Ohio Environmental Protection Agency

Mike DeWine, Governor
Jon Husted, Lt. Governor
Anne M. Vogel, Director

April 26, 2023

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

City of Wilmington – Clinton County
Wastewater Treatment Plant Improvements
Loan Number: CS391003-0016

The attached Environmental Assessment (EA) is for a wastewater treatment plant replacement project in Wilmington which the Ohio Environmental Protection Agency intends to finance through its Water Pollution Control Loan Fund (WPCLF) 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 WPCLF 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 Wilmington can then proceed with its application for the WPCLF loan.

Sincerely,

Kathleen Courtright

Kathleen Courtright, Assistant Chief
Division of Environmental & Financial Assistance

Attachment

ENVIRONMENTAL ASSESSMENT

Project Identification

Project: Wastewater Treatment Plant Improvements

Applicant: City of Wilmington
59 North South Street
Wilmington, Ohio 45177

Loan Number: CS391003-0016

Project Summary

The City of Wilmington has applied to the Ohio EPA Division of Environmental and Financial Assistance (DEFA) for a Water Pollution Control Loan Fund (WPCLF) loan for the construction of a new wastewater treatment plant (WWTP) and repurposing of the existing WWTP. The city plans to borrow approximately $45 million for this project.

History and Existing Conditions

The City of Wilmington, located in southwest Ohio, is the seat of Clinton County (see Figure 1 for orientation). The Wilmington WWTP was built in 1937 with the last major upgrades in 1988(See Figure 2 for location). The WWTP treatment process includes a mechanical bar screen, gravity cyclone grit removal, primary clarifiers, primary effluent pumps, trickling filters, aerated contact tanks, secondary clarifiers, and UV disinfection. The WWTP discharges to Lytle Creek. The WWTP solids treatment processes use gravity sludge thickening, aerobic digestion, and aerobic sludge storage. The stabilized liquid sludge is land applied as class B biosolids; a farming fertilizer.

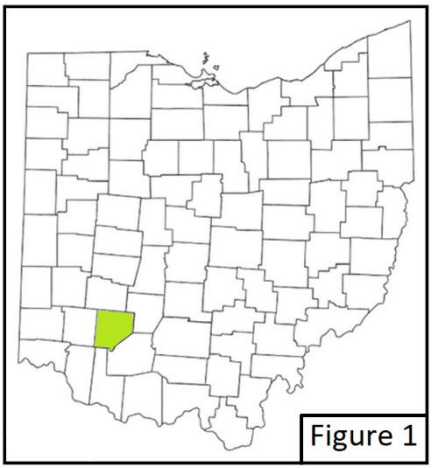
Figure 1

The WWTP's trickling filters have deteriorated and no longer achieve the degree of nitrification that they have in the past. Much of the buried piping, valves, and electrical components at the plant have exceeded their useful lives. Above-grade tank walls leak wastewater because they were not designed correctly.

Wilmington has an ongoing sewer collection system rehabilitation program, but the separate sanitary sewer system still experiences significant inflow and infiltration (I/I) from stormwater entering the sewer during wet weather events. The city is undertaking a major program to reduce rain-derived I/I in their collection system with the aim of reducing peak flows to the treatment plant. It is anticipated that influent wastewater concentrations will increase as I/I is reduced in the future.

The existing plant has an average design flow of 3.0 MGD and a peak hourly flow capacity of approximately 9-10 MGD. Residential, commercial, and industrial flows to the WWTP have been increasing in recent years due to the city's growth. Infiltration of peak wet weather flows into the sanitary sewer have also caused sanitary sewer overflows (SSOs) at 37 manholes. This raw sewage flows onto streets and into Lytle Creek.

Ohio EPA and the city have been discussing the proposed effluent limits in the city's upcoming modification of its National Pollutant Discharge Elimination System (NPDES) Permit. The driver for that modification is the city's intention to substantially upgrade its WWTP to handle an average daily flow of 4.5 million gallons per day (MGD), an increase of 50% from its current capacity of 3.0 MGD. The city agreed that it would accept a total phosphorus loading limit in the renewal NPDES permit that was identical to the existing permit limits. This would result in no net increase in the amount of total phosphorus.

Population and Flow Projections

The projected average daily flow (ADF) at the WWTP allows for a 1% annual population growth over 20 years, while allowing for additional 600,000 gallons per day for industrial growth. The projected loadings equate to the city's population increasing from around 12,000 residents currently to around 20,000 residents in the next 20 years.

