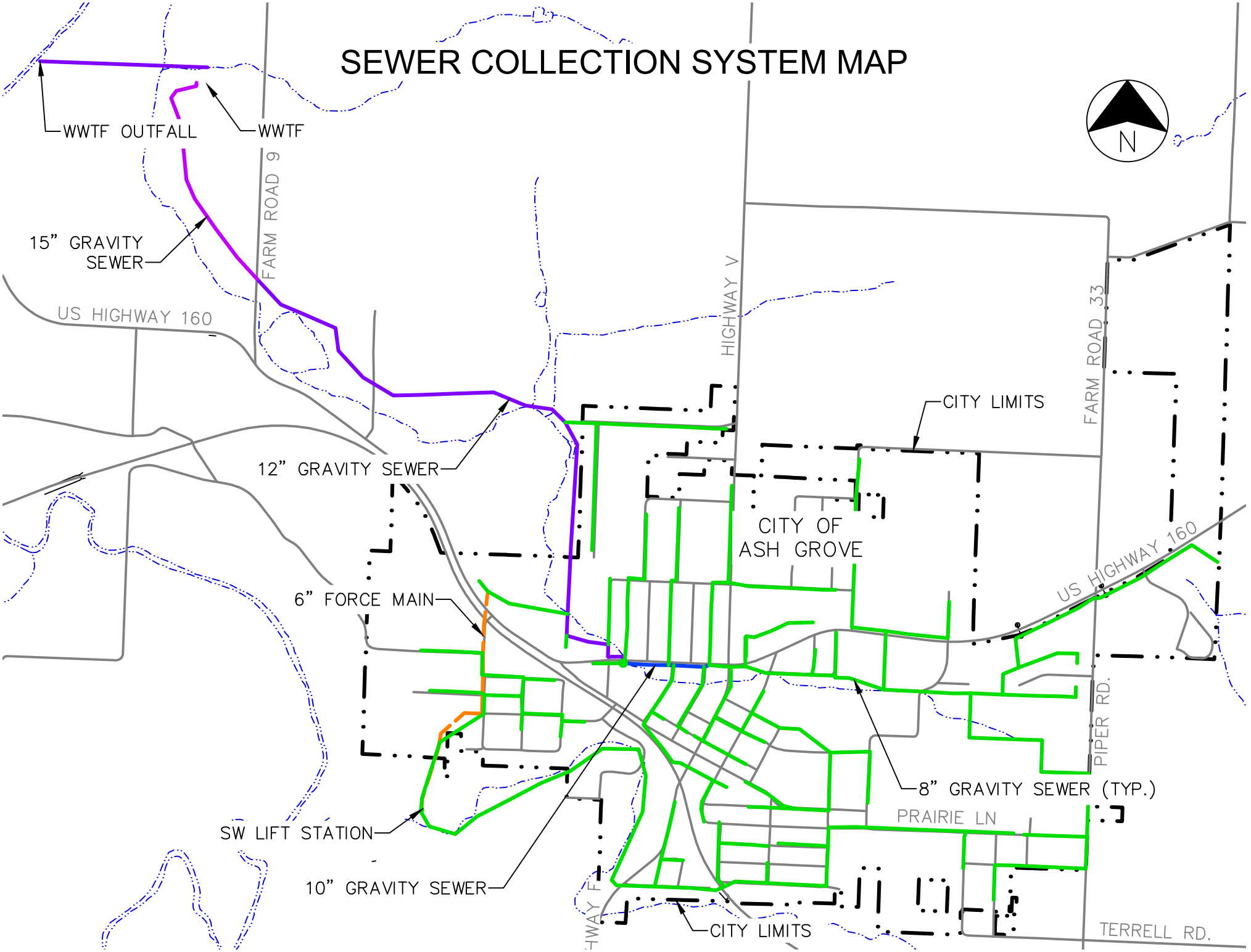
FACTS AND INFORMATION REGARDING ASH GROVE REVENUE BOND ELECTION

Election Date:	February 3, 2026
Type and Amount of Bond Issue:	Revenue Bonds in the amount of $1,750,000
Purpose of Bond Issue:	To provide funding for capital improvements to the City's wastewater collection and treatment system.

CURRENT SEWERAGE SYSTEM DESCRIPTION

Sewer Collection System: The City of Ash Grove owns and operates a sanitary sewerage system that serves the City's residential, institutional, and commercial developments. The public owned treatment works (POTW) are operated under Missouri State Operating Permit (MSOP) MO-0023205 as part of the National Pollutant Discharge Elimination System (NPDES) and is regulated at the state level by the Missouri Department of Natural Resources (MDNR).

