

DRAFT CITY OF KELLER UTILITY MASTER PLAN UPDATES AND SYSTEM ASSESSMENTS PROJECT PLAN (05/11/2021)

Project Plan is subject to revision

PHASE	TASK	DELIVERABLES	BUDGET NUMBER
PHASE I (STARTED IN 2018)	1) Water Master Plan Update Phase I: Capacity Analysis (\$100,000) a) Develop spatial allocation of projected Buildout population from ongoing Future Land Use Plan b) Geocode and allocate recent billing meter data c) Review historical water usage data and develop design criteria for water demand projections d) Calculate and distribute water demand projections for existing system and Buildout conditions e) Evaluate pressure zone delineation f) Develop pumping and storage recommendations for capacity and redundancy g) Evaluation of system improvement capacity alternatives h) Utilize the model to evaluate system reliability and resiliency i) Develop prioritized, phased CIP with cost estimates and system-wide mapping	<ul style="list-style-type: none"> • Water System CIP with cost estimates and mapping • Master Plan Update Report 	\$400,000
	2) Flow Monitoring and I/I Prioritization (\$120,000) a) Conduct flow monitoring for 60 days (October-November 2018) at 15 locations b) Flow data analysis and evaluation to identify high I/I by sewer basin and identify basins for additional flow monitoring and/or field work	<ul style="list-style-type: none"> • I/I ranking of sub-basins • Flow Monitoring Summary Report 	
	3) Wastewater Master Plan Update Phase I: Capacity Analysis and Pipeline Risk Based Condition Assessment (\$180,000) a) Construct a wastewater model from GIS and as-built drawings b) Geocode and allocate recent billing meter data to represent existing wastewater flows c) Conduct wastewater model calibration d) Develop spatial allocation of projected Buildout population from ongoing Future Land Use Plan e) Review historical wastewater flow data and develop design criteria for wastewater flow projections f) Calculate and distribute wastewater flow projections for existing system and Buildout conditions	<ul style="list-style-type: none"> • Updated calibrated wastewater model • Decision support tool for pipeline rehabilitation • Wastewater System CIP with cost estimates and mapping • Master Plan Update Report 	



PHASE	TASK	DELIVERABLES	BUDGET NUMBER
	<ul style="list-style-type: none"> g) Evaluation of system improvement capacity alternatives h) Document current age and material of pipelines i) Summarize historical pipeline maintenance and sanitary sewer overflows j) Develop and apply condition and criticality scoring parameters for pipelines k) Develop risk-based assessment matrix for pipelines l) Define a decision tree in InfoMaster software that incorporates the results of the risk-based assessment to develop a preferred rehabilitation solution (pipe bursting, open cut, CIPP, parallel, etc.) m) Develop prioritized, phased CIP with cost estimates and system-wide mapping 		



PHASE	TASK	DELIVERABLES	BUDGET NUMBER
PHASE II (STARTED IN FY2019)	<p>1) Water Master Plan Update Phase II: Pipeline Risk Based Condition Assessment and Data Assessment (\$100,000)</p> <ul style="list-style-type: none"> a) Conduct a water system data assessment including documentation of existing available information on water distribution system assets, including but not limited to GIS, Lucity data, work order records, and hydraulic model b) Identify information that is currently not available but is desirable for future water system asset management and master planning needs c) Perform a gap analysis on available water system asset and maintenance data to identify gaps between existing data and preferred data and identify any inconsistencies in GIS, CMMS, and hydraulic model data sets d) Document current age and material of pipelines e) Summarize historical main break data f) Develop and apply condition and criticality scoring parameters for pipelines. Water mains scheduled to be replaced using SWIFT funding are to be excluded from the condition assessment. g) Develop risk-based assessment matrix for pipelines h) Define a decision tree in InfoMaster software that incorporates the results of the risk-based assessment to develop a preferred rehabilitation solution (pipe bursting, open cut, CIPP, parallel, etc.). i) Develop prioritized, phased pipeline rehabilitation CIP with cost estimates and system-wide mapping. 	<ul style="list-style-type: none"> • Water system data assessment • Decision support tool for pipeline rehabilitation • Pipeline risk-based assessment matrix • Pipeline rehabilitation CIP with cost estimates and mapping • Report summarizing findings 	\$245,000
	<p>2) CCN Modification Assistance (\$35,000)</p> <ul style="list-style-type: none"> a) Prepare water and sewer mapping for the application b) Prepare the PUC (formerly TCEQ Application 10362) Application to amend the water and sewer Certificate of Convenience and Necessity (CCN) c) Assist with notification requirements including identifying entities and landowners needing notification of the CCN amendment and preparing notification language d) Coordination with the PUC as needed 	<ul style="list-style-type: none"> • CCN Application • Mapping of revised water and wastewater CCNs 	



