

CITY WATER & LIGHT

JONESBORO, ARKANSAS



**2020 PROGRESS REPORT
CORRECTIVE ACTION PLAN**

SANITARY SEWER OVERFLOWS: SUMMARY OF ONGOING ACTIONS
AND PLAN FOR ADDITIONAL CORRECTIVE MEASURES

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I certify under penalty of law that this document and all appendices were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.



Jake Rice III, Manager
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12/16/2020

Date

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Acronyms

- ADEQ - Arkansas Department of Energy and Environment’s Division of Environmental Quality
- ADH – Arkansas Department of Health
- BOD – Biochemical Oxygen Demand
- CAP – Corrective Action Plan
- CCTV – Closed Circuit Television Video
- CIPP – Cured-In-Place Pipe

CMAR – Construction Manager at Risk
CMOM - Capacity, Management, Operations, and Maintenance Program
COVID-19 or COVID – Coronavirus disease 2019
CWL - City Water and Light Plant of the City of Jonesboro, Arkansas
ESRI – Environmental Systems Research Institute, Inc.
FOG - Fats, Oils and Grease
FSE – Food Service Establishment
GIS – Geographic Information System
gpm – gallons per minute
Hp - Horsepower
I&I – Inflow and Infiltration
ICEAS® - Intermittent Cycle Extended Aeration
kW – kilowatt
lb/day – pounds per day
MGD – Million Gallons per Day
MW&Y - McGoodwin, Williams & Yates, Inc.
NPDES - National Pollutant Discharge Elimination System
Olsson – Olsson, Inc.
RAS – Return Activated Sludge
RFP – Request for Proposal
RJN - RJN Group, Inc.
SBR – Sequencing Batch Reactors
SCADA – Supervisory Control and Data Acquisition
SL-Rat® - Sewer Line Rapid Assessment Tool by InfoSense, Inc.
SSES – Sanitary Sewer Evaluation Study
SSO – Sanitary Sewer Overflow
SSR – Smith Seckman Reid, Inc.
TDH – Total Dynamic Head
UV – Ultraviolet
Van Horn – Van Horn Construction, Inc.
VFD - Variable Frequency Drive
WAS – Waste Activated Sludge
WWTP – Wastewater Treatment Plant

1. Executive Summary

CWL has maintained a longstanding effort in the effective and continuous management, operation, and maintenance of the collection system capacity and performance. This ongoing effort continued in 2020 through the corrective action activities that CWL committed to in both the CWL CAP submitted to the ADEQ on March 28, 2016 and Addendum to CWL CAP submitted to the ADEQ on April 14, 2016.

Like the rest of the world, CWL encountered numerous challenges in 2020 as a result of the COVID-19 global pandemic. This unusual event added complexity to CWL's SSO mitigation efforts that ranged from staffing and communications to operational disruptions. Balancing the pragmatic safety precautions COVID-19 demanded, CWL personnel demonstrated adaptability and resilience to maintain corrective action activities, including contracted assistance to meet maintenance and SSES objectives and creative solutions to public school outreach efforts.

Obviously, COVID-19 was not without its impacts. While not the only factor, COVID certainly contributed to CWL's adjustment to some of the target completion dates for Phase I capital improvement projects. However, CWL considers overall mitigation improvements ahead of schedule, particularly with the advanced status of Phase II capital improvement projects.

As of November 1, 2020, the corrective actions outlined in CWL's CAP and follow-up Addendum have been accomplished or are on schedule to be achieved by the respective initial or updated target completion date. For 2020, these activities included:

- i. Progress on Phase I Capital Improvements
- ii. Performed SSES of Approximately 29 Miles of the Collection System – **Achieving Milestone of SSES of 1/3 of Collection System**
- iii. Performed Resultant Repairs for 2016 thru 2020 SSES Basins
- iv. Progress on Design/Construction of Northwest (Main) Lift Station Replacement as a Phase II Capital Improvement
- v. Progress on CMOM Software Solution/Sewer GIS Implementation
- vi. Final Acquisitions/Installations for Lift Station Emergency Power
- vii. Continued FOG Management Program Expansion
- viii. Progress on Lift Station & Force Main Evaluation Resultant Repairs
- ix. Progress on Design of Westside WWTP Replacement as a Phase II Capital Improvement

In addition to the corrective actions performed this year, CWL continued ongoing comprehensive SSO mitigation efforts through the routine inspection and maintenance programs for the collection system and lift stations and the CMOM programs and processes currently in place and active. To enhance maintenance efforts and to ensure inspection and maintenance levels were not negatively impacted by pandemic conditions, CWL moved to

contracting portions of the acoustic inspection activities in 2020, as well as some CCTV/Dye Testing efforts in a 2020 SSES basin.

CWL, for many years, has demonstrated a culture of compliance and a commitment to SSO mitigation and, as outlined in this progress report, 2020 was no exception. For the period of November 1, 2019 thru October 31, 2020, CWL has documented CMOM expenses totaling over **\$1.6 million** and capital costs totaling over **\$10.07 million**.

Also, CWL has made significant progress on the approximately **\$22.5 million** Phase I capital improvements to-date in 2020 and, based on updated figures, estimates additional capital expenditures over **\$4.7 million** to achieve the Phase I goals. In addition, CWL has already invested over **\$3.1 million** toward the replacement of CWL's Northwest (Main) Lift Station, identified in 2019 as a Phase II capital improvement project, and estimates additional capital expenditures of approximately **\$4.8 million** to complete this project.

CWL is also pleased to formally present the estimated **\$52 million** Westside WWTP replacement as a Phase II capital improvement project, scheduled to begin construction in 2021. The company's commitment to this project further materialized in CWL's July 2020 issuance of **\$26 million in Public Utility System Revenue Bonds**. While earmarked in-part for current wastewater capital projects, the issue of these bonds allows CWL reserve funds to be utilized for other projects, like the Westside WWTP.

The uncommon circumstances surrounding the COVID-19 pandemic are a testament to the dynamic nature of any endeavor, including SSO mitigation. The ADEQ understands that SSO mitigation is an iterative and ongoing activity even under normalized conditions. Therefore, CWL is pleased to present the activities outlined in this report as evidence of CWL's ongoing efforts in SSO mitigation despite the challenging conditions of 2020. CWL firmly believes that these proactive efforts and associated capital expenses, as well as the future corrective actions identified in CWL's CAP, demonstrate CWL's dedication to collection system improvements.

This CAP report represents CWL's fulfillment of ADEQ's request for an annual progress report and constitutes CWL's sincere interest in ongoing and transparent communication with the ADEQ beyond the fulfillment of our voluntary commitment of a Progress Report every two years, as presented in item IV of the Addendum to CWL CAP.

2. Corrective Action Plan Activities – 2020

CWL is pleased to report the corrective actions, as presented in the following Sections 3 thru 9, achieved in 2020 toward efforts to further mitigate SSOs in the collection system. To-date, the milestones outlined in CWL’s CAP submitted to the ADEQ on March 28, 2016 and Addendum to CWL CAP submitted to the ADEQ on April 14, 2016 have been achieved or are on schedule to be achieved by the respective target completion date, with the exception of the Phase I Capital Improvements (see Section 3.1). For the period of November 1, 2019 thru October 31, 2020, CWL has documented CMOM expenses totaling over **\$1.6 million** and capital costs totaling over **\$10.07 million**.

3. 2020 CAP Milestones

CWL is pleased to report the corrective action progress, as presented in the following Sections 3.1 and 3.2, accomplished both prior to and in 2020 toward efforts to achieve Milestone #5 of Phase I, targeted for completion by December 31, 2020. To-date, these milestones, as outlined in CWL’s CAP Addendum, are on schedule to be achieved by the 2020 target completion date or by an adjusted milestone target completion date of December 31, 2021.

3.1. Phase I Capital Improvements Status

In the 2017 CAP Progress Report, CWL summarized four capital improvement projects as part of Phase 1 of the CAP. CWL provided the completion of Phase I Capital Improvements as Milestone #5 of Phase I in the Addendum to CWL CAP. These projects were targeted for completion by December 31, 2020. CWL is pleased to report that significant progress has been achieved toward this goal, with the over **\$15 million** Eastside WWTP upgrade now complete and the remaining Phase I improvements on schedule to be achieved by an adjusted target completion date of December 31, 2021.

The staffing, communication and operational challenges surrounding the COVID-19 pandemic were certainly a contributing factor to the need for adjustment of several Phase I projects’ target completion dates. Even in normalized conditions and as previously discussed with the ADEQ, these mitigation efforts are an iterative and ongoing activity and, as such, target completion date adjustments were anticipated. With this said however, CWL considers overall mitigation improvements ahead of schedule, especially considering the advanced status of Phase II (1st Quarter 2021 thru 4th Quarter 2025) capital improvement projects (see Section 5, Northwest Lift Station Replacement, and Section 13, Westside WWTP Replacement).

Table 3-1 provides the updated current costs or cost estimates and the current project status for each improvement. The following sections also briefly describe each project’s current status, as well as 2020 financial strategies to achieve ongoing capital improvements. In addition, see

Appendix A for conceptual maps summarizing the completed, in-progress, or planned improvements.

Table 3-1: Phase I Capital Improvements (As of November 1, 2020)

Capital Improvement	Updated Cost Current or Est.	Current Status
Eastside WWTP Wet Weather Hydraulic Upgrade	\$15.028 million (current)	Construction Complete
Midtown Interceptor	\$5.2 million	Construction Approximately 63% Complete
Ridgecrest Lift Station & Gravity Sewer	\$1.5 million	Scheduled to Let for Bids December 2020
Kitchen Gravity Sewer	\$800,000	Contingent on Midtown Interceptor Completion

3.1.1. 2020 Public Utility System Revenue Bonds – Wastewater

CWL issued **\$26 million** in Public Utility System Revenue Bonds during July 2020 for the acquisition, construction and improvement of CWL sewer and electric facilities. A portion of these funds were used toward the current Main Lift Station replacement and four-mile Midtown Interceptor construction. The issuance of these bonds will free up CWL reserve funds to be utilized for other sewer system improvements, particularly the Westside WWTP replacement (see Section 13). CWL feels these actions further demonstrate the company’s commitment to sewer system improvements.

3.1.2. Eastside WWTP Wet Weather Hydraulic Upgrade

While the CWL Eastside WWTP biological treatment capacity remains more than sufficient as currently designed, the plant’s hydraulic capacity under wet weather flows was identified for certain capital improvements to optimize operation. Plans and specifications for a hydraulic upgrade were developed by Olsson and included an 18-MGD head works pump addition, bar screen replacement to increase hydraulic throughput, and construction of one 100’-diameter clarifier and one 120’-diameter clarifier. An automated inlet flow-proportioning weir, RAS and WAS pumps, UV disinfection and additional structures and piping were also included in the upgrades.

The plans were approved by the ADEQ, and the construction permit became effective June 8, 2018. Van Horn was the successful bidder for the project and was issued a formal Notice to Proceed on July 23, 2018. Despite significant rainfall amounts during construction and unusual COVID-19 conditions in 2020, work was substantially complete on July 28, 2020. CWL has spent to-date over **\$15.028 million** on this project. This amount does not include significant in-house costs for work performed by CWL Engineering and Management personnel.