The existing collection system is comprised of approximately 72,060 feet of gravity sewer mains ranging in size from 8-inch to 15-inch in diameter, 249 manholes, and 21 lampholes. Gravity sewer pipe materials include polyvinyl chloride (PVC) and vitrified clay (VCP) with a substantial portion being 8-inch VCP. The original collection system south of Hwy 160 was constructed in the 1950s using VCP. Major extension to the sewer system including construction of collection and trunk sewers north of Hwy 160 occurred in the late 1970s. This extension utilized reinforced plastic pipe (Truss Pipe). More recent extensions of the sewer system utilized conventional solid wall PVC pipe. Manholes in older parts of the collection system are brick-and-mortar construction with newer manholes constructed of pre-cast concrete sections. The system includes one (1) sewage pumping station that receives and conveys flows collected in the service area south of Hwy 160 through a 6-inch pressure sewer to the service area north of Hwy 160. All flows are then conveyed by gravity flow to the wastewater treatment facility (WWTF).

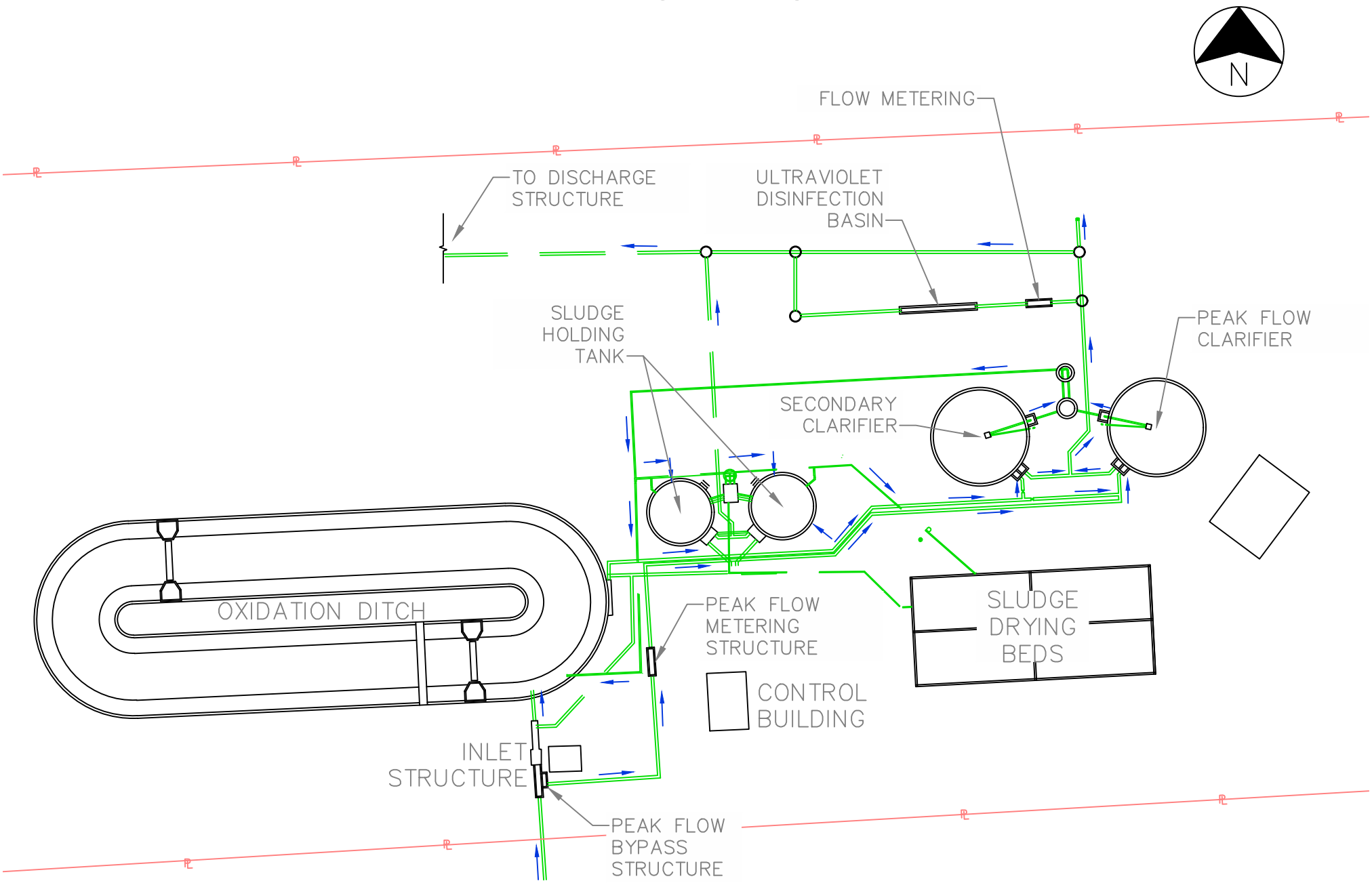

SEWER COLLECTION SYSTEM MAP
WWTF OUTFALL
WWTF
15" GRAVITY SEWER
FARM ROAD 9
US HIGHWAY 160
HIGHWAY V
FARM ROAD 33
CITY LIMITS
12" GRAVITY SEWER
CITY OF ASH GROVE
US HIGHWAY 160
6" FORCE MAIN
PIPER RD.
8" GRAVITY SEWER (TYP.)
PRAIRIE LN
SW LIFT STATION
10" GRAVITY SEWER
CITY LIMITS
TERRELL RD.
N

Wastewater Treatment Facility: The existing WWTF is located approximately 1.5 miles northwest of the City on the west side of Farm Road 9 and 0.3 miles south of Farm Road 60. The original treatment facility, constructed in the late 1970s, consisted of an inlet structure containing a manually cleaned bar screen, an oxidation ditch, two 24-foot diameter clarifiers, duplex return activated sludge/waste activated sludge pump system, and conventional sludge drying beds. The WWTF was designed for a population equivalent of 3,300 with an average daily flow of 330,000 gpd. Treated effluent is piped approximately 1,700-feet from the WWTF site and discharged into the Sac River.

Major improvements to the WWTF were completed in the late 1990s to increase hydraulic capacity related to peak wet weather flows and improve waste sludge handling/disposal practices. Specific improvements included inlet structure modifications designed to bypass excessive wet weather flows to a storm water clarifier, replacement of the oxidation ditch aeration assemblies, construction of two 36-foot diameter clarifiers, conversion of the original clarifiers to aerated sludge holding tanks, and new sludge pumping systems.

Additional improvements to the WWTF were completed in 2007 in response to changes in the MSOP effluent limits. These improvements included relocating the discharge line and outfall to facilitate installation of ultraviolet light (UV) disinfection and effluent flow metering structures.

