



City of Lawrence  
UTILITIES

# 2015 Summary Report Capital Improvement Projects

The City Commission adopted the Water and Wastewater 2013-2017 Capital Improvement Program (CIP) on March 12, 2013. The CIP identifies water and wastewater projects needed for functional integrity, regulatory compliance and capacity. Key factors include ongoing structural assessments, changing community needs and future growth. The current CIP includes large-scale, multiyear capital projects such as a new wastewater treatment plant, a citywide inflow/infiltration removal program in the sewer collection system, and taste and odor process improvements at the water treatment plants, as well as a range of other projects addressing capacity, reliability and/or structural integrity.

The 2015 Summary Report provides a year-end CIP status update, organized broadly within the following categories:

1. Capacity and Large Capital Projects
2. Reliability Projects Other Than Watermain Replacement
3. Watermain Replacement Projects
4. Other Utilities Projects

## **1. Capacity and Large Capital Projects**

### **UT1304 Wakarusa Wastewater Treatment Plant and Conveyance Corridor**



- Project Description – Design and construction of the new Wakarusa River Wastewater Treatment Plant (Wakarusa WWTP), the new Pump Station 10, related force mains, and improvements to the existing Kansas River Wastewater Treatment Plant (Kansas River WWTP). This project provides a second wastewater treatment plant and enhanced operational flexibility, with pump station functionality to divert flows between treatment plants as needed to meet changing operational needs. The project provides for future community growth, meets the regulatory requirements for wet weather treatment and nutrient removal, and increases system reliability and resiliency in transporting and treating wastewater without negatively impacting the community or the environment.
- Project Details - In 2014, after eight years of planning, design and preliminary improvements, the project moved into construction phase. In addition to the contractors identified below, qualified department staff is performing various inspection services; designing the automation, integration and programming systems; installing pipeline; and acquiring various equipment both as cost-saving

measures and for enhanced in-house operational knowledge of new infrastructure functionality. Recent progress is illustrated in the following timeline.

*July 2014 – June 2015 - Wakarusa WWTP site fill and access road improvements.*



*September 2014 – December 2015 (substantial completion) - Force main construction connecting Pump Station 10 to the Wakarusa WWTP (approximately 15,600 feet each of 16-inch force main and 24-inch force main); fiber installation from the intersection of North **1250 and O'Connell Roads** to Pump Station 10 (approximately 12,800 feet).*



*June 2015 – Ongoing - Wakarusa WWTP site construction. The first significant task was excavation for the biological nutrient removal (BNR) basin, final clarifiers and UV disinfection building. Formwork, rebar installation and concrete placement are underway on the below-grade slabs and walls in these areas. Installation of sanitary sewer, process piping and electrical ductbank began Fall 2015 and is in progress sitewide.*







*Fall 2015 – Summer 2016* – Kansas River WWTP improvements, with laboratory expansion construction started in Fall 2015 and final clarifier equipment replacement occurring in 2016.



*Fall 2015 – Ongoing* – Dewatering and excavation at Pump Station 10 site located at the northwest corner of 31<sup>st</sup> and Louisiana Streets, with station construction and pipe installation ongoing throughout 2016 and 2017.

