

This is the Application Template for Fiscal Years (FY) 2023 through 2026 National Culvert Removal, Replacement, and Restoration Grant Program (Culvert Aquatic Organism Passage (Culvert AOP)).

Submission of this Application Template is required as part of a complete application package. The Application Template, in conjunction with the allowable attachments and standard forms, should provide all information necessary for the U.S. Department of Transportation (DOT), Federal Highway Administration to determine if the project satisfies the eligibility requirements described in NOFO [Section B](#) and to evaluate the criteria specified in NOFO [Section F](#). DOT will consider applications submitted without the completed template as incomplete and will not review the submission. DOT encourages applicants to review the NOFO in its entirety to verify their project is eligible and includes all required information is provided with their application.

I. SUMMARY

Project Name:	Replacement of Structure # 17073X0 on MD 305 over Three Bridges Branch
Eligible Entity Applying to Receive Federal Funding:	Maryland Department of Transportation State Highway Administration
Entity Type:	☒ State ☐ Unit of local Government ☐ Indian Tribe
Project Scale:	☒ Local ☐ Regional ☐ Statewide ☐ Multi-State
Total Project Cost: (<i>from all sources</i>)	\$ 4,000,000
Culvert AOP Competitive Grant Program funding request:	\$ 3,200,000
State(s) in which the project is located:	Maryland
Lead Applicant Point of Contact information:	Christy Bernal Grants Program Team Leader CBernal@mdot.maryland.gov 410 545-5659

Project Abstract: *Summarize project work to be completed under the project and succinctly describe how the Culvert AOP Competitive Grant Program funds would be used to complete the project.*

The objective of the project is to replace the existing multi-cell culvert (structure No. 17073X0) that carries MD 305 over Three Bridges Branch in Queen Anne's County, Maryland, approximately 2.5 miles west of Centerville.

The existing structure, built in 1973, consists of three 4' diameter Corrugated Metal Pipes (CMPs) and presents multiple structural issues, including heavy rust, pipe deformation, and outfall channel degradation.

The existing structure does not pass the design storm (25-yr storm event), and the location is listed on the SHA Office of Structures list of frequently flooded structures, presenting public safety issues. In addition, the culvert configuration and current condition present aquatic organism passage blockage due to the drop-off on the outfall, pipe size, susceptibility to debris accumulation, and stream instability, preventing passage of anadromous fish and other aquatic organisms, such as Dwarf Wedge mussels, that are present downstream of the structure.

The proposed project will replace the existing culvert with an appropriately sized, embedded/ natural stream bottom box culvert or small bridge designed to mimic natural stream conditions and improve aquatic organism passage (AOP). The project restores stream connectivity, enhances ecological resilience, and improves the highway structure performance to make the roadway passable and safe during flood events.

From the environmental resources perspective, aquatic organism passage improvement at this crossing has become one of the top statewide priorities for the USFWS and other Maryland environmental agencies due to the presence of anadromous species, namely Dwarf Wedge mussels, and anadromous fish, specifically Blueback Herring and Alewife.

Attachments: *Please list any attachments to this form, including letters of support*

USFWS Letter of Support
Project Information Sheet

II. Project Information

Expand the response blocks as necessary but limit the Project Information section of the application to a total of three pages. [*Applicants: delete instructions shown below in italic prior to submittal*]

1	Project Name:	Replacement of Structure # 17073X0 on MD 305 over Three Bridges Branch
2	Location of facility and project area:	Maryland, Queen Anne's County, between Centerville and Carville along MD 305
3	Waterway and watershed:	Three Bridges Branch, in the Corsica River watershed (021305070397), which is part of the Chester River watershed in the Chesapeake Bay area Eastern/Atlantic Coastal Plain physiographic region of Maryland
4	Project Coordinates:	Lat / Long: 39045243, -76017320
5	Tribal Consideration	Is any part of the proposed project area(s) located on federally recognized Indian Tribe lands? ☒ No ☐ Yes If yes, provide the name of the Tribal lands:
6	Public or Private Parties:	MDOT State Highway Administration is solely responsible for delivering the project. SHA will collaborate with the U.S. Fish and Wildlife Service, Maryland Department of Natural Resources, and Maryland Department of the Environment to meet the project goals and comply with all state and federal regulatory requirements
7	Lead Applicant Point(s) of Contact:	Christy D Bernal Grants Programs Management Division MD State Highway Administration cbernal@mdot.maryland.gov
8	Eligible Facility Type:	☒ Culvert ☐ Weir ☐ Both
9	Anadromous Species/Stocks:	Blueback Herring (<i>Alosa aestivalis</i>) Alewife (<i>Alosa pseudoharengus</i>) Dwarf Wedge Mussels (<i>Alasmidonta heterodon</i>) -a federally and state-endangered freshwater mollusk

