June 10, 2025

Shelley Dickstein
Dayton City Manager
101 West Third Street
Dayton, Ohio 45402

Re: City of Dayton
Mad River Conversion Dam Replacement
Loan Number: FS390302-0042
Finding of No Significant Impact

To Whom it May Concern,

On May, 8, 2025 Ohio EPA issued a preliminary Finding of No Significant Impact (FNSI) and Environmental Assessment for the Dayton Mad River Conversion Dam Replacement project for public review and comment. The thirty-day period for comments has passed and no comments have been received. Therefore, the conclusions contained in that preliminary FNSI become the basis for this final FNSI for the above referenced project.

This final Finding of No Significant Impact may be revised or rescinded at a future date based upon either changes to the proposed project, the presentation of information which significantly alters earlier conclusions, or failure of the applicant to perform the environmental mitigation prescribed in the Environmental Assessment.

Sincerely,

Kathleen Courtright

Kathleen Courtright, Assistant Chief
Division of Environmental & Financial Assistance

May 8, 2025

Preliminary Finding of No Significant Impact
To All Interested Citizens, Organizations, and Government Agencies

City of Dayton - Montgomery County
Mad River Conversion Dam Replacement
Loan Number: FS390302-0042

The attached Environmental Assessment (EA) is for a conversion dam replacement project in Dayton which the Ohio Environmental Protection Agency intends to finance through its Water Supply Revolving Loan Account (WSRLA) below-market interest rate revolving loan program. The EA describes the project, its costs, and expected environmental benefits. We would appreciate receiving any comments you may have on the project. Making available this EA and seeking your comments fulfills Ohio EPA's environmental review and public notice requirements for this loan program.

Ohio EPA analyzes environmental effects of proposed projects as part of its program review and approval process. We have concluded that the proposed project should not result in significant adverse environmental impacts. More information can be obtained by contacting the person named at the end of the attached EA.

Any comments on our preliminary determination should be sent to the email address of the contact named at the end of the EA. We will not act on this project for 30 calendar days from the date of this notice. In the absence of substantive comments during this period, our preliminary decision will become final. After that, the City of Dayton can then proceed with its application for the WSRLA loan.

Sincerely,

Kathleen Courtright

Kathleen Courtright, Assistant Chief
Division of Environmental & Financial Assistance

Attachment

ENVIRONMENTAL ASSESSMENT

Project Identification

Project: Mad River Conversion Dam Replacement

Applicant: City of Dayton
101 West Third Street
Dayton, Ohio 45402

Loan Number: FS390302-0042

Project Summary

The City of Dayton has applied to the Ohio Water Supply Revolving Loan Account (WSRLA) for $8 million for the Mad River Conversion Dam Replacement project. The project will involve rebuilding the dam a short distance downstream of the failed dam. This water diversion dam function is critical to recharge Mad River Well Field by allowing diverted river water to absorb into the underground aquifer.

Because this project will impact waters of the state, mitigation is required by the U.S. Army Corps of Engineers (USACOE) and credits will be purchased to compensate for the construction impacts. Other environmental impacts are discussed below.

History & Existing Conditions

The City of Dayton is in Montgomery County, in southwestern Ohio (see Figure 1). Dayton owns and operates two water treatment plants (WTPs); the Miami WTP and the Ottawa WTP, and maintains two well fields to supply drinking water to the city. The Dayton water system supplies a large amount of filtered groundwater to the city's residents.

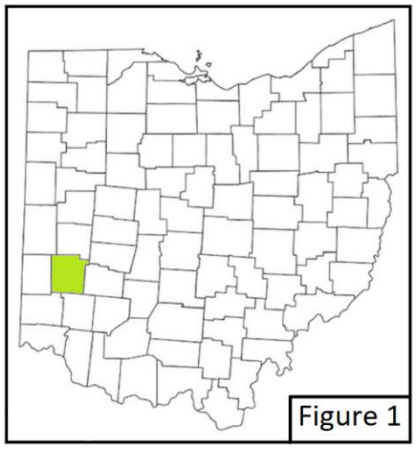
Figure 1

The Mad River Well Field provides the source water for the City of Dayton's Ottawa WTP. This portion of the system was developed to augment the existing wells that were supplying Dayton's water. The dam is part of a system used to recharge the groundwater for the City of Dayton's well field. As a unique artificial recharge system, it is made possible by the geology and topography of the area.