3.1.3. Midtown Interceptor

In an effort to address capacity constraints in the midtown Jonesboro (i.e. E. Nettleton Ave, Kitchen St, E. Matthews Ave and Arkansas State University) area, CWL contracted Olsson to assist in the design of the Midtown Interceptor. The targeted area is defined by sanitary sewer basins JB18, JB19, JB20, and JB21, as shown in Appendix B, Basin Delineation. The design includes approximately 4 miles of 24"-diameter and 1,900' of 18"-diameter gravity sewer connecting the midtown area to the Northeast Interceptor sewer, placed in service September 2014.

David Cline Construction Company, Inc. was the successful bidder for the project and was issued a formal Notice to Proceed on November 4, 2019. CWL has updated the total estimated cost for the project to approximately **\$5.2 million** and has invested over **\$2.6 million** to-date. The project is currently approximately 63% complete, with final completion now projected for late first quarter of 2021.

3.1.4. Ridgecrest Lift Station & Gravity Sewer

CWL has contracted with Crist Engineers, Inc., and continues to work with RJN utilizing the CWL sewer hydraulic model, on the third capital project identified for Phase I, the Ridgecrest Lift Station and associated gravity sewer. This project will serve to optimize the functionality of the lift station through a redesign to a lower hydraulic grade line. This modification is proposed to address capacity constraints in the Ridgecrest St, Sims Ave, Owens Ave, and Parkview St area (basin JB26; see App B, Basin Delineation).

The ADH approved the lift station plans on September 30, 2020. The City of Jonesboro has received and is currently reviewing these plans as well. An RFP for two 60 Hp Flyght pumps and associated control systems was sent out on October 15, 2020 and resulted in an over \$221,000 cost for this equipment, currently being procured.

The design will also require gravity sewer upgrades as part of this project to increase upstream conveyance capacity and remove a potential hydraulic throttle downstream of the force main. Survey work and preliminary design of the gravity sewer upgrades are in progress.

The projected total cost, including gravity sewer upgrades, remains at approximately **\$1.5 million** for the project. CWL plans to solicit bids for the lift station in December 2020 and begin construction in the second quarter of 2021. CWL has invested approximately **\$109,000** in engineering and surveying on this project to date.

3.1.5. Kitchen Gravity Sewer

The final significant capital improvement project identified for construction during Phase I involves various upgrades to the existing gravity sewer network in the midtown area bordered by E. Nettleton Ave, Kitchen St, Osler Dr, and E. Washington Ave (JB19 and JB20; see App B, Basin Delineation). The current scope of work is anticipated to include over 4,000' of gravity sewer, with updated pipe sizes ranging from 12" to 18".

Existing utilities and storm drains for one potential route have been surveyed. CWL is working with RJN and the CWL sewer hydraulic model to determine optimal upgraded pipe sizes and Fisher Arnold to determine route feasibilities for the first phase of these improvements. CWL has projected a total cost for these upgrades of **\$800,000**. As a gravity system upstream of the Midtown Interceptor, the Kitchen sewer improvement's projected start date is contingent on the completion of the interceptor construction and, therefore, is planned for the second quarter of 2021.

3.2. Phase I SSES Status

As a portion of Milestone #5 of Phase I of CAP Addendum, CWL provided a target completion date of December 31, 2020 for achieving an SSES on 1/3 of the CWL collection system, with an average of approximately 27 miles per year. CWL prioritized basins JB10, JB12, and JB35 to study in 2020 (App B, Basin Delineation) for an estimated total of approximately 29 miles of the sewer system. The status and results of the 2020 activities under this milestone, as of November 1, 2020, are briefly outlined in the following section.

The inspection of the 2020 SSES basins is now complete and the evaluation and resultant repair identification of these basins are scheduled for completion by the end of 2020. With the finalization of this SSES work, CWL will have completed inspection, evaluation, and resultant repair identification of approximately 157 miles of the collection system under the CAP in the last 4 ½ years. Therefore, **CWL is pleased to report being on target for achieving over 37% SSES of the CWL collection system by the end of 2020 and thus meeting that portion of Milestone #5 of Phase I of CAP Addendum.** CWL personnel, with contracted assistance, accomplished SSES of these final basins of Phase I, notwithstanding the complexity of COVID-19 staffing challenges.

3.2.1. SSES Activities - Status & Results

The following Table 3-2 provides a summary for SSES activities and current results for JB10, JB12, and JB35.

Table 3-2: 2020 SSES Activities (As of November 1, 2020)

Service	Quantity			
	JB 10	JB 12	JB 35	2020 Basins Total
Manhole Inspections (1)	173	135	306	614
Manhole Resultant Repairs Identified/Repaired (6)	136/4	37/0	177/41	350/45
Line Testing and Repairs				
Smoke Test (ft) (2)	49,681	37,864	67,218	154,763
Potential Defects Identified	288	10	195	493
Dye Test (6)	183	0	43	226
CCTV (ft) (3) (6)	84,387	0	11,318	95,705
Main Cleaned (ft) (7)	88,835	200	19,845	108,880
Roots Cut (ft) (8)	5,650	0	3,697	9,347
SL-Rat® (ft) (4)	80,100	3,542	63,723	147,365
Replaced/Repaired Clean Out Caps	61	2	59	122
Laterals Identified/Repaired (5) (6)	78/2	0	28/4	106/6
Resultant Main Repairs Identified/Repaired (6)	37/2	0	21/4	58/6

Notes:

- (1) Manhole inspections are 100% complete
- (2) 100% of each JB was smoke tested
- (3) CCTV footage shown from SL-Rat® assessments and smoke test defects identified. CCTV of 100% of JB10 plus SL-Rat® assessments in basin.
- (4) SL-Rat® assessments of 12" lines and smaller.
Footage includes line segments that were re-assessed due to SL-Rat® score following cleaning of lines.
- (5) Customers notified of lateral defects / Laterals repaired by customers and inspected by CWL.
- (6) Evaluation and resultant repair identification in progress.
- (7) 100% of JB10 cleaned plus cleaning for SL-Rat® assessments.
- (8) Chemical root treatment footage for 2020 basins included in maintenance totals reported in Table 10-1.

For the 2020 SSES activities, CWL began with 100% inspection of the manholes in each of the three basins selected. As of November 1, 2020, manhole inspections for the three basins are 100% complete. Detailed inspection results are available upon request. The inspections identified 350 manhole resultant repairs. Details and statuses of the repairs are available upon request.

In addition to the manhole inspections, CWL crews cleaned main lines within each basin. The segments cleaned were identified as having potential obstructions based on SL-Rat®

evaluations and smoke testing. See Section 10.2 for evaluation method utilized and see Section 3.2.1.1 for information on additional cleaning, as well as CCTV efforts, in JB10.

Smoke testing is 100% complete in each basin. Through the smoke testing process, CWL replaced at least 122 clean out caps. Smoke testing also identified 493 potential defects within the collection system. In addition, CWL identified 37 manhole defects that are included in the 350 manhole resultant repairs listed above.

In basins JB12 and JB35, CWL Crews are currently in the process of investigating possible defects identified from smoke testing through CCTV, with the aid of dye testing. See Section 3.2.1.1 for completed CCTV efforts in JB10. As stated and despite the unusual challenges of 2020, all SSES activities in these basins are scheduled for completion by the end of 2020.

To-date, CWL has identified 58 main line defects and 106 lateral defects. Appropriate repairs on mains identified for rehab are currently in progress. All lateral defects are being coordinated through CWL's Sewer Lateral Repair Program, in which property owners will be notified of necessary lateral repairs with appropriate follow up. As CCTV efforts are completed and available for review, CWL will determine appropriate rehab for any additional main line defects identified and notify customers of any additional lateral defects identified. Detailed smoke testing results, as well as details and statuses of identified rehab, to-date are available upon request.

3.2.1.1. Contracted Additional CCTV and Cleaning

In an effort to enhance CWL's assessment of JB10 (an older basin within the sewer system) and to assist with staffing disruptions under COVID-19, CWL invested in contracting out the cleaning and obtaining of CCTV footage for 100% of the basin. The contract followed CWL crews' smoke testing of the basin. Therefore, the contract scope of work also included dye flooding inspection and reverse setups on an as-needed basis. Compliance Enviro Systems, LLC (CES) began inspection and cleaning of the approximately 9 miles of 4" to 12" pipe within the basin on October 6, 2020 and completed on November 5, 2020. CES will be providing a coded report of defects found within the basin to CWL. Total estimated cost for this effort is over **\$154,000**.

4. Phase I SSES Resultant Repairs

As a portion of Milestone #2 of Phase II (1st Quarter 2021 thru 4th Quarter 2025) of CAP Addendum, CWL provided a target completion date of December 31, 2025 for achieving Phase I SSES Resultant Repairs. The following sections briefly describe the status of Phase I resultant repairs, as of November 1, 2020.

4.1. Manhole SSES Resultant Repairs

As described in Section 3.2.1, CWL identified 350 manhole repairs in 2020. As previously reported, CWL identified 297 manhole repairs for 2019 basins of JB23, JB27, and JB38; 135 manhole repairs for the 2018 basins of JB21, JB30, and JB31; 345 manhole resultant repairs for the 2017 basins of JB17, JB18, and JB32; and 91 manhole resultant repairs for the 2016 basins of JB07, JB24, JB25, and JB26. CWL is pleased to report that as of November 1, 2020; **over 65% of the 1218 manholes identified have been repaired, with repairs completed in the 2016, 2017 and 2018 basins.** Detailed spreadsheets regarding the status of the repairs identified in 2016 thru 2020 are available upon request.

4.2. Brick Manhole Rehabilitation

As stated in previous reports, CWL conducted an evaluation of the brick manholes previously rehabbed in the late 1980s and early 1990s for updated rehab needs. CWL determined that the optimum course of action at this time, considering the current available information, was to contract out a complete rehabilitation of all brick manholes, both previously rehabbed and untouched, within the basins studied. This decision was based on the evaluation and consultation with other utilities and engineering consultants.

As also mentioned in previous CWL Progress Reports, CWL worked with SSR, in late 2017 and well into 2018, to develop detailed contract specifications for manhole cementitious lining. CWL continued this work internally through the remainder of 2018, including extensive research of contractors certified for this particular rehabilitation work.

In May 2019, CWL let a contract for the cementitious lining of 657 brick manholes (quantity appropriately adjusted during verifications for contract), identified in the 2016, 2017 and 2018 basins. As previously reported, several of these brick manholes were also identified as in need of resultant repairs and, as such, are included in the resultant repair totals presented in Section 4.1. CWL awarded the contract to Kim Construction Company, Inc. of Steger, IL. Work began in late September 2019. Addendums to the contract were executed in October 2019 for manhole step removals (captured in manhole resultant repairs; see Section 4.1) and in February 2020 for an additional 160 brick manholes in the 2019 SSES basins of JB27 and JB38.

After quantity adjustments for manholes identified during the contract for abandonment and other field discoveries, a total of **800 manholes in the 2016 thru 2019 basins and 4 additional system manholes were lined under this contract. The 2016-2019 basins' brick manhole rehab was completed in March 2020 with a total CWL cost, including CWL labor for inspections, of over \$739,000.** Kim Construction is successfully proceeding on manhole step removals despite travel delays in response to the dynamic conditions of COVID-19.

For the 2020 basins, CWL has identified 257 brick manholes for rehabilitation in 2021. Detailed spreadsheets regarding the manhole cementitious lining rehabilitations are available upon request.

