Ohio Environmental Protection Agency

Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

April 7, 2020

Limited Environmental Review and Finding of No Significant Impact

Village of Chagrin Falls – Cuyahoga County
East Washington Street Waterline Replacement
SSO Elimination (Inflow & Infiltration Reduction)
WWTP Improvements
Loan numbers: FS390240-0010, CS390240-0006, CS390240-0008

The attached Limited Environmental Review (LER) is for a waterline replacement project, a sanitary sewer relining project, and wastewater treatment plant improvements project in Chagrin Falls which the Ohio Environmental Protection Agency intends to finance through its Water Supply Revolving Loan Fund (WSRLA) and Water Pollution Control Loan Fund (WPCLF) below-market interest rate revolving loan program. The LER describes the projects, costs, and expected environmental benefits. Making available this LER 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 WSRLA and WPCLF program review and approval process. We have concluded that the proposed project should not result in significant adverse environmental impacts. This project's relatively narrow scope and lack of environmental impacts qualifies it for the LER rather than a more comprehensive Environmental Assessment. More information can be obtained by calling or writing the person named at the end of the attached LER.

Upon issuance of this Finding of No Significant Impact (FNSI) determination, award of funds may proceed without further environmental review or public comment unless new information shows that environmental conditions of the proposed project have changed significantly.

Sincerely,

E-SIGNED by Jonathan Bernstein
on 2020-04-07 11:00:12 EDT

Jonathan Bernstein, Assistant Chief
Division of Environmental and Financial Assistance

Attachment

LIMITED ENVIRONMENTAL REVIEW

Project Identifications

Project: East Washington Street Waterline Replacement
SSO Elimination (Inflow & Infiltration Reduction)
WWTP Improvements

Applicant: William Tomko, Mayor
Village of Chagrin Falls
21 W. Washington Street
Chagrin Falls, OH 44022

Loan Numbers: FS390240-0010
CS390240-0006
CS390240-0008

Project Summary

The Village of Chagrin Falls has applied to Ohio EPA Division of Environmental and Financial Assistance (DEFA) for both a Water Supply Revolving Loan Account (WSRLA) loan for a waterline replacement and rehabilitation project, and toa Water Pollution Control Loan Fund (WPCLF) loan for sanitary sewer overflow (SSO) elimination and wastewater treatment plant (WWTP) improvements. Chagrin Falls has requested approximately $720,856 from the WSRLA for water line improvements on East Washington Street. The Village has also requested approximately $2,642,923 and $2,750,000 from the WPCLF to pay for sewer relining and rehabilitation along the same East Washington Street stretch and for WWTP improvements, respectively.

History & Existing Conditions

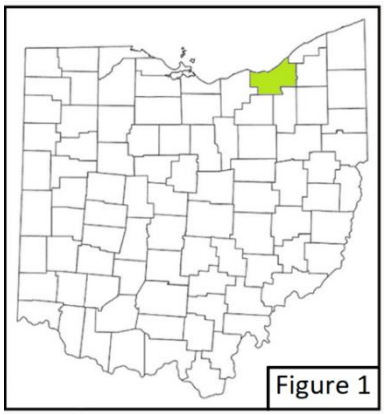
Figure 1

The City of Chagrin Falls is located in Northeast Ohio, Cuyahoga county (See Figure 1 and 2 for orientation) and has a population of 4,056. Chagrin Falls is a 100+ year old community with water conveyance and wastewater infrastructure that has outlived its expected useful life. The sanitary sewers receive a great deal of infiltration and inflow (I/I) annually, combined with effluent, that all needs to be treated at the WWTP. As a result, peak flows entering the WWTP can exceed its capacity and lead to bypassing of critical wastewater treatment units.

Water System

Chagrin Falls owns and operates a water system consisting of a treatment plant, several miles of distribution waterlines, and two wells located South of Chagrin Falls. The City is focusing on identifying and replacing the oldest watermain and waterlines with the most frequent leak occurrence. The existing 10-inch water main on East Washington Street has been identified as one with a history of the most frequent and recent breaks. Rather than continually replacing sections of the old watermain as they fail, Chagrin Falls has opted to transfer water flow and those service connections to a newer, redundant 12-inch water main. The 10-inch watermain will be abandoned and all service connections transferred to the 12-inch watermain.

