

US EPA ARCHIVE DOCUMENT

**APPENDIX A**  
**Performance Measures**

**1. Combined Sewer Overflow (“CSO”) Control Measures, Descriptions, Critical Milestones, Performance Criteria**

The City of Kansas City, Missouri (“KCMO”) shall implement the CSO Control Measures described below. KCMO shall comply with the Project Start Dates, Date of Achievement of Full Operation, Date of Post-Construction Monitoring Plan Submission, and Critical Milestones for each control measure. Upon completion of the CSO Control Measures, KCMO shall meet the Percent Capture of Wet Weather Flows and the Performance Criteria as set forth below.

KCMO shall submit semi-annual reports, as set forth in Section IX in this Decree, describing the City’s progress in implementing the CSO control measures described below. KCMO shall submit the demonstrations of compliance with the percent capture of wet weather flows and the performance criteria in accordance with the schedule listed in this Appendix “A” and include these demonstrations in the semi-annual reports.

KCMO shall demonstrate compliance with both the Percent Capture of Wet Weather Flows and Performance Criteria as set forth below. Determination of achievement of the Percent Capture and Performance Criteria shall be based upon the Post Construction Monitoring Plans as described in Appendix “D” of this Decree. By the Dates of Demonstration of Compliance set forth on pages 3 and 4 herein, KCMO shall utilize the collection system hydraulic model as described in Section 5 of its January 30, 2009 Overflow Control Plan (“OCP”) and the system monitoring data as described in the Post Construction Monitoring Plans as described in Appendix “D” of this Decree. KCMO shall calibrate the collection system hydraulic model to at least the same degree of calibration as was achieved during the OCP development. Upon calibration of the collection system hydraulic model (hereafter referred to as the “calibrated post-construction hydraulic model”), KCMO shall run a continuous simulation of the model inputting the “typical year” design storms used to develop the OCP in place of the actual storms experienced during the post construction monitoring period.

For purposes of this demonstration, the “typical year” is defined as the 8 design storms which have the depth, peak hourly intensity, duration, and frequency as described in Section 5.2.2.3 and Table 5-1 of the OCP. The continuous simulation shall be based on the same timing and arrangement of the design storms as described in the technical memorandum “Design Year for CSS Analyses” included in Appendix A2 of the OCP. The term “overflow event” shall mean the activation of one or more CSOs in a basin due to a discreet storm. For clarification, the

following would be considered three “overflow events” for the Brush Creek Basin: 1) a storm that causes only CSO 007 to overflow; 2) a second storm that causes only CSO 009 to overflow; and, 3) a third storm that causes CSOs 007, 008, 009, 010, 011, 012, 014, 015, 016, 017, 018, 019, and 020 to overflow.

The Percent Capture of Wet Weather Flows and the maximum volume of CSO discharges included in the CSO Control Measures, as specified in the tables below, will be met if the continuous typical year simulations using the calibrated post-construction hydraulic model demonstrate the specified basins in the “typical year” do not exceed the maximum volumes listed.

The Performance Criteria will be met if the continuous typical year simulations using the calibrated post-construction hydraulic model demonstrate the collection system discharges will not exceed the number of “typical year” overflow events as listed below.

Notwithstanding the forgoing, and consistent with this Consent Decree, KCMO is responsible for achieving the percent capture requirement and performance criteria specified herein. KCMO’s compliance with individual “Control Measures” shall not constitute a defense to a failure to achieve the percent capture requirements and performance criteria and shall not relieve KCMO of the obligation to submit plans proposing additional control measures pursuant to Section VII.A.1.c of the Consent Decree.