WWTF FLOW DIAGRAM



SEWERAGE SYSTEM DEFICIENCIES

Sewer Collection System: The City's existing collection system is subjected to significant rainfall derived infiltration and inflow (I&I) contributions which leads to excessive flows received at the WWTF. Current wastewater flows received at the WWTF average 166,000 gpd. Peak day wastewater flows during wet weather events exceed 1,500,000 gpd. Compared to average water sales data, over 40% of the wastewater treated at the WWTF is attributed to rainfall derived I&I.

The City's entire collection system was previously mapped, and field investigations performed to identify and locate sources of I&I in the public and private sectors of the sewer system. These investigations included physical inspection of 220 manholes, smoke-testing of 249 sewer line segments totaling 67,730 lineal feet, and internal closed-circuit televising (CCTV) inspections of 17-line segments totaling 5,120 lineal feet south of Hwy 160. Recommended CCTV inspection of approximately 34 sewer line segments totaling 9,780 lineal feet north of Hwy 160 remains to be completed.

Manhole inspections identified 41 manholes with evidence of surcharging, 62 with evidence of I&I, 2 with evidence of overflows, and 3 with evidence of corrosion from hydrogen sulfide. Manhole inspections also identified several broken, corroded, missing, offset, and loose frame and cover defects.

Smoke testing revealed 72 sources of I&I in the public sector and 52 sources in the private sector. Public sector defects included manhole rim defects, vented manhole covers, and manhole wall defects. Other public sector defects identified included 6 stormwater cross connections from 4-culvert pipes and 2-curb inlets which contribute significant amounts of I&I to the collection system.

Private sector defects included broken cleanouts, uncapped cleanouts, service line defects, and a driveway drain.

The best method of accurately identifying the condition of sanitary sewer lines is by closed-circuit televising (CCTV). Of the 17 sewer line segments south of Hwy 160 that were inspected, 8 segments were identified as having active I&I and/or multiple structural defects.

Wastewater Treatment Facility: The existing WWTF utilizes a combination of biological, physical and chemical treatment processes to remove pollution from the treated water that is discharged. The facility is expected to have adequate hydraulic capacity for the foreseeable future provided the collection system is rehabilitated to reduce peak day wet-weather flows to acceptable levels. That said, most of the wastewater treatment facility

process mechanical equipment has been in continuous service for decades and is at or nearing the end its useful life.

