the ability to assess ability to utilize the model tool for the purpose of co-benefit reduction of PCBs in specific BMPs. Task 2: Summarize methods and outcomes of ongoing or completed projects/case studies that assessed PCB reduction in the specific stormwater BMPs identified in Step 3 and wastewater practices (e.g., Enhanced Nutrient Removal [ENR] upgrades, maintenance of pump stations). Information should include the climatic conditions under which PCB reduction was measured and overall results quantified for reduction (e.g., starting and final concentration measured). If removal of other contaminants was concurrently assessed in addition to PCBs, these should also be summarized in a similar way. Particular attention to the input parameters identified in Task 1 should be considered in the review of the case studies. Task 3: Review the state of the science to assess if surrogates such as sediment can be used to help estimate effectiveness of removal of PCBs (or similar toxic contaminants) in BMPs where direct measurements are not reported. For example, assess information on sediment reduction to determine if it can be used for estimating contaminant reduction for selected urban BMPs and contaminants. Primary focus will be PCBs since it the most widespread contaminant with existing TMDLs across various states. Identify where surrogate approaches have been used elsewhere for contaminant modeling and for which contaminants (e.g., other hydrophobic contaminants such as PAHs or metals), advantages and disadvantages, and qualify error associated with this approach if possible.

Project Steps and Timeline (continued)	Deliverables for this Step include: • Tables and summary of model platform utility, input parameters required, and suitability for inclusion of contaminants, including strengths and weaknesses (Task 1) • Case study summaries by BMP that includes peer-reviewed references, with relevant information from location of study, BMP use for compliance, and other relevant information as determined by the technical advisory committee, QAPP requirements, and literature review outcomes (Task 2) • Case study summaries by BMP that include references, relevant information from location of study, BMP use for compliance, and other information as determined by the technical advisory committee, QAPP requirements, and literature review outcomes (Task 3)
	Step 5: 9/15/2021 to 2/15/2022 Using the results of literature survey in Step 4 above, synthesize information gathered with model input information and propose to the technical advisory panel which tools will be used (at a minimum CAST, may include others) for toxic contaminant inclusion proposed roadmap(s) (at a minimum PCBs, may include others) and why. Following concurrence by the technical leads and advisors for tools and contaminant to target, develop a road map(s) to adapt CAST (and other relevant tools if determined advantageous) for at least PCB co-benefit quantification. Develop a flow-chart highlighting steps to include in CAST, highlighting gaps, or uncertainty associated with each input or adaptation step. If inputs vary for different BMPs and/or contaminants or for different tools, individual flow charts or tables should be generated. If quantifying reductions is determined to be too uncertain, qualitative reductions (from surrogates, for example) could be explored, although this is not preferred. Example calculations should be provided in Excel to demonstrate how calculations in the steps/flow charts will be executed (including the range of removal, if suggested from synthesis and flow charts). If additional contaminants beyond PCBs are not included due to lack of case studies, a translation of approaches to other contaminants (as data become available) should be summarized. Deliverables for this Step include: • Presentation of the synthesis and proposed tools to use to the technical advisory panel • Development of an approach, summarized in flowcharts and supported by example calculations in Excel once approach is endorsed by advisors
	Step 6: 9/15/2021 to 2/15/2022 Consult with CBP staff who are knowledgeable on BMPs (and wastewater practices) to develop data quality criteria to reflect confidence in the reported removal of contaminants in BMPs and wastewater practices for use in the CB watershed, the Table 1 in the WQGIT's BMP Review Protocol: https://www.chesapeakebay.net/documents/CBP_BMP_Expert_Panel_Protocol_WQGIT_approved_7.13.15.pdf Information should be gathered to develop guidelines to categorize the case study information gathered for each prioritized BMP, wastewater practices, the contaminant removal case study results based on location of study, comparison of climatic conditions if outside watershed, co-contaminant presence, and other potential factors. Deliverables for this Step include: • Meet with BMP team staff, summarize (minutes) of meeting for technical advisory panel, and propose use of criteria to approach developed in Step 5 to technical advisors
	Step 7: 2/15/2022 to 6/15/2022 Prepare a technical report to document information from the project, culminating with a recommended road map to include PCBs into model tools and the limitations of the approach, including results from Steps 1 to 6 above. The report should include a summary of the literature assessment from previous tasks, and will communicate findings, justification, and approaches to integrate information into CAST and other decision-making tools, if needed. Report audience would be primarily the CBP workgroups, but also should highlight tangible ways the execution of the recommendations would benefit stakeholders at the state and local level. Recommend-ations should include a suggested format of information gathered in Steps 1 to 3 to support this integration into tools and provide documentation as requested by the modeling team. The report should include recommendations, lessons learned, barriers, and limitations/caveats to inform future studies that may seek to repeat this approach for other toxic contaminants.

Project Steps and Timeline (continued	The draft version of the report should be prepared and presented to the technical project managers and advisory panel. Once comments on the draft report are addressed through a response to comments document, a draft-final version of the report should be presented to the relevant CBP workgroups. Once comments on the draft-final report are addressed through a response to comments document, the final version for public release of the report should be submitted. Appendices to the technical report will include a full list of references, the response to comments documents, and other non-presentation deliverables such as minutes. Complete a joint final presentation of finding to the relevant CBP workgroups including Toxic Contaminants, Wastewater Treatment, and Urban Stormwater (either one joint meeting or two presentations of the same material). Deliverables for this Step include: • Draft Technical Report • Draft-Final Technical Report, with comments addressed from draft document • Final Technical Report and presentations of findings, with comments from draft final document (with comments addressed from draft-final document) • Final presentation to the CBP relevant workgroups
Stakeholder Participants	Stakeholders include (confirmed technical advisory participants named): • State government representative(s) responsible for carrying out WIPs for nutrient and sediment reduction and considering co-benefits of toxic contaminants: Representatives from D.C. Department of Energy and Environment including Matt English, Matthew Gallagher, Jonathan Champion, James Dunbar [matthew.english@dc.gov; matthew.gallagher@dc.gov; jonathan.champion@dc.gov; james.dunbar@dc.gov] • State government representative responsible for addressing toxic contaminant TMDLs Leonard Schugam, Maryland Department of Environment, leonard.schugam@maryland.gov • Local government representative(s) responsible for implementing local PCB TMDLs: Kimberly Grove, Baltimore City Department of Public Works kimberly.grove@baltimorecity.gov; Wesley Schmidt (or alternate), Baltimore County Department Environmental Sustainability, wschmidt@baltimorecountymd.gov • CBP Wastewater Workgroup representative, TBD • CBP Toxic Contaminant Workgroup representative: Greg Allen, US EPA allen.greg@epamail.epa.gov • CBP BMP team representative: Jeremy Hanson, Virginia Tech jchanson@vt.edu • CBP Modeling Team representative: Olivia Devereux, Devereux Consulting olivia@devereuxconsulting.com
Deliverables	Deliverables are coordinated with the project steps and include the following: 1. Step 1: Kick-off meeting minutes; Technical advisory panel member list; Summary of meeting minutes from technical advisory panel meetings throughout project. 2. Step 2: Coordinate with the EPA QA officer; Draft and Final (signed) QAPP. 3. Step 3: Establish criteria for BMPs, land use, and contaminants with technical advisory panel and develop listing/table by state of most implemented or planned BMPs in these areas with PCB impairments. Include impairments for other toxic contaminants in these waterways, if present. 4. Step 4: Task 1 - Tabulate and summarize model platform utility, input parameters required, and suitability for inclusion of contaminants; Task 2 – Summarize and catalog BMP case studies that include references, with relevant information from location of study, BMP use for compliance, and other relevant information as informed by the technical advisory panel and literature review; and Task 3 – Summarize where and how surrogate approaches have been used elsewhere for contaminant modeling and for which contaminants, outline advantages and disadvantages, and qualify error associated with this approach, if possible. 5. Step 5: Synthesize information from Step 4 and present the selected tools and contaminants for which to develop a road map for inclusion of contaminant reduction in the chosen tool. Incorporate feedback from the panel and proceed with development of the roadmap, summarized in flowcharts and supported by example calculations in Excel. 6. Step 6: Summarize meeting minutes from BMP staff meeting for technical advisory panel. Draft data quality criteria and apply to approach drafted in Step 5 for technical advisory panel concurrence.

Deliverables (continued)	7. Step 7: Draft Technical Report; Draft-Final Technical Report and response to comments on Draft Report; Final Technical Report and response to comments on Draft Final Report; Final presentation(s) of findings to the CBP Toxic contaminant, Wastewater treatment, and Urban stormwater workgroups. .
QAPP Requirement	Yes, a QAPP will be required for this scope.
Qualifications of Bidder	Required Qualifications: • Experience with contaminant fate and transport investigations, particularly related to PCBs • Experience with contaminant fate and transport, surrogate modeling, particularly related to PCBs • Familiarity with BMPs (stormwater control measures, MCMs) and wastewater practices common in Chesapeake Bay watershed Preferred Qualifications: • Experience with watershed model and decision tools used by local and state governments, including CAST, SWMM, Field Doc, etc. • Experience working with local, regional, or tribal partners within the Chesapeake Bay watershed on issues related to watershed restoration or planning

Scope of Work 10: Developing Standards and Metrics to Target the Conservation of "Green Spaces" in Underrepresented and Low–Income Urban and Rural Communities

Goal Implementation Team (GIT)	Fostering Chesapeake Stewardship Goal Implementation Team (GIT 5)
Maximum Bid Amount	$70,000.00
Purpose and Outcomes	Too many underrepresented, low- income communities of color have been subjected to systemic racism from multiple sources of pollution impacting residents' public health. These pollution impacts have built up over generations either by intentional decisions or by the more insidious indifference and neglect. The COVID-19 pandemic has exposed the disparate impacts of the virus on low-income communities of color. COVID-19 has also demonstrated the public health values spending time outdoors, in *green spaces*, including parks and trails, small vest pocket parks and tree canopy areas, and to community forests and gardens – when these green assets are reasonably accessible, welcoming, and safe. Documentation of studies supporting these beneficial relationships: https://docs.google.com/document/d/1EJa5obNMiCLfjrjxK5eZPywGYTJme1Qm2FPdHzB2rYY/edit?usp=sharing This proposal not only responds to several goals and actions under the Protected Lands L&P Plan, but also is important to the Chesapeake Bay Program's (CBP) Diversity WorkGroup and the CBP's Diversity, Equity, Inclusion, and Justice (DEIJ) Strategy, and to some extent to the Habitat, Climate Resiliency, and Water Quality Teams and WorkGroups. The Project Outcomes for this scope includes the following: • GIS maps showing underrepresented communities of color in both urban and rural jurisdictions in the Chesapeake Bay Watershed. • A recommended set of standards and metrics to assess and characterize the "adequacy/inadequacy " (or a different scale) of "green spaces" as defined above of the communities mapped under first bullet above. The standards and metrics recommended shall be able to be mapped using GIS technologies. Examples of these standards and metrics include: the parcels of existing green spaces, the parcels of green spaces under permanent protection, undeveloped parcels, accessibility of such parcels within ¼ mile of community residences, and other recommended standards and metrics.