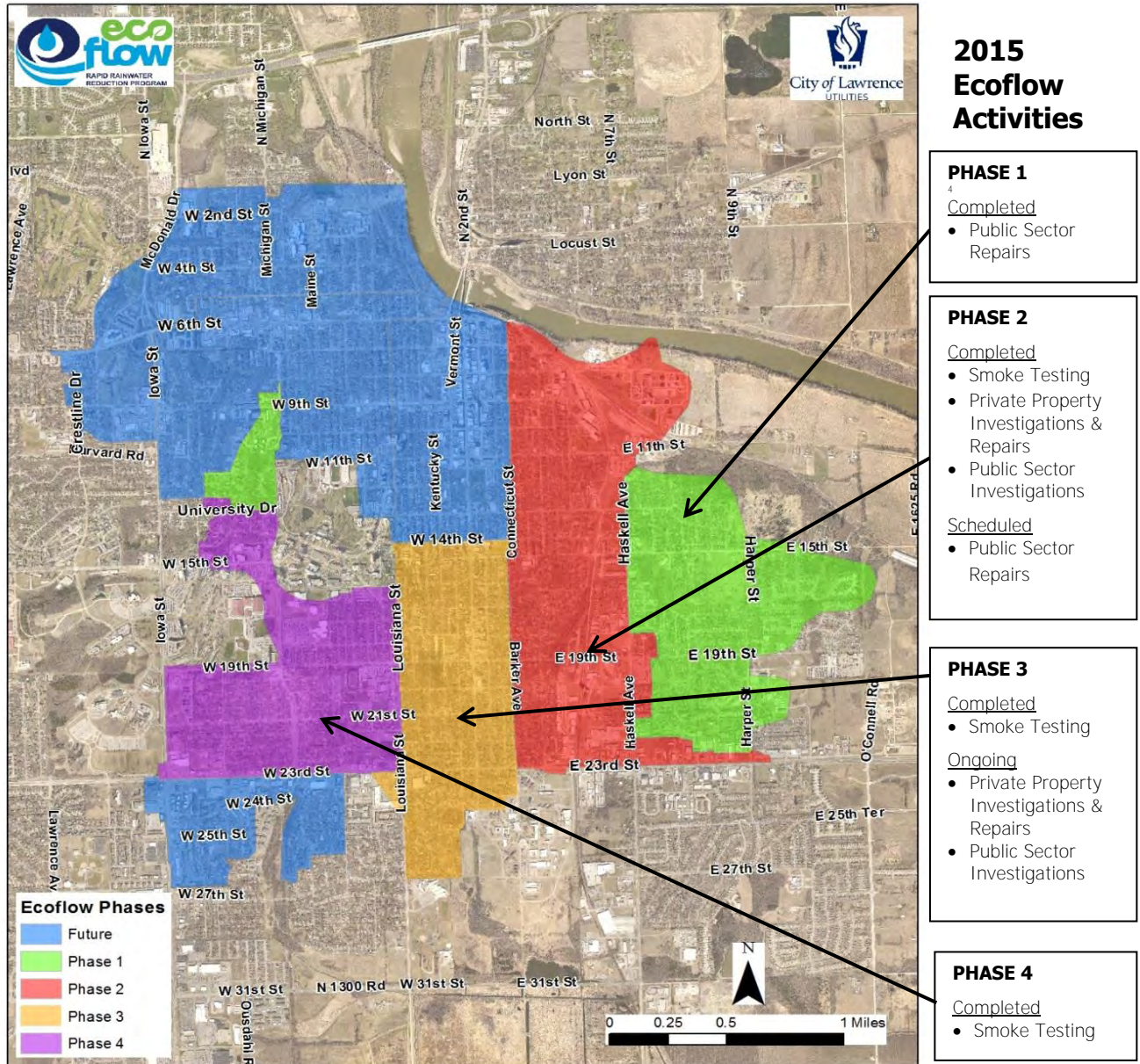


- Design Engineer – Black & Veatch/PEC/Bartlett & West
- Construction – Garney Construction (Wakarusa WWTP, Pump Station 10, Kansas River WWTP Improvements), Kings Construction (Site Fill) and BRB (Force Mains)
- Status – Completion 2018
- Project Budget - \$74.1 million (\$11.2 million Design and Construction Phase Services; \$13.6 million Site Fill and Force Main Contracts; \$45.2 million for Wakarusa WWTP, Pump Station 10, and Kansas River WWTP Improvements; \$600,000 Property



Acquisition; \$1.5 million Power/Gas Utility Infrastructure, and \$2 million City-Provided Work and Materials)

## UT1305 Ecoflow: Rapid Rainwater Reduction Program



- Project Description – Comprehensive, multiyear, multiphase, “find and fix” program to investigate and reduce rainwater entering the City’s sanitary sewer system from public and private sources. Ecoflow targets discrete geographic areas inside City limits, with four Phase areas identified to date and phasing of the future areas based on data from ongoing flow monitoring. The map below shows 2015 activities and progress. Participant feedback continues to be overwhelmingly positive.

