Page Number	Priority Ranking	Project Title	Submitted by	Cost
5-6	1	Targeted Outreach Tools for Fish Consumption Advisories in Diverse Chesapeake Bay Communities	Diversity Action Team	50,000
7-8	2	A Guide for Incorporating Diversity into Chesapeake Bay Funding Policies and Procedures	Diversity Action Team	40,000
10	1	Drivers of forage population trends and consumption patterns	Sustainable Fisheries (GIT 1)	60,000
11	2	Assessment of predation, habitat and environmental disturbances on blue crab population dynamics and management actions	Sustainable Fisheries (GIT 1)	60,000
12	3	An Investigation of Water Quality Challenges Limiting Oyster Hatchery Production in Chesapeake Bay	Sustainable Fisheries (GIT 1)	70,000
13	4	Shell/habitat loss rates in oyster restoration and fishery management	Sustainable Fisheries (GIT 1)	60,000
15-17	1	Determine if existing SAV in the Chesapeake Bay is adequately protected by current statutes and regulations.	Vital Habitats (GIT 2)	65,000
18-20	2	Culvert Assessments for Fish Passage in Priority Watersheds	Vital Habitats (GIT 2)	60,000
21-23	3	Habitat Assessment and Monitoring Indicators for Black Ducks in the Chesapeake Bay	Vital Habitats (GIT 2)	60,000
24-25	4	Prioritization and consensus-building of stream restoration issues across the Bay watershed to streamline project review and approval	Vital Habitats (GIT 2)	65,000
26-27	5	Dam Removal Incentives Study	Vital Habitats (GIT 2)	50,000
28-29	6	Inform local and state BMP-implementers of priority targets for brook trout habitat restoration and protection at multiple scales	Vital Habitats (GIT 2)	50,000
31-32	1	Quantify BMP impact on each Management Strategy	Water Quality (GIT 3)	90,000
33	2	Utilizing Source Track-Down Studies to Reduce PCB Loads through PCB TMDLs	Water Quality (GIT 3)	50,000
34-36	3	Assistance to States for Riparian Forest Buffers	Water Quality (GIT 3)	50,000
37-40	4	Development of Commercial Turkey Production and Litter Database for Model Data Input into the Chesapeake Bay Program Phase 6.0 Modeling Tools	Water Quality (GIT 3)	30,000
41-43	5	Community Outreach Strategies for Increasing Tree Canopy	Water Quality (GIT 3)	50,000
44-45	6	Development of a Prototype Fine Scale Watershed Model	Water Quality (GIT 3)	140,000
47-53	1	Healthy Watersheds Forest/TMDL Project Phase II	Healthy Watersheds (GIT 4)	50,000

54-56	2	Evaluation of Land Use policy options, incentives and planning tools to reduce the rate of conversion of agricultural lands, forest and wetlands	Healthy Watersheds (GIT 4)	80,000
57-59	3	Mid-Atlantic Highlands Action Program Landscape Conservation Design	Healthy Watersheds (GIT 4)	70,000
60-63	---	Baltimore + Brook Trout: protecting Brook Trout and health of the Gunpowder's healthy sub-watersheds	Healthy Watersheds (GIT 4)	25,000
64-66	---	Tracking Virginia's Healthy Waters	Healthy Watersheds (GIT 4)	75,000
67-70	---	Protecting Pennsylvania's Chesapeake Bay Watershed Healthy Waters Public Lakes.	Healthy Watersheds (GIT 4)	70,000
71-72	---	Frostburg State University Healthy Watershed Transferable Model Pilot Project	Healthy Watersheds (GIT 4)	80,000
73-74	---	Evaluation of High-resolution Land Cover Change Methods	Healthy Watersheds (GIT 4)	40,000
76	1	Phase II: Development of Baseline Indicator of Citizen Stewardship	Stewardship (GIT 5)	75,000
77-78	2	Public Access Data Quality Assurance and Application Integration	Stewardship (GIT 5)	35,000
79	3	Building the Individual and Collective Capacity of Local Land Trusts by Training Technical Service Providers	Stewardship (GIT 5)	30,000
80	4	Environmental Literacy/Sustainable Schools	Stewardship (GIT 5)	75,000
81	5	Chesapeake Conservation Partnership Staff Support	Stewardship (GIT 5)	30,000
83	1	Local Officials' Resource/Information Needs Assessment	Partnering and Leadership (GIT 6)	30,000
84-86	2	Designing a Watershed Education Program for Local Elected Officials	Partnering and Leadership (GIT 6)	75,000
88-90	1	Cross-Goal Climate Resiliency Analysis Matrix and Implementation Methodology	Climate Change Workgroup	80,000
91-92	2	Evaluate and Quantify Climate Resiliency Benefits of Existing Water Quality BMPs	Climate Change Workgroup	60,000
93-94	3	Climate Resiliency Data and Information Portal	Climate Change Workgroup	40,000
Total				**2,120,000**

Timeline:

August 25 – First call for project proposals. Send draft funding priorities to Samantha Watterson for the GIT Chairs' initial review on September 1.

September 1 – GIT Chairs meeting; begin prioritization process based on the draft proposals submitted on August 25.

September 9 – Deadline for GITs to submit project proposals to Greg Allen and Samantha Watterson. Projects must be submitted in the form of a complete entry in the "FY15 GIT Funding Project Form" using Table 1 on the form.

September 15 – GIT Chairs will continue their process of prioritizing the projects for funding based on project proposals received from GITs.

September 30 - Final priority GIT projects determined and development of detailed scope of work begins (using Table 2 on the project form).

October 7 - Deadline for GITs to submit Table 2 for projects selected for funding.

October 9 – The final priority GIT projects are submitted to CBT with detailed scope of work to begin their RFP and sub-award process. Technical leads are identified for each project.

October 30 – CBT notifies EPA of any projects that it proposes to complete in-house.

December (tentative) – CBT completes subawards.

January 2016 (tentative) – GIT technical leads meet with awardees to commence projects.

Submitted by the Diversity Action Team:

Page Number	Priority Ranking	Project Title	Submitted by	Cost
5-6	1	Targeted Outreach Tools for Fish Consumption Advisories in Diverse Chesapeake Bay Communities	Diversity Action Team	50,000
7-8	2	A Guide for Incorporating Diversity into Chesapeake Bay Funding Policies and Procedures	Diversity Action Team	40,000
Total				**90,000**

Goal Implementation Team: Water Quality Goal Team/Toxic Contaminants Workgroup and the Diversity Action Team

GIT Priority Ranking: 1

Project Title	Targeted Outreach Tools for Fish Consumption Advisories in Diverse Chesapeake Bay Communities
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	Stewardship/Diversity; WQ/Toxic Contaminants Policy and Prevention
Estimated Cost	$50,000.00
Justification: Description of why this work is needed in support of a management strategy?	The diversity management strategy, which acknowledges the importance of engaging more diverse populations in restoration of the Bay also requires policies and practices that address the socioeconomic, historic, cultural, recreational and human health values of these underrepresented populations. The diversity management strategy and both toxic contaminants strategies focus on the need to address toxic contaminants related to fish consumption and subsistence fishing in particular. Both the toxics contaminants policy and prevention management strategy and the toxic contaminants research management strategy also recognize the importance of informing subsistence communities and others about risks of consuming contaminated fish. The policy and prevention strategy, which focuses mostly on PCBs, includes this as a strategic element because it will be effective in building public awareness on the severity and extent of PCBs in the environment, which will translate to supporting legal and political action to reduce PCB inputs. This work is necessary in order to inventory outreach tools and efforts to date, evaluate their effectiveness, develop tools to enhance awareness of contaminants in fish and determine the most effective means of disseminating information..
Cross-Goal Benefits: What other goals may be advanced through this work?	Stewardship/Diversity and Water Quality/Toxics Contaminants

Table 2: Project Details

Technical Lead	Greg Allen and Reggie Parrish
Detailed Statement of Work [(1),(2)]	The project will entail 3 specific phases: <u>Phase 1 Inventory existing approaches and study findings and develop enhanced tools</u> - Working with states, NGOs, and collective Bay partnership, collect, inventory, and assess effectiveness of fish consumption advisories based upon previous studies (e.g., Anacostia Anglers study) that have assessed the effectiveness of and compliance with fish consumption advisories Based upon this assessment, develop a set of innovate and revised tools and approaches - $20K

	Phase 2 New tool testing and optimization - Evaluate the effectiveness of the revised tools and approaches particularly as it relates to reaching diverse and underrepresented communities through field testing and/or focus groups (use EJ Screen to identify and target diverse communities). Based upon effectiveness evaluation, revise tools and approaches (e.g., website, phone app, etc.) to more effectively reach diverse communities. Modify tools based on feedback. - $20k Phase 3 Implementation and dissemination of new tools - Work with jurisdictions and other Bay Program partners to make the tools available for use in targeted communications regarding the risk from consuming contaminated fish. - $10k
Estimated Project Duration	1 year
Outputs and Due Dates	Output 1 - Comprehensive inventory and assessment of state and other outreach tools, approaches, materials and the results of studies on angler knowledge and behaviors with regard to compliance with consumption advisory recommendations. Output 2 - Revised and innovative approaches and tools for outreach with particular focus on diverse communities. Output 3 - Assessment of effectiveness in reaching diverse populations. Output 4 - Revised tools and approaches based upon effectiveness assessment. (e.g. websites, apps, multilingual posters and signage) Output 5 – Activities leading to dissemination and use of the new tools
Description of Skills and Experience Required of awardee	

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Stewardship/Diversity

GIT Priority Ranking: 2

Table 1: Project Description

Project Title	A Guide for Incorporating Diversity into Chesapeake Bay Funding Policies and Procedures
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	Stewardship/Diversity
Estimated Cost	$40 K
Justification: Description of why this work is needed in support of a management strategy?	There is inconsistency in the Chesapeake Bay watershed in how jurisdictions, government agencies and NGOs consider diversity and environmental justice issues in their program and project funding decisions. Developing a "guide" for use by all Bay Program partners would provide a useful tool to help improve grant competition awareness, award selection criteria, EJ screening, capacity building, RFP and grant proposal writing skills training, etc. It could also promote transparency, equity and fairness in funding decisions.
Cross-Goal Benefits: What other goals may be advanced through this work?	Would benefit work on virtually all of the other goals and outcomes.

Table 2: Project Details

Technical Lead	Jim Edward
Detailed Statement of Work [(1),(2)]	1. Hold meetings with key Bay funders (e.g., CBT, NFWF, Bay Funders network) around the watershed to discuss current funding policies, etc. and to get ideas for possible improvements and best practices. 2. Also hold meetings with non-traditional watershed groups and diverse communities to gain an understanding of the types of issues they are facing in obtaining restoration grant funding. 3. Conduct an analysis of existing funding programs, policies and guidance for jurisdictions, agencies and NGOs throughout the Bay watershed in terms of how they currently address diversity and EJ considerations. 4. Draft Guide for review by Diversity Workgroup and Bay Program Partnership. 5. Develop Final Guide in hard copy and electronic format for ease of distribution by CBP and Diversity Workgroup. Environmental data will not be generated so a QA Plan will not be needed for this project.
Estimated Project Duration	Spring 2016- Winter 2017
Outputs and Due Dates	1. Produce a report containing an analysis of existing funding programs, policies and guidance for jurisdictions, agencies and

	NGOs throughout the Bay watershed in terms of how they currently address diversity and EJ considerations. The report should also summarize issues raised by non-traditional watershed groups and diverse communities re: obtaining restoration grant funding. (Summer 2016) 2. Draft Guide review by Diversity Workgroup and Bay Program Partnership. (Fall 2016) 3. Final Guide in hard copy and electronic format for ease of distribution by CBP and Diversity Workgroup. (Winter 2017)
Description of Skills and Experience Required of awardee	Knowledge of funding mechanisms used by Bay Program partners and familiarity with the basics of grants, contracts and other funding vehicles and processes is necessary. Also desirable to have experience working with diverse communities and non-traditional groups on restoration and protection projects, RFP and grant proposals and capacity building.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Submitted by the Sustainable Fisheries GIT (GIT 1):

Page Number	Priority Ranking	Project Title	Submitted by	Cost
10	1	Drivers of forage population trends and consumption patterns	Sustainable Fisheries (GIT 1)	60,000
11	2	Assessment of predation, habitat and environmental disturbances on blue crab population dynamics and management actions	Sustainable Fisheries (GIT 1)	60,000
12	3	An Investigation of Water Quality Challenges Limiting Oyster Hatchery Production in Chesapeake Bay	Sustainable Fisheries (GIT 1)	70,000
13	4	Shell/habitat loss rates in oyster restoration and fishery management	Sustainable Fisheries (GIT 1)	60,000
Total				**250,000**

Goal Implementation Team: Sustainable Fisheries (GIT 1)

GIT Priority Ranking: 1

Table 1: Project Description

Project Title	Drivers of forage population trends and consumption patterns
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	Forage
Estimated Cost	$60,000
Justification: Description of why this work is needed in support of a management strategy?	Forage species play an integral role in the Chesapeake Bay food web by supporting higher trophic level production and are critical to sustaining economically valuable commercial and recreational fish species in the Bay. Building on results from 2015 forage indicator development project, this project would investigate possible environmental drivers of forage population patterns and predator consumption (i.e. seasonal, size-based) patterns at a broad scale and at a finer scale where data are available. Efforts would address the "factors influencing" listed in the management strategy that affect forage population dynamics. This project will feed into the forage outcome and its associated management strategy by providing a quantitative method to assess the status of one or more forage species.
Cross-Goal Benefits: What other goals may be advanced through this work?	Understanding of how fish habitat availability may impact forage and predator populations.

Goal Implementation Team: Sustainable Fisheries (GIT 1)

GIT Priority Ranking: 2

Table 1: Project Description

Project Title	Assessment of predation, habitat and environmental disturbances on blue crab population dynamics and management actions
Project Category	Metric Development; Data assessment to evaluate progress
Goal/Outcome	Blue Crab Abundance and Management
Estimated Cost	$60,000
Justification: Description of why this work is needed in support of a management strategy?	Profound changes in the blue crab stock have occurred recently which are not due to management actions but which significantly influence the effectiveness and public perception of management actions. Specifically, there was a sharp decrease in crab abundance and fishery yield in 2012, despite high abundance of juvenile crabs during the preceding winter. This project seeks to identify the cause(s) of the downturn, with emphasis on predation, habitat (i.e. seagrass) availability and environmental variation (e.g. dissolved oxygen). This is critical because management, legislators and the public need more than *ad hoc* explanations for why extreme changes in the stock occur. Goal: Examine, explain and evaluate the major abiotic and biotic influences on crab abundance and trends in recruitment, mortality and survivability of a strong recruitment over time.
Cross-Goal Benefits: What other goals may be advanced through this work?	This work is related to most of the fisheries and habitat outcomes since it will better define what types of ecosystem processes affect stock dynamics and management actions.

Goal Implementation Team: Sustainable Fisheries (GIT 1)

GIT Priority Ranking: 3

Project Title	An Investigation of Water Quality Challenges Limiting Oyster Hatchery Production in Chesapeake Bay
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	Increasing and Consistent oyster hatchery production
Estimated Cost	$70,000
Justification: Description of why this work is needed in support of a management strategy?	Oyster aquaculture is the fastest growing and potentially the most lucrative and sustainable fishery in the Chesapeake Bay. The oyster culture industry is dependent on hatchery production of larvae and seed. For the past three years, hatchery production by all hatcheries in the Bay has failed to meet the needs of both restoration projects and the commercial industry. Continued low and inconsistent hatchery production will result in lack of success of restoration projects and a quick and irreparable decline in oyster culture industry. A general consensus among hatchery operators is that unexplained and unknown water quality factors are the underlying cause of inconsistent production. This project seeks to initiate a long term investigation of potential water quality factors that may limit larval production by oyster hatcheries. This investigation will begin by inviting experts on Bay water quality and toxics and molluscan ecology to a workshop with oyster hatchery operators. From that workshop, a plan and potential experimental approach will be developed that can be implemented in shellfish hatcheries to begin identifying and potentially controlling water quality factors that may be limiting larval survival.
Cross-Goal Benefits: What other goals may be advanced through this work?	The goals of the Water Quality GIT, specifically the Toxics Contaminants Workgroup, to understand the influence of contaminants degrading the health, and contributing to the mortality, of fish and wildlife, and documenting the occurrence, concentrations and sources of contaminants causing fish and wildlife degradation would also be advanced by this project.

Goal Implementation Team: Sustainable Fisheries (GIT 1)

GIT Priority Ranking: 4

Project Title	Shell/habitat loss rates in oyster restoration and fishery management
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	Estimation of shell loss rates in oyster habitat, development of restoration/management metrics based on shell dynamics, contribution of shell to bay alkalinity budget.
Estimated Cost	$60,000
Justification: Description of why this work is needed in support of a management strategy?	Without shell substrate oyster reefs disappear, restoration fails and fisheries collapse. Yet the dynamics of shell accumulation and loss are, at best, poorly quantified or, at worst, ignored in restoration planning and implementation. Shell is an increasingly expensive, very limited resource that is insufficient in availability to support Baywide restoration and bi-state fishery management goals. This projects seeks to (1) develop salinity (upbay-downbay) dependent shell budgets for both high density (3D structure) restoration reefs and large area coverage shell plants (2D structure) in support of fisheries; (2) from these set critical baseline population rate functions (recruitment, growth, mortality, density, supporting observed demographics) to sustain shell presence and reef/habitat integrity; and (3) project future shell needs under various restoration and fishery scenarios. The project will use historical survey data (data mining), estimate growth in both archived and fresh collections of oysters, revisit a time series of restoration sites (field supplement to ongoing work) to estimate shell loss rates, and implement new short-term studies at shell plants to generate shell dynamics data.
Cross-Goal Benefits: What other goals may be advanced through this work?	Current restoration goals for oyster populations are based only on a population demographic. This is inadequate - it fails to address dynamics of both oyster production/mortality and complex habitat loss. Reef habitat is critical to many ecologically important bay species that form the basis of food chains supporting fish and crab. Shell is fundamental to the bay alkalinity budget. Without it the entire bay benthos is susceptible to increasing acidity with lower carbonate saturation, with cascading impacts throughout the entire bay food web. The proposed effort contributes to fish habitat goals.