	• Based on the standards and metrics approved under outcome #2 above, provide GIS maps and tables characterizing the adequacy/inadequacy or a different scale to depict the level of green spaces in each community mapped under first bullet above. • A recommended "community sustainability" or "community livability" model that includes and weights the contributions of permanently conserved green spaces to local environmental, social , and economic uplifts, and that includes protocols for the engagement of community leaders in setting priorities and data to measure environmental, social, and economic conditions and to track uplifts over time. The community sustainability model will be used to establish baselines and measure progress over time. An example of such a model (Livability Model) developed by Neighbor Space of Baltimore County is located here: www.neighborspacebaltimorecounty.org. The long-term outcomes ultimately expected to occur beyond this scope include the following: • Increases in acquiring "green spaces" in the communities mapped by giving priority to funding acquisitions of green spaces, and where appropriate and feasible environmental restoration of them. • Uplifts in community and environmental health, economic values of properties while avoiding gentrification, improving community cohesion, and increasing quality of life. *This scope will benefit from and build on a previously-funded project being implemented now: *Targeted Outreach for Green Infrastructure in Vulnerable Areas* (TOGI), including the data from the " listening sessions" in urban communities in three states as part of this project.*
Project Steps and Timeline	**Step 1: 3/15/2021 to 4/15/2022 (1 month)** Participate in Project Workgroup Meetings. There will be a project kick-off meeting with the team. Here, the contractor will present a proposed work schedule and budget to plan and deliver the tasks and outcomes in consultation with the Workgroup. The contents of the QAPP will be discussed during the project kick-off meeting. The contractor will work under the guidance of a Workgroup whose members will include: a workgroup of the CCP Steering Committee, members and staff from the Stewardship GIT especially the DEIJ workgroup and other relevant GITs, and representatives of several community organizations working on these outcomes (estimate 4 to 5 meetings). The workgroup may consist of 12 to 13 members. The membership will be selected based on the level of interest in the outcomes of this project that should be enough incentive for participation. The meetings will be virtual to reduce costs of travel etc.*Timeline: The contract start will be 3/15/2021 and end no later than 5/01/2022* Deliverables for this Step include: • Draft QAPP • Approved Work Schedule
	Step 2: 4/15/2021 to 5/30/2021 (1.5 months) The contractor will conduct a listening session and will work with three community organizations working to achieve these outcomes to conduct a listening session in three (3) underrepresented communities, one each in three selected states. The session will be virtual and scheduled to allow workgroup members to listen. The contractor will first submit a list of potential community organizations to the Project Working Group to review, approve and provide input before the listening sessions are conducted. The sessions should be designed to gain insights from community leaders on steps to gain community trust, the relative value and priority for greening projects, initial thoughts on standards and metrics. At least one of these communities will be in a rural jurisdiction. The listening session will be recorded for internal purposes only to make sure that the comments are accurately recorded. Deliverables for this Step include: • Report summarizing listening session • Final (signed) QAPP

Project Steps and Timeline	**Step 3: 5/30/2021 to 8/30/2021 (3 months)** This Step includes creating the recommended criteria and thresholds to define and map underrepresented communities of color. These mapping products should be based on recommended criteria and thresholds addressing levels of populations of color, levels of low-income populations, and other possible measures of public health. See for example the Draft Chesapeake Bay Program's Environmental Justice and Equity Dashboard: https://gis.chesapeakebay.net/diversity/dashboard for maps on communities of color and low-income communities as well as the US Center for Disease Control's Social Vulnerability Index and Maps. Develop recommendations for the criteria and thresholds to define the communities and upon acceptance by the Workgroup, to develop GIS maps showing these communities. The listening sessions above in Step 2 should inform the criteria and thresholds as well as the mapping data developed in this Step 3. Deliverables for this Step include: • Draft Criteria and Thresholds to Define and Map Underrepresented Communities of Color as a new GIS layer • Draft GIS mapping products of underrepresented communities of color
	Step 4: 8/30/2021 to 1/15/2022 (4.5 months) Recommend Standards and Metrics to Define and Map the Level or Levels of Green Spaces in Mapped, Underrepresented Communities of Color Recommend Standards and Metrics to Define and Map the Level or Levels of Green Spaces in Mapped, Underrepresented Communities of Color. Based on the descriptions in Outcomes #2 and #3 above, develop recommendations to characterize the level or levels of green spaces in mapped underrepresented communities of color. The characterization of the levels of green spaces may be "adequate/inadequate" or a different scale. Upon acceptance by the Workgroup, characterize the level or levels of green spaces in each of the underrepresented communities mapped under Outcome #s 2 and 3 above. Deliverables for this Step include: • Draft Standards and Metrics to Define and Map the Level or Levels of Green Spaces in Mapped, Underrepresented Communities of Color as a new GIS data layer. • Draft recommended standards and metrics to characterize the levels of green spaces in these communities
	Step 5: 1/15/2022 to 4/15/2022 (3 months) Undertake Research to Develop a Recommended Community Sustainability Model. The contractor will conduct the necessary research to develop a recommended community sustainability model as described under the project outcomes above. The contractor should provide what GIS and mapping applications would be appropriate for this task. Recommendations based on analysis of current models shall be presented. Deliverables for this Step include: • Draft GIS mapping products that characterize the levels of green spaces in these communities as well as a draft report recommending a community sustainability mode • Draft report submitted to the Workgroup and the CCP Steering Committee for edits. Major report sections should include a summary of several existing community-based sustainability models predicated on the social, environmental and economic benefits of "greening" disadvantaged communities of color, and a recommended community sustainability model with guidance document regarding its implementation and use
	Step 6: 4/15/2022 to 5/15/2022 (1 month) Revise and Submit Final Report based upon comments received by the Work Group and the CCP Steering Committee. Deliverable for this Step includes: • Final Report. Major sections include the standards and thresholds for defining disadvantaged communities of color, their mapping, standards and metrics for defining the adequacy and inadequacy of green spaces, their mapping and the sections outlined in the draft report and mapping.
Stakeholder Participants	Stakeholders include: • Sara Ramotnik, Chesapeake Conservancy, sramotnik@chesapeakeconservancy.org • Jonathan Doherty, National Park Service, jonathan_doherty@nps.gov

Stakeholder Participants (continued)	• Tuana Phillips, Diversity & Local Engagement Coordinator, phillips.tuana@epa.gov • Ivan Hernandez, Diversity Staffer, CRC, hernandezi@chesapeake.org • Christine Conn, Co-Chair, Habitat GIT, Christine.Conn@maryland.gov • Olivia Wisner, Fostering Chesapeake Stewardship Staffer, wisnero@chesapeake.org • John Wolf, USGS, Chesapeake Bay Program, jwolf@chesapeakebay.net • Members of the CCP Steering Committee: https://www.chesapeakeconservation.org/team/ • Members of the Work Group (once selected)
Deliverables	The deliverables to be provided by the successful contractor are described under Project Steps and Timeline Section above and are summarized as follows: 1. Approved work schedule and budget for the project 2. Draft and Final (signed) QAPP 3. Report summarizing the "listening session" 4. Recommended criteria and thresholds to define underrepresented communities of color and GIS maps showing these communities; recommended standards and metrics to characterize the level(s) of green space in these communities and GIS maps depicting these levels in these communities 5. Recommended community sustainability model 6. Draft and Final Report
QAPP Requirement	Yes, a QAPP will be required for this scope
Qualifications of Bidder	Minimum qualifications in terms of skills and experience include: • Demonstrated experience and expertise with all current GIS platforms appropriate to submit deliverables • Experience in researching and developing criteria and standards that can be used to high resolution GIS mapping • Familiarity with local or community sustainability models • Experience in working with work groups or advisory committees Preferred qualifications include: • Experience and expertise working with underrepresented communities of color either directly or through a subcontractor

Scope of Work 11: Cultivating and Strengthening Partnerships with Underrepresented Stakeholders

Goal Implementation Team (GIT)	Fostering Chesapeake Stewardship Goal Implementation Team (GIT 5)
Maximum Bid Amount	$65,000.00
Purpose and Outcomes	The Chesapeake Bay Program (CBP) is a regional partnership devoted to restoring and protecting the Chesapeake Bay and its surrounding watershed. Partners include federal and state agencies, local governments, non-profit organizations, and academic institutions. The CBP's Diversity Workgroup was formed in 2014 to identify stakeholder groups not currently represented in the leadership, decision-making or implementation of current conservation and restoration activities and create meaningful opportunities and programs to recruit and engage these groups in the partnership's efforts. The workgroup coordinated with a Diversity, Equity, Inclusion, and Justice (DEIJ) consultant from 2018-2020 to complete a DEIJ readiness assessment that resulted in a tailored DEIJ Strategy: https://www.chesapeakebay.net/channel_files/41354/cbp_deij_strategy_final_v2.pdf with a comprehensive list of recommendations for the CBP partnership to implement. While the consultant found that the CBP has established a strong foundation, there is much work yet to do to advance DEIJ within the CBP.

Purpose and Outcomes (continued)	Once the DEIJ Strategy was finalized in early 2020, the Diversity Workgroup coordinated with CBP leadership to develop and announce a DEIJ Statement that affirms the partnership's commitment to DEIJ. Further, an accompanying Action Statement from the CBP Principals' Staff Committee formally accepted the report and recommendations in the DEIJ Strategy and stated, "we hereby strive to implement the recommendations in the Chesapeake Bay Program DEIJ Strategy to the extent consistent with applicable state and federal law and policy." The statements are located here: https://www.chesapeakebay.net/documents/PSC_DEIJ_Action_Statement_FINAL_With_Signatures.pdf https://www.chesapeakebay.net/channel_files/40996/deij_statement_final_all_signatures.pdf With the recent CBP DEIJ Strategy and DEIJ Statements, the CBP is poised to make actionable steps toward operationalizing DEIJ in all aspects of the partnership's work. One component of this that requires purposeful attention is the development of meaningful relationships with environmentally focused stakeholder groups that are not currently represented in the partnership's work. The DEIJ Strategy includes multiple recommendations for the CBP to prioritize long-term relationships and partnerships with organizations led by and primarily serving Black, Indigenous, Latino/a/x, Asian, Middle Eastern and North African (MENA), Native Hawaiian or other Pacific Islander, and mixed communities. Additionally, the CBP will develop relationships with other stakeholder groups that are not fully represented in the partnership that encompass other dimensions of diversity, such as socioeconomic status, national origin, citizenship, religion, age, physical abilities, gender, sexual identity and other factors. In recognition of the legacy of inequities and lack of engagement with the aforementioned stakeholder groups, it is important to ensure that all relationships and collaborations create an equitable exchange of shared knowledge and insights that lead to informed and mutually beneficial decisions and outcomes. This project will help the CBP achieve this by developing a better understanding of the needs, barriers, and priorities of organizations led by and serving historically underrepresented and underserved communities such as communities of color. The Project Outcomes for this scope include the following: • Through focus groups, develop a better understanding of how organizations led by and primarily serving communities of color and other underrepresented communities view the CBP and how they envision participating in successful, long-term partnerships with CBP partners given the conservation/restoration projects that are already underway on both ends. • Develop a better understanding of their capacity-related needs, priorities, and barriers for participation in Chesapeake Bay restoration and conservation efforts by organizations led by and primarily serving communities of color and other underrepresented communities. Understand the community currencies that are valued and would incentivize and result in meaningful relationships and engagement. • Gather input from organizations led by and primarily serving communities of color and other underrepresented communities on the potential formation of a CBP Community Advisory Board that will serve to advise CBP leadership on environmental justice and DEIJ considerations. • Initiate relationship building between CBP partners and historically underrepresented communities. This could be done through a one-day conference or forum during which organizations led by and primarily serving communities of color and other underrepresented communities speak about their work and interact with CBP partners; or this can be done in another manner as determined by the contractor based on focus group input. • Develop and provide three resources, tools, and/or workshops tailored towards addressing needs, barriers, and priorities of organizations led by and primarily serving communities of color and other underrepresented communities. • Develop recommendations for the CBP to establish long-term and mutually beneficial relationships with organizations led by and primarily serving communities of color and other underrepresented communities.