SSO Elimination (Inflow & Infiltration Reduction) Study

Chagrin Falls has been working on a Sanitary Sewer Overflow Elimination Plan (SSOEP) since 2013 to reduce peak wet weather flows exacerbated by I/I in the oldest sanitary sewer pipes in town. The focus has been to fix pipes with the most I/I and then increase wet weather flow capture, storage, and treatment at the WWTP.

Flow monitoring was conducted in 2018. Nine flow meters were installed in the Village to identify areas with highest inflow/infiltration (I/I) flowrates for consideration as rehabilitation areas (See Figure 3). Through this program of sewer monitoring, the East Washington Street sanitary sewer has been identified as a major contributor of I/I during wet weather. It has the second highest leakage rate of the areas studied and highest of Village sewers metered.

East Washington Street is also one of the oldest sewers in the Village. It was constructed in 1908. The sewer must be rehabilitated for structural reasons soon, regardless of I/I. The fact that this sewer has reached the end of its useful life highlights one of the reasons that the Village's new integrated approach is more cost effective than construction of equalization storage. If storage were constructed before the sewer was rehabilitated, the I/I reduction associated with the sewer replacement would result in excess storage capacity.

Post construction flow monitoring will occur as part of this project. This post construction flow monitoring will indicate if storage is still necessary. The post construction flow monitoring will also be used to gauge cost effectiveness of further rehabilitation of the remaining original sewers.

Wastewater Treatment Plant

The original wastewater treatment plant was constructed in 1901, with a new one being built at 301 Meadow Lane in 1973. Subsequent upgrades have been made to the WWTP to accommodate increased wet weather flows. The Chagrin Falls WWTP provides tertiary treatment to the wastewater it receives. The design capacity of the WWTP is 1.0 million gallons per day (MGD) with a peak hydraulic capacity of 3.0 MGD. The incoming sewers can transport 7 MGD of flow to the WWTP; however, the plant processing capacity is limited by the tertiary sand filters.