4.3. Epoxy Lining Manhole Rehabilitation

In conjunction with the manhole repair and rehabilitation efforts outlined in Sections 4.1 and 4.2, CWL has developed a list of 50 manholes for epoxy lining rehabilitation. The majority of these manholes are located at a lift station discharge point or at a manhole upstream and/or downstream of the discharge. CWL plans to let a contract for bids on these rehabilitations in the first quarter of 2021. A detailed spreadsheet regarding the manholes identified for epoxy lining is available upon request.

4.4. Manhole Heavy Ring & Lid Replacements

As previously reported, CWL also determined that replacing the older-style, heavy ring and lids under the influence of sheet flow in rain events had the potential to significantly reduce I&I. From November 1, 2019 to October 31, 2020, CWL utilized in-house personnel to replace all 52 of the heavy ring and lids identified in the 2020 basins, along with 5 outstanding from the 2017 basins and 2 outstanding from the 2019 basins.

CWL has successfully replaced all 379 of the heavy manhole ring and lids identified in Phase I SSES activities. Detailed spreadsheets regarding these repairs are available upon request.

4.5. Lateral SSES Resultant Repairs

As described in Sections 3.2.1 and 3.2.1.1, CWL (along with the contracted efforts in JB10) is currently in the process of evaluating through CCTV and dye testing the 493 possible defects identified from smoke testing within the 2020 basins. As of November 1, 2020, CWL has identified and verified 106 lateral defects in these basins. As shown in Table 3-2, 6 of these defects have been repaired. The remaining identified defects are currently being coordinated through CWL's Sewer Lateral Repair Program, in which property owners are notified of necessary lateral repairs with appropriate follow up. As 2020 CCTV efforts are completed and available for review, CWL will include any additional lateral defects identified in this Program.

Resulting from a 2020 audit of the Sewer Lateral Repair Program, CWL has updated the total identified sewer lateral resultant repairs for the 2019 thru 2016 basins to 137. CWL is pleased to report that as of November 1, 2020, 115 of the now 243 laterals identified to-date have been repaired, with **all of the 29 lateral repairs for the 2017 basins complete.** Detailed spreadsheets regarding these repairs are available upon request.

4.6. Main Line SSES Resultant Repairs

As described in previous Sections, CWL (along with the contracted efforts in JB10) is currently in the process of evaluating the 493 possible defects identified in the 2020 basins. As of November 1, 2020, CWL has identified 58 main line defects in these basins, with 6 of these repaired and appropriate repairs on the others identified in progress. As 2020 CCTV efforts are completed and available for review, CWL will determine appropriate rehab for any additional main line defects identified.

As previously reported, CWL has identified 37 total main line resultant repairs for the 2019 thru 2016 basins. CWL is pleased to report that as of November 1, 2020, 41 of the now 95 mains identified to-date have been repaired, **with all of the 26 main line repairs for the 2016 and 2019 basins complete.** The Midtown Interceptor will allow for the abandonment of the final outstanding main repair for the 2018 basins. Detailed spreadsheets regarding these repairs are available upon request.

In conjunction with these repair efforts, CWL continues to evaluate main line repairs for potential candidates for CIPP lining. CWL continues to develop a list of prospective mains, which includes the one remaining resultant repair for the 2017 basins as well as additional mains outside of the SSES basins. CWL plans to let a contract for bids on these repairs in the first quarter of 2021. A detailed spreadsheet regarding the main lines identified for potential CIPP lining is available upon request.

5. Northwest (Main) Lift Station Replacement – Phase II Capital Improvement

CWL's Northwest (Main) Lift Station is responsible for pumping raw wastewater to the Westside WWTP for treatment. This lift station currently handles approximately 2 MGD, dry weather flow. In 2019, CWL identified replacement of this lift station as a Phase II Capital Improvement (Milestone #1 of Phase II, 1st Quarter 2021 thru 4th Quarter 2025, in the Addendum to CWL CAP), well ahead of the December 31, 2021 target date for Phase II capital improvement identifications, and began the design process. The increased capacity of this replacement prepares the Westside system for additional capital improvements in Phase II and/or Phase III (1st Quarter 2026 thru 4th Quarter 2030). In addition, replacing the over 40-year-old lift station will address maintenance issues and provide a more reliable, efficient and resilient station.

Olsson is serving as the consulting engineers on the project and completed the plans and specifications for the new lift station that include three pumps, each capable of 6,300 gpm (9.0 MGD) at 95' TDH, with the infrastructure for the installation of a future fourth pump as capacity needs dictate. The capacity of the lift station will be approximately 18 MGD with two pumps running and the third in standby. The design includes VFDs on each pump's 200 Hp motor, which will increase efficiencies and normalize flows into the WWTP for enhanced treatment. To

address emergency operation needs, redundant power line sources and a 300 kW standby generator are planned for the lift station. See Appendix F for a conceptual map summarizing the in-progress replacement.

CWL is utilizing the CMAR approach for the construction of the new lift station just north of the existing station. Van Horn was selected as the CMAR for the project, which began construction in March 2020. As of this reporting, concrete pits and floor slabs at the site are complete, as well as a significant portion of the yard piping.

CWL has invested over **\$3.1 million** to-date toward the estimated total cost of **\$8.0 million**. The project is on schedule for completion in the third quarter of 2021.

6. CMOM Software – GIS Implementation

As reported in previous CWL Progress Reports, CWL selected ESRI/ArcGIS to develop GIS-based mapping for the sanitary sewer system as the necessary first step toward a long term solution for CMOM data management. The goal, as previously reported, is to further develop internal databases and data collection processes that allow integration with CWL's IBM i server and to identify/develop software and mapping solutions that would add value to CWL's existing system and avoid duplication of many processes.

On March 15, 2018, ESRI conducted a Needs Assessment with CWL leadership and key team members from the majority of CWL departments. The follow up executive briefing provided to the CWL leadership team on May 8, 2018 provided a high level overview of CWL goals, strengths, and challenges as it relates to GIS implementation and a potential road map to this end. As a result of this assessment, CWL identified the need to partner with an experienced consulting firm to assist in developing the GIS strategic plan, geodatabase design and system architecture, and implementation plan. CWL developed and issued a Request for Proposal in August of 2018 and selected CDM Smith Inc. as the consulting firm to assist in the project.

CWL and CDM Smith met on February 6-7, 2019 to begin strategic planning for GIS implementation. CDM Smith met with CWL again on June 18-20, 2019 to review the GIS Strategic Plan and the status of the sewer system GIS mapping. In addition, CDM Smith provided training on the ESRI software CWL purchased in May of 2019.

In preparation for the sewer geodatabase, CWL has invested to-date over **\$240,000** in Dell EMC® hardware and software infrastructure; with the primary focus of increasing processing and storage capacity to support ESRI ArcMap current and future requirements.

CDM Smith delivered a preliminary sewer geodatabase for CWL's review on March 10, 2020 and provided on-site training September 1-3, 2020. The gap between geodatabase delivery and

on-site training was a direct result of travel restrictions for both CWL and CDM Smith under pandemic uncertainties and safety concerns.

CWL executed contract amendments with CDM Smith on September 16, 2020 for the development of applications for the collection of SSES activities, as well as geodatabase maintenance and editing updates/training. Implementation of the sewer geodatabase is underway with viewers for CWL personnel review on-line November 3, 2020. CWL will continue to work with CDM Smith in 2021 toward the full implementation of the GIS-based sewer system mapping along with ArcGIS online applications for SSES data collection, management and review.

7. Equipment Installations and/or Procedures to Address Emergency Lift Station Operation

In the 2016 Progress Report for the CWL CAP, 13 lift stations were identified for permanent generator and transfer switch installations. A summary of the evaluation for lift station emergency power needs (Phase I, Milestone #1 of CAP Addendum) and a prioritized schedule was presented in Section 2.2.3 and Appendix A of the 2016 Report, respectively. The generator acquisitions began in 2017 and the subsequent installations were part of the scheduled fulfillment of the Equipment Installations and/or Procedures to Address Emergency Lift Station Operation proposed for the end of 2019 (Phase I, Milestone #4 of CAP Addendum).

As presented in previous Progress Reports, CWL installed new standby generators at the Turtle Creek, Northwest (Main), and Minx Hill lift stations in 2018 and at the Horseshoe Trail and Sage Meadows #3 lift stations in 2019.

In the 2019 Progress Report, CWL outlined that the locations, timing, and type of standby power had been adjusted. These adjustments were a result of planned capital improvements, property acquisitions, and ongoing residential development, in combination with the identification of lengthy response times. Therefore, the standby power solutions for the remaining lift stations without a permanent on-site generator consisted of the following (with a slight adjustment in decommissioned stations due to new information in 2020):

1. Two lift stations are scheduled for decommission as part of the Midtown Interceptor capital improvement project.
2. Two lift stations are scheduled for upgrades in 2021, including an on-site generator sized for upgrades.
3. Due to site restrictions, long response times, and potential decommissions due to development, the standby power solution for seven lift stations was changed to dedicated portable generators. In the third quarter of 2020, CWL received delivery of a

46 kW portable generator, bringing CWL's number of portable generators dedicated to lift station emergencies to four. As scheduled in the 2019 report, CWL installed a manual transfer switch at each of these lift stations in the fourth quarter of 2019. This allowed for a safer and quicker connection process.

An updated summary of final standby power solutions for CWL's lift stations is provided in Appendix C. With the transfer switch installations, fourth portable generator purchase and planned lift station 2021 decommissions and upgrades, **CWL's installations/procedures for emergency lift station operation are now considered achieved, finalizing this milestone.**

8. FOG Management Program Expansion

As presented in the CAP, CWL's FOG Management Program monitors FSEs through quarterly grease interceptor inspections while also conducting FOG public outreach by means of educational brochures, company website, customer billing, newspaper, television, and/or other media outlets such as Facebook, Twitter, and Instagram. Since the initial CAP, CWL has made significant efforts to further enhance its FOG Management Program, as presented in previous Progress Reports, with the expansions of quarterly grease interceptor inspections and FOG outreach to public schools, development of a residential FOG brochure, and enhancement of FSE monitoring activities within the collection system.

CWL's FOG Management Team is comprised of representatives from the following departments: Water and Sewer Service/Maintenance, Water and Wastewater Treatment, Laboratory, Engineering and General Operations. The Team meets routinely to review and evaluate current FOG Management Program elements; identify potential ways to enhance the program; and ensure implementation of the previously mentioned inspection and outreach activities.

The FOG Management Team continues to work diligently to further enhance and expand its outreach efforts through increased monitoring and sampling efforts and door hanger and postcard distributions. As previously reported, increased monitoring and sampling within the collection system has allowed CWL opportunities to collaborate with FSEs and also distribute outreach material concerning the proper disposal of FOG.

In addition to the FOG door hanger first distributed in 2019 and developed for residential areas where evidence of FOG has been identified in the collection system, a "sewer trash" door hanger (as shown in Appendix D) was developed and approved for distribution in 2020. Similar to the FOG door hanger, the "sewer trash" version will target collection system areas identified with trash issues.

In 2020, the Team also coordinated the development of a holiday postcard focused on FOG and “sewer trash” (as shown in Appendix E). Distribution is planned for the week of December 14, 2020 to approximately 44,000 residential and post office box customers. Additionally, the Team developed a children’s activity book (as shown in Appendix F) for distribution to area public schools as a creative solution for continued public school outreach during the COVID-19 challenges of 2020. These activity books, with planned distribution by the first quarter of 2021, will provide information and activities related to FOG disposal, wastewater treatment, and sewer trash disposal.

