

**ENVIRONMENTAL ASSESSMENT
DRINKING WATER REVOLVING FUND (DWRF)
CITY OF EAST LANSING – INGHAM COUNTY
DRINKING WATER TREATMENT PLANT IMPROVEMENTS**

February 2019

PROJECT IDENTIFICATION

Applicant: City of East Lansing, Ingham County

Address: 2470 Burcham Drive
East Lansing, Michigan 48823

Authorized Representative: Mr. Clyde Dugan, Manager

Project Nos. 7440-01, 7441-01 and 7442-01

PROJECT OVERVIEW

The city of East Lansing and Meridian Township formed the East Lansing - Meridian Township Water and Sewer Authority (ELMWSA) that owns and operates a water treatment plant (WTP) and distribution system to provide drinking water to the city and Meridian Township. The ELMWSA submitted a five-year plan to address deficiencies at the WTP, replace water mains, construct additional water storage and purchase additional water supply wells. This Environmental Assessment (EA) covers the deficiencies at the WTP, which will receive loans starting in 2019 and ending in 2021. The distribution and water supply construction will be covered by a future EA and is expected to receive funding 2021 – 2025.

The first of three WTP projects planned for 2019 includes Phase II of the replacement of the plant heating, ventilation, and air conditioning system (HVAC). The ELMWSA will be seeking low interest loans (2.0 percent for Fiscal Year 2019) through Michigan's DWRF program, administered by the DEQ, to fund the three projects at an estimated cost of \$1,878,000. As a result of the projects, the current average East Lansing water user rate would increase by \$1.16 per month or \$13.91 per year and the Meridian Township current average water user rate would increase by \$0.82 per month or \$9.79 per year.

PROJECT BACKGROUND

The ELMWSA WTP is located at 2470 Burcham Drive in Meridian Township (Figure 1). It was constructed in 1973 and upgraded in 1993. The facility serves a customer base of over 75,000 residences and businesses in the city of East Lansing and Meridian Township. The ELMWSA water conditioning plant has a firm capacity of 15 million gallons per day (MGD). The total current capacity for the wells is 19.6 MGD and the firm capacity is 15.0 MGD.

The existing system consists of 29 water supply wells in operation in the ELMWSA water system. A two-million-gallon water ground storage tank serves as the treated water primary holding tank. East Lansing has three elevated water storage tanks and one ground storage tank. Meridian Township has two additional ground storage tanks and one ground storage tank jointly owned by the township and the Lansing Board of Water and Light (LBWL).

The ELMWSA distribution system consists of approximately 68,317 feet of raw water main, and 17,762 feet of distribution system water pipes that convey treated water to customers. There are

three holding ponds in the system. The ELMWSA retains the right to purchase up to 1.32 MGD of finished water from the LBWL.

PROJECT NEED

After completing a waterworks treatment system review, the ELMWSA determined that the HVAC systems are at the end of their operational life. As a result of the failing HVAC system, heavy moisture generated corrosion build-up has occurred on the plant's operating system controls and pipes. Water plant personnel attempts to perform anti-corrosive efforts such as paint component covering have been ineffective. The authority needs to replace the plant HVAC system which is in imminent danger of failing.

The water plant filter control panels are severely deteriorated and corroded due to age and have reached the end of their useful life. These controls need to be replaced for reliability.

The ELMWSA operates with four water filters. All four must operate to meet the current 15 MGD capacity. Two additional water filters are needed to increase reliability and functionality of the water works system. Adding two filters will allow to have two filters down for cleaning and flushing which allows four filter units to continue operating.

ALTERNATIVES CONSIDERED

No Action Alternative:

The ELMWSA eliminated the No Action alternative from consideration since this would not address the problems at the WTP.

Regional Alternative:

The ELMWSA could connect to the LBWL water system. However, since all three projects covered in this EA are upgrades confined to the water treatment plant components and ELMWSA is already a regional system, this is not a feasible alternative.

Optimum Performance Alternative:

In order to optimize the water treatment plant to improve performance these upgrades would be needed based on the condition of the existing equipment.

Capital Improvement Alternative:

The ELMWSA selected this alternative as the most cost-effective option to address all 20-year reliability needs for the WTP. The first three projects and their proposed funding years are listed below:

1. HVAC

Replacement of the failing plant HVAC operating components and equipment will occur in 2019 and 2020. Estimated cost of the 2019 work is \$745,000.

