

Michigan Department of Natural Resources
 Grants Management Section/Fisheries Division
2018 Dam Management Grant Program (DMGP) Application
This information is required by authority of Part 5 of Act 451, P.A. 1994 as amended, to receive funds.

The information requested in this application is important in the evaluation of your proposal. Incomplete documentation could result in the proposal being scored at a lower priority or removed from consideration. For additional information, refer to the 2018 Dam Management Grant Program Handbook, which can be found on the DMGP website.

Link to DMGP website: <https://www.michigan.gov/dnr/0,4570,7-350->

SECTION A1: APPLICANT AND PROJECT INFORMATION

Instructions:

- Complete the information on this page by entering text into the yellow cells and selecting all appropriate check boxes.

APPLICANT INFORMATION:

- Private Individual Government Agency Nonprofit Organization

Name of Applicant/Organization

Michigamme River Basin/Tax Increment Financing and Water Improvement

Authorized Representative's Name and Title (This is the person responsible for or in charge of the grant. If a nonprofit organization or government agency, name of the person representing the organization).

Name

Mr. James Brennan

Title

Chairperson

Address

279 Kloman Avenue PO Box 251

Telephone

906-376-2009

City, State, ZIP

Republic, MI 49879

Email

lburton@northpines.net

Is applicant the dam owner?

- Yes No

PROJECT TYPE:

- Removal of Dam Repair/Major Maintenance of Dam

PROJECT TITLE: (Please limit to 50 characters and include water body and type of project)

Republic Dam Fish Passage

BRIEF DESCRIPTION OF PROPOSAL: (Describe what will be accomplished; limit to 500 characters)

The Michigamme River Basin/Tax Increment Financing and Water Improvement Authority (MRBA) is requesting funding to support modification of Republic Dam (Michigan Dam No. 00579) to incorporate a nature-like fish bypass channel. This project will meet the ongoing goals of MRBA, Republic Township, and community members to provide sustainable recreation opportunities, and continue to grow the local tourism-based economy.

PROJECT LOCATION: (Provide the site location information requested below and attach a Project Location Map to enable inspection of the project site)

Project Address (road, if no street address)

Hawks Drive

ZIP

49879

Municipality Township/Village/City

Republic

County

Marquette

Property Tax Identification Numbers(s)

52-12-018-004-10; 52-12-018-002-2

Latitude

46.388975 N

Township/Range/Section (TRS)

Letters must be upper-case:

(Town) 46 N

(Range) 29 W

(Section) 18

Name of Lake, Stream or Water Body

Michigamme River

Longitude

87.985592 W

COMMUNITY SUPPORT: Is there general local public support for this project?

- Yes

OTHER GRANT APPLICATIONS FOR THIS PROJECT: Check one or more to identify other grants that have been funded for this project.

- Michigan Habitat Improvement Fund Great Lakes Protection Fund US Fish & Wildlife - Fish Passage Grant

Coastal Zone Management Other (specify program name):

- None

SECTION A2: DAM OWNER INFORMATION

Instructions:

- *This page only needs to be filled out if the applicant is NOT the dam owner. If the applicant is the dam owner, leave this page blank.*
- Complete the information on this page by entering text into the yellow cells.

Name of Dam owner(s)

Email

Address

Telephone

City

State

ZIP

SECTION B: NARRATIVE

Instructions:

- Complete narrative by entering text into the yellow cells.
- Limit responses to 1,500 characters; text boxes are sized to fit approximately 1,500 characters.

1. LOCATION

A. Dam Location - Is the dam the lower most barrier upstream to the Great Lakes or an inland lake?

No. The Michigamme Reservoir is located 30 miles downstream of Republic Dam and is classified as a complete barrier to aquatic organism passage.

B. Special Designations - Is the project located on a State Designated Natural River or Federal Wild and Scenic River?

No.

C. Project Influence - Will the project have a positive effect on one or more notable ecological features (for example, habitat for a key or significant fishery, habitat for a species of greatest conservation need, protected conservation land, or key migratory fish habitat)?

This project will reconnect 277 miles of connectivity between the Michigamme Reservoir and Lake Michigamme. While primarily a warm water fishery, the Michigamme River also houses a population of Brown Trout.

While the Michigamme Watershed upstream of Republic Dam is not known as a coldwater fishery, several of the tributaries upstream of Republic Dam that will now be open to fish passage were ranked as the highest priority Brook Trout streams targeted for U.S. Fish and Wildlife Service National Fish Passage Program funding. Appendix B of the Draft Lake Michigan Strategic Plan published by the U.S. Fish & Wildlife Service lists several HUC12 tributaries as the highest priority based on the streams suitability to sustain Brook Trout, the current predicted occurrence of Brook Trout, and the probability of Brook Trout persistence in 2065. These tributaries include Lake Elinor on the West Branch of the Peshekee River, Craig Lake, the West Branch of the Peshekee River itself, and Baraga Lake on the Peshekee River.

