

EPA Community Grant Application

Appendix E: Community Grants Workplan Contents/Outline

Anne Arundel County Rock Creek Stream- East Branch

Name of Applicant and Project Title Project: Anne Arundel County, Maryland Rock Creek Stream- East Branch

Objective(s) and Need:

Narrative, how project will resolve need/purpose.

This proposal outlines the Rock Creek Stream- East Branch Restoration Project, a critical initiative to address severe stream degradation within the Rock Creek sub-watershed in Pasadena, Maryland. Driven by historical urbanization and insufficient stormwater management, the stream exhibits extensive channel incision, bank erosion, and impaired ecological function. The project proposes a comprehensive restoration of approximately 3,400 LF of stream utilizing Regenerative Stormwater Conveyance (RSC) and valley restoration techniques. This approach aims to stabilize actively eroding channels, re-establish riparian wetlands, enhance water quality through significant reductions in sediment and nutrient loads, and restore vital aquatic and riparian habitats. The project directly supports Anne Arundel County's National Pollutant Discharge Elimination System (NNPDES) Municipal Separate Storm Sewer (MS4) permit requirements and contributes to meeting Chesapeake Bay Total Maximum Daily Load (TMDL) allocations.

The overall project drainage area is approximately 0.52 square miles (330 acres) and is composed of approximately 28 percent impervious area. The project drainage area is located within the Baltimore Harbor Watershed (02-13-09-03). The Baltimore Harbor Watershed is approximately 117.1 square miles (74,900 acres) and is a mix of urban residential, commercial, and forested land uses.

The Baltimore Harbor watershed was first identified on the 1998 303(d) List submitted to United States Environmental Protection Agency (EPA) by the Maryland Department of the Environment (MDE) as impaired by Chlordane and polychlorinated biphenyls (PCBs) in fish tissue. The PCBs in fish tissue impairment were also added to the impoundment known as Stansbury Pond in 2012. On the 2014 303(d) List, as a result of a Biostressor analysis, several impairments were added and are as follows: lack of riparian buffer, habitat alterations (stream channelization), sulfate, and chloride, and total suspended solids (TSS).

As a result of the 303(d) Listings, several TMDLs have been established and approved for the Baltimore Harbor watershed. On March 23, 2001, a Chlordane TMDL was approved by the EPA. On December 17, 2007, nitrogen and phosphorus TMDLs were approved by the EPA. On December 29, 2010, the Chesapeake Bay TMDL was approved by the EPA. On March 10, 2011, an enterococci TMDL was approved by the EPA for Furnace Creek and Marley Creek. On October 1, 2012, a PCBs TMDL was approved by the EPA including loads from Bear Creek and Curtis Creek. On January 5, 2015, a trash TMDL was approved by the EPA. On January 27, 2022, a TSS TMDL was approved by the EPA for non-tidal sediment.

The project is intended to address WLAs to meet TMDLs for the Chesapeake Bay as mandated by the EPA under section 402(p) of the Clean Water Act. The Chesapeake Bay TMDL sets watershed limits for nitrogen, phosphorus, and sediment, and the Project will provide reduction of these pollutants.

The Rock Creek sub-watershed suffers from widespread stream degradation due to the cumulative impacts of urban development and inadequate stormwater infrastructure. Specifically, the project area exhibits:

- **Channel Incision and Bank Erosion:** The stream channels are deeply incised with actively eroding banks, leading to significant sediment and nutrient contributions to downstream receiving waters. Exposed sanitary sewer infrastructure in multiple locations highlights the severity of the erosion and poses a risk to public utilities.
- **Disconnected Floodplain:** Historic channel alterations have disconnected the stream from its floodplain, preventing natural hydrologic exchange, reducing pollutant uptake, and limiting riparian wetland

establishment. This disconnection exacerbates flashy flow regimes, leading to increased erosive forces during storm events.

- **Degraded Habitat and Water Quality:** The altered hydrology and geomorphology have resulted in degraded aquatic and riparian habitats. Pollutant loads from sediment and attached nutrients contribute to impaired water quality within the Rock Creek sub-watershed, which is part of the impaired Baltimore Harbor Watershed.