- Project Details –
  - Public source 2015 activities included 346 manhole inspections, approximately 220,000 linear feet of sanitary sewer smoke testing, and approximately 17,000 linear feet of closed-circuit television (CCTV) sewer inspections. Public sector sewer repairs included 18 sanitary sewer point repairs, 80 manholes and approximately 19,000 linear feet of cured-in-place pipe (CIPP) rehabilitation. Over 24,000 linear feet of sanitary sewer are identified for 2016 CIPP rehabilitation.
  - Private source 2015 activities included over 1,800 private property evaluations. Of the 600-plus defects identified in 2015 for repair, approximately 100 minor defects were repaired by department staff and 380 defects were repaired by an Ecoflow plumbing contractor.
  - An ongoing flow-monitoring component identifies sanitary sewer system areas needing repair to minimize the impact of wet weather flows. Data following 2015 repairs of targeted high-volume areas show an approximate 10% decrease in peak wet weather flow rates from 2014 to 2015, notwithstanding the significantly higher rainfall totals in 2015. For comparison purposes, the overall change in ground conditions between 2014 and 2015 resulted in peak wet weather flow rates increasing approximately 20% on average for areas not yet targeted for repair.
- Design Engineer – TREKK Design Group
- Construction – 9 Pre-qualified Plumbing Contractors
- Status – Initial Program scope to complete 2020, with ongoing evaluation/correction of to-be-identified future areas.
- Project Budget - \$19,400,000 (over the life of the project)

### **UT1102KA Kaw Water Treatment Plant Raw Water Intake**

- Project Description - New raw water intake structure and piping, demolition of two abandoned intake structures, with dredging and modifications to the existing operational intake to raise it above the new millpond level and mitigate sediment intrusion.
- Project Details - Project provides redundant raw water intake facilities for the Kaw Water Treatment Plant, expands overall raw water intake capacity and minimizes sand and sediment intrusion.
- Design Engineer – Black & Veatch, Kansas City, MO
- Construction – Wolf Construction, Topeka, KS
- Status – Completed March 2015
- Project Cost - \$4,543,633





### **UT1307 Oread Water Storage Tanks & Booster Pump Station Replacement**

- Project Description - Replacement of two aging water storage tanks and the booster pump station in the 1200 block of Oread Avenue proximate to University of Kansas (KU) main campus. The 1931 tank located to the south stores 1,000,000 gallons; the 1954 tank located to the north end stores 1,300,000 gallons (Oread Tanks). The 1.8 million gallon per day (mgd) booster pump station transports water from the Oread Tanks to the West Hills service area.
- Project Details - Structurally, the Oread Tanks exhibit severe corrosion, loss of structural members, exterior holes, deteriorated foundations and failing interior/exterior coatings. They also fail to meet current safety and American Water Works Association standards. The pump station has several electrical equipment, valving, maintenance and operational issues. Following preliminary design activities and extended staff consideration of alternate siting/storage strategies in consultation with KU, the City Commission approved an engineering services agreement with HDR, Inc. on March 27, 2015 for design services to replace all three structures at the existing site.
- Design Engineer – HDR Inc., Lee's Summit, MO
- Construction – To Be Determined
- Status – Project Bidding August 2016; Project Completion May 2018
- Project Budget - \$4,900,000



### **UT1209 –Water Process Improvements – Phase I (*previously, Taste & Odor Improvements – Phase 1*)**

- Project Description – Phase I improvements to the Clinton Reservoir Water Treatment Plant are based on recommendations in the 2013 Taste & Odor Study and other improvements requested by the City. These improvements will increase effectiveness of existing processes, streamline operation and maintenance activities, reduce chemical costs, and improve taste and odor removal. These improvements will also provide the groundwork for additional taste and odor removal processes if needed in the future.
- Project Details –Improvements include the addition of a new rapid mix system, carbon dioxide system, ferric system and liquid lime system; tube settlers in the primary basins; coating of the South Train basins equipment, operator training, and post-construction process testing and optimization.
- Design Engineer – Burns & McDonnell, Kansas City, MO
- Construction – Crossland Heavy Contractors
- Status – Completion January 2017
- Project Budget – \$5,900,000

