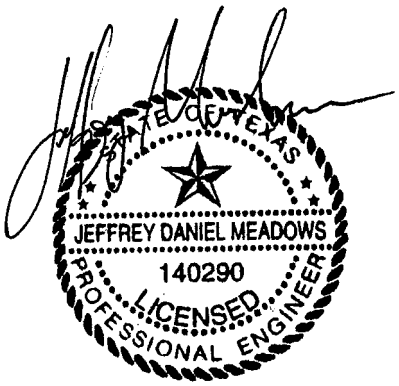
CITY OF LOCKHART

WATER AND WASTEWATER IMPACT FEE ANALYSIS CAPITAL IMPROVEMENTS PLAN

MARCH 2023



03-17-2023

Prepared By:
TRC Engineering, Inc.
T.B.P.E. Firm No. F-8632
TRC Project No. 496995

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

Chapter 395 of the Texas Local Government Code requires the following elements be included in the Capital Improvements Plan (CIP) to be used as the basis for impact fees:

- Table of service usage for each category of capital improvements and a conversion table of service units per acre (or other measure) of at least residential, commercial, and industrial land uses
- Projections of total service units for new development, within the service area
- Description of existing capital improvements, including:
  - Existing capital improvements within the service area.
  - Analysis of total capacity of existing improvements.
  - Analysis of current usage of existing improvements.
  - Cost to upgrade, update improvements, expand or replace facilities for existing needs.
- Description of capital improvements needed to serve new development within the next ten (10) years or less (based upon adopted service area, land use and unit usage assumptions), including:
  - All or portions of the existing CIP.
  - All or portions of the future CIP.
  - Costs associated with both existing and future CIP facilities needed for new development.

2.0 ANALYSIS OF WATER & WASTEWATER SYSTEMS

2.1 PRESENT WATER DEMANDS

The yearly and monthly water consumption for the City of Lockhart over the past five (5) years is shown in **Table 1 – Historical Water Usage Data**. The average and peak demand over this time frame was 1.47 MGD and 2.55 MGD, respectively.

The Lockhart water system currently serves approximately 5,294 customers and has two (2) interconnections to the Polonia water system. The Polonia water system connections have not been used in recent years and have historically used a small quantity of water compared to the City of Lockhart. The per capita average and peak water demands are 96 gal/capita/day and 155 gal/capita/day, respectively.

Table 1 – Historical Water Usage Data

2018		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	1.45	1.63
February	1.36	1.50
March	1.43	1.79
April	1.45	1.59
May	1.61	1.89
June	1.80	2.07
July	1.85	2.21
August	2.04	2.26
September	1.47	2.04
October	1.35	1.49
November	1.34	1.41
December	1.32	1.44
Average	**1.54**	
Maximum		**2.26**

2019		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	1.36	1.50
February	1.34	1.41
March	1.40	1.55
April	1.39	1.51
May	1.40	1.58
June	1.43	1.67
July	1.65	1.98
August	1.85	2.14
September	1.70	1.94
October	1.55	1.90
November	1.40	1.63
December	1.39	1.50
Average	**1.49**	
Maximum		**2.14**

2020		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	1.35	1.49
February	1.35	1.53
March	1.39	1.50
April	1.43	1.73
May	1.51	1.68
June	1.55	1.82
July	1.86	2.20
August	1.92	2.12
September	1.41	1.87
October	1.53	1.89
November	1.51	1.73
December	1.38	1.56
Average	**1.52**	
Maximum		**2.20**

2021		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	1.34	1.46
February	1.70	2.52
March	1.29	1.54
April	1.46	2.55
May	1.14	1.63
June	1.29	1.56
July	1.18	1.36
August	1.26	1.50
September	1.42	1.63
October	1.18	1.34
November	1.19	1.32
December	1.17	1.31
Average	**1.30**	
Maximum		**2.55**

2022		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	1.25	1.51
February	1.36	1.71
March	1.38	1.62
April	1.44	1.67
May	1.39	1.62
June	1.59	1.91
July	1.84	2.13
August	1.73	2.00
September	1.57	2.06
October	1.52	1.71
November	1.39	1.54
December	1.43	2.17
Average	**1.49**	
Maximum		**2.17**