The City may request that the CSO and SSO Control Measures set forth in this Appendix A be revised if it can demonstrate that the requested revision (1) reflects good engineering practice and (2) will continue to achieve the “Percent Capture of Wet Weather Flows” and “Performance Criteria” as those terms are used in this Appendix. Any request for a revision to the Performance Criteria shall be in writing. The manner in which EPA will review and approve or deny such requests depends upon the extent to which the City proposes to revise the Control Measure and how the control Measure is characterized in this Appendix: 1. If the City seeks to revise a Control Measure that utilizes the term “approximately” to indicate how compliance will be measured AND the proposed revision represents a 20 percent or less reduction of what is called for in the Control Measure, the City’s request shall be submitted pursuant to, and be governed by the procedures of Section VI of this Consent Decree; 2. If the City seeks to revise a Control Measure that does not include the term “approximately” as a compliance measurement OR seeks a greater than 20 percent reduction in a Control Measure that does utilize the term “approximately” as a compliance measure, the requested revision shall be submitted as a proposed Modification pursuant to Section XXV of this Consent Decree. If EPA approves the request, the Decree will be modified in accordance with the provisions of Section XXV. If EPA denies the request the City may, within thirty (30) days of the denial, appeal the decision to the Director, Water, Wetlands, and Pesticides Division, EPA, whose decision shall be final. Simultaneously with any request for modification made pursuant to this paragraph, the City shall provide to EPA all documentation necessary to support the request for modification, including all information relevant to the three criteria set forth above.

**Percent Capture of Wet Weather Flows**

Basin	Percent Capture of “Typical Year” Wet Weather Flows Achieved Upon Completion of the CSO Control Measures within the Specified Basins	Maximum Volume of CSO Discharges in the “Typical Year” Achieved Upon Completion of the CSO Control Measures within the Specified Basins (Billion Gallons)	Date of Demonstration of Compliance with Percent Capture of “Typical Year” Wet Weather Flows
Town Fork Creek/Brush Creek	98% *	0.059	April 30, 2037
Lower Blue River/Middle Blue River**	96% **	0.125	April 30, 2035

\* These percentages include the percent capture of wet weather flows from 74 of the 87 existing CSO outfalls in the KCMO system. The remaining 13 CSO outfalls are located within the NEID Basin and the Turkey Creek/Central Industrial District Basin in which KCMO shall implement the CSO control measures and meet the maximum volume of CSO discharges as specified in the CSO Control Measures table.

\*\* CSO 031 and CSO 033 are included in the NEID Basin; CSO 032 is included in the Lower Blue River Basin.

**Performance Criteria**

<b>CSO Number</b>	<b>Number of "Typical Year" Overflow Events</b>	<b>Date of Demonstration of Compliance with Number of "Typical Year" Overflow Events</b>
041,043, 044, 045, 046, 047, 049, 050, 054, 063, 081, 097***,	0	April 30, 2037
All other remaining CSOs in Brush Creek Basin, (006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 017, 018, 019, 020, 021, 023, 024, 025, 026, 027, 028, 029, 030),	6	April 30, 2037
All other remaining CSOs in Lower Blue River Basin (032, 034, 036, 037, 039, 040, 048, 051, 052, 055), Middle Blue River Basin (056, 057, 058, 059, 060, 061, 062, 064, 065, 066, 067, 068, 069, 070)	7	April 30, 2035
Other Remaining CSOs in Town Fork Creek Basin (079, 080, 082, 083, 085, 089, 090, 091, 093, 094, 095, 096, 099)	7	April 30, 2037
W005	7	April 30, 2037

\*\*\* All typical year overflows from CSO 092 shall be captured by consolidation piping leading to Town Fork Creek Tunnel north of Forest Hills Cemetery