Submitted by Vital Habitats GIT (GIT 2):

Page Number	Priority Ranking	Project Title	Submitted by	Cost
15-17	1	Determine if existing SAV in the Chesapeake Bay is adequately protected by current statutes and regulations.	Vital Habitats (GIT 2)	65,000
18-20	2	Culvert Assessments for Fish Passage in Priority Watersheds	Vital Habitats (GIT 2)	60,000
21-23	3	Habitat Assessment and Monitoring Indicators for Black Ducks in the Chesapeake Bay	Vital Habitats (GIT 2)	60,000
24-25	4	Prioritization and consensus-building of stream restoration issues across the Bay watershed to streamline project review and approval	Vital Habitats (GIT 2)	65,000
26-27	5	Dam Removal Incentives Study	Vital Habitats (GIT 2)	50,000
28-29	6	Inform local and state BMP-implementers of priority targets for brook trout habitat restoration and protection at multiple scales	Vital Habitats (GIT 2)	50,000
Total				**350,000**

Goal Implementation Team: Vital Habitats (GIT 2)

GIT Priority Ranking: 1

Table 1: Project Description

Project Title	Determine if existing SAV in the Chesapeake Bay is adequately protected by current statutes and regulations.
Project Category	Regulation and policy protecting established SAV
Goal/Outcome	Vital Habitats/SAV To compile, review, and analyze current Bay state statutes and regulations that protect existing SAV in the Chesapeake Bay. To highlight regulatory inadequacies that may prevent reaching the 185,000 acre CBP SAV restoration goal. To compare Chesapeake Bay state regulations to other state regulations and use those as examples of what to do, or not to do, to more successfully protect SAV in the Chesapeake Bay. To make policy change or enhancement recommendations to the SAV Workgroup and Bay state regulatory agencies.
Estimated Cost	$65,000
Justification: Description of why this work is needed in support of a management strategy?	There are numerous obstacles to reaching the CBP SAV restoration goal of 185,000 acres. Aside from a general loss of SAV related to compromised water quality and clarity, human activities contribute to direct loss of SAV. These activities include but are not limited to watershed degradation, shoreline armoring, resource trade offs with living shorelines and aquaculture, hydraulic clam dredging and other fishing activity, dock and marina construction, and propeller scarring. Are these activities sufficiently regulated to protect existing SAV? If water quality and clarity is increased to the extent that historic SAV acreage could recover, would current laws and regulations protect existing and future SAV from other anthropogenic threats?
Cross-Goal Benefits: What other goals may be advanced through this work?	Vital Habitats, Water Quality, Sustainable Fisheries.

Table 2: Project Details

Technical Lead	Becky Golden – MD DNR
Detailed Statement of Work [(1),(2)]	A four-step approach to this project is envisioned:

	1) **ASSEMBLE**. Assemble all current statutes and regulations that protect existing SAV in the Chesapeake Bay from human activities that contribute to its direct loss. 2) **REVIEW**. Review current statutes and regulations for both strengths and weaknesses, with particular attention paid to consistency of protection between Bay states, loopholes, unintended detrimental consequences related to the prioritized protection of other Bay resources, and general inadequacies. 3) **COMPARE**. Review and summarize regulations designed to protect SAV, and their efficacy, in other states, such as Florida and Washington. 4) **RECOMMEND**. Make policy recommendations based on review of current Chesapeake Bay state regulations compared to other state regulations that may be more thorough and successful. [1]While it is necessary to actively restore water quality and SAV, existing beds of SAV in the Chesapeake Bay are the ones that have proven to be the most resilient to the synergistic effects of detrimental human activities. Protecting these beds and beds that have successfully re-established is vital to reaching the CBP SAV acreage goal. If existing beds are not protected, or if areas with re-established populations are not protected, reaching the SAV acreage goal will ultimately be impossible. [2]No environmental data will be generated as part of this project.
Estimated Project Duration	One year
Outputs and Due Dates	The statement of work is broken down in such a way that each step will produce tangible results. It is envisioned that each step will take one quarter of the year, approximately: **1st quarter**: List of all current Bay state statutes and regulations that protect existing SAV in the Chesapeake Bay. Create a searchable webpage/database with said information. **2nd quarter**: Report reviewing current statutes and regulations. **3rd quarter**: Report reviewing regulations that protect SAV in other states, such as Florida and Washington. **4th and final quarter**: Final report and presentation to the SAV Workgroup that makes policy recommendations for the better protection of existing SAV in the Chesapeake Bay.

Description of Skills and Experience Required of awardee	The awardee will have a background in marine policy, natural resource protection, and/or natural resource management, as well as knowledge of Chesapeake Bay habitats, conditions, and threats, particularly SAV.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Vital Habitats (GIT 2)

GIT Priority Ranking: 2

Project Title	Culvert Assessments for Fish Passage in Priority Watersheds
Project Category	Prioritization efforts for fish passage/project development
Goal/Outcome	Fish Passage Outcome - Create a pipeline of high priority fish passage projects allowing the FPWG to increase the number of reconnected high quality river segments for migratory fish
Estimated Cost	$60,000
Justification: Description of why this work is needed in support of a management strategy?	A number of human activities can disrupt the continuity of river and stream ecosystems. The most familiar human-caused barriers are dams. However, there is growing concern about the role of road crossings – and especially culverts – in altering habitats and disrupting river and stream continuity. The fish passage work group (FPWG) was successful in prioritizing nearly 5000 dams in the Chesapeake watershed for their potential to benefit anadromous fish. The dams are highlighted (as red and orange points) here: http://maps.tnc.org/EROF_ChesapeakeFPP/v2015/. However, the FPWG has little to no information on potential fish blockages due to road crossings. Over 144,000 road crossings exist in the Chesapeake Bay watershed. Given the sheer volume of potential fish blockages, funding and time constraints do not allow for assessment of all potential road crossings. Using the Chesapeake Fish Passage Prioritization Tool, the FPWG has identified priority areas for dam removal projects. Hence, culvert assessments would be focused in these priority areas as a cost savings measure and to conduct targeted restoration. Assessments will be conducted using regional assessment protocol developed by the North Atlantic Aquatic Connectivity Collaborative (NAACC). The NAACC is a network of individuals from universities, conservation organizations, and state and federal natural resource and transportation departments focused on improving aquatic connectivity across a thirteen-state region, from Maine to West Virginia and includes all the of the Chesapeake Bay region. The goal of the collaborative is to assess stream crossings for flood resiliency and aquatic organism passage. Each stream crossing in two priority watersheds (one in PA and one in VA) will be visited by a crew of two people (two for safety reasons). Length and width measurements as well as inlet and outlet barriers, and photos at each stream crossing will be recorded and submitted to a central database developed by the NAACC. Once assessments are complete, the FPWG will pursue funding for design and implementation of retrofits for each of the priority blockages. Potential future projects for fish passage may include removal or retrofits to the existing roadways/culvert or implementation of more fish friendly designs such as bottomless culverts and bridges. Identification of future projects is

	critical for meeting with fish passage outcome in the Bay Chesapeake Bay Agreement which includes opening 1000 additional miles by 2025.
Cross-Goal Benefits: What other goals may be advanced through this work?	- Brook Trout WG: one PA priority brook trout watershed will be selected for culvert assessment. - Fisheries GIT: fish blockages that are retrofitted and removed as a result of this analysis will directly impact migratory forage fish by increasing the amount of available spawning habitat - Climate WG: Projects implemented as a result of the analysis will be sized using climate change guidance (for example, Mathias Collins guidance on estimating flows using post 1970 USGS gage data which accounts for increasing flows due to climate change) drawing a connection to the Climate Change Strategy.

Table 2: Project Details

Technical Lead	Mary Andrews (NOAA) and Serena McClain (American Rivers)
Detailed Statement of Work [(1),(2)]	- A total of four (4) individuals will be hired for a period of 12 weeks to conduct culvert assessment in two (2) priority watersheds using the protocol developed by the North Atlantic Aquatic Connectivity Collaborative (NAACC). Assessment will be conducted in both PA and VA watersheds. (Two individuals are required at each location to meet safety requirements while conducting culvert assessments in the field.) - Maryland has an existing team funded through the USFWS to conduct assessments in two MD watersheds. The requested funding would be used to collect additional information (using the same protocol) in VA and PA. - Regionally developed assessment protocol can be found here: https://www.streamcontinuity.org/assessing_crossing_structures/index.htm - Individuals will be training in the NAACC protocol which is a requirement of using the NAACC method. NAACC requires in person training. More information on the training can be found at https://www.streamcontinuity.org/about_naacc/training_prog.htm. - Data from the culvert assessments will be entered into the following regional database on stream connectivity: https://www.streamcontinuity.org/database.htm - The FPWG would then pursue funds for design and implementation of the projects identified through this assessment. These projects may include culvert retrofits, complete removal or more fish friendly designs such as bottomless culverts and bridges.
Estimated Project Duration	3-4 months
Outputs and Due Dates	- Training individuals in the NAACC method (at 1 month post funding receipt) - Culvert assessments for two watersheds (at 3 months post funding receipt)

	- Culvert assessments entered into regional database (at 4 months post funding receipt) - Identification of future fish passage projects (at 4 months post funding receipt)
Description of Skills and Experience Required of awardee	- There is a preference to hire 4 individuals with the NAACC training already completed; however, the protocol is new and the pool of trained individuals is small. The FPWG expects training of new individuals will be required and have included funds in the request to pay for training. - Able to complete field work in harsh environments including very hot summer days, rainy weather and walk one (1) miles distances. - State driver's license.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Vital Habitats - Black Duck Workgroup

GIT Priority Ranking: 3

Table 1: Project Description

Project Title	Habitat Assessment and Monitoring Indicators for Black Ducks in the Chesapeake Bay
Project Category	Workplan Development; Metrics
Goal/Outcome	**Vital Habitats Goal:** Restore, enhance and protect a network of land and water habitats to support fish and wildlife, and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed. **Black Duck Outcome:** By 2025, restore, enhance and preserve wetland habitats that support a wintering population of 100,000 black ducks, a species representative of the health of tidal marshes across the watershed. Refine population targets through 2025 based on best available science.
Estimated Cost	$60,000
Justification: Description of why this work is needed in support of a management strategy?	Once habitat assessment indicators are established, conservation managers within the watershed will be able to measure their actions and how they contribute to the black duck outcome detailed in the management strategy. Monitoring indicators will allow restoration, enhancement and protection actions to be measured and reported to show progress toward the vital habitats goal and black duck outcome in 2 year increments.
Cross-Goal Benefits: What other goals may be advanced through this work?	The indicators could also be used to assess progress on the SAV and Wetlands outcomes.

Table 2: Project Details

Technical Lead	Alicia Berlin
Detailed Statement of Work [(1),(2)]	The black duck workgroup requests assistance researching current available data to develop habitat assessment indicators. Indicators may include acreage of priority habitats, percent increase in patch size in priority habitats, edge/acreage ratios to get at remoteness of available habitats, intactness indices, resilience metrics, etc. The following may be useful in developing optional approaches and determining the success of the strategy recommendations: Annual waterfowl surveys for population totals, harvest data, acres of wintering and breeding black duck habitat restored, enhanced, or protected, and kilocalories of food availability as recently calculated and mapped by the Black Duck Joint Venture. We are also requesting assistance in developing monitoring indicators to report the progress described above. The monitoring program should document that the management strategy is being implemented through habitat-based actions (e.g. number and contiguity of acres conserved or restored in target areas) and determine if the conservation actions are accomplishing the desired result. We need to be able to measure progress

	toward quantity of habitat, types of habitat, in what landscape positions, using information that is now available. The American black duck has been called the "gold standard" of eastern waterfowl. Historically, the black duck was the most abundant dabbling duck in eastern North America and comprised the largest portion of the region's waterfowl harvest. Despite its importance to hunters and outdoor enthusiasts, the continental black duck population declined by more than 50 percent between the 1950s and 80s. Scientists believe this is due to loss of food and habitat associated with changing land use. The mid-Atlantic region, which includes the Chesapeake Bay watershed, supports the largest portion of eastern North America's wintering black duck population, and preserving habitat here is critical to the long-term sustainability of the species. Black ducks are subjected to a variety of stressors during their annual lifecycle, many of which are beyond control of managers in the watershed. However, managers strive to provide enough food for ducks using the Atlantic Flyway during the winter months to support the Chesapeake's historical proportion of the continental population goal set by the North American Waterfowl Management Plan (NAWMP). As an important indicator species, restoration of habitat for black ducks will also benefit other waterfowl which winter in the Bay region. <u>Participating Partners</u> U.S. Fish and Wildlife Service (USFWS) Black Duck Joint Venture (BDJV) Atlantic Coast Joint Venture (ACJV) State of Maryland Maryland Department of Natural Resources (MD DNR) State of Delaware Delaware Department of Natural Resources and Environmental Control - Division of Fish and Wildlife (DE DNR) University of Delaware Commonwealth of Virginia Virginia Department of Game and Inland Fisheries (DGIF) Virginia Institute of Marine Science (VIMS) U.S. Environmental Protection Agency (EPA) U.S. Geological Survey (USGS) Alliance for the Chesapeake Bay (ACB): Local Government Advisory Committee (LGAC) District of Columbia (DC) District Department of the Environment (DDOE) Ducks Unlimited (DU) University of Massachusetts Northeast Climate Science Center, Landscape Ecology Lab, Department of Environmental Conservation Chesapeake Bay Commission (CBC)

	U.S. Army Corps of Engineers (USACE) Natural Resources Conservation Service (NRCS) The black duck management strategy aims to provide guidance to state and federal agencies, local governments, nongovernmental organizations (NGOs), and any group managing land and resources within the watershed to ensure that actions taken will benefit habitat outcomes for the American black duck as set forth by the Watershed Agreement. The development of the habitat assessment and monitoring indicators will feed directly into the management strategy workplan which stakeholders will use when identifying quality projects that benefit black ducks within the Chesapeake Bay watershed. Data will not be generated – the data is already out there and can be used to develop the indicators.
Estimated Project Duration	6 months
Outputs and Due Dates	Habitat-based indicator to show interim progress on the black duck outcome – Due February/March 2016
Description of Skills and Experience Required of awardee	Spatial and/or statistical skills and experience developing habitat metrics.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies.

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required.

Goal Implementation Team: Vital Habitats (GIT 2)

GIT Priority Ranking: 4

Table 1: Project Description

Project Title	Prioritization and consensus-building of stream restoration issues across the Bay watershed to streamline project review and approval
Project Category	Other
Goal/Outcome	Stream Health
Estimated Cost	$65,000
Justification: Description of why this work is needed in support of a management strategy?	Despite the approval of many stream restoration projects throughout the Chesapeake Bay watersheds, there are projects that encounter delays during the permit review process hindering, significantly in some cases, their implementation. Uncovering factors that are common to both the practitioner and regulator need to be overcome to address this barrier to implementation. Current documentation of permit issues focuses largely on Maryland and there is need to include other jurisdictions based on input received from practitioners and the regulatory community in other jurisdictions. The current assessment of jurisdictions to meet their 2017 and 2025 WIP targets heightens the need to address these factors to implement projects that meet the sediment and nutrient loads reductions necessary to improve stream health. There is a critical need to reach agreement need on actions to address priority issues. Unresolved issues and lack of agreement of actions to take may delay permit approval process for WIP implementation to meet TMDL
Cross-Goal Benefits: What other goals may be advanced through this work?	Connections relate to improving stream health and function through restoration projects (in stream, or in the watershed) and therefore relates to Healthy Watersheds, Fish Habitat,and Forest Buffer outcomes

Table 2: Project Details

Technical Lead	Stream Health Work Group Chair/Stream Restoration Permit Committee Chair
Detailed Statement of Work [(1),(2)]	A four-step approach is envisioned: 1). Consolidate existing documentation of issues and status and effectiveness of actions presented in stream permit documentation summary and success of actions implemented 2) Expand stream restoration permit issues and actions identification to **other Bay jurisdictions**. Initial survey of other Bay jurisdictions (limited sample size) in February 2015 yielded issues, as well. A more robust survey needed to further articulate issues. Results from Steps 1 and 2 would identify **common, priority** issues within and amongst Bay jurisdictions.