Project Description

Narrative, maps, photographs, relevant design parameters etc. Clearly defined scope of work, outlining all activities to be performed under the grant; detailed description of the proposed project, summary of deliverables. Framework for managing the project, explanation of the approach, procedures, and controls for ensuring that awarded grant funds will be expended in a timely and efficient manner; evaluating performance and reporting progress toward achieving the expected outputs and outcomes. How tasks/activities will be undertaken. The scope of work must be in conformance with the project description. Budget narrative that links the budget to workplan tasks activities and includes source(s) of non-federal cost share.

The purpose of this construction project is to restore 3,400 LF of degraded stream channel. The project is located in the Rock Creek watershed of Pasadena, MD. EPA grant funds will be used exclusively to reimburse County contractual costs for the construction of the project. All work will be executed through contracted construction services managed directly by Anne Arundel County, ensuring full compliance with federal funding guidelines. No equipment will be purchased during the project with EPA funds.

The proposed design approaches utilize a combination of Regenerative Stormwater Conveyance (RSC) systems and valley restoration with valley wide weirs. These approaches have proven successful in similar contexts within Anne Arundel County.

The project is divided into four distinct reaches: RC-1, RC-2, RC-3, and RC-4. Environmental constraints, including existing utilities, property easements, and potential fish habitat areas, have been carefully considered to ensure an environmentally sensitive design.

RC-1 begins at the Hog Neck Road culvert. 475 linear feet of the existing ephemeral channel will remain before a series of valley wide weirs, sized to convey the 100 year storm event, are proposed. The first valley wide is raised above the existing floodplain and backwaters the existing channel upstream approximately 170 linear feet. A valley wide weir structure is placed downstream strategically of an existing ephemeral channel on the right bank in order to sufficiently backwater the channel.

RC-2 continues utilizing a series of valley wide weirs that are sized to convey the 100-year storm event and reconnect to the existing floodplain/terrace. To address the failed storm drain outfalls that originate at an 18- and 21-inch CMP (OP-1 and OP-2), the pipe inverts will be backwatered by the downstream valley wide weir.

The existing stormwater facility and outfall channel will be repaired by BWPR prior to this project and will have a valley wide weir structure placed downstream to backwater to the outfall pipe invert. In the two instances of exposed sanitary sewer pipes, the proposed channel will be raised to provide sufficient cover and sewer pipe protection will be added. The valley wide weirs continue through Reach 3 and two riffle grade controls will be utilized to tie into the existing stream downstream.

RC-4 begins at a 27-inch storm drain outfall. An RSC system is proposed along the entirety of RC-4. The RSC system will consist of riffle-weir and pools in series. Along the entire project, pools will have organic

shapes and will be no more than two feet deep.

<i>Project Title</i>	<i>Description</i>	<i>Location (lat/long) Decimal degrees</i>	<i>8-digit watershed</i>	<i>Status (Design/ Planning, Permit, Construction)</i>	<i>Estimated Reductions</i>	<i>Deliverables</i>
Rock Creek- East Branch	Restore a segment of Rock Creek to reduce downstream sediment and nutrient export.	<i>Latitude</i> 39.1361388889 <i>Longitude</i> -76.5243333333	02060003 - Patapsco	Design	825 lbs N; 162.8 lbs P; 796.2 tons Sed/TSS; 105.9 MS4 Impervious Acre Credit	3,400 linear feet stream restoration

The Rock Creek- East Branch Stream Restoration 90% Design Development Plans are attached, along with a project map for location context.

BayLand Consultants and Designers, Inc. was contracted to provide engineering analysis and design services due to their high-quality performance in previously contracted projects with the County and competitive pricing. For construction implementation, all procurement processes, including direct contracts and sub-contracts, will comply with the competitive Procurement Standards set forth in 2 CFR 200.317 – 2 CFR 200.327. Disadvantaged Business Enterprises (DBEs) will be directly solicited. Anne Arundel County will oversee the procurement process. Inspection of the construction will be conducted by a third-party engineering firm to verify that construction methods are per the plans and specifications.