With the assistance of the FOG Management Team, CWL’s Pretreatment Department developed a written FOG Management Plan. The Plan provides a uniform resource that identifies CWL’s FOG mitigation efforts. **The FOG Management Plan was completed by the target completion date of December 31, 2019 (final goal for the FOG Management Program Expansion portion of Milestone #4 of Phase I, CWL CAP Addendum).** The plan has been reviewed and approved by CWL’s Senior Management Team.

The on-going efforts of the FOG Management Team will allow CWL to continually evaluate and improve, as identified, the current components of the FOG Management Program, with a goal of heightening its effectiveness in SSO mitigation.

9. Lift Station & Force Main Evaluation & Maintenance Program

While the proper operation and maintenance and adequate capacity of CWL’s lift stations and force mains have been and will remain a priority for CWL, the Lift Station and Force Main Evaluation and Maintenance Program was proposed by CWL as a milestone in the CAP Addendum as an opportunity for current staff to thoroughly re-evaluate the suitability, overall performance and condition of the system and enhance and formalize the maintenance program. To ensure a holistic evaluation, CWL formed a team composed of Engineering, Operations, and Wastewater Treatment personnel to achieve this goal.

The team began periodic meetings in 2018 and identified key tasks (with assignments) including, but not limited to: lift station inventory; force main inventory; lift station dry-weather critical response time; lift station firm capacity through field measurement; identification of any lift station remedial measures; identification of any force main remedial measures; review and potential enhancement of lift station maintenance program; and full implementation of a computerized lift station maintenance program.

As first reported in 2018, CWL worked with RJN on the task of quantifying each lift station’s dry-weather critical response time. Utilizing the CWL sewer hydraulic model, RJN developed a Failure Assessment Summary for 22 of CWL’s 26 lift stations, at that time. The 4 additional lift

stations remain scheduled for upgrades/decommissioning or do not have dry weather flow and were therefore not included in the evaluation. RJN's report is available upon request. CWL then compared RJN's results to field measurements of the 22 lift station's firm capacity, with interpolations of high level alarm to SSO response times. CWL used these comparisons to identify each station's most conservative response time for the lift station evaluation and any applicable remedial measures.

Also as previously reported, key team members worked to enhance CWL's Lift Station Maintenance Program through the development of written standardized procedures and the use of Ignition, CWL's water and wastewater SCADA software. The Ignition software allows CWL employees to document and track routine and non-routine maintenance activities. Ignition also allows CWL employees to set-up reminders for upcoming maintenance tasks.

In 2019, CWL identified key individuals in Water and Sewer Service, Wastewater Treatment, Maintenance, Electric Maintenance, Compliance, Engineering and General Operations to complete a field assessment of CWL's lift stations. The team performed an on-site evaluation of the 26 lift stations concerning detailed criteria, including but not limited to: Pump Station Location & Site Features; Pumps, Valves, & Piping; Architectural Features; Life Safety Considerations; Structural Features & Conditions; Electrical & Instrumentation Features; Electrical Code Features; and Force Main Considerations.

CWL's Engineering Department compiled and then completed evaluations of the field assessments for each lift station, along with the dry weather response time, operating and mechanical failure history, maintenance records, and station capacity to develop any applicable remedial measures for each lift station and force main. The evaluation was formalized into a written document that **CWL is pleased to report was prepared by the target completion date of December 31, 2019 (Lift Station & Force Main Evaluation & Maintenance Program portion of Milestone #4 of Phase I, CWL CAP Addendum).**

9.1. Lift Station & Force Main Remedial Measures

Through an interdepartmental collaboration, CWL scrutinized the Evaluation findings and developed appropriate remedial measures for each lift station. CWL Engineering also identified two lift station systems (Beaver Creek, Wimpy Lane, Valley View & Oak Park system and Strawfloor & Sports Complex system) for further hydraulic analysis, currently in progress. A summary of the remedial measures identified and the status is provided in Appendix G. To-date, CWL has completed almost **70%** of the measures identified at a cost of over **\$275,000**.

10. Routine Collection System Maintenance

In addition to the SSES activities of the three 2020 basins and all SSES resultant repairs outlined in previous sections, CWL performed the SSO corrective actions summarized in Table 10-1 as part of the routine inspection and maintenance of the collection system in various other areas throughout the system. In an effort to sustain annual maintenance activities during the staffing challenges of the COVID-19 pandemic, CWL contracted portions of the system-wide acoustic inspections in 2020 as described in Section 10.2.1.

Table 10-1: 2020 Routine Collection System Maintenance (November 1, 2019 thru October 31, 2020)

Service	Quantity
	Routine Maintenance
Manhole Improvements:	
Repair/Seal Manhole	13
Adjusted Manhole	28
Replace Manhole Ring	4
Line Testing and Repairs:	
Smoke Test (ft)	317
Dye Test	107
CCTV (ft)	172,752
Main Cleaned (ft)	383,413
Roots Cut (ft)	31,536
SL-Rat® (ft) (1)	1,953,574
Laterals Identified / Repaired (2)	7/5
Sewer Main Repairs:	
Point Patch	32
Other Main Repairs	7
Chemical Root Treatment (ft) (3)	69,798
Capped Abandoned Laterals	19
CWL Repaired Laterals	0
Annual Inspections:	
Ditch Crossings Inspected	48
Air Relief Valves Inspected	5
Back-Lot Lines Inspected	41

Notes:

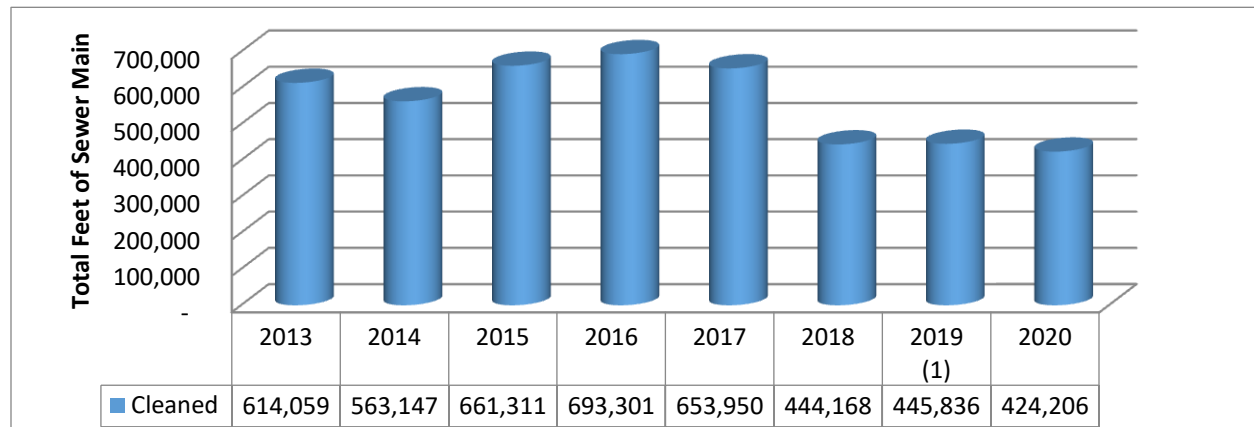
- (1) SL-Rat® assessments of 12" lines and smaller. Footage includes lines segments that were re-assessed due to SL-Rat® score following cleaning of lines.
- (2) Customers notified of lateral defects / Laterals repaired by customers and inspected by CWL.
- (3) Includes chemical root treatment footage in 2020 SSES basins.

The following sections briefly provide further details for some of these SSO corrective actions.

10.1. Sewer Mains Cleaned

As presented in the CAP, CWL sewer service trucks maintain the system through routine cleaning. Graph 10-1 provides a summary of the past 7 year totals, along with the total footage cleaned for January 1st thru October 31st of 2020.

Graph 10-1: Sewer Mains Cleaned (2013 thru October 31, 2020)



Note:

In the 2019 Progress Report, Total Feet of Sewer Main Cleaned was reported as 377,749'. November (45,597') and December (22,490') 2019 is included in the 2019 total shown.

The reduced cleaning footage following 2017, as shown in Graph 10-1 above, can be attributed to the efficiencies CWL is realizing through use of the SL-Rat®. See the following Section 10.2 for additional details.

10.2. SL-Rat® Activities

As previously reported, CWL began utilizing the SL-Rat® for acoustic inspections in July of 2016 to increase efficiency of sewer line blockage assessment. With increased SL-Rat® experience, CWL has refined the method used in 2020 as follows. For 6” diameter lines that score 0-3 (poor to blocked) and 8”-12” diameter lines that score 0-4 (poor to blocked), the line is hydro cleaned; the line is then re-assessed and if the line continues to score poor to blocked for its size, the line segment is then inspected through CCTV to further evaluate the apparent blockage.

As CWL has refined procedures for the effective use of the data produced for different main sizes and material, CWL has found this tool allows for more efficient hydro cleaning efforts and CCTV inspections and thus increased SSES productivity and SSO mitigation. The reduced cleaning footage in two of the 2020 SSES basins and in CWL’s routine maintenance of the collection system illustrates how effective this tool is to concentrate cleaning efforts in locations warranting the effort.

Based on previous results, CWL continued use of the SL-Rat® to test 100% of 12” and smaller mains in the three 2020 SSES basins, as well as in the rest of the collection system (see Section 10.2.1 for additional details). Table 10-2 shows the ratings of the total line segments, including the approximately 147,365’ in the 2020 SSES basin segments, tested with the SL-Rat® from November 1, 2019 thru October 31, 2020. A detailed report of the line segments tested in the 2020 SSES basins and a complete report of all line segments tested in 2020 are available upon request.

Table 10-2: SL-Rat® Sewer Line Assessment Results (November 1, 2019 thru October 31, 2020)

SL-Rat® Data for Total System	
Rating (1)	Quantity (line segments)
10-5	7957
4-0	1333
Footage= 2,100,939	

Note: Scale for rating is 0= Block, 1-3= Poor, 4-6= Fair, 7-10= Good

10.2.1. Contracted Additional SL-Rat Assessments

In an effort to sustain annual maintenance activities during the disruptions associated with COVID-19, CWL invested in contracting portions of the system-wide acoustic inspections in 2020. The project scope of work, after contract addendums, included SL-Rat® assessment of over 350,000’ in seven basins. MoS Environmental, Inc. began inspections on September 28, 2020 and completed on November 11, 2020. Including recommendations for sections requiring immediate attention, the project’s total cost is anticipated at almost **\$65,000** with over **\$28,800** paid as of November 1, 2020.

10.3. Contracted iTracker Assessments

CWL was introduced to iTracker® sensors in 2020 as a means to efficiently and accurately identify sections within the collection system with significant I&I contributions. As a means to enhance SSO mitigation efforts and test this technology’s effectiveness toward CWL’s goals, CWL has contracted with Duke’s Root Control, Inc. (Duke’s) for an I&I micro detection project. This will consist of using the iTracker® sensors to assess over 60,000’ of sewer mains in the JB01 basin, with the sections with inflow or infiltration that require attention identified. The project has an estimated cost of **\$29,000** and a scheduled start of late December 2020 or January 2021.

10.4. Root Control Activities

Through an existing root control contract with Duke’s, approximately 69,798’ of sewer mains were chemically treated in 2020. A detailed report of the line segments, located throughout the collection system, chemically treated in 2020 is available upon request.

