

SEMI-ANNUAL REPORT

KANSAS CITY'S OVERFLOW CONTROL PROGRAM

REPORTING PERIOD: JANUARY 1, 2018 TO JUNE 30, 2018



KANSAS CITY
MISSOURI

Office of the City Manager



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September 28, 2018

Greetings,

Please find enclosed the eighth semi-annual report related to Kansas City's overflow control program. This report covers the semi-annual period from January 1, 2018, to June 30, 2018. Pursuant to the Consent Decree, this report has a required submittal date of no later than September 30, 2018.

Additionally, and as required by the Consent Decree, any report, plan, or other submission that the City is required to submit, including documents as required by its current NPDES Permits, shall be signed and certified by an official or authorized agent of the City.

By signing below, I certify under penalty of law that the document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted, and that the information submitted 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.

Please contact me if you have questions.

Best regards,

Andy Shively, P.E.
Special Assistant City Manager

cc: Troy Schulte, City Manager, City of Kansas City, Missouri
Matthew J. Gigliotti, Assistant City Attorney, City of Kansas City, Missouri
Terry Leeds, Director of Water Services, City of Kansas City, Missouri

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I. SEMI-ANNUAL REPORT PURPOSE AND SCOPE

On September 27, 2010, The United States District Court for the Western District of Missouri entered a Consent Decree in the case U.S. vs. The City of Kansas City, Missouri. The Consent Decree was amended by the parties and approved by the court on January 9, 2015 (Civil Action No. 4:10-cv-0497-GAF). A second amendment was presented by the parties and approved by the court on January 5, 2018 (Civil Action No. 4:10-cv-0497-GAF).

In accordance with the Consent Decree's Section IX.A, this Semi-Annual Report provides an update on the City of Kansas City, Missouri's (City) efforts to implement control measures defined in Section VII and Appendix A of the Consent Decree. The report reflects the status of program implementation that occurred between January 1 and June 30, 2018.

II. KANSAS CITY'S OVERFLOW CONTROL PROGRAM

Individual elements of the City's Overflow Control Plan (Plan) became part of an enforceable document with the entry of a Consent Decree in United States District Court. The Consent Decree is a culmination of nearly a decade of negotiation between the City, U.S. Environmental Protection Agency (USEPA) and the Missouri Department of Natural Resources (MDNR) related to reducing overflows. The Consent Decree includes requirements for:

- Capital projects targeted at reducing overflows through Combined Sewer Overflow (CSO) Control Measures and Separate Sewer Overflow (SSO) Control Measures;
- Nine Minimum Controls (NMCs) Plan targeted at operationally reducing and addressing combined sewer overflows through a series of minimum control efforts;
- Capacity, Management, Operation and Maintenance (CMOM) Plan targeted at reducing separate sewer system overflows by adequately operating and maintaining the sewer system;
- Post-Construction Monitoring Plan aimed at long-term monitoring and assessment of overflow reduction;
- Supplemental Environmental Project (SEP) Plan which includes the incorporation of best management practices and green infrastructure at two project locations, along with the initial SEP to reduce septic tank use in sewered areas; and
- Implementation of disinfection at all six wastewater treatment plants.

The City and its regulatory partners have agreed to meet the objectives over a 25-year period from 2010 through 2035. The Plan involves a list of improvements that are structured to eliminate, or capture for treatment, approximately 88 percent of total wet weather flow in the combined sewer system and sanitary sewer overflows during a five-year, 24-hour rainfall event. This implementation is referred to as the Overflow Control Program (OCP).

The occurrence of overflows is not uncommon in combined sewer systems and is authorized in Kansas City pursuant to the terms of two of the City's National Pollutant Discharge Elimination System (NPDES) permits (Westside WWTP and Blue River WWTP). NPDES permits are issued by MDNR to Kansas City and implemented by the Water Services Department (Water Services) at each treatment facility.

III. KANSAS CITY'S SEWER SYSTEM OVERVIEW

More than 150 years ago, Kansas City began building the basic sewer infrastructure that would allow the city to grow and prosper. Some of that infrastructure is still in use today. Kansas City's overall sanitary sewer system comprises both combined and separate sewer systems totaling approximately 318 square miles.