2. WATERSHED EFFECTS OF THE DAM - (IF THIS IS AN APPLICATION FOR A REPAIR/MAJOR MAINTENANCE PROJECT SKIP TO 2-D OTHERWISE COMPLETE ALL SECTIONS)

A. System Effect of Dam - What is the estimated effect of this dam on the following watershed wide processes: connectivity, water quality, material transport (e.g. sediment, large woody debris, etc.), hydrology (e.g. natural flow hydrograph), or geomorphology (both upstream and downstream of the dam)?

Republic dam has been in place for more than 100 years as a gated spillway. This dam severely interrupts aquatic connectivity, with no fish passage possible upstream of the dam. As a bottom-draw dam structure, moderate to low effects occur on the water quality of the Republic dam reservoir, including seasonal changes in water levels. Effects on material transport including sediment and large woody debris is low given that the gates are open in the fall, winter, and spring. This allows sediment and woody material to transport downstream of the dam unimpacted. The existing concrete piers will catch woody debris on occasion, and the latest dam safety report cites that logs and woody debris were observed in the vicinity of the gated spillway. For the same reason, that natural hydrology is only impacted in summer when the gates are lowered to maintain reservoir levels near 1492.2. During the fall, winter, and spring, the gates are left open which allows for relatively uninterrupted flow from upstream to downstream of the dam. Affects on geomorphology upstream and downstream of the dam is high. The river is 850 feet wide within the Republic dam reservoir compared to 150 feet wide downstream of the dam. This rapid 5-fold change in width has disrupted the rivers ability to gradually transition through the river valley. Furthermore, the sinuosity is decreased through the reservoir and for 0.35 miles downstream. This reduction in sinuosity limits the channels ability to adapt to changes in upstream hydrology and sediment transport.

SECTION B: NARRATIVE

B. System Connectivity Improvement (please only answer one of the questions below based on where your project is located)

1. If project is on a tributary of a Hydrologic Unit Code (HUC) 8 watershed, what percentage of the HUC 12 sub-watersheds upstream of the barrier is reconnected by removing this barrier?

The HUC12 for the Michigamme Watershed is 040301070104. Completing a GIS analysis using data downloaded from the FishWerks webpage results in 335 total mainstream and tributary miles upstream of Republic Dam. By creating fish passage upstream of Republic Dam, 277 mainstream and tributary miles are opened. This results in 78% (277/335) of the HUC12 Watershed reconnected upstream of Republic Dam. While there are remnants of a former dam at Lake Michigamme (10 miles upstream of Republic dam), the Fish Community and Fishery of Lake Michigamme Special Report 59 published by the Michigan DNR in 2011 cites on page 2 that it does not restrict fish movement.

2. If project is on a mainstream river, what percentage of the HUC 8 watershed upstream of the barrier is reconnected by removing this barrier?

N/A

C. **Geomorphology - Will the post project river channel including downstream reaches and riparian corridor be stable and self-sustaining upon project completion?**

Yes. By designing the fish bypass channel along the existing ridge downstream of the dam, minimal impact will be made to the existing landscape within the immediate vicinity of the dam. The fish bypass channel will transport water and sediment downstream and reconnect with the Michigamme River approximately 170 feet downstream of Republic Dam. One necessary element of the project design is to attract fish to the fish bypass channel outlet. The current design includes constructing a boulder weir across the river in order to prevent fish from swimming upstream to the base of the dam. By constructing a barrier to fish passage at the bypass channel outlet, fish will be attracted to flowing water from the bypass channel and enter the channel to swim upstream. The applicant will continue working closely with MDNR Northern Lake Michigan and Habitat Management Unit staff to discuss the element of the design to see if there is a more effective way to attract fish to the bypass channel while continuing to operate the dam safely and not negatively disrupt flow in the Michigamme River channel with the boulder weir placement.

D. **Impairment changes - Does the removal or repair of the dam reduce or eliminate other process impairments such as water quality (e.g. river reach being on the Michigan 303d list, material transport (woody debris and sediment transport), hydrology, fish community or size structure issues?**

Construction of a fish bypass channel removes hydrology and fish community impairments from the Michigamme River. Creating a fish passage channel will allow for passage both upstream and downstream of the dam. Allowing water to flow through the fish bypass channel for the entire year will aid in reducing the significant flow changes that occur now during the summer. This will help to protect the existing aquatic communities upstream and downstream of the dam. There are no 303d impairments in the Michigamme River watershed upstream of Republic Dam.

3. WATERSHED QUALITY

A. **Stressor Analysis - What is the extent of other stressors upstream and downstream that would limit the benefits gained through this project (e.g., dams, stream flow depletion from water withdrawals, major water quality impairments)?**

30% or less of the watershed is currently impaired. Creating fish passage upstream of Republic Dam allows access to headwater tributaries providing critical habitat for several warmwater fish species and other aquatic organisms. Very few full barriers exist in the watershed upstream of Republic Dam. At one point in time, mining operations created flow depletions through major water withdrawals. However, the mine adjacent to the dam is no longer in use and has not been operated in over three decades. The other land in the watershed upstream of the dam is primarily forested and undeveloped. Approximately 30 mile downstream, there is a dam creating the Michigamme Reservoir. This is the first barrier downstream of Republic Dam. Land use downstream of Republic dam is also heavily forested with minimal development.