	This is needed to develop a common and agreed upon framework to advance and streamline the permit process **Baywide** 3) Review and analysis of stream restoration permits and process (i.e., over limited time period, for example 3 years) to identify information and needs and/or steps within the review process where action would be most effective to resolve issues presenting barriers to permit approval (e.g. pre-app meeting, time period for review & response by regulatory & applicant, information needs site alternative analysis, design approach) 4) Results of analysis presented to the Stream Health Work Group via the proposed Stream Restoration Permit Committee (in draft biennial work plan) to make recommendations on how to move forward with streamlining process and modify Biennial Work plan in 2017 (Year 2) as needed The work would be conducted in close coordination with the Stream Health Work Group, or designated "Stream Restoration Permit" committee as proposed in preliminary draft biennial workplan. A QAPP would likely be needed for this work.
Estimated Project Duration	1 year
Outputs and Due Dates	1) Consolidate existing documentation and status of actions to address issues identified (February 2016) 2) Develop & implement survey (March 2016) 3) Summary of permit review (April – June 2016) 4) Recommendations of priority issues to Stream Health Work Group/Stream Restoration Permit Committee (July 2016) 5) Assist Work Group/Committee identify steps actions to resolve issues and modify Biennial work plan for 2017 as needed (August – December 2016) Attend two monthly Stream Health Work Group meetings and (tentative) six Stream Permit Committee meetings (as scheduled)
Description of Skills and Experience Required of awardee	Technical knowledge of stream restoration and programmatic knowledge of permit review process. Experience to develop, implement and analyze both quantitative and qualitative surveys and data

(3) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(4) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Vital Habitats (GIT 2)

GIT Priority Ranking: 5

Table 1: Project Description

Project Title	Dam Removal Incentives Study
Project Category	Prioritization efforts for fish passage/project development
Goal/Outcome	Create a pipeline of high priority fish passage projects allowing the FPWG to increase the number of reconnected high quality river segments for migratory fish
Estimated Cost	$50,000
Justification: Description of why this work is needed in support of a management strategy?	Historically, river herring (blueback herring and alewife, collectively) and American shad were a major fishery resource throughout the Chesapeake Bay and a common food staple for Native American tribes. The commercial harvest for American shad peaked in 1890 when landings in Maryland exceeded seven million pounds. Unfortunately, the absence of policies to manage this fishery resource at the time contributed to the rise in commercial exploitation of American shad and river herring, not only in the Bay but also along the entire Atlantic seaboard. However, commercial exploitation was not the only factor contributing to the decline of anadromous fish in the state. The proliferation of mills and dams prevented shad (American and hickory, collectively) and river herring from migrating upstream to their spawning grounds, thereby limiting the habitat available to them. The decline of this commercial and recreational fishery is a major concern for the Fish Passage Workgroup (FPWG) and, in fact, contributed to the establishment of the current goals for restoring habitat connectivity for migratory fish under the Chesapeake Bay Agreement. The latest Agreement recognized the need to continue restoration efforts through fish passage and committed to a new goal of 1,000 miles. The new goal prioritizes dam removal over traditional fish passage and recognizes the critical role that dam removals play in rebuilding fish populations and providing accessible upstream habitat and spawning areas. To ensure the greatest possible chance for species recovery, the FPWG developed the Chesapeake Fish Passage Prioritization tool, which applies a combination of ecological criteria to help identify high quality fish passage projects throughout the Chesapeake Basin. Unfortunately, those highest priority barriers do not always have willing dam owners. If the dam owner is unwilling to remove the dam, the entire river remains inaccessible to migratory fish. Exploring incentive programs (either monetary or otherwise) is has the potential to provide us with an important tool in restoring these target fisheries and lead to new ways to encourage dam owners to remove their dams without expensive legal action. PA, VA and MD all have state fish passage laws; however, legal action against a dam owner for the sake of fish passage is exceptionally rare.

Cross-Goal Benefits: What other goals may be advanced through this work?	- Habitat (Brook Trout Outcome)

Table 2: Project Details

Technical Lead	Mary Andrews
Detailed Statement of Work [(1),(2)]	• Work with federal and state partners to draft detailed scope of work to evaluate existing and new incentive models to encourage dam owner participation in restoration of fish passage in the Chesapeake; • Secure an outside contractor to conduct legal evaluation; • Conduct survey of other fish passage coordinators on existing incentive programs in other states; • Develop report summarizing incentive program options, political and legal ramifications (particularly in regard to existing fish passage laws), and recommended next steps; • Communicate need for incentive programs with partners as well as political leaders; and • Assist in the development of implementation and extended outreach plan.
Estimated Project Duration	1 year
Outputs and Due Dates	Develop legal justification and risk analysis for two to three incentive programs (this information will be developed into a final report); increase the number of high priority dams we are able to address (long-term)
Description of Skills and Experience Required of awardee	A strong working knowledge of state fish passage laws and various Federal/State incentive programs. The selected contractor should have substantial legal knowledge of mitigation, tax incentives and similar programs (e.g., EQIP).

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

No environmental data will be gathered, and a quality assurance plan will not be required.

Goal Implementation Team: Vital Habitats (GIT 2)

GIT Priority Ranking: 6

Project Title	Inform local and state BMP-implementers of priority targets for brook trout habitat restoration and protection at multiple scales
Project Category	Implementation Projects
Goal/Outcome	Vital Habitats/Brook Trout
Estimated Cost	$50,000
Justification: Description of why this work is needed in support of a management strategy?	Wild Brook Trout populations have declined throughout much of the Chesapeake Bay Watershed (CBW) as a result of habitat loss and degradation. Consequently, an outcome in the 2014 Chesapeake Watershed Agreement is to restore and sustain naturally reproducing Brook Trout populations with an eight percent increase in occupied habitat by 2025. Despite previous efforts to assist in prioritizing specific catchments or stream reaches for restoration activities, we currently lack a holistic prioritization approach that incorporates interactions between physicochemical and biological conditions occurring across multiple spatial scales. This will become particularly important considering the vastly different management strategies that will likely be needed for small, isolated populations as compared to larger, networked metapopulations. Such an effort would expand upon current Management Approaches related to identifying priority focal areas for Brook Trout Conservation. In fact, the framework outlined in this proposal seeks to integrate multi-scaled restoration and protection priorities into an already existing decision support tool capable of managing and mitigating future effects of climate change. Thus, the proposed research integrates all 3 Management Approaches outlined in the management strategy.
Cross-Goal Benefits: What other goals may be advanced through this work?	The proposed research will benefit a wide array of additional Chesapeake Bay Program goals and outcomes as described below: • Vital Habitats Goal: The proposed project will be extremely beneficial in terms of streamlining and maximizing benefits related to the fish passage and stream health outcomes. More specifically, our prioritization tool will identify catchments wherein specific water quality remediation and barrier removal actions and efforts will have the greatest benefit to Brook Trout population sustainability. • Climate Change Goal: Vulnerability to climate change will be an important component of the prioritization process such that streams that are resilient to changes in temperature will be conserved or identified for restoration actions. • Clean Water Goal: Efforts to restore Brook Trout habitat by acid mine drainage remediation and reduction of stormwater runoff from urban and agricultural lands will benefit water quality throughout a large portion of the CBW downstream of the headwaters. • Healthy Watersheds Goal: Conservation of in-tact Brook Trout populations will inherently aid in the conservation of healthy

	watersheds. Furthermore, restoration of high potential brook trout habitats should increase the occurrence of healthy watersheds throughout this region. • Stewardship Goal: Our approach provides objectivity and transparency to the decision-making process, making restoration and conservation activities that benefit any one of the aforementioned goals and outcomes more widely accepted and easily interpreted by all entities (managers, scientists, stakeholders, and the general public).

Submitted by the Water Quality GIT (GIT 3):

Page Number	Priority Ranking	Project Title	Submitted by	Cost
31-32	1	Quantify BMP impact on each Management Strategy	Water Quality (GIT 3)	90,000
33	2	Utilizing Source Track-Down Studies to Reduce PCB Loads through PCB TMDLs	Water Quality (GIT 3)	50,000
34-36	3	Assistance to States for Riparian Forest Buffers	Water Quality (GIT 3)	50,000
37-40	4	Development of Commercial Turkey Production and Litter Database for Model Data Input into the Chesapeake Bay Program Phase 6.0 Modeling Tools	Water Quality (GIT 3)	30,000
41-43	5	Community Outreach Strategies for Increasing Tree Canopy	Water Quality (GIT 3)	50,000
44-45	6	Development of a Prototype Fine Scale Watershed Model	Water Quality (GIT 3)	140,000
Total				**410,000**

Goal Implementation Team: Water Quality (GIT3)

GIT Priority Ranking: 1

Table 1: Project Description

Project Title	Quantify BMP impact on each Management Strategy
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	All
Estimated Cost	$90,000
Justification: Description of why this work is needed in support of a management strategy?	When complete, this project will support effective coordination of implementation across many management strategies. By quantifying the effect the Bay Model's BMPs have on each management strategy, positive and negative, jurisdictions, localities and others will be better able to assess the impact of their implementation plans on all management strategies. Additionally, this project will help planners understand potential unintended consequences of BMPs beneficial for water quality but potentially harmful to other resources addressed in Management Strategies.
Cross-Goal Benefits: What other goals may be advanced through this work?	All

Table 2: Project Details

Technical Lead	James Davis-Martin, with support from GIT Chairs and Strategy development teams
Detailed Statement of Work [(1),(2)]	The project will evaluate the BMPs currently approved for use in the watershed model as well as those in expert panels and on the most recent priority list to evaluate the impact each practice has on each of the 29 Management Strategies. Each BMP will be assigned an impact score ranging from -10 to +10 for each Management Strategy. Potential references include BMP Panel reports, scientific literature, the previously funded toxic contaminants study and best professional judgment. The awardee will be expected to engage the Management Strategy development teams to brief them and provide the opportunity for their input. The project will produce both a table showing the resulting impact scores as well as a project report that documents the scientific basis for assigning the scores. The project outputs will be helpful to implementation planners to help maximize benefits across multiple objectives as well as increasing awareness of unintended consequences of BMP implementation scenarios.
Estimated Project Duration	Approximately one year
Outputs and Due Dates	Meetings with Management Strategy Teams – April - August 2016 BMP:Management Strategy Impact Score Table – October 2016

	Project Report – December 2016
Description of Skills and Experience Required of awardee	

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Water Quality, Toxic Contaminants Workgroup (GIT 3)

GIT Priority Ranking: 2

Project Title	Utilizing Source Track-Down Studies to Reduce PCB Loads through PCB TMDLs
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	Toxic Contaminants/Policy and Prevention
Estimated Cost	$50,000
Justification: Description of why this work is needed in support of a management strategy?	The Policy and Prevention (P&P) strategy requires **research on cost-effective tools for track-down studies** and provision of a mechanism for municipalities to share information on lessons learned from PMP development and implementation strategies. Track down studies are a high value method of effectively implementing TMDL Pollution Minimization Plans (PMPs). There are dozens of PCB TMDLs in the watershed and the project would allow for jurisdictions and other experts to share best practices and successes/failures with regard to source identification. Tasks and deliverables will include interviews, literature review, a technical workshop and development of a guidance document that will catalog best practices and recommendations for effective implementation in the TMDL context. The project would align with multiple workgroup priorities including leveraging existing programs (i.e., TMDLs), a focus on PCB reductions and cross-jurisdiction information sharing.
Cross-Goal Benefits: What other goals may be advanced through this work?	Potential for some benefit with regard to other pollutant reduction goals including sediment and other toxic contaminants.

Goal Implementation Team: Water Quality (GIT 3)

GIT Priority Ranking: 3

Table 1: Project Description

Project Title	Assistance to States for Riparian Forest Buffers
Project Category	Workplan Development and Implementation
Goal/Outcome	Riparian Forest Buffer Outcome
Estimated Cost	$50,000
Justification: Description of why this work is needed in support of a management strategy?	Riparian forest buffers (RFB) are essential for clean water and the overall health of the Bay. Bay Program partners have been struggling to make-up for an overall decline in RFB restoration as documented in a 2013 report. More recent RFB Task Force reports from each state and the draft biennial workplan (which reflects the work of the Task Forces) address important state-specific and watershed-wide programmatic barriers to restoring riparian forest buffers. Without these changes, each year, Bay states will continue to let millions of dollars in potential federal funding for RFB restoration go unused. This GIT proposal is a continuation of work funded in 2014 by EPA's Chesapeake Bay Program to provide expert assistance to the states on their RFB programs. Each of the Bay States has said that this assistance is imperative to make the identified changes and that assistance now would help reach their RFB WIP targets. A Resolution adopted at the 2015 Executive Council meeting underscores a need for this work directly. Improvements to existing programs will take skilled negotiators-- program policy/legal experts-- who understand how the federal-state programs currently work in each of the 6 Bay states, who can provide alternative fiscal approaches, and who know how to bring about timely and efficient program delivery at the state, region, or national level. With this funding, two program/policy specialists will be enlisted for work over a 12 month time span. These programmatic changes will address many of the management approaches identified in the RFB Management Strategy and are critical to meeting the RFB and WIP targets.
Cross-Goal Benefits: What other goals may be advanced through this work?	The RFB proposal directly supports and complements a number of Chesapeake Bay goals and strategies: GIT3 Water Quality – Riparian Forest Buffers (RFBs) are the best practice for improving water quality. GIT2 Habitat – RFBs are part of the Habitat Goal because they not only benefit water and air quality but are in a critical location to provide excellent wildlife habitat. RFB restoration is one of the best ways to improve Brook Trout habitat. GIT4 Healthy Watersheds – Preservation and expansion of RFBs is an important component of keeping healthy watersheds healthy. GIT5 Stewardship – Help progress toward the 695,000 acre high-value forest conservation goal

Table 2: Project Details

Technical Lead	Sally Claggett **Key Project Partners:** Farm Service Agency- National Office and offices in each state Natural Resource Conservation Agency – National Office and offices in each state Maryland DNR and Department of Agriculture Delaware NREC and Department of Agriculture Pennsylvania DEP and DCNR New York DEC West Virginia DEP and Division of Forestry Virginia DCR and Department of Forestry Alliance for the Chesapeake Bay
Detailed Statement of Work [(1),(2)]	• Work with states on priority program needs as itemized in their Task Force report. • Translate RFB Task Force recommendations into draft amendment language for Conservation Reserve Enhancement Program (CREP)—key program for restoring RFBs-- and other policy documents; • Draft supporting justifications for each state as needed, including economic justification (i.e., potential "paygo" costs); • Work with federal and state partners to develop the economic incentive package that will achieve the desired enrollment outcomes. • Review and analyze the current enrollment trends and economic conditions to develop the total financial package that will achieve mandated environmental outcomes. • Work through CREP budget estimates and develop State/local/NGO match requirements using creative means as necessary (must meet 20% match requirement); there is an immediate need for this in Delaware. • Assist partners with combining RFB restoration with NRCS' Agriculture Conservation Easement Program • Communicate the need for new policy with partners and political leaders; expedite policy approval process through USDA; • Negotiate revisions in proposed amendment language and budget as needed to secure USDA approval of CREP amendment; • Assist in the development of outreach and training materials for technical assistance providers
Estimated Project Duration	1 year
Outputs and Due Dates	Help at least 4 states submit CREP Amendment; Negotiate directly with USDA on behalf of all 6 states; Develop economic incentive package for

	each state; Develop and deliver 10 training modules; Execute five key actions in the draft biennial workplan.
Description of Skills and Experience Required of awardee	A strong working and legal knowledge of CREP and other Farm Bill programs and recent prior experience helping states re-think their program involving RFBs

Goal Implementation Team: Water Quality, Agriculture Workgroup (GIT 3)

GIT Priority Ranking: 4

Table 1: Project Description

Project Title	Development of Commercial Turkey Production and Litter Database for Model Data Input into the Chesapeake Bay Program Phase 6.0 Modeling Tools
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	Develop and provide access to a new source of verified commercial turkey production and litter information for model input data into the final version of the Phase 6.0 Modeling Tools. The subsequent data analysis and recommendations will be used to develop a new Phase 6.0 model representation of commercial turkey production within the Bay region, and enable future reporting by all six-states for determining annual turkey litter nutrient generation and availability. The project will identify the different types of commercial turkey production systems, and the litter analysis and volumes associated with each production system, and long with bird numbers produced of each type annually in Virginia. The project is based on a similar effort successfully achieved for commercial broiler production for the Phase 6.0 modeling tools.
Estimated Cost	$30,000
Justification: Description of why this work is needed in support of a management strategy?	The partnership approved Poultry Litter Subcommittee recommendation report (April, 2015) , sponsored by the Agriculture Workgroup, identified the existence of limited information on the commercial turkey industry in the Bay Watershed, and even less availability of data on the brackets of nutrient content and volumes associated with the litter-manure analysis with each bird type. This project will identify each type of commercial bird production group with the assistance of academic and industry partners, and provide a recommendation for representative bird populations, litter analysis and volume of each production system for incorporation in the final version of the Phase 6.0 modeling tools. The Virginia-focused project will enable the remaining Bay states to utilize the new model representation to report commercial bird populations, litter analysis, and litter volume data in the future for generating a more accurate turkey litter nutrient generation and availability on annual basis.
Cross-Goal Benefits: What other goals may be advanced through this work?	The Virginia-focused project will establish a new approach to engage academic, private industry, and agency partners in developing state-based annual data on commercial turkey production systems, and the resulting litter nutrient and volume generation. The subsequent development of new model representations of commercial turkey production in the final version of the Phase 6.0 modeling tools, will enable the remaining five Bay states to develop and utilize similar approaches to report commercial bird populations, litter analysis, and litter volume data for generating a more accurate turkey litter nutrient generation and availability on annual basis. The project will identify and define commercial turkey production systems being implemented in the region, and provide the basis for other Bay states

	to characterize the industry in their state through data collection and analysis. The information gleaned from the project will also provide a protected repository of data that can be used to update university turkey litter nutrient standards ("book values") for nutrient management planning, and other academic studies and extension support to the industry and producers. The data repository will also be available for future supplemental data collection and reporting of model input data for the CBP modeling tools, agricultural BMP expert panels, the Agriculture Workgroup, and the WQGIT where needed.