Alternatives

Wilmington evaluated its WWTP and sanitary sewer collection system in a June 2020 report titled *City of Wilmington, Ohio Wastewater System Master Plan.* The 2020 Master Plan evaluated alternatives for upgrading the WWTP, including expansion of the existing plant to 4.5 MGD on the same site, or the construction of a new plant at a new city-owned site. Various technologies were evaluated for each of the treatment processes. Sequence batch reactor and vertical loop reactor technologies were compared for biological treatment options.

Alternative 1 – Expansion of the existing WWTP

This option would involve numerous upgrades at the current WWTP to expand the average treatment capacity from 3.0 MGD to 4.5 MGD. An equalization tank would be required for this option, to handle the higher 22.5 MGD of peak flow. Larger piping, an influent pump station to transport higher flows, and the secondary control building repurposing would be part of this option. However, hydraulic models determined the maximum capacity of the existing WWTP is 15 MGD. This alternative was rejected because it was determined that the old WWTP does not have sufficient space to treat the projected hydraulic flow.

Alternative 2 – Construction of a new WWTP

For the new plant construction alternative, the Textron site would be used for the new plant while the existing plant would be converted to sludge digestion and holding tankage. The city already owns the land, and the land is near the existing plant (right across the street). This allows the old plant to be repurposed and minimizes impact on the collection system.

A new trunk sewer will need to be constructed between the two plants. The new plant will be constructed to handle 4.5 MGD of average daily flow but can easily be expanded to 9.0 MGD, if needed in the future. The plant will be designed to handle peak wet weather flow up to 22.5 MGD.

For treatment, sequence batch reactor technology, aqua-aerobics phased activated sludge system, vertical loop reactor, and integrated fixed-film activated sludge were considered as biological treatment alternatives. Biological and secondary treatment alternatives were considered based on affordability, footprint, and the ability to achieve biological nutrient removal.

The city considered a submersible pumping station and a dry-pit pumping station. Submersible pumping stations have numerous benefits, the largest being significant capital cost savings as they do not require a dedicated building. Installing dry-pit submersible pump combines the advantages of a submersible pump and a solids handling dry-pit pump while adding the extra advantage of creating a flood-proof pump station if the plant ever suffers a power outage and/or natural disasters.

Five screening alternatives were considered: Step screen, perforated plate screen, chain and rake screen, center flow band screens, and in-channel basket screen. Grit removal alternatives considered included: mechanical force vortex, tray type vortex, and hydraulically included vortex. Headworks and influent pump station configurations and building alternatives were evaluated based on hydraulic needs. Tertiary treatment equipment was evaluated to accomplish the desired total phosphorus limit. Disinfection system alternatives were considered for the new UV system and compared in-channel systems and closed conduit systems. Sludge dewatering alternatives considered centrifuges, rotary drums, and belt presses to reduce sludge volume. Sludge digestion process alternatives evaluated authothermal thermophilic aerobic digesters and aerobic digestion.

Selected Alternative

Constructing a new WWTP on the Textron brownfield property that the city owns just east of the existing WWTP allows more treatment options, flexibility, and future expandability. The new WWTP will be constructed on the east side of Neil Avenue across the street from the old WWTP (see figures 2 and 3). The new plant is designed for an average daily flow of 4.5 MGD and a peak hourly flow of 22.5 MGD.

The new WWTP will include the following major components:

- Demolition and site work at the former Textron manufacturing facility to prepare the site for the new construction
- Influent pumping with two separate wet wells using three submersible pumps
- Chain-and-rake mechanical bar screens
- Vortex grit removal unit
- SBRs for biological treatment process associated tanks, process equipment, instrumentation, and controls.
- Cloth media filters for tertiary treatment
- Ultraviolet light disinfection
- Post aeration
- Waste activated sludge storage tanks
- Volute press sludge dewatering system
- Disposal of dewatered sludge in existing city landfill
- Miscellaneous civil sitework (yard piping, grading, paving, fencing, stormwater, etc.)
- Standby diesel backup generator
- Repurposing of the existing WWTP
- New outfall pipe to Lytle Creek upstream of the Nelson Avenue bridge
- New 24-inch and 36-inch influent sewers to connect the old WWTP to the new WWTP