The combined sewer system consists of 58 square miles, primarily located in the oldest areas of the City. During moderate to heavy rainfall events, the system will reach capacity, overflow, and discharge a mixture of wastewater and rainwater directly into local receiving streams and rivers. By implementing control measures in accordance with the Consent Decree, the occurrence of overflows will be reduced over time.

The remaining 260 square miles of Kansas City's sanitary sewer system are a separate sewer system. A separate sanitary sewer system is only intended to collect and convey wastewater. However, rainwater can enter the system through leaky sewer pipe joints, broken sewer pipes, manholes, and illicit stormwater direct connections causing the system to become overloaded during rainfall events. When flow in this system exceeds its capacity, it too overflows a mixture of wastewater and rainwater from various manholes throughout the system. Kansas City has eight constructed sanitary sewer overflows (SSOs), four of which were identified in 2016 and three of which were identified in 2017 during field investigations. The City is actively working to eliminate all eight constructed overflows in concert with its ongoing Capacity Management Operation and Maintenance (CMOM) Program and implementation of the Overflow Control Program.

IV. REPORTING PERIOD MILESTONES

The following specific milestones, as laid forth in Consent Decree Appendices A and D, were timely met during the reporting period between January 1 and June 30, 2018. In addition to these milestones, the City submitted the 2017 Annual Report to USEPA and MDNR on March 31, 2018.

Work has continued on several other projects that began in previous reporting periods, including the continuation of inflow/infiltration reduction activities in areas north and south of the Missouri River. To date, all Consent Decree schedule milestone dates have been met.

1. APPENDIX A – PERFORMANCE MEASURES

Lower Blue River Basin

- Sewer Separation: 40th and Monroe
 - Consent Decree Required Start Date: 2022
 - Actual Start: March 2018

Middle Blue River Basin

- Sewer Separation: Diversion Structure 099
 - Consent Decree Required Finish Date: 12-31-2018
 - Actual Finish: May 2018
- Sewer Pipe Consolidation Outfall 063
 - Consent Decree Required Finish Date: 12-31-2018
 - Actual Finish: May 2018

Town Fork Creek Basin

- Town Fork Creek Neighborhood Sewer Rehabilitation
 - Consent Decree Required Finish Date: 12-31-2018
 - Actual Finish: May 2018

Turkey Creek/ Central Industrial District Basin

- Sewer Separation: 31st Street and Broadway
 - Consent Decree Required Start Date: 2020
 - Actual Start Date: January 2018

North of the Missouri River Separate Sewer System

- I&I Line Creek/Rock Creek Area 1
 - Consent Decree Required Finish Date: 12-31-2023
 - Actual Finish: March 2018

South of the Missouri River Separate Sewer System

- I&I Reduction Blue River South Areas 1 & 2
 - Consent Decree Required Finish Date: 12-31-2021
 - Actual Finish: March 2018
- I&I Reduction Blue River South Area 3
 - Consent Decree Required Finish Date: 12-31-2021
 - Actual Finish: June 2018
- I&I Reduction Blue River North
 - Consent Decree Required Finish Date: 12-31-2021
 - Actual Finish: February 2018

2. APPENDIX B – POST-CONSTRUCTION MONITORING PROGRAM

Flow monitoring was performed in accordance with the revised CSS Metering Plan approved by USEPA in December 2015.

- Outfall BR039 (Pre-Design - Continued)
- Outfall BR040 (Pre-Design - Continued)
- Outfall W003 (Post Construction - Continued)
- Outfall BR059 (Post Construction - Continued)
- Outfall BR069 (Post Construction - Continued)
- Outfall BR063 (Post Construction - Commenced)
- Outfall BR064 (Post Construction - Commenced)

V. IMPLEMENTATION OF SEWER SYSTEM REMEDIAL MEASURES AND POS-CONSTRUCTION MONITORING

a. POST-CONSTRUCTION MONITORING PROGRAM

i. WATER QUALITY TESTING

The 2018 reporting period is the eighth year of monitoring conducted under the Integrated Water Quality Monitoring Program (IWQMP). Since April 2011, City staff members have conducted sampling and field measurements at 20 smaller wastewater locations. A City contractor has conducted sampling and field measurements at three locations on both the Kansas River and Missouri River. The Kansas City Water Services Department laboratory conducted analysis of the samples. Sampling and analyses were conducted according to the methods prescribed in the Integrated Water Quality Monitoring Program and the associated Quality Assurance Project Plan.