### **Water Process Improvements – Phase II**

- Project Description – Phase II improvements to the Kaw Water Treatment Plant are based on recommendations in the 2013 Taste & Odor Study and other improvements requested by the City. These improvements will increase effectiveness of existing processes, streamline operation and maintenance activities, reduce chemical costs, and improve taste and odor removal. These improvements will also provide the groundwork for additional taste and odor removal processes if needed in the future.
- Project Details –Improvements include a new lime system to provide higher quality lime and reduce operational cost, lead paint removal and recoating of the lime feed room floor, recoating of the chemical feed silos, new dust collectors and bin vibrators, operator training, and post construction process testing and optimization. Based on recent findings from the UT1503 Kaw Water Treatment Plant Structural Analysis project, work may also include needed improvements to the carbon contact basin.
- Design Engineer – Burns & McDonnell
- Construction – To Be Determined
- Status – Delayed until late 2018/early 2019
- Project Budget - \$3,120,000

### **UT1210 – Bob Billings Parkway Interchange Utility Relocations**

- Project Description – Sanitary sewer and waterline relocations for KDOT Bob Billings Parkway Interchange construction.
- Project Details - Over 3,300 feet of sanitary sewer was relocated within the Interchange site. Waterline relocation included approximately 425 feet of new waterline to serve the Langston Heights Development.
- Design Engineer – Landplan Engineering
- Construction – King’s Construction
- Status – Utilities construction completed November 2015
- Project Cost - \$1,061,636 (including \$430,960 paid by KDOT to the City or King’s Construction directly)



### **UT1205 – South Lawrence Trafficway Sanitary Sewer Relocations and Watermain Construction**

- Project Description – Sanitary sewer and waterline relocations in conjunction with the construction of the South Lawrence Trafficway. Project was bid by KDOT and constructed by the SLT contractors for optimal coordination and efficiency.



- Project Details –Over 4,000 feet of 24-inch sanitary sewer was relocated along the South Lawrence Trafficway. Over 3,600 feet of new watermain was installed along 31<sup>st</sup> Street from Haskell Avenue to O’Connell Road and from Ousdahl Road to Louisiana Street.
- Design Engineer – HNTB
- Construction – Emery Sapp and Sons, Inc.
- Status – Utilities construction completed June 2015
- Project Cost - \$3,139,120



## **2. Reliability Projects**

### **UT1422 Kansas River WWTP Variable Frequency Drive Replacements**

- Project Description – Replacement of variable frequency drives (VFD) installed on critical treatment process equipment helps ensure system reliability and functionality.
- Project Detail – Replacement of two VFDs, one for an inoperable VFD installed on one of the wastewater influent pumps and one for an aging VFD installed on a blower.
- Design Engineer – City Staff
- Construction – City Staff
- Status – Completion 2015
- Project Budget - \$73,749

### **UT1424 CIPP Sewer Rehabilitation**

- Project Description – Sewers are identified for rehabilitation through various assessment programs, including Ecoflow and tv inspection by city crews, based on such factors as existing defects, pipe age, pipe material, depth, and ground conditions. The CIPP rehabilitation method lines the inside of old, vitrified clay pipe sanitary sewer mains – a more cost-effective rehabilitation method than open-trench excavation and replacement. For comparison purposes, project cost for an 8-inch sewer main rehabilitation has

averaged \$22.50 per foot compared to recent open-trench sewer replacement projects averaging over \$300 per foot for 8-inch sewer main.

- Project Details – CIPP rehabilitation of approximately 40,175 linear feet of sanitary sewer and rehabilitation of 80 manholes in identified locations citywide.
- Design Engineer – City Staff
- Construction – SAK Construction, LLC
- Status – Completed 2015
- Project Cost - \$1,095,913



#### **UT1508 CIPP Sewer Rehabilitation**

- Project Description – Sewers are identified for rehabilitation through various assessment programs, including Ecoflow and tv inspection by city crews, based on such factors as existing defects, pipe age, pipe material, depth, and ground conditions. The CIPP rehabilitation method lines the inside of old, vitrified clay pipe sanitary sewer mains – a more cost-effective rehabilitation method than open-trench excavation and replacement.
- Project Details – CIPP rehabilitation of approximately 43,000 linear feet of sanitary sewer in identified locations citywide.
- Design Engineer – City Staff
- Construction – SAK Construction, LLC
- Status –2015 Project in process; Estimated Completion 2016
- Project Cost - \$1,500,000