PHASE	TASK	DELIVERABLES	BUDGET NUMBER
PHASE II Contd. (STARTED IN FY2019)	3) Water Quality Condition Assessment for Knox EST (\$61,000) a) Evaluate three improvement approaches for maintaining and/or increasing water quality within the Knox EST: deep-cycling, tank mixing, and boosting chloramine residuals. b) Conduct an alternatives analysis of water quality improvement approaches based on capital, operating, and life cycle costs as well as non-monetary factors such as safety and ease-of-operation. c) Utilize modeling results from Water Master Plan Update for analysis of deep-cycling approach.	<ul style="list-style-type: none"> • Alternatives analysis with life cycle cost estimates • Memorandum summarizing findings 	\$245,000
	4) SSES Prioritization Phase I (\$49,000) a) SSES Phase I to be combined with SSES in UMP Phase III. See Phase III item No. 5 for additional details.	<ul style="list-style-type: none"> • Refined renewal CIP • Report summarizing findings 	



PHASE	TASK	DELIVERABLES	BUDGET NUMBER
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">PHASE III (STARTED IN FY2020)</p>	<p>1) Water Master Plan Update Phase III: Pump Station Risk Based Condition Assessment (\$85,000)</p> <ul style="list-style-type: none"> a) Conduct a utility SCADA assessment to evaluate the current state of information available in Wonderware and develop recommendations to expand information collection. b) Develop condition and criticality scoring parameters for water system pump stations and ground storage tanks excluding Alta Vista Pump Station. c) Facility site visits at Katy Road and Pearson Pump Stations. d) Apply condition and criticality scoring parameters to pump stations and ground storage tanks. e) Develop risk-based assessment matrix for pump stations and ground storage tanks to identify high risk assets and their risk exposure. f) Workshop: Risk-Based Condition Assessment g) Develop prioritized pump station and ground storage tank rehabilitation and renewal CIP with planning-level cost estimates. 	<ul style="list-style-type: none"> • Draft and Final Technical Memorandum – Pump Station Risk Based Condition Assessment 	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">\$345,000</p>
	<p>2) SCADA Assessment (\$65,000)</p> <ul style="list-style-type: none"> a) Document existing information on water and wastewater SCADA assets including but not limited to existing I/O being monitored, HMI capability, necessary software and hardware upgrades, and maintenance impacts. b) Identify information that is currently not available but is desirable for future system asset management and planning needs. c) Conduct maximum of two site visits to identify existing field conditions. d) Development recommendations for additional RTV sites, additional I/O to be monitored, software/hardware, reporting, staffing, and maintenance impacts. 	<ul style="list-style-type: none"> • Draft and Final Technical Memorandum – SCADA Assessment 	