Project Steps and Timeline	**Step 1: 3/01/2021 to 3/20/2021, Project Kick-Off Meeting** The contractor will set up a kick-off meeting with the project key contacts identified under the section below titled "Stakeholders Participants" as well as the appropriate Chesapeake Bay Trust contact to review outcomes, steps, and deliverables of the project. During this meeting, the key contacts can provide an overview and answer questions regarding recent DEIJ efforts within the CBP (e.g., DEIJ Strategy, DEIJ Statements, idea of forming a new Community Advisory Board). This conversation can also include a short discussion from EPA on why past CBP efforts to engage with underrepresented stakeholder groups have failed. Deliverable for this Step includes: • Summary of meeting notes from kick-off meeting
	Step 2: 3/21/2021 to 5/21/2021, Develop Facilitators' Agenda for Focus Groups The contractor will *develop two facilitator agendas for a total of four focus groups*. These agendas may include interview protocols for the focus groups. Each focus group should be relatively small (6 to 10 participants each) and should last one to two hours. Two of the focus groups will involve representatives and leaders of traditional CBP partner groups (e.g., federal agencies, state agencies, District of Columbia agencies, Chesapeake Bay non-profit organizations). One facilitator agenda will be developed for these two focus groups. These two focus groups will serve as brainstorming sessions with participants to explore how CBP can cultivate and strengthen relationships with currently underrepresented communities. The contractor should include a question on whether focus group participants think that a one-day conference or forum through this project is a good idea to help spark connections and relationships with organizations led by and serving underrepresented communities. A second facilitator agenda will be developed for the other two focus groups. The other two focus groups will be specifically geared to leaders of environmentally focused organizations that serve communities of color and other underrepresented groups. The goal of these focus groups is to hear from such leaders about how they view the CBP, how they envision participating in mutually beneficial and long-term partnerships with the CBP, and to capture their organizations' needs, priorities, and barriers for participating in Chesapeake Bay restoration and conservation activities. For these focus groups, the contractor will include a question to gauge participants' feedback on the idea of a new Community Advisory Board that will serve to advise CBP leadership on environmental justice and DEIJ considerations. They will also include a question on whether focus group participants would like to continue to be involved in this project and potentially present on their work as part of a one-day conference or forum. The participants in the latter two focus groups (i.e., leaders of organizations led by and serving people of color and underrepresented communities) will be offered compensation for their time and participation in focus group discussions. The budget for this project should include funding for this compensation. Compensation should be approximately $80 to $100 per hour per individual. The participants of the first two focus groups with traditional CBP partners will not need compensation. In summary, the contractor should budget compensation (at $80 to$100 per individual per hour) for two of the four focus groups lasting one or two hours each and each made up of 6 to 10 individuals. Deliverables for this Step include: • Two draft facilitator agendas to be reviewed by the project key contacts • Two final facilitator agendas after incorporating feedback from the project key contacts
	Step 3: 3/21/2021 to 5/21/2021, Identify and Invite Participants for Focus Groups Coordinate with the Diversity Workgroup leadership (Chair, Vice-Chair, Coordinator, Staffer, Steering Committee members) to identify participants for all focus groups. In the summer of 2020, EPA began compiling a list of organizations that are led by and/or serve underrepresented communities. This list could serve as a starting point for identifying participants for the two focus groups with leaders of organizations that serve communities of color and other underrepresented groups. Work with Diversity Workgroup staff (Coordinator and Staffer) to identify dates and invite participants to focus groups. If needed, focus groups can occur after work hours to enable greater participation. Deliverable for this Step includes: • List of participants to be invited to focus groups.

Project Steps and Timeline (continued)	**Step 4: 5/21/2021 to 6/21/2021, Conduct Focus Groups** The contractor should plan to facilitate four focus groups virtually due to the currently unknown projection of COVID-19 effects as well as to enable greater participation. Each focus group should be around 6 to 10 participants and should last around one to two hours. The contractor will take notes during the focus groups and write up a report to summarize notes and findings from focus groups. A pre-survey should be distributed to gather initial ideas/feedback, as well gauge what time of the day would work best for participants in the focus groups. The results from the survey can be used to develop the focus group questions. The contractor will further refine the information gathered during focus groups with a follow-up survey, query, or other technique. After all focus groups are finished, the contractor will set up a meeting with the key contacts of this project to debrief. Deliverables for this Step include: • Draft pre- and post-survey questions for review by the project key contacts • Report including notes and findings from focus group discussions; this report should include a summary of the two surveys' results and final agendas for the focus groups • Meeting summary of debrief discussion
	Step 5: 6/21/2021 to 8/21/202, Initiate Connections through a Conference/Forum This step will serve to initiate and strengthen relationships between CBP partners and historically underrepresented communities. One method to doing this is organizing a one-day conference/forum during which organizations led by and primarily serving communities of color and other underrepresented communities speak about their work and interact with CBP partners. If it is determined through the focus groups in Step 4 that a one-day conference or forum is a good idea: As with the previous step, Diversity Workgroup leadership can help the contractor identify speakers for this event. The conference/forum could stand alone (as was done with the 2020 CBP Finance Forum) or could be part of an existing conference (e.g., the Chesapeake Watershed Forum). If needed, it can take place virtually. If the COVID-19 virus is no longer a threat, the event does not have to happen virtually. The contractor should identify and secure a space that is conveniently located in the Chesapeake Bay watershed. The space should be free to use or the contractor may pay for a space using funds from this project. Diversity Workgroup staff, if needed, can help with sending out the agenda, calendar invitations, and similar administrative tasks. A post-conference/forum evaluation should be sent out to participants to gather feedback. If the event takes place in-person, the budget should include costs to cover travel so the contractor can attend. In addition, leaders of organizations serving underrepresented communities and who are invited to speak should be reimbursed for travel and offered speaker honorariums. They should be offered speaker honorariums even if the event does not take place in person. The contractor may choose to set up a one- to two-hour pre-conference/forum call to prepare speakers for the event. The speakers should be compensated for participating in this call as well. The proposed budget for this project should reflect all these costs. This event could have approximately 10 to 15 speakers. The contractor will set up a meeting with the project key contacts after the event to debrief. If it is determined through the focus groups in Step 4 and further conversation with the project key contacts that a one-day conference/forum is not the best approach for this, the contractor should instead provide and carry out a plan for an alternate method to initiate relationships between CBP partners and currently underrepresented communities. For example, a shorter panel or a workshop are two other potential methods for initiating connections. Once carried out, a report summarizing the results of this work should be developed and presented to the project key contacts. For bidding purposes, the bidder can assume a one-day maximum event length with approximately 10 to 15 participants compensated between $80 to $100 dollars an hour for the time that they spend giving their presentation/ideas, which should be estimated to be one to two hours each, as well as for their time participating in a potential pre-conference forum/call to prepare speakers, which should be estimated at one hour each. Deliverables for this Step include: • A draft agenda for the conference or forum to be reviewed by the project key contacts before being finalized and distributed • Final agenda and any materials generated for conference/forum

Project Steps and Timeline (continued)	• A draft and final post-event survey/evaluation • A post-conference/forum report that includes results from the post-event survey/evaluation; report should include the agenda, copies of all presentations, and list of attendees
	Step 6: 8/21/2021 to 11/21/2021, Tools and Resources Development for Organizations Led by and Serving Underrepresented Communities The contractor will develop and provide resources, tools, and/or workshops tailored towards addressing needs, barriers, and priorities of organizations led by and primarily serving communities of color and other underrepresented communities. Approximately one to three tools, resources, or workshops should be developed. For instance, if access to funding opportunities is identified as a barrier, the contractor may help facilitate a one- to two-hour Chesapeake Bay funding workshop for underrepresented stakeholder leaders. The appropriate resources, tools, and/or workshops should be determined based on focus group feedback and potentially feedback from the one-day conference/forum, during Steps 4 and 5, respectively. The selected resources, tools, and/or workshops should be approved by the project key contacts. If helpful, the contractor can seek iterative feedback from Diversity Workgroup leadership and Diversity Workgroup members throughout the process of creating such tools, resources, and/or workshops. If workshops are offered, they should be virtual to enable greater participation. If workshops are offered in person, however, the contractor should include funds in the budget to cover travel for both the contractor and participants. In addition, since this is additional time for underrepresented stakeholder members to access these tools, there should also be a question in the focus groups process (Step 4) about whether they would participate if offered and what barriers there would be to that participation. The tools to be developed should be informed by what was learned in the Step 4 focus groups and the Step 5 conference/forum. For bidding purposes, the bidder should include the proposed budget estimate as the maximum cost for these tools (which e.g., could be one two-hour workshop with 20+ participants; or it could be two written resources and one 1-hour webinar related to funding and capacity-related resources and that could be distributed widely to many people). Since the resources/tools are being provided to the participants, and they are not being asked for ideas/presentations like in the focus group and forum, they do not need to be compensated for their time unless it is identified as a major barrier for participation. Deliverable for this Step includes: • One to three tools, resources, and/or workshops will be developed and offered
	Step 7: 11/21/2021 to 1/21/2022, Final Report and Recommendations A draft and final report summarizing what was accomplished in Steps 2 through 6 should be submitted. The report should be detail oriented and include the following: introduction, methods, materials, presentations, developed resources, discussion, recommendations, lessons learned, and limitations encountered. Special attention and thought should be spent on the section with concrete and actionable next steps and recommendations for the CBP to continue developing long-term and mutually beneficial relationships with organizations led by and primarily serving communities of color and other underrepresented communities. Deliverables for this Step include: • Draft report with recommendations to be reviewed by the project key contacts • Final report with comments addressed from project key contacts input
	Step 8: 1/21/2021 to 2/04/2022, Presentation to CBP Leadership and Diversity Workgroup The contractor will present on this work and their recommendations to CBP leadership (e.g., Principals' Staff Committee or Management Board). The Diversity Workgroup staff will also invite Diversity Workgroup members and interested parties to this meeting. Deliverable for this Step includes: • Final presentation slides to CBP Leadership and Diversity Workgroup

Stakeholder Participants	The contractor will primarily interact with the key contacts identified below (Chair, Vice-Chair, Coordinator, Staffer, and select Steering Committee members), though may also present to and seek feedback from the broader Steering Committee and Diversity Workgroup membership. The project key contacts can meet with the contractor at any time depending on availability of schedules. The larger Diversity Workgroup Steering Committee meets on the third Wednesday of every month from 1-2 PM, so if needed the contractor can interact with all Steering Committee members at that time or Diversity Workgroup Staff (Coordinator and Staffer) can reach out to all Steering Committee members to gather their feedback over email. The same applies to the broader Diversity Workgroup membership – if needed, the contractor can seek feedback during a workgroup meeting or workgroup staff can work with the contractor to gather feedback from members via email. Project Key contacts: • Diversity Workgroup Chair (will be provided prior to project kick-off meeting) • Diversity Workgroup Vice-Chair: Wendy O'Sullivan, NPS, wendy_o'sullivan@nps.gov • Diversity Workgroup Coordinator: Tuana Phillips, EPA, Phillips.tuana@epa.gov • Diversity Workgroup Staffer: Ivan Hernandez, Chesapeake Research Consortium, hernandezi@chesapeake.org • Steering Committee Member: Caitlyn Johnstone, Alliance for the Chesapeake Bay, cjohnstone@chesapeakebay.net • Steering Committee Member: Ola Davis, Alliance for the Chesapeake Bay, odavis@allianceforthebay.org • Steering Committee Member: Erin Sullivan, EPA, sullivan.erinc@epa.gov • Steering Committee member: Trystan Sill, Maryland DNR, trystan.sill@maryland.gov *The contractor will also interact with participants of focus groups and tentatively presenters of a conference or forum as project steps are carried out. The specific stakeholders and participants for the focus groups and conference/forum are yet to be determined. As described in the project steps, the contractor will work with Diversity Workgroup leadership as stated above to identify participants*
Deliverables	1. Step 1: Project kick-off meeting: summary of meeting notes from kick-off meeting 2. Step 2: Develop facilitator agendas for focus groups: two draft facilitators agendas for a total of four focus groups; two final facilitator agendas. 3. Step 3: List of participants for focus groups. 4. Step 4: Draft pre- and post-survey questions; report including notes and findings from focus group discussions; meeting summary of debrief discussion. 5. Step 5: Draft agenda for the conference or forum; draft and final post-event survey/evaluation. In addition, a post-conference/forum report that includes results from the post-event survey/evaluation 6. Step 6: One to three tools, resources, and/or workshops will be developed and offered or distributed to organizations led by and serving underrepresented communities 7. Step 7: Draft and Final Report and Recommendations. 8. Step 8: Presentation to CBP Leadership and Diversity Workgroup; final presentation slides.
QAPP Requirement	No, a QAPP will not be required for this scope
Qualifications of Bidder	The bidder should demonstrate the following skills: • Ability to facilitate focus groups and/or use other social science techniques to gather input from a group • Ability to organize successful conference or forum • Ability to convene events in a manner that prioritizes equity and inclusivity • Expertise in DEIJ topics and advancing DEIJ in the environmental field • Ability to create tools and resources or carry out workshops • Flexibility with project deliverables as project is carried out *The bidder does not need to be familiar with the Chesapeake Bay Program partnership*