In addition to chemical treatment, CWL continues its practice of using a sewer rodding machine and sewer trucks equipped with jetter nozzles for controlling roots within the collection system. Approximately 40,883' of sewer mains were root cut throughout the 40 basins of the system November 1, 2019 thru October 31, 2020.

In the past, annual footage chemically treated was based on the roots identified/cut in sewer mains the previous year. The 2020 chemical root treatment footage of almost 70,000' reflects CWL's proactive efforts in 2020 to chemically treat identified mains as expeditiously as practical moving forward. Therefore, an additional chemical treatment was performed by Duke's in October 2020 for the mains root cut up to that point in 2020.

10.5. SSO Response & Mitigation Reviews

As part of CWL's Sanitary Sewer Overflow Response Plan (originally prepared in 2016 by CWB Engineers, Inc.), CWL formalized an SSO Case Study & Reporting Team (SSO Team) consisting of Operations, Engineering, and Management. After every SSO, this team meets to review the SSO and depending on the nature and extent of the event, may initiate further investigation or appropriate mitigation actions. The results of each meeting are documented for further internal review. Beginning in 2017, this further review of the SSOs and resulting mitigation efforts was presented in an annual meeting to a large group of internal stakeholders. In an effort to enhance the effectiveness and communication of mitigation efforts, the frequency of these meetings was increased to quarterly in 2019. In keeping with CWL's proactive approach, these meetings were increased again to monthly in August of 2020. These continued refinements in CWL's strategy for SSO mitigation are another part of a longstanding effort in the effective and continuous management of the collection system performance.

11. Sewer Camera Purchase and Upgrade

To better facilitate CWL's ongoing SSO mitigation efforts, CWL purchased a new sewer camera system and software in March 2020. CWL also made significant repairs and upgrades to an existing camera system in 2020. These purchases and upgrades, along with the new sewer camera van purchased in 2019, will continue to enhance CWL's ability to properly identify sewer main defects both within the SSES basins and across the entire sanitary sewer system. It is also in keeping with CWL's philosophy of ensuring personnel have the appropriate tools for the tasks required of them. CWL invested over **\$135,000** on the new camera system and software and over **\$15,000** on upgrades to the existing camera system.

12. Lift Station Maintenance and Improvements

CWL contracted with Turman Construction, Inc. on January 14, 2020 for the upgrade to 10" of approximately 3,400' of force main for the Oak Park Lift Station. Completed and in service on

September 25, 2020, this upgrade was not only a critical part of providing for the growing capacity needs of the Valley View area in Jonesboro but also addressed a reliability issue that CWL previously worked to resolve through the installation of a sewer surge relief valve. The final cost of this improvement was approximately **\$220,000**.

As reported in the 2019 Progress Report, CWL identified the Colony Park Lift Station for potential upgrades in 2020. Due in part to the focused use of personnel for project and operational priorities under the constraints of the COVID-19 environment, CWL has rescheduled the upgrade for 2021, depending on final prioritizations for the year. The improvements are planned to include a generator and manual transfer switch. In addition and as reported in Section 9.1, CWL's Lift Station & Force Main Evaluation identified two lift station systems for further evaluation and potential improvements for prioritization in 2021.

As previously reported and also detailed in Appendix C, CWL is now planning the decommission of two lift stations as a positive effect of the installation of the Midtown Interceptor. The Airport Lift Station is no longer included for decommission due to updated elevation information in 2020. However, the replacement of the Hereford Lift Station with gravity sewer is part of the Midtown Interceptor contract and the Morton Mitchell Lift Station remains scheduled for gravity sewer replacement as a result of the Interceptor. In addition, CWL has knowledge of the potential decommission, upgrade or relocation of up to four other lift stations as a positive result of residential developments.

As part of CWL's SSO mitigation efforts and as previously reported, CWL improved specifications to now require developer installed new lift stations to include, in general: (1) the discharge manhole to be constructed with Spectra Shield (or equal) protective coating; (2) a Rosemount Magnetic (or equal) flow meter to be installed; and (3) a stationary diesel fuel Kohler (or equal) emergency generator with an automatic transfer switch to be installed. The success of these enhanced specifications was realized in CWL's newest lift station, the Villas online May 19, 2020.

Beyond these steps and planning, CWL continues to evaluate and prioritize future lift station needs and will determine if any lift station projects should be scheduled for 2021 in addition to the Ridgecrest and Main Lift Stations discussed in Sections 3.1.3 and 5, respectively.

13. Westside WWTP Replacement – Phase II Capital Improvement

In keeping with CWL's culture of effectively managing the sanitary sewer system and ensuring that the future wastewater capacity and treatment needs are adequate well into the foreseeable future, CWL continuously examines where engineering time and resources should be focused to evaluate capital improvement project needs and ensure the appropriate timing of

the design process. As with the Phase I and II capital improvement projects already identified, CWL's hydraulic model and consulting firm's evaluations, combined with CWL system knowledge, allowed CWL to identify the Westside WWTP for further study regarding the adequacy of the 1977 trickling filter Plant's biological and hydraulic capacity for the long term system needs. Preliminary efforts with MW&Y (now Olsson) toward this actually began in the first quarter of 2015.

As previously reported, CWL utilized the sanitary sewer system Hydraulic Model and Preliminary Collection System Evaluation, developed in conjunction with RJN and MW&Y respectively, coupled with CWL's knowledge of the collection and WWTP systems to identify the Phase I capital improvements, as defined in Section 3.1. MW&Y provided, as reported previously, a high-level analysis of the potential collection system improvements identified by RJN and either gave their concurrence or recommended modifications. In addition, MW&Y also provided estimates of probable costs for the improvements, as well as a general recommendation on the order of construction of the alternatives.

To build on these initial analyses, CWL contracted with Olsson in 2018 to prepare a detailed Engineering report for the Westside WWTP. CWL's review of the report and continued discussions with Olsson, in 2019, led to the recommendation that the WWTP be replaced in the intermediate future to accommodate estimated flow requirements with system growth and potentially more stringent regulatory requirements in the future.

As reported in 2019, CWL contracted Olsson as the engineering firm and Van Horn as the CMAR for this project. This team evaluated treatment technologies, including trips to multiple WWTPs in the region, in order to identify the best technology for meeting future demands of the plant reliably and cost effectively. Potential technologies were narrowed down to two – the Ovivo Carrousel® System and Xylem, Inc.'s Sanitaire ICEAS® Advanced SBR. In 2020, CWL selected the Ovivo Carrousel® System as the technology for design of the future plant.

CWL and Olsson continue to project a 2021 completion of the WWTP's final design. Current total cost projections are estimated at **\$52 million**. Based on all the efforts to define this project and understand appropriate construction timing, **CWL is pleased to identify replacement of this WWTP as a Phase II Capital Improvement** (Milestone #1 of Phase II, 1st Quarter 2021 thru 4th Quarter 2025, in the Addendum to CWL CAP), well ahead of the December 31, 2021 target date for Phase II capital improvement identifications. See Appendix F for a conceptual map summarizing the planned replacement.

Contingent on final design completion; design approval by ADH; and appropriate ADEQ and City of Jonesboro permits; CWL anticipates a construction start in the third quarter of 2021, with a projected completion of late 2023. As currently proposed, the WWTP project, along with the

Main Lift Station replacement, will increase the Westside hydraulic capacity from approximately 7 MGD to 17 MGD and the biological treatment capacity from approximately 6,880 lb/day BOD to 9,950 lb/day BOD. This increased capacity will not only provide for future growth needs but will also optimize operation during wet weather flows and thus significantly enhance SSO mitigation efforts in west Jonesboro. In addition and as with the Main Lift Station, replacing the over 40-year-old WWTP will address maintenance issues and provide a more reliable, efficient and resilient plant.

CWL has invested over **\$820,000** on this important project to-date. As stated in Section 3.1.1, CWL's commitment to this project was further demonstrated in the freeing of additional reserve funds for this project through the issuance of **\$26 million in Public Utility System Revenue Bonds** in July 2020 for in-part funding of the Main Lift Station and Midtown Interceptor.

14. Conclusion

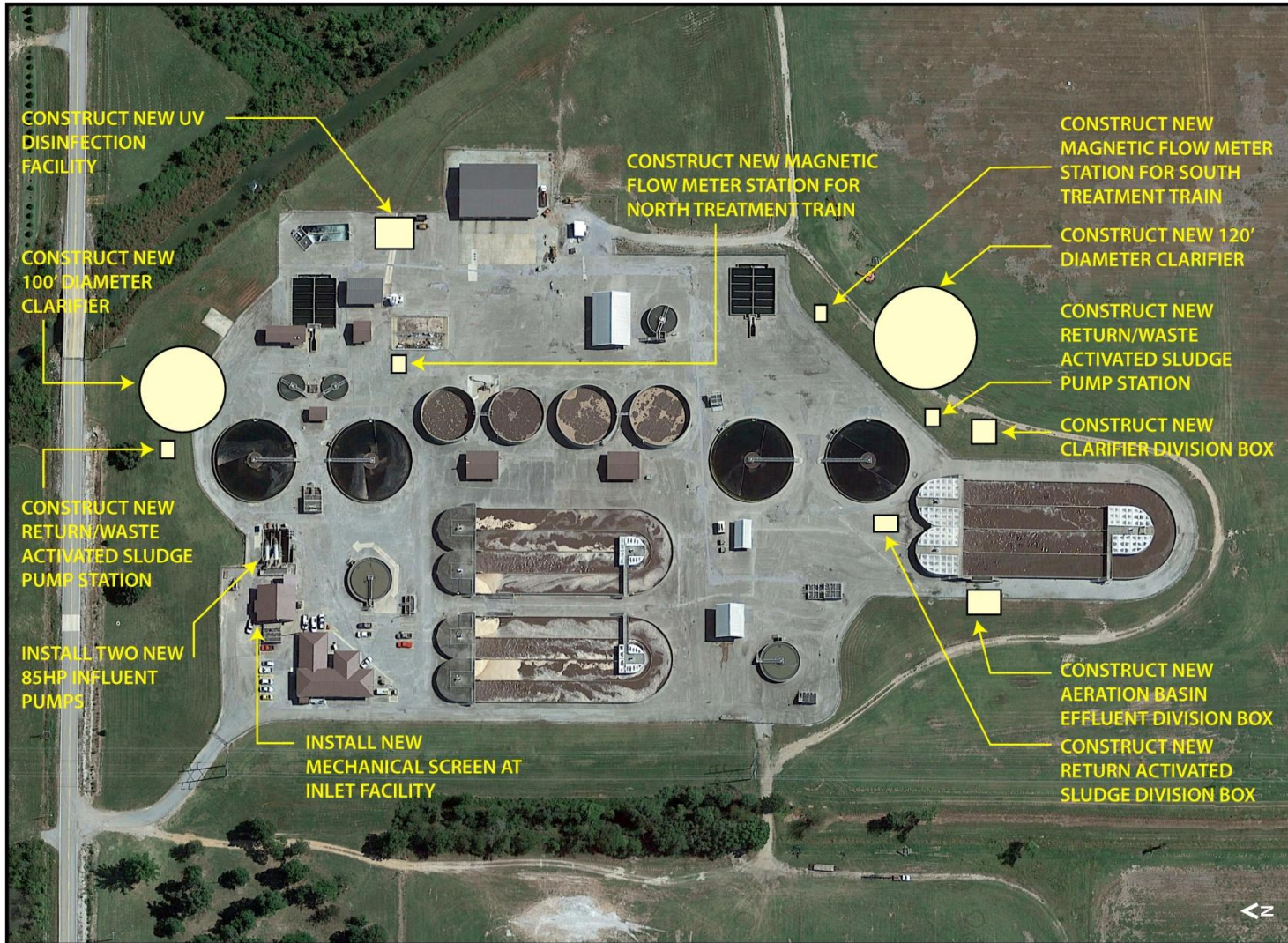
CWL is pleased to present the activities outlined in this report as evidence of CWL's ongoing efforts in SSO mitigation. Due to the creative and resilient efforts of CWL personnel, these activities were achieved even while navigating the challenges and complexities of the COVID-19 pandemic.