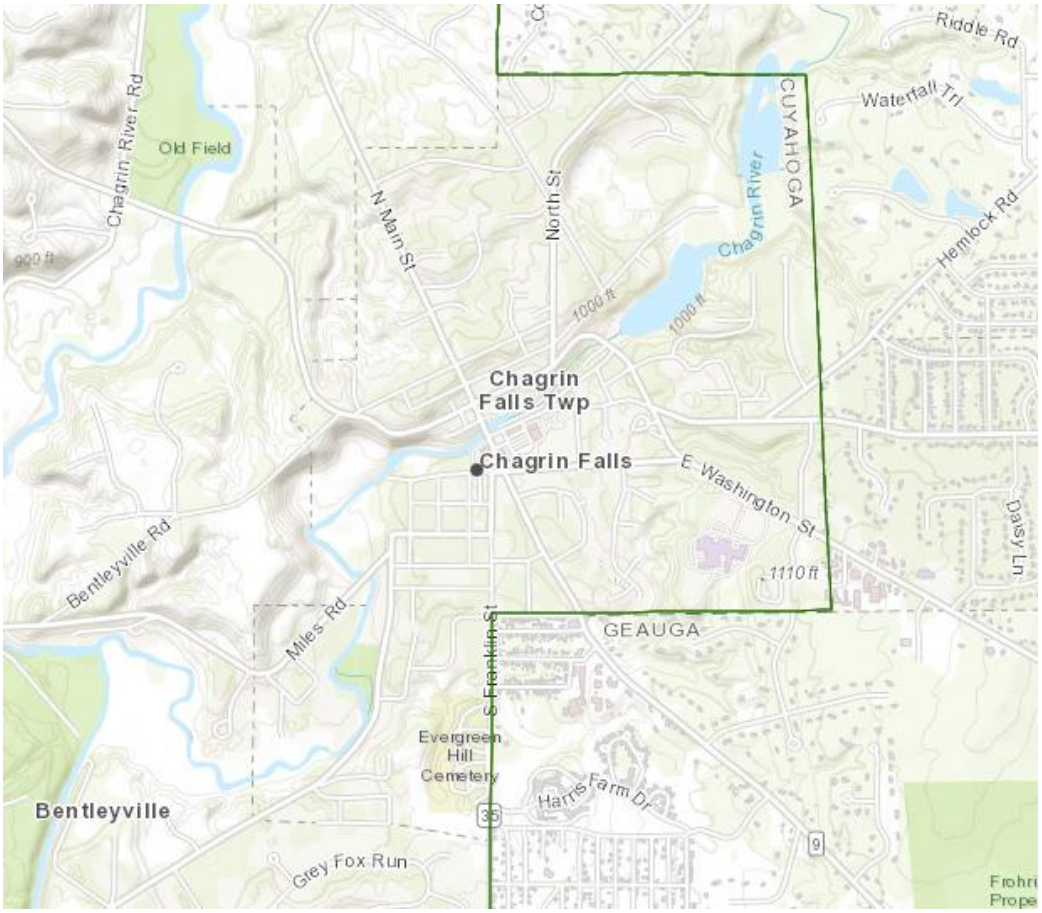

Figure 2. Village of Chagrin Falls, located on the East border of Cuyahoga county in NE Ohio