#### **UT1503 Kaw Water Treatment Plant Structural Maintenance Analysis**

- Project Description – Structural condition assessment of the Kaw Water Treatment Plant, including overall condition and potential liabilities, through visual review and non-destructive materials testing. Design of the repairs identified in the report are installation of a new slab in the carbon contact basin, installing topping slabs on the primary and secondary basins, crack injection on the basin walls, coating structural concrete, replacing guardrail in areas, and replacing the weirs on the primary basins.
- Project Details – Assessed areas include carbon contact basin, presedimentation basin, primary treatment basins, secondary treatment basins, weir troughs and the surrounding walkways. Identified needed improvements to the carbon contact basin may be included in the pending Kaw Water Treatment Plant Process Improvements project discussed above.
- Design Engineer – Walter P Moore

- Construction – To Be Determined
- Status – Assessment report complete Spring 2016
- Project Budget - \$154,500 (to date)



#### **UT1512 Water/Wastewater Treatment Plant VFD Replacements**

- Project Description – Replacement of VFDs installed on critical treatment process equipment helps ensure system reliability and functionality.
- Project Detail – Replacement of three aging VFDs, one for a Kansas River WWTP blower, one for a Kansas River WWTP raw sewage pump and one for a Kaw Water Treatment Plant low service pump.
- Design Engineer – City Staff
- Construction – City Staff
- Status – In Process; Project Completion 2016
- Project Budget - \$109,020

#### **UT1603 Pump Station 5 Electrical and Mechanical Improvements**

- Project Description – Evaluation and improvements to major electrical equipment as needed to ensure critical infrastructure is fully functional to meet operational needs.
- Project Detail – Replacement of obsolete and damaged electrical switchgear and motor control centers; installation of variable frequency drives for pump operation; installation of a backup generator connection and transfer switch; and emergency bypass pumping connection.
- Design Engineer – Black & Veatch
- Construction – To Be Determined
- Status – In design, with construction bidding Mid-2016
- Project Budget - \$700,000

#### **UT1310 19<sup>th</sup> & Kasold Booster Pump Station Improvements**

- Project Description – Evaluation of and improvements to booster pumping facilities to meet current conditions and future demands.
- Project Details – Replacement of the booster pumping facility at the water tower, located at 1800 Kasold Drive.
- Design Engineer – HDR Inc., Lee's Summit, MO
- Contractor – To Be Determined
- Status – Bid Construction April 2016; Project Completion January 2017
- Project Budget - \$1,035,000



### **UT1418 Kaw Water Treatment Plant Motor Control Center Replacement**

- Project Description – Electrical Motor Control Centers (MCCs) receive incoming electrical feed and distribute 480 Volt AC power to the major treatment plant components, including pumping, control valves, treatment basin equipment, chemical feeds, and plant control systems. Existing MCCs were installed in 1988, with replacement parts no longer readily available.
- Project Details – Replace aging electrical MCCs at the Kaw Water Treatment Plant.
- Design Engineer – Black & Veatch, Kansas City, MO
- Contractor – P1 Group
- Status – Completion May 2016
- Project Budget - \$650,000



### **UT1417 Clinton Water Treatment Plant Raw Water Pump Station Electrical Improvements**

- Project Description – Originally constructed by the US Corps of Engineers in conjunction with Clinton Dam, the existing building does not protect the electrical and control equipment from the elements in a climate-controlled environment. Equipment is located in the main pump room and ventilated by fans using outside air, creating ongoing operational and maintenance issues due to fluctuating temperatures and the dirty environment. Construction of climate-controlled and secure environment for sensitive electrical and control equipment in the Clinton Water Treatment Plant Raw Water Pump Station, with improvements to existing pumps and variable frequency drives.
- Project Details – The existing building will be expanded to include a climate-controlled addition isolated from the existing unconditioned space to provide an optimal operational environment for this sensitive equipment. Existing pump #2 will be upgraded from 5-MGD to 10-MGD pump/motor/variable frequency drive (VFD), thereby bringing the Clinton Raw Water Pump Station to its design, firm capacity of 25 MGD. Other improvements include VFD replacements on pumps #1 & #3; bypass addition on the existing VFD for pump #4, with reinstallation in the new space; replacement of existing incoming electrical service transformers to meet increased pumping capacity load requirements; replacement of existing 36-inch-diameter steel pump discharge piping; and fencing and re-roofing of the existing building.
- Design Engineer – Black & Veatch, Kansas City, MO
- General Contractor – Crossland Heavy Contractors
- Status – Completion November 2016