ii. FLOW MONITORING PROGRAM

Short-term flow monitoring was conducted by the City's Overflow Control Program Management team at over 150 locations for multiple projects, including those listed below, beginning in April 2018. Flow metering durations varied from 90 days to seven months. Flow monitoring was performed for the following I/I reduction project areas:

- Blue River South Project Areas 1 and 2 (Post-Construction)
- Blue River South Project Area 3 (Post-Construction)
- Blue River South Area Project 4 Additional Area
- Blue River North (Post-Construction)
- Blue River Central Area 1 (Post-Construction)
- Line Creek/Rock Creek Project Area 1 (Post-Construction)
- Line Creek/Rock Creek Project Areas 3 and 4
- Birmingham Project Areas 1 and 2
- Private I/I Reduction Program Project Areas (MBR, LC/RC3, BC I&I)

Multiple rain gauges were also installed in the project areas to supplement coverage provided by the City's existing ALERT gauging system.

Flow and rainfall monitoring were performed for 90 days at eight (8) locations in the Northeast and Gooseneck Creek and Town Fork Creek Neighborhood Sewer Rehabilitation Project areas to provide quantification of system flows prior to rehabilitation and after rehabilitation.

Flow and rainfall monitoring were performed at approximately 60 locations to support project design and hydraulic model recalibration efforts.

b. GREEN INFRASTRUCTURE

i. ADDITIONAL GREEN INFRASTRUCTURE PILOT PROJECT

Additional green infrastructure pilot projects are being implemented in the Lower Blue River (LBR) Basin and the Northeast Industrial District/Gooseneck Creek Basin (NEID/GN). Overall these pilot projects will demonstrate collaboration achieved through public-private partnerships. The projects selected for final design of green infrastructure improvements are at the following three locations:

- East High School (NEID/GN Basins)
- Veterans Hospital and Linwood Green Park (LBR Basin)
- Avenues of Life Mattress Recycling Center (LBR Basin)

The development of construction contract documents for these three projects continued in 2018 and are expected to be completed by the end of this year. Design completion was delayed because of challenges with getting property owner agreements in place and other site issues that have now been resolved. Construction at East High School will begin in early 2019 with the other two sites following in mid-2019. The current plan is for all three sites to be substantially complete by December 2019.

ii. CONSENT DECREE GREEN INFRASTRUCTURE PROJECTS

For the Turkey Creek/Central Industrial District basins, the concept and preliminary green infrastructure designs were completed in 2017 and final design commenced. Final construction contract documents are scheduled to be completed in October 2018. Construction is scheduled to begin in early 2019.

For the Northeast Industrial District basin, the concept and preliminary design at the two cost-effective sites were completed in 2017. Final construction contract documents are scheduled to be completed in September 2018. The concept design for the new third site in downtown Kansas City was completed in June 2018. A schedule for the preliminary and final design for this new third site has not yet been determined pending final approval of the concept design and establishment of property owner agreements.

iii. ADDITIONAL REAL-TIME CONTROL PROJECTS

The installation of Continuous Monitoring and Adaptive Control (CMAC) technology is one of the City's Smart Sewer solutions being implemented in the NEID basin. CMAC technology autonomously controls the timing and rate of flow of stormwater into the CSS using cloud-based technology, water level sensors and actuated valves. Using these components, CMAC systems can observe on-site conditions in conjunction with weather forecasts to plan and adaptively respond to storm events in real-time.

CMAC technology was implemented at two existing stormwater detention basins, the Gardner Avenue Detention Basin and the Chestnut Detention Basin and is being considered for a third location. Controls were installed at the Gardner Avenue Detention Basin in April of 2017. From that time until April 2018, real-time controls have captured 42 million gallons (MG) of runoff and adaptively controlled 92% of that runoff volume, effectively removing it from the CSO system. The Chestnut Detention Basin was brought online in August 2018 and the additional existing detention basin will be retrofit with real-time controls and brought online in the summer of 2019.

See Table 1 that starts on page 8 for more information about these two projects.