10	Project Background	Preliminary engineering activities such as topographic survey and wetlands delineation have been completed, as well as hydrologic and hydraulic (H&H) modeling and analyses for various replacement alternatives to determine the most feasible type, size, and location for the proposed structure that would improve the structural integrity and hydraulic capacity of this crossing. NEPA-related activities have been initiated. Stream morphology evaluation has been completed to develop stream stability design, and 30 % construction plans have been developed for replacement. The project went through Preliminary Engineering (PI) milestone review and received initial feedback from environmental agencies that requested reevaluation and development of an alternative design to incorporate AOP improvement. Based on the stream survey and morphology assessment, there is a 6-inch vertical drop at the outlet and an additional 1.0-foot change in water surface elevation from the entrance to the exit of the culvert. The average slope downstream of the culvert is approximately 0.1%. Due to the previous bed degradation downstream of the culvert and aggradation (primarily sand) upstream, which occurred as a result of the debris collection at the entrance, there is a difference in water surface elevation of 1.6 feet, providing a slope of greater than 1.7% or over 10 times the more natural slope of the valley downstream of the culvert. Environmental Resource Agencies indicated that AOP passage must be provided to restore the ability of the present aquatic organisms, specifically Dwarf Wedge mussel, to travel upstream of the MD 305 crossing. Dwarf Wedge mussels are federally and state-listed as endangered. Their life cycle depends on fish serving as temporary hosts for their larvae, making water quality and unobstructed fish migration essential for sustaining both the fish population and the mussels themselves. To support aquatic organism passage, particularly fish, and to promote the expansion and migration of Dwarf Wedge mussel habitat, environmental and permitting agencies requested revisions to the engineering design. SHA has developed analysis for several replacement alternatives to identify the most feasible option that can be permitted and meet the project objectives. Hydrology and hydraulic modeling have been completed to advance the environmental review process. Preliminary stream stabilization and floodplain reconnection grading plan has been developed to determine the total limit of disturbance for final NEPA evaluation and right-of-way acquisition. However, funding for the final design has not been secured, and the project is currently on hold. The previously incurred expenditure totals \$563,958, of which \$348,455 was federal, and \$215,503 was state funding.
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III. Budget and Funding

1	Program Request Amount:	Exact Culvert AOP Competitive Grant Program request amount in year-of-expenditure dollars: \$ <u>3,200,000</u>
2	Other Federal Funding:	Estimated total of other Federal funding, excluding Culvert AOP Competitive Grant Program requested funding, in year-of-expenditure dollars: \$ <u>0</u> Other Federal programs and estimated amounts: <i>(add lines as needed)</i> Program: _____ Amount: _____
3	Future Project Cost:	Provide the sum of Culvert AOP Competitive Grant Program request, other Federal funds, and non-Federal funds as an estimate in year-of-expenditure dollars: \$ <u>4,000,000</u>
4	Previously incurred project costs:	<i>[Instruction: If costs have already been incurred for the project, such as planning or design costs, provide the total here]</i> Amount: \$ <u>563,958</u>
5	Total Project Cost:	Estimate in year-of-expenditure dollars (sum of previously incurred project costs' and 'future project cost): \$ <u>4,563,958</u>
6	Statement of Work:	Replace the existing undersized and structurally deficient culvert (Structure No. 17073X0), consisting of three 4' diameter corrugated metal pipes (CMPs) with an appropriately sized, embedded culvert or small bridge designed to mimic natural stream conditions and improve aquatic organism passage (AOP). The project will be developed (designed and permitted) following the typical SHA 36-month project development schedule with milestones, starting with the funding approval date as follows: Type, Size and Location Approval 10% Preliminary Investigation (30% plans and concept approval) Semifinal Review (60% plans, specs and estimates) Final Review (90" plans, specs and estimates) PS&E (95% completion of contract documents) Advertisement & Bid opening Construction NTP Construction completion/ closeout and acceptance for maintenance