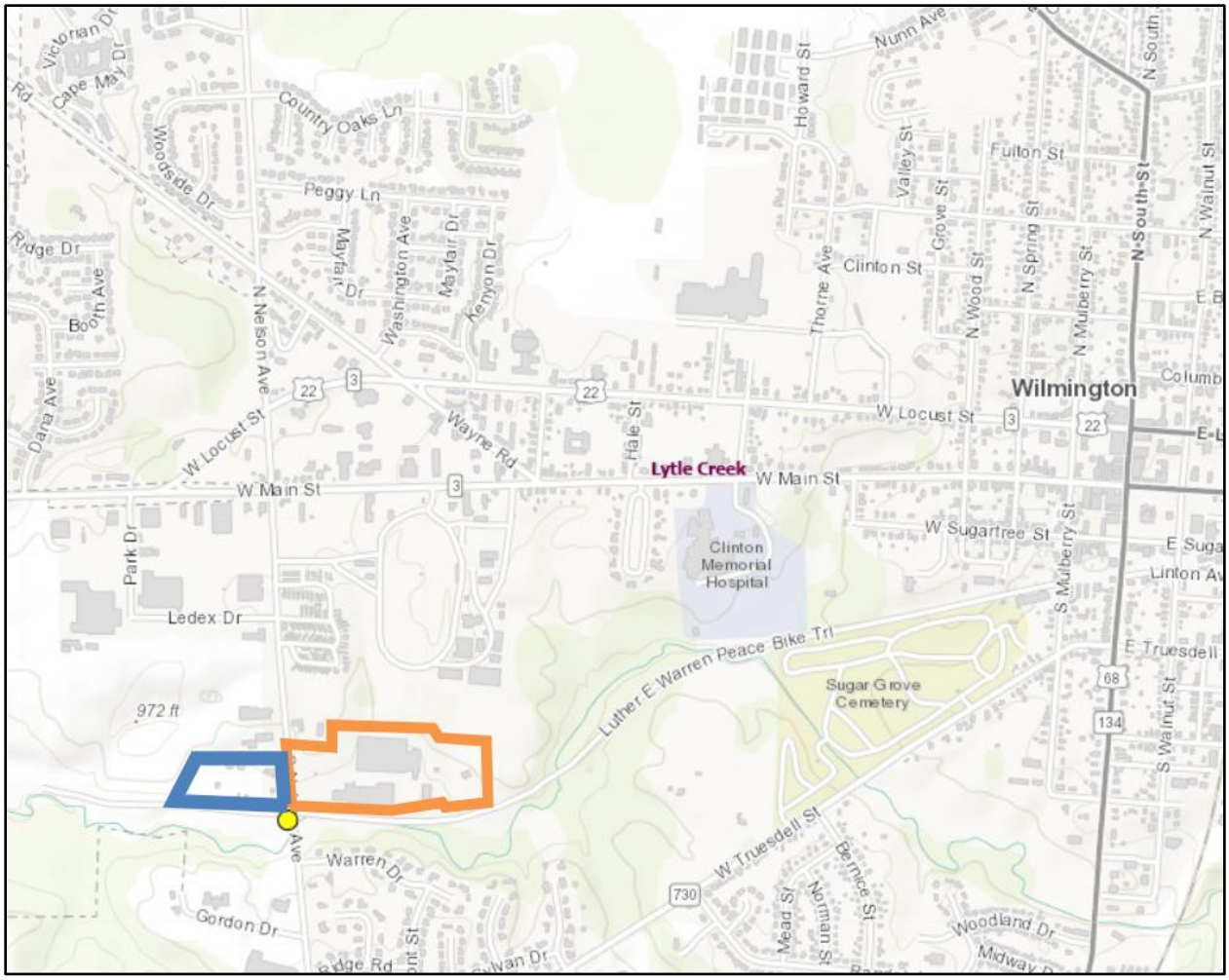

Figure 2. Map of the proposed new WWTP site location in orange, the existing WWTP in blue, and the new outfall marked with yellow dot

Figure 3. Map of proposed new WWTP facilities overlaid on the Textron property

Implementation

The City of Wilmington will borrow approximately $45,754,535 from the WPCLF at the Nutrient Reduction discount rate for eligible portions of the project. Wilmington is also eligible to receive $4 million in principal forgiveness, which means this amount need not be repaid. Other funding for this project includes $1,000,000 from US Army Corps of Engineers, $2,000,000 of local funds, and $5,400,000 in other funding for a total project cost of $54,414,676. Wilmington will repay the loan over a 30-year loan period.

