# ENVIRONMENTAL ASSESSMENT

## A. Project Identification

Name: City of Athens, OH
Wastewater Treatment Plant Improvements Project

Address: Andrew Stone, Director of Public Works
City of Athens
30 Curan Drive
Athens, OH 45701

WPCLF Loan No.: CS390124-0007

## B. Proposed Project

### 1. Summary

The City of Athens' wastewater treatment plant (WWTP) was originally constructed in the 1950s and since then has undergone two major construction upgrades, which occurred in the 1970s and late 1980s to early 1990s, respectively. The City of Athens provides sanitary sewer service to approximately 23,835 residents living within an area of approximately 7.6 square miles.

Through the review of US Census population growth data (2000 – 2009), Athens County population projections (estimated through 2030), and the knowledge of local development trends, the City of Athens has been able to estimate that, within the next 20 years (2013-2033), its sanitary service area will increase by an additional 700 acres and likewise, its residential user base will increase by an additional 9,162 residents for a total anticipated population of 30,504 residents.

Given the pending future population projections for its user-base and understanding the age of its WWTP infrastructure, the City of Athens acted responsibly by conducting a review of its existing WWTP facilities and evaluated the ability of these facilities to appropriately treat expected future wastewater flows and loadings, while simultaneously considering state and federal water quality protection requirements for the next 20 years - a process referred to as Long-Term Control Planning (LTCP). This evaluation allowed the city to determine that, in order to appropriately treat future anticipated wastewater flows, through the next 20 years, necessary equipment and process upgrades will need to occur within the city's existing WWTP.

Construction of planned upgrades within the WWTP will begin in the spring of 2013, and will include:

1. The construction of a new influent wet-well, influent pumps, associated influent piping, a new preliminary treatment building that includes a new mechanical fine screen, screenings, washer influent flow metering, a vortex grit removal system, a grit washer, and biological odor control, two new circular primary clarifiers with weir covers for odor control, installation of primary sludge pumps in the basement of the preliminary treatment building, two new circular secondary clarifiers, installation of return activated sludge (RAS) pumps in the basement of the preliminary treatment building, a new ultra-violet (UV) channel, post-aeration, and effluent flow metering, installation of a new generator, a new septage receiving station, structural improvements to the aeration tanks, miscellaneous site piping and site work, concrete repair to the sludge holding tank, electrical power improvements, and the installation of a supervisory control and data acquisition (SCADA) system.

2. The demolition of the existing primary clarifiers and primary sludge pumps, existing secondary clarifiers and return activated sludge pumps, the existing chlorine building and contact tanks, as well as the existing generator and natural gas-driven blower.

The total anticipated project cost for the planned upgrades is estimated at $18,654,661. The city expects to fund this project through a 20-year, low interest loan from the Ohio Water Pollution Control Loan Fund (WPCLF), which is administered by the Ohio Environmental Protection Agency's (EPA's) Division of Environmental and Financial Assistance. Although the pre-award interest rate varies on a monthly basis, it is currently set at 2.38%, which is 1.21% lower than the current market rate of 3.59%. In addition to the low interest loan savings, Ohio EPA, as an incentive for the implementation of septage receiving stations statewide, will offer a further reduction in the interest rate, which reflects a savings equal to the as-bid principal and interest costs of the septage facilities.

## 2. Existing/Future Conditions

The City of Athens is located in Athens County's Athens Township and is home to approximately 23,835 residents. The city's WWTP was originally constructed in 1950 on a 13 acre site on the north bank of the Hocking River at 557 East State Street in Athens, see figure1.

The current WWTP facilities were last upgraded in 1988 and consists of influent pumping, aerated grit removal, manual bar screening, primary clarification, aeration, final clarification, and chlorine disinfection. Biosolids treatment includes aerobic digestion of primary and waste activated sludge.

The expectations for how well a WWTP should operate in treating sanitary waste is outlined within each wastewater treatment system's NPDES permit, which is required by the federal Clean Water Act and, in Ohio, is regulated by the Ohio EPA's Division of Surface Water.

The city's WWTP is authorized under its current NPDES permit to discharge appropriately treated wastewater effluent into the Hocking River at an average daily flow of 4.8 million gallons per day (mgd). While the city's WWTP is currently meeting its permit limits for treating wastewater flows and loadings from the existing service area and population, the city's recent LTCP study determined that the existing WWTP facilities will not be able to appropriately treat the future (i.e., the next 20 years-through 2033) wastewater flows and loadings that will arise as a result of projected increases in both the sanitary service area size and population.

The design flows and loads for the city's WWTP through 2033 were based on future population projection calculations for the city's sanitary service area as well as known development trends that would impact the city's population and service area.