SECTION B: NARRATIVE

B. Watershed Quality - Currently what is the estimated quality of the watershed given the functioning of the following system processes: connectivity, water quality, material transport, hydrology, and geomorphology (both upstream and downstream of the dam)?

Given the lack of development, stable hydrology, lack of major barriers upstream of Republic Dam, and lack of water quality stressors, the Michigamme River and its tributaries upstream of Republic Dam form a high quality watershed. Creating fish passage upstream of Republic Dam will further increase the quality of this system.

4. AQUATIC COMMUNITY CONDITION

A. Current Aquatic Community Condition - What is the current condition of the aquatic community based on Michigan Department of Environmental Quality (DEQ) Procedure 51 (P51) and/or Procedure 22 (P22) scores, DNR Fisheries and/or other environmental survey information?

Attached to this application are multiple surveys regarding fish species collected near Republic Dam and along the Michigamme River provided by the Unit Supervisor for the Northern Lake Michigan Management Unit. Species captured during surveys of Lake Michigamme and also caught during the 2018 Fishing Derby include walleye, northern pike, black crappie, bass, yellow perch, rock bass, and blue gill. During the 2018 Republic fishing derby one brown trout catch was also documented. In speaking with the MDNR Northern Lake Michigan Management Unit, a recent MDEQ report (attached) for sampling of the Michigamme River at the M-95 Bridge (STATION 14) resulted in a habitat score of 163 (Excellent) and an invertebrate score of 3 (Acceptable). An updated report is expected to be released sometime this year. A P51 Survey was completed in 2007 on the Michigamme River Basin. Two of the test sites were located on the Peshekee River (STATION 8 and STATION 10). STATION 8 is located off of Huron Bay and Peshekee Road. This sites exhibited acceptable macroinvertebrate scores with 2 mayfly and 2 caddifly larvae, both of which are species indicative of high water quality. The habitat at this station was rated as good with reductions for substrate and instream cover as well as channel morphology. STATION 10 on a two-track off of Huron Bay Grade. This station received an excellent macroinvertebrate score with 4 mayfly, 7 caddisfly, and 2 stonefly larvae identified. STATION 10 also received an excellent habitat metric score. A copy of the U.S. Fish and Wildlife Service Draft Lake Michigan plan is also attached. This report identifies multiple tributaries upstream of Republic Dam that are the highest priority for funding opportunities with the National Fish Passage Program given their habitat

B. Expected Aquatic Community Condition - What is the expected condition of the aquatic community with the implementation of the project based on expected Michigan DEQ P51 scores, P22 scores, DNR Fisheries, and/or other environmental survey information?

Creating a fish bypass channel at Republic Dam will benefit aquatic habitat for fish and freshwater mussels. It is expected that a significant change in fish assemblages will occur both upstream and downstream of the dam following the construction of the fish bypass channel. The geomorphology and habitat of the Michigamme River will remain relatively unchanged after the construction of the fish bypass channel.

C. Invasive and Nuisance Species Management-Does the project have an invasive or nuisance species plan in place?

There is a registry of waterbodies infested with aquatic invasive species (https://www.michigan.gov/documents/deq/wrd-anc-AISRegistry_ALLSpecies_509493_7.pdf). Michigamme Reservoir in Iron County is listed therein as being infested with Eurasian Watermilfoil. Michigamme Reservoir is 30 miles downstream of Republic Dam. Michigamme River flows through a series of rapids located downstream of the Republic Dam to reach the Michigamme Reservoir, so it is unlikely that this invasive species will spread upstream through natural processes. As with all lakes and rivers where boats enter and exit, there is a high potential for the spread of invasive species from individuals who do not properly clean their marine equipment.

In addition, the U.S. Forest Service recently published a map (https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5133467.pdf) identifying aquatic invasive species near the Ottawa National Forest. One data point for Keewaydin Lake also shows the presence of Eurasian watermilfoil. Keewaydin Lake is located upstream of Republic Dam and Lake Michigamme and drains through a shallow, narrow channel to the Peshekee River.

SECTION B: NARRATIVE

5. INVESTMENT RETURN

A. River Assessment Consistency - Is there a DNR River Assessment completed for this river system and is the project consistent with the assessment/investment strategy?

A river assessment has not been completed for the Michigamme River. DNR Fisheries Division Special Report 59 does include information regarding the fish community and fishery at Lake Michigamme, which is 10 miles upstream of Republic dam. However, this report does not provide habitat recommendations or an assessment/investment strategy.

B. Management Costs - What is the estimated reduction in annual costs to manage the fisheries resource with the implementation of this project? (note: to obtain this information contact your local Fisheries Division Unit Supervisor listed in Appendix "A")

The Fisheries Division Unit Supervisor did include a letter of support for the project. Furthermore, the Unit Supervisor attended the project kickoff meeting on 10-3-18 and provided extremely helpful information on the fish assemblages surrounding the dam. This information is included as an attachment. However, we were not able to connect with this individual to acquire the annual costs for managing the fisheries resource near Republic Dam.