The Mad River Well Field, including the Conversion Dam and other portions of the well field system, is located on Rohrers Island. The aquifer recharge area was created by the multiple channels of the Mad River that developed as the river flooded and local residents altered its flow to tap into hydropower to run early mills and other businesses. The system currently uses a collection of dams and retention

basins to divert water from the main channel of the Mad River and store it in small, artificial lagoons to allow the system to recharge (see Figure 2).

At the northern end of Rohrers Island, the Conversion Dam diverts part of the river water to the east and southeast of the island, while the main river channel continues over the dam and to the west. Along the northwest side of the channel, there is an intake gate that allows water to flow onto the island, filling the retention basins, when it is necessary to recharge the system. Water that is not let into the system by the intake gate continues to flow southeast, around the island.

There are multiple retention basins located on Rohrers Island, which have been dug over the course of the usage of the Mad River Wellfield. Water from the intake flows into the basins and there are drainage pipes and gates between the basins to allow for water to flow into all of them; at times, the gates to some of the basins are closed and they are drained for maintenance, which includes dredging and the removal of trash, sand, and debris.

At the southeast corner of Rohrers Island, the conversion channel is diverted to the west by the Block Dam and an associated sluice gate, which are the remnants of an earlier dam and tailrace system. The water within the Mad River Well Field system is introduced back into the main channel of the Mad River in two ways. The overflow from the retention basins runs through a channel on Rohrers Island, which flows into the Mad River near the southwest corner of the island. The remaining water in the conversion channel flows east/southwest from the Block Dam along the southeast side of the island before passing over the Trapezoidal Dam, which is located along the channel approximately 250 feet east of the southwest corner of Rohrers Island. The excess water from the system then continues to flow southwest through the City of Dayton.

The Conversion Dam was originally built in 1938, measuring 10 feet tall and 260 feet wide. The dam is constructed of rockfill, which has been capped by concrete, and there is a concrete wing wall to the southwest of the dam, along the shoreline of the system's conversion channel. The current damaged condition of the dam includes a collapsed center concrete section as well as erosion along the left embankment. The dam was repaired or improved by the City of Dayton in 1971, 1989, and 2015–2020. See Figure 3 for a photo of the current condition of the Conversion Dam.

Figure 2. Location of Conversion Dam on Mad River along Dayton Springfield Pike. The aquifer reabsorption channels are visible on Rohrers Island, within the red box.

Figure 3. Photo of existing dam, showing broken portion of dam.

Population and Flow Projections

The population of Dayton is approximately 138,416 according to the 2017-2021 American Community Survey. Dayton projects a slight population decrease annually, resulting in a predicted population of 130,027 by 2041. Dayton's customers consume approximately 2.6 million gallons daily (MGD) of water, while Dayton produces an average of 59 MGD. Dayton sells water to several other municipal customers, including Greene County, Brookville, Trotwood, Montgomery County, Oakwood, and Kettering. Dayton has many drinking water improvements projects planned over the next 10 years, including expansions to the Miami well field, Perfluorooctanoic Acid (PFAS) and Perfluorooctyl Sulfonate (PFOS) testing improvements, Miami well field recharge lagoon improvements, and a piping interconnection between the Miami and Ottawa WTPs.

Alternatives

For the alternatives analysis, the geometry of the new dam maintains the same top-of-dam elevation and same or larger weir length as the Conversion Dam so as not to change the amount of water flowing into the wellfield or downstream river segments.

Key considerations include geometry both in plan and section, hydraulic capacity, foundation conditions, construction materials, constructability and control of water during construction.