Gerry Inglesby is the Anne Arundel County BWPR Project Manager assigned to the Rock Creek East Branch Restoration project and will be managing the implementation of this restoration activity. As a project manager for the County's watershed program, Gerry has been responsible for the oversight of design and construction on many restoration projects. The Rock Creek East Branch project represents the largest project to date, but at its core, the design and restoration concepts for each phase mimic most other projects. Gerry has also worked on many projects with the Bayland design team which lends itself well to seamless navigation of the permitting and construction process.

Katie Mullen is the Anne Arundel County BWPR Grants Manager and will provide grant administration for the Rock Creek East Branch Restoration Project throughout the life of the grant award including the following tasks:

- preparation and submission of the grant application,
- attending all meetings as necessary,
- preparing and submitting reports required by the funding agency,
- monitoring proper bidding and procurement procedures per funding requirements, and
- preparing and submitting final closeout documents.

The project team, consisting of the AACo Project Manager, Grants Manager, Bayland Inc, the construction contractor, AACo Inspection and Permitting office, and other relevant County bureaus as needed, will hold monthly meetings to review the project's progress and ensure that expected outputs and outcomes are on schedule.

Budget

Proposed Project Financial Summary:

The cost estimate of construction of all proposed improvements is approximately \$3,895,000. This is approximately \$1,125 per linear foot of restoration or \$36,775 per impervious acre treated. Anne Arundel County derives its Capital Improvement budget from annual local stormwater fees. \$1,894,726.55 of these funds will be leveraged funds to the project, including \$500,000 for the federal match requirement. The additional \$1,394,726.55 will come from the County's Capital Improvement budget. All EPA funds will be used to cover contractual costs for the construction of the Rock Creek-East Branch project. No equipment will be purchased during the project with EPA funds. **Anne Arundel County, Maryland is NOT requesting pre-award funds from the EPA Community Grants Program in any amount.**

Funding Source	Amount	Description
Anne Arundel County, Maryland	\$1,894,726.55	Sourced from local stormwater fee revenues within the County's Capital Improvement Project (CIP) budget. Includes \$500,000 for the required federal match and \$1,394,726.55 in additional local funding.
Congressionally Directed Spending	\$2,000,000.00	Reimburses County contractual costs for project construction.

Category	Congressionally Directed Spending	Anne Arundel County, Maryland	Total
Personnel	\$0	\$0	\$0
Fringe	\$0	\$0	\$0
Equipment (>\$5,000)	\$0	\$0	\$0
Field Supplies	\$0	\$0	\$0
Travel	\$0	\$0	\$0
Office Supplies	\$0	\$0	\$0
Contractual			
AACo Required Match		\$500,000.00	
AACo Capital Improvement Funds		\$1,394,726.55	
Total Contractual	\$2,000,000	\$1,894,726.55	\$3,894,726.55
Indirect/Admin	\$0	\$0	\$0
Total	\$2,000,000	\$1,894,726.55	\$3,894,726.55
Position title: _____ number of hours on project: ____			
hourly pay rate: \$ _____ salary request: \$ _____			
fringe %: _____ fringe request: \$ _____			
Equipment:			
Field Supplies			
Travel:			
Office Supplies			
Contractual: \$2,000,000.00 is requested for partial reimbursement of earthwork/restoration construction services for Rock Creek- East Branch.			
Indirect/Admin:			
Anne Arundel County, Maryland funds: \$1,894,726.55 is leveraged for the remaining cost of construction services (cash in-hand). \$500,000 of these funds will meet the federal match requirement of this grant.			

