Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

November 22, 2017

Issuance of A Limited Environmental Review
To All Interested Citizens, Organizations, and Government Agencies

City of Shelby
Richland County

WWTP Improvements
Loan Number CS390849-0011

The purpose of this notice is to advise the public that Ohio EPA has reviewed the referenced project and finds neither a Supplemental Study (SS) nor an Environmental Assessment (EA) is required to implement the project as discussed in the attached Limited Environmental Review (LER). Consequently, a Finding of No Significant Impact is being issued for this project.

The Water Pollution Control Loan Fund program requires the inclusion of environmental factors in the decision-making process for project approval. Ohio EPA has done this by incorporating a detailed analysis of the environmental effects of the proposed action in its review and approval process. Environmental information was developed as part of the facilities plan, as well as through the facilities plan review process. A subsequent review by this Agency has found that the proposed action does not require the preparation of either an EA or an SS.

Our environmental review concluded that because the proposed project is limited in scope and meets all applicable criteria, an LER is warranted. Specifically:

- The proposed project will have no significant adverse environmental effect, nor will it adversely affect any specific resource type.
- It will not require extensive general or specific direct impact mitigation.
- It will not affect current design flow value or the existing service area.
- It is clearly cost effective.

- It is not controversial.

- It will not result in an increase in the volume of discharge or loading of pollutants to receiving water or increase the withdrawal of additional water supplies.

The LER presents additional information on the proposed project, costs and the basis for our decision. Further information can be obtained by calling or writing the contact person listed on the back of the LER.

Upon issuance of this determination, loan award may proceed without being subject to further environmental review or public comment, unless information is provided which determines that environmental conditions on the proposed projects have changed significantly.

Sincerely,

for Jerry Rouch, Assistant Chief
Division of Environmental & Financial Assistance

Attachment

LIMITED ENVIRONMENTAL REVIEW
For
City of Shelby
WWTP Improvements
CS390849-0011

Applicant: **The Honorable Steven Schag, Mayor**
City of Shelby
43 West Main Street
Shelby, Ohio 44875

Project Summary

The City of Shelby is located in northwestern Richland County. The city owns and operates a conventional activated sludge wastewater treatment plant (WWTP) located at 3626 London West Road in Shelby. The WWTP serves about 9,500 people and eight industrial users. The WWTP is aged and has several outdated components, which contribute to wet weather bypasses at the plant. To meet the terms of its National Pollutant Discharge Elimination System (NPDES) permit, the city is required to eliminate these wet weather bypasses, as well as address the WWTP's ammonia-nitrogen exceedances and improve secondary treatment capacity. The project includes improvements to headworks equipment, replacing storm and raw wastewater pumps, upgrading primary settling tanks and aeration systems, adding a new final clarifier, replacing chlorination with ultraviolet (UV) disinfection, and improvements to the secondary sludge pumping.

The total estimated project cost is $9,198,000. Debt for the project will be repaid from monthly sewer fees and the Sanitary Sewer Capital Improvements Surcharge fund. The project is scheduled to begin in early 2018 and be completed in 18 months.

Existing Conditions

The sewer system is comprised of an estimated 70 miles of sewer lines and over 1,300 manholes. The service area in Shelby is subject to flooding and a significant amount of the system is within the flood plain. The oldest portions of the system are estimated to be 100 years old. There are two lift stations outside of the corporate limits that are owned and operated by Richland County. The lift stations pump sanitary waste into the collection system. Infiltration and inflow (I/I)[1] into the collection system is estimated at 0.5 MGD. These clean water sources are a serious problem during rain events. The city has performed smoke testing on the sewer system to identify sources of I/I. Major sources of I/I have been repaired, and the city performs annual repairs to additional sources of I/I.

The WWTP was originally built in 1953 and expanded in 1988, and is designed to treat an average daily design flow of 2.5 million gallons per day (MGD) and a maximum daily flow of 5.0 MGD. The WWTP was built with a 2 million-gallon (MG) wet-weather flow storage basin, and in 2007 a new 18 MG storage basin and a new grinder and screen building were added. The existing sewer system is defined as a separate sanitary sewer system, but it is susceptible to very high wet weather flows. These flows result in periodic sanitary sewer overflows and bypasses since the existing treatment plant does not have

[1] Infiltration is the ground water that seeps into sanitary sewers through cracks, offset joints and other flaws in the pipe. Inflow is surface runoff that enters sanitary sewers through directly-connected downspouts, area drains, etc.

sufficient capacity to treat very high flows during wet weather conditions. During high flow events, storage basins are filled and the stored wastewater is treated once the high flow rates subside.