Location - Given the location of the existing Conversion Dam, consideration was only given to moving the new dam to the downstream side of the existing dam. It is recognized that the new dam would inundate an area that is currently used for vehicle access across the Mad River during low flow. However, it is anticipated that vehicle access can be provided via the alternative entry point that is currently aligned with the dam apron on the alternatives. The training walls and dam limits would be designed in a manner and to an elevation that flooding of adjacent areas along the Mad River should not change from the current conditions. The only area that would change is the area immediately upstream of the new dam, within the normal pool limits for the Mad River.

Alignment - For each dam section, three alternative alignment geometries have been proposed:

Alignment 1: V-shape arch shape that would provide additional stability for uplift and sliding compared to Alternative 3. This alternative has a longer length and therefore requires more concrete than alternatives 2 and 3, which is reflected in the higher cost. See Figure 4a.

Alignment 2: Consists of the dam being built using a constant radius. This would provide a similar appearance to the existing dam and to provide an arch system to develop the necessary weir length and improve strength and resistance to sliding. This alternative will also direct water to the center of the receiving channel. Forming concrete for the dam steps will require more effort than alternatives 1 and 3. It is envisioned that the concrete would be poured on small straight sections, rather than a true arch. See Figure 4b.

Alignment 3: This alternative utilizes a straight alignment across the Mad River and training walls to direct flow to the center of the river. This linear alignment is likely easier to construct than alternatives 1 and 2. The dam is located further downstream than alternatives 1 and 2 to reach a wider portion of the Mad River that can meet the required weir length. Even though it is further downstream, it is still able to be installed prior to the designated access point for future vehicle traffic in front of the dam. See Figure 4c.

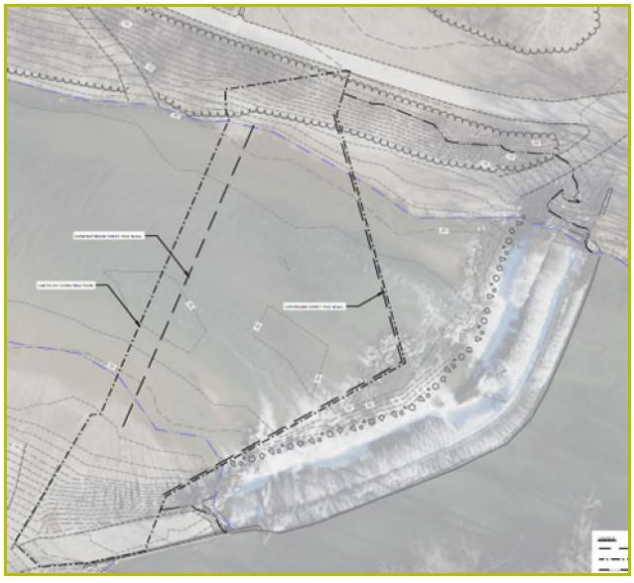

Figure 4a. Alternative dam alignment 1

Figure 4b. Alternative dam alignment 2

Figure 4c. Alternative dam alignment 3

Common to all three alternatives is a concrete stepped spillway surface with a downstream slope of 4 horizontal on 1 vertical (4:1). The stepped spillway will provide a stable arrangement with respect to sliding and overturning and serves to reduce the development of dangerous currents at the toe of dam during higher flow events. Reinforced concrete training walls at each abutment are also part of all alternatives. Sheet pile cutoff walls would be added for seepage and erosion control.

Selected Alternative

Alternative 2 was selected (see Figure 4b). This alternative dam shape will provide a similar appearance to the existing dam and provide an arch system to develop the necessary weir length and improve strength. This alternative will also direct water to the center of the receiving channel. The top of the dam will be 12 feet tall and have a seven-step spillway successively below the dam to break up flow and prevent dangerous currents. The concrete will be poured in small straight sections, rather than a true arch.