Rock Creek-East Branch Stream Restoration Project Cost Estimate						
Item No.	Description	Unit	Price	Total Cost	Anne Arundel County (Required Match + Capital Improvement Funds)	Congressionally Directed Spending
1	Mobilization & Demobilization	1 LS	\$196,704.00	\$196,704.00	\$196,704.00	
2	Construction Stakeout	1 LS	\$65,568.00	\$65,568.00	\$65,568.00	
3	Maintenance of Traffic	1 LS	\$7,000.00	\$7,000.00		\$7,000.00
4	High Visibility Fence	7,524 LF	\$6.00	\$45,144.00		\$45,144.00
5	Stabilized Construction Entrance	3 EA	\$3,300.00	\$9,900.00		\$9,900.00
6	Temporary Stabilization	8,863 SY	\$1.50	\$13,294.50		\$13,294.50
7	Reinforced Silt Fence	424 LF	\$6.00	\$2,544.00	\$1,702.50	\$841.50
8	Mountable Berm	5 EA	\$2,500.00	\$12,500.00	\$12,500.00	
9	Temporary Access Bridge	1 EA	\$2,500.00	\$2,500.00	\$2,500.00	
10	Temporary Access Culvert	1 EA	\$2,500.00	\$2,500.00	\$2,500.00	
11	Wetland Protection Matting	165 SY	\$50.00	\$8,250.00		\$8,250.00
12	Clearing & Grubbing	1 LS	\$70,000.00	\$70,000.00		\$70,000.00
13	Tree Planking	8 EA	\$200.00	\$1,600.00	\$1,600.00	
14	Tree Felling (DBH ≥ 30")	10 EA	\$1,200.00	\$12,000.00		\$12,000.00
15	Construction Access Road, Stage/Stockpile Area (6" Mulch)	1,883 SY	\$10.00	\$18,830.00		\$18,830.00
16	Maintenance of Streamflow (Includes Dewatering)	1 LS	\$60,000.00	\$60,000.00		\$60,000.00
17	On Site Earthwork	1 LS	\$15,660.00	\$15,660.00	\$15,660.00	
18	Excavation &	3,739 CY	\$60.00	\$224,340.00		\$224,340.00

	Offsite Disposal					
19	Sand Fill	6,165 CY	\$80.00	\$493,200.00		\$493,200.00
20	Sand/Woodchip Filter Media	702 CY	\$90.00	\$63,180.00		\$63,180.00
21	Bank Run Gravel	6,394 TONS	\$10.00	\$63,940.00		\$63,940.00
22	Cobble (d50=5.5")	300 TONS	\$220.00	\$66,000.00		\$66,000.00
23	Class 0 Riprap	7,034 TONS	\$120.00	\$844,080.00		\$844,080.00
24	Class I Riprap	7,739 TONS	\$120.00	\$928,680.00	\$928,680.00	
25	Boulders	36 TONS	\$250.00	\$9,000.00	\$9,000.00	
26	Woody Debris Placement	1 LS	\$30,000.00	\$30,000.00	\$30,000.00	
27	Sanitary Sewer Manhole Risers	1 LS	\$22,500.00	\$22,500.00	\$22,500.00	
28	Sewer Pipe Protection	1 LS	\$4,000.00	\$4,000.00	\$4,000.00	
29	Guardrail Removal and Replacement	34 LF	\$50.00	\$1,700.00	\$1,700.00	
30	Adaptive Management Path (Mulch)	23 CY	\$60.00	\$1,380.00	\$1,380.00	
31	Placement of Salvaged Topsoil	12,811 SY	\$2.00	\$25,622.00	\$25,622.00	
32	Permanent Seeding (turfgrass)	1,075 SY	\$2.00	\$2,150.00	\$2,150.00	
33	Native Wetland Seeding	14,975 SY	\$2.00	\$29,950.00	\$29,950.00	
34	Native Floodplain Seeding	13,845 SY	\$2.00	\$27,690.00	\$27,690.00	
35	Native Upland Seeding	4,000 SY	\$2.00	\$8,000.00	\$8,000.00	
36	Cover Nurse Crop Seeding	22,640 SY	\$1.00	\$22,640.00	\$22,640.00	
37	Trees - 3/4" caliper	422 EA	\$80.00	\$33,760.00	\$33,760.00	
38	Trees - 1/2" caliper	130 EA	\$65.00	\$8,450.00	\$8,450.00	
39	Trees - 1-2' height	1,314 EA	\$25.00	\$32,850.00	\$32,850.00	
40	Shrubs - >3' height	108 EA	\$38.00	\$4,104.00	\$4,104.00	
41	Shrubs - 1-2' height	506 EA	\$25.00	\$12,650.00	\$12,650.00	

42	Herbaceous Quarts	200 EA	\$9.00	\$1,800.00	\$1,800.00	
43	As-Builts	1 LS	\$35,000.00	\$35,000.00	\$35,000.00	
	Sub Total Estimated Construction Cost			\$3,540,660.50	\$1,540,660.50	\$2,000,000.00
	10% Contingency Total Estimated Construction Cost			\$354,066.05	\$354,066.05	
	Total Estimated Construction Cost			\$3,894,726.55	\$1,894,726.55	\$2,000,000.00

Milestone Schedule

Narrative or tabular depiction of each grant activity's estimated start and end dates, interim milestones, deliverables, and project completion. The length of the grant award project period should be consistent with the milestone schedule.