The plant is operated as a conventional activated sludge process. Preliminary treatment includes comminution equipment, which reduces the size of waste passing into the WWTP, and bar screens. The influent wastewater is then lifted by four influent pumps into an aerated grit removal tank. Grit that is collected in the grit tank is removed by vacuum trucks. Advanced treatment is by conventional activated sludge in a series of primary settling tanks, activated sludge aeration tanks, and final settling tanks. The treated wastewater is disinfected with chlorine and dechlorinated with sodium bisulfate before being discharged to the Black Fork Mohican River at River Mile 50.07. The subsequent stream network contains the Mohican River, Walhonding River, Muskingum River, and the Ohio River.

Two storage basins are used to store sanitary sewage mixed with extraneous water that enters sanitary sewers through leaks and illicit storm water connections during rain events. Flows in excess of 5.0 MGD overflow to the existing 2.0 MG storage basin for temporary storage until the WWTP has available capacity. When the first basin fills completely, it will overflow to the second basin. If the first basin does not fill completely, it is manually drained back through the inlet pipe by opening the 16-inch sluice gate to the basin outlet chamber. If the second basin is either partially or completely filled, it is drained through its 12-inch drain line and valve. The valve is opened to return 1.0 MGD to the treatment plant. If both the storage basins fill during a storm event, they overflow out their spill ways in the bypass to the Black Fork Mohican River. A manual slide gate was recently installed to control overflows.

Settled primary sludge and waste activated sludge are pumped to the primary digester. After digestion in the primary digester, sludge is transferred to the secondary digester. Digested supernatant is returned to the primary settling tanks. Currently, digested sludge is hauled off site in liquid form and land applied at agronomic rates.

Alternatives

Alternative 1, a “no-action alternative,” is not feasible, since it would not allow the city to make necessary improvements to aged infrastructure and ensure compliance with its NPDES permit.

Alternative 2 would address all sources of I/I throughout the city’s sewer system, including identification and elimination of cracks and gaps in the existing sewers which allow ground

water to enter, as well as elimination of sources of surface water, including downspouts and sump pumps. Reductions in I/I would help the city reduce wet weather bypasses at the WWTP by reducing the volume of wastewater required to be treated, particularly during wet weather events. While it is recommended that the largest sources of I/I in the system gradually be addressed to reduce the elevated volume of waste water and the associated treatment costs, this would not address the improvements required by the city's NPDES permit, nor would it address aged WWTP infrastructure.

Alternative 3 includes: replacing old and outdated headworks equipment, replacing storm and raw wastewater pumps, upgrading primary settling tanks and aeration systems, adding a new final clarifier, replacing chlorination with UV disinfection, improvements to the secondary sludge pumping, and construction of a new septage receiving station.

Selected Alternative

Alternative 3 was selected for the City of Shelby – WWTP Improvements project as it will eliminate wet weather bypasses at the WWTP, address NPDES permit obligations, improve and update aged infrastructure, and is estimated to be approximately 81% less expensive than Alternative 2. Alternative 3 includes the following:

Screen Building:

- Install a new mechanically cleaned bar screen to replace the existing mechanical screen.
- Install a new screenings washing/compactor unit.

Effluent and Storm Water Pumping Station:

- Install four new centrifugal storm water pumps.

Influent Pumping Station:

- Install three new influent centrifugal pumps.
- Install a new magnetic flow meter on the influent line to the grit tank.

Grit Tank:

- Install new coarse bubble diffusers.
- Repair/replace aeration header, as necessary.

Primary Clarifiers:

- Provide new sludge collector mechanisms, wears, scum troughs, scum baffles, control panels and valves replacement for both existing primary clarifiers.

Aeration Tanks:

- Construct new influent and effluent chambers.
- Install new fine bubble diffusers to replace the existing coarse bubble diffusers in both aeration tanks.

Blower Building:

- Install three new centrifugal turbo blowers for the aeration tanks.
- Install two new positive displacement blowers for the post-aeration tank.
- Install one new positive displacement blower for the grit tank.
- Remove five existing blowers located inside the blower building.

Final Clarifier Splitter Box:

- Construct a new splitter box in order to split aeration tank effluent flow between the three final clarifiers units (1 new and 2 existing).

Final Clarifiers (2 existing and 1 new):

- Construct a new 50 ft. diameter final clarifier and associated activated sludge pumping.
- Install two new return activated sludge pumps and one new waste activated sludge pump.
- Replace sludge collector mechanisms and scum blades for the existing clarifiers.
- Remove one final clarifier tank drain pump.
- Automate sludge wasting using a new flow meter to measure the return activated sludge flow rate.

Final Clarifier Effluent Chamber:

- Construct a new final clarifier effluent chamber.
- Install an additional slide gate for the new final clarifier.

UV Disinfection:

- Replace the chlorination/dechlorination system with a UV disinfection system.
- Construct a new electrical building for the proposed UV equipment.
- Install an effluent flow meter and post-aeration chamber.

Anaerobic Primary Digester:

- Install five new sludge recirculating and transfer pumps.
- Install new boilers, heat exchangers, mixers, floating cover and mechanical agitator for the anaerobic primary digester.

