City of La Vernia

WATER & WASTEWATER IMPACT FEE STUDY

May 2023 SWE Project No. 0200-034-23

City of La Vernia

PWS #2470004 P. O. Box 225 La Vernia, TX 78121-0225 Phone: (830) 779-4541 The Honorable Martin Poore, Mayor Yvonne Griffin, City Administrator

Prepared by:



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Introduction

The City of La Vernia continues to expand and aims to maintain adequate infrastructure and means to provide water and wastewater services.

The City of La Vernia has authorized Southwest Engineers, Inc. to amend the previously approved Impact Fee Study, which identifies system improvements and facility expansion that are necessary for the next ten (10) years. The previous *Impact Fee Study* was completed and adopted by the City in 2015, for the water and wastewater systems. With pending growth and costs for the required infrastructure, the Impact Fees have been reevaluated and proposed.

Methodology

Impact fees are charged based on capital improvements deemed necessary due to the projected increase in the number of connections over a developmental period not to exceed ten (10) years. The term "capital improvements" refers to the improvements made to water and wastewater system (including facility expansions) with a life expectancy of three or more years, whether or not located within the service area.

Existing Infrastructure

The existing infrastructure remains unchanged from the previously impact fees study except for the completion of the following projects from the previous impact fee study. Below is the status of the improvements from the previous study:

Water

Improvement 1: New Supervisory Control and Date Acquisitions – Complete
Improvement 2: Woodcreek Subdivision – Complete
Improvement 3: Miscellaneous Undersized Water Main Replacement – Complete
Improvement 4: FM 1346, 8-inch Main Expansion – Complete
Improvement 5: Dry Hollow, 6-inch Water Main Replacement – Complete
Improvement 6: McCoy Street, 6-inch Water Main Replacement – Not Completed
Improvement 7: San Antonio & D.L. Vest St., 8-inch Water Main – Complete
Improvement 8: New Water Well and 12-inch Transmission Line – Complete
Improvement 9: US Highway 87, 12-inch Interconnect Water Main – Not Completed
Improvement 10: US Highway 87, 8-inch Water Main Extension West – Not Completed
Improvement 11: US Highway 87, 8-inch Water Main Extension East – Not Completed

Wastewater

Improvement 1: 15-inch Pipe from Wastewater Treatment Plant to Chihuahua Street - Not Completed

Improvement 2: Clay Sewer Pipe Replacement Program – Not Completed

Improvement 3: US Highway 87, 8-inch Sewer Line Extension West - Not Completed

Improvement 4: Clay Sewer Pipe Replacement Program 2 – Not Completed

Improvement 5: US Highway 87, 12-inch Chamber of Commerce Sewer Main - Not Completed

Improvement 6: Fm 775 8" Sewer Service Extension West - Completed

Improvement 7: Woodcreek Subdivision Sewer Service – Completed

Land Use Assumptions and Projected Growth

The water service area for the City of La Vernia is bounded by their current CCN, which encompasses approximately 4,750 acres (of which approximately 2,000 acres are located within the FEMA 100-year floodplain). It is projected that the majority of the growth will occur due to development in the form of residential subdivisions, with some retail/commercial developments and schools to serve the growing population. Growth within the next ten (10) years is expected in areas outside of the city limits, where large tracts are being purchased by potential developmers. *Exhibit A* shows the areas of potential development, including areas with active service requests. All existing infrastructure has sufficient capacity for current service requests, however additional infrastructure. A 3% growth rate is expected for the area inside the City Limits as this has been seen in the past and in neighboring water districts. The City of La Vernia will also need to complete system improvements to serve several of the proposed development areas.

Although the wastewater service area is not bounded by a CCN and rather the City Limits, it is understood that the City plans to provide wastewater to all water customers and the wastewater impact fees are developed anticipating the same growth as shown in *Table 1*.