Milestone	Date
60% Design Development Report Completed	October 2024
90% Design Development Report Completed	September 2025
Grant Application Submitted	September 2026
Award Letter	October 2026
MOU Execution	October 2026
Federal/State JPA Submitted	March 2026
AACo Grading Permit Application Approved	April 2026
Finalize Design	September 2026
NEPA Approval	September 2026
Row Certification	September 2026
Submission of Project Plans & Specifications for Approvals	October 2026
Approval of Project Plans & Specifications	November 2026
Approval to Advertise	December 2026

Advertisement	<i>December 2026</i>
Bid Opening	<i>January 2027</i>
Receipt of Bids	<i>March 2027</i>
Award of Contracts	<i>May 2027</i>
NTP for Construction	<i>June 2027</i>
Construction Duration	<i>June 2027- December 2027</i>
Begin Grant Drawdown Requests	<i>July 2027</i>
Final Acceptance & As-Built Preparation	<i>January 2028</i>
Grant Close-Out	<i>December 2028</i>

Environmental Results/Benefits

Narrative or tabular linkage of each grant activity with the applicable EPA Strategic Plan goal and objective (i.e. EPA's FY2022 – FY2026 Strategic Plan Goal 5: Ensure Clean and Safe Water for All Communities, Objective 5.1: Ensure Safe Drinking Water and Reliable Water Infrastructure), anticipated environmental results, anticipated environmental outputs, and anticipated environmental outcomes.

Outputs: *environmental activities, efforts, and/or associated work products related to environmental goals or objectives, that will be produced or provided over a period of time or by a specified date. Outputs should be well-defined and may be quantitative or qualitative but must be measurable during an assistance agreement funding period.*

Outcomes: *the results, effects or consequences that will occur from carrying out an environmental program or activity that is related to an environmental or programmatic goal or objective. Outcomes should be well-defined to the maximum extent practicable, and may be environmental, behavioral, health-related, or programmatic in nature, must be quantitative, and may not necessarily be achievable within an assistance agreement funding period.*

The Rock Creek Stream Restoration Project aligns with the EPA Administrator Zeldin's 5 Pillar Language, particularly Pillar 1: "Every American should have access to clean air, land, and water ". This goal emphasizes providing clean and safe water and protecting the nation's waterbodies from degradation. The Rock Creek East Branch Stream Restoration Project aims to stabilize actively eroding stream channels, establish and reconnect riparian wetlands, and improve water quality.

The Rock Creek project is a direct response to the impaired status of the Baltimore Harbor Watershed, which has established Total Maximum Daily Loads (TMDLs) for nitrogen, phosphorus, and sediment. The project's proposed design approaches, including Regenerative Stormwater Conveyance (RSC) systems and valley restoration with valley-wide weirs, are intended to reduce downstream nutrient and sediment loading. This

directly contributes to meeting the Chesapeake Bay TMDL as mandated by the EPA.

The project also aims to enhance stream ecology through improved water quality and habitat. Valley restoration will reconnect the floodplain with the hyporheic aquifer to enhance pollutant uptake and improve stream/valley ecological functions, leading to increased geomorphic and floodplain complexity and the establishment of wetlands and natural plant communities. The RSC approach will re-establish native vegetation. These actions directly support the EPA's strategy of protecting and restoring water quality and ecosystems. The project is located within the Chesapeake and Atlantic Coastal Bays Critical Area, and includes a focus on enhancing stream ecology and habitat, aligning with the EPA's emphasis on protecting valuable aquatic resources.

While the primary focus of the Rock Creek East Branch project is stream restoration and water quality, it indirectly supports the broader goal of reliable water infrastructure. The project aims to provide water quality credit for Anne Arundel County's Municipal Separate Storm Sewer System (MS4) permit, which is a regulatory mechanism to manage stormwater runoff and prevent water pollution, ultimately protecting downstream water resources. The proposed design addresses failed storm drain outfalls and exposed sanitary sewer pipes, which contributes to the overall integrity and function of public infrastructure in the area.