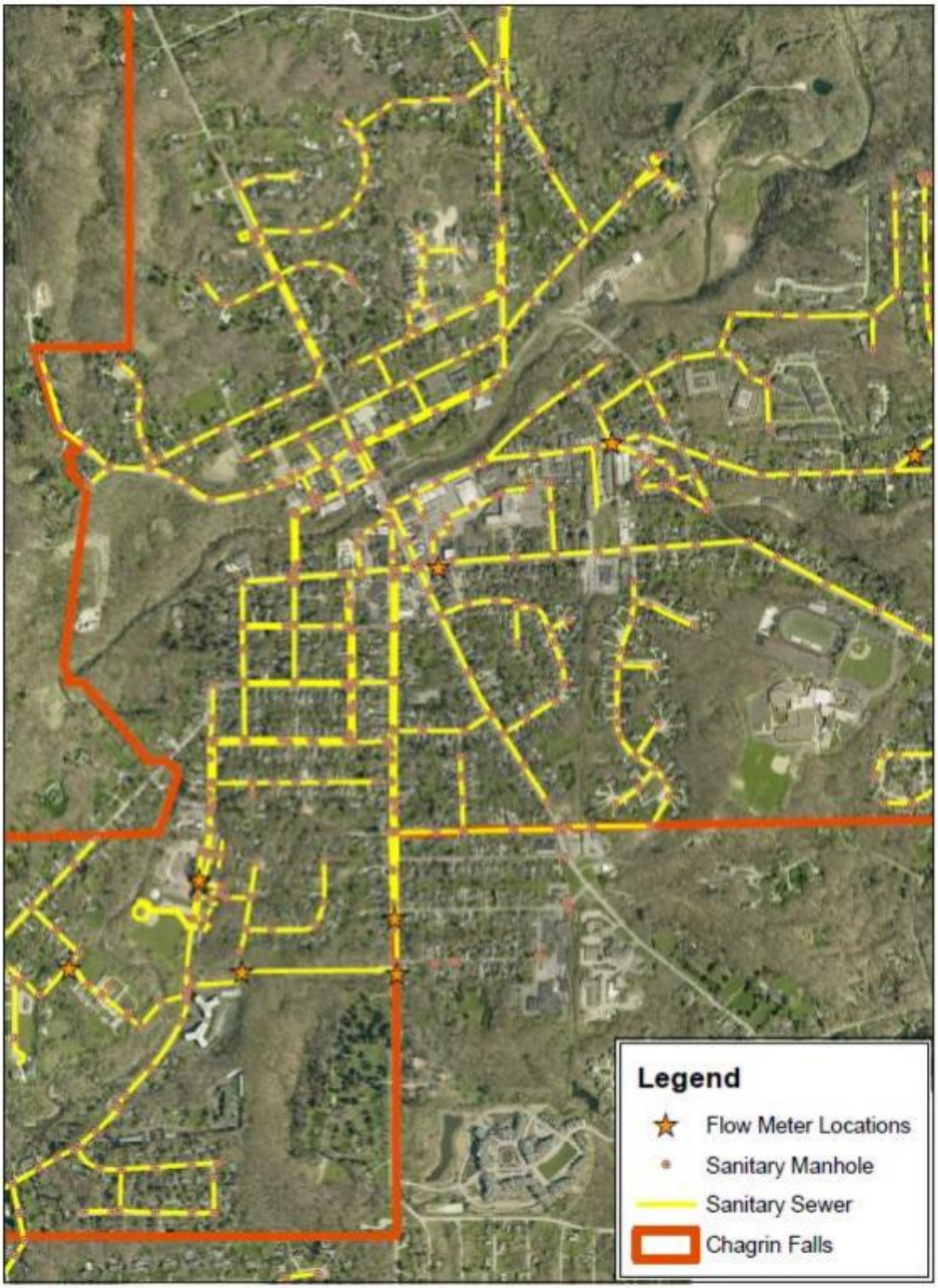

Figure 3. Map of Chagrin Falls showing sanitary sewer pipe alignments and flow meter locations

Project Description

Chagrin Falls is working on a combined waterline and sanitary sewer improvement project on East Washington Street and a WWTP improvements project. The scope of all three of these projects are in the greater scope of Chagrin Falls SSOEP and I/I reduction plan.

The Village is constructing the parallel waterline and sewer line improvement projects at the same time for efficiency and to minimize the disturbance time to East Washington Street. The East Washington Street water and sewer line improvements run from North Main Street east to Billy Campbell Blvd (See Figure 4). The WWTP improvements include

Waterline Replacement

The East Washington street waterline improvements involve abandoning the deteriorating old water main and service connections along East Washington Street and connecting service to a redundant water main that was previously constructed. The alignment of the watermain is from North Main Street to Billy Campbell Boulevard. Joints and interstitial pipes will be replaced along the alignment in small segments to completely abandon the existing watermain on East Washington Street.

SSO Elimination

The Sanitary Sewer Rehabilitation portion of the project will include sewer lining, manhole rehabilitation, joint replacements, and lateral rehabilitation or replacement.

Along the same alignment as the watermain abandonment and transferal of service, sanitary sewer will be lined using a cured-in-place pipe (CIPP) technique to reduce disturbance while rehabilitating the leaking sewers. Segments of storm sewer with high I/I will also be lined using CIPP along this stretch of East Washington Street.

Figure 4. Map of East Washington Street pipework alignment outlined in red

WWTP Improvements

The Wastewater Treatment Plant (WWTP) improvements include replacing the upgrading the headworks, screening, and grit removal system; a new raw sewage pump and upgrades to the existing one; EQ tank meter and telemetry improvements, EQ tank improvements to accept an increased wet weather flow, and automated diversion mechanism installed to optimize flows; aeration improvements; RAS pump improvements; concrete tank repairs to primary and final clarifiers, aerobic digestion tank; electrical and SCADA system improvements; and generator upgrade.

Listed below are the details of the WWTP improvements. See Figure 5 for the WWTP location. The Village of Chagrin Falls with CT Consultants has evaluated the existing wastewater treatment plant and EQ tank for needed improvements both to accommodate an increased wet weather flow of 3.75 MGD from the current rating of a maximum 3.0 MGD, and to address operational and maintenance issues at the WWTP. The following items summarize the improvements for inclusion in the WWTP Phase 2 Improvements Project.

1. **Headworks** – the existing grit removal system is not functional and required manual removal of the settled grit from the tank. Downstream of the grit tank is a comminutor channel. The comminutor is at the end of its useful life and is ineffective at removing rags from the wastewater flow. The bypass channel has a bar rack with 3/8" spacing.

   Upgrading the headworks to a process that has a modernized removal system with a grit washer and a mechanical screen with a washer compactor will be included in the Phase 2 WWTP Upgrades.

2. **Raw Sewage Pumps** – CT consultants worked with the manufacturer of the existing pumps to evaluate whether they were able to pump 3.75 MGD, they are not. While it was determined that the motor sizes in the existing pumps could be increased, they are limited by the motor starters in the motor control panels. Even with larger motors there will still need to be an additional pump installed. Therefore, modifications to the raw pumping, including providing a new control scheme is included in the Project. The modifications include larger motors and impellors on the existing pumps, installation of VFDs for control and a new pump so there will always be one backup at peak demand.