Future population projections for the LTCP were derived from the city's current population and service area conditions in combination with population projections gathered from Athens County's Comprehensive Plan, as well as the known development trends that will increase the city's service area. Based on these sources, the LTCP estimated population growth within the city's current service area at 0.5% per year through 2033 for an estimated total population increase of approximately 3,607 residents. Additionally, development trends impacting the population projections include a development known as University Estates, which currently consists of 770 undeveloped platted acres located to the north of the city, as well as an extraterritorial growth area consisting of approximately 700 undeveloped acres located to the southwest, and outside, of the city's municipal boundary; it is estimated that these two developments will increase the population projection for the city's service area by an additional 5,555 residents. With all growth potential considered, the city of Athens' service area is expected to expand by approximately 700 acres and increase in population by 9,162 residents within the next 20 years, an increase from the current service area population of 21,342 residents to approximately 30,504 residents by the year 2033.

Project planning evaluated the ability of the existing WWTP to treat the projected future wastewater flows and loadings that would be associated with the city's anticipated future population growth while meeting the anticipated future NPDES permit requirements within the next 20 years. Considering the population projections and additional sewer service areas, four population projection alternatives were evaluated:

1. Current Population + 0.5% a year Athens growth.

2. Current Population + 0.5% a year Athens growth + 37.5% developed University Estates and 50% developed extraterritorial growth.

3. Current Population + 0.5% a year Athens growth + 75% developed University Estates and 100% developed extraterritorial growth.

4. Current Population + 0.5% a year Athens growth + 37.5% developed University Estates.

The process capacity evaluation determined that existing final clarification and influent pumping units do not meet peak flow requirements for the population projections that only consider the projected 0.5% growth for the city's existing service area and do not consider all other potential growth that could occur from the University Estates Development and/or the extraterritorial growth outside of the existing service area. The study also determined that the existing primary clarification unit does not meet peak flow requirements for projected populations that would include a 0.5% increase in the existing service area population plus additional population growth caused by a 37.5% growth in the University Estates Development and a 50% growth in the extraterritorial growth area that would extend the city's existing service area. The study further found that potential future NPDES ammonia limits would require modifications to the existing activated sludge system.

Additionally, the city's existing WWTP facilities were evaluated for their compliance with current Ten State Standards design criteria, which included a review of the rated capacity, age, reliability and other factors related to operating and maintain the existing facilities for the next 20 years.

The Ten State Standards design criteria evaluation made the following determinations:

Preliminary Treatment and Influent Pumping

Preliminary treatment processes include aerated grit removal and manual screening. Additionally, there are three influent pumps and influent sampling. Plant staff have recently removed influent comminutors.

The influent wet-well is located adjacent to the Control Building downstream of where the comminutors were located. The wet-well is open to the atmosphere and has no odor control system. The concrete slab above the wet-well is deteriorating and requires rehabilitation or replacement. The influent pumps were installed in 1997 and are functioning adequately. The capacity of one 150-horsepower pump is 6,000 gallons per minute, or 8.64 mgd. The maximum daily flow received during the study period was 8.27 mgd. The maximum hourly flow received was 9.5 mgd on May 3, 2010. Ten State Standards recommends a firm pumping capacity, assuming the largest pump is out of service, equal to the peak hourly flow.

The aerated grit removal tank is open to the atmosphere and is a potential source of odor. The maximum flow through the grit removal tank, while still maintaining a detention time of three minutes (Ten State Standards recommended range of 3 to 5 minutes), is 8.9 mgd. Air required for this system is "bled" off the activated sludge aeration system.

There is a manually-cleaned bar screen with 1 1/2-inch bar spacing. The screen collects larger screenings, but allows materials such as plastics and rags to pass through the screens. The grit and screenings are discharged to a dumpster and ultimately landfilled. Prior to being landfilled, the dumpster is a significant source of odors.

Equalization Basin

In the 1990s, the 700,000-gallon flow equalization basin was constructed for peak flow relief. The basin is equipped with coarse bubble diffusers to mix and aerate the tank contents before being routed to the head of the plant. Air required for this system is "bled" off the activated sludge aeration system. The equalization basin concrete and mixing/aeration system are functioning adequately.

Primary Clarification

The existing clarifiers have minimal freeboard from the side water depth to the top of the tank wall and occasionally overflow during high flows. The concrete walls above the water level are deteriorating. The scum removal devices are not functional, which USEPA has noted in a past inspection. The influent channel into the tanks often traps grease and other floatable constituents and is a significant source of odor. The floatables cannot exit the channel because of an elevated concrete walkway over the clarifier. Equipment inside the tank has exceeded the expected design life and is in need of replacement. Some of the isolation valves for the tanks are not operable. The primary sludge wet wells are a significant source of odor. Plant staff has indicated the telescoping valves used to remove sludge from the primary clarifiers are labor intensive and often plug along with the piping between the two sludge wet-wells.

Aeration Tanks

The aeration tanks were installed during the original 1950s plant construction and capacity was doubled during 1970s construction. The aeration tanks have a capacity of 1,267,000 gallons (169,400 cu ft.).