7	Bonus Activities [Optional: See NOFO Section B for more information.]	Will the applicant request approval of “Bonus Activities”, if there are project cost savings? ☐ Yes ☒ No If yes, describe the proposed “Bonus Activities” below:																								
8	Grant Funds, Sources and Uses of Project Funds (Detailed Budget):	<i>Include a detailed budget or attach separately. This budget must list the amount and percent of both the Federal funding requested and any additional non-Federal funds, if any, that will be used to pay for the project. Additional lines can be added. This list can be modified as needed].</i> <table> <thead> <tr> <th></th> <th>Total</th> <th>Federal</th> <th>State (non-Federal)</th> </tr> </thead> <tbody> <tr> <td>Design</td> <td>\$500,000</td> <td>\$400,000</td> <td>\$100,000</td> </tr> <tr> <td>Right of Way</td> <td>\$200,000</td> <td>\$180,000</td> <td>\$ 40,000</td> </tr> <tr> <td>Construction</td> <td>\$3,000,000</td> <td>\$2,400,000</td> <td>\$600,000</td> </tr> <tr> <td>Construction Inspection</td> <td>\$300,000</td> <td>\$240,000</td> <td>\$ 60,000</td> </tr> <tr> <td>Total Cost:</td> <td>\$4,000,000</td> <td>\$3,200,000</td> <td>\$800,000</td> </tr> </tbody> </table> ☐ A detailed budget is attached separately. The file is named:		Total	Federal	State (non-Federal)	Design	\$500,000	\$400,000	\$100,000	Right of Way	\$200,000	\$180,000	\$ 40,000	Construction	\$3,000,000	\$2,400,000	\$600,000	Construction Inspection	\$300,000	\$240,000	\$ 60,000	Total Cost:	\$4,000,000	\$3,200,000	\$800,000
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9	Project Bundling	Bundling is the practice of combining projects to accelerate delivery, reduce costs, and increase efficiency by combining multiple projects into a single contract. Will bundling be used for the project? ☒ No ☐ Yes, and a detailed budget, in year of expenditure dollars, is attached for each project in the bundle. The file is named:																								

IV. Merit Criteria

In the space below, describe how the project will meet the merit criteria and the associated objectives as found in Section F of the FYs 2023 through 2026 Culvert AOP Competitive Grant Program NOFO. Where appropriate, reference attachments or other sections of the application. Expand the response blocks as needed but limit the length of the merit criteria section of the application to six total pages in length.

Criterion #1: Conservation Benefits to Anadromous Fish The existing culvert presents multiple AOP barriers, including drop height between culvert invert and stream bed, excessive flow velocities, and high turbulence during migratory periods. Replacing it with a properly sized, embedded structure with natural streambed material directly supports the program’s statutory priorities to improve passage for anadromous fish, including blue herring, alewife, and other migratory species. In addition, the population of Dwarf Wedge mussels - a federally and state-endangered freshwater mollusk - relies on fish as temporary hosts for their larvae and requires protection of the water quality, fish populations, and their migration path. The proposed replacement will reconnect approximately 4.57 miles upstream of the functional network, based on the <i>Chesapeake Fish Passage Prioritization Tool</i> that has the best available statewide distribution map for anadromous fish in Maryland. This expanded access will provide spawning and early-life-stage habitat critical to population recovery.

Criterion #2: Regional & Watershed Benefits Supporting American Families & Economy

The MD 305 crossing has a drainage area of approximately 2.9 square miles. It is located in the Atlantic Coastal Plain Physiographic Province. Three Bridges Branch is a tributary to the Corsica River within the Chester River watershed in the Chesapeake Bay region. It is classified as a Use Class I: Water Contact Recreation, Protection of Nontidal Warmwater Aquatic Life by the Code of Maryland Regulations.

This project improves ecosystem health and supports community interests in fisheries restoration. It benefits rural communities with limited access to environmental restoration resources. Construction contracting will provide opportunities for local and disadvantaged firms, supporting the NOFO's emphasis on family- and community-beneficial outcomes as articulated through DOT's mission priorities.