2. Evaluation/Painting

Completion of an internal corrosion evaluation of the plant's piping and control systems followed by cleaning, prepping, painting and replacing the corroded components will occur in 2020, after the completion of HVAC replacement. Estimated cost of the 2020 work is \$1,133,000.

3. Water Filters

Replacement of the water filter controls, installation of two additional water filters, along with enhancement of the control panel to accommodate the upgrades will occur in 2021. Estimated cost is \$2,900,000.

Based on cost, minimizing environmental impact, and meeting water treatment plant reliability needs, the Capital Improvements Alternative despite having the highest up-front capital cost over the 20-year period has the lowest annual cost. Below is the annual present worth cost for the first three WTP projects.

Table 1- Present Worth Cost for All Three Projects

	Principal Alternative
Capital Cost	\$1,878,000
Annual OM&R	\$6,350
Present Worth of 20-year Salvage Value	\$836,620
Net Present Worth	\$1,150,430
Equivalent Annual Cost of Annual Present Worth	\$67,020

USER COST AND PROJECT SCHEDULE

The project will be funded by three DWRP low interest loans obtained in 2019, 2020, and 2021. The interest rate for the 2019 loan is 2.0 percent. The estimated cost to complete the three projects is \$4,778,000, which includes construction, contingencies, engineering, administration and legal services. As noted previously, the current average East Lansing user rate would increase by \$0.46 per month or \$5.52 per year. The Meridian Township average current user rate would increase by \$0.32 per month or \$3.84 per year. Construction is expected to begin in the summer of 2019 and be completed by **December 2022**.

ENVIRONMENTAL IMPACTS

Beneficial impacts resulting from the three projects include a humidity free, temperature-controlled work environment inside the water treatment plant, corrosion free piping throughout the facility, more reliable system controls, and efficient water filter operation.

Construction impacts associated with the proposed projects are expected to be short-term. These impacts include construction vehicle traffic, noise, dust, emissions and construction personnel. There should be minimal traffic interruptions since all the construction work will be confined to the water treatment plant (Figure 2). The water plant will continue to operate at full capacity during the upgrades and all upgrades will be completed in accordance with all applicable laws and regulations. No Act 399 construction permit is needed for replacing the water treatment plant HVAC system.

The DEQ, Water Resources Division, determined that based on Michigan's Floodplain Regulatory Authority found in Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, the ELMWSA WTP is located in a floodplain, but it is not regulated by the DEQ because the drainage area of the tributary to Pine Lake Outlet Drain is less than two square miles at this location.

A rare species review was completed through the Michigan Natural Features Inventory (MNFI). The location of the proposed project was checked against known localities for rare species and unique natural features.

The Blanding's turtle has been known to occur near the project site. Since the WTP is adjacent to a wetland area, construction could impact the Blanding's turtle. The proposed construction will not encroach on the wetlands and tree clearing is expected. Also, no transport, encroachment, or storage of construction materials will be allowed on wetland grounds. Land will not be disturbed unless necessary. If a Blanding's turtle is seen, construction will cease until the animal has left the area.

Based on a preliminary analysis, the United States Fish and Wildlife Service (USFWS) identified four federally endangered species within the project areas but confirmed that the proposed project would have no-effect determination due to the project occurring within developed areas.

However, it has been determined that suitable habitat is not present or the project activities will not disturb the listed species or their habitat. Four species which have been identified by the USFW that occur in Clinton and Ingham Counties are:

1. Indiana bat - federally endangered species.
2. Northern long-eared bat - federally threatened species.
3. Eastern prairie fringed orchid - federally threatened species.
4. Eastern Massasauga rattlesnake - federally endangered species.

The State Historic Preservation Office determined that there would be no adverse effect on historic properties within the project area. The Tribal Historic Preservation Officers that may have historical, religious, or culturally significant resources in the area were contacted and none expressed any concerns.

PUBLIC PARTICIPATION

A public hearing to discuss the proposed project was advertised, held, and recorded according to DWRP guidelines. The hearing was advertised on March 16, 2018, in the *Lansing State Journal*, and the hearing was held on April 16, 2018, at 5:00 p.m. at the East Lansing - Meridian Water and Sewer Authority Water Treatment Plant Board Room. There were no questions from the public.

REASONS FOR CONCLUDING NO SIGNIFICANT IMPACTS

No long-term significant impacts are associated with this project. Long term positive impacts include the elimination of moisture driven corrosion of piping and operational controls, and increased efficiency and reliability of the WTP operations. The benefits of the proposed project are anticipated to outweigh the short-term construction impacts.

Questions regarding this Environmental Assessment should be directed to:

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