AVERAGE FOR JAN 2018 THROUGH DEC 2022
1.47 MGD

MAXIMUM FOR JAN 2018 THROUGH DEC 2022
2.55 MGD

2.2 WATER SUPPLY

The City of Lockhart currently has seven (7) producing wells in the southeast well field. Their capacities are shown in **Table 2 – Water Well Production**. These wells pump water from the Wilcox Aquifer through 7.5 mile long parallel 12-inch, 14-inch and 18-inch transmission mains to the raw water pump station. The raw water pump station collects the water from the wells and pumps it to the water plant on the southeast side of the City. The raw water pump station consists of a 300,000 gallon storage reservoir and three (3) pumps rated at 1,800 gpm each. The raw water pipelines are capable of transporting 5 MGD.

In 2005, the Guadalupe-Blanco River Authority, City of Lockhart and the City of Luling put into service the Luling/Lockhart Water Transmission Main. This project consisted of a pump station at the Luling surface Water Treatment Plant and a 16-mile 14-inch transmission main to the City of Lockhart Water Treatment Plant. The contract between the three (3) entities allows for the delivery of one (1) million gallons of treated surface water per day to the Lockhart Water Treatment Plant.

In 2022, construction began on the Carrizo Groundwater Supply Project which will provide the City of Lockhart with an additional 3,000-acre feet per year of firm drinking water capacity (2.67 MGD) when complete. The project is set to be completed in early 2023. This project will increase the City's access to raw water by an additional 65%. Although the City of Lockhart currently has a contract for this raw water, delivery of the raw water to the City is not guaranteed during times of conservation or drought. It is recommended that the City consider the development of additional local wells once their peak water usage rates begin to approach the 4.62 MGD well field capacity.

Table 2 – Water Well Production

Well No.	Capacity (gpm)	Capacity (MGD)
3	375	0.54
4	330	0.48
5	225	0.32
9	550	0.79
10	550	0.79
11	525	0.76
12	650	0.94
Total	**3,205**	**4.62**

2.3 Water Treatment Plant

The Lockhart Water Treatment Plant (WTP) receives and treats the well water from the well field, located southeast of the City. Each of the wells pump into the 300,000 gallon raw water storage tank, which has booster pumps to pump the water to the WTP. The WTP was upgraded in 2000 to provide a capacity of 5.7 MGD, increased from the previous 2.9 MGD.

The plant consists of raw water metering, forced draft aeration, clarification, filtration, chemical feed, clearwell, ground storage reservoir, high service pumps, treated water metering and backwash/sludge reclamation basin. The plant upgrade in 2000 included the addition of a second forced draft aerator; two (2) new filter units; rehabilitation of two (2) existing filters; new chemical feed equipment; the backwash/sludge reclamation basin; flow meters; water system Supervisory Control and Data Acquisition (SCADA) system to provide complete automated monitoring and control of the entire water system including the plant, wells, distribution operations, and miscellaneous plant improvements.

Although the facility has always treated ground water exclusively, it provides treatment well above ground water requirements by the TCEQ. This is primarily due to the high content of iron found in the raw water.

2.4 Storage, High-Service Pumps, and Distribution Mains

A 300,000 gallon and 2,000,000 gallon ground storage reservoir are located at the Water Treatment Plant. Three (3) high service pumps with a total capacity of 4.32 MGD pump water out of the reservoirs through two (2) 12-inch and 18-inch mains into the City distribution system. The distribution system consists of approximately 101 miles of 2-inch, 4-inch, 6-inch, 8-inch, 10-inch, 12-inch and 18-inch mains.

In 2022, a design to increase the capacity of the high service pump station was completed. Improvements included replacing the existing 600 gpm jockey pump with a 1,200 gpm constant speed pump, and adding a fourth 1,200 gpm pump on a variable frequency drive

(VFD) giving the pump station an increased total capacity of 6.92 MGD. In addition to the pump station improvements, two (2) new generators are being provided as a part of this project. Construction is anticipated to be completed by Spring of 2024.