Outputs:

- Stream Restoration Length:
 - The project encompasses approximately 4,100 linear feet of stream valley across four main reaches (RC-1, RC-2, RC-3, and RC-4). The total length of restoration, including project reaches and adjacent channels, is 3,500 linear feet.
- Pollutant Reduction and MS4 Credit:
 - The following estimates for the reduction of nitrogen, phosphorus, and sediment loads are expected: 825 TN/yr, 163 TP/yr, 796 tons SS/yr.
 - 105 Impervious Acres treated to obtain MS4 credit.
- Wetland Creation/Enhancement:
 - The design aims to establish or reconnect riparian wetlands, with a total delineated wetland area of 0.85 acres within the study area.
- Native Vegetation Establishment:
 - 1,018 native trees will be planted post-construction to ensure the site is reforested and habitat diversity is improved.

Outcomes:

- Improved Water Quality:
 - Significant reduction in annual mass of sediment and attached nutrients (nitrogen and phosphorus) delivered to downstream receiving waters, contributing to meeting Chesapeake Bay TMDLs.
 - Enhanced stream ecology through improved water quality.
- Enhanced Stream Stability and Function:
 - Stream stabilization in actively eroding channels, reducing vertical and lateral instability.
 - Reconnection of the floodplain with the hyporheic aquifer to enhance pollutant uptake and

- improve stream/valley ecological functions.
- Increased geomorphic and floodplain complexity.
- Reduced velocities and shear stress in the channel, contributing to long-term stability.
- Elimination of channel head cuts.
- Reduced potential for floodplain concentrated flows to impair the channel.
- Habitat Improvement:
 - Establishment of wetlands and mature and natural floodplain plant communities. This will result in a net improvement in Forest Interior Dwelling Species (FIDS) habitat.
 - Improvements in aquatic and terrestrial habitats are anticipated.
- Infrastructure Protection:
 - Protection of sanitary sewer infrastructure that is currently exposed or vulnerable.
- Increased Resilience:
 - The project will help in adapting to and recovering from the impacts of climate change on aquatic resources.
- Compliance and Credit:
 - Meeting Anne Arundel County's National Pollutant Discharge Elimination System (NPDES) MS4 permit watershed restoration requirements.

The project reaches have been significantly influenced by historical channel alterations and increasing urbanization of the watershed. There is geomorphic evidence of active stream degradation and hydrologic evidence of floodplain disconnection. Stabilization of the reaches is needed to protect public infrastructure and enhance overall watershed health.

The RSC design and valley restoration will promote floodplain reconnection; provide design features that promote denitrification during baseflow; provide a reduction in annual mass of sediment and attached nutrients originating from on-site channel degradation and upstream loss being delivered to downstream receiving waters; provide water quality credit towards Anne Arundel County's NPDES MS4 permit watershed restoration requirement; and assist in meeting the County's WLA towards the Chesapeake Bay TMDL.

Workplan Requirements for Identifying Contractors

Contractual selection must comply with the competitive Procurement Standards set forth in 2 CFR 200.317 – 2 CFR 200.327. EPA's Contracts and Subawards solicitation clause provides more information about partnerships, and the Best Practice Guide for Procuring 54 | Page Services, Supplies, and Equipment Under EPA Assistance Agreements can assist community project recipients in complying with procurement requirements. In general, all procurement transactions for professional engineering services and construction contractors must include and be conducted in a manner that promotes fair and open competition from an adequate number of qualified sources. 2 CFR 200.320 indicates the specific methods of procurement to be followed and the circumstances under which each method can be used.

Workplan Requirements for Identifying Subrecipients

Any proposed subawards must comply with regulatory standards as implemented in EPA's Subaward Policy. In almost all cases, for-profit firms and individual consultants are not proper subrecipients. Profit firms and individual consultants would more likely be considered contractors.

All procurement for the project, including direct contracts and sub-contracts, will comply with the competitive Procurement Standards set forth in 2 CFR 200.317 – 2 CFR 200.327. Disadvantaged Business Enterprises (DBEs) will be directly solicited. Anne Arundel County will oversee the procurement process.