**CSO Control Measures**

**Brush Creek Basin**

<b>CSO Control Measure</b>	<b>Additional Description</b>	<b>Project Start Date</b>	<b>Date of Achievement of Full Operation</b>	<b>Date of Post-Construction Monitoring Plan Submission</b>
Construction of approximately 31 million gallons of deep tunnel storage****	Located along Brush Creek near Brookside Blvd to confluence of Brush Creek and Blue River	2028	12-31-2033	
Construction of a 45-MGD deep-tunnel pump station.	Located near the confluence of Brush Creek and Blue River.	2029	12-31-2033	12-31-2032
Construction of a 200-MGD HRT/disinfection facility at the confluence of Brush Creek and the Blue River.	200 MGD high rate treatment discharging to the Blue River. Flow to the HRT will be from the deep tunnel and gravity flow diverted from the Blue River Interceptor Sewer.	2025	12-31-2030	12-31-2032
Construction of approximately 1,200 linear feet of approximately 72-inch diameter consolidation piping downstream of Diversion Structure 42 (Outfall 024)	Reroutes wet weather flows to tunnel drop shafts.	2029	12-31-2032	
Construction of approximately 350 linear feet of relief sewer.	To be located at 48 <sup>th</sup> and Roanoke Parkway	2029	12-31-2032	
Construction of approximately 2,100 linear feet of approximately 36-inch diameter consolidation piping diverting flows from Outfall 026	Reroutes wet weather flows to tunnel drop shafts.	2029	12-31-2032	
Construction of approximately 3,300 linear feet of approximately 60-inch diameter consolidation piping diverting flows from Outfalls 027 and 028	Reroutes wet weather flows to tunnel drop shafts.	2029	12-31-2032	

Construction of approximately 2,800 linear feet of storm sewer approximately 72 inches in diameter.	Reroute separate storm sewer runoff from Wyandotte County directly to Brush Creek.	2024	12-31-2025	
Combined sewer separation in approximately 1,140 acres of the Brookside sub-basin.		2029	12-31-2032	
Construction of approximately 1,150 linear feet of consolidation piping	Reduce frequency of remaining typical year overflows at Outfall 019.	2029	12-31-2032	
Construct new diversion structure and approximately 1,630 linear feet of consolidation piping; add flap gate at Outfall 023	Reduce frequency of remaining typical year overflows at Outfall 023. New diversion structure on existing outfall line.	2029	12-31-2032	
Construct new diversion structure and approximately 950 linear feet of consolidation piping; add flap gate at Outfall 025	Reduce frequency of remaining typical year overflows at Outfall 025. New diversion structure on existing outfall line.	2029	12-31-2032	
Various baseline improvements	Install flap gates on outfalls 007, 009, 010, 011, and 012.	2024	12-31-2025	
Basin-wide small-sewer rehabilitation. The location of the rehabilitations to be determined based upon the discovered condition of the sewers.	Repair of small diameter sewers (less than 12 inches) to reduce the quantity of flow entering the system.	2017	12-31-2020	

A Sewer System Improvement Flow Monitoring Plan consistent with Appendix “D” shall be submitted for the Brush Creek Basin by 12-31-2032.

\*\*\* The deep tunnels in the Brush Creek and Town Fork Creek Basins will provide a combined total of 50 million gallons of storage.

**Lower Blue River Basin**

<b>CSO Control Measure</b>	<b>Additional Description</b>	<b>Project Start Date</b>	<b>Date of Achievement of Full Operation</b>	<b>Date of Post-Construction Monitoring Plan Submission</b>
Increase the 15 <sup>th</sup> Street Pump Station capacity to 6.5 mgd or conduct sewer separation to eliminate typical year wet weather flows exceeding the station's current capacity.	Either replace or rehabilitate the 15 <sup>th</sup> Street Pump Station which will increase its capacity, or provide sewer separation in the upstream drainage basin	2020	12-31-2022	
Install approximately 3,500 linear feet of approximately 54-inch diameter relief sewer	Downstream of the intersection of Hardesty Avenue and 31 <sup>st</sup> Street	2020	12-31-2022	
Install approximately 3,400 linear feet of approximately 48-inch diameter relief sewer	Downstream of the intersection of Vineyard and Lawn Street.	2020	12-31-2022	
Install approximately 1,500 linear feet of approximately 24-inch diameter relief sewer	South of 45 <sup>th</sup> Street, between Chelsea Avenue and Van Brunt Boulevard	2020	12-31-2022	
Separate approximately 225 acres at 40 <sup>th</sup> and Monroe	Eliminate typical year overflows at 9 outfalls (041, 043, 044, 045, 046, 047, 049, 050, 052)	2022	12-31-2023	
Separate approximately 35 acres in the upstream drainage area to Outfall 054.	Eliminate typical year overflows at Outfall 054	2022	12-31-2023	
Install approximately 660 linear feet of approximately 18-inch dry weather line	Reduce frequency of typical year overflows at Outfall 055.	2020	12-31-2022	
Basin-wide small-sewer rehabilitation. The location of the rehabilitations to be determined based upon the discovered condition of the sewers.	Repair of small diameter sewers (less than 12 inches) to reduce the quantity of flow entering the system.	2018	12-31-2021	