The concrete planks over the column Y-wall containing the aeration piping are in poor condition. The handrail around the aeration basin is in poor condition and does not meet current regulations. Portions of the concrete walls around the aeration basin above the normal water level are deteriorating and require repair.

Secondary Clarifiers and Return Activated Sludge Pumps

The secondary clarifiers were installed during the original 1950s plant construction and capacity was doubled during 1970s construction. The depth of the existing clarifiers are 10-foot 5-inches and 8-foot 9-inches, which is shallow compared to modern design criteria of 14 feet or greater.

Pump Station No. 2 was constructed in the 1970s. Solids are removed from the clarifiers by manually actuating telescoping valves located in Pump Station No. 2. Two RAS pumps return sludge from the pumping station to the aeration tanks. Sludge is wasted with the waste sludge pumps located in the Control Building.

The weirs for the secondary clarifiers have been recently replaced. The handrail and top of the concrete tanks are in poor condition and require rehabilitation. Equipment inside the tanks, such as drives, collectors, telescoping valves, and chains has exceeded its expected design life.

Disinfection

The chlorine contact tanks and chemical feed systems were constructed in the 1970s. Gaseous chlorine delivered in one ton cylinders is used for disinfection, and gaseous sulfur dioxide, delivered in 150 pound cylinders, is used for dechlorination. The tanks normally receive flow from the secondary clarifiers, but also can receive overflow from the equalization basin.

Process Blowers

Process blowers are located in the older blower building constructed around 1970. Three positive displacement blowers provide air to the “wet stream” treatment processes, aerated grit, equalization tank, and aeration tanks. Firm blower capacity is approximately 5,700 cubic feet per minute (cfm). The blowers are functioning adequately and have capacity to handle projected loadings.

The anticipated air requirements for the aeration basin, based on a monthly maximum BOD loading with a peaking factor of two is 4,950 cfm. The air requirement for the equalization basin is 880 cfm based on Ten State Standards minimum air requirement of 1.25 cfm/1,000 gallons of storage capacity.

Waste Sludge Pumps

Two progressive cavity waste sludge pumps are located in the Control Building. The pumps are sized for 250 gpm and withdraw sludge from the primary sludge wet-well or Pump Station No. 2 wet-well. Another 200 gpm centrifugal pump is available, but is not currently used.

Solids Handling

Solids handling was recently updated in 2004 and is functioning adequately. The existing tanks, blowers, and pumps have capacity to handle projected loadings. The circular aerated sludge holding tanks are showing signs of deterioration above the high water level and will be considered for rehabilitation.

## 3. Discussion of Alternatives

Based on the understanding for the wastewater loadings and flows that can be anticipated from the population projections for the City of Athens' service area as well as the understanding for the known deficiencies within the infrastructure of the city's existing WWTP facilities, the LTCP considered seven alternatives within its analysis to determine the best approach for the City of Athens to use in treating its wastewater flows and loadings within the next 20 years (through 2033). Each alternative was evaluated based on the four growth scenarios discussed in the above Section 2.

Alternative 1 (Base Alternative)

The base alternative recommends the following improvements:

1. New Screening and Headworks Building
2. New Mechanical Fine Screen
3. Refurbish Existing Wet-Well
4. New Odor Control
5. New Vortex Grit Removal
6. New UV Disinfection in the Existing Chlorine Contact Tanks
7. Refurbish Existing Primary Clarifier Tanks, Mechanisms, and Sludge Pits
8. Refurbish Existing Secondary Clarifier Tanks and Mechanisms
9. Aeration Tank Structural Improvements
10. Aerobic Digester and Sludge Holding Tanks Concrete Repair
11. New Generator
12. Miscellaneous Work in Pump Building No. 2
13. Site Work
14. Control Building Improvements

Estimated project capital cost for this Alternative is $7,260,000. Alternative 1 does not include consideration for future population projections and therefore is not considered to be a feasible alternative for implementation.

Alternative 1a

Alternative 1a includes all the improvements described in Alternative 1, the addition of a new influent pumping station adjacent to the preliminary treatment building, and a SCADA system (additional information regarding SCADA is located at the end of the Section). A plant SCADA system is included in all alternatives except the base alternative (Alternative 1). Adding a new pump station has the following benefits:

1. Eliminates need to repair concrete over existing wet-well area.
2. Eliminates repair of existing gate upstream of wet-well.
3. Reduces odor potential and simplifies odor control system and piping requirements.
4. Increases capacity of wet-well.
5. Increases capacity of influent pumping.
6. Removes pumps from Control Building, which allows for improved pump access and removal while reducing noise in the Control Building.
7. Eliminates need to routinely enter confined space.

Alternative 1a is not recommended as a stand-alone project because various downstream unit processes, such as primary clarifiers and secondary clarifiers, are unable to adequately convey and treat the Population Alternative 4 projected peak hourly flow.