Scope of Work 12: Development of Cost-Effective Methods to Measure Site-Specific Denitrification Rates for the Proposed Oyster Restoration Best Management Practices

Goal Implementation Team (GIT)	Sustainable Fisheries Goal Implementation Team (GIT 1)
Maximum Bid Amount	$80,000.00
Purpose and Outcomes	This project would refine and lower the cost of existing methods to measure oyster restoration denitrification rates allowing increased monitoring over a wide range of habitats and enabling broad application of the pending new oyster restoration best management practices (BMPs) and associated water quality, oyster recovery, and other ecosystem service benefits. Scientific research has demonstrated that oysters can contribute to the reduction of nutrients (nitrogen and phosphorus) and suspended sediment from the water column (Kellogg et al. 2013 and 2014a, Grizzle et al. 2008, https://www.researchgate.net/publication/261402272_Denitrification_and_nutrient_assimilation_on_a_restored_oyster_reef. As a result, there is significant interest by the Chesapeake Bay Program (CBP) and partners to utilize oyster restoration BMPs and credit their nutrient and suspended sediment reduction toward water quality goals. The CBP formed an Oyster BMP expert panel in 2015 to review and make recommendations on the use of oysters as a BMP through both aquaculture and restoration practices. Oyster aquaculture BMPs were recommended and approved by the Water Quality and Fisheries GITs in 2016: https://www.chesapeakebay.net/documents/Oyster_BMP_1st_Report_Final_Approved_2016-12-19.pdf. Oyster restoration BMPs are still under consideration by the Expert Panel with a final report and recommendations expected soon. One of the challenges facing the Expert Panel in making recommendations for the oyster restoration BMP is the lack of site-specific denitrification rate measurements across the Bay. While methods to measure denitrification rates on oyster reefs currently exist, they are costly and therefore not easily replicated at multiple sites Baywide. Ultimately, this project would enable measurements of site-specific oyster denitrification rates at a reduced cost that would allow more monitoring to better understand the variability across habitats (tributaries, salinities, depth). Cost effective measurements of oyster denitrification rates are needed to maximize the pending oyster restoration BMP and associated water quality and ecosystem services. Current data is primarily limited to Harris Creek, Maryland. New sampling and measurements will be needed at proposed oyster BMP locations to verify site-specific rates. There is concern that the high cost associated with existing methods for measuring oyster denitrification rates could limit implementation of the pending oyster restoration BMP. Facilitating data needs for the oyster restoration BMP at a feasible cost could facilitate more oyster restoration in the Bay. Additional restoration is needed to supplement the current ten tributaries by 2025 outcome and can open avenues to additional oyster restoration financing options (https://www.chesapeakebay.net/managementstrategies/strategy/oyster). Increasing oyster restoration provides the co-benefits of improved water quality, fish habitat and economic impacts for surrounding communities. The Project Outcomes for this scope include the following: • Develop faster, lower cost methods to measure denitrification rates at oyster restoration BMP locations. • Improve the utility of the new oyster restoration BMP and increase the number of jurisdictions/localities (local governments and municipalities, land use planners, Watershed Implementation Plan leads and implementers) able to select, implement, and monitor oyster restoration BMPs. • Facilitate data collection needed to implement and verify oyster restoration BMPs, thereby increasing the number and area of restored oyster reefs Baywide.

Project Steps and Timeline	**Step 1: 3/15/2021 to 4/15/2021** Hold a kick-off meeting with the project advisory team, members of the Water Quality and Sustainable Fisheries GITs and members of the Oyster Expert BMP Panel as well as other stakeholders deemed necessary to review project proposal, deliverables, and timeline. Capture feedback from the meeting and determine with GIT Technical Lead next steps on any substantive issues raised. Discuss the requirement of a Quality Assurance Project Plan (QAPP), submit a Draft QAPP, address comments to the draft QAPP, and submit a Final (signed) QAPP. Set a check in meeting schedule (suggestion is quarterly) with project advisory team to review project progress, results, challenges, and receive feedback. Meeting requirements may be modified as necessary in consultation with the GIT Technical Project Lead. At the kick-off meeting, the contractor should ensure access to all relevant reports and publications. One key report is the final report of the Oyster BMP Expert Panel with a focus on recommendations for restored oysters and science needs associated with improvement of denitrification assessment methods to allow more cost-effective analysis. At the time of writing this Scope of Work the final report has not been released. Refer to Oyster Recovery Partnership on progress: https://oysterrecovery.org/water-quality-improvement/ An interim report can be found here. https://www.chesapeakebay.net/channel_files/33998/cornwell_et_al_june2019_enhanced_dnf-oyster_reef_restoration_planning_interim_bmp.pdf. The Contractor should review all available reports and associated literature on efforts and oyster reef denitrification measurement approaches to date, including lessons learned and costs. Deliverables for this Step include: • Meeting with the GIT Technical Lead to review project deliverables and finalize project advisory team membership. • Summary of available reports and associated literature reviewed • Meeting minutes from project kickoff meeting • Draft and Final (signed) QAPP
	Step 2: 4/15/2021 to 5/28/2021 Begin developing the site-specific denitrification assessment methods to sample, analyze and calculate the N removal enhancement values of restored oyster reefs. Design, acquire, and/or build the required field assessment sensors, platforms, and gear. Prepare lab analysis plans and calculation approach and select a site for sampling. Deliverables for this Step include: • Draft design plans, field protocols, sensor specifications, and any other platform and gear requirements needed to implement the measurement protocols. • Draft written lab analysis methods and denitrification rate calculations. • Accurate accounting of costs to build, test, and analyze samples compared to current methods.
	Step 3: 6/15/2021 to 6/22/2021 Provide a written and verbal presentation to the project advisory team on the site-specific denitrification assessment methods, field assessment sensors, platforms and gear, lab analysis plans, denitrification calculation approach, and budget (include the cost estimate for the proposed method including the materials, number of staff hours per level of personnel on the project and overall cost of staff time). Deliverables for this Step include: • Written proposal for a test site(s) for testing the new methods and get approval from project advisory team • Verbal presentation to the project advisory team • Decision criteria, maps, and other supporting materials related to test site selection
	Step 4: 7/1/2021 to 9/15/2021 Conduct the field deployment at the agreed upon location(s). If a summer deployment is not feasible or deemed by the project advisory team that another sampling period would be more useful to the project end goals this timeframe can be modified. Deliverables for this Step include: • Summary of the field deployment, site(s) latitude and longitude, pictures of site and deployed equipment, data, and initial analysis.

Project Steps and Timeline (continued)	**Step 5: 9/15/2021 to 12/15/2021** Complete analyses of the test deployment and samples. Write up results including personnel time and costs associated with the test deployment, detailed description of lab analysis, and how denitrification rates will be calculated. Submit a draft report to the GIT Technical Lead for review and comment; the report should include a detailed description of the analysis, results and discussion, recommendations, lessons learned, barriers, limitations, and suggested next steps for using the new methods to implement the oyster restoration BMP. Provide written and verbal presentation of the results to the GIT technical lead and project advisory team. Determine if another test site and/or deployment is feasible or required in consultation with the GIT technical lead and project advisory team. If more test sampling is required, collect the new samples, analyze, and calculate the N removal enhancement values. Provide additional analyses and results in writing to the GIT technical lead and project advisory team. Deliverable for this Step includes: • Draft report for review and comment
	Step 6: 12/15/2021 to 3/15/2022 Develop and deliver a final written report to the GIT technical lead with to include the new oyster restoration denitrification rate field measurement methods, analysis protocols, and calculation approaches. The report should address comments from the draft and include analysis results and discussion, recommendations, lessons learned, barriers, limitations/caveats, and suggest next steps for using the new methods with respect to implementing the oyster restoration BMP. Present report contents and findings at an in person or virtual meeting to the GIT technical lead, project advisory team, the Water Quality Goal Implementation Team, STAR, the Sustainable Fisheries Goal Implementation, and other stakeholders recommended by the project advisory team. Plan on up to four presentations of the final report in the event a single meeting is not sufficient to disseminate findings to all parties identified by the project advisory team. Deliverables for this Step include: • Final report • Verbal presentations (up to four) to appropriate GITs as directed by project advisory team
Stakeholder Participants	The GIT Technical Lead for this project will be Suzanne Bricker suzanne.bricker@noaa.gov The project will be staffed by Justin Shapiro (Justin.shapiro@noaa.gov) who will form a project advisory team and connect project results to key members of the Sustainable Fisheries and Water Quality Goal Implementation Teams, STAR and jurisdictional representatives.
Deliverables	1. Draft and Final (signed) QAPP 2. Written, site-specific denitrification assessment methods to sample, analyze, and calculate the N removal enhancement values of restored oyster reefs 3. Design plans, field protocols, sensor specifications, and any other platform and gear requirements need to implement the measurement protocols 4. Written lab analysis methods and denitrification rate calculations 5. Accurate accounting of costs to build/test/analyze samples compared to current methods 6. Decision criteria, maps, and other supporting materials related to test site selection 7. Summary of the field deployment including but not limited to site(s) latitude and longitude, pictures of site and deployed equipment, data collected, and initial analysis 8. Draft and final verbal reports and presentations to the GIT technical lead and project advisory team as indicated in the timeline above 9. Draft and final written report
QAPP Requirement	Yes, a QAPP will be required for this Scope.
Qualifications of Bidder	• Experience conducting field collections and lab analyses quantifying denitrification rates of oyster reefs • Access to vessels and lab equipment required to test new oyster reef denitrification rate methods • Strong verbal and written communication skills • Experience developing QAPPs

APPENDIX D:

APPENDIX D-1:

EXAMPLE CONTRACT AWARD

APPENDIX D-2

EXAMPLE GRANT AWARD

April 14, 2021

Briana Branham
Skeo Solutions, Inc.
100 10th Street NE, Suite 101
Charlottesville, VA 22902

Dear Ms. Branham,

This letter constitutes an Agreement between the Chesapeake Bay Trust (the Trust) and Skeo Solutions, Inc. (contractor). Pursuant to the terms of this Agreement, the contractor will provide the services detailed below. This award will be managed as a Firm-Fixed-Price of $69,943.

Background and Program Description
The Trust has been designated to receive federal funds from the U.S. Environmental Protection Agency (EPA) as part of the Chesapeake Bay Program (CBP) Goal Implementation Team (GIT) Project Initiative. The work to be supported will advance specific outcomes from the 2014 Chesapeake Bay Watershed Agreement that have been identified as top priorities to address. The funding is supplied by the EPA to Skeo Solutions, Inc. to complete the project titled **Scope of Work #10: Developing Standards and Metrics to Target the Conservation of "Green Spaces" in Underrepresented and Low–Income Urban and Rural Communities**.