VI. COMBINED SEWER OVERFLOW CONTROL MEASURES

The combined sewer system (CSS) makes up approximately 58 square miles of the city's sewer system running from the Missouri/Kansas state line on the west, 85th Street on the south, the Blue River on the east, and the Missouri River on the north. The area served by the CSS is subdivided into six principal basins: Brush Creek, Lower Blue River, Middle Blue River, Northeast Industrial District, Town Fork Creek, and Turkey Creek/Central Industrial District.

Field investigation activities for neighborhood sewer rehabilitation projects are being completed through a City OCP Program Management contract and a city-wide sewer cleaning and closed-circuit television (CCTV) inspection contract. The work consists of sewer system network characterization and manhole inspections, sewer cleaning, and CCTV inspection of sewers in the Lower Blue River basin.

The City's 25-year Overflow Control Program is being implemented in three phases, each with a primary control strategy. The early years of the program include repairs to the existing sewer systems and pilot projects with a focus on developing and evaluating green infrastructure solutions. The middle years of the program will focus on maximizing the capacity within the existing system and analyzing the results of source volume reductions and pilot projects. The later years of the program will address necessary improvements to the City's wastewater treatment plants and construction of structural storage solutions which are currently planned as deep storage tunnels.

The status of the projects in the combined sewer system basins is summarized in Table 1. During the reporting period, the combined sewer system had 18 active projects. Seven (7) projects were under design, and five (5) projects were either advertising for construction bids, or under construction during the reporting period. During this reporting period four (4) projects achieved full operation as indicated by 100 percent construction competition in the table below. A certificate of Achievement of Full Operation for each of these projects will be submitted in the next Annual Report.

Table 1: Project Status - Combined Sewer System Basin (through June 30, 2018)

COMBINED SEWER SYSTEM		Pre-Design	Design	Construction	
Project Name	Description	<u>Percent Complete through 06/30/2018</u> Planned Completion Date			CD Due Date
Brush Creek Basin					
Neighborhood Sewer Rehabilitation	Neighborhood sewer rehabilitation work in the Brush Creek Basin has been split into two (2) design projects and four (4) construction packages due to the size of the basin. These projects are being implemented to improve the reliability and performance of the combined sewer system and reduce basement backups. The projects involve identification of sewer system defects and the preparation of construction contract documents to rehabilitate sewer pipes that are 12-inches and smaller in diameter. Work also includes the rehabilitation of sewer pipes and manholes in a separate sewer system area located within the Brush Creek basin to reduce I/I flows contributing to SSOs.	100%	100%	Area 1 East: <u>15%</u> Aug. 2019 Area 2 I/I: <u>10%</u> Aug. 2019 Area 1 West: <u>10%</u> Aug. 2019 Area 2 NSR: <u>10%</u> July 2019	12/31/2020

Lower Blue River Basin

Neighborhood Sewer Rehabilitation	This project is being implemented to improve the reliability and performance of the combined sewer system and reduce basement backups. This project involves identification of sewer system defects, the preparation of construction contract documents, and the rehabilitation of manholes and sewer pipes 12-inches and smaller in diameter.	100%	<u>30%</u> May 2019	<u>0%</u> Oct. 2021	12/31/2021
Sewer Separation: 40th and Monroe	The project will separate approximately 220 acres and eliminate typical year overflows that are located in the tributary area contributing to Combined Sewer Outfalls 041, 043, 044, 045, 046, 047, 049, and 050 of the Lower Blue River Basin in Kansas City, Missouri.	<u>30%</u> Jan. 2019	<u>0%</u> Jan. 2021	<u>0%</u> March 2023	12/31/2023

Middle Blue River Basin

<p>Sewer Pipe Consolidation: Outfall 063 and 064</p>	<p>The project involves the consolidation of piping, disconnection of inlets from the combined sewer system, and elimination of 16 of 18 diversion structures. The overall goal is to eliminate typical year overflows at Outfall 063 and reduce the number of overflows at Outfall 064. The project scope has been expanded to achieve increased separation of storm inlets and sanitary sewers and integration of water main replacement work. Due to the size of the project, it has been broken into two phases to facilitate construction.</p>	<p>100%</p>	<p>100%</p>	<p>Phases 1 and 2: 100%</p>	<p>12/31/2018</p>
<p>Sewer Separation: Outfalls 066 and 067</p>	<p>Design documents have been prepared for separation of approximately 270 acres of the combined system. The Consent Decree does not mandate separation of combined sewers upstream of Outfall 066; however, this 10-acre area was added to the Project because of its proximity to Outfall 067, its small size, and the relatively small number of known stormwater inflow connections. Upon completion of this separation work, both outfalls will not overflow in the typical year.</p>	<p>100%</p>	<p>100%</p>	<p><u>20%</u> Oct. 2019</p>	<p>12/31/2019</p>