The estimated project capital cost for Alternative 1a is $8,380,000.

Alternative 1b

Alternative 1b includes all the improvements described in Alternative 1 and the addition of two new circular primary clarifiers in the location of the existing primary clarifiers. Adding primary clarifiers has the following benefits:

1. Improves process robustness and efficiency.
2. Eliminates need to repair existing concrete tanks.
3. Eliminates raising walls for hydraulic capacity.
4. Eliminates removal and replacement of existing clarifier equipment.
5. Eliminates problems associated with existing primary clarifiers as described in Section 4.
6. Increases capacity of primary clarifiers.
7. Eliminates sludge pits, which will reduce odor control requirements.
8. Removes primary sludge pumps from Control Building, which allows for improved pump access and removal while reducing noise in the Control Building.
9. Eliminates scum/sludge trap under existing walkway, which will reduce odors.
10. Reduces operation labor associated with the process.

Alternative 1b is not recommended as a stand-alone project because various remaining unit processes, such as influent pumping and secondary clarifiers, are unable to adequately convey and treat the Population Alternative 4 projected peak hourly flow.

The estimated project capital cost for Alternative 1b is $9,390,000.

Alternative 1c

Alternative 1c includes all the improvements described in Alternative 1 and the addition of two new circular secondary clarifiers located west of the existing secondary clarifiers. Adding secondary clarifiers has the following benefits:

1. Improves process robustness and efficiency.
2. Eliminates need to repair existing concrete tanks.
3. Eliminates removal and replacement of existing clarifier equipment.
4. Eliminates problems associated with existing secondary clarifiers as described in Section 4.
5. Increases capacity of secondary clarifiers.
6. Eliminates Pump Station No. 2, which will reduce odor control requirements.
7. Removes return activated sludge pumps from Pump Station No. 2, which allows for improved pump access and removal.
8. Simplifies construction sequencing. New tanks can be built without taking the existing tanks out of service.

Alternative 1c is not recommended as a stand-alone project because various remaining unit processes, such as influent pumping and primary clarifiers, are unable to adequately convey and treat the Population Alternative 4 projected peak hourly flow.

The estimated project capital cost for Alternative 1c is $10,290,000.

Alternative 1d

Alternative 1d includes the addition of two new circular primary and secondary clarifiers. The primary clarifiers would be located in the location of the existing primary clarifiers. The secondary clarifiers would be located west of the existing secondary clarifiers. Adding new primary and secondary clarifiers has all the benefits described above for Alternatives 1, 1b, and 1c, along with additional benefits:

1. Simplifies construction sequencing. New secondary clarifiers can be built without taking the existing tanks out of service. After secondary clarifiers are built, half of existing primaries can be demolished and replaced with a new clarifier. When the new primary clarifier is online, the remaining existing primary clarifier can be taken out of service and second new primary clarifier constructed.

2. Provides additional capacity at primary and secondary clarifiers. Influent pumping lacks firm capacity to convey flows based on population alternatives.

3. Provides additional area on-site (location of existing secondary clarifiers) for future aeration tanks to meet future nutrient limits.

Alternative 1d is not recommended as a stand-alone project because influent pumping is unable to adequately convey and treat the Population Alternative 4 projected peak hourly flow.

The estimated project capital cost for Alternative 1d is $11,790,000.

Alternative 1e

Alternative 1e includes all the improvements described in Alternative 1d and the addition of a new influent pumping station. The new influent pumping station would be located adjacent to the preliminary treatment building. Adding a new influent pumping station coupled with new primary and secondary clarifiers will increase plant capacity to meet projected flows along with the benefits described above. Alternative 1e will reduce various odor sources, thus reducing the potential for odors on the site. In addition, construction sequencing would be simplified as the new preliminary treatment building, influent pumping, secondary clarifiers, and UV structure could be installed while the existing plant remains in service. Once the new processes are online, the primary clarifiers could be constructed. The alternative also removes the existing secondary clarifiers and chlorine contact tanks, which provides additional area for future aeration tanks.

Alternative 1e is recommended as a stand-alone project because all unit processes are able to adequately convey and treat the Population Alternative 4 projected peak hourly flow.

The estimated project capital cost for Alternative 1e is $12,480,000.

Alternative 1f

Alternative 1f includes all the improvements described in Alternative 1 and the addition of a new influent pumping station, one new primary clarifier, and one new secondary clarifier. The new influent pumping station would be located adjacent to the preliminary treatment building. Adding a new influent pumping station coupled with a new primary and secondary clarifier will increase plant capacity to meet projected flows along with the benefits described above for Alternatives 1 and 1a. In addition, the primary sludge pits and Pump Station No. 2 can be removed reducing odor potential. Primary clarifier construction sequencing will be simplified as the new clarifier can be built while the existing clarifiers are in service. There are some disadvantages associated with Alternative 1f:

1. Requires equipment replacement and repairs to the existing primary and secondary clarifiers as described in Section 4.