- Project Budget - \$2,200,000



### **UT1513 – Sanitary Sewer Replacement (Naismith Drive & Crescent Road)**

- Project Description –Sewers in the project area have required significant maintenance efforts recently. Based on efforts to perform video inspection of the existing sewer running through the yard of 1501 Crescent Road, these sanitary sewer lines are in a deteriorated state and require replacement. The existing sewer lines running west from the intersection of Naismith Drive and Crescent Road are 6-inch diameter vitrified clay pipe in service for over 60 years. They do not meet the current minimum 8-inch diameter criteria and are not suitable for rehabilitation using a CIPP liner system.
- Project Details – Rehabilitation or replacement of up to 1,700 linear feet of sanitary sewer mains generally located south of Crescent Road and north of the University of Kansas’s Learned Hall.
- Design Engineer – BG Consultants
- Contractor – To be determined
- Status – Under Design
- Project Construction Cost - \$300,000 (estimated)

### **3. Watermain Replacement**

Staff continuously evaluates the water distribution system based on main breaks, pipe material and age, capacity and fire protection needs, the criticality of the watermain within the system, the number of services affected, coordination with planned street improvements and the needs of other stakeholders such as University of Kansas (KU) and USD #497). Ongoing evaluation and replacement increases the reliability of the **City’s water transmission** system. The following watermain projects were completed or were under construction or design during 2015.

#### **UT1312 - Bob Billings Parkway (George Williams Way to Bobwhite Drive)**

- Project Description - Replacement of approximately 2,060 feet of 12-inch ductile iron watermain from 1997 with 12-inch PVC.
- Design Engineer – PEC
- Contractor – Westland Construction
- Status – Complete April 2015
- Project Cost - \$545,891

**UT1314 - Lawrence Avenue (27<sup>th</sup> Street to 31<sup>st</sup> Street)**

- Project Description - Replacement of approximately 2,960 feet of 12-inch ductile iron watermain from 1978 with 12-inch Fusible PVC.
- Design Engineer – PEC
- Contractor – Schuetz Construction
- Status – Complete April 2015
- Project Cost - \$697,612



**UT1315 - Arkansas Street (2<sup>nd</sup> Street to 4<sup>th</sup> Street)**

- Project Description - Replacement of approximately 1,500 feet of 6-inch cast iron watermain from 1958 with 8-inch PVC
- Design Engineer – PEC
- Contractor – Banks Construction
- Status – Complete January 2015
- Project Cost - \$312,646

**UT1409 – Avalon Road (9<sup>th</sup> Street to Cambridge Road)**

- Description - Replacement of approximately 1,600 feet of 4-inch cast iron watermain from 1955 with 8-inch PVC
- Design Engineer – PEC
- Contractor – Westland Construction
- Status – Complete October 2015
- Project Cost - \$407,461

**UT1413 - Homestead Avenue (Lawrence Avenue to Lawrence Avenue)**

- Project Description - Replacement of approximately 1,500 feet of 6-inch cast iron watermain from 1963 with 8-inch PVC
- Design Engineer – PEC
- Contractor – Schuetz Construction
- Status – Complete December 2015
- Project Cost - \$423,029

**UT1419 - 8<sup>th</sup> Street (Indiana Street to Kentucky Street)**

- Project Description - Replacement of approximately 1,500 feet of 14-inch cast iron watermain from 1886 with 12-inch PVC.
- Design Engineer – PEC



- Contractor – Banks Construction
- Status – Complete June 2015
- Project Cost - \$477,088