C. Return on Investment - What is the estimated return on investment within 50 years after project completion to DNR's management of Michigan's aquatic resources with the implementation of this project? For example, if \$100,000 is invested and it saves \$500,000 of management costs over the course of 50 years, the return on investment is 5:1. (note: to obtain this information contact your local Fisheries Division Unit Supervisor listed in Appendix "A")

See answer to 5B.

6. PROJECT METHODS

A. Project Methods - Does the project use most current science & technology with an evaluation component, or demonstrate new remediation techniques with an evaluation component?

Yes. Traditionally fish passage structures have been created in the context of dams using right angles, concrete, and with little regard for the natural energy dissipation characteristics of rivers and streams. Traditional fish passage structures employ the use of baffles and compartments which are often ineffective in passing fish species, especially those without leaping abilities like most warm water fish species. This has led to a lack of success on several fish passage structures and an inefficient use of funds. Recently, biologists and engineers have started working together to design fish passage channels that better emulate natural stream processes. Dr. Luther Aadland of the Minnesota DNR has used this approach on many different projects. This project will implement a similar design known as a nature-like fishway. The proposed fish passage design will emulate natural rapids with slope and flow velocities targeted to allow passage by a wide variety of fish species and age classes. The approach will entail construction of a channel through the right dam embankment and connect to the downstream dam tailwater. The plan form of the channel will conform to the existing edge of the emergency spillway and blend with the natural confining topography west and southwest of the dam. The natural channel design would be constructed using Dr. Dave Rosgen's natural channel design, and incorporate a series of pools, steps and boulder to create varying velocity profiles varying in depth and in width. Concerns for directing fish to the inlet fish passage channel will be addressed constructing a boulder weir approximately 170 feet down stream of the dam. The boulder weir will prohibit fish passage through implementing a steep slope exceeding the target species passage requirements. The boulder weir barrier

SECTION B: NARRATIVE

B. Sediment Sampling - Has sediment sampling been conducted as outlined in DEQ's Operational Guidance for Dredge Sediment Review No. 301-09-18?

No. The current gated dam structure passes sediment through the dam gates. The gates open upward from the Dam Sill Slab flushing naturally occurring sediment through the gates. Provided the funding is in place in FY 19 the sediment accumulation in connection with fixed crest spillway project is not anticipated to be an issue.

C. Sediment Contaminants - What is the status of sediment contamination behind the dam? (note: to obtain this information contact DEQ's Water Resources Division at 517-284-5567)

There is no known sediment contamination issues in connection with the Dam.

D. Sediment Volume - What is the amount of sediments that will need to be managed?

Sediment management is not anticipated to be a large component of this project. The proposed fish bypass channel will transport a small percentage of the total flow and sediment compared to the quantity flow through the proposed fixed crest spillway. Therefore, sediment should not accumulate or be a cause for concern within the fish bypass channel.

E. Sediment Management - Does the project have a sediment management plan?

A project kick-off meeting was hosted by GEI on October 6th, 2018. During this meeting, sediment management was discussed by multiple parties. At the meeting, it was agreed upon that sediment management is not expected to be a huge concern given the current gate operation plan on the dam, which allows sediment to move downstream the majority of the year, and the large percentage of bedrock and particles larger than sand existing in the channel. A sediment management plan will be further discussed with the Michigan DEQ during a permit pre-application meeting.

7. PROJECT MANAGEMENT

A. What are the available secured local committed funds?

The Michigamme River Basin Authority will directly provide the 10% cash match toward the project costs. To date, no additional federal, state, or local funds have been acquired for this project. An engineer's opinion of probable cost was developed by GEI based on recent similar projects, vender quotations and experience. The construction project will be publicly advertised and bid in accordance with MRBA's requirements. The cost opinion includes anticipated contractor costs including equipment mobilization, disposal costs, material acquisition, installation costs, and water management during construction.

SECTION B: NARRATIVE

B. What is the Applicant and project team's collective experience and capacity to lead the proposed project?

The MRBA Board is made up of a chairperson having six years experience on the planning commission and eight years on the recreation committee. Two board members serve or have served on the Republic Township Board with a combined experience of fourteen years. During this time, the MRBA has actively sought project support and grant funding for projects aligning with the MRBA's mission.

C. Is the project funding appropriate to complete the proposed work?

Yes. The MRBA retained the services of GEI to complete preliminary project planning and complete a preliminary cost opinion. A copy of these document are attached as supporting information to the funding application.

D. Are there dedicated income sources in place for this dam? (for example, dam is located within a special assessment district, operation of dam generates revenue for an individual or company)

Yes. The MRBA manages the water district with a tax increment financing authority.

E. Does the applicant have an operation and maintenance plan and dedicated funding in place beyond this grant for the project location (e.g. either for dam maintenance or for channel/riparian zone integrity)?

Yes. The MRBA is planning a separate project to modify the existing gated spillway to a broad crested weir. This modification will reduce the overall maintenanc and operation of the dam, which helps to reduce costs, maintain reservoir impoundments, and reduce the risk and liability of the dam owner.

8. PUBLIC INVOLVEMENT

A. Cooperators - What is the number of cooperative parties/entities, other than applicant, that are providing funding, materials and/or services for this project? Note: cooperators do not necessarily have to provide contributions counted as match to the project; however, their contributions must benefit the project and a commitment letter must be included.