Table 2: Project Details

Technical Lead	
Detailed Statement of Work [(1),(2)]	The collection and analysis of verified production and litter data on Virginia-based commercial turkey production systems, which will be housed in a secured repository at Virginia Tech for analysis and reporting of county-scale aggregated data on an annualized basis for Phase 6.0 modeling tool development and future annual reporting. The project will directly involve the following partners: • Virginia Tech staff, interns, and selected extension agents • Virginia commercial turkey industry representatives and producers • Virginia state agency staff from DCR and DEQ • Virginia county agency staff from selected counties • Chesapeake Bay Program Modeling Team staff • Agriculture Workgroup staff The project will implement the following data collection and analysis: • Identify and define a characterization of commercial turkey production systems (toms, hens, growers, finishers, etc.) • Identify Virginia commercial turkey production operations and categorize their production system type(s). • Obtain annualized flock-scale bird production data for each commercial production operation where available through industry records. • Obtain and associate litter nutrient analysis data for each commercial production operation where available through farm and state agency records. • Obtain verified litter samples for analysis from a standard subsampling of operations within each categorized commercial production system. • Obtain litter mass volume data from state agency records, and verified data from a standard subsampling of operations within each categorized commercial production system. • Conduct analysis of collected data to develop recommendations on categorization of commercial turkey production systems in the

	region, and their associated litter nutrient concentrations and mass volumes. • Compare the University of Delaware broiler equation for estimating litter mass volumes from bird harvest weights for turkey category types, and provide a recommendation on its potential use for turkeys. • Provide an annualized county-scale database and tables identifying bird populations by category types, bird harvest weights for meat birds or average bird weights for breeding birds, litter nutrient concentrations by bird type, and litter mass volumes by bird type. • Develop a CBP model input recommendation report for submission to the Agriculture Workgroup and CBP partnership for review and approval for creating a new Bay region representation of commercial turkey production and litter generation in the final version of the Phase 6.0 modeling tools. Additional financial support is being applied for under a separate CBP technical assistance grant with Virginia Tech, as well financial and technical assistance from VADCR under the Commonwealth's Nutrient Management Program. The development of new commercial turkey production and litter data will subsequently enable the development and implementation of a new and more accurate representation of turkey nutrient generation by the Phase 6.0 modeling tools for the partnership. Improving access to agricultural model input data for the Phase 6.0 tools is an identified priority for the Agriculture Workgroup (AgWG), and the WQGIT assigned the AgWG to be a lead sector workgroup on this task. The ability to implement a new approach to turkey nutrient generation from the present reliance on USDA-NASS Agricultural Census available every five years, and ASABE's national average excreted values, to verified annualized county-scale production and litter data, will have some level of effect on every state's management strategy within the partnership. Those jurisdictions who have larger populations of commercial turkeys will receive the greatest value from the effort. The proposed turkey data project will utilize the data collection and analysis process previously developed and approved by the CBP partnership for representing commercial broiler production in the Phase 6.0 modeling tools, and will adhere to the partnership's approved model data review and approval procedures.
Outputs and Due Dates	• Assist with the development of a new secured commercial turkey production database at Virginia Tech to provide model input tables characterizing the production types, annual bird population

	numbers and associated litter analysis and volumes for each commercial turkey production type in Virginia, along with a detailed report that fully explains the same. • Assist with the development of a draft project report, including group definitions, data analysis and tables, and model input recommendations with a technical appendix for Phase 6.0 implementation, will be prepared by the project partners with assistance from the CBPO modeling team by February 15, 2016. • Ensure the draft recommendation report will be submitted to the Agriculture Workgroup, Watershed Technical Workgroup, and the Water Quality Goal Implementation Team for review and approval following the approved protocols and following the required timelines. • Ensure partnership review questions and comments will be addressed, including answers to questions, by March 15, 2016 in a final draft of the recommendation report for partnership approval by April 15, 2016. • Ensure the subsequent approved recommendations can be used for input into the final version of the Phase 6.0 Modeling Tools in 2016. • Incorporation of the recommendations and data will enable a more accurate representation of commercial turkey production systems across the six-state Bay region than is currently available.
Description of Skills and Experience Required of awardee	The lead in this project will need to have the following skills and experiences to successfully complete the project: • Currently manages existing cooperative fiscal agreements with Virginia Tech's College of Agriculture and Life Sciences which can be modified to add the proposed project. • Has direct and full access to the Virginia's Nutrient Management Program for specific Nutrient Management Plan data and producer information, as well as NMP certified planning staff. • Has direct access to turkey litter nutrient concentration analysis data developed by Clemson University and Virginia Tech for Virginia commercial turkey production operations. • Has extensive experience in working with Virginia academic and private industry partners and state agency staff to deliver results in a timely fashion, and provide the resulting data in a concise and accurate manner that it can be understood and utilized by all stakeholders. • Has experience with the Chesapeake Bay Program (CBP) partnership, the CBP Agriculture Workgroup, and the CBP modeling team to assist in the development of approvable technical recommendations.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Water Quality (GIT 3)

GIT Priority Ranking: 5

Table 1: Project Description

Project Title	Community Outreach Strategies for Increasing Tree Canopy
Project Category	Workplan Development and Implementation
Goal/Outcome	Tree Canopy
Estimated Cost	$50,000 – Project is potentially scalable if less than full $50,000 funding is available, though deliverables would be reduced accordingly.
Justification: Description of why this work is needed in support of a management strategy?	Community outreach has been identified as a critical challenge and opportunity for achieving the Chesapeake Bay Tree Canopy outcome. The 2014 Chesapeake Urban Tree Canopy Summit demonstrated that community groups and citizens play a central role in tree planting and stewardship, and more fundamentally, in driving the demand for more tree canopy in areas where progress is being made. However, in the majority of the watershed, community awareness and engagement in tree canopy initiatives falls far short of potential, and new, effective outreach approaches are needed. This need applies both to local government efforts on public lands (e.g. street trees, parks, schools) and to tree planting on private properties where most of the opportunity exists. Urban tree canopy assessments have demonstrated that low canopy areas often overlap geographically with underserved communities facing an array of socioeconomic, public health, and environmental justice challenges. Tree planting and stewardship initiatives can have a dramatic positive and cost-effective impact in these areas, but they require effective outreach approaches that connect with diverse community interests. Research in cities around the country has shown that a number of tree planting initiatives have made progress in more affluent, higher canopy areas, but assistance is needed to better reach underserved communities and address their unique concerns and barriers. Tying tree canopy efforts with green job/economic development opportunities and other community values is a key strategy. Fortunately, there are a number of communities around the country that have been working at this challenge for some years and have lessons to share with communities just beginning the process. This project will pull together a suite of community engagement strategies and best practices, drawing from a variety of case study examples and a facilitated workshop with leaders in tree canopy outreach and practitioners from around the watershed. The project will incorporate and build upon recent US Forest Service funded projects, including but not limited to: • *Parks and People Foundation – Baltimore Tree Stewards Engagement Project* • *Alliance for the Chesapeake Bay – Social Marketing-Tree Canopy Project in Baltimore*

	• *Earth Conservation Corps – Youth Corps Tree Canopy Project* • *Washington Parks and People – DC Green Corps Job Training Program*
Cross-Goal Benefits: What other goals may be advanced through this work?	This Tree Canopy proposal directly supports and complements a number of Chesapeake Bay goals and strategies: GIT3 Water Quality – Tree planting is a cost-effective, credited BMP in the Chesapeake Bay TMDL and state WIPs that is ideal for community-based implementation GIT2 Habitat – Tree Canopy is included in the Habitat Goal because of the multiple benefits it provides to water, air, and wildlife, particularly in developed areas GIT4 Healthy Watersheds – Preservation and expansion of tree canopy is an important component of keeping healthy watersheds healthy in the face of land use change and development pressures. GIT5 Stewardship – This project supports the Citizen Stewardship Outcome/Team by advancing community-driven and volunteer-based tree canopy efforts, with a specific emphasis on collaboration with the Diversity Action Team. GIT6 Partnering/Leadership – The project is geared towards generating best practices and lessons learned for local governments and their partners, by harnessing the experiences of effective local tree canopy initiatives.

Table 2: Project Details

Technical Lead	Julie Mawhorter, US Forest Service *** Note - Technical Lead will contribute significant time to the project as co-lead of the advisory team to facilitate connections with Forestry Workgroup/Tree Canopy Management Strategy priorities and stakeholder networks* **Project Partners:** *(partial list, confirmed)* CBP Diversity Action Team, *Advisory/Planning Team* US Forest Service, *contributing webinar hosting/recording services* Parks and People Foundation (MD), *Advisory/Planning Team, contributing venue in Baltimore for Workshop* Earth Conservation Corps (DC), *Advisory/Planning Team* Cacapon Institute (WV), *Advisory/Planning Team* **Project Supporters:** Jurisdictions *Delaware Forest Service and DNREC* *DC – DDOT Urban Forestry Administration and DDOE/DOEE* *Maryland Forest Service* *Pennsylvania DCNR Bureau of Forestry* *Virginia Dept. of Forestry* *West Virginia Division of Forestry*

	CBPO – GIT 2, GIT 3, GIT 5
Detailed Statement of Work [(1),(2)]	**Proposed Project Elements:** - At the start of the project, convene an Advisory/Planning Team that will meet regularly by phone to give guidance on case study selection/scope, workshop format/participants, and content/format of written and webinar deliverables; *team should include members who represent environmental justice communities with tree canopy initiatives;* input from LGAC and Local Leadership Workgroup will also be solicited - Research and select 6-10 case studies from around the country that exemplify a variety of effective community tree canopy outreach/engagement strategies and lessons learned for Chesapeake Bay communities, with particular emphasis on successful models in underserved/low canopy communities - Design and deliver at least one workshop that brings together community outreach leaders from the case studies and tree canopy practitioners from around the watershed to engage in dialogue and problem-solving on how to build on these effective models in Bay communities - Document the case studies and workshop findings through brief, public-friendly summary reports and webinar recordings to transfer lessons learned to all interested communities in the Bay watershed; include a summary list of online resources/tools compiled through the course of the project - Additional Deliverable (preferred but optional) – through one of the case studies (e.g. Baltimore UTC example), document a simple method for communities to overlay their UTC data with environmental justice/demographic data (possibly EJScreen) to facilitate targeting of outreach initiatives
Estimated Project Duration	1 – 1.5 Years
Outputs and Due Dates	Draft Timeline (may be extended to 1.5 year as needed) 0-3 months – Case Study Scoping/Selection and Workshop Speakers Identified; Tree Canopy/Env Justice background materials compiled 3-6 months – Workshop planned, advertised, registration completed 6-9 months – Workshop held and documented, including webinar recordings of presentations 9-12 months – Final case studies, workshop report, and webinar recordings are completed
Description of Skills and Experience Required of awardee	Strong skills in case study research/writing for public audience, workshop design and facilitation with diverse participants, and background with community engagement issues and strategies in environmental arena, preferably urban forestry experience

1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies
2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Water Quality (GIT 3)

GIT Priority Ranking: 6

Table 1: Project Description

Project Title	Development of a Prototype Fine Scale Watershed Model
Project Category	Modeling Support
Goal/Outcome	Provide support for future watershed implementation plans.
Estimated Cost	Estimated cost is $140,000
Justification: Description of why this work is needed in support of a management strategy?	A fine scale distributed model prototype of a basin in the Chesapeake watershed is now possible with advances in spatial data. A fine scale model with a grid scale on the order of a quarter of a kilometer is now possible using fine scale land use, soil, rainfall, and other data. A fine scale model could help bridge the gap between state-basin allocations and the application of local BMPs. The basin chosen would be relatively small with the size on the order of a Chesapeake subbasin such as the Shenandoah or the Patuxent or other basins.
Cross-Goal Benefits: What other goals may be advanced through this work?	Understanding of the benefits of fine scale modeling for development of more local watershed implementation plans has been a long- standing goal of the CBP. Obtaining a fine scale simulation to directly support local scales have been challenged by spatial data gaps and computational constraints. Recent advances in both have put the long-standing goal of a fine scale simulation within grasp. Other motivations are the examination of the ability of fine scale models and decision support systems to support local level watershed restoration implementation.

Table 2: Project Details

Technical Lead	Lewis Linker (with support from Lee Currey, Dave Montali and the Modeling Workgroup)
Detailed Statement of Work [(1),(2)]	The detailed SOW would be developed by the principal investigators but would be constrained though discussion of technical and management objectives with the Modeling Workgroup.
Estimated Project Duration	The duration of the work is two years.
Outputs and Due Dates	A fully operational fine scale simulation of a basin of the Chesapeake watershed, developed under the oversight of the Modeling Workgroup.

Description of Skills and Experience Required of awardee	The awardee will require very high levels of skill and experience in watershed modeling. This would be typically found at high level universities that have teams of PIs oriented toward watershed model development.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Submitted by the Healthy Watersheds GIT (GIT 4):

Page Number	Priority Ranking	Project Title	Submitted by	Cost
47-53	1	Healthy Watersheds Forest/TMDL Project Phase II	Healthy Watersheds (GIT 4)	50,000
54-56	2	Evaluation of Land Use policy options, incentives and planning tools to reduce the rate of conversion of agricultural lands, forest and wetlands	Healthy Watersheds (GIT 4)	80,000
57-59	3	Mid-Atlantic Highlands Action Program Landscape Conservation Design	Healthy Watersheds (GIT 4)	70,000
60-63		Baltimore + Brook Trout: protecting Brook Trout and health of the Gunpowder's healthy sub-watersheds	Healthy Watersheds (GIT 4)	25,000
64-66		Tracking Virginia's Healthy Waters	Healthy Watersheds (GIT 4)	75,000
67-70		Protecting Pennsylvania's Chesapeake Bay Watershed Healthy Waters Public Lakes.	Healthy Watersheds (GIT 4)	70,000
71-72		Frostburg State University Healthy Watershed Transferable Model Pilot Project	Healthy Watersheds (GIT 4)	80,000
73-74		Evaluation of High-resolution Land Cover Change Methods	Healthy Watersheds (GIT 4)	40,000
Total				**490,000**

Goal Implementation Team: Maintain Healthy Watersheds

GIT Priority Ranking: 1

Table 1: Project Description

Project Title	Healthy Watersheds Forest/TMDL Project Phase II
Project Category	Metrics; Implementation Projects
Goal/Outcome	*Healthy Watersheds Goal:* Sustain state-identified healthy waters and watersheds recognized for their high quality and/or high ecological value. • *Healthy Watersheds Outcome*: 100 percent of state-identified currently healthy waters and watersheds remain healthy. *Land Conservation Goal:* Conserve landscapes treasured by citizens in order to maintain water quality and habitat; sustain working forests, farms and maritime communities; and conserve lands of cultural, indigenous and community value. • *Land Use Options Evaluation Outcome:* By the end of 2017, with the direct involvement of local governments or their respective representatives, evaluate policy options, incentives and planning tools that could assist them in continually improving their capacity to reduce the rate of conversion of agricultural lands, forests and wetlands as well as the rate of changing landscapes from more natural lands that soak up pollutants to those that are paved over, hardscaped or otherwise impervious. Strategies should be developed for supporting local governments' and others' efforts in reducing these rates by 2025 and beyond. • *Protected Lands Outcome:* By 2025, protect an additional two million acres of lands throughout the watershed—currently identified as high-conservation priorities at the federal, state or local level—including 225,000 acres of wetlands and 695,000 acres of forest land of highest value for maintaining water quality.
Estimated Cost	$50,000 is requested from the GITs. Supplemental funding would enhance faster scale-up and the project sponsors are pursuing options to accomplish this but the $50,000 request will be sufficient to meet the project goals and objectives stated herein.

Justification: Description of why this work is needed in support of a management strategy?	This application is for funding to implement Phase II of a two phase project. Phase I was sponsored by the Healthy Watersheds GIT in 2015. Although forest cover is recognized as one of the best land uses for achieving Chesapeake Bay water quality and healthy watershed goals and outcomes, localities in the watershed have long maintained that unless TMDL credit is given for retaining forestland, there is little local incentive for preserving forestland. This project addresses that issue. The objective is to build the technical and modeling evidence needed to stimulate negotiation of regulatory and policy changes at the federal, state and local levels necessary to drive land use planning and decisions in directions that sustain and maintain forestland and thereby further preserve currently healthy watersheds. Phase I built the evidence, phase II will focus on using that evidence to negotiate with local officials to get land use policies and decisions that retain forestland in healthy watersheds implemented. The plan is to work through the sponsorship of the Rappahannock River Basin Commission (RRBC) with geographically targeted peer to peer focus groups of key elected officials and planning community senior staff and to coordinate that effort with other CB GIT initiatives. The lessons learned and the tool box of local authorities to be developed can then be rolled up into the planned online Chesapeake Bay wide tool box repository and made available throughout the Watershed. It is anticipated that the toolbox for this project will include items such as proffer guidelines to developers that encourage forest retention in major projects; elements that could be built into site plan reviews that could facilitate forestland retention in rezoning decisions; approaches for determining and designating high conservation value (HCV) forestland in land use planning; language in comprehensive plans that emphasize HCV; zoning criteria that favors retention of HCV forestland; and incentives to private forestland owners to keep their land in forest rather than develop it. It should be noted that because Virginia is a Dillon Rule state the potential exists that in the peer-to-peer process the participants may identify the need to change state land use enabling legislation to enhance a tool or tools in the toolbox. The RRBC offers a unique vehicle for such a task because members of the House of Delegates and State Senate sit on the Commission along with local elected officials. At this stage the project sponsors cannot say for certain that such action will be an outcome but it is possible that something will come up in the local negotiation phase and if so, key state policy makers on the RRBC are engaged in the project. In addition, an RRBC member is the current chair of the CBC and the LGAC chair represents a district in the Rappahannock River Basin so coordination with other efforts can be enhanced.

Cross-Goal Benefits: What other goals may be advanced through this work?	This project has been designed to advance implementation of several cross-goal benefits identified in the Healthy Watersheds Management Strategy and to create collaboration opportunities with other GITs to minimize the effect of potential barriers to success. The principle objectives of the project*,* e.g. to prove the value of a forestland retention BMP in the TMDL model along with the creation of a toolbox of incentives that can be used to stimulate forestland retention throughout the watershed *s*upport the following priorities of other Goal Implementation Teams: 1. Language outlined in the Protected Lands Management Strategy related to crediting conservation: "Land conservation is not credited towards reductions in the Bay jurisdictions' annual pollution reduction progress reporting. However, land conservation may be able to generate credits for use in compliance trades and/or as offsets for new loads. There may also be opportunities to quantify and incorporate conservation practices into the Chesapeake Bay Program decision support system and to explore how land use projections might be used to quantify future pollutant load reduction incentives for land conservation"; 2. The Water Quality Goal Implementation Team's efforts to meet the WIP and Water Quality Standards Attainment & Monitoring Outcomes associated with meeting the goals of the Chesapeake Bay Maximum Daily Load (TMDL); as well as the outcomes for its Riparian Forest Buffer and Urban Tree Canopy strategies; 3. The Vital Habitat Goal Implementation Team's call for cooperation in listing and maintaining a network of land and water habitats that support priority species, water quality, recreational uses, and scenic values; 4. The Stewardship Goal Implementation Team's strategy of promoting individual stewardship, supporting environmental education, protected lands and assisting citizens, communities and local governments in undertaking conservation initiatives in the Bay region; and 5. The Enhancing Partnering, Leadership and Management Goal Implementation Team's Local Leadership Management Strategy objective to increase the knowledge and capacity of local officials on issues relating to water resources and the implementation of economic and policy incentives that support local conservation actions.