   As part of this overall process improvement, a new influent meter will be installed to better control the pumping into the plant and to alert personnel when the flow rate is rising. This will tie into the operation of the offsite EQ tank that is upstream of the WWTP. New motor control panels and PLCs will be required.

   There is significant electrical work associated with this and an instrumentation and control plan will include upgrades to the existing plant system including SCADA.

3. **Aeration Improvements** – as a means to improve the energy efficiency at the WWTP converting from coarse bubble to fine bubble diffusers is being included in this project. In addition, replacing one of the existing blowers with a high efficiency blower that runs on a VFD will also be included. This blower will be programmed to run on D.O. control in the aeration tank(s). The existing blowers will be kept in operation as backup to the new one.

   Since there will be work completed on the aeration tanks, areas where there is eroding concrete will be repaired. This is an upkeep item for the WWTP to ensure the integrity of the tank for the future.

4. **RAS Pumps** – RAS pumps and motors will be replaced due to age.

5. **EQ Tank Improvements** – The collection system model has shown that the existing EQ tank is adequate to contain wet weather flows that exceed 3.75 MGD up to the 10-year 2 hour storm event. Operation and maintenance issues related to the EQ include cleaning grit from the tank after a storm event and the diversion structure that allows flow to be diverted to the tank.

   Included in this Project are upgrades to both the EQ tank grit removal system and improvements to the diversion structure to the EQ tank. An automatic gate/ valve system will be installed here to direct flow during high volume.

6. **Electrical Improvements** – The standby generator will be replaced with a new 400 kilowatt generator, switchgear will be replaced, and the SCADA system will be updated.

Maintenance and efficiency items not specifically called out above that may be included in the Project include things like replacement of lights with efficient LED lights in buildings where we may be doing other work, replacement of doors or windows identified as needing repair and site work repairs due to construction.

Items that were previously considered to be included in Phase 2 but were incorporated into the 1st Phase include replacing the hypochlorite system – it was determined that replacement with the disinfection process in its entirety with a UV disinfection system was better addressed in the first WWTP Phase as it is physically located in the same building as the filtration improvements.

Figure 5. Chagrin Falls WWTP

Implementation

Chagrin Falls will borrow approximately $720,856 from the WSRLA for the East Washington waterline project, $2,642,923 for the SSO elimination (Inflow & Infiltration Reduction) project, and $2,750,000 from the WPCLF for the WWTP Improvements project. The Village qualifies for a small community interest rate discount of 0.56%. During the 30-year loan period, Chagrin Falls will save approximately $1.9 million total by using WSRLA and WPCLF dollars at this rate, compared to the market rate of 2.36%.

A typical residential customer living inside Chagrin Falls city limits is currently paying $204/year for water (similarly $255/year for service outside city limits), and $194/year for sewer (similarly $243/year outside Village limits). Water and sewer rate increases of 5% per year have been implemented during 2016, 2017, 2018, and 2019 to allow continued proper maintenance of these services to residents. According to the 2013-2017 American Community Survey, the estimated median household income (MHI) for a resident of Chagrin Falls is $86,607. With the most recent water and sewer rate increase, the average yearly water and sewer costs amount to $398/year ($498/year service outside Village limits), which is 0.46% of the MHI (0.58% for residents outside Village limits) and is generally considered affordable.

Project Schedule

Pending successful loan award on May 30, 2020, the village would begin construction before December 2020. Project completion is anticipated November 2021.

Public Participation

The East Washington Street water and sewer improvements project were discussed at the last public council meeting on February 10, 2020. The Mayor will schedule a public hearing on March 9, 2020 to announce the intent and progress of the infrastructure improvements projects, and to give residents a chance to comment about tree preservation on private property in terms of the project.

Ohio EPA will make a copy of this document available to the public on its web page: http://epa.ohio.gov/defa/ofa.aspx#169638770-wsrla-documents-for-review-and-comment and distribute it to interested parties. Information supporting the LER is available from the project contact named below.

Planning Information

The proposed project was reviewed by SHPO, Ohio EPA Division of Drinking and Ground Waters, and Ohio EPA Division of Environmental and Financial Assistance.