The following entities support this funding application and the efforts of MRBA to maintain the basin water level while creating fish passage upstream of Republic Dam:

- Lake Superior Community Partnership
- Republic Township
- Michigan DNR Fisheries Division
- Moose Country Snowmobile Club
- County of Marquette
- State Representative 109th District Rep. Sara Cambensy
- Republic Sportman's Club

Letters in support of MRBA's efforts to maintain the basin water surface are included as attachments to this application.

SECTION B: NARRATIVE

9. LIKELIHOOD OF SUCCESS AND COMMUNITY ENRICHMENT

A. Implementation Likelihood - What is the current status of the design process?

MRBA has already invested approximately \$8,000 of its own funds toward designing a solution to maintain basin water levels, reduce long-term operation and maintenance costs, operate the dam in a safe manner, and provide upstream fish passage. GEI has completed a fish passage design alternatives analysis which included full removal of the dam, construction of a rock ramp, and the current design of a fish bypass channel. The fish bypass channel meets the most of MRBA's project goals and also is the most cost-effective option to construct.

If DNR Dam Management funding is granted, there is a high likelihood that fish passage will be completed in conjunction with the planned dam modifications that are part of a separate project scope.

B. Outreach and Education - Is the project accessible to the public and/or does it provide an opportunity for education and outreach?

The project is accessible from Hawks Drive. Members of the community and visitors to Republic will be able to access the fish bypass channel on the west side of Republic Dam. The MRBA will work with Republic Township to provide education and outreach through the Township Newsletter. Future efforts could include educational signage discussing the the balancing a Community's desire for maintaining the impoundment while also increasing fish abundance and diversity throughout the watershed with the fish bypass channel. Future efforts may be conducted to complete fish shocking within the channel for monitoring as well as working with the Republic-Michigamme School system in educational efforts.

An additional educational opportunity is to review the results of the annual fishing derby before and after the fish bypass channel is constructed. A copy of the 2018 fish derby results was provided by the Michigan DNR Fisheries Unit Supervisor for the Michigamme River, and is included with the application. Comparing the species caught and the abundance of each before and after construction of the channel will aid in educating the community on the importance of aquatic connection.

C. Community Benefits - Does the project provide additional community benefits (e.g., community revitalization, new trails, recreational opportunities such as fishing or boating, elimination of safety hazards)?

This project will benefit the community in several ways. This project allows for an improvement the aquatic resources upstream of Republic Dam. The Republic Sportsman's Club hosts an annual Fishing Derby on the impoundment and has done so for 28 years running. Entry fees and participation in the weekend-long fishing tournament are an economic boost to the township and its local merchants. In 2018, over 400 people participated and more than \$6,000 was paid in entrance fees. The annual event is more than a fishing tournament, it is an opportunity for people to commune in Republic for the fireworks display, contribute the local Fire Department fundraising efforts, and camp in Northern Michigan during the beautiful summertime.

Constructing the fish bypass channel will increase fish movement into the reservoir and this should aid in bringing more participation to the already successful fishing derby. While the option of dam removal was explored, it is not currently an economically viable option. The fish passage modifications to the existing dam will enable MRBA to continue to manage the reservoir level while meeting fish passage goals. Maintaining a reservoir with a sustainable water level is critical to the long-term success of Republic's tourism industry, preservation of property values, and continued recreational use of the reservoir. Numerous businesses in Republic rely heavily on tourism revenue. Republic Township and the State of Michigan MDNR

D. Does the project currently provide or will it provide free public access to the waterway?

Yes. Recreation users can currently access the Republic Dam and Republic Basin at various public access points including Township lands, parks and the Northern Lights Campground in Republic, MI.

E. What is the median household income for village/city/township that project is located in as defined in the U.S. Census?

The Republic Township Median Household Income is \$27,500 per capita.

SECTION B: NARRATIVE

10. INFRASTRUCTURE/PUBLIC SAFETY

A. Current Hazard Rating - What rating hazard does DEQ Dam Safety Program give this dam (high hazard, significant hazard, low hazard, or unknown)?

According to the latest dam safety report completed by GEI in 2015, the Dam is rated as a significant hazard based on the degree of development downstream.

B. Current Dam Condition - What is the current dam condition? (see scoring criteria in handbook for more information)

According to the last dam safety report completed in 2015, the vertical steel gates used to operate the dam were in poor condition. This is further supported by a letter from Mr. Jim Pawlowski to the former dam owner, Mr. Roger Crimmins, on July 17, 2017. Since this date, the gates have been refurbished with a design lifespan of 5 to 10 years. Therefore, the MRBA is seeking grant funding through a separate project scope to fully remove the vertical steel gates and create a concrete fixed-crest spillway. This is also noted in included correspondence between the MDEQ and MRBA regarding the existing operating permit issued earlier this year. This provides a permanent solution to address the temporary repair of the vertical steel gates.

C. Deficiencies/Emergency Conditions - Does a condition exist which endangers the dam? (see scoring criteria in handbook for more information).