Capital Improvements

<u>Water</u>

The City of La Vernia needed to make several improvements to their water system to be able to serve the projected growth of their service area over the next ten (10) years. While the existing infrastructure has sufficient capacity for current customers, elevated tower, water mains, wells, and filter plant improvements and expansions will be necessary to serve areas of growth within the City's service area. A 10-year Capital Improvements Plan was developed to identify the projects that will need to be completed to accommodate the proposed growth. The subsequent paragraphs provide the details of each of these projects, followed by a summary of this list and the associated costs in Table 2, a full breakdown of costs in *Exhibit B* and a location map of these improvements can be found in *Exhibit C*.

The first project was a 500,000-gallon Elevated Tower located in the Woodcreek Subdivision off Woodcreek Drive. The Elevated Tank provides adequate water pressure to the entire City of La Vernia including flows required for fire flow.

The next project was a 12-inch water main supply line from the Filter Plant to the Old Elevated Tank. The existing 6-inch main is limited to about 300 gpm and is a bottleneck in the City of La Vernia's water supply. This main increased the water supply to the City by allowing more water to be pumped from the Filter Plant to handle the additional supply from Wells #6 and #7 and Well #8 when drilled.

The next major capital improvement is a 16-inch water main from the Booster Station directly to the Elevated Tank. This supply line will be approximately 6,400 L.F and will allow for increased flows to the Elevated Tank to meet the Elevated Tank capacity. The line will also reduce the pumping pressure and result in a power cost savings.

The next major project is the installation of Well #8. This will include the acquisition of land and water rights, and installation of a 700 gpm well. It is proposed for the water well be placed on Tanneberger land, south of current Well #7. The water well will provide water for an additional 1,200 customer connections.

The next project is a 12-inch water line from the proposed Well #8 to the existing Well #7 to allow the water to be treated at the current City of La Vernia Filter Plant. With the proposed well location, this is approximately 10,700 L.F of water line that will be required.

The final major capital improvement is the expansion of the current Filter Plant. The current operation is limited to about 875 gpm with two (2) 7' diameter and two (2) 8' diameter filters. Two (2) additional 8' diameter filters at 250 gpm per filter for 500 gpm of additional treatment capacity to treat the water from Well #6, #7 and #8 will be required.

Location	Cost		Number of	Per LUE	
			LUEs		
Elevated Tank	\$	1,419,420.00	2,500	\$	570.00
12" Main to Old Elevated Tank	\$	371,478.00	2,500	\$	150.00
16" Main to Elevated Tank	\$	1,254,000.00	2,500	\$	500.00
Well #8 (700 gpm)	\$	820,000.00	1,200	\$	690.00
12" Pipeline from #8 to #7	\$	945,000.00	1,200	\$	790.00
Filter Plant	\$	1,305,000.00	900	\$	1,620.00
	\$	6,114,898.00		\$	4,320.00

Table 1: Water Capital Improvement Summary

Based on the expected growth, the anticipated expenditures for associated capital improvements, and the number of LUEs each capital improvement will serve (Table 2). The City of La Vernia would need to collect approximately \$4,320/LUE from all new developments.

<u>Wastewater</u>

The City of La Vernia will also need to make several major improvements to their wastewater system to be able to serve the projected growth of their current water service area over the next ten (10) years especially with service in two (2) areas that would require a major lift station and force mains. While the existing infrastructure has sufficient capacity for current customers in the plant gravity flow plain, a new wastewater treatment plant, and additional gravity mains would be necessary to serve areas of growth within the service area. A 10-year Capital Improvements Plan was developed to identify the projects that will need to be completed to accommodate the proposed growth.

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The first project will include 3,000 L.F of 12-inch gravity main in easement from Hwy 87 to the Wastewater Treatment Plant. This sewer line will divert flow from the current 10-inch gravity main down River Street that is approaching capacity. This existing 10-inch gravity main is the only main to the plant.

The next major capital improvement is a new Wastewater Treatment Plant west of the City to serve all development in the general area west of FM 1346 in that gravity plain. The new Wastewater Treatment Plant could be built in phases corresponding with development, but the first plant is recommended to be sized for 100,000 gpm. Building a new plant will also free up capacity in the current Wastewater Treatment Plant.