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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">PHASE III Contd. (STARTED IN FY2020)</p>	<p>3) Wastewater Master Plan Update Phase II: Wastewater System Data Analysis and Lift Station Risk Based Condition Assessment (\$100,000)</p> <ul style="list-style-type: none"> a) Conduct a wastewater system data assessment including documentation of existing available information on wastewater collection system assets, including but not limited to GIS, computerized maintenance management system (CMMS), work order records, main break databases, and hydraulic model. b) Identify information that is currently not available but is desirable for future wastewater system asset management and master planning needs. c) Perform a gap analysis on available wastewater system asset and maintenance data to identify gaps between existing data and preferred data. d) Identify any inconsistencies in GIS, CMMS, and hydraulic model data sets. e) Develop condition and criticality scoring parameters for lift stations. f) Facility site visits. g) Apply condition and criticality scoring parameters to lift stations excluding Alta Vista Pump Station. h) Develop risk-based assessment matrix for lift stations to identify high risk assets and their risk exposure. i) Workshop: Risk-Based Condition Assessment j) Develop prioritized rehabilitation and renewal lift station CIP with planning-level cost estimates. 	<ul style="list-style-type: none"> • Draft and Final Technical Memorandum – Lift Station Risk Based Condition Assessment 	<p style="text-align: center;">\$345,000</p>
	<p>4) On-call W/WW Model Support Services (\$30,000)</p>	<ul style="list-style-type: none"> • Dependent on City needs 	



PHASE	TASK	DELIVERABLES	BUDGET NUMBER
PHASE III Contd. (STARTED IN FY2020)	<p>5) SSES Prioritization Phase II (\$65,000)</p> <p>a) Inspect up to 110 sanitary sewer manholes to determine physical condition and possible sources of I/I.</p> <p>b) Evaluate and prioritize defects in manholes and assist in determining appropriate rehabilitation methods.</p> <p>c) Submit manholes inspection data in a standard MACP Exchange Database.</p> <p>d) Smoke test up to 88,000 linear feet of lines using dual axial blowers; includes 82,000 LF in Big Bear West Basin and 6,000 LF in Shady Hollow LS service area.</p> <p>e) Develop recommendations for a rehabilitation strategy for the basins where SSES was performed. Recommendations will include planning-level cost estimates.</p>	<ul style="list-style-type: none"> • Draft and Final Technical Memorandum – SSES and Rehabilitation Recommendations • MACP Exchange Database • Smoke testing defect shapefile 	\$345,000

PHASE	TASK	DELIVERABLES	BUDGET NUMBER
PHASE IV (FY 2021)	<p>1) SSES Prioritization Phase III (\$300,000)</p> <p>a) Inspect up to 530 sanitary sewer manholes to determine physical condition and possible sources of I/I.</p> <p>b) Evaluate and prioritize defects in manholes and assist in determining appropriate rehabilitation methods.</p> <p>c) Submit manholes inspection data in a standard MACP Exchange Database.</p> <p>d) Smoke test up to 160,000 linear feet of lines using dual axial blowers.</p> <p>e) Develop recommendations for a rehabilitation strategy for the basins where SSES was performed. Recommendations will include planning-level cost estimates.</p>	<ul style="list-style-type: none"> • Draft and Final Technical Memorandum – SSES and Rehabilitation Recommendations • MACP Exchange Database • Smoke testing defect shapefile 	\$300,000



PHASE	TASK	DELIVERABLES	BUDGET NUMBER
PHASE V (FY 2022)	<p>1) SSES Prioritization Phase IV (\$120,000)</p> <ul style="list-style-type: none"> a) Digital sanitary sewer manhole inspections to determine the physical condition and possible sources of I/I. b) Evaluate and prioritize defects in manholes and assist in determining appropriate rehabilitation methods. c) Submit manholes inspection data in a standard MACP Exchange Database. d) Smoke test using dual axial blowers. e) Develop recommendations for a rehabilitation strategy for the basins where SSES was performed. Recommendations will include planning-level cost estimates. 	<ul style="list-style-type: none"> • Draft and Final Technical Memorandum – SSES and Rehabilitation Recommendations • MACP Exchange Database • Smoke testing defect shapefile 	\$120,000