The new dam would include the following components:

- Sloping upstream concrete weir designed to encourage debris and ice to pass over the dam
- Weir length to match or slightly exceed existing conversion dam length.
- Reinforced concrete steps – 12 inches to 24 inches thick (thickness varies with type of core selected, RCC or aggregate)
- Effective downstream slope angle = 4 horizontal on 1 vertical
- Upstream and downstream sheet pile cutoff walls (length varies with type of core selected)

The existing dam will remain in place and the replacement dam be constructed immediately downstream of the current location. The replacement dam will share a common left abutment and be

aligned to minimize its footprint and direct flows into the receiving channel. The proposed dam and spillway will be constructed using steel-reinforced concrete with steel sheet pile installed along the upstream face to cut off under-seepage.

The use of upstream and downstream sheet piles and additional temporary sheeting may be used to facilitate the control of water. It is anticipated that the dam will be constructed in two halves. The use of sheeting as a coffer dam will force water to go around the area under construction. The use of pumps will allow for construction. Other measures, including the use of a soil cofferdam and sandbags, are also options for the control of water. Passive control of water such as construction of the new dam in the fall months in dry conditions will help to control water flow.

Implementation

Dayton has requested $8 million from the WSRLA to construct the Mad River Conversion Dam Replacement project at the standard interest rate, currently at 3.42%. During the 30-year loan term, Dayton will save approximately $1.2 million compared to the market interest rate of 4.72%. Interest rates are set monthly and may change upon the actual month of loan award.

Dayton residential customers are currently paying a quarterly water bill of $145. According to the 2017-2021 American Community Survey, the estimated median household income (MHI) for a resident of Dayton is $37,536. The average annual water bill is $580, which is 1.5% of the MHI. The water rate will not be increased to pay for this project.

Assuming loan award in June 2025, construction will begin shortly after award and is anticipated to be complete by June 2026.

Public Participation

Dayton has made good efforts to notify the public and allow them to comment. The most recent public meeting in February 2025 included the project and potential impacts to historic properties. Information is also available on Dayton's website. Additionally, due to the USACOE review and various permitting required, USACOE has already posted their project review for public comments late 2024.

Ohio EPA is unaware of any controversy about or opposition to this project. This Environmental Assessment (EA) and preliminary Finding of No Significant Impact (FNSI) will be posted on the Ohio EPA Division of Environmental and Financial Assistance website. Additionally, the EA and FNSI have been provided to the City of Dayton to be made available according to their public notification procedures.

Environmental Impacts

The project has the potential to affect the following features, but the effects will be reduced or mitigated to acceptable levels as explained below.

Air Quality, Dust, and Noise: The proposed project will result in a temporary increase in dust, exhaust fumes, and noise from construction activities. This will be mitigated by standard construction best

management practices, including emission control on motorized equipment and limiting work hours to the daytime. Dust due to excavation in dry weather will be controlled by good housekeeping measures (minimizing the area of disturbed soil, road sweeping, dust suppression with water or other benign dust suppressant). Because of its temporary nature and the use of emissions controls on motorized equipment, construction vehicle exhaust will be an insignificant pollution source compared to background sources of motorized vehicle exhaust in the greater project area. For these reasons, any effect on air quality will be short term.

Archaeological and Historical Resources: The Mad River Conversion Dam project was reviewed by the State Historic Preservation Office (SHPO), and was recommended for inclusion in the National Register of Historic Places. Five possibly interested parties including American indigenous tribes and the adjacent landowner, Norfolk Southern Railroad, were invited to provide comments. To mitigate adverse effects, the execution of a Memorandum of Agreement (MOA) that is acceptable to all parties was created and will be signed prior to beginning construction.

Aquatic Habitat: The project was submitted to the U.S. Fish and Wildlife Service for review and comments by USACOE. Per USACOE recommendation, proposed Class III structures with no downstream hazard no longer require a permit through ODNR. Temporary fill material and sheet piles will be needed for coffer dams to dewater the work area and the existing dam would be left in place to be used as the coffer dam.

Endangered Species, Fish and Wildlife: The entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), and northern long-eared bat (*Myotis septentrionalis*), state endangered and federally endangered species, the little brown bat (*Myotis lucifugus*) and the tricolored bat (*Perimyotis subflavus*), state endangered species. All tree cutting must be done from October 1 to March 31, to avoid impacts to endangered bats and their maternity habitat. If trees must be cut outside this time window, a bat survey must first be coordinated with the Ohio Division of Wildlife (DOW).