Table 2: Project Details

Technical Lead	*Project Manager:* The Virginia Department of Forestry (VDOF) *Partners:* Virginia Department of Environmental Quality (DEQ), The Nature Conservancy (TNC), the Chesapeake Bay Commission (CBC), George Washington Regional Commission (GWRC), Rappahannock River Basin Commission (RRBC) and Virginia Tech Water Resources Research Center (VTWRC).

Detailed Statement of Work [(1),(2)]	The objective of Phase I was to model various land use scenarios in the Rappahannock River basin area as a proof of concept pilot using EPA/TMDL model methodologies and land use data provided by the localities to determine if forest retention actions by individual localities would result in a decrease in actual load over their current 2025 projected TMDL load allocation land cover. If "yes", the modeling data and assumptions would be shared with EPA and localities to determine the present economic value implications of the reduction in nitrogen, phosphorus and sediment loads of alternative land use change scenarios. A Chesapeake Bay watershed-wide methodology and local level metrics could then be developed so the value could be passed on to localities as a forestland retention BMP in the TMDL model to create an incentive for localities to implement land use policies to retain more high conservation value forestland now. Data collection and scenario modeling was completed July 31, 2015 using different assessments and evaluations of growth trends in the pilot region in coordination with CB program staff and the pilot area localities that paralleled modeling criteria CB staff are using to amend the 2017 CB TMDL model. Scenarios were: (1) the current TMDL 2025 predictions for the localities in the pilot area, (2) a green infrastructure model that significantly factored in increased forestland retention, (3) a model based on projected land use if the comprehensive plans for each locality in the pilot area were followed and implemented; and (4) a hypothetical scenario that was a hybrid between (2) and (3). 2010 and 2015 scenarios were also run to identify trends. The modeling results confirm the water quality and healthy watershed value of forestland retention and demonstrate that a range of potential offsets are possible depending on the investment made early in BMPs that retain forestland. Quantification of the offset economic values is currently underway. While this work was being done, the Water Resources Research Center at Virginia Tech has been conducting an independent review and synthesis of the literature regarding ecosystem services related to water-quality protection and remediation provided by forests. This review is looking at the specific attributes of forestland that contribute to those ecosystem services to provide information for prioritization of forestland retention decisions in the pilot area land-use-scenario modeling exercises. Evaluation of spatial variability and landscape position of water-related ecosystem services provided within classifications of forestland are being developed as part of the literature review. This information along with the model scenario run results will be used in Phase II to inform the negotiations and discussions with local leaders. Phase I will lead into Phase II when all findings and recommendations to-date are presented to EPA, the Healthy Watershed GIT and to local elected

	and appointed leaders in the Rappahannock River Basin in a summit planned for September 23 sponsored by the Rappahannock River Basin Commission. A workshop at the summit is scheduled to begin discussions with local officials on strategic implementation strategy next steps including policy, incentives and land use planning approaches that would be tested and if successful, captured to create the basis for the tool box that could be incorporated into the planned CBP on-line repository and used by all the jurisdictions in the Chesapeake Bay watershed. Since land use decisions are largely local, the project sponsors believe it is very important that the forestland retention incentives tool box be built from a bottom up rather than a top down perspective. The components have to be credible on a peer to peer basis. The project team's working hypothesis based on what its own research and that of other GIT's has indicated is that crediting forestland retention in the TMDL will stimulate and perhaps drive development of additional incentives at the local level to conserve high conservation value forestland. Therefore, outreach to and negotiation with local government leaders in coordination with the RRBC, EPA and the pertinent Chesapeake Bay Program GITs will be the focus of phase two and would extend the project from its current pilot area in the George Washington Regional Commission service area of the basin to the entire Rappahannock River basin as a proxy for the Chesapeake Bay watershed. The project sponsors will work extensively through the RRBC, with local government officials within the Basin, as well as LGAC and other GITs to develop the tool box of criteria, incentives, etc. that could be used in land use policy and zoning situations to accurately identify and assign appropriate values to high conservation value forest lands. The forest land TMDL best management practice credit would be the driver but only one of what could be a package of incentives available. The Phase II planned approach is to break the Rappahannock River Basin into three separate study areas – the lower, middle and upper basins because each area will provide very different political, economic, environmental and social perspectives. The project sponsors want to learn how different dynamics change the thinking about what works and doesn't work. The lower basin is primarily rural and its near proximity to the Chesapeake Bay also makes it an area accustomed to dealing with CB issues. The middle basin includes some of the fastest growing urban areas in the Commonwealth and also includes large military facilities. The upper basin with its mountains represents a very different topography – head waters and includes lands outside the CB preservation area as well as federal conservation areas. Under the sponsorship of the RRBC, a series of peer- to –peer discussion sessions will be held with geographically targeted focus groups of key elected officials and planning community senior staff to identify obstacles,

	incorporate best practices and lessons learned elsewhere, develop solutions, and build the tool box elements. EPA and senior CB GIT representatives are also urging Virginia to invite Pennsylvania to join the project in Phase II on a Commonwealth to Commonwealth basis. The rationale being that as Virginia moves forward with the implementation phase working with local government officials, Pennsylvania could serve the role as a peer reviewer and evaluate Virginia's modeling methodologies, assumptions and assortment of tools to test ways other states could adapt and implement the lessons learned in Virginia. The project sponsors have also reached out to the Chesapeake Bay Local Government Advisory Committee to assist in the extensive negotiations with local government officials that will be required. Such partnerships could speed adoption and implementation of forestland retention actions across the watershed as the planned 2017 amendments to the TMDL model are adopted and rolled out.
Estimated Project Duration	12 to 18 months beginning January 2016. Phase I funding will cover the planned RRBC September 2015 summit workshop and the initial follow-on peer-to-peer strategy preparation work through the end of 2015.

Outputs and Due Dates	1. Interpretation of findings and results of phase one modeling runs presented to RRBC, EPA and Healthy Watersheds GIT: 9/23/15 2. Frame issues for discussion with basin localities and identification of key stakeholders: 10/1 – 12/31/15 3. Work with EPA and CB GITs to frame options for developing Forestland retention BMP in TMDL model: 10/1 – 12/31/15 4. Approach Pennsylvania about joining the project in a peer review and testing capacity: Upon notification of award of phase II funding 5. Discussions/negotiations across basin with localities to build, test and implement elements of tool kit to drive greater consideration of forestland retention in land use policies and decisions 1/16 – 9/16 6. Support EPA and CB GIT efforts to create a Forestland retention BMP in TMDL model: 1/16 – 9/16 7. Coordinate with Pennsylvania on lessons learned and tool kit elements. Write up findings, recommendations, proposed strategies, etc. and make available to CB program and CB watershed jurisdictions for implementation. 9/16 – 12/16 8. Make teams available to other CB jurisdictions to provide advice on how to implement toolbox elements. 1/17 – 6/17

Description of Skills and Experience Required of awardee	The project team organizations were specifically selected because of their recognized in-depth experience across the broad spectrum of skills that are required to undertake a project of this magnitude.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Maintain Healthy Watersheds

GIT Priority Ranking: 2

Table 1: Project Description

Project Title	Evaluation of Land Use policy options, incentives and planning tools to reduce the rate of conversion of agricultural lands, forest and wetlands.
Project Category	Workplan development (Implementation of key task outlined in MS)
Goal/Outcome	*Land Use Options Evaluation Goal:* Conserve landscapes treasured by citizens in order to maintain water quality and habitat; sustain working forests, farms and maritime communities; and conserve lands of cultural, indigenous and community value. *Outcome:* By the end of 2017, with the direct involvement of local governments or their representatives, evaluate policy options, incentives and planning tools that could assist them in continually improving their capacity to reduce the rate of conversion of agricultural lands, forests and wetlands as well as the rate of changing landscapes from more natural lands that soak up pollutants to those that are paved over, hardscaped or otherwise impervious. Strategies should be developed for supporting local governments' and others' efforts in reducing these rates by 2025 and beyond.
Estimated Cost	$80,000
Justification: Description of why this work is needed in support of a management strategy?	There are three key tasks identified in the Land Use Options and Evaluation Management Strategy. This project would build off of the initial work conducted by Tetra Tech in 2014 GIT funding year where they developed a scope of work to determine various options and costs for implementing the three Management Strategy tasks. This request for project funds would specifically be for ***conducting a comprehensive review/study*** to implement one of the Management Strategy tasks: "determine the spectrum of existing policy options, incentives and planning tools current being implemented at the local and state level". This has been identified by Healthy Watershed Goal Team staff and leadership as a key first step in the implementation of the three tasks outlined in the Land Use Options and Evaluation MS. The results will be used to inform the implementation (at a later date) of the additional two MS tasks related to survey and tool development. The comprehensive review/study task is an essential starting point to inform the second part of the Land Use Options and Evaluation Outcome: "strategies should be developed for supporting local governments' and others' efforts in reducing these rates by 2025 and beyond". Gaining the knowledge of the types of land use policy options and tools being used in the Bay watershed—as well as knowledge of effective approaches used in other large watersheds—will enable the Chesapeake Bay Program partnership and its local and non-governmental

	partners to develop effective strategies to reduce land conversion rates.
Cross-Goal Benefits: What other goals may be advanced through this work?	Local Leadership Outcome: This project would support this outcome by providing concrete information related to local efforts to reduce the rate of land conversion, helping to increase the knowledge and capacity of local officials to support land conservation actions. Land Use Methods and Metrics: This project will help to further the knowledge of land conversion by understanding the policies on the ground that are driving land use change and land protection in the watershed. It will also help to lay a groundwork for increasing public awareness to inform local governments, citizens, elected officials and stakeholders.

Table 2: Project Details

Technical Lead	
Detailed Statement of Work [(1),(2)]	This task would be awarded via RFP to the successful applicant who could carry out the following tasks: • Identify relevant land use policy options and planning tools at the state and local level throughout the Bay watershed through internet and literature research. Given the large number of governments in the watershed, the results will not be comprehensive; however, criteria will be developed to guide the research (e.g., examining those jurisdictions facing the most growth pressure) to identify where relevant land use policy options are more likely to be found. Overall the findings will be organized by category (the categories will be provided). o There will also be a need to identify relevant policy options and planning tools in complex jurisdictions such as Pennsylvania where many townships make up a county and region and are more of a challenge in terms of coordination across a region to achieve targeted land conservation and targeted land development. • Conduct interviews with stakeholders (identified in consultation with the Local Government Advisory Committee and GIT4 members) to document known examples of successful land use policies. Additional interviews and research will also need to be conducted outside the watershed, as called for in the Management Strategy, in places including but not limited to Portland, Oregon; The Great Lakes and Puget Sound. • Compile existing studies and reports related to costs, benefits and effectiveness of both local and state level land use "policy options, incentives and planning tools". Although this is part of a separate MS task, we feel it makes sense to include it as part of this GIT project given

	that the same type of approach—internet research and interviews—is needed to identify these reports, and since such research could facilitate identifying additional effective land use policy options. The tasks above will be compiled into a complete report. The best examples for each category will be identified, and where available from existing reports and studies, costs, benefits and effectiveness will be listed. All identified examples, as well as identified reports and studies, will be described.
Estimated Project Duration	

Outputs and Due Dates	
Description of Skills and Experience Required of awardee	The awardee should have expertise with smart growth issues and should have experience with research related to all types of land use policy options.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Maintain Healthy Watersheds/Habitat/Water Quality

GIT Priority Ranking: 3

Table 1: Project Description

Project Title	Mid-Atlantic Highlands Action Program Landscape Conservation Design
Project Category	Workplan Development and Implementation
Goal/Outcome	Healthy Watersheds Goal/Healthy Watersheds Outcome; also Habitat GIT and Water Quality GIT
Estimated Cost	$70,000
Justification: Description of why this work is needed in support of a management strategy?	The Mid-Atlantic Highlands encompass 79,000 square miles in the Central Appalachians of Maryland, Pennsylvania, Virginia, and West Virginia. The region hosts some of most diverse and globally important resources on Earth. It is rich in natural and cultural heritage in a geography where the environment plays an important role in the quality of life of people. However, after years of resource extraction and lack of regard for natural resources, the Mid-Atlantic Highlands has become an area in need of attention. Human activities, namely urban infringement, logging, mining, energy development, and agricultural practices have resulted in environmental degradation and lower quality of life in many parts of the region. As a major part of the headwater's of the Chesapeake Bay, it is imperative that the protection and restoration of this region be made a priority. The Chesapeake Watershed Agreement emphasizes that while the Chesapeake Bay Program (CBP) can help coordinate, guide, fund, and track progress, restoration and conservation implementation happen locally. The Mid-Atlantic Highlands Action Program (HAP) provides the implementation capacity in the headwaters of the Chesapeake Bay that contributes directly to many of the goals of the Chesapeake Watershed Agreement. As the brainchild of the USEPA, HAP has grown into a strong collaborative partnership, bringing together federal, state, local and tribal organizations with the intent of protecting the Appalachian landscape and culture, and fostering economic growth in Appalachian communities. From 2002 through the present, the USEPA and partners have leveraged $8.8 million in federal funds to protect over 10,000 acres of wetlands and forests; restore over 100 acres of strip-mined land, and restore 60 miles of stream within the HAP geography. At present the USFWS is leading the charge to renew the HAP program with a primary focus on setting priorities and metrics within the geography in order to target and fund the most important conservation activities.

	HAP will employ a Landscape Conservation Design (LCD) process to target and prioritize watersheds for protection, restoration and enhancement. The LCD process involves working with local, state, federal, tribal and NGO stakeholders to target and prioritize conservation actions and geographies for eventual on-the-ground conservation delivery actions. Once complete, the HAP LCD process will address many CBP Healthy Watershed Management Strategies, namely by strengthening local commitment and capacity by engaging local communities; improving protection of state-identified healthy watersheds by encouraging and recognizing state based activities; increasing communication and partnership with multiple federal agencies; and identifying priority focal areas for aquatic and terrestrial species.
Cross-Goal Benefits: What other goals may be advanced through this work?	Habitat (Brook Trout Outcome); Habitat (Wetland Outcome); Stewardship (Land Protection Outcome), Water Quality (Watershed Implementation Plans), Habitat (Stream Health Outcome) and Climate Change Outcome

Table 2: Project Details

Technical Lead	Christina Ryder, USFWS
Detailed Statement of Work [(1),(2)]	Both the U.S. Fish and Wildlife Service (USFWS) and the USEPA, are invested in ensuring that the HAP be a strong conservation delivery program in the headwaters of the Chesapeake. According to the USFWS Strategic Habitat Conservation (SHC) framework, conservation delivery must be preceded by conservation planning and conservation design. To accomplish multi-jurisdictional watershed protection, HAP aims to protect hub/corridor networks of ecologically and culturally important landscapes. These landscapes will be selected in consultation with local, state, federal, and NGO stakeholders in the Appalachian Mountains. HAP objectives will be achieved through land use planning, long-term protection, restoration, and/or enhancement. HAP priority landscapes are forests, wetlands, streams, farms, and working rural communities. In order to collaboratively identify strategic conservation priorities in the Highlands, HAP will conduct four stakeholder workshops, one in each highland state, to complete a Landscape Conservation Design, developed by the greater conservation community in the Highlands in partnership with the Appalachian Landscape Conservation Cooperative (LCC) and the Chesapeake Bay Program. These workshops will strive to facilitate conservation priority and metric creation for the HAP geography (across state jurisdictions). LCDs are a partnership-driven conservation strategy that identifies desired future conditions and management prescriptions at multiple scales across jurisdictions.

	Using spatial analysis tools developed for the Appalachian LCC by Clemson University, priority conservation metrics (e.g. ecological integrity, resilience, species capability, and water quality protection), actions, and landscapes selected by stakeholders will be analyzed to design an optimal reserve network within CBP State-Identified Healthy Watersheds for protection as well as degraded or marginal watersheds for restoration in the Mid-Atlantic Highlands.
Estimated Project Duration	1 year
Outputs and Due Dates	• Hold four stakeholder meetings to develop inputs to a Landscape Conservation Design. Due: October 2016. • Prepare a Landscape Conservation Design and Implementation Plan to guide conservation and restoration activities in the Mid-Atlantic Highlands. Due December 2016.
Description of Skills and Experience Required of awardee	Experience working within the USEPA's Mid-Atlantic Highlands Action Program.