Ohio EPA has concluded that the project is not likely to adversely affect federally endangered or threatened species, or critical habitat. The project should not require the removal of any trees, however, unanticipated street tree clearing and trimming will be limited to those that are necessary for the project.

Ohio EPA has concluded that due to the routing of the waterline extensions occurring in previously disturbed grounds that have already been paved, developed as residential housing, and been developed at the WWTP site, this project will not affect archaeological or historical resources. East Washington Street is designated as part of Chagrin Falls historic district by SHPO, and many of the homes along East Washington Street are identified as historic places. However, because the waterline and sanitary sewer improvements will be rehabilitating existing waterline lateral connections, joints,

and manholes under East Washington Street, the historic homes on each side of the street will not be affected. Existing sewer lines under East Washington Street will be rehabilitated using Cured-in -place- piping (CIPP) and does not require the entire sewer line trench dug up, so will not affect historic places along East Washington Street. The WWTP site has already been heavily disturbed, and there are no historic records adjacent to be disturbed.

Construction will primarily occur in previously disturbed streets, rights-of-way, grass tree-lawns, and residential lawn areas for the East Washington Street waterline and sanitary sewer improvements. The WWTP site has already been disturbed and all work for the WWTP phase 2 project will be within the WWTP and the existing structures. The contractor is responsible for best management practices to control dust, erosion and sedimentation, and maintaining local traffic while construction occurs. Soil and erosion control plans are in place to minimize temporary construction disturbances and filter sediment-laden stormwater before it reaches storm waterways.

Conclusion

The proposed project meets the project type criteria for a Limited Environmental Review (LER); namely, it is an action within an existing wastewater treatment system and water/wastewater conveyance system, which involves the functional replacement of and improvements to existing mechanical equipment. Furthermore, the project meets the other qualifying criteria for an LER; specifically, the proposed project:

Will have no significant environmental effect and will require no specific impact mitigation as there are no valuable environmental resources such as wetlands, streams, scenic rivers, vegetated habitat, or unique landscape features present in the project areas. Standard construction best management practices will be used to address things like noise, dust, traffic disruption, and storm water runoff.

Will have no effect on high-value environmental resources because the project will occur fully within a previously developed urban street, rights-of-way, and WWTP property. There are no valuable environmental resources, wetland, streams, or suitable habitat in these previously developed project areas. Stormwater sediment capture and erosion controls will be in place prior to construction on East Washington and at the WWTP.

Is cost-effective and not controversial – The East Washington Street watermain is 119 years old and has far surpassed its useful life. It is more cost effective to abandon this watermain and transfer service to the newly constructed parallel watermain than to continue patching leaks as they arise. Similarly, it is more cost effective to repair the East Washington Street sanitary sewer by CIPP lining than to dig it up and replace it. It is more cost effective to implement WWTP improvements than to wait until infrastructure completely fails to replace components. Also, protecting human health by eliminating sanitary sewer overflows is an important consideration. Chagrin Falls qualifies for low-interest small-community rate loans from both the WSRLA and WPCLF, and will minimize the financial burden on its customers by seeking this type of loan.

Does not create a new, or relocate an existing discharge to surface or ground waters, and 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, or substantially increase the volume of discharge or loading of pollutants from an existing source or from new facilities to receiving waters – These projects rehabilitate and repair, line, and protect existing waterline and sanitary sewer line. There will be no new service connections and no increase

in discharge volume received, and these waterline, sewer line, and WWTP improvements do not substantially alter Chagrin Falls public water and sewer systems.

Will not provide capacity to serve a population substantially greater than the existing population - This project will not create any new service connections where the old waterline will be abandoned. Existing service connections will be transferred to the redundant newer water main on East Washington Street. The same is true for the sanitary sewer lining and rehabilitation in that there will be no new service connections. The improvements at the WWTP will improve wastewater treatment and reduce SSO discharges.

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 waters, coastal zones, floodplains, wetlands, state-designated scenic or recreational rivers, prime or unique agricultural lands, aquifer recharge zones, archaeologically or historically significant sites, threatened or endangered species, or state and federal wildlife areas).

Contact information

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