The project is within the range of the Whooping Crane (*Grus americana*), a federally endangered experimental population species. Whooping cranes nest in wet meadows and open wetlands. Because this kind of habitat is not in the project area, there will be no impact to this species.

The Eastern massasauga typically inhabits wetland habitats, including bogs, fens, shrub swamps, wet meadows, wet prairies, and floodplain forests and low areas along rivers and lakes. No potential Eastern massasauga habitat was observed in the study area. Therefore, it is believed that the proposed dam repair project is not likely to adversely affect this species.

The entire state of Ohio is within the range of the Monarch Butterfly (*Danaus Plexippus*), a federal candidate endangered species. The monarch butterfly uses milkweed species as their host plant, as well as prairie, meadow, and wetland wildflowers. Because the project will only involve temporary disturbance to possible swamp milkweed along the river floodplain due to construction vehicle mobilization, this project will not impact this species.

A review was conducted with USFWS regarding potential mussel habitat in the project area, and it was determined that because federally listed mussels are not likely to occur in the project area, a mussel survey was not recommended.

Floodplains and spoil disposal: This project is in the floodplain and floodway, and the city will obtain a floodplain construction permit and other required coordination prior to construction. Spoil is not to be disposed of in the floodplain, river, wetland, or adjacent riparian corridor areas. Any other temporary material used during construction would be removed and disposed of at an appropriate offsite upland location.

Construction of the new dam downstream of the existing dam allows the existing dam to be utilized for control of water. Construction of the dam in sections (half or thirds) also will allow for water to be safely diverted around the construction area.

Groundwater Resources and Sole Source Aquifer – The project is within the Great Miami Buried Valley Aquifer. Best management practices (BMPs) will be used to prevent contamination of the aquifer during construction. A spill containment kit should be included on the construction site where construction vehicles are present. Sediment and erosion controls will be in place to minimize runoff to the river. A geotechnical report was conducted prior to the design of this project, and no environmental contaminants are expected to be disturbed during construction.

Local Economy: By using low-interest financing, Dayton has minimized the project costs and the economic impact on customers. Dayton will not need to increase water rates specifically for this project.

Safety, Traffic, and Aesthetics: This project will occur on city property along the Mad River, which does not involve public roads. Aesthetics will not be permanently altered from a public perspective, and the dam landscape will be restored after the dam is replaced. Construction best management practices and safety standards will be followed by the contractors for this project as outlined in detail plan notes.

Construction of a new dam downstream of the existing dam allows the existing dam to be utilized for control of water. Construction of the dam in sections (half or thirds) also will allow for water to be safely diverted around the construction area.

Safe Drinking Water – This project is part of a larger initiative Dayton is undertaking to improve drinking water quality by strengthening the aquifer source water. This will help give Dayton alternatives to draw drinking water if particular wells are found to have contaminant levels exceeding desired or regulatory limits.

Surface Water Resources - A storm water pollution prevention plan (SWPPP) will be completed in accordance with applicable regulations.

Mitigation for the stream impacts (0.48 acre) may be required since impacts to the Mad River, a water of the state, are greater than 0.03 acre. Mitigation credits will be purchased from a USACOE-approved mitigation bank.

Unaffected Environmental Features: The project will have no negative impacts on *Energy use, Land use, Wetlands, State or Federal Wild or Scenic Rivers*, *Prime Farmland, Coastal Zones,* or *Drinking Water Resources.* These resources are not present in or near the work site, and therefore will not be affected.

Conclusion

Based upon Ohio EPA's review of the planning information and the materials presented in this Environmental Assessment, we have concluded that there will be no significant adverse impacts from the proposed project as it relates to the environmental features discussed previously. This is because these features do not exist in the project area, the features exist but will not be adversely affected, or the impacts will be temporary and mitigated.

This project will result in the replacement of the failed Conversion Dam and allow for proper function of the dam in recharging the Great Miami Buried Valley Aquifer, which is the source water for the Dayton drinking water wells.

Contact information

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