Sludge Storage Rectangular Tanks:

- Install a new submersible pump for tank drainage.

Septage Receiving Station:

- Construct a new 35,000 gallons per day flow septage receiving station.
- Install a 31-inch fine screen.

General Site Improvements:

- Process piping and valves.
- Site work for a complete and operational installation.
- Demolish unused tanks, backfill, and landscape.
- Install security cameras and additional lighting on site.
- Enclose an existing breezeway to create additional office/laboratory space.

Implementation

The total estimated cost of the project is $9,198,000, which includes an estimated $7,752,000 for construction, and $1,446,000 for engineering, contingency and fees, all of which the city proposes to borrow from the Ohio Water Pollution Control Loan Fund (WPCLF). The project service area qualifies for a 1% Hardship loan from the WPCLF, which is a below-market interest rate on 20-year construction loans. Borrowing at 1% will save the City of Shelby approximately $2,200,000 over the life of the loan compared to the current market rate of 3.09 percent. The city will recover debt associated with the project from monthly sewer fees and from a Sanitary Sewer Capital Improvements Surcharge (SSCIS) fund that was initiated to finance the WWTP Improvements project. The SSCIS has tiered rates for residential, senior citizen residential, commercial and industrial users, and will expire in 20 years.

The median household income (MHI) of the benefitting properties is $41,147. The typical residential annual sewer bill, including the SSCIS, based on 3,179 gallons of monthly water use, is $305.67. This represents 0.74% of the MHI, which is considered affordable.

Public Participation

The City of Shelby – WWTP Improvements project has been discussed at Utility Committee meetings and City Council meetings, as well as having significant coverage in the local newspapers. The city is aware of no controversy surrounding this project. Furthermore, this limited environmental review will be posted on Ohio EPA's website.

The following agencies reviewed this project's planning information:

Ohio Environmental Protection Agency
Ohio Department of Natural Resources
U.S. Fish and Wildlife Service
Ohio History Connection

Conclusion

The proposed project meets the project type criteria for a Limited Environmental Review; namely, it is an action within an existing public wastewater treatment system which involves the functional replacement of existing mechanical equipment and construction of new ancillary facilities. Furthermore, the project meets the other qualifying criteria for a LER; specifically, the proposed project:

- *Will have no adverse environmental effect and will require no specific impact mitigation,* as there are no known sensitive environmental resources within the

proposed project area. The proposed project activities include upgrades to and replacement of mechanical equipment and structures within an existing wastewater treatment facility. There will be no significant adverse effects as a result of project implementation, or the need for any additional mitigation measures beyond typical erosion control and construction best management practices;

- *Will have no effect on high-value environmental resources,* as construction will take place within an existing wastewater treatment plant where extensive excavation has previously taken place and where no high-value environmental resources are present;

- *Is cost-effective,* as there are no meaningful alternatives to the proposed action and the project will be financed through the WPCLF, saving approximately $2,200,000 in interest payments over conventional financing;

- *Is not a controversial action,* as there is no known opposition to the proposed project and the cost of the project is not overly burdensome to ratepayers;

- *Does not create a new, or relocate an existing, discharge to surface or ground waters, and will not result in substantial increases in the volume of discharge or loading of pollutants from an existing source or from new facilities to receiving waters,* since the project only involves upgrades to and replacement of equipment related to improved function of the existing wastewater treatment facility, and will result in improved discharges;

- *Does not create a new source of water withdrawals from either surface or ground waters, or significantly increase the amount of water withdrawn from an existing water source,* since the project proposes upgrades to and replacement of wastewater treatment equipment that will improve wastewater treatment capability, not affect water sources or withdrawal amounts, and;

- *Will not provide capacity to serve a population substantially greater than the existing population,* since the project is not related to serving new growth or increasing capacity at the wastewater treatment facility.

In summary, the planning activities for the project have identified no potentially-significant adverse impacts. The project is expected to have no significant short-term or long-term adverse impacts on the quality of the human environment, or on sensitive resources (surface water, ground water, air quality, floodplains, wetlands, riparian areas, prime or unique agricultural lands, aquifer recharge zones, archaeologically or historically significant sites, federal or state-designated wild, scenic or recreational rivers, federal or

state-designated wildlife areas, or threatened or endangered species). Typical construction impacts, such as noise, dust, and exhaust fumes, will be short-term and addressed through the use of standard construction best management practices.

The proposed project is a cost-effective way to allow the city to meet the terms of its NPDES permit by eliminating wet weather bypasses, addressing ammonia-nitrogen exceedances and improving secondary treatment capacity. Furthermore, the improvements will update aged infrastructure at the WWTP and have the long-term water quality benefits that will be associated with the reduction of a public and environmental health threat related to contact with untreated sewage bypassing the city's WWTP.

For further information, please contact:

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Figure 1: Project Location (in red)

Figure 2: Shelby Wastewater Treatment Plant