Headworks: The headworks structure receives wastewater flow from the collection system. The upstream end contains a manually cleaned bar screen with 1-inch clear openings. Immediately downstream of the bar screen is a downward acting gate and bypass weir arrangement that was originally designed to limit flow to the oxidation ditch with higher flows bypassed to one of the two clarifiers. The downstream end of the structure includes a Parshall flume equipped with a transducer which measures flow depth through the flume and transmits a signal to a flow meter receiver located in the control building which displays and totalizes flow. The flow meter is over 25 years old and needs to be replaced. Also, providing a mechanical fine screening system would benefit downstream unit treatment processes and equipment by removing significantly more debris from the influent wastewater stream than the existing bar screen can remove, especially rags and wipes.

Oxidation Ditch: The biological treatment process is completed in the oxidation ditch which is equipped with two 20 HP aeration assemblies that provide a continuous source of oxygen for biological treatment to occur and keep the contents mixed and moving. The electric motors, gear reducers and bearings on both aeration assemblies were replaced in 2024. Additional improvements currently needed include installation of flow control baffles downstream of each aeration assembly to prevent development of “standing wave” phenomenon in the oxidation ditch to mitigate adverse impact on aeration and mixing. Repair of spalling and deteriorated structural concrete defects are also needed.

Clarifiers: Each clarifier is equipped with a rotating sludge collector mechanism where biological solids received from the oxidation ditch settle while leaving a clarified liquid which then passes over the clarifier effluent weir. The mechanisms are over 25-years old with various components needing to be refurbished or replaced. Over the years, the west clarifier has primarily served as the secondary settling tank receiving flow from the oxidation ditch with the east clarifier serving as a peak flow clarifier receiving wet weather flows bypassed from the headworks. Consequently, the west clarifier drive assembly is at the end of its useful life and needs to be rebuilt or replaced. In addition, the weir trough and other ferrous metal components are severely corroded and need to be refurbished or replaced.

Ultraviolet Disinfection System: The existing open channel UV disinfection system consists of two UV banks arranged in series with each bank comprised of four UV modules with six UV lamps per module. A level control gate with adjustable counterweights maintains

proper lamp submergence from zero to peak design flow. Flow pacing controls are provided to cycle UV banks on-off in relation to flow rate from an effluent flow meter signal. The disinfection system has been in operation since 2006. The level control gate is currently not functioning properly to maintain a maximum water depth variance in the UV channel of 1½-inches from zero to peak flow. Some of the power/control cables between the modules and power distribution center have sustained damage by muskrats and need to be replaced. Other spare components are also needed to ensure system reliability.

Sludge Pump System: The existing sludge pump system includes a precast concrete wetwell and two submersible type centrifugal pumps and an electrical control panel. The sludge pumps return settled solids from the clarifiers back to the oxidation ditch and periodically are used to waste sludge to the sludge holding tanks. Like other unit process equipment, the pumps and control panel are over 25-years old. The control panel needs to be replaced with a new panel to properly control pump cycling. Depending on available funding, new pumps may be provided. At a minimum a spare pump will be provided.

Outfall Sewer & Discharge Structure: Treated effluent from the WWTF is piped approximately 1,700-feet to the west and discharged directly to the Sac River. Flood waters have displaced concrete aprons around the discharge structure that were intended to stabilize the riverbank. These aprons need to be removed and replaced with riprap of sufficient size to withstand erosive forces from flood waters. In addition, during extreme Sac River flooding events, flood water elevations cause the outfall sewer to surcharge to the point of overflowing the top of the UV disinfection structure.

WHY SHOULD CITIZENS BE CONCERNED

A reliable sanitary sewer system is a basic need in any Community. Without the proposed project, the sewer collection system will continue to deteriorate. Surcharging and overflows within the collection system will become more frequent, increasing the potential for sewage backups into homes and/or businesses. Overflows of untreated sewage within the collection system also present a health hazard to the public.

If the WWTF is not upgraded soon, the aging treatment process equipment will ultimately fail, rendering the treatment facility unable to properly treat the wastewater generated in the community to the levels required by the State Operating Permit prior to discharge to waters of the State. Such conditions would inevitably lead to enforcement action by the MDNR.