The overall goal of **Scope of Work #10: Developing Standards and Metrics to Target the Conservation of "Green Spaces" in Underrepresented and Low–Income Urban and Rural Communities** includes developing a set of recommendations to help relieve overburdened low-income communities of color that are subjected to systemic racism and disproportionately affected by pollutants impacting residents' health and Quality of Life. Watershed-wide listening sessions will be conducted by facilitators, criteria/thresholds and standards/metrics will be defined to map the level or levels of Green Spaces in Mapped, Underrepresented Communities of Color as a new Geographic Information Systems (GIS) data layer, and a Community Sustainability Model will be developed and included in a final report.

Scope of Work
The contractor will accomplish the body of work outlined in the proposal submitted to the Trust by the contractor on1/22/2021, made part of this contract as Appendix A, as modified by any contingencies or post-award communications agreed to by both parties. The contractor will provide the project deliverables per Table 1.

Table 1. Project Deliverables and Timeline.				
Report and Invoice #	**Reporting Period**	**Description of Project Deliverables**	**Date of Delivery**	**Amount**
1: Project Kickoff & Workgroup Meetings	3/15/2021 to 4/30/2021	The deliverable(s) include: • Draft Quality Assurance Project Plan (QAPP) (Word), by 4/23/21 • Approved work schedule and budget (Word)	4/30/2021	$9,199
2: Conduct Listening Sessions & Finalize QAPP	5/1/2021 to 6/15/2021	The deliverable(s) include: • Final (signed) QAPP (PDF) • Draft list of participants and listening session guiding questions (Word). • Report summarizing listening sessions (Word)	6/15/2021	$18,189
3: Define Recommended Criteria & Thresholds	6/16/2021 to 9/15/2021	The deliverable(s) include: • Draft criteria and thresholds to define and map *Underrepresented Communities of Color* as a new GIS layer (Word), by 7/15/2021 • Draft GIS mapping products of underrepresented communities of color (PDF)	9/15/2021	$10,907
4: Define Recommended Standards & Metrics	9/16/2021 to 2/15/2022	The deliverable(s) include: • Draft standards and metrics to define and map the level or levels of Green Spaces in Mapped, Underrepresented Communities of Color as a new GIS data layer (Word), by 10/15/2021 • Revised recommended standards and metrics to characterize the levels of green spaces in these communities (Word)	2/15/2022	$10,567
5: Research, Develop a Community Sustainability Model	2/16/2022 to 5/15/2022	The deliverable(s) include: • Draft GIS mapping products that characterize the levels of green spaces in these communities (PDF) • Draft report recommending a community sustainability model (Word)	5/15/2022	$15,549
6: Revise & Submit Final Report	5/16/2022 to 6/30/2022	The deliverable(s) include: • Final Report and final files (508-compliant, compressed folder or upload on file sharing platform, PDF) • Final GIS project files and metadata (e.g., packages, geodatabases, maps, shapefiles, layers, layouts, as determined in Report 5)	6/30/2022	$5,532
			TOTAL	**$69,943**

Terms of the Agreement

1. This contract must be executed by the contractor by 4/30/2021 otherwise the contract shall be unenforceable.

2. The contract award **is contingent** upon:
    a. Submission to the Trust by 4/30/2021 of a signed and dated IRS form W-9
    b. Initiation, organization, and scheduling of a mandatory project initiation meeting within 30 days of the project start date and include the Trust point of contact Sarah Koser at skoser@cbtrust.org, the Goal Implementation Team lead John Griffin at jgriffin@chesapeakeconservation.org, any subcontractors, and any relevant project partners and contractors. At the project initiation meeting:
        i. project deliverables, a description of the deliverables, and timeline for delivery will be discussed and upon agreement between the EPA, the Trust and contractor, these deliverables were made part of the contract (Table 1) and
        ii. the experimental design or project Scope of Work will be discussed and may be adjusted.

    If changes to the experimental design or project Scope of Work are recommended at the project initiation meeting, a revised experimental design or project Scope of Work will be due within 14 days of the project initiation meeting to the Trust and must be approved before work can begin on the project.

3. The term of the Agreement shall be 3/1/2021 through 7/30/2022.

4. The Trust's Point of Contact for this Agreement shall be Sarah Koser, Senior Program Officer. Any changes to this Agreement must first be authorized in writing by the Trust's point of contact.

5. The Trust will pay the contractor an amount not to exceed **$69,943** for the execution of this Scope of Work. These fees are fixed and include all travel expenses, out-of-pocket costs and other contingencies.

6. The contractor shall submit invoices **upon completion of each project deliverable per Table 1**. Invoices must be accompanied by specific deliverables identified for each phase and submitted via the Trust's online system at https://www.GrantRequest.com/SID_1520.
    a. The Trust must approve each deliverable and invoice, which may require coordination by the contractor of on-site inspection as determined by the Trust's point of contact, before payment and before the contractor can begin work on the next phase. The Trust shall have no funding payment obligation to the contractor for subsequent phases if the deliverables of the prior phase are not met.
    b. The final invoice must be accompanied by a final report and include all final products that have not been submitted to date.
    c. The Trust shall make payment within 45 days of receiving a complete and correctly prepared invoice.

7. **Significant scope, personnel, and/or deliverable changes** require approval from the Trust's point of contact. A "significant change" is defined as one that substantively modifies the project's goals, objectives, milestones, and/or deliverables. Personnel changes in the Project Leader or other positions integral to completing the project are also considered "significant changes." Requests for approval of changes must be made by completing the Award Revision Request form within your online portal.

8. **The signed contract, invoices and deliverables, all progress reports, and the final report are required to be submitted by logging into the Chesapeake Bay Trust Online Reporting System account accessed through the link https://www.GrantRequest.com/SID_1520** with the same username and password used when you applied. Agreement term extension requests must be made via email to the Trust's point of contact at least one month prior to the termination due date and depending on circumstances, may or may not be granted.

9. The contractor will employ the methodology outlined in the proposal submitted to the Trust on1/22/2021, incorporated into this contract as Appendix A, in response to the Request for Proposals entitled "**Scope of Work #10: Developing Standards and Metrics to Target the Conservation of "Green Spaces" in Underrepresented and Low–Income Urban and Rural Communities**," as modified by any contingencies or post-award communications.

10. This contract is composed of **100% ($69,943) federal funding** by the U.S. Environmental Protection Agency (CFDA# 66.466) through Federal Award Identification Number (FAIN) 96374201, dated 3/13/2020. These funds may not be used to match funds from other federal programs. Please be aware that any entity receiving federal funds may be required to comply with federal requirements governing the use of those funds, including provisions of Title 2 CFR 200. Federal compliance also includes the submittal to the Trust, if requested, of a detailed accounting of costs, invoices, receipts, and proof of subcontracted vendor payment to the Trust with the final invoice.

11. The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

12. Any products for dissemination or publication must contain the statement: "This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement CB96374201 to the Chesapeake Bay Trust. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document." These items, once finalized, are to be an output within the work plan.

13. **Ownership of Equipment and Supplies:** Any equipment (generally defined as items with a useful life of more than a year and an acquisition cost of $5,000 or more and includes such items as information technology systems) or supplies purchased with award funds must have been included in your original proposal or approved through an award revision request and must be used during and managed after the award in a manner consistent with 2 CFR 200.313 and 200.314.

14. Consistent with federal procurement guidelines, the contractor must:
    a. obtain or have obtained at least three estimates for any work to be performed by subcontractors greater than $3,000 and less than $150,000, must keep documentation on the estimates, and is encouraged to use good faith efforts to engage disadvantaged/minority/women business enterprises (DBE) by reaching out to DBE/MBE/WBE firms to submit estimates/bids (the following website may be helpful in identifying firms: https://mbe.mdot.maryland.gov).
    b. ensure proper DBE documentation is completed as follows (forms may be obtained from EPA Office of Small and Disadvantaged Business Utilization's (OSDBU's) Home Page or by contacting the Trust):
        i. Any DBE subcontractor must provide directly to the EPA Form 6100-2 (the DBE Program Subcontractor Participation Form).
        ii. Any DBE subcontractor must provide to the contractor for submission to the Trust of EPA Form 6100-3 (the DBE Program Subcontractor Performance Form), either in the bid package, or, if the procurement process has not yet been completed upon time of bid, with the first invoice involving the subcontractor.
        iii. The contractor using a DBE firm must submit to the Trust Form 6100-4 (DBE Program Subcontractor Utilization Form) either in the bid package, or, if the procurement process has not yet been completed upon time of bid, with the first invoice involving the subcontractor.
    c. notify the Trust prior to any termination of a DBE subcontractor for convenience.
    d. verify by checking at www.sam.gov that any subcontractor or supplier has not been suspended, debared, excluded, or disqualified by the federal government, and pass this requirement on to your subcontractors who in turn use subcontractors or suppliers.
    e. pay subcontractors for satisfactory performance no more than 30 days from the contractor's receipt of payment from the Trust.

15. Skeo Solutions, Inc. shall not enter into any contract or agreement during the performance of this Agreement which would create a conflict of interest with its duties to the Trust. At all times during the term of this Agreement, all staff assigned to provide services shall remain employees of Skeo Solutions, Inc. and not the Trust. Except as the Trust may authorize in writing, employees of Skeo Solutions, Inc. shall have no authority, expressed or implied, to act on behalf of the Trust in any capacity whatsoever as an agent. Skeo Solutions, Inc. shall have no authority, expressed or implied, pursuant to this agreement to bind the Trust to any obligation whatsoever.

16. Additional Services: The Trust's Point of Contact may request ancillary or additional services within the capacity of Skeo Solutions, Inc.as may be useful or necessary in the interests of the Trust. Approval of any additional services provided under this agreement, however, must be made in writing first, in the form of an amendment to this Agreement, prior to the start of any work that is performed.

17. Either party may terminate this Agreement for any reason at any time. If this Agreement is terminated, the Trust shall make payment to Skeo Solutions, Inc. only for work performed through the termination date.

18. **All public communications and promotion including press releases, print publications, signage, online messaging, etc. must acknowledge the program funding partner, U.S. Environmental Protection Agency (using both name and logo), whose logo appears at the top of this contract.** The Trust's license plate logo must also be included and is available online at www.cbtrust.org/logos.

19. The contractor agrees that "Project Deliverables" will be produced as listed in Table 1 and that submission of data to the Trust and partners will be done no later than one year from when the data were collected. Data include data analysis, models, and any other data products generated.

20. The recipient agrees to comply with the terms and conditions included in the proposal submission and all applicable local, state, and federal laws.

If you are in agreement with these terms, please sign and upload the signed agreement into the online reporting system **accessed through the link https://www.GrantRequest.com/SID_1520** with the same username and password used when you applied. We look forward to working with you on what promises to be an exciting initiative for the Chesapeake Bay Trust and Skeo Solutions, Inc.

Sincerely,

Signature
Jana Davis, Ph.D.
Chesapeake Bay Trust
Executive Director

4/14/21
Date

Agreed to,

Signature

Date

Briana Branham
Skeo Solutions, Inc.

December 1, 2020

Catrien van Assendelft
Boxerwood Education Association
963 Ross Road
Lexington, VA 24450

Dear Ms. van Assendelft:

The Chesapeake Bay Trust (the Trust) thanks the Boxerwood Education Association for your proposal to the U.S. Environmental Protection Agency (EPA) Goal Implementation Team (GIT) Award Program. The Trust received a high level of requests, over $630,000 in requests for $159,400 available in this program. I am pleased to report approval of $19,990 for Scope of Work #1EE: Equity and Environmental Education in the Time of COVID-19 to Support Environmental Education Providers for the NEST program for students in Rockbridge County, Virginia.

