

City of Lawrence - Utilities Department

2014 Integrated Municipal Wastewater Plan Memorandum of Understanding Annual Progress Report

The Memorandum of Understanding between the City of Lawrence and the Kansas Department of Health and Environment, which acknowledges and accepts the City's Integrated Municipal Wastewater Plan, requires annual updates to review the progress and performance of the plan. This report outlines the status of the projects as identified in the City's Integrated Wastewater Plan during 2014 and the Department's projected plans for 2015.

The following projects were included in Attachment 1 of the Memorandum of Understanding between KDHE and the City of Lawrence as items with 2013 and 2014 start dates in the Integrated Municipal Wastewater Plan and include their status at the end of 2014:

UT1302CS – Pump Station No.4 Redundant Force Main

Description – Staff discovered that the 8" force main that conveys wastewater from PS#4 in North Lawrence to the WWTP was exposed for approximately 75 feet on the river side of the Kansas River Levee. Due to the age and capacity of the existing 18" force main that also runs from PS#4 to the WWTP, staff evaluated that a new 12" and 14" force main should be installed in order to adequately carry all flow from PS#4 to WWTP. Approximately 3600' of 12" and 3600' of 14" force main were installed from PS#4 to the WWTP.

Design Engineer – PEC, Lawrence, KS
Construction – BRB Contractors, Topeka, KS
Completion – September 2014
Project Cost - \$1,644,900

UT1304 Wakarusa WWTP Facility/Influent Pump Station/Site Fill/Force Main

Description – Design and construction of a new wastewater treatment plant, Pump Station No. 10, Kaw River Wastewater Treatment Plant Lab Improvements, and force main to the new plant. Currently the plant, pump station and lab are in the final design phase. Construction on the site fill for the plant began in July and the force mains began in September of 2014. Staff requested to advertise for construction bid on the plant and pump station in January of 2015.

Design Engineer – Black & Veatch, Kansas City, MO
PEC, Lawrence, KS
Bartlett & West, Lawrence, KS
Construction – Kings Construction, Oskaloosa, KS (Site Fill)
BRB, Topeka, KS (Force Mains)
Plant Construction - TBD
Status – Completion in Fall 2017 (for entire project)
Project Cost - \$69,145,000 (with options)
(\$13,950,421 on Site Fill/Force Main Contracts, \$6,649,782 for Design)

UT1305 – Ecoflow: Rapid Rain Water Reduction Program

Description – Comprehensive "find and fix" program to reduce the rain water entering the sanitary sewer system through the public and private sewer system. Phase 1 included areas east of Haskell Ave. and north of 23rd St. and a small neighborhood west of the KU Campus. The Phase 1 public sewer

investigation included 378 manhole inspections, smoke testing approximately 90,000 linear feet of sanitary sewer, and approximately 30,000 linear feet of CCTV sewer inspections. These investigations resulted in 13 sanitary point repairs or a total of nearly 500 feet of pipe and 80 manholes repaired. Approximately 18,000 linear feet sanitary sewer have been identified for Cured-in-Place-Pipe (CIPP) rehabilitation. Over 1,300 private property evaluations have been completed under this program during 2014, which identified over 300 defects that qualify for repair. Through the end of 2014, Utilities staff has repaired approximately 63 minor defects and program plumbing contractors have repaired 197 defects. Phase 2 investigations began in the fall of 2014. The Phase 2 focus area boundary is Barker Ave/Connecticut Street to the west, Haskell Ave to the east, and 23rd St to the south. In 2014, approximately 164 manhole inspections and 107,000 feet of smoke testing were completed in the Phase 2 area. CCTV sewer inspections and private property plumbing evaluations will begin in early 2015. Public and private sector repair work will continue throughout 2015 in this area.

Design Engineer – TREKK Design Group, Kansas City, MO
Construction – 6 area plumbing contractors.
Status – Completion of Phase 1 in Spring 2015
Completion of Phase 2 in Fall 2015
Completion of entire project in 2020
Project Cost - \$1,109,478 (current expenditures)/\$19,400,000 (projected over the life of the project)

UT1424 Cured in Place Pipe (CIPP) - Clay Pipe and Manhole Rehabilitation Program

Description – Utilities crews inspect and identify needed repairs to the sanitary sewer and manholes through use of CCTV. Additional areas are identified through the Ecoflow: Rapid Rain Water Reduction Program inspections. In 2014, the department did not install CIPP. The CIPP Program for 2015 has approximately 39,000 feet of lining, which includes the 18,000 feet identified through the Ecoflow Program, and 80 manhole rehabilitations under contract. A similarly sized project is also planned for later in 2015 or early 2016.

Contractor – SAK (for 2015)
Completion – December 2015
Project Cost - \$1,040,945 (Cost based on 2012 Wastewater Integrated Plan for multiple years is \$33,500,000.)

The following project deviated from Attachment 1 of the Memorandum of Understanding between KDHE and the City of Lawrence:

UT1311 Kansas River WWTP Microturbines

Description – Installation of biogas microturbines as a green energy source to the Kansas River Wastewater Treatment Plant to utilize digester biogas and produce electricity and heat. The final report was received in January 2014 and analyzed compatibility, feasibility, and costs. The project was determined to not be feasible or cost effective at this time. Therefore, the project will not proceed.