Additionally, MDOT SHA is partnering with state and federal environmental agencies, watershed groups, and academic institutions to ensure community engagement, environmental stewardship education, and post-construction monitoring.

Criterion #3: Ecosystem Benefits

For the existing culvert, both the approach and exit conditions are poor, impacting expansion and contraction due to high banks and meander bends upstream and downstream. Thus, floodplain and channel grading both upstream and downstream are proposed to (1) reduce the potential for erosion of the roadway embankment that is presently occurring, (2) reduce roadway overtopping with appropriate exit and approach conditions, and (3) construct a pre-formed pool under the bridge. Based on the geomorphology study recommendation, the length of channel and floodplain grading should be approximately 200 feet upstream and 100 feet downstream to provide stable reach.

The replacement structure will provide long-term ecological benefits. It restores passage to critical spawning areas for anadromous fish, reconnects upstream habitat, promotes biodiversity, and enhances the adaptive capacity of resilient populations by improving ecosystem connectivity and habitat quality. The project incorporates climate-resilient engineering, including improved hydraulic capacity for higher peak flows, stream stability design, and enhanced thermal stability.

Criterion #4: Project Design and Performance Prioritizing Core Infrastructure

The structure was prioritized for replacement based on the cyclical inspection results identifying significant structural defects due to its age, corrosion, and deflection. In addition, the culvert hydraulic capacity does not meet current design standards, frequently overtopping and causing roadway flooding. Finally, the culvert is prone to debris accumulation and presents a blockage to aquatic organisms, specifically anadromous fish and Dwarf Wedge mussels.

The design employs a bottomless (embedded) culvert or bridge-like structure, sized using the latest hydrologic and hydraulic modeling in accordance with FHWA/MDOT SHA standards, ensuring natural channel morphology and resilient fish passage.

Engineered scour protection, erosion-resistant materials, and flood-resistant grading safeguard long-term structural integrity and minimize maintenance needs.

V. Project Readiness

In the space below, describe how the project will meet the Readiness Considerations and the associated elements as found in Section F of the FYs 2023 through 2026 Culvert AOP Competitive Grant Program NOFO. Where appropriate, reference attachments or other sections of the application. Expand the response blocks as needed but limit the length of the project readiness section of the application to three total pages in length.

Readiness: Technical Assessment
MDOT SHA has developed 30% design plans, hydrologic and hydraulic modeling for multiple alternatives, stream morphology assessment, and stream restoration/floodplain reconnection plans. The project has undergone initial environmental review to secure necessary permits and proceed to final design. SHA has addressed the regulatory review comments by revising the initial design and proposing to replace the existing multi-cell pipe culvert with a bottomless box culvert structure with a natural stream bottom or a small single-span bridge. Hydraulic modeling has been developed for multiple options, and the final alternative will be selected during Type, Size, and Location (TS&L) Milestone review. MD 305 is an important collector route with documented issues related to hydraulic performance and a history of roadway flooding, as the culvert overtops during a 10-year storm or more frequently due to accumulated woody debris. The design flood for this crossing is 25-year, based on the roadway classification. This project will address substandard aging transportation infrastructure and improve the structure's hydraulic capacity, stream stability, roadway reliability, and public safety.
Readiness: Financial Completeness Assessment
MDOT SHA requests federal Culvert AOP Program funds and will financially participate with a minimum 20% non-Federal match provided through State sources (Maryland tax credits) allocated to transportation capital improvement programs.

Readiness: Permitting Risk Assessment
The National Environmental Policy Act (NEPA) review has been initiated and will be completed in time to meet the project delivery schedule. The project has been evaluated by several state and federal regulatory agencies – Maryland Department of Environment (MDE), Department of Natural Resources (DNR), US Fish and Wildlife Service (USFWS), and they provided their input on design during the pre-application review meeting for the project to be permittable. The initial hydrology and hydraulics analyses have been accepted by MDE, and the updated study for the revised design is ready to be resubmitted for approval. SHA Plan Review Division issued a Concept Approval for Stormwater Management (SWM) and Erosion & Sediment Control (ESC) plans. Final approval will be issued for the final culvert replacement and stream stability design to ensure the project meets Maryland SWM and ESC water quality regulatory requirements. It is anticipated that all required environmental permits and approvals will be obtained before advertisement for construction. Post-construction monitoring will be outlined in the Nontidal Wetlands and Waterway Construction Permit.