**A Sewer System Improvement Flow Monitoring Plan consistent with Appendix "D" shall be submitted for the Lower Blue River Basin by 12-31-2022.**



**Middle Blue River Basin**

<b>CSO Control Measure</b>	<b>Additional Description</b>	<b>Project Start Date</b>	<b>Date of Achievement of Full Operation</b>	<b>Date of Post-Construction Monitoring Plan Submission</b>
Construction of approximately 9,400 linear feet of relief sewers from Diversion Structure 68 (upstream of Outfall 068) to the Blue River Sewer.		2017	12-31-2018	
Sewer separation in approximately 270 acres in the upstream drainage area to outfall 067,	Elimination of typical year overflows at Outfall 067)	2016	12-31-2019	
Sewer separation in approximately 50 acres in the upstream drainage area to diversion structure 099.	Elimination of typical year overflows at Diversion Structure 099	2016	12-31-2017	
Construction of distributed storage using green infrastructure	To be installed in the 475 acres tributary to Outfall 069. A sufficient volume of storage will be achieved through distributed green solutions to reduce the typical year activation frequency at Outfall 069 to six.	2012	12-31-2017	
Construction of distributed storage using green infrastructure	To be installed in the 269 acres tributary to Outfall 059. A sufficient volume of storage will be achieved through distributed green solutions to reduce the typical year activation frequency at Outfall 059 to six.	2012	12-31-2017	
Construction of approximately 12,000 linear feet of consolidation piping	Elimination of typical year overflows at 14 diversion structures upstream of Outfall 063	2016	12-31-2017	
Install approximately 1,200 linear feet of 18-inch dry weather line	Reduce frequency of typical year overflows at Outfall 056.	2017	12-31-2018	
Raise manhole rim elevations and make structural modifications	Raise the rim elevations of approximately 4 manholes on the main interceptor sewer a minimum of three feet.	2017	12-31-2018	

Basin-wide small-sewer rehabilitation. The location of the rehabilitations to be determined based upon the discovered condition of the sewers.	Repair of small diameter sewers (less than 12 inches) to reduce the quantity of flow entering the system	2014	12-31-2017	
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A Sewer System Improvement Flow Monitoring Plan consistent with Appendix “D” shall be submitted for the Middle Blue River Basin by 12-31-2018.

**Northeast Industrial District Basin**

CSO Control Measure	Additional Description	Project Start Date	Date of Achievement of Full Operation	Date of Post-Construction Monitoring Plan Submission	Critical Milestone
Sewer Separation in approximately 260 acres	Includes approximately 13,500 linear feet of new sanitary sewer. Eliminate typical year overflows at diversion structure 006.	2016	12-31-2017		
Green Infrastructure Projects	Green infrastructure pilot project(s) will be constructed to achieve a significantly higher level of CSO control downstream of the project area.	2015	12-31-2020		Submit a conceptual proposal for the green infrastructure projects by 12-31-2014.

Basin-wide small-sewer rehabilitation. The location of the rehabilitations to be determined based upon the discovered condition of the sewers.	Repair of small diameter sewers (less than 12 inches) to reduce the quantity of flow entering the system.	2017	12-31-2020		
Construct 4-MGD pump station	Construct 4 mgd pumping station to dewater the Gooseneck Creek Arch to the Blue River Interceptor Sewer following installation of the automated gate.	2018	12-31-2021	12-31-2020	Upon Completion of this control measure and the Brush Creek HRT, this basin will have a maximum volume of CSO discharges in the 'Typical Year' of 0.700 billion gallons.
Install automated gate in existing Gooseneck Arch Sewer	This will provide 4 MG storage in the existing Gooseneck Creek Arch.	2018	12-31-2021	12-31-2020	

A Sewer System Improvement Flow Monitoring Plan consistent with Appendix "D" shall be submitted for the Northeast Industrial District Basin by 12-31-2020.