2. Does not address performance concerns associated with rectangular secondary clarifiers.

3. Increases the operational complexity of the plant by using both round and rectangular clarifiers.

4. Hydraulic flexibility limited by existing tank wall elevations.

5. Existing secondary clarifiers occupy potential space for future aeration basins for nutrient removal.

The estimated project capital cost for Alternative 1f is $12,470,000.

Alternative 2

Alternative 2 includes all the improvements described in Alternative 1e except primary clarifiers are eliminated as a process. Eliminating primary clarifiers has the obvious benefit of system simplification due to removal of a unit process, which eliminates two primary clarifiers, primary sludge and scum pumping, and odor control associated with primary clarifiers. There are some potential drawbacks associated with the removal of primary clarifiers:

1. Additional aeration tankage is needed to treat biological loadings removed by primary clarifiers.
2. Buffering capacity of primary clarifiers to equalize shock loads to the plant is eliminated.
3. Aerobic digester capacity has been designed to treat primary sludge.
4. There is increased potential for grit to enter aeration tanks.
5. There is increased potential for scum to enter aeration tanks.

The estimated project capital cost for Alternative 2 is $10,570,000.

Septage Receiving

Septage receiving will be incorporated into each alternative. Septage receiving will include an automated septage acceptance plant located in a new building, either adjacent to the preliminary treatment building or north of the existing site. Major items included with the septage acceptance plant include flow metering, rock trap, automatic sampler, and fine screen. The plant will likely have a punch pad for haulers to enter a code for access and tracking. The punch pad will also actuate an automatic valve to the open position allowing the hauler to discharge to the plant. The septage will flow through the septage acceptance plant by gravity to a septage equalization tank. Flow from the septage equalization tank will likely be pumped into the plant influent wet-well, sewer or utilized for an ammonia removal technology project.

SCADA System

A plant SCADA system is included in the costs for all the above-mentioned alternatives except Alternative 1 (Base Alternative). The plant is currently controlled with stand-alone control systems. To improve energy and operations efficiency, a new programmable logic controllers (PLC)-based control system with desktop computers for operator interface will be installed. The system will generally include three new PLCs, new instrumentation, and a fiber-optic communications link throughout the site. Based on process parameters measured from new instrumentation, the PLCs will start and stop equipment and/or vary equipment speeds in order to meet, without exceeding, the process needs. In addition, the energy usage will be monitored at each motor control center within the plant, which will provide operators with valuable information regarding the amount of energy required for the various plant processes. This information can in turn be utilized to tweak the process controls to increase energy and operations efficiency. The SCADA system will also assist plant staff with troubleshooting and optimizing the unit processes.

## 4. Description of the Selected Alternative

**Selected Alternative:** The alternatives analysis determined that Alternative 1e is the recommended plan for updating the city's WWTP infrastructure in order to handle anticipated wastewater flows and loadings throughout the next 20 years - (2033).

Alternative 1e includes:

1. Construction of a new influent wet-well, pumps, associated influent piping, and abandonment of the existing influent wet-well.

2. Construction of a new preliminary treatment building including a new mechanical fine screen, screenings washer influent flow metering, vortex grit removal system, grit washer, and biological odor control.

3. Construction of two new circular primary clarifiers with weir covers for odor control.

4. Demolition of existing primary clarifiers and primary sludge pumps.

5. Installation of primary sludge pumps in the basement of the preliminary treatment building.

7. Construction of two new circular secondary clarifiers.

8. Demolition of existing secondary clarifiers and return activated sludge pumps.

9. Installation of RAS pumps in the basement of the preliminary treatment building.

10. Construction of a UV channel, post-aeration, and effluent flow metering.

11. Demolition of existing chlorine building and contact tanks.

12. Installation of a new generator and demolition of existing generator and natural gas-driven blower.

13. Construction of a septage receiving station.

14. Aeration tanks structural improvements.

15. Miscellaneous site piping and site work.

16. Sludge holding tank concrete repair.

17. Electrical power improvements.

18. Installation of a SCADA system.

## 5. Implementation of Selected Alternative

Construction of the proposed project is estimated to begin in April 2013 and be completed by the end of March 2015.

The total anticipated project cost for the design and construction of the city's WWTP Improvements Project is estimated at $18,654,661 dollars. The city expects to fund this project with a 20-year, low interest loan, through Ohio EPA's WPCLF program. The rate is currently set at 2.38% for loan awards in the month of March.

In addition to the low interest loan savings, Ohio EPA, as an incentive for the implementation of septage receiving stations statewide, will offer a further reduction in the interest rate, which reflects a savings equal to the as-bid principal and interest costs of the septage facilities.