As stated in the CAP, CWL fully understands the iterative, ongoing nature of this process and is committed to continual improvement of the management and operation of the collection system and maintaining adequate capacity of the system. This commitment was, in CWL's opinion, even more fully demonstrated in the uncommon and dynamic events of 2020. CWL believes that these ongoing proactive efforts and associated capital expenses, as well as the future corrective actions identified in CWL's CAP, demonstrate CWL's dedication to collection system improvements.

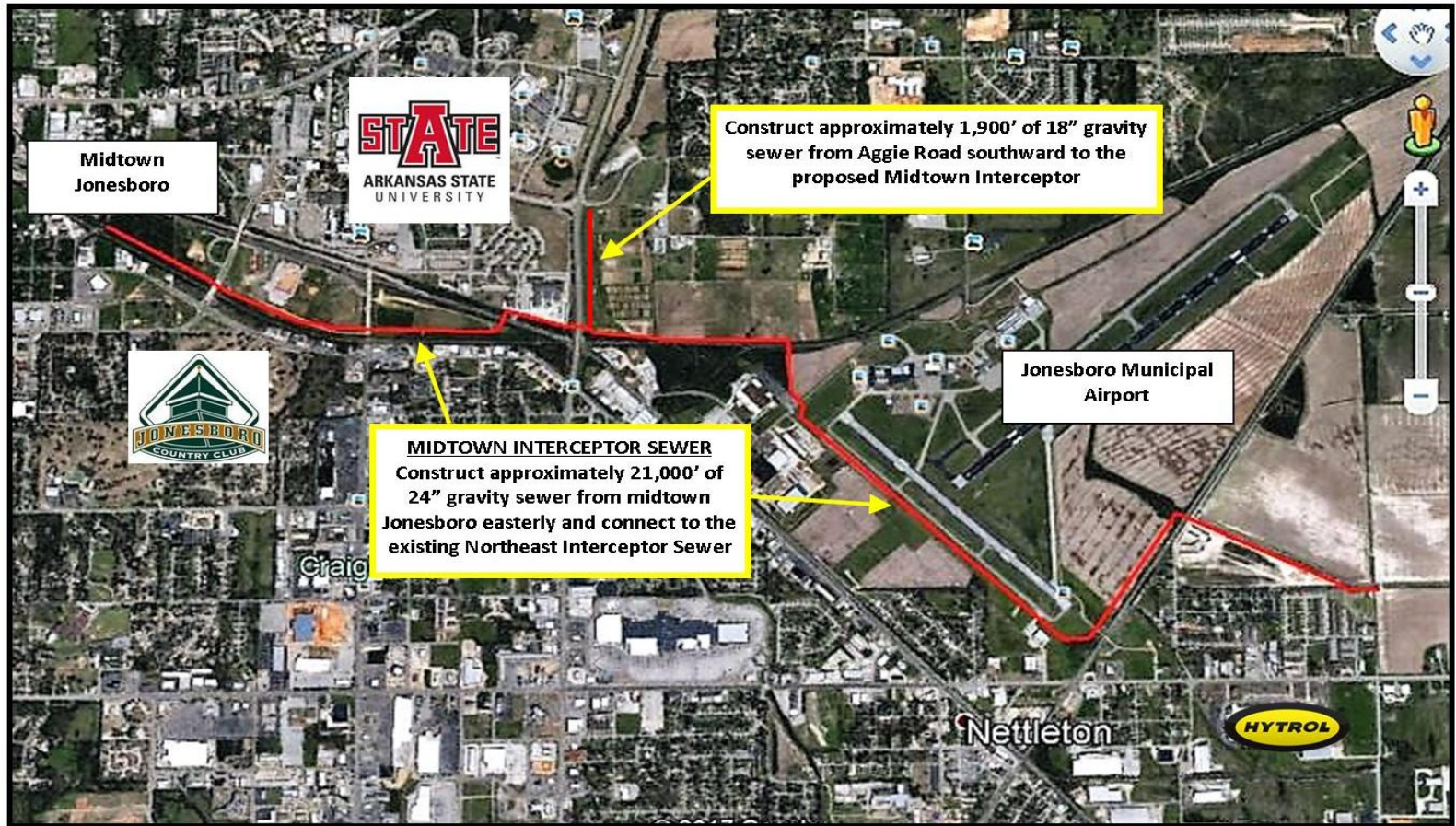
This CAP report represents CWL's fulfillment of ADEQ's request for an annual progress report and constitutes CWL's sincere interest in ongoing and transparent communication with the ADEQ beyond the fulfillment of our voluntary commitment of a Progress Report every two years, as presented in item IV of the Addendum to CWL CAP.

Appendix A

Phase I Capital Improvements



EASTSIDE WASTEWATER TREATMENT PLANT IMPROVEMENTS



Midtown Interceptor Sewer

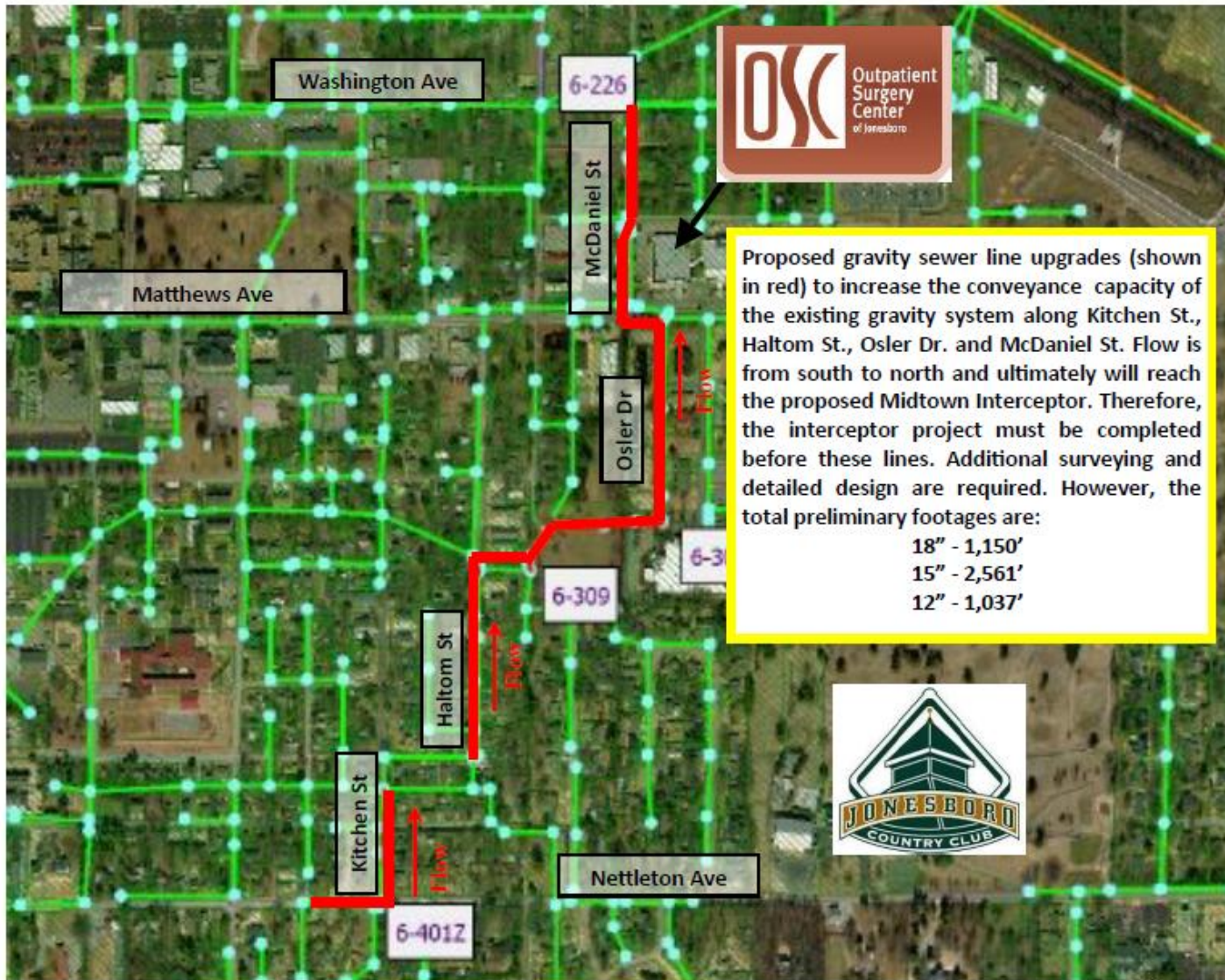




Ridgecrest Lift Station and Gravity Sewer



No Scale



Proposed gravity sewer line upgrades (shown in red) to increase the conveyance capacity of the existing gravity system along Kitchen St., Haltom St., Osler Dr. and McDaniel St. Flow is from south to north and ultimately will reach the proposed Midtown Interceptor. Therefore, the interceptor project must be completed before these lines. Additional surveying and detailed design are required. However, the total preliminary footages are:

- 18" - 1,150'
- 15" - 2,561'
- 12" - 1,037'