Your award will be distributed as detailed in the award agreement attached. The payment(s) are contingent on key elements that are required prior to the release of each payment as described in your award agreement. **Please carefully read your award agreement** and contact the Trust if you have questions.

The signed award agreement, and any other contingencies, and status and final reports must be submitted by logging into the Chesapeake Bay Trust Online System accessed through the link https://www.grantrequest.com/SID_1520 with the same username and password used when you applied. The Trust reserves the right to cancel the award and apply funds to other projects if the requirements of the award agreement are not met by the due dates.

If you should have any questions regarding our decision, please feel free to contact the Program Officer Tara Drennan at (410) 974-2941 ext. 102. The Chesapeake Bay Trust greatly appreciates the time you invested in the proposal development and looks forward to working with you in the future.
Sincerely,

Jana Davis, Ph.D.
Executive Director

Award #: 18848
Project Leader: Elise Sheffield

Award Agreement between the Chesapeake Bay Trust
And the Boxerwood Education Association

December 1, 2020

This agreement is between the Chesapeake Bay Trust (the Trust) and the Boxerwood Education Association (the "awardee") (DUNS#: 062542589). The total amount of the award for award number 18848 is $19,990. Delivery of this award is made through the U.S. Environmental Protection Agency (EPA) Goal Implementation Team (GIT) Award Program and is subject to receipt by the Trust of a signed copy of this agreement which confirms that:

1. **Award Amount and Description**: The award is in the amount of $19,990 for Scope of Work #1EE: Equity and Environmental Education in the Time of COVID-19 to Support Environmental Education Providers for the NEST program for students in Rockbridge County, Virginia. By accepting this award, awardee agrees that said monies will be used to accomplish deliverables with budgeted items as proposed in your application received on 10/18/2020, modified through any contingencies below, and approved in this agreement.

2. **Period of Performance**: The period of performance for this award is from 11/18/2020 to 9/1/2021.

3. **Changes in Scope and Budget**: Up to 10% of total project funds may be shifted from one of the seven high level budget categories (e.g., supplies, travel, etc.) to another, as long as the shift does not substantively modify the project's goals, objectives, milestones, or deliverables. Significant changes to project budget and/or scope must be approved by the Trust in advance of the change. Requests for approval of changes must be made by completing the Award Revision Request Requirement available in your online award portal. The following types of changes should trigger an Award Revision Request:

    a. Scope Changes:
        i. An alteration of the intent, goals, objectives, milestones, and/or deliverables of the project
        ii. A change in the physical location of a project
        iii. Changes in key personnel or key project partners
        iv. Changes in project deliverables are proposed in your original application and modified though any contingencies in this award agreement
        v. Changes in timeline in your original application or as any subsequently amended, including requests for no-cost extensions
    b. Budgetary Changes:
        i. Changes in budget that result in a greater than 10% shift in funds across high level budget categories (personnel, supplies, contractual, travel, field trip fees, other, and indirect costs)
        ii. Addition of a line item to the budget that falls under one of the seven high level budget categories that had not yet appeared in your budget (e.g., adding personnel when none had been approved previously or adding contractual services to the budget)
        iii. Budget changes that reflect an alteration of the intent of the project

iv. Budget changes that reflect a change in the environmental benefit or impact of a project

4. **Distribution of Funding**: Funding will be distributed in two phased payments as described below:
    a. Phase 1 payment of $17,991 (90% of the award amount). This payment is contingent upon submission by 2/1/2021 to the Trust of:
        i. The signed award agreement;
        ii. A signed and dated IRS form W-9; and
        iii. Audit Verification Requirement required for all awards involving federal funds (accessible via your online portal; see the "Submitting Documents/Requirements" section below).

    Contact the Trust for assistance with these contingencies. Funds will not be released until these contingencies are met.

    b. Final Payment of $1,999 (10% of the award amount) will be distributed upon submission to and review by the Trust of your **final report due on or before 9/1/2021**. The final report shall include:
        i. **Submission of the Audit Verification Requirement** required for all awards involving federal funds (accessible via your online portal; see the "Submitting Documents/Requirements" section below).
        ii. **Programmatic Report**: A narrative report using the Trust's final report form accessed through http://www.GrantRequest.com/SID_1520. Included in the final report will be a deliverables section that should match the deliverables you proposed in your approved application, as modified by any contingencies or budget adjustments.
        iii. **Financial Report – FMS "Expenses" worksheet**: Information must be entered in the appropriate columns (see the "Expenses Instructions" worksheet) describing how the previous phase funds were spent plus the final 10% such that the full award amount, less any award monies not to be used, is reported. If unauthorized changes were made to the budget or deliverables without Trust approval you will be required to refund the award.
        iv. **Financial Documentation – Submission of invoices/receipts and an accounting of personnel costs**: Invoices/receipts and documentation of personnel expenses must be included in ONE PDF or other file. Each row entered into the FMS's "Expenses" worksheet must include a corresponding invoice/receipt/piece of documentation. Each individual invoice/receipt/piece of documentation must be numbered with the corresponding backup document numbers (Column A) in the FMS's "Expenses" worksheet and submitted in numerical order. Copies of timesheets associated with any personnel time supported by the award must be included. Institutions of Higher Education may provide, in lieu of timesheets, time and effort reporting documentation that complies with 2 CFR 200.430. Any invoices/receipts/pieces of documentation already submitted in reporting on a previous phase, if applicable, need not be resubmitted.
        v. **Final Products**: Final products that include any deliverables as outlined in your award application as modified through any contingencies.
        vi. **Photos of the Project**: For all projects that involve an outreach or community engagement element, submit photos of engagement events.

5. **Submitting Documents/Requirements**: The signed award agreement; other contingencies; record of attendances; and status, progress, and final reports are required to be submitted by logging into the Chesapeake Bay Trust Online System account accessed through the link http://GrantRequest.com/SID_1520 with the same username and password used when you applied. Status, progress, and final report extension requests must be made using the Award Revision Request Requirement prior to the report due date. Depending on the circumstances, the Trust may or may not grant an extension. In cases where the awardee fails to submit a status report or final report by the due date, the Trust reserves the right to terminate the award agreement and require a refund of funds already transferred to the awardee. By signing this award agreement, the awardee agrees to comply with all conditions of this agreement, status and progress report date(s), if applicable, and the final report date listed above and agrees to return funds if a complete report is not submitted by the deadline. Failure to submit report(s)/requirement(s) by the deadline will affect eligibility of future awards.

6. The recipient shall not discriminate on the basis of race, color, national origin or sex in the performance of this award. The recipient shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the recipient to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

7. **Acknowledgement of Funding Partners**: All public communications and promotion, including press releases, print publications, signage, online messaging, etc. must:
    a. Acknowledge program partner EPA (using both names and logos) whose logos appear at the top of the cover letter to this Agreement.
    b. Include the Trust's license plate logo (available at www.cbtrust.org/logos).
    c. Any products for dissemination or publication must contain the statement: "This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement CB96341401 to the Chesapeake Bay Trust. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the Environmental Protection Agency endorse trade names or recommend the use of commercial products mentioned in this document." These items, once finalized, are to be an output within the work plan.

8. **Ownership of Equipment and Supplies**: Any equipment (generally defined as items with a useful life of more than a year and an acquisition cost of $5,000 or more, and includes such items as information technology systems) or supplies purchased with award funds must have been included in your original proposal or approved through an award revision request and must be used during and managed after the award in a manner consistent with 2 CFR 200.313 and 200.314.

9. **Federal Funding Requirements**: This program is a partnership of the Trust and the EPA, with EPA funding coming through CFDA# 66.466 Chesapeake Bay Program through Federal Award Identification Number (FAIN) CB96341401 dated 5/18/19. For purposes of accounting, your award ($19,990) is composed of 100 % of federal funding as a sub-award. These funds may not be used to match funds from other federal programs and as a sub-recipient receiving federal funds:

a. You must comply with federal requirements governing the use of those funds, specifically Title 2 CFR 200: Uniform Administrative Requirements, Cost Principals, and Audit Requirements for Federal Awards (Uniform Guidance).
b. If your total Federal annual expenditures exceeded $750,000 you are required to obtain a Single Audit and to furnish the Trust and out auditors with the Single Audit financial statement for each year covered by the award and allow access to your records.
c. Consistent with federal procurement guidelines, you must obtain or have obtained at least three estimates for any work to be performed by subcontractors greater than $3,000 and less than $150,000, must keep documentation on the estimates, and must use good faith efforts to engage disadvantaged/minority/women business enterprises (DBE) by reaching out to DBE/MBE/WBE firms to submit estimates/bids (the following website may be helpful in identifying firms: https://mbe.mdot.maryland.gov/). You must verify by checking at http://www.sam.gov/SAM/ that any subcontractor or supplier has not been suspended, debarred, excluded, or disqualified by the federal government, and pass this requirement on to your subcontractors who in turn use subcontractors or suppliers.
d. Ensure proper DBE documentation is completed as follows (forms may be obtained from EPA OSDBU's Home Page or by contacting the Trust):
    i. Any DBE subcontractor must provide directly to the EPA Form 6100-2 (the DBE Program Subcontractor Participation Form)
    ii. Any DBE subcontractor must provide to the contractor for submission to the Trust of EPA Form 6100-3 (the DBE Program Subcontractor Performance Form), either in the bid package, or, if the procurement process has not yet been completed upon time of bid, with the first invoice involving the subcontractor.
    iii. The contractor using a DBE firm must submit to the Trust Form 6100-4 (DBE Program Subcontractor Utilization Form) either in the bid package, or, if the procurement process has not yet been completed upon time of bid, with the first invoice involving the subcontractor.
e. You must notify the Trust prior to any termination of a DBE subcontractor for convenience.
f. You must pay subcontractors for satisfactory performance no more than 30 days from the contractor's receipt of payment from the Trust.

10. The recipient agrees to comply with the terms and conditions included in the proposal submission and all applicable local, state, and federal laws.

The undersigned who is (are) fully authorized in the premises of the Boxerwood Education Association accepts, subject to the terms and conditions in the above award agreement.

Return signed copied of the full award agreement, with each page initialed and full signatures on the last page*, by uploading a scanned copy to your Chesapeake Bay Trust Online System account accessed through the link https://www.GrantRequest.com/SID_1520 with the same username and password used when you applied. Please keep a copy for your records.