There are minor deficiencies identified in the 2015 Dam Safety Report, but none that endanger the dam integrity.

11. BONUS POINTS FOR URBAN PROJECTS

A. Urban Location - Is the project located within an urban area as defined in the U.S. Census? Contact the DMGP Program Manager for information on the "urban" status of your project.

No.

B. Pilot Project - If in an urban area, is the project a unique demonstration/pilot of what is possible in a challenged urban waterway?

N/A.

SECTION B: NARRATIVE

C. Connections to Open Spaces and Benefits to Underserved Populations - Does the project propose new or protect existing connections to upland open space or attractions, and/or have the potential to provide recreational benefits to an underserved population?

According to the US Census median Household Income (MHI) data, Republic is in the lower third of the State's MHI. Republic Township and the State of Michigan DNR have recently invested in Munson Park (also referred to as Northern Lights Campground) located on the impoundment as well as adjacent the Republic Mine tourist viewing platform and Iron Ore Heritage Trail. Due to the popularity of the annual fishing derby and Republic's interest in increasing their tourism industry, the campground has reinvigorated the community. In 2017, the township received a \$172,200 Michigan DNR Trust Fund grant to open the campground. Thus far, reservations have been high, with twice as many reservations in 2018 as there were in 2017 for the campground opening. Several of the sites are already booked for the 2019 fishing derby. Maintaining a reservoir with a sustainable water level is critical to the long-term success of Republic's tourism industry, preservation of property values, and continued recreational use of the reservoir. Constructing the fish bypass channel will generate a new interest in fishing the impoundment contributing to the viability of the community.

D. Interactions with other Initiatives - Will the proposed work provide an opportunity to enhance other urban renewal, planning initiatives, and economic development while enhancing the values and function of the river system?

The MRBA has identified the preservation of the existing and historic reservoir water surface of approximately 1492.2 (+/-) as critical. The MRBA recently purchased the dam from the former owner with intent to preserve the impoundment. The MRBA mission is to promote and maintain the inland water resources of the district by planning and fostering responsible economic development and fiscal responsibility. Steps taken by the MRBA include working with the Michigan MDEQ Part 315 Dam Safety staff in order to determine the safest way to continue dam operation. In 2017, the existing spillway gates were refabricated so that the dam can continue to operate safely while a viable long-term solution for operation could be identified.

Removal of the existing gates and modifying the dam to a fixed crest spillway aids MRBA in our goal to maintain reservoir levels, and to do so in a fiscally responsible manner. The MRBA has decided that incorporating fish passage into the dam is important for the reservoir and the associated aquatic community. MRBA believes this is an ideal solution to meeting the organizations goals of maintaining the impoundment while also promoting inland water resources.

SECTION C1: SCOPE ITEMS

Instructions:

- Enter budget category amounts as needed for your project by entering text into the yellow cells.
- Round to the nearest \$100
- All category subtotals and the Total Estimated Project Cost will autopopulate

A. Personnel Costs:

Salaries

# of workers	Rate per hour	Total hours	Item Total
			\$0
			\$0
			\$0
			\$0
			\$0

PERSONNEL COSTS SUBTOTAL **\$0**

B. Material & Equipment:

Material

Material description	Quantity	Cost per unit	Item Total
			\$0
			\$0
			\$0
			\$0
			\$0

Equipment

Equipment description	Rate per hour	Total hours	Item Total
			\$0
			\$0
			\$0
			\$0
			\$0

Material & Equipment Subtotal **\$0**

C. Contractual Items:

Contractual Item description	Cost per item	Item Total
Mobilization	\$16,000	\$16,000
Fish Bypass Channel Construction	\$118,300	\$118,300
Water Management	\$40,000	\$40,000
Boulder Weir Construction	\$12,000	\$12,000
		\$0

Contractual Subtotal **\$186,300**

D. Planning and Engineering Costs (not to exceed 30% of total project cost - engineering):

Cost	Engineering Subtotal
\$55,900	\$55,900

E. Permit Fees:

Permit description	Cost per item	Item Total
MDEQ Permit Application, SHPO, and SESC.	\$2,000	\$2,000
		\$0
		\$0

Permit Fees Subtotal **\$2,000**

F. Program Recognition Sign Costs:

Cost	Signage Subtotal
\$2,000	\$2,000

G. Other:

Description	Cost per item	Item Total
		\$0
		\$0
		\$0
		\$0
		\$0

Other Subtotal **\$0**

TOTAL ESTIMATED PROJECT COST **\$246,200**

SECTION C2: PROJECT FUNDING AND MATCH AMOUNTS

Instructions:

- Complete this section by entering information into the yellow cells
- Total Project Cost will autopopulate from previous tab (C1-Scope Items)
- Local Committed Amount will autopopulate from Total Local Commitment
- Grant Amount Requested will autopopulate as Total Project Cost - Local Committed Amount
- Match Percent will auto populate by dividing Local Committed Amount into Total Project Cost
- All amounts entered must be rounded to the nearest \$100.
- Provide an explanation of the breakdown of each category of local commitment

Total Project Cost:

Grant Amount Requested:

Local Committed Amount:
 Match Percent:

Source of Local Commitment:

Applicant Cash, Materials, Equipment, and/or Labor

Explanation: \$24,700 will be general fund cash.