**Town Fork Creek Basin**

<b>CSO Control Measure</b>	<b>Additional Description</b>	<b>Project Start Date</b>	<b>Date of Achievement of Full Operation</b>	<b>Date of Post-Construction Monitoring Plan Submission</b>
Construction of approximately 19 million gallons of deep tunnel storage *****	The Tunnel will connect to the Brush Creek tunnel near diversion structure 314 and will provide 19 MG of storage capacity	2028	12-31-2032	12-31-2031
Placement of approximately 3,800 linear feet of consolidation piping near and downstream of Outfall 097.	Reroutes wet weather flows to tunnel drop shafts.	2032	12-31-2035	
Placement of approximately 1,100 linear feet of approximately 36 inch diameter consolidation piping downstream of Diversion Structure 46 (Outfall 079)	Reroutes wet weather flows to tunnel drop shafts. To be located near Satchel Paige Stadium	2032	12-31-2035	
Conduct sewer separation in approximately 59 acres	Area is tributary to outfall 082	2024	12-31-2025	
Conduct sewer separation in approximately 138 acres	Area is tributary to outfall 081	2022	12-31-2025	
Construct new diversion structure and approximately 450 linear feet of consolidation piping; add flap gate at Outfall 083	Reduce frequency of remaining typical year overflows at Outfall 083. New diversion structure in existing junction box on outfall line.	2032	12-31-2035	
Construct new diversion structure and approximately 300 linear feet of consolidation piping; add flap gate at Outfall 099	Reduce frequency of remaining typical year overflows at Outfall 099. New diversion structure in existing junction box on outfall line.	2032	12-31-2035	

Basin-wide small-sewer rehabilitation. The location of the rehabilitations to be determined based upon the discovered condition of the sewers.	Repair of small diameter sewers (less than 12 inches) to reduce the quantity of flow entering the system	2015	12-31-2018	
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A Sewer System Improvement Flow Monitoring Plan consistent with Appendix “D” shall be submitted for the Town Fork Creek Basin by 12-31-2025.

\*\*\*\*\* The deep tunnels in the Brush Creek and Town Fork Creek Basins will provide a combined total of 50 million gallons of storage.

**Turkey Creek/Central Industrial District Basins**

CSO Control Measure	Additional Description	Project Start Date	Date of Achievement of Full Operation	Date of Post-Construction Monitoring Plan Submission	Critical Milestone
Sewer separation in approximately 66 acres.	Located at 31 <sup>st</sup> Street and Broadway, upstream of George Washington Lake in Penn Valley Park. Eliminates typical year overflows at Outfall W006	2020	12-31-2022		
Construction of approximately 10,600 linear feet of approximately 48-inch force main.	From Turkey Creek Pump Station to Westside WWTP	2032	12-31-2035		

Central Industrial District Storm Drainage Improvements	Includes replacement of gates at the Santa Fe Pumping Station and institution of real-time gate control	2016	12-31-2017	12-31-2017	
Construction of 30 million gallons of deep tunnel storage.	Extends from near West 22 <sup>nd</sup> Street at Grand to the Turkey Creek Pump Station.	2030	12-31-2035		Upon Completion of this control measure, these basins will have a maximum volume of CSO discharges in the 'Typical Year' of 0.574 billion gallons.
Construction of a 30-MGD deep-tunnel pump station.	Located at Turkey Creek Pump station and to be used to dewater the deep storage tunnel	2030	12-31-2035	12-31-2034	
Green Infrastructure Projects	Green infrastructure pilot project(s) will be constructed in the CID to achieve a significantly higher level of control downstream of the project area	2015	12-31-2020		Submit a conceptual proposal for the green infrastructure projects by 12-31-2014.
Upgrade the Turkey Creek Pump Station capacity to 30 MGD.		2014	12-31-2016	12-31-2017	
Construction of OK Creek in-line storage gates	To be used for real-time control of depths in the OK Creek sewer to take advantage of available system storage.	2015	12-31-2018	2017	

Basin-wide small-sewer rehabilitation. The location of the rehabilitations to be determined based upon the discovered condition of the sewers.	Repair of small diameter sewers (less than 12 inches) to reduce the quantity of flow entering the system	2018	12-31-2021		
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A Sewer System Improvement Flow Monitoring Plan consistent with Appendix “D” shall be submitted for the Turkey Creek / Central Industrial District Basins by 12-31-2021.