## C. Environmental Impacts of the Selected Alternative

The goal of the planned project is to assist the City of Athens in maintaining compliance of its WWTP with its NPDES permit throughout the next 20 years as the city and its service area undergoes expected population growth. The segment of the Hocking River that receives the discharge from the Athens' WWTP is currently in attainment of its Warmwater Habitat (WWH) Aquatic Life Use designation, and this project will assist in continuing to protect the existing physical and biological conditions of the Hocking River.

The planned project will make significant upgrades to the city's existing WWTP facilities while making best use of existing infrastructure and confining the majority of construction activities to the WWTP's existing footprint. Although the planned project will actually expand the existing footprint of the city's WWTP by approximately ¾ of an acre, to the immediate west of the WWTP, by confining the footprint of construction activities to a total area of 4.4 acres, the potential for adverse environmental impacts associated with project construction to occur will be minimized.

Our environmental review has determined that there will be no significant adverse impacts to aesthetics, air quality, major land forms, terrestrial habitat, ground water resources, wetlands, land use, or agriculture from the proposed project. Proper maintenance of construction equipment, strict adherence to erosion control measures, and prompt site stabilization should assist in minimizing many potential impacts.

The planned project could affect the following attributes:

Hocking River Floodplain & Floodway: The existing WWTP facility is located within the floodplain of the Hocking River, but is removed from the floodway via a dike system. While the majority of project improvements will occur within the footprint of the existing WWTP, the WWTP footprint will expand by approximately ¾ of an acre directly west of the existing WWTP, which is an area that is in the floodplain, but is outside of the floodway. Project plans call for the installation of fill material within the expanded footprint in order to assist in creating a stabilized foundation for four new clarifiers; the fill material will also assist in elevating the new structures well above the base flood elevation of 638 feet above mean sea level (AMSL) to heights of approximately 642 – 646 feet (AMSL), which will assist in flood proofing the new structures.

The environmental impacts associated with the above described project construction activities are considered to be minimal due to the following reasons: the floodplain area to be filled is currently a manicured lawn and not a part of any sensitive habitat areas, no above ground structures will be constructed within the floodway, newly constructed structures will be elevated above the 100 year floodplain and will be designed to withstand flood conditions (flood-proofed), the proposed work has received clearance by the local floodplain coordinator and the City of Athens, and finally, the project meets the Federal Emergency Management Act (FEMA) requirements for activities occurring within a 100 year floodplain area.

Intended project improvements include the removal and replacement of the existing WWTP outfall structure with a new 24-inch storm sewer outfall structure, which will be located approximately 145 linear feet upstream from the existing structure. Impacts to the floodplain there will be minimal and related only to the removal of the existing outfall structure and the installation of the new outfall structure. Proper site grading and stabilization will return the floodplain and floodway to its preexisting condition and the new outfall structure will exist below grade, thus keeping project related impacts to a minimum.

Surface Water Resources and Aquatic Habitats

The project will involve dirt moving activities in order to prepare the site for necessary construction work, which, in turn, could be a possible source of soil erosion and surface water runoff problems. Contract documents require contractors to install and maintain construction best management practices for erosion and sediment control in order to minimize the potential for excavated soil to escape from the construction site.

The Ohio Department of Natural Resources (ODNR) has indicated that the project is within the range of the eastern hellbender (*Crypotbranchus alleganiensis alleganiensis*), a state endangered amphibian currently being evaluated for Federal Candidate status; however, upon closer review of the existing habitat conditions at the planned project site location, it was found that there is a wide floodplain with a sandy substrate present there, which is in contrast to the steep rocky hillsides that produce the release of large rocks relied upon by the hellbender for critical habitat. Because of the lack of existing habitat at the project site, ODNR did not feel that it was necessary to require a site survey to rule out the existence of the eastern hellbender at the project site.

ODNR also determined that the project is within the range of the sheepnose (*Plethobasus cyphyus*), the fanshell (*Cyprogenia stegaria*), the pink mucket (*Lampsilis orbiculata*), and the snuffbox (*Epioblasma triquetra*), all state and federally endangered mussel species. Because planned project construction activities include the installation of a new effluent outfall approximately 145 ft. upstream of the existing outfall as well as the removal of the existing outfall, and because a number of federally and state endangered freshwater mussels have been historically reported within the Hocking River, ODNR requested a mussel survey and, if necessary, that translocation be completed in the area before clearance for in-stream construction could be provided.

The results of the freshwater mussel survey concluded that there was no evidence of either federally listed or candidate mussel species detected at the planned City of Athens' WWTP project site. However, two Ohio threatened mussel species (threehorn wartyback [*Obliquaria reflexa*] and fawnsfoot [*Truncilla donaciformis*]) were detected as fresh dead individuals. The project area was found to possess a moderately diverse mussel community that was distributed on the right, or southern, descending bank, which provided excellent habitat for mussels in a reach of the river that was otherwise largely devoid of suitable mussel habitat. The survey also reported that indirect impacts on stream habitat and water quality will likely be avoided or minimized if proper erosion, sedimentation controls, and "best management practices" are used throughout the project construction. Finally, the survey reported that the new mixing zone of the outfall will primarily affect non-suitable mussel habitat and the net benefit of the overall improvement project may increase mussel habitat downstream by improving water quality. After an extensive search effort and translocation, the survey determined that the project area and the appropriate buffers were devoid of freshwater mussels and recommended that the proposed wastewater improvement project be authorized.

