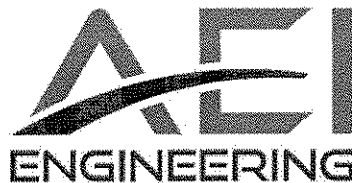


**GALVESTON COUNTY  
MUNICIPAL UTILITY DISTRICT 12**

**FIVE-YEAR CAPITAL IMPROVEMENT PLAN**

Prepared By:

**AEI ENGINEERING, LLC**



August 21, 2017

# GALVESTON COUNTY MUNICIPAL UTILITY DISTRICT 12 FIVE-YEAR CAPITAL IMPROVEMENT PLAN

Page | 1

## *Overview*

In order to address the near-term capital project priorities of Galveston County Municipal Utility District 12 (the “District”), the Board of Directors (the “Board”) identified the need to prepare and adopt a focused and effective plan. This *Capital Improvement Plan* (CIP) outlines projects determined to be of high priority with the intent to commence design and construction over a five-year planning period.

## *Project Criteria*

Project needs were initially assessed during an evaluation of all major District water and wastewater plant facilities conducted in the spring of 2016. Findings of the evaluation were presented in the *District Facility Evaluation Report* dated May 2016, prepared by AEI Engineering, LLC. To prepare the five-year CIP, project needs were further prioritized based on several factors, particularly:

- Odor Reduction and Process Improvements at the Wastewater Treatment Plant (WWTP)
- Water Quality and Reliability Improvements
- Emergency Preparedness and Safety
- Input from District Residents (via public meetings and direct communication/feedback)

## *Overview of CIP Projects*

The CIP consists of six projects that are expected to effectively address the criteria listed above and significantly improve District operations and service to its residents. Brief descriptions for each project are presented below.

- 1. *WWTP Non-Potable Water System.*** The project, currently under construction, will eliminate the use of potable water as part of the wastewater treatment process, saving the District significant cost. Additionally, by reusing treated WWTP water, this project will improve plant efficiency and free up capacity to support future growth while avoiding a costly plant expansion in the near term.
- 2. *WWTP Rehabilitation and Odor Control.*** The project consists of a broad range of improvements to the plant, including a new fine screen, channel modifications to improve flow and treatment effectiveness, clarifier and aeration basin process improvements, installation of odor control measures, and structural concrete repairs. These substantial improvements should significantly reduce odor issues at the plant while enhancing process performance and plant efficiency.

# **GALVESTON COUNTY MUNICIPAL UTILITY DISTRICT 12 FIVE-YEAR CAPITAL IMPROVEMENT PLAN**

Page | 2

- 3. *Ground Storage Tank (GST) Replacement.*** The western galvanized steel GST, constructed in 1983, is at the end of its expected service life and is in poor condition. Replacement of the tank is necessary for safety reasons and to ensure reliable delivery of potable water throughout the District. Additionally, due to prevalent scale, mineral deposits, and sediment observed in the tank, replacement of the GST will serve as the first step in improving the overall quality of the water delivered by the District.
- 4. *Water Plant/Water Quality Improvements – Phase I.*** This project will further improve water plant reliability and enhance water quality. Booster pump rehabilitation will provide better water delivery reliability and improvements to the GCWA line within the plant should allow for more consistent and predictable disinfection, which should further enhance water quality. The installation of additional valves will allow isolation of various tanks and is a necessary prerequisite to the Phase II project.
- 5. *Replacement of Emergency Generators.*** The facility evaluation included an assessment of electrical equipment by a professional electrical engineer. Their evaluation noted that the existing emergency generators at both the water plant and the wastewater treatment plant were showing significant deterioration and were in need of replacement to ensure continued operation of critical facilities in the event of a power outage.
- 6. *Water Plant/Water Quality Improvements – Phase II.*** The second phase of the water plant improvements will include inspection and any necessary rehabilitation of the eastern ground storage tank and both hydropneumatic tanks (HPTs). Rehabilitation will include sediment removal and thorough cleaning of the tanks, surface preparation, including pressure washing, wire brushing, and abrasive blasting as appropriate, and recoating. It is anticipated that these improvements will provide considerable water quality improvements.

### ***Project Scheduling and Estimates of Probable Cost***

A preliminary plan for project scheduling and estimates of probable project costs are presented in the table on the following page.