Middle Blue River Basin (continued)

Sewer Separation: Diversion Structure 099	Design documents were prepared for separation of 50 acres of combined sewers upstream of Diversion Structure 099. Green stormwater infrastructure best management practices (BMPs) have been incorporated to improve water quality of the separated stormwater flows. Because of this project, Diversion Structure 099 was eliminated. This project was combined with the adjacent Sewer Consolidation: Outfall 063 project into a single construction project.	100%	100%	100%	12/31/2018
Blue River Trailhead at Blue Parkway – Alternate SEP 3 – SLBE-WSDEPS	The Blue River Trailhead at Blue Parkway is an alternate Supplemental Environmental Project (SEP) that fulfills the requirements for the Supplemental Environmental Project as required by the Federal Consent Decree. The project consists of a new trailhead that will include tree plantings along the Blue River, green stormwater infrastructure BMPs to treat runoff from the bridge and road, and parking lot area.	100%	100%	<u>80%</u> July 2018	9/27/2018

Middle Blue River Basin (continued)

<p>Diversion Structure 068 Storage Basin (formerly Relief Sewer: Diversion Structure 068 to Blue River Sewer)</p>	<p>The project is being designed to reduce combined sewer overflows at Outfall 068. A new open storage basin will be constructed in lieu of a relief sewer.</p>	<p>100%</p>	<p><u>60%</u> Nov. 2018</p>	<p><u>0%</u> July 2020</p>	<p>12/31/2020</p>
<p>Diversion Structures 065 and 073 Consolidation (formerly Dry Weather Sewer Line: Outfall 056)</p>	<p>Design and construction of a new diversion structure to replace two existing diversion structures and associated piping and manholes. The new diversion structure will provide for easier access and will reduce overflows to outfall 056.</p>	<p>100%</p>	<p>100%</p>	<p><u>50%</u> Dec. 2018</p>	<p>12/31/2018</p>
<p>Manhole Modifications: Middle Blue River</p>	<p>The project is being constructed to raise the rim elevations or seal manhole covers to eliminate typical year overflows.</p>	<p>100%</p>	<p><u>80%</u> July 2018</p>	<p><u>0%</u> Sept. 2018</p>	<p>12/31/2018</p>

Northeast Industrial District Basin

Sewer Separation: Diversion Structure 006	The project involves separation of approximately 260 acres of combined sewer system by constructing about 12,600 feet of new sanitary sewers and eliminating Diversion Structure 006. It will eliminate typical year overflows at Outfall 006. The project requires the inclusion of a pump station and force main and has been separated into three (3) construction projects: Phase 1) Sewer Separation; Phase 2) Private Sewer Separation; and Phase 3) Pump Station and Force Main.	100%	100%	Phase 1 <u>95%</u> Oct. 2018 Phase 2 100% Phase 3 100%	12/31/2018
NEID Green Infrastructure Pilot Project	This project is being designed to reduce combined sewer overflows and provide aesthetic, social and economic enhancements within the Northeast Industrial District. The design will include a tiered extended detention facility with wetland vegetation, permeable pavement, bioswales and an open channel for conveyance.	100%	<u>90%</u> Sept. 2018	<u>0%</u> Aug. 2020	12/31/2020

Northeast Industrial District Basin (continued)