Additionally, ODNR determined that the project is within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. A habitat assessment for the eastern spadefoot toad was performed in October 2012. After reviewing the report, the ODNR-Division of Wildlife determined that potential eastern spadefoot toad habitat at the project site is low quality, and the project is not likely to impact the species.

Noise, Safety, Traffic

Motorized equipment will be used for the majority of project work; however, construction activity will be of limited duration. Contract documents require contractors to implement standard traffic controls to minimize traffic disruption and avoid public safety problems. The contractor is also required to control dust conditions at the project site. With these precautions, the project is unlikely to create significant noise impacts, traffic disturbance, or threats to public safety. Finally, the project has the advantage of being in a somewhat remote location to businesses and residential areas, which further minimizes the potential for impacts related to noise, safety, and traffic.

Archaeological and Historical Resources

A review under Section 106 of the national Historic Preservation Act for the proposed project area was conducted by Ohio EPA, and has concluded that the proposed project activity will not affect any properties listed in or eligible for listing in the National Register of Historic Places. The Ohio Historic Preservation Office has concurred with this finding.

In the event of archaeological finds during construction, contractors and subcontractors are required under Ohio Revised Code Section 149.53 to notify the Ohio Historic Preservation Office of any archaeological discoveries in the project area, and to cooperate with that entity (and with Ohio EPA) in archaeological and historic surveys and salvage efforts when appropriate.

Local Economy

The total estimated cost for this project is $18,654,661 dollars. The City of Athens plans to finance project construction costs through the Ohio WPCLF, which is administered by the Ohio Environmental Protection Agency's Division of Environmental & Financial Assistance.

The City plans to repay the WPCLF loan award with funds collected through the City's general sewer services fund. On July 18th, 2011, the City of Athens passed Ordinace No. 0-75-11 to amend Ordinance No. 0-53-11, in order to adjust sewer regulations and charges. Based on this ordinance, the base sewer rate charge will increase by 3% every year beginning September 2011 and expiring in September 2015. Currently, under this ordinance, a residential customer generating 17,000 gallons of wastewater per month will pay approximately $84.18 for sewer service. There will be no additional charges imposed on the City of Athens' service area customers as a result of the planned project.

## D. Public Participation

This project has been discussed on multiple occasions throughout 2011 and 2012 during both City Council Committee Meetings and City Council Sessions. Council discussions concerning this project began with a Comprehensive Overview of the WWTP Facilities Improvements Project and Feasibility Study by Andrew Stone, P.E. – City of Athens Engineer & Director of Public Works on April 25th, 2011. These meetings are regularly scheduled through the year, have a published agenda, and provide opportunity for citizen feedback. Videos of City Council meetings are available on the Athens local cable station as well as on-line at http://athensoh.swagit.com/City_Council/. Athens City Council Agendas and Meeting Minutes are also available online at http://www.ci.athens.oh.us/AgendaCenter.

A copy of this Environmental Assessment document can be viewed at the City of Athens' – Engineering and Public Works Web site http://www.ci.athens.oh.us/Archive.aspx?AMID=50, at Ohio EPA's Web site http://epa.ohio.gov/defa/public_comment.aspx, or in hard copy at the City of Athens' Utilities Billing Department located at 8 E. Washington Street, as well as at the Engineering and Public Works Office located at 30 Curran Drive.

## E. Planning Information

The following agencies reviewed, and have no outstanding issues with, the project's planning information:

Ohio Environmental Protection Agency
Ohio Historic Preservation Office
Ohio Department of Natural Resources
U.S. Fish and Wildlife Service
U.S. Army Corps of Engineers

## F. Reasons for a Preliminary Finding of No Significant Impact

Based on the information collected about the City of Athens' planned WWTP Improvements Project, Ohio EPA concludes that no significant short-term or long-term adverse, direct environmental impacts will result from the proposed project as it relates to the environmental features discussed in this Environmental Assessment. This is because these features do not exist in the project area, the features exist but will not be adversely affected, or the impacts of construction will be temporary and well mitigated. Because this project is designed primarily to address limitations of the City of Athens' existing WWTP, it is not expected to result in any significant indirect or cumulative short-term or long-term adverse environmental impacts.

