Recommended 2018 - 2032 WATER FACILITIES CAPITAL IMPROVEMENT PROGRAM
CITY OF LAWRENCE, KANSAS

	Item	Reason for Improvement	Rate Plan 2015 Cost Opinion	2018 (1)	2019 (1)	2020 (1)	2021 (1)	2022 (1)	2023 (1)	2024 (1)	2025 (1)	2026 (1)	2027 (1)	2028 (1)	2029 (1)	2030 (1)	2031 (1)	2032 (1)
1	**Storage & Pumps**																	
a	Oread Storage & BPS	3	$ 3,604,400															
b	Stratford Tower Replacement	3	$ 3,120,000		370,000	3,430,000												
c	Automated Meter Reading for Distribution System (AMI)	3	$ 9,500,000	6,420,000	4,450,000													
d	Kanwaka Pressure Zone (2)	1	$ 6,940,000							9,880,000								
	Subtotal		$ 28,470,000															
2	**Transmission**																	
a	31st St. - extend 12" to O'Connell	1	$ 659,000															
b	PH-3 Kaw WTP Transmission Main	3	$ 4,790,000												8,300,000			
c	Concrete Main Assessment / Vermont Bridge Main	3	$ 350,000	400,000														
	Subtotal		$ 15,350,000															
3	**Distribution 8" & Larger**																	
a	Pipeline Replacement Program - 2015 to 2032	3	$ 32,650,000	2,450,000	2,550,000	2,650,000	2,750,000	2,860,000	2,980,000	3,100,000	3,220,000	3,350,000	3,480,000	3,620,000	3,770,000	3,920,000	4,080,000	4,240,000
b	Water Main Relocation Program for Road Projects - $550,000	1	$ 8,250,000	620,000	640,000	670,000	700,000	720,000	750,000	780,000	810,000	850,000	880,000	920,000	950,000	990,000	1,030,000	1,070,000
	Subtotal		$ 40,900,000															
4	**Distribution 8" & Smaller (In-House)**																	
a	Small Water Main Replacement Program - In-House Design / Construct	3	$ 15,000,000	1,120,000	1,170,000	1,220,000	1,270,000	1,320,000	1,370,000	1,420,000	1,480,000	1,540,000	1,600,000	1,670,000	1,730,000	1,800,000	1,870,000	1,950,000
5	**Kaw WTP**																	
a	Structural	3	$ 596,000															
b	Agal Toxin, Taste & Odor Phase 2, and Viral Reduction Treatment - Advanced Oxidation	2	$ 6,760,000										10,830,000					
c	Field Operations Building	3	$ 2,955,000		590,000	2,990,000												
d	Infrastructure Rehab	3	$ 5,000,000		1,170,000			5,270,000										
e	Annual Plant Improvement Program - $350,000	3	$ 5,250,000	400,000	410,000	430,000	450,000	470,000	480,000	500,000	520,000	540,000	570,000	590,000	610,000	640,000	660,000	690,000
	Subtotal		$ 26,265,000															
6	**Clinton WTP**																	
a	Intake	1, 3	$ 1,660,000															
b	Agal Toxin, Taste & Odor Phase 2, and Viral Reduction Treatment - Advanced Oxidation	2	$ 5,720,000								8,470,000							
c	Annual Plant Improvement Program - $350,000	3	$ 5,250,000	400,000	410,000	430,000	450,000	470,000	480,000	500,000	520,000	540,000	570,000	590,000	610,000	640,000	660,000	690,000
	Subtotal		$ 13,970,000															
7	**Raw Water Supply**																	
a	Bowersock Dam Improvements (3)	3	$ 425,000															
b	42 Pipeline to Clinton WTP	1, 2, 3	$ 17,100,000															33,310,000
c	42 Pipeline to Clinton WTP	1, 2, 3	$ 22,680,000															44,180,000
d	36" Pipeline to Kaw WTP	1, 2, 3	$ 7,300,000															14,220,000
	Subtotal		$ 48,080,000															
	2020 and 2030 Total - In-House Design / Construct		**$ 188,035,000**	**12,810,000**	**12,590,000**	**15,790,000**	**11,390,000**	**11,110,000**	**7,430,000**	**17,610,000**	**16,510,000**	**9,130,000**	**21,180,000**	**21,150,000**	**16,340,000**	**7,990,000**	**12,050,000**	**100,350,000**

2018 - 2022 Total	**$ 63,690,000**
2023 - 2027 Total	**$ 71,860,000**
2028 - 2032 Total	**$ 157,880,000**

(1) - 4% Inflation Used to Calculate 2018 to 2032 Costs

(2) - Cost allocation for Future Growth Areas has not been determined.