# GALVESTON COUNTY MUNICIPAL UTILITY DISTRICT 12 FIVE-YEAR CAPITAL IMPROVEMENT PLAN

Page | 3

## CAPITAL PROJECT PLANNING FORECAST FISCAL YEAR 2018-2022

Project		Preliminary Opinion of Probable Cost				
		Construction Cost	Engineering <sup>1</sup>	Total Constr. w/ Inflation	Total Engr. w/ Inflation	Total Cost w/ Inflation <sup>3</sup>
<b>PRIORITY PROJECTS, 2018-2022</b>						
<u>No.</u>	<u>Year</u>	<u>Project Description</u>				
1	2017-18	<b>WWTP Non-Potable Water System</b> Install pumps and piping for non-potable water supply at WWTP	\$220,000	\$45,000	\$220,000	\$265,000
2	2018-19	<b>WWTP Rehabilitation and Odor Control</b> WWTP Site Survey Headworks Replacement and Influent/Effluent Channel Modifications Aeration Basin No. 1 and No. 2 Rehabilitation, incl valve replacement WWTP Aeration Basin No. 1 and No. 2 Air Line Improvements WWTP Odor Control System Clarifier No. 1 and 2 Rehabilitation, incl. RAS and Scum Box	\$0 \$543,500 \$113,000 \$15,000 \$200,000 \$218,000	\$25,000 \$82,000 \$17,000 \$2,000 \$30,000 \$33,000	\$0 \$570,000 \$118,000 \$16,000 \$210,000 \$229,000	\$26,000 \$86,000 \$18,000 \$2,000 \$31,000 \$35,000
					<b>\$1,143,000</b>	<b>\$198,000</b>
3	2019	<b>Ground Storage Tank Replacement</b> Replace 284,000 Gal. GST (West) w/ Glass-fused Tank, Domed Roof	\$612,000	\$92,000	\$657,000	\$756,000
4	2020-21	<b>Water Plant/Water Quality Improvements - Phase I</b> Perform Booster Pump Capacity Evaluation including Report Booster Pump Rehabilitation GCWA Flow Piping and Water Well Improvements Water Line Valve Additions to Isolate HPTs	\$0 \$138,000 \$20,000 \$80,000	\$7,500 \$21,000 \$10,000 \$12,000	\$0 \$148,000 \$21,000 \$86,000	\$8,000 \$23,000 \$11,000 \$13,000
					<b>\$255,000</b>	<b>\$55,000</b>
5	2021-22	<b>Replacement of Emergency Generators</b> WWTP Generator and ATS Replacement <sup>4</sup> WP Generator and Fuel Tank Replacement <sup>4</sup>	\$250,000 \$175,000	\$38,000 \$26,000	\$281,000 \$197,000	\$43,000 \$29,000
					<b>\$478,000</b>	<b>\$72,000</b>
6	2022	<b>Water Plant/Water Quality Improvements - Phase II</b> Perform Full GST and HPT Inspections including Reports 25,000 Gal. HPT (East and West) Rehabilitation 284,000 Gal. GST (East) Rehabilitation	\$0 \$95,000 \$175,000	\$9,000 \$14,000 \$26,000	\$0 \$110,000 \$202,000	\$10,000 \$16,000 \$30,000
					<b>\$312,000</b>	<b>\$56,000</b>
<b>TOTAL ESTIMATED CAPITAL PROJECT COSTS:</b>						<b>\$3,590,000</b>

- Notes: 1. Engineering estimated costs include preliminary engineering, final design, bidding, and construction administration.  
 2. All estimated costs are rounded to nearest thousand.  
 3. The total inflated cost uses the equation  $FV = PV(1 + i)^n$  where FV is the future value with inflation, PV is the present value, i is interest, and n is the number of years, using 2.40% as the value  
 4. Generator replacement recommended contingent upon re-evaluation of generator condition and emergency power needs.

## SUMMARY OF PROJECT COST ESTIMATES

### Construction Costs<sup>1</sup>

Wastewater Treatment Plant (WWTP) Non-Potable Water System	\$ 265,000
WWTP Rehabilitation and Odor Control	\$ 1,341,000
Ground Storage Tank Replacement	\$ 756,000
Water Plant/Water Quality Improvements – Phase I	\$ 310,000
Replacement of Emergency Generators	\$ 550,000
Water Plant/Water Quality Improvements – Phase II	\$ 368,000
Contingencies	\$ 180,000
Sub-total Construction Costs:	<u>\$ 3,770,000</u>

### Non-Construction Costs

Legal Fees	\$ 110,000
Financial Advisor Fees	\$ 88,000
Capitalized Interest	\$ 198,000
Bond Discount	\$ 132,000
TCEQ Fees	\$ 11,000
Bond Application Report Fee	\$ 54,000
Administration and Organization	\$ 37,000
Sub-total non-construction costs:	<u>\$ 630,000</u>
Total bond authorization requirement:	<u>\$ 4,400,000</u>

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<sup>1</sup> Construction costs include engineering fees and estimated inflation costs