#### **UT1426 - Cedarwood Avenue (25<sup>th</sup> Street to 26<sup>th</sup> Street)**

- Project Description - Replacement of approximately 1,300 feet of 6-inch cast iron watermain from 1960 with 8-inch PVC.
- Design Engineer – PEC
- Contractor – Banks Construction
- Status – Complete August 2015
- Project Cost - \$256,296

#### **UT1427 – Michigan Street to Arkansas Street (2<sup>nd</sup> Street to 9<sup>th</sup> Street)**

- Project Description - Replacement of approximately 5,500 feet of 6-inch to -8-inch cast iron watermain from 1959/1922 with 8-inch" PVC in the areas of Michigan Street (2<sup>nd</sup> – 9<sup>th</sup> Streets), Arkansas Street (7<sup>th</sup> – 9<sup>th</sup> Streets) and Florida Street (3<sup>rd</sup> – 4<sup>th</sup> Streets).
- Design Engineer – PEC
- Contractor – Banks Construction
- Status – Under Construction: Anticipated Completion May 2016
- Project Cost - \$1,343,300 (estimated)



#### **UT1428 - 10<sup>th</sup> Street and New York Street Watermain Relocation**

- Project Description - Relocation of approximately 90 feet of 20-inch ductile iron watermain from 1975 to accommodate a new sanitary sewer main
- Design Engineer – PEC
- Contractor – Schuetz Construction
- Status – Complete August 2015

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- Project Cost - \$176,578



#### **UT1502 – Sunnyside Drive**

- Project Description – Replacement of approximately 850 feet of 8-inch cast iron watermain from 1930 with 12-inch PVC, with cost-sharing participation of stakeholder KU in consideration of KU's need for a redundant water line, reduced operational and maintenance costs, and improvements in service redundancy.
- Design Engineer – PEC
- Contractor – To Be Determined
- Status – Under Design; Anticipated Bid April 2016
- Project Cost - \$375,000 (estimated, with KU to pay 50% of total actual construction costs not to exceed \$175,000)

#### **UT1504 – 23<sup>rd</sup> Street (Ousdahl Road to Alabama Street)**

- Project Description – Replacement of approximately 2,600 feet of 8-inch cast iron watermain from 1956 with 8-inch PVC
- Design Engineer – PEC
- Contractor – To Be Determined
- Status – Under Design
- Project Cost - \$616,442(estimated)

#### **UT1511 – Iowa Street (25<sup>th</sup> Street to 27th Street)**

- Project Description - Replacement of approximately 2,000 feet of 8-inch cast iron watermain from 1967 with 12-inch PVC
- Design Engineer – PEC
- Contractor – Westland Construction

- Status – Under Construction; Anticipated Completion June 2016
- Project Cost - \$566,600 (estimated)

#### **UT1514 – Harper Street (15<sup>th</sup> Street to East Glenn Drive)**

- Project Description - Replacement of approximately 1,700 feet of 8-inch cast iron watermain from 1958 with 8-inch PVC
- Design Engineer – PEC
- Contractor – To Be Determined
- Status – Under Design; Anticipated Bid June 2016
- Project Cost - \$477,192 (estimated)

#### **UT1515 – Harvard Road (Crestline Road to Wellington Road)**

- Project Description - Replacement of approximately 2,040 feet of 8-inch cast iron watermain from 1962 with 8-inch PVC
- Design Engineer – PEC
- Contractor – To Be Determined
- Status – Under Design; Anticipated Bid March 2016; Anticipated Completion August 2016
- Project Cost - \$436,874 (estimated)

#### **UT1517 – El Dorado Drive (Bob Billings Parkway West to Bob Billings Parkway East)**

- Project Description - Replacement of approximately 2,545 feet of 8-inch ductile iron watermain from 1975 with 12-inch PVC
- Design Engineer – PEC
- Contractor – To Be Determined
- Status – Under Design; Anticipated Bid May 2016
- Project Cost - \$769,659 (estimated)

#### **In-House Watermain Replacement**

- Project Description – Identified watermain replacement projects are completed by department staff based on annual watermain condition assessments in consultation with department engineers and others. Project scope is typically watermain 8 inches and smaller that are located in low traffic, neighborhoods.
- Project Detail – The following In-House Projects were completed in 2015.