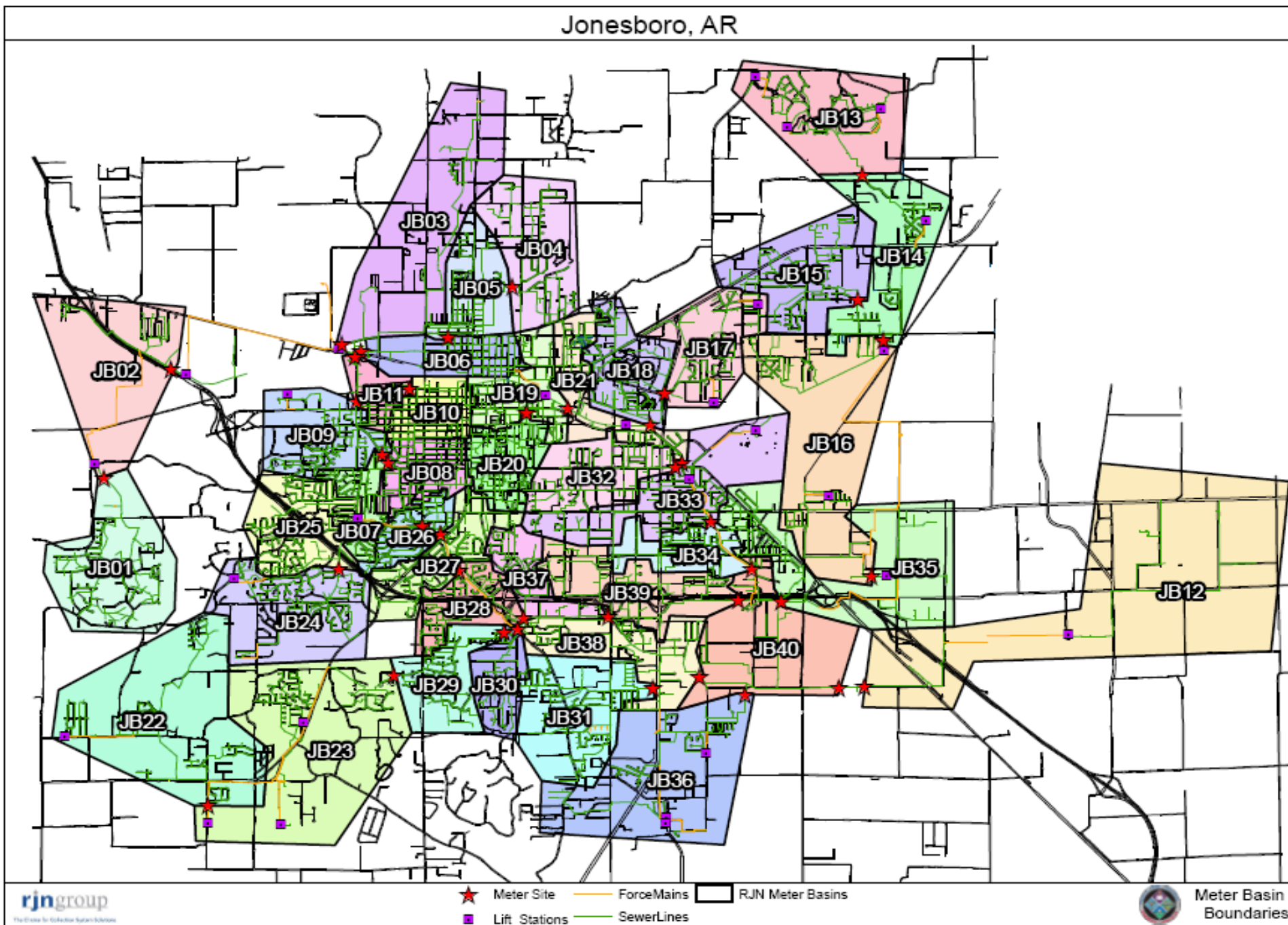
Kitchen Gravity Sewer



Appendix B

Basin Delineation

Jonesboro, AR



Appendix C

CWL Lift Station Emergency Power

CWL Lift Station Emergency Power

LIFTSTATION			Station Standby Power			
	Transfer Switch	Quick Connect for Pump	Status	Type	Date (1)	Comments
Airport	Yes	No	N/A	Portable generator	2020	On easement and lengthy response time.
Beaver Creek/Prairie Meadow	Yes	Yes	N/A	Portable generator	2019	To be decommissioned/moved pending development. On easement and lengthy response time.
Clinton School	Yes	Yes	Present	On-site generator	2013	
Colony Park	No	No	Absent	On-site generator	2021	Generator purchase pending planned upgrades to station in 2021.
Commerce Dr	Yes	Yes	Present	On-site generator	2011	
Congress Cir.-W.Washington	Yes	No	N/A	Portable generator	2020	On easement and lengthy response time.
Dorton Rd	Yes	No	Present	On-site generator	1990	
Hereford	Yes	Yes	N/A	Portable generator	2021	To be decommissioned pending Midtown Interceptor.
Horseshoe Trail	Yes	No	Present	On-site generator	2019	
Minx Hill (Hwy 226)	Yes	Yes	Present	On-site generator	2018	
Morton & Mitchell	No	No	N/A	Portable generator	2021	To be decommissioned pending Midtown Interceptor.
Northwest (Main Lift)	Yes	Yes	Present	On-site generator	2018	Original installation 1977. Replacement generator purchased 2017.
Oak Park	Yes	Yes	Present	On-site generator	2011	
Ridgecrest	No	No	Absent	On-site generator	2021	Generator purchase pending planned upgrades to station in 2021.
Sage Meadows #1 (Southern Hills)	Yes	No	N/A	Portable generator	2020	To be decommissioned/moved pending development. Portable generator on-site due to difficult access and response time.
Sage Meadows #2 (Hwy 351)	Yes	No	N/A	Portable generator	2020	Generator purchase pending planned upgrades to station due to development. On easement and lengthy response time.
Sage Meadows #3 (Lochmoor)	Yes	No	Present	On-site generator	2019	
South Bend	Yes	No	N/A	Portable generator	2020	To be decommissioned pending development. On easement and lengthy response time.
Southeast (2 generators)	Yes	No	Present	On-site generator	1977	
	Yes	No	Present	On-site generator	2008	1990 model
Southwest	Yes	No	Present	On-site generator	1999	
Sports Complex	Yes	Yes	Present	On-site generator	2011	
Spring Valley	Yes	No	N/A	Portable generator	2020	On ROW and lengthy response time.
Strawfloor	Yes	No	Present	On-site generator (Manual)	2011	
Turtle Creek	Yes	No	Present	On-site generator	2018	
Valley View	Yes	Yes	Present	On-site generator	2012	
Wimpy Ln	Yes	No	Present	On-site generator	2011	

Notes:

Revised: 12/05/2020

(1) Year on-site generator installed; or year transfer switch & dedicated portable generator in place; or target year for decommission or station replacement with on-site generator sized for upgrades.

Appendix D

Sewer Trash Door Hanger



CWL
NEEDS
YOUR
HELP

Keep Manhole Covers Shut!

Children may think it's fun to drop debris, such as sticks and rocks, into the manhole. However, this could cause blockages downstream.



Your Toilet is NOT a Trashcan

Do Not Flush These Items

- Oil & Grease (Fats)**
- Medicine, Needles, Bandages**
- Flushable Wipes, Paper Towels, Rags**
- Dental Floss, Teeth Whiteners**
- Feminine Products, Condoms**
- Cotton Balls, Hair, Cotton Swabs**
- Oil Based Hand Scrubs, Facial Tissue**
- Diapers, Cigarette Butts, Hairballs, Kitty Litter**

DID YOU KNOW?
 Dental Floss can become tangled with other trash and cause extensive damage in your plumbing and sewer mains.

DID YOU ALSO KNOW?
 Paper Towels are designed to **ABSORB** water **WITHOUT BREAKING DOWN**.

BOTTOM LINE ...
 We recommend only flushing toilet paper!

City Water & Light • 400 E. Monroe • Jonesboro, AR 72401
 jonesborocwl.org • (870) 930-3380

Appendix E

FOG & Sewer Trash Holiday Postcard



Happy Holidays from CWL!

**Remember,
NEVER POUR
FAT, OIL OR
GREASE
DOWN THE
DRAIN!**



City Water & Light • 400 E. Monroe • Jonesboro, AR 72401
jonesborocwl.org • (870) 930-3380

City Water & Light
400 E. Monroe, P.O. Box 1289
Jonesboro, AR 72401

PRSR STD
U.S. POSTAGE
PAID
PERMIT NO. 18
JONESBORO, AR
ECRWSS

*****ECRWSEDDM****

Postal Customer



Your Toilet is NOT a Trashcan

Please check this proof CAREFULLY. Master Marketing Group cannot accept responsibility for errors on an approved proof.

Do Not Flush These Items



Oil & Grease (Fats)



Medicine, Needles, Bandages



Flushable Wipes, Paper Towels, Rags



Dental Floss, Teeth Whiteners



Feminine Products, Condoms



Cotton Balls, Hair, Cotton Swabs



Oil Based Hand Scrubs, Facial Tissue



Diapers, Cigarette Butts, Hairballs, Kitty Litter

DID YOU KNOW?

Dental Floss can become tangled with other trash and cause extensive damage in your plumbing and sewer mains.

DID YOU ALSO KNOW?

Paper Towels are designed to ABSORB water WITHOUT BREAKING DOWN.

BOTTOM LINE ...

We recommend only flushing toilet paper!




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Appendix F

FOG Activity Book

An overflowing toilet can ruin your home in an instant!

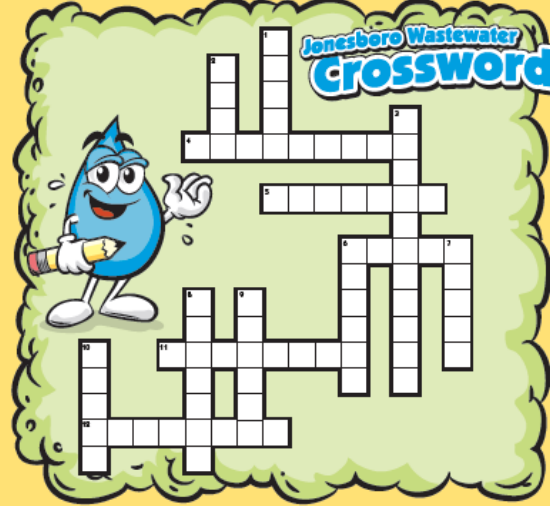


M F J R D S E B M Y E P M
N K S Z U S P V A U E E K
P I Z N A I R U A N D W R Y U
I O P E R R N W K I D E J I F
P G R E D L K M C C B A E R F
E G P F I H A I R M A V I O O
S A B L A Z N E U X I B K D D
P W A U P E W L V S F L O S S
S C T S E W P R N T O I L E T
L Y H H R B I E A Y R M M H K
F F R A S T P P L P U E I K H
O L O B H X W F E G P N W L O
O O O L E E U R H S K E H E U
D O M E O V E R F L O W R Y S
B D R X N P L A S T I C S S E

GUM WRAPPERS
TOILET
PLUMBER
EXPENSIVE
OVERFLOW
FLOOD
WIPES
DIAPERS
MEDICINE
FLOSS
PAPER
FOOD
GREASE
RUIN
BATHROOM
PIPES
SEWER
HOUSE
FLUSHABLE
BACKUPS
BANDAIDS
HAIR
THINK
PLASTICS

NO TRASH IN THE TOILET!

Jonesboro Wastewater Crossword



ACROSS

- "Flushable does not always mean _____!"
- One Mercury thermometer can _____ 1,000,000 gallons of water.
- Other things in your home that may contain Mercury are thermostats and fluorescent _____.
- Prescription & Over The Counter _____ should not be put down the drain.
- Paint thinners, brake cleaner, nail polish removers and other _____ should not be poured down the drain.

DOWN

- "Wipes clog _____!"
- Don't Pour Fats, Oils and Grease down your sink drain. Instead, you should _____ it, Can It, Trash It!
- _____ is good to clean in between your teeth, but bad for your pipes.
- This item makes popcorn, panacas and muffins more tasty, but it surely is not welcomed down kitchen drains and pipes.
- Kitchen sinks and toilets all run directly into our _____ system.
- Pouring grease into a tin can and storing it in this will help eliminate F.O.G.S. down your drain and prevent clogged sewer pipes.
- The only kind of paper that should be flushed.
- Where you should throw away ALL kinds of used wipes.



Both the sink and toilet pipes run to our sewer system. Seek and find the following items that should not be put down the sink or flushed...if you do, you may just need to use one item to get rid of your clog!