Cash Donations (must provide commitment letters)

Explanation: N/A

Value of Donated Material & Labor (must provide commitment letters)

Explanation: N/A

Other (e.g. grants awarded for the same scope of work by another entity, additional sources of match, etc.)

Explanation: N/A

TOTAL LOCAL COMMITMENT (Must equal or exceed 10% of Total Project Cost)

SECTION D1: WORKPLAN

Instructions:

- List the work you expect to complete during each quarter of the project by entering text into the yellow cells.
- Respond to additional questions and select appropriate check boxes.
- If your project is selected for funding, this schedule, along with the project budget, will be included as part of the Project Agreement.

First Quarter:

It is anticipated project funding will be awarded in April of 2019. The MRBA will begin with engaging a Consulting Engineer to assist with project design. Engineering Contractual services performed within the first quarter are anticipated to include, but not be limited to the following items:

1. Topographic survey data collected via drone and traditional survey methods.
2. Bathymetric survey data collected upstream and downstream of the project site.
3. Ecological Surveys including wetland assessments.

Second Quarter:

It is anticipated Quarter 2 will commence July 2019. Engineering Contractual services performed within the second quarter are anticipated to include, but not be limited to the following items:

1. Scour analysis for new channel material.
2. Hydraulic, Sediment Transport, and Floodplain analysis using topographic and bathymetric survey data.
3. Stakeholder meetings involving the owner, consultant, adjacent landowner, agency personnel, and community members.
4. 30% conceptual plan design to present to the MDEQ during the project pre-application meeting.

Third Quarter:

It is anticipated Quarter 3 will commence October 2019. Engineering Contractual services performed within the third quarter are anticipated to include, but not be limited to the following items:

1. 90% Permit plans to submit with regulatory permit applications.
2. Preparation of regulatory permit applications including the MDEQ Inland Lakes and Stream Joint Permit Application, State Historic Preservation Office Application, and Marquette County Soil Erosion/Sediment Control Application.
3. Stakeholder meetings involving the owner, consultant, adjacent landowner, agency personnel, and community members.
4. Final Bid Documents including plans, specifications and construction contract documents.

Fourth Quarter:

It is anticipated Quarter 4 will commence January 2020. Engineering Contractual services performed within the fourth quarter are anticipated to include, but not be limited to the following items:

1. Bid advertisement on on-site pre-bid meeting.
2. Selection and awarding of construction contract.
3. Contract administration requirements.
4. Shop drawings and product submittal review.

- 1) Will the project require more time than the project period to complete? Yes No

If yes, explain why and how much additional time the project will require. Include a work plan on the following tab (D2-Work Plan).

- 2) Will this project require an advance of grant funds? Yes No

If yes, explain why, and how much will be required. (Initial Advance Payment cannot exceed 50% of grant funds).

SECTION D2: WORKPLAN SECOND YEAR

Instructions:

- ***This page only needs to be filled out if the project will require more time than the original project period to complete. If not applicable, leave this page blank.***
- List the work you expect to complete during each quarter beyond the original project period end date by entering text into the yellow cells.
- If your project is selected for funding, this schedule, along with the project budget, will be included as part of the Project Agreement.
- If the second, third, or fourth quarters are not needed to complete the project, type "N/A".

First Quarter:

It is anticipated Quarter 1 will commence April 2020. Engineering Contractual services performed within the first quarter are anticipated to include, but not be limited to the following items:

1. Project construction oversight.
2. General construction administration and engineering support.

It is anticipated the contractor will mobilize construction equipment, deliver materials to the site and commence construction activities in the first quarter.

Second Quarter:

It is anticipated Quarter 2 will commence July 2020. Engineering Contractual services performed within the second quarter are anticipated to include, but not be limited to the following items:

1. Project construction oversight.
2. General construction administration and engineering support.

It is anticipated the contractor will continue advancing construction activities in the second quarter. In-stream work will likely occur during low flow period of the summer.

Third Quarter:

It is anticipated Quarter 3 will commence October 2020. Engineering Contractual services performed within the third quarter are anticipated to include, but not be limited to the following items:

1. Project construction oversight.
2. General construction administration and engineering support.
3. Construction site walkthrough / punch list development.

It is anticipated the contractor will continue advancing construction activities in the third quarter to a point of substantial completion. The contractor will typically begin addressing punchlist items immediately following the site walk through.

Fourth Quarter:

It is anticipated Quarter 4 will commence January 2021. Engineering Contractual services performed within the fourth quarter are anticipated to include, but not be limited to the following items:

1. Recommendation for final completion certificate and release of Contractor retainage.
2. Final as-built project documents.

It is anticipated the contractor will complete construction within the fourth quarter and turn the facilities over to the Owner. The project contract will require all contractual items are complete within the specified project agreement timeframe.

SECTION E: NEED & BENEFIT

Instructions:

- Complete this section by entering text into the yellow cells. Pertinent and factual information is important, since this part is a significant factor in the evaluation of the application.
- Limit responses to 2,000 characters; text boxes are sized to fit approximately 2,000 characters.