Reason for Improvement

1- Growth

2 - Regulatory

3 - Reliability

Recommended 2018 - 2032 WASTEWATER FACILITIES CAPITAL IMPROVEMENT PROGRAM
CITY OF LAWRENCE, KANSAS

Item	Reason for Improvement		Rate Plan 2015 Cost Opinion	2018 (1)	2019 (1)	2020 (1)	2021 (1)	2022 (1)	2023 (1)	2024 (1)	2025 (1)	2026 (1)	2027 (1)	2028 (1)	2029 (1)	2030 (1)	2031 (1)	2032 (1)
1 Collection System																		
a PS 49 To Wakarusa WWTP	1, 2		$ 1,920,000								$ 2,850,000							
b 21" gravity sewer to eliminate PS 8	3		$ 3,940,000	$ 450,000	$ 4,160,000													
c KR-5C 12" relief sewer	3		$ 900,000									$ 1,390,000						
d KR-6B 21" relief sewer	3		$ 790,000										$ 1,270,000					
e PS 16 Upstream Interceptor Rehabilitation	1, 3		$ 1,040,000				$ 1,320,000											
f Field Operations Building	3		$ 2,955,000		$ 590,000	$ 2,990,000												
g PS 48 expansion to 6.4 MGD (2)	1		$ 340,000														$ 640,000	
h Lower Yankee Tank Capacity - YTC-1-1 (2)	1, 3		$ 6,570,000					$ 8,650,000										
i PS 9 expansion to 15 MG (2)	1, 3		$ 2,590,000				$ 3,280,000											
j PS 9 Forcemain to PS 10	1, 3		$ 5,000,000				$ 6,330,000											
k PS 25 expansion to 4 MG, Add 3rd Pump (2)	1		$ 170,000								$ 260,000							
l PS 25 expansion to 6 MG, parallel 12" force main (2)	1		$ 1,620,000													$ 2,920,000		
Subtotal			$ 27,835,000															
2 Expand Wakarusa WWTP to 5.0 MGD																		
a Wakarusa Expansion to 5 MGD	1, 2		$ 14,000,000													$ 1,810,000	$ 7,500,000	$ 17,540,000
Subtotal			$ 14,000,000															
3 Kansas River WWTP - Maintaining 12.5 MGD																		
a Nutrient Removal/Deammonification Pilot	2		$ 500,000			$ 610,000												
b Nutrient Removal/Deammonification Modification	2		$ 26,500,000					$ 6,580,000	$ 14,720,000	$ 15,310,000								
c Side Stream Treatment - Ammonia from Belt Press	2		$ 6,000,000					$ 1,320,000	$ 3,430,000	$ 3,560,000								
Subtotal			$ 33,000,000															
4 Collection System Rehabilitation Plan																		
a Rapid I/I Reduction Program	2, 3	15	$ 37,650,000	$ 2,830,000	$ 2,940,000	$ 3,060,000	$ 3,180,000	$ 3,310,000	$ 3,440,000	$ 3,580,000	$ 3,720,000	$ 3,870,000	$ 4,020,000	$ 4,180,000	$ 4,350,000	$ 4,530,000	$ 4,710,000	$ 4,890,000
b Clay Pipe and Manhole Rehabilitation Program	2, 3	15	$ 15,000,000	$ 1,130,000	$ 1,170,000	$ 1,220,000	$ 1,270,000	$ 1,320,000	$ 1,370,000	$ 1,430,000	$ 1,490,000	$ 1,540,000	$ 1,610,000	$ 1,670,000	$ 1,740,000	$ 1,810,000	$ 1,880,000	$ 1,950,000
Subtotal			$ 52,650,000															
5 Annual Program Improvements																		
a Wastewater Treatment Plant: 2018 - 2020	3	3	$ 1,020,000	$ 390,000	$ 400,000	$ 420,000												
b Wastewater Treatment Plant - 2 Plants: 2021 - 2032	3	12	$ 8,160,000				$ 870,000	$ 900,000	$ 940,000	$ 970,000	$ 1,010,000	$ 1,050,000	$ 1,090,000	$ 1,140,000	$ 1,180,000	$ 1,230,000	$ 1,280,000	$ 1,330,000
c Pump Stations: 2018 - 2032	3	15	$ 1,800,000	$ 140,000	$ 150,000	$ 150,000	$ 160,000	$ 160,000	$ 170,000	$ 180,000	$ 180,000	$ 190,000	$ 200,000	$ 200,000	$ 210,000	$ 220,000	$ 230,000	$ 240,000
d Failed Infrastructure Contingency		15	$ 5,100,000	$ 390,000	$ 400,000	$ 420,000	$ 440,000	$ 450,000	$ 470,000	$ 490,000	$ 510,000	$ 530,000	$ 550,000	$ 570,000	$ 590,000	$ 620,000	$ 640,000	$ 670,000
e Sewer Main Relocations for Road Projects: 2018 - 2032	1	15	$ 5,100,000	$ 390,000	$ 400,000	$ 420,000	$ 440,000	$ 450,000	$ 470,000	$ 490,000	$ 510,000	$ 530,000	$ 550,000	$ 570,000	$ 590,000	$ 620,000	$ 640,000	$ 670,000
Subtotal			$ 21,180,000															
Total			**$ 148,665,000**	$ 5,720,000	$ 10,210,000	$ 9,290,000	$ 17,290,000	$ 23,140,000	$ 25,010,000	$ 26,010,000	$ 10,530,000	$ 9,100,000	$ 9,290,000	$ 8,330,000	$ 8,660,000	$ 13,760,000	$ 17,520,000	$ 27,290,000

2018 - 2022 Total	**$ 65,650,000**
2023 - 2027 Total	**$ 79,940,000**
2028 - 2032 Total	**$ 75,560,000**

(1) - 4% Inflation Used to Calculate 2016 to 2032 Costs

(2) - Cost allocation for Future Growth Areas has not been determined.

Reason for Improvement

1- Growth

2 - Regulatory

3 - Reliability