<b>Location</b>	<b>Status</b>	<b>Length (ft)</b>	<b>Project Cost</b>
Edgelea Road	Complete	795	\$61,803
E. 9th Street (New Hampshire to Rhode Island Streets)	Complete	230	\$32,324
Solid Waste Division Kresge Road	Complete	1,282	\$61,708
East Glenn Drive	Complete	1,312	\$84,467
W. 22nd Street (Naismith Drive to Ousdahl Road)	Complete	1,512	\$82,994
Forrest Avenue (Learnard to Barker Avenues)	Complete	589	\$51,804
Hilltop Drive (9th Street to Oxford Road)	Complete	1,881	\$202,664
Cambridge Road (Sunset to High Drives)	Complete	611	\$56,824
E. 15th Street (Learnard Avenue to Maryland Street)	Complete	1,049	\$74,157
Maine Street (W. 19th to W. 20th Streets)	Complete	687	\$45,117
N. 8th Street (Lyon to Lauren Streets)	Complete	310	\$9,142



Location	Status	Length (ft)	Project Cost
Burcham Park Creek to North Well	Complete	540	\$11,246
Prospect Avenue (E. 15th to Oak Hill Avenue)	Complete	646	\$60,869
<b>TOTALS</b>		<b>11,444</b>	<b>\$835,126</b>



#### 4. Other Utilities Projects

##### **UT1416 - Kaw & Clinton Water Treatment Plant Roof Replacement**

- Project Description – Roof replacement for improved structure integrity.
- Project Details - Replacement of the existing built-up gravel ballasted roof over the office and filter area at the Kaw Water Treatment Plant and the replacement of the modified bitumen roofing system at the Clinton Water Treatment Plant. The new roofing will utilize the same PVC roofing system previously installed over the maintenance shop of the Kaw Water Treatment Plant.
- Design Engineer – Walter P. Moore
- Contractor – Diamond Everley Roofing
- Status – Completed December 2015
- Project Cost - \$328,389

##### **UT1506 –Pump Station 5 & Kansas River WWTP Primary Sludge Pump Station Coatings**

- Project Description – Protective coatings applied to mechanical equipment and other structures prevent corrosion, maintain functionality, and extend useful life.
- Project Details – Protective coating applications to the interiors of and equipment in Pump Station 5 & Kansas River WWTP Primary Sludge Pump Station including walls, floors, stairs, pipes, pumps, and other appurtenances, with appropriate preparatory work.
- Design Engineer – City Staff
- Contractor – Performance Contracting Inc.
- Status – Completed December 2015

- Project Construction Cost - \$86,176



#### **UT1518 19<sup>th</sup> Street Utilities Replacement & Relocation (Iowa to Alabama Streets)**

- Project Description – Replacement of aging, smaller-sized waterline with PVC pipe from Iowa Street to Alabama Street and replacement of existing sanitary sewer from Naismith Drive to Stewart Avenue to accommodate the reconstruction of 19<sup>th</sup> Street.
- Project Details – Existing waterline is primarily 6-inch and 8-inch cast iron or transite pipe from the late 1940's to mid-1950. Replacement pipe will be 8-inch and 12-inch PVC. Existing 10-inch and 12-inch clay sanitary sewer from Naismith Drive to Stewart Avenue will be relocated to accommodate project improvements. An agreement with KU is pending for cost share of a portion of the water main adjacent to the KU Central District Project.
- Design Engineer – Professional Engineering Consultants
- Contractor – To Be Determined
- Status – Under Design; Anticipated Construction Completion August 2017
- Project Budget - \$1,500,000

#### **UT1421 Kaw Water Treatment Plant Field Operations Expansion**

- Project Description – Expansion and consolidation of existing Kaw Water Treatment Plant Field Operations buildings to provide additional space for field operations' needs, with options to accommodate department administration and engineering staff.
- Project Details – Site plan evaluation, design and cost estimates are completed. Identified improvements include climate-controlled vehicle and equipment storage for improved protection and emergency responsiveness, particularly in extreme weather conditions.
- Design Engineer – BG Consultants
- Construction - Pending available funding
- Status – Evaluation completed Fall 2015
- Project Cost - \$5,000,000 (estimated)