1 **NEED:** Describe why the project is needed. List the problems to be solved or opportunities to be enhanced. Quantify, if possible.

This project will meet the ongoing goals of MRBA, Republic Township, and community members to provide sustainable recreation opportunities, and continue to grow the local tourism-based economy.

The project outcomes include:

1. Providing fish passage and 277 miles of upstream river connectivity.
2. Passing additional flows to help attenuate seasonal reservoir water surface fluctuations.
3. Maintaining the dam in a safe manner.

2 **BENEFITS:** How does the project meet the Dam Management Grant Program objectives? (refer to the 2018 DMGP Handbook)

This project will fully remove watershed impairments including connectivity, fish passage, and fish community composition and size structure. The project will partially remove hydrology impairments by allowing water to pass through the fish bypass channel for a longer period of time than the current gated dam. This project will also resolve public safety concerns. By creating a fish passage channel, greater hydraulic capacity is gained at the dam, which will help to attenuate flow and reduce reservoir flood stage elevations. Hawks Drive is an adjacent County Road that flooded in April of 1985. Increasing hydraulic capacity at the dam will decrease the likelihood of flooding this road again. The MRBA will continue to work to engage to community of Republic in this project. Members of the community live and recreate on the reservoir. As a small community, it will be critical to maintaining community involvement and education throughout the project. The MRBA already has a strategic event in the annual fishing derby as a platform to discuss the balance between maintaining the reservoir elevation for a successful fishing derby and allowing fish passage upstream of the dam to sustain the fish derby and upstream waterbodies into the future. Maintaining the reservoir elevation will increase access to quality aquatic resources. Stabilizing the impoundment elevation will allow for individuals to recreate for extended periods of time in the fall, winter, and spring. They will also be able to use the new Northern Lights Campground as a key access point to the river.

ATTACHMENTS

Instructions:

- Include the following required attachments along with the application form.
- Note that some attachments are optional and only applicable if the information is available.
- No information or text needs to be entered in this section

REQUIRED CONTENT FOR ALL APPLICATIONS

* **Deed** or most recent tax statement showing landowner name and legal description (if work to be done is located on applicant's own property)

* **Project Location Map:** the project location map should be sufficiently detailed so that a person unfamiliar with the site or your community can find it only using the map. The map should include street and road names, and landmarks. Please do not use an aerial photo map for this purpose.

* **Site Plans and Drawings:** information should be clear, legible, detailed, and appropriately labeled.

* **Site Photos**

OPTIONAL OR ONLY IF APPLICABLE

* **Documentation of committed funds:** attach all commitment letters for donations and other grants awarded for the same scope of work by another entity

* **Correspondence regarding regulatory permitting Issues:** attach any correspondence from a regulatory agency about your proposed project

* **Supporting documentation for current condition of aquatic community (e.g. P51 or P22 scores, macroinvertebrate sampling data, DNR Fisheries survey information, etc.)**

* **Invasive/nuisance species management plan**

* **Documentation of sediment sampling and/or sediment management plan**

* **Operation and maintenance plan**

ADDITIONAL INFORMATION

Instructions:

- Complete this page by entering text into the yellow cell.
- Limit response to 2,000 characters (approximate size of text box).

Additional Information:

Republic Dam is located on the Michigamme River within Republic Township. The reservoir created by the dam is a source of community identity. The surface area of the reservoir is approximately 180 acres and the storage capacity is approximately 1,450 acre-feet. The reservoir elevation is typically maintained around 1492.2 feet, which results in a total head across the dam of approximately 10-feet.

The primary dam spillway currently operates by passing flows through three separate spillway openings each 12 feet in width and 10.73 feet in height. The typical reservoir management practice is to lower the gates in the summer months during low flows to maintain the reservoir level near 1492.2 feet. During the fall, winter, and spring, the gates are raised to the open position which allows the water level in the reservoir to rise and fall with the natural flow of the river.

The MRBA recently purchased the dam from the former owner with intent to preserve the impoundment and improve the dam. In 2018, MRBA retained engineering services for the preliminary planning of dam modifications. Within a project separate from the proposed fish passage channel project, it is proposed the existing dam gates be removed / plugged and the dam itself be converted to a fixed crest spillway to reduce operation and maintenance costs. Removal of the existing gates and modifying the dam to a fixed crest spillway aids MRBA in our goal to maintain reservoir levels, and to do so in a fiscally responsible manner. An application has been recently made to another funding source for the stand-alone fixed crest spillway modification project.

It is understood the proposed fixed crest spillway will impede naturally occurring sediment transport and will not meet MRBA's goal of fish passage. If this proposal is funded, the fish passage channel will be a stand-alone project separate from the fixed crest spillway modification project.

CERTIFICATION

Instructions:

- Authorized Officials must certify this application before it may be submitted.
- Only Authorized Officials may check the box to certify this application.

CERTIFICATION

I certify that all statements on this application and the attachments hereto are true, complete and accurate to the best of my knowledge.

Click here to certify

James Brennan

Authorized Official Name

11/16/2018

Date