Gooseneck Arch Sewer Gates and Pump Station Improvements	The project consists of the design of an adjustable crest gate inside a new gate structure situated over the 18 ft. by 21 ft. arch sewer to provide in-line storage of combined sewer flow utilizing a real-time control (RTC) system and a new 4-MGD submersible pump station. The pump station will deliver the stored volume to the Blue River Interceptor through a new force main.	100%	100%	<u>0%</u> Oct. 2019	12/31/2019
Neighborhood Sewer Rehabilitation	Neighborhood sewer rehabilitation work in the Northeast Industrial District Basin consist of one (1) design project and two (2) construction packages due to the size of the basin. This project is being implemented to improve the reliability and performance of the combined sewer system and reduce basement backups. This project involves identification of sewer system defects, the preparation of construction contract documents, and the rehabilitation of manholes and sewer pipes 12-inches and smaller in diameter.	100%	Area 1: 100% Area 2: <u>95%</u> Aug. 2018	Area 1: 0% March 2020 Area 2: <u>0%</u> March 2020	12/31/2020

Town Fork Creek Basin

Neighborhood Sewer Rehabilitation	This project is being implemented to improve the reliability and performance of the combined sewer system and reduce basement backups. This project involves identification of sewer system defects, the preparation of construction contract documents, and the rehabilitation of manholes and sewer pipes 12-inches and smaller in diameter.	100%	100%	100%	12/31/2018
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Turkey Creek/Central Industrial District Basin

Green Infrastructure Pilot Project	This green infrastructure pilot project is being designed to reduce combined sewer overflows and to provide aesthetic, social and economic enhancements within the Central Industrial District. The design work includes the conceptual, preliminary and final design; preparation of construction contract documents; bid phase services; and the preparation of opinions of probable cost.	100%	<u>95%</u> Dec. 2018	<u>0%</u> Oct. 2020	12/31/2020
Neighborhood Sewer Rehabilitation	This project is being implemented to improve the reliability and performance of the combined sewer system and reduce basement backups. Two construction contracts will be issued for rehabilitation of manholes and sewer pipes that are 12-inches and smaller in diameter.	100%	<u>30%</u> Dec. 2018	<u>0%</u> March 2021	12/31/2021
<i>Westside Wastewater Treatment Plant</i>					
Westside Wastewater Treatment Plant	This project involves the construction of wet weather treatment and disinfection facilities sized for 32 MGD. Facility upgrades for non-OCP work will also be completed.	100%	100%	<u>0%</u> Oct. 2020	12/31/2020

VII. SEPARATE SANITARY SEWER SYSTEM OVERFLOW CONTROL MEASURES

Kansas City's Separate Sewer System (SSS) comprises nine drainage basins covering 260 square miles of service area. The four SSS basins north of the Missouri River are the Northern and Northwestern watersheds and the Line Creek/Rock Creek and Birmingham/Shoal Creek basins. The five SSS system basins south of the Missouri River are the Blue River Central, Blue River North, Blue River South, Little Blue River, and Round Grove basins.

Much of the early projects and program strategy in the separate sewer basins involve reducing the amount of Inflow and Infiltration (I/I) entering the SSS to reduce overflows from the system. This reduction in I/I is achieved by reducing or eliminating points of direct inflow into the system and reducing infiltration through collection system defects. A combination of wet weather storage and treatment will be utilized to address system needs as outlined in the Plan.

Field investigation activities for the I/I reduction projects are being completed through a City OCP Program Management contract and city-wide Sewer Cleaning and Closed-Circuit Television (CCTV) Inspection contracts. The work consists of sewer system network characterization and manhole inspections, sewer cleaning, and CCTV inspection of sanitary sewers in the Blue River Central, Blue River North, Blue River South, Line Creek/Rock Creek, Round Grove, and Little Blue River separate sewer system basins.

The status of Consent Decree projects in the SSS basins is summarized in Table 2. The separate sewer system has 16 active projects. Three (3) projects are currently in design, and eight (8) projects are currently advertising for construction bids, or construction was underway, during the reporting period. During this reporting period four (4) projects achieved full operation as indicated by 100% construction completion in the table below. A certificate of Achievement of Full Operation for each of these projects will be submitted in the next Annual Report.

In an effort to identify excessive I/I sources attributed to sewer defects, the City is also evaluating and rehabilitating sewer defects at stream crossings and immediately adjacent to streams. The work is occurring under a multi-year design/build contract. The City has evaluated and repaired 12 sites in 2017/18 and is in the process of evaluating and repairing 15 sites in 2018/19.