Signature of Executive Officer*	Title	Date
Signature of Project Leader*	Title	Date
Signature of Jana Davis, Ph.D., Executive Director; Chesapeake Bay Trust	Executive Director	12/1/2020 Date

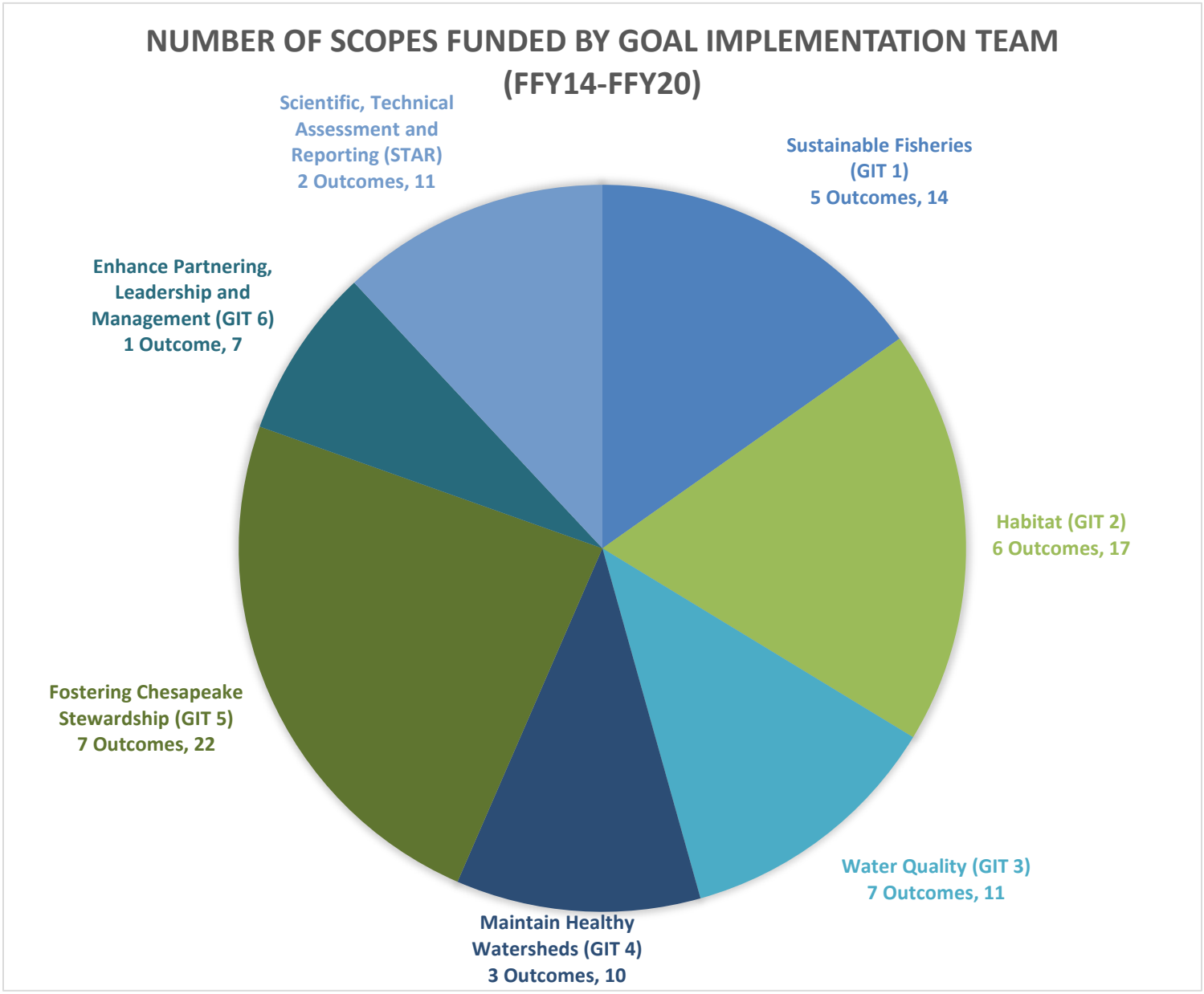
Award #: 18848 Award Program: EPA GIT

APPENDIX E:

STATISTICS AND LIST OF
GIT-FUNDED PROJECTS TO DATE
(2014 THROUGH 2021)

Table of Scopes Funded by Goal Implementation Team (FFY14 through FFY20)

GIT Number	Total Number of Scopes	Total Contract Value of all Funded Scopes	Total Number of Outcomes by GIT
Sustainable Fisheries (GIT 1) 5 Outcomes	14	$909,008	5
Habitat (GIT 2) 6 Outcomes	17	$825,800	6
Water Quality (GIT 3) 7 Outcomes	11	$785,823	7
Maintain Healthy Watersheds (GIT 4) 3 Outcomes	10	$486,390	3
Fostering Chesapeake Stewardship (GIT 5) 7 Outcomes	22	$1,381,119	7
Enhance Partnering, Leadership and Management (GIT 6) 1 Outcome	7	$316,873	1
Scientific, Technical Assessment and Reporting (STAR) 2 Outcomes	11	$748,105	2
TOTAL	**92**	**$5,453,117**	**31**



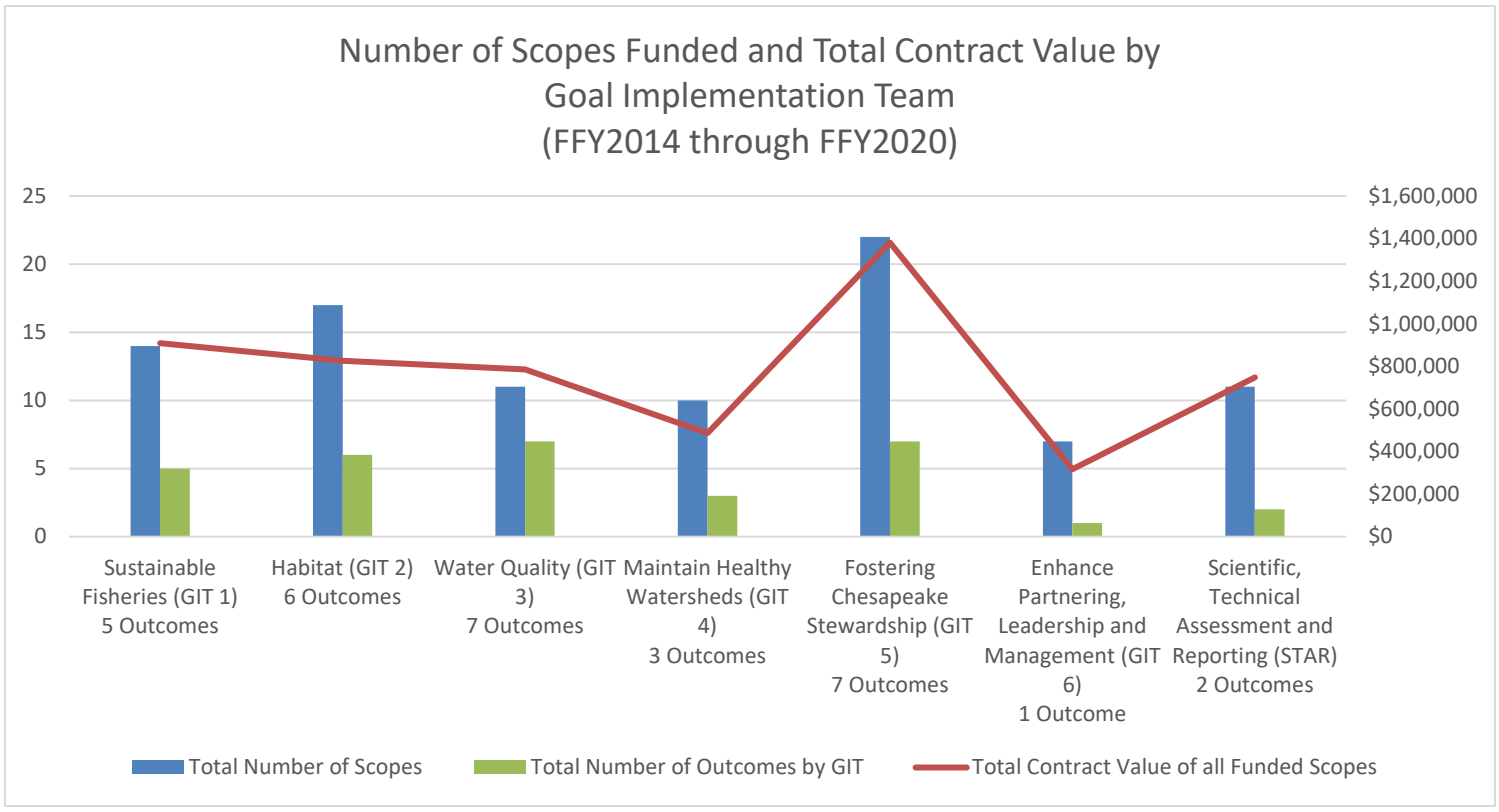

Number of Scopes Funded and Total Contract Value by Goal Implementation Team (FFY2014 through FFY2020)
25
20
15
10
5
0
$1,600,000
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$0
Sustainable Fisheries (GIT 1) 5 Outcomes
Habitat (GIT 2) 6 Outcomes
Water Quality (GIT 3) 7 Outcomes
Maintain Healthy Watersheds (GIT 4) 3 Outcomes
Fostering Chesapeake Stewardship (GIT 5) 7 Outcomes
Enhance Partnering, Leadership and Management (GIT 6) 1 Outcome
Scientific, Technical Assessment and Reporting (STAR) 2 Outcomes
Total Number of Scopes
Total Number of Outcomes by GIT
Total Contract Value of all Funded Scopes

Table of all Awarded GIT-Funded Scopes by Year Scope Number, Project Title, GIT, and Contract Amount (FFY2014 through FFY2020)

Year #	Award Year	Federal Fiscal Year	Trust Award #	Scope #	Project Title	GIT #	Contract Amount
0	2014-2015	FFY14	12900	1	Forage fish indicator/metric development	1	$ 49,000.00
0	2014-2015	FFY14	12911	2	Identification of additional healthy watersheds in the Chesapeake Bay Watershed portion of West Virginia	4	$ 49,526.65
0	2014-2015	FFY14	12909	3	Development of baseline indicator of citizen stewardship	5	$ 69,903.57
0	2014-2015	FFY14	12897	4	Chesapeake Bay Stock Assessment Committee (CBSAC) Research Needs	1	$ 81,293.00
0	2014-2015	FFY14	12906	5	Assessment of Local Leadership Development Programs	6	$ 19,600.00
0	2014-2015	FFY14	12905	6	Striped bass health indicator development	1	$ 39,200.00
0	2014-2015	FFY14	13013	7	Accelerate wetland restoration in support of WIPs / GIT integration	2	$ 48,982.50
0	2014-2015	FFY14	12899	8	Summarizing potential benefits of nutrient and sediment practices to reduce toxic contaminants	STAR	$ 49,000.00
0	2014-2015	FFY14	12903	9	Leveraging local lessons / Development of a crowd sourced database as part of the Chesapeake Network	5	$ 30,000.00
0	2014-2015	FFY14	14106	10	Follow up to the expansion of the West Virginia Watershed Assessment Pilot Project (contract 12911)	4	$ 1,314.92
0	2014-2015	FFY14	14137	11	Hosting costs for one year for the case study database and technical support for 5 months	5	$ 4,750.00
0	2014-2015	FFY15	14678	12	SAV Aerial Survey Workshop preparation	2	$ 2,000.00
1	2016	FFY15	13663	1	Drivers of forage population trends and consumption patterns	1	$ 60,000.00
1	2016	FFY15	13671	2	Culvert Assessments for Fish Passage in Priority Watersheds	2	$ 44,998.00
1	2016	FFY15	13672	3	Development of a decision support tool to inform black duck wintering habitat delivery goals taking current and future landscape conditions in the Chesapeake Bay	2	$ 46,990.00
1	2016	FFY15	13654	4	Quantify BMP Impact on each Management Strategy	3	$ 89,949.00
1	2016	FFY15	13661	5	Targeted Outreach Tools for Fish Consumption Advisories in Diverse Chesapeake Bay Communities	3	$ 49,999.00
1	2016	FFY15	13670	6	Evaluation of Land Use policy options, incentives and planning tools to reduce the rate of conversion of agricultural lands, forest and wetlands.	4	$ 66,077.00
1	2016	FFY15	13664	7	Healthy Watersheds Forest/TMDL Project Phase II	4	$ 50,000.00
1	2016	FFY15	13676	8	Development of Baseline Indicator of Citizen Stewardship	5	$ 75,000.00
1	2016	FFY15	13666	9	Public Access Data Quality Assurance and Application Integration	5	$ 35,000.00
1	2016	FFY15	13655	10	Designing a Watershed Education Program for Local Elected Officials	6	$ 73,842.00
1	2016	FFY15	13668	11	Cross-Goal Climate Resiliency Analysis and Decision-Making Matrix and Implementation Methodology	STAR	$ 79,952.00
2	2017	FFY16	14577	1	Shell/habitat dynamics in oyster restoration and fishery management	1	$ 59,999.00
2	2017	FFY16	14583	2	Evaluation of environmental factors influencing blue crab populations	1	$ 49,589.41
2	2017	FFY16	14587	3	Updates to the Chesapeake Fish Passage Tool	2	$ 69,269.00
2	2017	FFY16	14571	4	Watershed group and Citizen Monitoring of Fish Habitat/SAV	2	$ 52,000.00
2	2017	FFY16	15067	5	Increasing landowner participation in wetland restoration programs – information access and program cross-training	2	$ 46,005.00
2	2017	FFY16	15367	6	Assessing Multifunctional Riparian Forest Buffer Benefits	2	$ 63,000.00
2	2017	FFY16	14588	7	Development of Chesapeake Bay Technology Assessment Protocol for Manufactured Stormwater Treatment Devices	3	$ 43,780.00
2	2017	FFY16	14564	8	Assessing Benefits of Wastewater Treatment Plant Nutrient Control Upgrades on Toxic Contaminants	3	$ 39,833.00
2	2017	FFY16	15365	9	Preliminary State-Identified Healthy Watersheds Vulnerability Assessments for the Chesapeake Bay Watershed	4	$ 45,000.00
2	2017	FFY16	14591	10	Methodology for developing high-resolution stream and waterbody datasets for the Chesapeake Bay watershed	4	$ 74,997.00
2	2017	FFY16	14573	11	Promoting Meaningful Stormwater Mitigation on Urban/Suburban School Grounds	5	$ 70,000.00
2	2017	FFY16	14572	12	Phase III: Development of Baseline Indicator of Citizen Stewardship	5	$ 112,000.00
2	2017	FFY16	14570	13	Environmental Justice Screen	5	$ 29,722.00
2	2017	FFY16	14585	14	Implementation Support for Local Official Watershed Education and Capacity Building	6	$ 49,085.00
2	2017	FFY16	14578	15	Development of Climate Change Indicators and Metrics for the Chesapeake Bay Program	STAR	$ 74,445.00
3	2018	FFY17	15794	1	Development of a Long-Term Oyster Monitoring Plan	1	$ 75,000.00
3	2018	FFY17	15765	2	Establishing a Shoreline Condition Metric or Threshold	1	$ 80,000.00
3	2018	FFY17	15769	3	Targeted Outreach for Wetland Protection and Restoration	2	$ 74,977.00
3	2018	FFY17	15762	5	Integrating monitoring, modeling and trends analyses to inform management decisions	3	$ 74,918.00
3	2018	FFY17	15781	6	Crafting Guidance for Enhanced Treatment by Roadside Ditch Management Practices	3	$ 59,923.00
3	2018	FFY17	15758	7	Feasibility Study for Voluntary Phase-Out of PCBs in Current Use	3	$ 39,915.00
3	2018	FFY17	15773	8	Healthy Watersheds TMDL Forest/Conserved Lands Retention Study: Phase III	4	$ 70,000.00
3	2018	FFY17	15771	9	Implementation Support for Chesapeake Bay Program Cultural Competency, Diversity Equity and Inclusion (DEI) Capacity Building, Training and Tools Development	5	$ 74,927.00