The final recommended capital improvements is the installation of the US Highway 87, 12-inch gravity main. This main is to include approximately 2,000 L.F of 12-inch sewer to service the existing residences and businesses along US Hwy 87 towards the Chamber of Commerce as well as provide sewer service for the new developments in this area. This main will tie into the new gravity main to the plant described above. Both of the proposed lines are in the east gravity plain.

Table 2:	Wastewater	Capital	Improvement	Summary
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Location	Cost	Number of	Per LUE
-		LUEs	
12" Gravity Main to WWTP	\$ 575,000.00	1,000	\$ 575.00
West WWTP	\$ 4,200,000.00	500	\$ 8,400.00
12" Gravity Main US Hwy 87	\$ 377,000.00	1,000	\$ 380.00
	\$ 5,152,000.00		\$ 9,355.00

Based on the expected growth, the anticipated expenditures for associated capital improvements, and the number of LUEs each capital improvement will serve (Table 2). The City of La Vernia would need to collect approximately \$9,355/LUE from all new developments.

City of La Vernia Interim 2023 Impact Fee Calculations SWE Project No. 0200-033-23 May 2, 2023

Impact Fees								
· · · · ·				Number of				
Location	Facility		Cost	LUEs		Per LUE		
Elevated Tank	500,000 Gallons							
	Construction Cost	\$	1,280,220.00					
	Engineering	\$	139,200.00					
	Total	\$	1,419,420.00	2,500	\$	570.00		
12" Main to Old Elevated Tank						******		
	Construction Cost	\$	331,478.00					
	Engineering	\$	40,000.00					
	Total	\$	371,478.00	2,500	\$	150.00		
16" Main to Elevated Tank								
HDPE 18" DR 11	ROW Acquisition	\$	64.000.00					
6,400 L.F. @ \$150/L.F.	Construction Cost	\$	1.035.000.00					
150 L.F. of 24" Bore @ \$500	Engineering	\$	155,000.00					
	Total	\$	1,254,000.00	2,500	\$	500.00		
Well #8 (700 gpm)	Construction Cost	\$	700,000.00					
	Land - 2 Acres	\$	20,000.00					
	Engineering	\$	100,000.00					
	Total	\$	820,000.00	1,200	\$	690.00		
Dinaling from #9 to #7				,,				
	BOW Acquisition		160,000,00					
	Construction	φ ¢	700,000,00					
	Engineering	Ψ \$	85,000,00					
	Total	φ ¢	945,000,00	1 200	\$	700.00		
		Ψ	940,000.00	1,200	Ψ	7.90.00		
Filter Plant								
	2 - 8' ø Units	\$	350,000.00		\$			
	Gr. Storage 400,000 Gal	\$	750,000.00					
	Additional Site	\$	5,000.00		\$			
	Pumps and Piping	\$	200,000.00					
	Engineering	<u>\$</u>	150,000.00					
	Total	\$	1,305,000.00	900	\$	1,620.00		
	TOTAL	\$	6,114,898.00		\$	4,320.00		

City of La Vernia Interim 2023 Impact Fee Calculations SWE Project No. 0200-033-23 May 2, 2023

Impact Fees									
Location	Facility		Cost	Number of LUEs	1	Per LUE			
12" Gravity Main to	2								
WWTP	3,000 L.F.								
	ROW Acquistion	\$	30,000.00						
	Construction Cost	\$	500,000.00						
	Engineering	\$	75,000.00						
	Total	\$	575,000.00	1,000	\$	575.00			
West WWTP	100K			<u> </u>					
	Site (2 Acres)	\$	20,000.00						
	Construction Cost	\$	4,000,000.00						
	Engineering	\$	200,000.00						
	Total	\$	4,200,000.00	500	\$	8,400.00			
12" Gravity Main	+			<u> </u>					
US Hwy 87	2,000 L.F.			l					
	ROW Acquisition	\$	22,000.00						
	Construction Cost	\$	300,000.00						
	Engineering	\$	55,000.00						
	Total	\$	377,000.00	1,000	\$	380.00			
	TOTAL	\$	5,152,000.00		\$	9,355.00			