1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies
2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Maintain Healthy Watersheds

GIT Priority Ranking:

Table 1: Project Description

Project Title	Baltimore + Brook Trout: protecting Brook Trout and health of the Gunpowder's healthy sub-watersheds
Project Category	Mapping, Lands Assessment, Environmental Demonstration Project
Goal/Outcome	Create a conservation strategy for the Gunpowder Falls, Little Falls, Little Gunpowder Falls and First Mine Branch (a "marginal" healthy watershed)
Estimated Cost	$25,000.00
Justification: Description of why this work is needed in support of a management strategy?	Increasing the number of communities striving to protect healthy watersheds and improving the effectiveness and success of their efforts are essential to achieving the Healthy Watersheds Outcome. A necessary task to achieve this goal is to effectively convey information on the status of healthy watersheds across the Chesapeake Bay region and to identify the various tools that may be used, primarily by local governments, to protect these watersheds. It is also important to communicate important information about Healthy Watersheds and the tools to maintain them to entities that influence local land use and other decisions affecting healthy watershed, including planning district commissions, soil & water conservation districts, land trusts and watershed organizations. By reducing the rate of conversion to development in healthy watersheds there is a better opportunity to sustain pristine areas, and in this way, our goals are complementary. In addition it will be important to engage with activities such as the Chesapeake Watershed Forum and the land trust community as well as reaching out to non-governmental local actors (like small watershed organizations and land trusts). As noted previously, each partner supporting this strategy will have the flexibility to support activities that identify, assess, prioritize, and protect healthy watersheds in accordance with its internal policies and available resources.
Cross-Goal Benefits: What other goals may be advanced through this work?	Sustainable Fisheries, Vital Habitats (Stream Health-Brook Trout), Water Quality, Stewardship (Local Leadership), and Land Conservation

Table 2: Project Details

Technical Lead	Gunpowder Valley Conservancy
Detailed Statement of Work	The Gunpowder Valley Conservancy and several conservation partners have recently initiated a process to systematically rank and spatially delineate lands of highest resource value throughout the Gunpowder watershed (refer to attachment for list of resources and criteria). This includes three sub-watersheds designated as Healthy Watersheds (Gunpowder Falls, Little Falls, and Little Gunpowder Falls) and one sub-watershed identified as "marginal" (First Mine Branch). The total acreage of the Gunpowder River watershed is 288,000 acres and the total acreage

	of healthy watersheds within the Gunpowder is 80,223 acres (approximately 28% of the Gunpowder.) Driven by the five land trusts working within the watershed, the Gunpowder Watershed Conservation Project when completed will graphically map areas determined to be most important for sustaining optimal environmental conditions throughout the Gunpowder Watershed. Priority resource areas for protection based on partner land trust missions include agricultural lands, water quality, water quantity, and natural resource lands. High priority lands identified by each land trust will be combined creating a Conservation Agenda to guide future land protection efforts. We already have matching funds of $15,580 pledged towards creating the Conservation Agenda for the entire Gunpowder watershed. This grant will enable us to complete that project, which will provide essential baseline data for the healthy watersheds within the Gunpowder. In addition, after the Conservation Agenda for the Gunpowder watershed is completed, we will do additional work to create a more in-depth Strategic Plan for preserving priority parcels of land within the four healthy watersheds within the Gunpowder. Using the results of the watershed-wide priorities project, relevant resource categories will be identified for each of the three healthy watersheds (i.e. Brook Trout, optimal stream flows, aquatic macroinvertebrates, etc.). Guided by resource experts, criteria to identify lands critical for each resource will be selected and available spatial data assembled delineating the geographic extent of each criterion. Land trust staff and board members will then complete a pair-wise comparison survey which when processed (utilizing the Analytical Hierarchy Process software) will calculate a cumulative score for each criterion. The scores will then be assigned as weights within the spatial analysis process to map areas of high, medium and low priority for protection easements. The Conservancy, in partnership with the Harford Land Trust, Trout Unlimited, and public agencies, will guide completion of a detailed assessment and land conservation strategy for the Little Gunpowder Falls watershed. The assessment will field verify the presence of resources specific to sustaining a viable brook trout fishery, assemble a list of priority parcels and landowners, and rank parcels by potential for resource loss. This will provide an estimated total area (in acres) and relative sense of timing for comprehensive land protection in the sub-watershed. A letter of estimated value from a qualified conservation easement appraiser for parcels identified will guide fundraising efforts. Preparation of a strategic conservation plan-the synthesis of resource priorities, parcel-level assessment, and land value-will systematically guide land protection throughout the Little Gunpowder Falls drainage.

	Working as individual organizations and as a partnership, the assessment and strategic plan will be used to seek funding for land protection using a variety of conservation techniques (donated/purchased conservation easements or fee-simple acquisition) and post-protection stewardship monitoring. Relevant information for the Little Gunpowder Falls watershed will be provided to Baltimore and Harford Counties to draft a proposed Brook Trout Conservation District Overlay Zone. The reason that we will focus on brook trout is that the Little Gunpowder Falls is one of the best streams for brook trout in eastern Maryland, Trout Unlimited has funding for conservation easements to protect brook trout, and brook trout are of interest to agencies seeking to protect healthy watersheds because they are an indicator of other healthy values. This model approach will then be replicated in the Gunpowder Falls, Little Gunpowder and First Mine Branch encompassing all healthy watersheds within the Gunpowder. Stakeholder Participants: Land Preservation Trust, Long Green Valley Land Trust, The Manor Conservancy, Harford Land Trust, Harford County Department of Planning and Zoning, Baltimore County Agricultural Board, Baltimore County Department of Environmental Protection and Stewardship, Baltimore County Department of Planning, Prettyboy Watershed Alliance, and The Valleys Planning Council December 2015: Complete resource priorities for Gunpowder watershed through the Gunpowder Watershed Conservation Project (refer to attached list of resources and criteria) January 2016: Define important resources for protection, purpose for protection, and land selection criteria for the Gunpowder Falls, Little Falls, Little Gunpowder Falls, and First Mine Branch March 2016: Complete pair-wise comparison survey to develop relative rankings for all criteria April 2016: Priority lands mapped May/June 2016: Field check sample areas and verify priority lands with local resource experts July 2016: Identify corresponding parcels, land ownership, acreage, zoning and possible resource threats (using Chesapeake Bay Program growth model) September 2016: Obtain letter of estimated value for priority parcels December 2016: Develop strategies for resource protection, timing considerations (relative to possible resource threats) and develop narratives for fundraising

	Additional attachment:  GUNPOWDER-resources + criteria.docx
Estimated Project Duration	13 months (December 1, 2015 through December 31, 2016)
Outputs and Due Dates	*Maps of resource priorities* for the Gunpowder Watershed will provide important context for healthy watersheds, i.e. relative low acreage of healthy watersheds when compared to entire Gunpowder, information for effective fundraising, etc. *Strong, durable partnerships* forged during strategic planning process will greatly enhance the effectiveness and pace of land conservation *Strategic conservation plan* will guide numerous public and private organizations toward the shared common goal of protecting the Gunpowder's healthy watersheds in perpetuity
Description of Skills and Experience Required of awardee	Real estate and land stewardship, Conservation easement appraisal, Conservation biology, Geospatial analysis

Goal Implementation Team: Healthy Watersheds (GIT 4)

GIT Priority Ranking:

Table 1: Project Description

Project Title	Tracking Virginia's Healthy Waters
Project Category	Metrics and Implementation Projects
Goal/Outcome	A tracking mechanism and a tested approach linking to local TMDLs
Estimated Cost	$75,000
Justification: Description of why this work is needed in support of a management strategy?	The Virginia Healthy Waters Program (HWP) resides at the VA Department of Conservation and Recreation in the Division of Natural Heritage. Currently, the HWP employs 40% of an FTE as the Program Manager. This limited capacity hinders the ability to provide full resources to dedicate to Program implementation, therefore, the VDCR DNH provides staff support, as does the VA Commonwealth University (VCU), to implement other aspects of the Program including data acquisition and data management. While these resources assist in maintaining momentum in the Program, they are insufficient to address upcoming needs such as developing the tools and mechanisms to achieve the Goal of maintaining 100% of VA's identified ecologically healthy waters by 2025. Therefore, additional resources are necessary to implement the Program. Without additional resources, it is unlikely significant progress will be made to advance the Commonwealth of Virginia's Goal of maintaining 100% of State identified Healthy Watersheds.
Cross-Goal Benefits: What other goals may be advanced through this work?	This proposal builds upon several aspects: critical resource identification and protection at the VDCR Division of Natural Heritage; linking the VA HWP to the local TMDL planning process; education and outreach to clarify ecological health to impaired or restored waters; Habitat Goal Team 2 – Stream Health; Water Quality Goal Team 3- Land Use, Forestry, Watershed;

Table 2: Project Details

Technical Lead	Todd Janeski, VA DCR and VCU
Detailed Statement of Work [(1),(2)]	The State of Virginia Department of Conservation and Recreation, Division of Natural Heritage, in partnership with the VA Commonwealth University and the VA Department of Environmental Quality propose to conduct a threat assessment, develop a tracking mechanism and apply a draft resource protection approach to a Virginia identified ecologically healthy watershed. The VDCR will apply a newly completed vulnerability and threat assessment model (proposed completion, Jan, 2016) to those resources identified as ecologically healthy by the VA Healthy Waters Program using INSTAR and VDC DNH Biotics information. The threat assessment will be used to prioritize those waterbodies most at threat for being lost to land use changes. Based on the outcome of the vulnerability and threat assessment, cross referenced with the existing Biotics data for other ecologically critical resources, those resources that are identified as most

	critical for protection will be prioritized for protective actions, as outlined further in the proposal. Data was collected in the 2014 and 2015 sampling seasons focusing on re-sampled the oldest INSTAR data for the purpose of evaluating those resources to determine if the previously identified status may have changed (n=50, 2014 and n=50, 2015, respectively). These new data were initially sampled in 1994 in the lower Potomac, Rappahannock, York and James basins and supported with Chesapeake Bay Implementation Grant monies. An analysis was conducted to determine the rate of change for these watersheds. These data and outcome of analysis will be included in the prioritization scheme, due to limited resources beyond the HWP. The Project Team proposed to use new land-use, land-cover metrics for a subset of these and compare to a recent evaluation of landuse change as compared to INSTAR designation for the Tuckahoe Watershed with data from the early 1950s. As a result of this analysis and prioritization, we will apply a draft *Criteria for Ecologically Healthy Watershed Conservation* that was developed for a watershed outside the Chesapeake Bay (Chowan) as a means to integrate into the TMDL watershed planning process. The TMDL planning process currently employs standard nine-step criteria for watershed restoration, referred to as the Watershed Implementation Planning Process. This draft criteria proposes a similar nine-step process but is based on resource *protection* as opposed to restoration. The draft criteria is outlined as: *A. Quantify and verify the empirical basis for aquatic communities identified with high ecological integrity* *B. Identify conditions needed to maintain existing ecological integrity (e.g., sediment loadings)* *C. Identify best management practices and other preventative actions to achieve and maintain the system with high ecological integrity* *D. Estimate needed technical and financial resources* *E. Provide information, education and public participation component* *F. Include schedule for implementing Non Point Source (NPS) management measures* *G. Identify interim measurable milestones for implementation* *H. Establish criteria to determine high ecological integrity is maintained (eg. land cover as related to sediment)* *I. Provide a monitoring component to evaluate effectiveness* Concurrently, the VDCR DNH proposes to develop a tracking mechanism based on the assessment and process outlined in the initial phase of this proposal. As part of the strategies to maintain 100% of State identified Healthy Watersheds, this tracking mechanism will be critical to long-term implementation of the Program. The additional resources provided by funding this activity will assist in ensuring the State of Virginia is capable of meeting those goals and strategies, as identified in the Bay Agreement. The project team will include the VA DCR, DEQ, and VCU and expand as necessary, based on the identified resource to apply the *Criteria for*

	Ecologically Healthy Watershed Conservation. Local partners, VDOF, conservation districts and other pertinent stakeholders will be included once prioritized watershed is selected.
Estimated Project Duration	12 months
Outputs and Due Dates	0 month: initiate and ratify contracts 3 months: conduct initial assessment of vulnerability and threat to those identified ecologically healthy resources 6 months: crosswalk of threat assessment and LULC change analysis; prioritized list of candidate resources for conservation and protection actions; assess and convene relevant partners to evaluate application of *Criteria for Ecologically Healthy Watershed Conservation*; initiate development of tracking model and metric 9 months: identified watershed for application of *Criteria for Ecologically Healthy Watershed Conservation* including stakeholder engagement to develop conservation and protection plan; beta model for tracking watershed changes 12 months: final report including watershed protection plan, watershed tracking mechanism
Description of Skills and Experience Required of awardee	Project PI: Todd Janeski, Healthy Waters Program Manager, VDCR, DNH and VCU Center for Environmental Studies Co-PI: Dr Greg Garman, Director, VCU Center for Environmental Studies Co-PI: Tom Smith, Director, VDCR Division of Natural Heritage Project Partners: Jason Bulluck, VDCR DNH Data and Information Manager Liz McKercher, Manager, VDEQ Watershed Division James Davis-Martin, VDEQ Chesapeake Bay NPS Coordinator Nicole Sandberg, VDEQ Nonpoint Source Grant Manager Will Shuart, VCU GIS Specialist

1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies
2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Healthy Watersheds (GIT 4)

GIT Priority Ranking:

Table 1: Project Description

Project Title	Protecting Pennsylvania's Chesapeake Bay Watershed Healthy Waters Public Lakes.
Project Category	Implementation: Pilot Project on Harvey's Lake
Goal/Outcome	This project is related to the following Goals and Outcomes in the Chesapeake Bay Watershed Agreement: Healthy Watersheds Goal: Sustain state-identified healthy waters and watersheds recognized for their high quality and/or high ecological value. • Healthy Watersheds Outcome: 100 percent of state-identified currently healthy waters and watersheds remain healthy. Water Quality Goal: Reduce pollutants to achieve water quality necessary to support the aquatic living resources of the Bay and its tributaries and protect human health. • Water Quality Standards Attainment & Monitoring Outcome: Continually improve the capacity to monitor and assess the effects of management actions being undertaken to implement the Bay TMDL and improve water quality. Use the monitoring results to report annually to the public on progress made in attaining established Bay water quality standards and trends in reducing nutrients and sediment in the watershed. The primary objective of this pilot project is to sustain the health of a public lake (Harvey Lake) that has been identified as a currently healthy water in the Chesapeake Bay Watershed by the state of Pennsylvania (PA Special Protection – High Quality or Exceptional Value Waters). Specifically, this project aims to exceed criteria for aquatic life, recreational and potable water uses, and eliminate new threat of Nonindigenous Aquatic Species (NAS) in Harvey Lake. This will be accomplished by: 1. Reducing nutrient and sediment loading in the healthy waters public lake. 2. Eradicating (NAS) in the healthy waters public lake in order to prevent impairments to water quality. Another objective is to improve the capacity to monitor and assess the effects of management actions being undertaken to improve water quality.
Estimated Cost	$70,000

Justification: Description of why this work is needed in support of a management strategy?	Through more than ten years of progressive environmental stewardship and greener infrastructure practices the Harveys Lake community has made progress with phosphorus reduction. Lake water quality has improved to the point that the 622 acre public accessible lake was removed from the 2014 List of Impaired Waters. Momentum is good, but the new threat of invasive Hydrilla, was recently discovered in the lake. This threat to the local ecosystem and watershed must be eradicated and its spread into other unimpaired parts of the Chesapeake Bay drainage must be prevented. This new threat must be controlled while progress continues toward bringing Harveys Lake across the Heathy Watershed objectives threshold. The Harveys Lake Environmental Advisory Council (HLEAC) is working with Princeton Hydro Consulting. Harveys Lake is the largest natural lake in Pennsylvania and it is the headwater source of the High-Quality Coldwater Fishery classified Harveys Creek. Harveys Creek is a tributary to the Susquehanna River, which is the primary flow to the Chesapeake Bay. The intent to continue reducing nutrients and sediments in order to reduce loading to the Bay while preventing the spread of NAS are benefits and parallel goals of the local community, the Pennsylvania DEP, The Pennsylvania Fish & Boat Commission, and the Chesapeake Bay Program.
Cross-Goal Benefits: What other goals may be advanced through this work?	Healthy Watersheds, Water Quality Standards Attainment and Monitoring

Table 2: Project Details

Technical Lead	PA DEP

Detailed Statement of Work (1),(2)	**Background Information:** There is very good baseline water chemistry data. Regular monitoring of phosphorus and other water chemistry parameters has been ongoing since 1993. Harveys Lake was the site of at least ten studies and projects over the past 20 years, mostly funded through PA Growing Greener or Section 319 Non-Point Source funds. Continual progress has been made, long-term efforts have been successful and momentum is good as various portions of the Harveys Lake Watershed Implementation Plan are carried out. **Stakeholder Participants:** Harveys Lake Environmental Advisory Council, Princeton Hydro Consulting, Pennsylvania DEP, The Pennsylvania Fish & Boat Commission. **Sequence and Purpose of Work Activities:** 1. Continue working toward sustainability within the community including completion and maintenance of recently completed nutrient separating baffle boxes. 2. Continue reducing and removing phosphorus loading to the watershed and lake. Work entails maintenance of storm basin retrofits utilizing separating baffle boxes with water polishing units at multiple sites surrounding the lake. Within the lake floating wetland islands were installed in 2014 and upkeep is current. 3. Complete detailed NAS survey of the lake and test treatment methods. This will allow us to gauge the success of Hydrilla treatment while maintaining pondweeds and other species of the native plant community. Following treatments water samples will be collected from four times from four treatment areas and tested for fluridone to ensure optimal concentration and contact with the ANS. 4. Commence Hydrilla Eradication Program. Treatment will be conducted by certified pesticide applicators. Four split treatments will occur and water samples analyzed as in the previous work activity. Following the last treatment two divers and one limnologist will quantify the percent removal of the Hydrilla due to the herbicide applications. 5. Project Management, ongoing Monitoring and Community Outreach. Public outreach and education on invasive species will be presented by HLEAC. Princeton Hydro will join with HLEAC to participate in borough meetings. Both entities are experienced in this realm of education and outreach. HLEAC will take on management and administrative responsibilities related to the project and they will lead supplemental aquatic plant monitoring to identify success and be sentries of early detection for any NAS reintroductions that could occur.
Estimated Project	12-18 months
Outputs and Due Dates	1. Continually working toward sustainability within the community is a long-term on-going commitment for which a timeline is open-ended. 2. Reducing nutrient and sediment loading is a long-term on-going work objective for which a timeline is open-ended. 3. Reducing threat from Hydrilla infestation through herbicide treatment, education and outreach.