Table 2: Project Status – Separate Sanitary Sewer System Basin (through June 30, 2018)

SEPARATE SEWER SYSTEM		Pre-Design	Design	Construction	
Project Name	Description	Percent Complete through 06/30/2018 Planned Completion Date			CD Due Date
Blue River Central Basin					
I/I Reduction Areas 1 and 2	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 360,000 linear feet of sewer pipe and 1,700 manholes in the project area.	100%	100%	<u>90%</u> Sept. 2018	12/31/2018
Blue River North Basin					
I/I Reduction	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 108,000 linear feet of sewer pipe and 440 manholes in the project area.	100%	100%	100%	12/31/2018

Blue River South Basin

I/I Reduction - Areas 1 and 2	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 340,000 linear feet of sewer pipe and 1,400 manholes in the project area.	100%	100%	100%	12/31/2021
I/I Reduction Area 3	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 111,000 linear feet of sewer pipe and 450 manholes in the project area.	100%	100%	100%	12/31/2021
I/I Reduction Area 4	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 375,000 linear feet of sewer pipe and 1,900 manholes in the project area.	100%	100%	<u>15%</u> Nov. 2019	12/31/2021
I/I Reduction Area 5	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 120,000 linear feet of sewer pipe and 600 manholes in the project area.	100%	100%	<u>15%</u> Nov. 2019	12/31/2021

Line Creek/Rock Creek

I/I Reduction Area 1	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 148,000 linear feet of sewer pipe and 680 manholes in the project area.	100%	100%	100%	12/31/2023
I/I Reduction Area 2	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 228,000 linear feet of sewer pipe and 1,180 manholes in the project area.	100%	100%	<u>75%</u> Dec. 2018	12/31/2023
I/I Reduction Area 3	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 213,000 linear feet of sewer pipe and 1,000 manholes in the project area.	100%	<u>30%</u> Feb. 2019	<u>0%</u> Feb. 2022	12/31/2023
I/I Reduction Area 4	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 246,000 linear feet of 6-inch to 54-inch sewer pipe and 1,360 manholes in the project area.	<u>95%</u> July 2018	<u>0%</u> Oct. 2020	<u>0%</u> July 2023	12/31/2023

Round Grove

Round Grove Pumping Station Capacity Improvements	The project involves expansion of the Round Grove Pump Station to provide additional wet weather capacity up to a 60 MGD firm capacity. This will include new larger pumps, new piping, and other capital improvements to accommodate the expansion and meet building code requirements.	100%	<u>60%</u> March 2019	<u>0%</u> Nov. 2020	12/31/2022
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Little Blue River

I/I Reduction Area 1	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 340,000 linear feet of sewer pipe and 1,400 manholes in the project area.	100%	<u>30%</u> July 2019	<u>0%</u> Feb. 2021	12/31/2021
I/I Reduction Area 2	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 310,000 linear feet of sewer pipe and 1,410 manholes in the project area.	<u>95%</u> July 2018	<u>0%</u> Sept. 2019	<u>0%</u> June 2021	12/31/2021

Birmingham

I/I Reduction Area 1	The project consists of field investigations, data analysis, preparation of construction contract documents and rehabilitation of sewers, manholes and service lateral connections to achieve targeted infiltration and inflow reduction.	<u>60%</u> Feb. 2019	<u>0%</u> Oct. 2020	<u>0%</u> Aug. 2023	12/31/2023
I/I Reduction Area 2	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 238,000 linear feet of sewer pipe and 1,200 manholes in the project area.	<u>99%</u> July 2018	<u>0%</u> Oct. 2020	<u>0%</u> Nov. 2022	12/31/2023
I/I Reduction Area 3	The project will focus on I/I reduction through rehabilitation of public sanitary sewers and manholes within the project area. There is an estimated 216,000 linear feet of sewer pipe and 975 manholes in the project area.	<u>5%</u> June 2019	<u>0%</u> July 2020	<u>0%</u> Aug. 2022	12/31/2023

PRIVATE INFLOW/INFILTRATION REDUCTION PROGRAM

The City currently has a private I/I reduction program in conjunction with public sewer I/I reduction projects. The focus of the program is to disconnect illicit private I/I sources where it is cost effective to remove the excessive I/I flows into the separate sewer system. Approximately 70,000 properties are targeted for private I/I evaluation in the City's SSS area.