The following additional projects are related to relocation of sanitary sewer lines due to roadway construction projects and an emergency sanitary sewer repair and were underway or completed in 2014:

UT1205 – South Lawrence Trafficway (SLT) Sanitary Sewer Relocations

Description – Sanitary sewer relocations in conjunction with the construction of the SLT. Over 4,000 feet of 24” sanitary sewer was relocated along the SLT. Over 3,600 feet of new watermain was installed along 31st Street from Haskell Avenue to O’Connell Road and from Ousdahl to Louisiana. This relocation project was negotiated with KDOT’s construction contractors.

Design Engineer – HNTB, Kansas City, MO
Construction – Emery Sapp and Sons, Inc., Kansas City, MO
Status – Completion in 2017 (based on KDOT timeframe for the SLT)
Project Cost - \$3,326,730

UT1210 – Bob Billings Parkway Utility Relocations

Description – Sanitary sewer relocations in conjunction with the construction of the KDOT Bob Billings Parkway Interchange. Over 3,300 feet of sanitary sewer were relocated crossing Bob Billings Parkway, underneath the KDOT Bob Billings Parkway Interchange, and crossing N 1500 Road. KDOT has agreed to pay for \$430,959 of the cost for the relocated sewer that was within City owned easement.

Design Engineer – Landplan Engineering, Lawrence, KS
Construction – Kings Construction, Oskaloosa, KS
Status – Completion in 2016 (based on KDOT timeline for Bob Billings Parkway Interchange)
Project Cost - \$562,229

UT1415 – Emergency Sanitary Sewer Repair (1000 Block of Connecticut St)

Description – In the alley between the 1000 block of New York and Connecticut Street, parallel 48” brick storm sewer adjacent to an 8” VCP sanitary sewer were constructed in approximately 1932 at similar flow line elevations and with less than 2 feet of horizontal separation. Staff discovered sanitary sewer service connections passing through the storm sewer to connect to the sanitary sewer. The service connections were broken in the storm sewer causing sanitary flow to discharge into the storm sewer, causing a cross connection between the two sewers. The old infrastructure was replaced with approximately 700 feet of 48” diameter RCP storm sewer, and 700 feet of 8” PVC sanitary sewer. The new sanitary sewer was installed at a lower elevation to allow the problem service connections to safely pass under the new storm sewer. Realigning the sewers required three new sanitary manholes, a new storm manhole, a cast-in-place storm structure, 17 private service lateral replacements totaling approximately 900 feet in length, and reinforcing the foundation of one residential property near the alley.

Design Engineer – BG Consultants, Lawrence, KS
Construction – Emery Sapp and Sons, Kansas City, MO
Status – Completed September 2014
Project Cost - \$591,181

During 2015, the Lawrence Utilities Department will continue efforts in the above projects that have not been completed. Based on the project list in the Memorandum of Understanding - Attachment 1, no other projects have been designated to begin during 2015.

NPDES Permit Status

In 2008, the NPDES permit for the Kansas River Wastewater Treatment Plant expired and was administratively extended by KDHE. Multiple discussions on ACTIFLO, the City's wet weather treatment process, and its performance followed with United States Environmental Protection Agency (EPA) and Kansas Department of Health and Environment (KDHE) representatives. During this time, the Utilities Department was also proceeding with plans for design of the Wakarusa River Wastewater Treatment Plant. As the permit discussions for the Kaw Wastewater Treatment Plant permit progressed, Utilities management determined that an update to the Wakarusa Wastewater Treatment Plant NPDES permit would also be beneficial. On May 9, 2014, representatives from the City, KDHE, and EPA met to observe an ACTIFLO demonstration, as well as a presentation of data to demonstrate 10 years of ACTIFLO performance and to discuss any concerns. Shortly after, EPA suggested alternative language for the KDHE draft permit. Upon City and KDHE agreement to the language, the permit was opened up for public comments. The Kansas River WWTP permit was then issued on August 1, 2014 followed by the Wakarusa River WWTP permit on September 1, 2014.

The permits contain Section F. Supplemental Information, which reference the Wastewater Facility Master Plan and the Memorandum of Understanding to acknowledge and agree upon an Integrated Municipal Stormwater and Wastewater Planning document for wastewater system improvements as well as this annual report. Using the integrated Plan principles, both permits were written to complement each other through a phased in approach for future expansions, wet weather flows, and nutrient removal requirements. The Kansas River Wastewater Treatment Plant permit requires efforts to reduce nitrogen and phosphorus through mechanical methods and report the results to KDHE by February 1, 2017. The Wakarusa Wastewater Treatment Plant permit outlines a phased approach for future plant expansion. The City was also required to complete a biota study on the Wakarusa River as the receiving stream for the Wakarusa Wastewater Treatment Plant effluent. The three initial reports for the biota study have been completed and submitted to KDHE. The final report for this study is due October 31, 2015.