Description of Skills and Experience Required of awardee	Harveys Lake Environmental Advisory Council (HLEAC) HLEAC has many years of experience with management of several state funded grants and with educating local residents about environmental issues that face the lake. HLEAC maintains a website, a Facebook page, and publishes a newsletter, all of which will be used to highlight this project. Princeton Hydro, LLC. Fred D. Lubnow is Director of Aquatics Programs and has a Doctorate in the field of Limnology and more than 20 years of experience working on complex lake management issues and progressive solutions to ecological problems.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2)Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Maintain Healthy Watersheds, Cross GIT: Habitat/ Water Quality

GIT Priority Ranking:

Table 1: Project Description

Project Title	Frostburg State University Healthy Watershed Transferable Model Pilot Project
Project Category	Implementation Project
Goal/Outcome	Habitat Goal/Brook Trout Outcome
Estimated Cost	$80,000
Justification: Description of why this work is needed in support of a management strategy?	The Mid-Atlantic Highlands streams harbor over 150 fish species, including eastern brook trout, 75 mussel species, and 20 crayfish species. The rich aquatic diversity of the highlands is due in large part to the rugged mountain terrain dotted with thousands of isolated hollows and ridges. However for years, eastern brook trout have been declining throughout their range. Brook Trout have been historically found in the Sand Spring Run, a stream that runs through the campus of Frostburg State University (FSU). The U. S. Fish and Wildlife Service (USFWS) in conjunction with faculty at FSU and staff of the Western Maryland Resource Conservation and Development Council, are planning to undertake a pilot project to asses stream health on the campus, create a plan for restoration of stream habitat (1,500 feet along the Sand Spring Run) and adjacent wetlands, and use students of FSU to implement the restoration projects. The hope is that the project will result in a transferable model for restoration and revitalization of some of the most damaged ecosystems in Appalachia— those areas scarred by strip mining within the Mid-Atlantic Highlands. The USFWS Chesapeake Bay Field Office, Division of Habitat Restoration promotes a comprehensive approach to conduct watershed and natural stream restoration activities that preserve trust species of high priority and biological habitats within the Chesapeake Bay Watershed.
Cross-Goal Benefits: What other goals may be advanced through this work?	Habitat (Brook Trout Outcome); Habitat (Wetland Outcome), Water Quality (Watershed Implementation Plans), Habitat (Stream Health Outcome)

Table 2: Project Details

Technical Lead	Brian Jennings, USFWS
Detailed Statement of Work [(1),(2)]	USFWS biologists will conduct a robust watershed scale analysis of the hydrologic resources contained on the FSU campus. Restoration and

	enhancement prescriptions will be created based on thorough watershed analysis and function-based assessments. Prescriptions will address storm water retention and remediation, water quality improvements, fish habitat/ passage improvements, wetland habitat creation, and aim to involve FSU students in the restoration planning and implementation process. USFWS in conjunction with FSU and WMRC&D will use state-of-the-art, scientifically proven techniques that will result in innovative designs needed for restoration and revitalization of some of the most damaged ecosystems in the Mid-Atlantic Highlands.
Estimated Project Duration	1 year; Fall 2015 – Fall 2016
Outputs and Due Dates	• Hydrologic analysis and restoration plan for FSU campus. Due: October 2016. • Design for 1,500 feet stream restoration • Design for 5 acres of wetland restoration
Description of Skills and Experience Required of awardee	The USFWS Chesapeake Bay Field Office, Division of Habitat Restoration provides technical assistance to landowners and local, state, and federal agencies in evaluating and restoring watersheds.

1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies
2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Healthy Watersheds (GIT4)

GIT Priority Ranking:

Table 1: Project Description

Project Title	Evaluation of High-resolution Land Cover Change Methods
Project Category	Metrics
Goal/Outcome	Land Use Methods and Metrics Development Outcome
Estimated Cost	$40,000
Justification: Description of why this work is needed in support of a management strategy?	Tracking net changes in impervious surfaces, farmland, forests, and wetlands over time throughout the Bay watershed at spatial and temporal scales and levels of accuracy relevant to local jurisdictions will likely require the repeated production of high-resolution land cover products. High-resolution (e.g., 1m pixels) land cover maps can capture many landscape features not present in moderate-resolution (e.g, 30m pixels) land cover maps such as narrow riparian forest buffers (<=10m), urban tree canopy, and suburban and rural roads and structures. In addition, high-resolution land cover maps provide contextual information that aid in distinguishing residential, commercial, natural, and agricultural land uses. Monitoring land cover change at high-resolution, however, introduces and magnifies sources of error compared with monitoring change from moderate-resolution satellite imagery. Changes in sun angle, soil moisture, leaf-out phenology, vegetation cover, construction materials and other factors can lead to false detections of change. Moreover, not all change detectable at high-resolution is relevant to management decisions (e.g., the temporary appearance of barren or wet spots in fields or cars parked in fields during a special event). The science and technologies associated with remote sensing and image interpretation are rapidly evolving. A literature review of current capabilities and consultation with remote sensing professionals is needed to understand the current capabilities and potential costs associated with monitoring land cover change at high resolution.
Cross-Goal Benefits: What other goals may be advanced through this work?	This project is relevant to goals outlined by the Water Quality, Healthy Watershed, and Habitat Goal Implementation Teams. More specifically, it is relevant to the following outcomes: Healthy Watersheds, Protected Lands, Land Use Options Evaluation, Water Quality Standards Attainment Monitoring, Forest Buffer, Tree Canopy, Wetlands, and Black Ducks.

Table 2: Project Details

Technical Lead	Land Use Workgroup
Detailed Statement of Work [(1),(2)]	1. Review the scientific literature, agency reports, and consult with remote sensing professionals in the commercial and public sectors to document current and state-of-the-art methods for monitoring changes in agriculture, impervious surfaces, forests, and wetlands with multi-temporal high-resolution imagery.

	2. Document expected new and emerging national imagery products and ancillary data useful for classifying high-resolution imagery. 3. Document the challenges and expected accuracies associated with mapping land cover changes from high-resolution imagery and describe methods used to address the challenges specific to changes in agriculture, impervious surfaces, forests, and wetlands. 4. Document methods to distinguish land cover change relevant to CBP management decisions from minor, irrelevant change. 5. Assess the range of potential costs associated with current approaches for monitoring land cover change from high-resolution imagery.
Estimated Project Duration	12 months
Outputs and Due Dates	• 8 months- Literature review and consultation summary of high-resolution change detection methods • 11 months- Summary of pros and cons associated with different methods (including costs)
Description of Skills and Experience Required of awardee	• Research and scientific writing skills • Experience conducting literature reviews and interviews • Familiarity with current high-resolution remote sensing technologies and techniques

1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies
2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Submitted by the Stewardship GIT (GIT 5):

Page Number	Priority Ranking	Project Title	Submitted by	Cost
76	1	Phase II: Development of Baseline Indicator of Citizen Stewardship	Stewardship (GIT 5)	75,000
77-78	2	Public Access Data Quality Assurance and Application Integration	Stewardship (GIT 5)	35,000
79	3	Building the Individual and Collective Capacity of Local Land Trusts by Training Technical Service Providers	Stewardship (GIT 5)	30,000
80	4	Environmental Literacy/Sustainable Schools	Stewardship (GIT 5)	75,000
81	5	Chesapeake Conservation Partnership Staff Support	Stewardship (GIT 5)	30,000
Total				**245,000**

Goal Implementation Team: Stewardship (GIT 5)

GIT Priority Ranking: 1

Project Title	Phase II: Development of Baseline Indicator of Citizen Stewardship
Project Category	Metrics Development
Goal/Outcome	Stewardship Goal and Outcome
Estimated Cost	$75K
Justification: Description of why this work is needed in support of a management strategy?	The Citizen Stewardship Management Strategy stated that there must be a means to measure the progress and results of individual and collective citizen stewardship efforts in all communities across the watershed. In the first year of this stewardship metric development process, methodology was developed to quantify the extent to which the public is taking or willing to take individual actions and behaviors. The actions and behaviors targeted in this measurement tool where selected using guiding criteria such as: (1) involves individual decision-making, (2) is repetitive and can be tracked over time, (3) can be broadly adopted, (4) has an impact on water health, and (5) and/or will engage the public. Pilot level data will be collected via a randomly sampled general population survey in Fall, 2015 to test the viability of the survey instrument as well as provide preliminary data to inform the development of an aggregate index of citizen stewardship. Phase II of the development of a citizen stewardship metric will continue and expand the work completed in the first year of the metric development process in two ways. First, based on the results of the pilot survey, it will develop and test methodology to quantify and track volunteerism in order to fill data gaps left by the survey. Second, it will scale up implementation of the randomly sampled general population survey piloted in phase I in order have sufficient data compute a statistically significant stewardship index, e.g. baseline measure of citizen stewardship, at a state, regional, or county scale. The costs associated with collecting data increase as you drill down in scale and will be greater than the funds requested for this project. GIT 5 intends to use these funds as seed funds which will incentivize investments from Bay Program partners to leverage implementation of the tool for higher resolution data.
Cross-Goal Benefits: What other goals may be advanced through this work?	There are many cross-goal benefits as a result of this metric development. The diversity and local leadership would most directly benefit from the data collected. However, all goals would benefit as the data collected through this metric would contribute to an analysis that would generate an initial index of citizen behavior. This includes an intentional effort to collect data on demographics and social economic status that will enable the index to incorporate diversity of citizen stewardship as a key measure of progress. Understanding this behavior can assist in the development of local restoration and protection goals, design of local programs and strategies, and prioritization and targeting of future outreach and engagement actions.

Goal Implementation Team: Stewardship (GIT 5)

GIT Priority Ranking: 2

Table 1: Project Description

Project Title	Public Access Data Quality Assurance and Application Integration
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	Enhances public's ability to locate and use water access sites at the Bay and tributaries through dissemination of updated information on existing and new public access sites.
Estimated Cost	$35,000
Justification: Description of why this work is needed in support of a management strategy?	As a result of partner efforts over the last several years, existing public access sites have been comprehensively inventoried. This has created a geographic dataset of more than 1,200 existing public access sites. The intent of this effort has been to enhance the public's ability to interact with the waterways and resources of the Bay watershed, develop a strong appreciation for them, and a stronger stewardship ethic. Yet, the public lacks easy, comprehensive information for locating and using these sites. Providing access to the data through the use of APIs and the integration of the data into existing public-focused digital products would address this problem. It would help showcase efforts of Bay partners in enhancing public access opportunities and highlight the need for additional access.
Cross-Goal Benefits: What other goals may be advanced through this work?	This project would address the following goals: Public Access Goal: This project would enhance the public's ability to find and use suitable public access sites throughout the Bay watershed. Citizen Stewardship: By providing an easier way for people to connect with the Bay and its resources it would help maximize opportunities for the development of more citizen stewards. Diversity: An easily accessible web based tool would be available to the diverse Bay community allowing for more opportunities for underserved populations to learn about and explore the Bay.

Table 2: Project Details

Technical Lead	Michael Land, National Park Service

Detailed Statement of Work [(1),(2)]	The project would be broken down into three phases: **Phase I:** Quality Assurance: Public access data will be run though a quality assurance process to ensure that all points can be mapped safely and all amenities are correctly collected. Previous processes to quality assure the data resulted in the discovery of erroneous latitude and longitude information among other data adjustments. **Phase II:** Application Programming Interface (API) Development: A new API would be developed that exposes the public access dataset to be used by other developers and/or organizations around the Bay watershed. **Phase III:** Public Access Data Integration: By leveraging the API, public access data will be integrated into existing digital products such as the new Find Your Chesapeake (www.findyourchesapeake.com) web site and the Chesapeake Explorer application. Additionally, this data would be highly valuable for a planned river-based pilot project focused on interpreting a single river system in the Chesapeake such as the James or Potomac River. The access points will be critical parts of planning itineraries or paddling or exploring segments of the selected river.
Estimated Project Duration	November 2015 – October 2016
Outputs and Due Dates	**February 2016:** Quality assurance process complete: quality assured dataset ready for Phases II and III. **May 2016:** Application Programming Interface (API) complete: new API ready with data exposed to be leveraged in digital products **September 2016:** Data integration complete: public access data integrated into existing digital products. Public access data is mapped along with over 350 places around the Chesapeake region on the Find Your Chesapeake web site and the Chesapeake Explorer app, facilitating planning of trips (kayaking, canoeing) along the tributaries of the Chesapeake.
Description of Skills and Experience Required of awardee	Experience contracting with IT solution providers or in-house experience with data quality assurance, APIs and application design and development.

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team: Stewardship (GIT 5)

GIT Priority Ranking: 3

Project Title	Building the Individual and Collective Capacity of Local Land Trusts by Training Technical Service Providers
Project Category	Implementation Pilot Project
Goal/Outcome	Land Protection
Estimated Cost	$30,000
Justification: Description of why this work is needed in support of a management strategy?	This work would support the Land Trust Alliance in partnership with high-impact land trusts within the watershed to implement the first of a series of recommendations stemming from the recent Chesapeake Bay Watershed Land Trust Assessment, funded by the Chesapeake Bay Funder's Network. The Natural Resource Conservation Service (NRCS) Technical Service Providers (TSP) program fosters increased technical assistance skills within individual land trusts. The TSP program provides technical support with conservation planning and design for a variety of conservation activities. The Eastern Shore Land Conservancy has already plugged in to funding for centralized training that would extend the benefits to other land trusts and service areas in the Chesapeake. This project seeks funding to train and certify approximately 15 land trust staff as technical service providers. Funds are requested for TSP certification training and related follow-up meetings, including: 1. A portion of a staff person's time to coordinate and recruit staff 2. Participants' time and travel to attend a 3 day training at NRCS 3. Two post-training meetings to enable peer assistance and mentoring with advancing strategies and ideas in their new Technical Service Provider role The Chesapeake Conservation Partnership website would provide an online venue for tracking progress and promulgating best practices and lessons learned. In addition to furthering land protection goals, this project would strengthen the ability of land trusts to work together to achieve stewardship goals by creating a new team of stewards at the local level. It could also provide access to the NFWF Technical Service Provider program in the future.
Cross-Goal Benefits: What other goals may be advanced through this work?	Successful collaboration among land protection partners supports working lands, stewardship, habitat, and water quality management strategies and outcomes.

Goal Implementation Team: Stewardship (GIT 5)

GIT Priority Ranking: 4

Table 1: Project Description

Project Title	Sustainable Schools
Project Category	Workplan Development
Goal/Outcome	Environmental Literacy/Sustainable Schools
Estimated Cost	$75,000
Justification: Description of why this work is needed in support of a management strategy?	There are over 12,800 public schools serving over 7 million students in the states that drain into the Chesapeake Bay. These schools are collectively responsible for the management of tens of thousands of acres of land. The new Sustainable Schools Outcome gives the CBP an unprecedented opportunity to work with state and local governments to explore environmentally sustainable practices that improve the health of the Chesapeake Bay watershed while often saving the schools money which will allow them to continue these practices in perpetuity. These schools become examples of sustainability, reaching into communities and families in ways that few other organizations can. This funding would provide support for a competitive grant program for state and local capacity building efforts to advance sustainable schools planning and implementation, especially as it relates to audiences who have not traditionally been reached by CBP programs (e.g., state and local facilities directors, school building maintenance personnel, school architects). The funding would be used to support activities such as hands-on trainings, BMP guides, the installation of BMPs at schools, and/or student programming based on these BMPs. If awarded, this funding would represent the first investment of CBP funding towards sustainable school projects.
Cross-Goal Benefits: What other goals may be advanced through this work?	This project has the potential to advance priorities for all GITs -- from increasing trees planted in riparian buffers and native plants planted in wildlife gardens, to mitigating carbon by choosing green energy and eliminating idling time of busses. In particular, the Education Workgroup has begun to outline work with the EPA that would improve stormwater management on school grounds in support of MS4 permits. The effort also supports agency priorities not fully represented in the new agreement such as the healthy schools efforts championed by the EPA and the District of Columbia. As an added benefit to the entire CBP, the lessons that students learn through sustainable school projects that they are involved in teach them valuable lessons about how to think critically about the environmental challenges that we face, thereby increasing stewardship of the next generation. This makes our job easier in the future.

Goal Implementation Team: Stewardship (GIT 5)

GIT Priority Ranking: 5

Table 1: Project Description

Project Title	Chesapeake Conservation Partnership Staff Support
Project Category	Workplan Development; Implementation Projects; Metrics
Goal/Outcome	Land Protection
Estimated Cost	$30,000
Justification: Description of why this work is needed in support of a management strategy?	This funding would match Maryland DNR and NPS funding to support an existing staff coordinator position for the Chesapeake Conservation Partnership. This staff person primarily directs and carries out biennial work plan tasks under the Protected Lands management strategy. The position supports federal, state and local efforts to carry out work plan items to achieve the two million acre land protection goal. Staff has a detailed work plan and milestones and reports to the NPS and Chesapeake Conservancy. In FY16, staff would facilitate actions outlined in the biennial work plan, primarily directing project implementation and tracking and reporting progress to the CBP and partners. The Chesapeake Conservation Partnership connects over 50 diverse organizations working on land and resource conservation in the Chesapeake. The Partnership brings together government agencies, tribes, and NGOs to address conservation challenges at a landscape scale through the Protected Lands management strategy work plan. The dedicated staff person provides value to the Partnership by coordinating various working groups, organizing the group's annual gathering, and facilitating communication among the partners.
Cross-Goal Benefits: What other goals may be advanced through this work?	As with the protection management strategy, successful collaboration among land protection partners supports public access, stewardship, and water quality management strategies and outcomes.