Through June 2018 three design professional firms continued to perform private I/I reduction in the following SSS basins: Birmingham, Blue River Central, Blue River South, Line Creek/Rock Creek, Lower Blue River, Middle Blue River (small pilot area), and Round Grove (small pilot area). Through June 2018 each of the design professional firms continued to perform building evaluations, identify illicit connections and coordinate disconnections. Since commencement of the private I/I reduction program, approximately 58 percent of contacted property owners have granted interior and exterior building evaluations, while 37 percent of properties have had only an exterior building evaluation completed. Approximately nine (9) percent of all properties evaluated have been found to contain cost-effective I/I sources and 88 percent of property owners have voluntarily entered into agreements with the City to have disconnection work completed.

Significant public outreach efforts have continued to educate residents about the voluntary program and encourage eligible property owners to participate in building plumbing evaluations. Public meetings were held, and project team members have made presentations at neighborhood association meetings. In addition, door-to-door outreach was conducted along with personal phone calls. Through June 30, 2018, five public meetings and neighborhood association presentations have taken place and more than 8,000 properties have received door-to-door outreach or a phone call.

Through June 2018, 15 plumbers are under "indefinite delivery/indefinite quantities (ID/IQ) facility maintenance" contracts. In March, another RFQ was issued to bring additional plumber contractors on board. All of the existing plumbers and an additional 12 new plumbers submitted qualifications. The new plumbers are in the process of executing contracts with the City, as of June 30, 2018 two new plumbers had joined the program. Through June 30, 2018, the 15 existing plumbers performed disconnections on over 500 parcels.

VIII. SCHEDULED ACTIVITIES FOR THE NEXT REPORTING PERIOD

The activities listed below are expected to occur during the next reporting period between July 1 and December 31, 2018. This list, however, should not be interpreted as a complete description of all activities that will occur in the second half of 2018. Certain Consent Decree and SSP activities (e.g., program management, NMC, CMOM, public participation, project planning, and data management) will continue for the duration of the Consent Decree but are not explicitly discussed in this section.

- Requests for Qualifications/Proposals for the following SSP projects are scheduled to be developed or advertised for selection of design professionals:
 - Pump Station Upgrade at 15th Street
 - Relief Sewer at Hardesty Ave and 31st Street
 - Relief Sewer at Vineyard and Lawn Street
 - I&I Reduction Birmingham Area 1
 - I&I Reduction Birmingham Area 3
 - Baseline Improvements - Town Fork Creek
- Requests for bid proposals will be advertised for selection of construction contractors for the following SSP projects:
 - Diversion Structure 068 Storage Basin
 - Green Infrastructure Pilot - Northeast Industrial District
 - Northeast Area/Gooseneck Creek NSR
 - Green Infrastructure Pilot - Turkey Creek/CID
 - Neighborhood Sewer Rehabilitation - Turkey Creek/CID
 - Westside Plant Wet Weather Treatment Facilities
 - Additional Green Infrastructure Demonstration Projects
- The City will issue a Notice to Proceed to Design Professionals or Construction Contractors for the following SSP projects:
 - I&I Reduction Line Creek/Rock Creek Area 4 (design)
 - Sewer Separation - 31st Street and Broadway (design)
 - In-Line Storage Gooseneck Arch Sewer Gate and Pump Station (construction)
 - Northeast Area and Gooseneck Creek NSR (construction)
 - Westside Plant Wet Weather Treatment Facilities (construction)
 - Additional Green Infrastructure Demonstration Projects (construction)
- Work will continue pertaining to the implementation of the City's Private Inflow/Infiltration Reduction Program in conjunction with other I/I reduction projects in the SSS.
- Work will continue on the active Overflow Control projects shown in Table 1 and Table 2 that were not completed in 2017.
- Flow monitoring will continue in accordance with the CSS Metering Plan approved by USEPA in December 2015. Completion of Continuous Monitoring and Adaptive Control (CMAC) measures at the City's Chestnut Stormwater Detention Basin in the NEID basin.
- Evaluation of retrofitting up to 11 additional stormwater detention basins throughout the CSS with CMAC measures.
- Work will continue pertaining to implementation of the City's Sewer Rehabilitation within Waterways project to reduce inflow and infiltration.



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