DESCRIPTION OF PROPOSED IMPROVEMENTS

Sewer Collection System: Proposed collection system improvements include rehabilitation of defective manholes and sewer line segments that have been identified as high priority based on I&I contribution. Defective manholes, especially those constructed of brick and mortar, will be rehabilitated using a spray-applied cementitious coating or the installation of a cured-in-place manhole liner and/or replacement of defective frames and covers. Complete sewer lines, or portions of a sewer line, will be rehabilitated through the application of a cured-in-place pipe liner, cured-in-place sectional repair, or open-cut point repair. Defective connection points between the sewer main and private sewer lateral lines, which can be major I&I contributors, will also be rehabilitated through trenchless renovation techniques or open-cut replacement.

Wastewater Treatment Facility: WWTF deficiencies will be addressed by modifying and repairing select treatment process structures and refurbishing and/or replacing various mechanical equipment.

Headworks: Proposed headworks improvements include installing new ultra-sonic flow metering equipment and modifying to the existing by-pass weir arrangement to inhibit future by-passing of peak wet weather flows which is no longer allowed under current regulations. Depending on available funding, a mechanical fine screening system may be provided. Structural modifications to the headworks structure would be necessary to accommodate a mechanical screening system.

Oxidation Ditch: Proposed improvements include installation of flow control baffles downstream of each aeration assembly to prevent development of “standing wave” phenomenon in the oxidation ditch. Proposed improvements also include repair of spalling and deteriorated structural concrete surfaces where steel reinforcing has become exposed.

Clarifiers: Proposed improvements include refurbishing the bridge and scraper truss assembly ferrous metal components and miscellaneous support brackets by sand blasting and repainting. Proposed improvements also include replacing the existing effluent weir trough assembly, effluent pipe, and other components with stainless steel materials. Once restoration of the west clarifier is complete and operational, the east clarifier will then be emptied and refurbished in the same manner.

Ultraviolet Disinfection System: Proposed improvements include extending the existing concrete structure and installing a fixed serpentine weir to replace the existing automatic level controller. Proposed improvements also include replacing the existing effluent flow

meter which is no longer functional. Improvements will also include replacement of defective power/control cables and other system electrical components.

Sludge Pump System: Proposed improvements include installing a new control panel to control pump cycling. Improvements may also include replacing the existing pumps. At a minimum a spare pump will be provided to ensure reliability.

Outfall Sewer & Discharge Structure: Proposed improvements include removing the existing displaced concrete aprons adjacent to the structure and replacing them with riprap of sufficient size to withstand erosive forces from flood waters. Proposed improvements will also include installing a relief outfall sewer to mitigate surcharge of the existing outfall sewer during extreme flooding events.

TYPICAL QUESTIONS AND ANSWERS

What is the cost associated with the project? The City's consulting engineer estimates the total project cost will be in the range of $1,400,000 to $1,750,000 depending on the final scope of proposed improvements.

How will the project be funded? If the Bond Issue is approved, the City will request funding assistance through the State Revolving Fund (SRF) Program administered by the Missouri Department of Natural Resources (MDNR). This loan program typically has an interest rate of ±2.0% with a 20-year payback period. MDNR may also offer Clean Water SRF Affordability Grants up to 60% of eligible project costs, in conjunction with loans, to communities which would have difficulty financing wastewater infrastructure improvements without additional subsidization. However, the amount of subsidization grants MDNR has available varies and subject to change each fiscal year. MDNR will determine the amount of grant funds that may be committed to the project. Applications for the SRF program are due March 1st, 2026. If the City receives a commitment for grant funding, the final SRF loan amount will be reduced accordingly.

How will the Revenue Bonds be repaid? The bonds will be repaid from revenue generated through sewer use charges after payment of operation and maintenance costs. This type of bond issue will not change the property tax levy. No tax funds will be used for the project since it is self-supporting through sewer use charges.

How will sewer rates be determined? Sewer rates will be based on the revenue required to pay for operation and maintenance of the sewer system and repay the loan. The City's current rate structure includes a fixed service charge of $19.50/month plus flow a charge of $2.60/1000 gallons which equates to an average monthly sewer bill of $32.50/month based on an average flow contribution of 5,000 gallons/month. Depending on the final amount of SRF loan and grant funding, the average sewer bill is projected to increase by $9.00 to $15.50 per month.

What happens if the Revenue Bonds are not approved? If, for some reason, the bond issue is not approved by voters, the City would then need to pursue Lease-Purchase financing which does not require a public debt referendum. Financing $1,750,000 through a lease-purchase agreement at an interest rate of ±5% with a 20-year payback period, the average sewer bill is projected to increase by $20.00 per month.

Addition Information. A detailed Engineering Report for the project is on file at City Hall and can be reviewed during normal business hours by anyone wishing to know more specific details about the project.

Residents, business owners, etc., may also contact City Hall for answers to any additional questions they may have regarding the project.