Year #	Award Year	Federal Fiscal Year	Trust Award #	Scope #	Project Title	GIT #	Contract Amount
3	2018	FFY17	15771	9	Implementation Support for Chesapeake Bay Program Cultural Competency, Diversity Equity and Inclusion (DEI) Capacity Building, Training and Tools Development	5	$ 74,927.00
3	2018	FFY17	15777	10	Interactive Online Tool for Citizen Stewardship Data Use and Analysis	5	$ 59,328.00
3	2018	FFY17	15759	11	MWEE Guide 2.0	5	$ 37,841.00
3	2018	FFY17	15768	13	Chesapeake Bay Watershed Climate Data and Mapping Repository	STAR	$ 29,720.00
3	2018	FFY17	15760	12A	SRS Finance Forum – Meeting Planning & Support	6	$ 24,925.00
3	2018	FFY17	15782	12B	SRS Finance Forum – Expert Consultants	6	$ 29,935.00
3	2018	FFY17	15791	4A	Development of Citizen Scientist Submerged Aquatic Vegetation Monitoring Protocol/Manual and Training/Certification Program	2	$ 24,954.00
3	2018	FFY17	15770	4B	Review of Statutes and Regulations that Protect Submerged Aquatic Vegetation in the Chesapeake Bay	2	$ 24,750.00
4	2019	FFY 18	16777	1	Quantification of the Value of Green Infrastructure Hazard Mitigation Related to Inland and Coastal Flooding	STAR	$ 74,995.00
4	2019	FFY 18	16765	2	Behavior Change Training & Submerged Aquatic Vegetation (SAV) Pilot Implementation	5	$ 69,986.00
4	2019	FFY 18	16798	3	An ecosystem approach to living shorelines project design	1	$ 49,994.00
4	2019	FFY 18	16804	4	Support for Inventory & Evaluation of Environmental and Biological Response Data for Fish Habitat Assessment	1	$ 89,957.00
4	2019	FFY 18	16795	5	Development of improved methodology for data collection of a Chesapeake Bay Protected Lands indicator	5	$ 49,533.00
4	2019	FFY 18	16771	6	Culvert Assessments for Fish Passage and Sediment in the Opequon Watershed of West Virginia	2	$ 45,194.00
4	2019	FFY 18	16770	7	Pavement Sealant Protocol Development: Identifying New High-Polyaromatic Hydrocarbons (PAH) Pollution Sources	STAR	$ 85,000.00
4	2019	FFY 18	16793	8	Pilot a cost effective, real-time DO vertical monitoring system for characterizing mainstem Chesapeake Bay hypoxia*	STAR	$ 80,000.00
4	2019	FFY 18	16782	9	Turf to Buffers Stewardship Campaign for Bay Counties	3	$ 73,517.00
4	2019	FFY 18	17138	10	Chesapeake Watershed Conservation Finance Intensive Workshop	4	$ 20,500.00
4	2019	FFY 18	16801	11	Quantify and support BMP installation and restoration at schools to contribute directly to Bay restoration goals	5	$ 69,900.00
4	2019	FFY 18	16772	12	Scenic Landscape Impact Assessment Methodology	5	$ 84,230.00
4	2019	FFY 18	16788	13	Social Marketing to Improve Shoreline Management	STAR	$ 74,993.00
5	2019	FFY19	17,727	1	Scope 1: Improving Technical Service Delivery to Private Landowner	4	$ 54,000.00
5	2019	FFY19	17,724	2	Scope 2: Building a Bay-Wide Scorecard to Track Climate Resilience for Watershed Communities	STAR	$ 75,000.00
5	2019	FFY19	17,740	3	Scope 3: Chesapeake Bay Striped Bass Nursery Habitat Assessment	1	$ 84,989.00
5	2019	FFY19	17,726	4	Scope 4: Piloting the Development of Probabilistic Intensity Duration Frequency (IDF) Curves for the Chesapeake Bay Watershed	3	$ 149,900.00
5	2019	FFY19	17,735	5	Scope 5: Development of the "Maryland Stream Crossing Design Guidance: A Fish-Friendly Stream Crossing Design Handbook"	2	$ 48,038.00
5	2019	FFY19	17,738	6	Scope 6: Development of Technical Guidance Manual and Outreach Materials for Small-scale SAV Restoration in Chesapeake Bay and its Tidal Tributaries	2	$ 49,907.00
5	2019	FFY19	17,722	7	Scope 7: Targeted Local Outreach for Green Infrastructure in Vulnerable Areas	2	$ 64,817.00
5	2019	FFY19	17,719	8	Scope 8: Increasing Diversity in the Chesapeake Bay Program Partnership through Cultural Competency Training	5	$ 14,973.00
5	2019	FFY19	17,716	9	Scope 9: Developing a Regional Outdoor Learning Network to Support MWEE Implementation	5	$ 50,000.00
5	2019	FFY19	17,729	10	Scope 10: Correctional Conservation Collaborative	3	$ 74,089.00
5	2019	FFY19	17715	11	Implementation of Chesapeake Healthy Watersheds Assessment in Maryland's Tier II watersheds	4	$ 54,974.00
5	2019	FFY19	17,717	12	Scope 12: Cross-outcome Watershed Educational Materials for Local Governments	6	$ 49,503.00
5	2020	FFY20	18880	2	Scope of Work 2: Volunteer Monitoring Support for Macroinvertebrate Sampling to Fill Chesapeake Bay Program Data Gaps	STAR	$ 50,000.00
5	2020	FFY20	18866	3	Scope of Work 3: Developing Communications and Guidance on Shoreline Protection Options for Coastal Landowners	1	$ 49,987.00
5	2020	FFY20	18848	1EE	"Tending Project N.E.S.T" - #1: Equity And Environmental Education In The Time Of Covid-19 To Support Environmental Education Providers	5	$ 19,990.00
5	2020	FFY20	18850	1EE	Scope 1EE: Equity and Environmental Education in the Time of Coronavirus Disease 2019 (COVID-19) to Support Environmental Education Providers	5	$ 20,000.00
5	2020	FFY20	18851	1EE	Washington As It Was: A Virtual Field Trip to Peirce Mill in Rock Creek Park	5	$ 7,200.00
5	2020	FFY20	18853	1EE	Continued Wicomico Environmental Programming During Pandemic	5	$ 17,785.00
5	2020	FFY20	18859	1EE	Scope of Work: #1EE Equity and Environmental Education in the Time of COVID-19 to Support Environmental Education Providers	5	$ 20,000.00
5	2020	FFY20	18862	1EE	#1EE: Equity and Environmental Education in the Time of COVID-19 to Support Environmental Education Providers	5	$ 19,985.00
5	2020	FFY20	18868	1EE	Scope of Work #1EE: Equity and Environmental Education in the Time of COVID-19 to Support Environmental Education Providers	5	$ 14,442.00
5	2020	FFY20	18875	1EE	Scope of Work #1EE: Equity and Environmental Education in the Time of COVID-19 to Support Environmental Education Providers	5	$ 20,000.00
5	2020	FFY20	18879	1EE	Scope #1EE: Equity and Environmental Education in the Time of Coronavirus Disease 2019 (COVID-19) to Support Environmental Education Providers	5	$ 19,998.00
6	2021	FFY20	19246	1	Public Access Research - Benefits and Barriers Across the Chesapeake Bay Watershed	5	$ 74,692.00
6	2021	FFY20	19254	2	Chesapeake Bay Program Social Science Assessment and Integration Road Map Development	5	$ 74,990.00
6	2021	FFY20	19265	3	Maintaining forests in stream corridor restoration and sharing lessons learned	3	$ 90,000.00
6	2021	FFY20	19244	4	Planning for Clean Water: Local Government Workshops	6	$ 69,983.00
6	2021	FFY20	19256	5	Management Approaches to Reduce Stressors of Stream Health	2	$ 47,500.00
6	2021	FFY20	19266	6	Modeling climate impacts on submerged aquatic grasses (SAV) in Chesapeake Bay	STAR	$ 75,000.00
6	2021	FFY20	19260	7	Forage Indicator Development: Using Environmental Drivers to Assess Forage Status	1	$ 60,000.00
6	2021	FFY20	19223	8	Synthesis of Shoreline, Sea Level Rise, and Marsh Migration Data for Wetland Restoration Targeting	2	$ 72,418.00
6	2021	FFY20	19241	10	Developing Standards and Metrics to Target the Conservation of "Green Spaces" in Underrepresented and Low – Income Urban and Rural Communities	5	$ 69,943.00
6	2021	FFY20	19229	11	Cultivating and Strengthening Partnerships with Underrepresented Stakeholders	5	$ 65,000.00
6	2021	FFY20	19255	12	Development of cost effective methods to measure site specific denitrification rates for the proposed Oyster Restoration Best Management Practices	1	$ 80,000.00