Bandaid	Ketchup Bottle	Bubble Gum	Fish
Bacon	Hot Dog	Hairbrush	Egg
Butter Stick	Chicken Leg	Salad Dressing	Wipes Container
Dental Floss	Steak	Tin Can	Thermometer
Container	Medicine Container	Rungler	

Appendix G

Lift Station & Force Main Remedial Measures

CWL Lift Station & Force Main Remedial Measures		
Lift Station	Remedial Measure	Status
Airport	Fill Low Spots	In Progress
Airport	Reinstall Ventilation Pipe & Cover Holes on Wet Well Lid	In Progress
Airport	Install Manual Transfer Switch (Portable Generator Connection)	Complete
Airport	Install Lightning Strike Protection	Complete
Beaver Creek/Prairie Meadow	LED Light on Existing Pole	Complete
Beaver Creek/Prairie Meadow	Install Lightning Strike Protection	Complete
Beaver Creek/Prairie Meadow	Install Manual Transfer Switch (Portable Generator Connection)	Complete
Clinton School	Install Pressure Probe as Wet Well Primary Control	In Progress
Clinton School	Install Lightning Strike Protection	Complete
Clinton School	Fill Perimeter for Drainage	Complete
Clinton School	LED Light on Existing Pole	Complete
Colony Park	Concrete & Chat Driveway for Vehicle Access	In Progress
Colony Park	Install Lightning Strike Protection	Complete
Colony Park	Add Fencing	In Progress
Colony Park	Install 6" Electromagnetic Flow Meter	In Progress
Colony Park	Install LED Light Directional Light w/ Switch	Complete
Colony Park	Install Pressure Probe as Wet Well Primary Control	In Progress
Colony Park	Install Full SCADA	In Progress
Commerce Dr	Install Pressure Probe as Wet Well Primary Control	Complete
Commerce Dr	Install Lightning Strike Protection	Complete
Congress Cir.-W. Washington	Install Drive for Vehicle Accessibility	In Progress
Congress Cir.-W. Washington	Install Lightning Strike Protection	Complete
Congress Cir.-W. Washington	Install Manual Transfer Switch (Portable Generator Connection)	Complete
Congress Cir.-W. Washington	Install Pressure Probe as Wet Well Primary Control	Complete
Congress Cir.-W. Washington	Install SCADA (Monitoring Only)	In Progress
Congress Cir.-W. Washington	Install LED Light & Pole	Complete

CWL Lift Station & Force Main Remedial Measures		
Lift Station	Remedial Measure	Status
Dorton Rd	Install 2-12" Electromagnetic Flow Meter	In Progress
Dorton Rd	Install Lightning Strike Protection	Complete
Dorton Rd	Install Pressure Probe as Wet Well Primary Control	Complete
Dorton Rd	Install 2 Lift Station Bypasses with Tee & Valve	In Progress
Hereford	Decommission Lift Station	N/A
Horseshoe Trail	Add Fencing	In Progress
Horseshoe Trail	Install Lightning Strike Protection	Complete
Horseshoe Trail	Install Pressure Probe as Wet Well Primary Control	Complete
Minx Hill (Hwy 226)	LED Light Directional Light w/ Switch	Complete
Morton & Mitchell	Decommission Lift Station	N/A
Northwest (Main Lift)	Upgrade Lift Station	In Progress
Oak Park	10" Electromagnetic Flow Meter	Complete
Oak Park	Install Lightning Strike Protection	Complete
Oak Park	Install Pressure Probe as Wet Well Primary Control	Complete
Oak Park	Spray Cementitious Lining in Wet Well	In Progress
Oak Park	Install 90-Degree Fitting on Inlet Pipe in Wet Well	In Progress
Oak Park	10" Plug Valve Installation (Flow Throttling Capability)	In Progress
Oak Park	Replace Existing Light on Pole w/ LED Light	Complete
Ridgecrest	Upgrade Lift Station	In Progress
Sage 1 (Southern Hills)	Install Pressure Probe as Wet Well Primary Control	Complete
Sage 1 (Southern Hills)	Install Lightning Strike Protection	Complete
Sage 1 (Southern Hills)	Install Manual Transfer Switch (Portable Generator Connection)	Complete
Sage 1 (Southern Hills)	Install LED Light & Pole	Complete
Sage 2 (Hwy 351)	Install Pressure Probe as Wet Well Primary Control	In Progress
Sage 2 (Hwy 351)	Install Lightning Strike Protection	Complete
Sage 2 (Hwy 351)	Install Manual Transfer Switch (Portable Generator Connection)	Complete
Sage 2 (Hwy 351)	Install SCADA (Monitoring Only)	In Progress

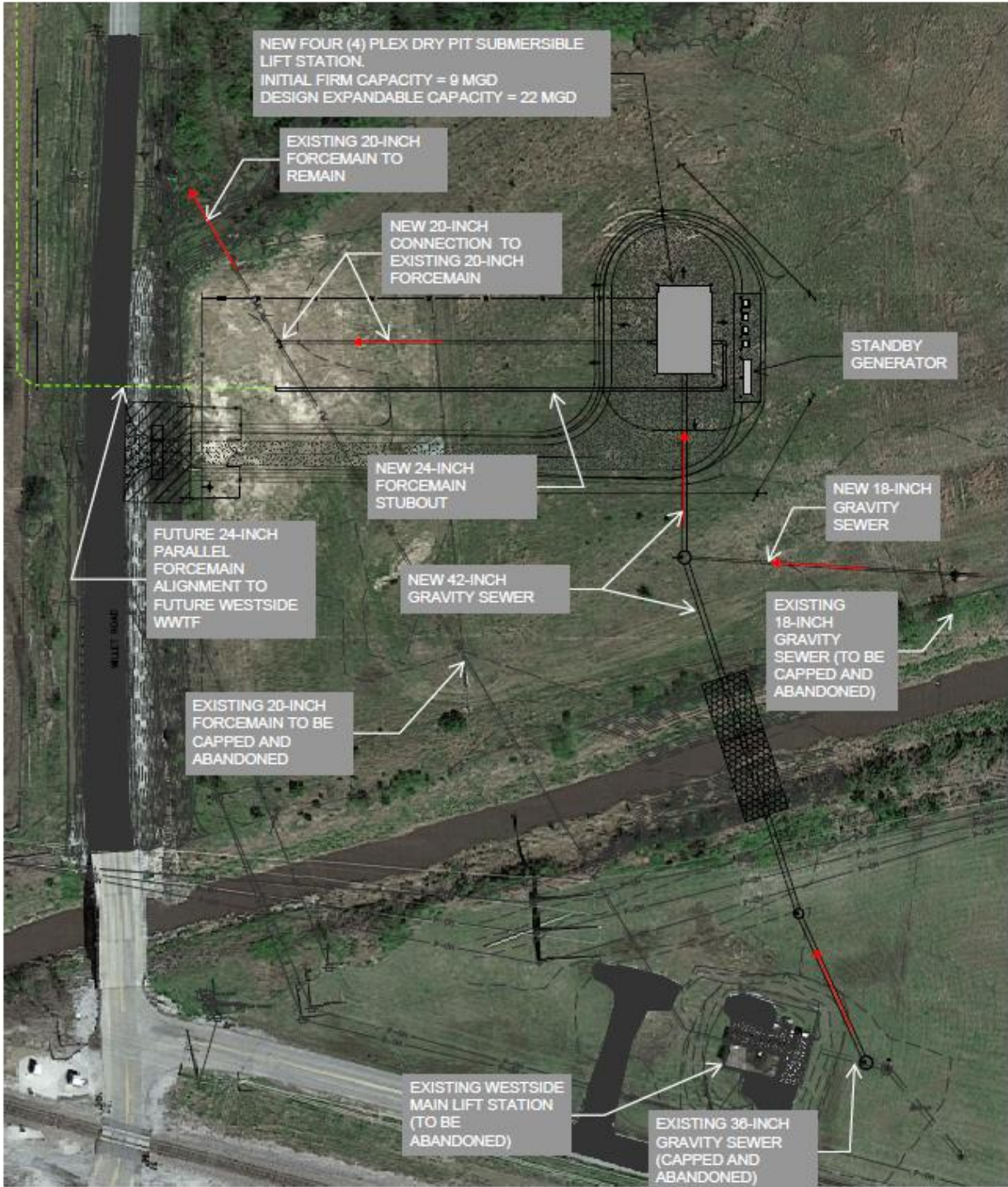
CWL Lift Station & Force Main Remedial Measures		
Lift Station	Remedial Measure	Status
Sage 2 (Hwy 351)	Install LED Light & Pole	Complete
Sage 3 (Lochmoor)	Install Drive for Vehicle Accessibility	In Progress
Sage 3 (Lochmoor)	Install Lightning Strike Protection	Complete
Sage 3 (Lochmoor)	6" Electromagnetic Flow Meter	In Progress
Sage 3 (Lochmoor)	LED Light Directional Light w/ Switch	Complete
Sage 3 (Lochmoor)	6" Electromagnetic Flow Meter	In Progress
South Bend	HydroRanger Replaced w/ Pressure Probe	In Progress
South Bend	Install Lightning Strike Protection	Complete
South Bend	Install Manual Transfer Switch (Portable Generator Connection)	Complete
South Bend	LED Light Directional Light w/ Switch	Complete
South Bend	Install Lightning Strike Protection	Complete
South Bend	Fill in Low Spots for Drainage	In Progress
Southeast	Install Lightning Strike Protection	Complete
Southeast	Install Lightning Strike Protection	Complete
Southeast	Replace Valves (Maintenance Improvement)	Complete
Southwest	Construct Concrete Driveway	In Progress
Southwest	Install Lightning Strike Protection	Complete
Southwest	Install Lightning Strike Protection	Complete
Sports Complex	Construct Chat Drive for Vehicle Accessibility	Complete
Sports Complex	Install Lightning Strike Protection	Complete
Sports Complex	Install Pressure Probe as Wet Well Primary Control	Complete
Sports Complex	Octocrete between Wet Well Stacks	In Progress
Spring Valley	Install Lightning Strike Protection	Complete
Spring Valley	Install Manual Transfer Switch (Portable Generator Connection)	Complete
Spring Valley	Install LED Light on Existing Pole	Complete
Strawfloor	Install Lightning Strike Protection	Complete
Strawfloor	Install LED Light on Existing Pole	Complete

CWL Lift Station & Force Main Remedial Measures		
Lift Station	Remedial Measure	Status
Turtle Creek	Install LED Light in Fenced Area	Complete
Turtle Creek	Install Lightning Strike Protection	Complete
Valley View	10" Electromagnetic Flow Meter	Complete
Valley View	Install Lightning Strike Protection	Complete
Valley View	Install Pressure Probe as Wet Well Primary Control	Complete
Valley View	Lift Station Bypass with Tee & Valve	Complete
Valley View	10" Plug Valve Installation (Flow Throttling Capability)	Complete
Valley View	10" Electromagnetic Flow Meter	Complete
Valley View	Replace Force Main Discharge Valve	Complete
Wimpy Ln	Install Lightning Strike Protection	Complete
Wimpy Ln	Install Pressure Probe as Wet Well Primary Control	Complete
Wimpy Lane, Oak Park, Valley View & Beaver Creek	Conveyance System Under CWL Engineering Review	In Progress
Strawfloor & Sports Complex	Conveyance System Under CWL Engineering Review	In Progress
		Complete/Total
		62 / 91

Revised 12.14.2020

Appendix H

Phase II Capital Improvements



NEW WESTSIDE MAIN LIFT STATION

NOT TO SCALE



DECEMBER 2020