An average residential customer living in Wilmington is currently paying $26.30 monthly for sewer service. Debt for the project will be repaid by customers from monthly sewer rate. Rates were last increased in 2023 by 2.5%. Future sewer rates will increase by 2.5% in 2024 and 2.5% in 2025. However, city administration plans to propose a 7% rate increase for 2024 and 2025, and then 4.5% in subsequent years. According to the 2015-2019 American Community Survey, the estimated median household income (MHI) for a resident of Wilmington is $35,833. The projected average yearly sewer costs for 2026 amount to $369, which is 1.0% of the MHI and compares favorably to the average Ohio sewer bill of $749.

Assuming loan award in May, construction should begin shortly after and be completed by 2026.

Public Participation

The public has been aware throughout the planning process for this project. The City of Wilmington has readily available information on their website. News articles have been published in local newspapers over the past couple of years discussing the project. Public meetings were held in

conjunction with city council meetings August 6, 2020, August 20, 2020, September 3, 2020, and April 6, 2023.

Ohio EPA will make a copy of this Environmental Assessment (EA) available to the public for 30 days on its web page: https://epa.ohio.gov/divisions-and-offices/environmental-financial-assistance/announcements and distribute it to interested parties. Information supporting the EA is available from the project contact named below.

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. Several agencies have reviewed this project and provided input and recommendations for best practices that minimize negative impacts to environmental features, as explained below.

Air Quality: Clinton County meets standards for the six regulated air pollutants (carbon monoxide, sulfur dioxide, nitrogen oxide, lead, particulate matter, and ozone). During construction, dust and vehicle exhaust will be insignificant sources of local air pollution. 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. Based on this information, the project should have no significant adverse short-term or long-term impacts on local air quality.

Archaeological and Historical Resources - A Phase I Cultural Resource Management Survey was performed for the proposed project site in February 2021. Intensive visual inspection and subsurface testing of the project area did not identify any archaeological remains in the area but did note one historic building in the project vicinity that will remain undisturbed. The site is highly disturbed, and survey confirmed this. Therefore, based on the information provided, the proposed project will not affect historic properties.

In the event of additional archaeological finds during construction, Ohio Revised Code Section 149.53 requires contractors and subcontractors to notify the State Historic Preservation Office (SHPO) of any archaeological discoveries in the project area, and to cooperate with the Office in archaeological and historic surveys and salvage efforts when appropriate. Work will not resume until a survey of the find and a determination of its value and effect has been made, and Ohio EPA authorizes work to continue.

Aquatic Habitat and Surface Water Resources: This project involves the construction of a new treated wastewater outfall to Lytle Creek. The old outfall will be plugged and decommissioned and the new one constructed a short way upstream, on the east side of Nelson Avenue bridge. The new outfall will be constructed on the bank of Lytle Creek and will avoid in-water work; therefore aquatic habitat will not be negatively impacted.

Endangered Species, Fish and Wildlife, and Terrestrial Habitat: The endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) occur throughout Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested

habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat.

Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. The project involves buildings to be demolished. Therefore, US Fish and Wildlife Service recommended that prior to the removal of this structure, a visual search be performed to see if bats are using it for roosting. No bats were observed roosting in the buildings prior to their demolition in 2022.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, coordination with the US Fish and Wildlife Service should be initiated to assess any potential impacts.

Land Use: The project involved demolishing the former Textron site buildings, a brownfield site owned by the city. The proposed new WWTP is utilizing SBR treatment, which was the alternative with the smallest land footprint. This equates to the smallest required brownfield remediation required to build on the Textron property. Demolition material and soil will be disposed of at the appropriate landfills. The Textron site is already a developed industrial site with limited potential uses and will be repurposed to contain the new WWTP.

Unaffected Environmental Features: This project will have no adverse effect on *coastal zones, agriculture and farmland,* and *ground water resources, and wetlands* because these features are not present in the project area or will be avoided.

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 construction of a new Wilmington WWTP. The project will also result in an improved discharge, with the new NPDES total phosphorus limits being set lower than the exiting limit, allowing Wilmington to comply with upcoming phosphorus discharge limits.

Contact information

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