**Blue River WWTP**

<b>CSO Control Measure</b>	<b>Additional Description</b>	<b>Project Start Date</b>	<b>Date of Achievement of Full Operation</b>	<b>Date of Post-Construction Monitoring Plan Submission</b>	<b>Critical Milestone</b>
Diversion of up to 80 MGD of primary-plant effluent directly to disinfection facilities for treatment and discharge to the Blue River during wet-weather events.	This diversion is proposed for flows that exceed the 140-MGD secondary treatment capacity.	2026	12-31-2030	12-31-2029	
Construction of a 50-MGD wet weather treatment facility with disinfection.	Discharges to the Blue River	2026	12-31-2030	12-31-2029	
Expansion, replacement, and/or modification of solids handling facilities to accommodate additional loading from all proposed upgrades to the WWTP.		2025	12-31-2030		

**Westside WWTP**

<b>CSO Control Measure</b>	<b>Additional Description</b>	<b>Project Start Date</b>	<b>Date of Achievement of Full Operation</b>	<b>Date of Post-Construction Monitoring Plan Submission</b>	
Construction of 30 to 32 MGD enhancement of peak treatment capacity.	This is a 30 MGD increase of the peak hydraulic capacity through modification of existing treatment facilities, or if such an increase is determined to be infeasible, a 32 MGD HRT/disinfection facility along with grit removal and fine screening. <b>Any bypass is subject to 40 C.F.R. § 122.41(m).</b>	2017	12-31-2020	12-31-2019	A no-feasible alternative analysis pursuant to 40 C.F.R. § 122.41(m) shall be submitted for all planned bypasses as a result of implementation of this Control Measure, 1 year prior to proposed project start date.
Construction of a 32 MGD HRT/disinfection facility	This is an additional increase of 32 MGD in treatment capacity	2032	12-31-2035	12-31-2034	



**2. Separate Sewer Overflows (“SSO”) Control Measures, Descriptions, Critical Milestones, Performance Criteria**

**Performance Criteria**

KCMO shall implement the following SSO control measures. KCMO shall comply with the Project Start Dates, Date of Achievement of Full Operation, and Critical Milestones for each control measure.

KCMO shall submit semi-annual reports, set out in Section IX of this Decree, describing the City’s progress in implementing the following SSO control measures.

All Infiltration and Inflow (“I/I”) reductions shall be estimated based upon peak flows at the lower end of the watersheds. Such a demonstration shall be made using the collection system hydraulic model as described in Section 5 of the OCP, or other demonstration as approved by EPA. KCMO shall submit an estimation of infiltration and inflow reductions included in the semi-annual report due March 31, 2024 for the watersheds North of the Missouri River and for the watersheds South of the Missouri River.

KCMO shall submit a Post Construction Monitoring Plan as described in Appendix “D” of this Decree for the North of the Missouri River Separate Sewer System by December 31, 2025 and for the South of the Missouri River Separate Sewer System by December 31, 2021.

The SSO Control Measures set forth below that include design criteria set forth as "approximately" may be revised by the City provided that: 1) the design criteria is not reduced by more than 20% of what is set forth in this Appendix; 2) reflects good engineering practice; and 3) meets the Performance Criteria set forth in this Appendix. Any reduction in the design criteria by more than 20% of what is set forth in the Control Measures below shall be subject to Paragraph XXV, Modification, of the Consent Decree.