Table 2: Project Details

Technical Lead	National Park Service / Chesapeake Conservancy
Detailed Statement of Work	
Estimated Project Duration	$30,000 would by matched 1:3 to fund a position for FY16.
Outputs and Due Dates	
Description of Skills and Experience Required of awardee	

Submitted by the Partnering and Leadership GIT (GIT 6):

Page Number	Priority Ranking	Project Title	Submitted by	Cost
83	1	Local Officials' Resource/Information Needs Assessment	Partnering and Leadership (GIT 6)	30,000
84-86	2	Designing a Watershed Education Program for Local Elected Officials	Partnering and Leadership (GIT 6)	75,000
Total				**105,000**

Goal Implementation Team: Enhance Partnering, Leadership and Management

GIT Priority Ranking: 1

Table 1: Project Description

Project Title	Local Officials' Resource/Information Needs Assessment
Project Category	Workplan Development; Metrics; Implementation Projects
Goal/Outcome	Stewardship Goal/Local Leadership Outcome – Continually increase the knowledge and capacity of local officials on issues related to water resources and in the implementation of economic and policy incentives that will support local conservation actions.
Estimated Cost	$30,000
Justification: Description of why this work is needed in support of a management strategy?	Several Goal Implementation Team (GIT) management strategies (MS) identify knowledge and/or capacity of local officials as a major factor influencing goal achievement. Work plans are being developed by several different GIT workgroups to address this factor. Some include suggested methods for transferring information to local officials, such as web sites, workshops, etc. The Local Leadership MS identified the abundance of information, information sources, and delivery mechanisms as a factor influencing (too much information; information not in an easily accessible/usable format, etc.). Developing more information and putting it out without addressing the factor identified in the Local Leadership MS and other MSs may prove ineffective and potentially exacerbate the problem and frustrate local officials. This project will (1) systematically assess the needs of the various GIT workgroups as they relate to increasing knowledge and capacity of local officials; (2) catalogue methods and platforms for information transfer identified in work plans; (3) develop a strategic approach to developing and conveying the information, tools and resources needed by local officials; and (4) identify appropriate elements to be addressed in the current and future Local Leadership Work Plan.
Cross-Goal Benefits: What other goals may be advanced through this work?	Multiple Cross-Goal Benefits. All 2014 Watershed Agreement goals that depend on increasing local officials' knowledge and/or capacity will be advanced by approaching the development and transfer of knowledge strategically.

Goal Implementation Team: Enhance Partnering, Leadership and Management (GIT 6)

GIT Priority Ranking: 2

Table 1: Project Description

Project Title	Designing a Watershed Education Program for Local Elected Officials
Project Category	Workplan Development; Metrics; Implementation Projects; Other
Goal/Outcome	Stewardship Goal/Local Leadership Outcome – Continually increase the knowledge and capacity of local officials on issues related to water resources and in the implementation of economic and policy incentives that will support local conservation actions.
Estimated Cost	$75,000
Justification: Description of why this work is needed in support of a management strategy?	This project, to design the structure of a mechanism to deliver a comprehensive, coordinated, consistent, and effective program to local elected officials to increase their knowledge and capacity to adopt supportive conservation laws, policies and funding, is critical to achieving watershed restoration and fulfilling the 2014 Watershed Agreement (the Agreement) goals. This project will directly support the Local Leadership Management Strategy to "develop, enhance and expand training and leadership programs" and to "improve transfer of knowledge to local officials." Depending on the design of the program that is created, it can also support the strategies to "increase peer to peer knowledge transfer among local officials" and "identify and improve key knowledge and information sources." In recognition of the fact that much of the work to meet the TMDL and achieve the Agreement's restoration goals must be done on the local level, a previous report the "*Assessement of Local Leadership Development Programs" (the Assessment),* was funded to determine whether the Bay Program should offer a new program to increase the knowledge and capacity of local leaders. The *Assessement* found that local officials need training and development to learn declarative (factual) knowledge as well as procedural knowledge on what kinds of policies, laws and funding are needed and the skills to get them adopted. No existing programs fill this critical need so the *Assessment* recommended a new effort be undertaken that will maximize coordination of existing leadership programs and leverage resources. Three delivery mechanisms were suggested, a stand-alone umbrella group, state led efforts and occasional topical programs funded by the Bay Program. Five types of educational experiences were recommended for a successful program. They are: 1) exposure to expertise 2) peer-to-peer workshops 3) site visits to see first-hand what has worked and what has not, 4) a "Shed Talks" film series to concisely convey watershed issues and requirements, and 5) an online discussion forum, information repository, and action toolkit tailored for elected officials.

Cross-Goal Benefits: What other goals may be advanced through this work?	Many of the Agreement's goals such as improving water quality, limiting conversion of forests and farms, increasing urban tree canopy, protecting healthy watersheds, and increasing public access depend on local elected officials adopting supportive policies laws and funding. By increasing the knowledge of local officials about what needs to be done, and why, and increasing their capacity to adopt local laws, policies and funding this project will support all of the aforementioned goals.

Table 2: Project Details

Technical Lead	
Detailed Statement of Work [(1),(2)]	1. Convene an advisory group of active and successful local government officials, communications professionals, watershed restoration experts and leadership institute experts identified in the *Assessement* report as doing the best job of delivering either leadership skills or environmental issues content, to guide the selection and design of a delivery mechanism. This advisory group will work in close consultation with the local leadership workgroup and the Enhancing Partnering, Leadership and Management Goal Implementation Team (GIT 6) and the Local Government Advisory Committee (LGAC). 2. Survey a sample of local governments throughout the watershed to find out what their specific needs are and collaborate with other groups to determine what their current level of knowledge and capacity are. 3. Work with the advisory group, local leadership workgroup, GIT6 and LGAC to decide the content of a common curriculum that addresses big picture Watershed restoration issues like what is broken, what needs to be fixed, how do we fix it and who is doing what in the watershed, and to decide what the content of individualized tracks such as stormwater and agriculture should be. 4. Use three options recommended in the *Assessment* report as a starting point to design a program that will coordinate existing resources to develop a structure for a program that will deliver basic knowledge of the issues in watershed restoration and Watershed Agreement goals and empower local officials to take concrete actions like adopting laws, policies and securing funding to achieve restoration goals. 5. Develop a methodology for targeting local elected officials for the local leadership increased knowledge and capacity outcome. 6. Develop an annual budget and a plan to establish funding for long term support of this effort.

Estimated Project Duration	One year
Outputs and Due Dates	Three reports delivered to GIT 6 over the span of the project: • Report 1: Summarizing the results of tasks 1 and 2 above (6 months from start) • Report 2: Summarizing the results of task 3 above (3 months after acceptance of Report 1) • Report 3: Summarizing the results of tasks 4, 5 and 6 above (3 months after acceptance of Report 2)
Description of Skills and Experience Required of awardee	1. Familiarity with the design, function and evaluation of Leadership Development Programs. 2. Experience working with local government officials, and knowledge of local government budget processes. 3. Experience developing environmental curriculum. 4. Experience in communications. 5. Knowledge of TMDL requirements and Watershed Agreement Goals and Outcomes.

1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies
2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Submitted by STAR:

Page Number	Priority Ranking	Project Title	Submitted by	Cost
88-90	1	Cross-Goal Climate Resiliency Analysis Matrix and Implementation Methodology	Climate Change Workgroup	80,000
91-92	2	Evaluate and Quantify Climate Resiliency Benefits of Existing Water Quality BMPs	Climate Change Workgroup	60,000
93-94	3	Climate Resiliency Data and Information Portal	Climate Change Workgroup	40,000
Total				**180,000**

Goal Implementation Team/Work Group: Climate Resiliency Work Group

GIT/Work Group Priority Ranking: 1

Table 1: Project Description

Project Title	Cross-Goal Climate Resiliency Analysis Matrix and Implementation Methodology
Project Category	Implementation Project
Goal/Outcome	Climate Resiliency: Monitoring/Assessment and Adaptation
Estimated Cost	$80,000
Justification: Description of why this work is needed in support of a management strategy?	One of the highest priority key actions included in the Climate Resiliency Work Group's Draft Work Plan is the development of a science-based framework to engage one-on-one with GITs to identify, assess, evaluate and revise, as necessary, climate-related elements of individual management strategies. This project would result in the development of a climate resiliency assessment matrix and implementation methodology to analyze climate-related factors for 24-independent Management Strategies. Using the Climate Smart Conservation Framework as a guide, the matrix would be used to: 1) review management goals and outcomes and establish baselines; 2) identify data, research, monitoring and assessment needs; 3) evaluate the effectiveness of existing BMP's; and 4) consider appropriate adjustments, revisions or modifications to proposed management actions or best management practices. Funding would support the matrix development and implementation of two Cross-Goal Climate Resiliency Assessment Pilot Projects.
Cross-Goal Benefits: What other goals may be advanced through this work?	The broad objective of the Watershed Agreement Climate Resiliency Goal is to increase the resiliency of the CB Watershed to the effects of climate change and their interaction with other existing stressors. To achieve this, broad integration of climate considerations across all other goals and outcomes will be necessary. To that end, 17 Management Strategies reference climate-related factors; and 8 of these include a climate component within the specified management approach. This project will result in the development of a Climate Resiliency Analysis Matrix Tool for use over time to the benefit of all GITs; with near-term cross-goal benefits for the two selected outcomes for pilot implementation. The Climate Resiliency Work Group is currently conversing with several Work Group Chairs and/or Coordinators to explore readiness and interest before selecting the two outcomes. Preliminary (and positive) discussions have taken place regarding the Black Duck, Brook Trout, SAV, Protected Lands and Wetlands Outcomes.

Table 2: Project Details

Technical Lead	Zoë Johnson, CBP Climate Change Coordinator

Detailed Statement of Work [(1),(2)]	The Chesapeake Bay Watershed has experienced changes in climate over the last century. On the whole, the Watershed is experiencing stronger and more frequent storms, an increase in heavy precipitation events, increasing bay water temperatures and a rise in sea level, trends that are expected to continue over the next century. These trends, which vary both spatially and temporally throughout the Watershed, are altering the ecosystems, the watershed, and the human communities of the Chesapeake Bay and will require changes in policies, programs and projects to successfully achieve restoration, sustainability, and conservation and protection goals for the Chesapeake Bay watershed. The Watershed Agreement includes 29 individual strategies to be developed and implemented by six GITs and various Work Groups. In many cases the effect of climate change on individual outcomes is not well understood, and in other cases it is established and moving forward. For example, with respect to goals and outcomes for Vital Habitats, the outcome of creating/reestablishing 85,000 acres of wetlands and enhancing the functions of another 150,000 acres should be carefully coordinated to include climate change resilience. The Climate Work Group has adopted a management approach that will require close coordination across the GITs to ensure that efforts to consider climate change effects in the strategies are consistent and complementary in their approach. The Management Strategy lays out a process to work closely with the GITs to prioritize those aspects of climate change that have the most impact on achieving outcomes, establish a research agenda for those outcomes where the effect of climate change is not well understood, and determine whether suitable monitoring exists within the Chesapeake Bay to establish baselines and assess progress related to climate change. One of the highest priority key actions included in the Climate Resiliency Work Group's Draft Work Plan is the development of a science-based framework to engage one-on-one with GITs to identify, assess, evaluate and revise, as necessary, climate-related elements of individual management strategies. The Climate Resiliency Management Strategy framed its Management Approach around the *Climate-Smart Conservation Cycle* developed by an expert group empanelled by the National Wildlife Federation (Stein et al. 2014). The Climate-Smart Cycle features seven steps in an iterative process, to be informed by monitoring and assessment at each step of the cycle. Using the Climate Smart Conservation Cycle as a guide, the project would result in the development of a Climate Resiliency analysis and decision-making matrix to enable individual Work Groups to1) review management goals and outcomes and establish baselines; 2) identify data, research, monitoring and assessment needs; 3) evaluate the effectiveness of existing BMP's; and 4) consider appropriate adjustments,

	revisions or modifications to proposed management actions or best management practices. Funding would support the matrix development and the implementation of two (to be selected) Cross-Goal Climate Resiliency Assessment Pilot Projects. Specific project outputs would include: 1. Literature Review 2. Compilation of existing climate vulnerability assessment data and information 3. Climate Change Analysis Matrix Development 4. Workshop Preparation and Design (including 2 pre-workshop calls) 5. Conduct Workshops (facilitation and note-taking) 6. Synthesis and Results Write-up
Estimated Project Duration	Two- year duration; time period flexible but tentatively set to extend between November, 2015 – October, 2017
Outputs and Due Dates	1. Literature Review – Due Date (TBD) 2. Compilation of existing climate vulnerability assessment data and information – Due Date - (TBD) 3. Climate Change Analysis Matrix Development - Due Date (TBD) 4. Workshop Preparation and Design (including 2 pre-workshop calls) – Due Date (TBD) 5. Conduct Workshops (facilitation and note-taking) – Due Date (TBD) 6. Synthesis and Results Write-up – Due Date (TBD)
Description of Skills and Experience Required of awardee	• Facilitation skills • Research and analytical skills • Expertise in structured decision-making processes • Expertise is basic ecosystem management and conservation planning • Expertise in climate change vulnerability assessments, coupled with adaptation planning principles and actions • Technical report writing and editing

1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies
2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team/Work Group: STAR, Climate Resiliency Work Group

GIT/Work Group Priority Ranking: 2

Table 1: Project Description

Project Title	Evaluate and Quantify Climate Resiliency Benefits of Existing Water Quality BMPs
Project Category	Metric Developments and Tracking
Goal/Outcome	Climate Resiliency: Monitoring/Assessment and Adaptation
Estimated Cost	$60,000
Justification: Description of why this work is needed in support of a management strategy?	Further research initiatives are imperative to better develop methodologies that address notable gaps outlined in the Climate Resiliency Management Strategy. Improved scientific capabilities to monitor, model, and assess ecosystem impacts and response to restoration and protection policies, programs and projects (such as TMDL or other BMP implementation) are critical. These include a broader understanding of climate impacts that can be mitigated through implementation of the existing water quality BMPs. Funding for this research would serve to benefit implementation of restoration efforts for both climate outcomes across forest, agricultural, and urban sectors. Within these sectors, the CB Partnership is currently pursuing implementation of a suite of on-the-ground water quality BMP's implementation projects. While at the time, the Modeling Work Group is currently overseeing the process to integrate climate change considerations into the 2017 mid-point assessment. Among other decision-points, the results of the mid-point assessment will be used to guide development and implementation of the Phase III WIPS. This project is aimed at quantifying the value that the suite of existing water quality BMP's provide in terms of increasing climate resilience (e.g., flood attenuation, storm surge reduction, marsh migration facilitation, stream temperature moderation). This will be valuable information to the Partnership as it begins the process to explore the range of policy options and on-the-ground implementation practices to address 2017 mid-point assessment results
Cross-Goal Benefits: What other goals may be advanced through this work?	The broad objective of the Watershed Agreement Climate Resiliency Goal is to increase the resiliency of the Chesapeake Bay Watershed. To achieve this, broad integration of climate considerations across all other goals and outcomes will be necessary. To that end, 17 Management Strategies reference climate-related factors; and 8 of these include a climate component within the specified management approach. This research will serve to better determine what BMPs that benefit the Climate Resiliency Outcomes can also guide the restoration efforts of related management strategies. Essentially, steps should be taken to ensure that restoration efforts are made climate smart by considering and integrating changing climatic conditions, sea-level rise, and storm surge factors in the pursuit, design, implementation, and long-term maintenance of restoration

	components of each Management Strategy.

Table 2: Project Details

Technical Lead	Zoë Johnson, CBP Climate Change Coordinator
Detailed Statement of Work [(1),(2)]	
Estimated Project Duration	18 months
Outputs and Due Dates	Literature Review BMP-Climate Resiliency Analysis Synthesis and Results Write-up
Description of Skills and Experience Required of awardee	

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required

Goal Implementation Team/Work Group: STAR, Climate Resiliency Work Group

GIT/Work Group Priority Ranking: 3

Table 1: Project Description

Project Title	Climate Resiliency Data and Information Portal
Project Category	Implementation Project
Goal/Outcome	Climate Resiliency: Monitoring/Assessment and Adaptation
Estimated Cost	$40,000
Justification: Description of why this work is needed in support of a management strategy?	An element of both the Monitoring and Assessment as well as Adaptation workplans is to increase availability and access to monitoring and assessment data to support stakeholder discussions on impacts of climate change on the Bay. Also identified is the need to share current efforts, including policy, tools, and data products, with all interested parties, as well as partner organizations conducting climate related planning and research efforts. There are numerous climate information and data portals, which provide access to climate data, information, planning products and tools. Information and data portals catalogued throughout current efforts search (i.e. VIMS, U.S. Climate Resiliency Toolkit, DNR's Online Vulnerability Mapping tool, EPA Inventory, NOAA Data Center, USFW Northeast Species Vulnerability Index) all contain valuable information that is spread out over multiple portals. Although many portals exist, there is not one specific to the Chesapeake Bay Watershed. This project is not intended to duplicate existing or planned information portals, but to collect and synthesize select Chesapeake Bay related products, including GIS map layers (i.e., CB Watershed sea level rise inundation maps) for dissemination and utilization to various end-user groups. The portal would also serve as the platform to provide access to new monitoring and assessment data, and other climate related products (i.e., CB Watershed sea level rise, temperature and precipitation projections) to be derived through implementation of various elements of the Climate Resiliency workplan, including the planned 2015 STAC workshop on uniform climate projections.

Cross-Goal Benefits: What other goals may be advanced through this work?	Data collected during the monitoring and assessment component as well as through implementation of current efforts, including policy, tools, products, and scientific understanding, must be accessible and able to support stakeholder discussions. This can best be achieved by synthesizing the data and information, and data synthesis and mapping products available through other institutions developing state- or region-specific portals. This output would help build the capacity among the Chesapeake Bay Program partnership to understand and address the consequences of climate change Bay-wide.

Table 2: Project Details

Technical Lead	Zoë Johnson, CBP Climate Change Coordinator
Detailed Statement of Work [(1),(2)]	
Estimated Project Duration	
Outputs and Due Dates	Data Information Portal for Bay-wide Climate resiliency data and current efforts including policy, tools, products, and synthesis products.
Description of Skills and Experience Required of awardee	

(1) Provide a description of background information, stakeholder participants, the sequence and purpose of work activities, and how the outputs are to be used in implementing CBP management strategies

(2) Indicate whether environmental data will be generated and whether a quality assurance plan will be required