The environmental benefits of the City of Athens' WWTP Improvements project include:

- the ability for the WWTP to adequately treat wastewater flows and loadings from the expected service area population throughout the next 20 years (or through 2033) - essentially maintaining long-term compliance with its NPDES permit,
- modernized WWTP infrastructure that will allow for energy efficiency as well as improve upon the WWTP facilities ability to treat wastewater,
- the replacement of the chemical feed chlorine based disinfection system with a UV disinfection system, which is safer to operate and has an increased ability to break the cycle of transmitting disease-carrying organisms,
- the ability to offer septage receiving facilities for area septage haulers, which is helpful in insuring the proper disposal of sanitary waste, and
- finally, the planned project will assist in protecting the Hocking River's aquatic life use designation of Warmwater Habitat, which is currently in attainment for the segment in which the proposed project is located.

## F. Questions or Comments

For further information or comments regarding this document or the project discussed herein, please contact:

Kristy Hunt
Division of Environmental & Financial Assistance
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049

Phone: (614) 644-3661
Fax: (614) 644-3687
E-mail: kristy.hunt@epa.state.oh.us

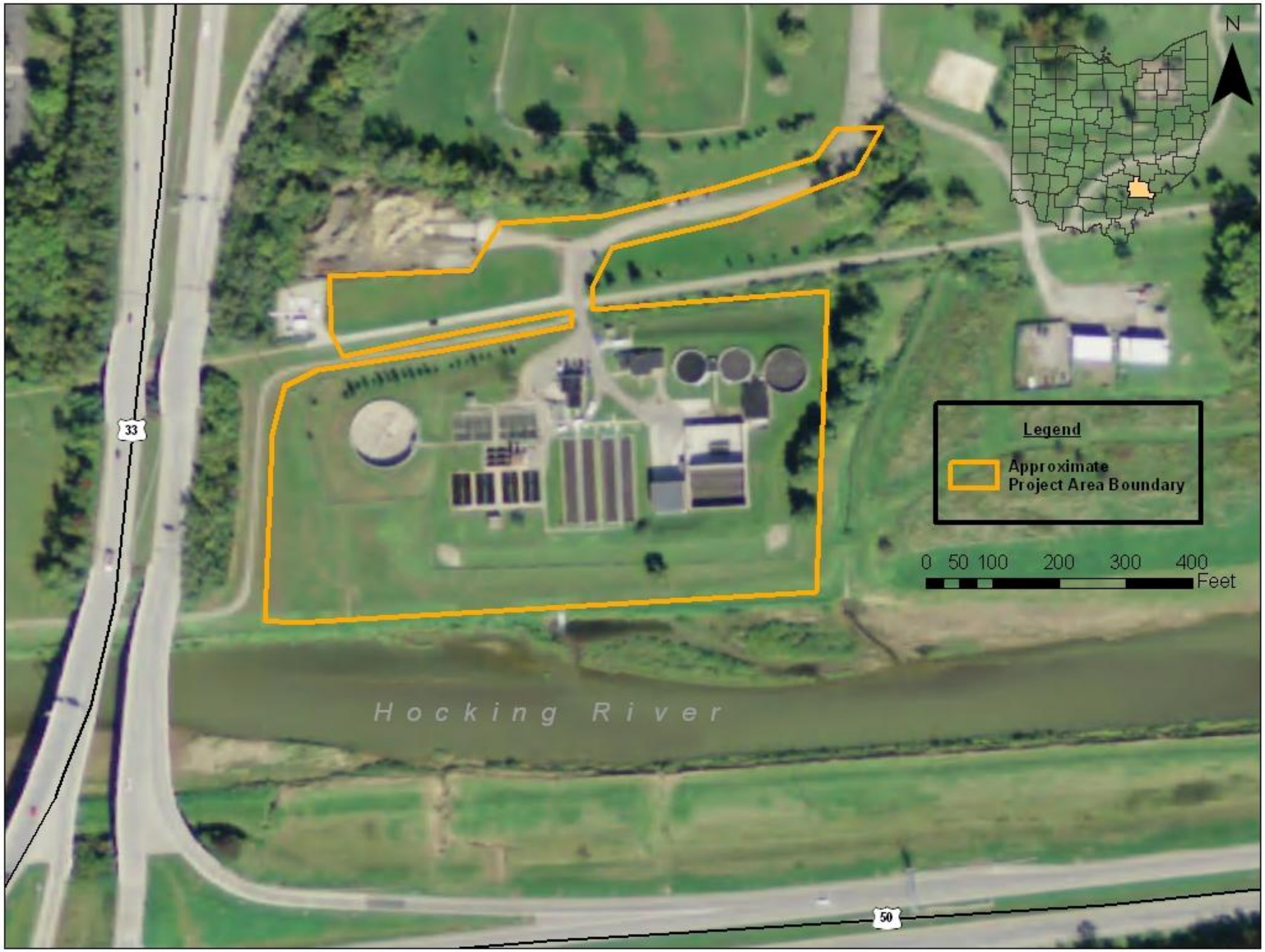


Figure 1. Project Area Site Map