VI. Statutory and DOT Selection Priorities

In the space below, describe how the project will meet the selection priorities in Section F of the FYs 2023 through 2026 Culvert AOP Competitive Grant Program NOFO. Where appropriate, reference attachments or other sections of the application. Expand the response blocks, as needed, but limit the length of the Statutory and DOT Selection Priorities section of the application to three total pages in length.

Statutory Selection Priorities	DOT Selection Priorities
<i>Check all that apply to the project:</i> The project would improve fish passage for: ☐ Anadromous fish listed as endangered or threatened under the Endangered Species Act. ☒ Anadromous fish identified by the National Marine Fisheries Service (NMFS) or the U.S. Fish and Wildlife Service (USFWS) that could reasonably become listed as a federally endangered species or a threatened species. ☐ Anadromous fish identified by NMFS or USFWS as prey for endangered species, threatened species, or protected species, including Southern resident orcas (<i>Orcinus orcas</i>). ☒ Anadromous fish identified by NMFS or USFWS as climate resilient stock. See Section H. ☒ The project opens up more than 200 meters of upstream habitat for anadromous fish before the end of the natural habitat. ☐ None of the above apply to the project.	<i>Check all that apply to the project (DOT will utilize information in other portions of the application to determine responsiveness to the other Selection Priorities listed in the NOFO):</i> ☐ The project focuses on Reinvesting in the American Family by expanding access to traditional food sources or reducing food insecurity for rural and Tribal communities. ☒ The project promotes the productive harvest of our seafood resources. ☒ The project deploys innovative and emerging technologies that also enhance or maintain the safety of the travelling public. ☐ None of the above apply to the project.

Statutory Selection Priorities: Briefly describe below how the project meets the checked statutory priorities and also provide the estimated length of upstream habitat that would be opened to Anadromous fish from the project.

The project targets anadromous species, such as alewife and blueback herring, that are recognized by NMFS and USFW. The crossing location is categorized as 'historic' for alewife and blueback herring, but both are known to occur approximately 2 miles downstream at the MD 213 crossing, and there are no known blockages that exist between these sites. The fish population and ability to migrate are essential to the endangered Dwarf Wedge mussels that are present in this stream corridor. By replacing the MD 305 culvert at Three Bridges Branch that currently presents an AOP barrier, the migration pathway for these species to reach critical spawning and nursery habitats will be restored and extended. This is one of the project objectives supporting species recovery strategies outlined in federal endangered species and recovery plans.

NMFS/USFWS identify certain anadromous stocks as climate resilient due to their adaptive capacity and broader geographic ranges. This culvert replacement supports these stocks by re-establishing habitat connectivity, allowing migration flexibility in response to changing flow and temperature regimes under climate stress, enhancing habitat diversity, and increasing resilience by offering refuge and thermal variability.

DOT Selection Priorities: Briefly describe below how the project meets the checked DOT priorities.

The MD 305 over Three Bridges Branch Culvert Replacement Project fully aligns with the Culvert AOP Program's statutory intent and the merit criteria. It is a resilient and community-beneficial investment that will yield substantial ecological and transportation improvements. This project meaningfully advances the program's top priorities—restoring anadromous fish passage, enhancing habitat connectivity, supporting community resilience, and ensuring responsible stewardship of federal funds.

By removing migratory fish barriers and restoring access to upstream habitat, the project enhances local access to traditional seafood sources such as blueback herring, alewife, and yellow perch—staples of rural and Tribal diets in the Chesapeake Bay region. These anadromous species are culturally vital and contribute to food security, providing nutritious, locally sustainable harvests

The culvert replacement project was initiated to keep the SHA OOS Assets in a State of Good Repair. The project incorporates modern engineering to develop resilient design and to support both ecosystem function and public safety. Use of embedded or bottomless culverts, sized per MDOT SHA hydrologic/hydraulic standards, recreates natural streambed conditions to maintain fish passage quality.

Erosion and sediment control measures, stream diversion, and turbidity real-time monitoring during construction will be implemented to comply with the permit requirements, minimize impacts to the natural resources, and maintain high water quality standards. Staged detours implement innovative traffic management approaches that minimize risk and enhance safety for the traveling public. These measures uphold SHA's stringent safety and mobility standards.