**North of the Missouri River Separate Sewer System**

<b>SSO Control Measure</b>	<b>Additional Description</b>	<b>Project Start Date</b>	<b>Date of Achievement of Full Operation</b>	<b>Date of Post-Construction Monitoring Plan Submission</b>	<b>Critical Milestones</b>
Infiltration and Inflow Reduction*****	Northern Watersheds – 30% Targeted Reduction Northwestern Watersheds – 30% Targeted Reduction Line Creek/Rock Creek Watersheds – 35% Targeted Reduction Birmingham/Shoal Creek Watersheds – 40% Targeted Reduction	2014	12-31-2023		
Upgrade the Birmingham WWTP to treat peak wet weather flows.	Treatment capacity will be expanded and/or additional equalization storage constructed to treat peak wet weather flows to the extent feasible. <b>Any bypass is subject to 40 C.F.R. § 122.41(m).</b>	2024	12-31-2027	12-31-2027	A no-feasible alternative analysis pursuant to 40 C.F.R. § 122.41(m) shall be submitted by 04-30-2020 for all planned bypasses, as a result of the implementation of this Control Measure.
Construct the North Bank and Birmingham Deep Tunnels	This will provide approximately 44 million gallons of deep tunnel storage	2022	12-31-2028	12-31-2027	
Construct Upshaft and 30 MGD Tunnel Pump Station	Located Near the Birmingham WWTP to de-water the North Bank and Birmingham Deep Tunnel system.	2022	12-31-2028	12-31-2027	

Construct approximately 12,000 linear feet of approximately 24-inch diameter force main		2024	12-31-2027		
Construct Relief Sewers – Line Creek	To be constructed where insufficient hydraulic capacity exists. The location of the relief sewers to be determined based upon the discovered condition of the sewers.	2022	12-31-2025		
Construct Relief Sewers - Birmingham	Approximately 800 linear feet of approximately 30-inch diameter relief sewers	2018	12-31-2019		
Upgrade Birmingham Pump Station to 50 MGD		2024	12-31-2027		

A Sewer System Improvement Flow Monitoring Plan consistent with Appendix “D” shall be submitted for the North of the Missouri River Separate Sewer System by 12-31-2024.

\*\*\*\*\*Targeted reductions are not independent performance measures. The capacity and configuration of improvements downstream of the I/I reduction areas will be adjusted as necessary to conform to the design goal of eliminating SSOs.

**South of the Missouri River Separate Sewer System**

<b>SSO Control Measure</b>	<b>Additional Description</b>	<b>Project Start Date</b>	<b>Date of Achievement of Full Operation</b>	<b>Date of Post-Construction Monitoring Plan Submission</b>
Infiltration and Inflow Reduction*****	Little Blue River Watershed – 30% Targeted Reduction Blue River South Watershed – 45% Targeted Reduction Blue River Central Watershed – 30% Targeted Reduction Blue River North Watershed – 30% Targeted Reduction Round Grove Watershed – 29% Targeted Reduction	2012	12-31-2021	
Construct Approximately 20 MG Storage Tank at 87 <sup>th</sup> Street Pumping Station	This will include rehabilitation and modification of existing pumps and equipment necessary to support wet weather pumping to storage tanks concurrent with operation of duty pumps.	2012	12-31-2016	
Construct remainder of 68 MG Storage Tanks at 87 <sup>th</sup> Street Pumping Station	The total storage volume at the 87 <sup>th</sup> Street Pumping Station may increase to 82 MG or be reduced, depending upon flows from Johnson County, Kansas.	2020	12-31-2024	12-31-2023
Construct 24-Inch diameter Round Grove Force Main	This force main will parallel the current force main running from the Round Grove Pump Station to the Blue River Interceptor Sewer.	2012	12-31-2013	
Increase Pumping capacity of the Round Grove Pump Station by 12 MGD.	Increase firm pumping capacity through addition of standby pump(s)	2016	12-31-2018	

A Sewer System Improvement Flow Monitoring Plan consistent with Appendix “D” shall be submitted for the South of the Missouri River Separate Sewer System by 12-31-2020.

\*\*\*\*\* Targeted reductions are not independent performance measures. The capacity and configuration of improvements downstream of the I/I reduction areas will be adjusted as necessary to conform to the design goal of eliminating SSOs.