2.5 Future Water Use

The future water use projections shown in **Table 3 – Projected Water Usage** were derived from the future population projections and the per capita water demands shown in **Table 1 – Historical Water Usage Data**. These projections are used for making recommendations for future improvements to the water system.

Table 3 – Projected Water Usage

Year	Population	Water Usage Average [1] (MGD)	Water Usage Peak [2] (MGD)
2022	15,210	1.47	2.36
2032	23,832	2.30	3.69

[1] Based upon average per capita water usage of 96 gal/day
[2] Based upon peak per capita water usage of 155 gal/day

2.6 Water Supply Improvements

Presently, the source of water for Lockhart is ground water from the Wilcox Aquifer and surface water from the Luling WTP. The Wilcox Aquifer has been a reliable source of water for Lockhart for the past sixty (60) years. The Ground Water Resources of Caldwell County report prepared by the U.S. Geological Survey indicates that the quantity of water on a perennial basis that can be withdrawn from the Carrizo sand and Wilcox group in Caldwell County without depleting the aquifer is about 20 MGD. At the present time, these formations in Caldwell County are practically untapped with only a small percentage being used for public supply, irrigation, domestic, and stock purposes.

There are currently seven (7) wells in the southeast well field that pump into 14-inch and 18-inch transmission mains. These mains transport the water to the water treatment plant on the southeast side of the City.

The reliable capacity of the well field is 4.62 MGD which will provide sufficient capacity through the year 2032.

2.7 Future Water Treatment Needs

2.7.1 Treatment Capacity

The current treatment capacity of 5.7 MGD will provide adequate water supply for the projected average and maximum daily water usage through the year 2032.

2.8 GROUND STORAGE IMPROVEMENTS

The present ground storage capacity at the water treatment plant is 2,300,000 gallons consisting of one (1) underground concrete reservoir with the capacity of 300,000 gallons and one (1) above ground steel reservoir with the capacity of 2,000,000 gallons. Present ground storage capacity is adequate through the Year 2032.

2.9 HIGH SERVICE PUMP IMPROVEMENTS

The City currently has three (3) high service pumps with a total combined capacity of 4.32 MGD. Once the high service pump station improvements project is completed in 2023, the City will have four (4) pumps with a total pumping capacity will be increased to 6.92 MGD. It is estimated that the City will need to further increase the overall pumping capacity by the year 2024 or request an exception to the minimum pumping requirements from the TCEQ. It is recommended that the City attempt to request an exception since their current pumping capacity of 6.92 mgd is far greater than their current peak water usage of 2.36 mgd and future estimated peak usage of 3.69 mgd.

2.10 ELEVATED STORAGE IMPROVEMENTS

The elevated storage capacity requirements are based upon the Texas Commission on Environmental Quality Standard of 200 gallons per connection. Elevated storage provides water stored in above ground elevated tanks for use by customers and for fire protection without the need for additional pumping. The capacity of the four (4) existing elevated tanks is 1,550,000 gallons. An additional elevated storage tank will be required by the Year 2032.

The new storage tank will need to be constructed in the upper pressure plane to help meet the increasing growth demands in that region, as shown in **Figure 1 – Water System Capital Improvements Plan**.

2.11 DISTRIBUTION SYSTEM IMPROVEMENTS

The City's present distribution system consists of water mains ranging in size from 2-inch to 18-inch in diameter. The Texas Commission on Environmental Quality (TCEQ) requires that a residual pressure of 35 psi be maintained during peak water use periods and a residual pressure of 20 psi be maintained during fire flow situations. Indicated in **Figure 1 – Water System Capital Improvements Plan** are the major pipelines needed to meet requirements for future development of the city based upon the City's Annexation Plan. The majority of the water mains proposed in this Capital Improvements Plan are within the City's Water Service Area certified by TCEQ.

Unlined iron pipe has not been used in water distribution systems for several decades because of its lack of resistance to corrosion and deterioration. It is recommended that the City eventually replace the remaining 75,000 linear feet of unlined iron pipe. A long-range program of line replacement should be considered because of the high cost associated with replacing these lines. Detailed records should also be kept on line repairs

and condition to aid in setting replacement priorities. The cost of replacing these existing mains is not included in the impact fee analysis.

2.12 COST ESTIMATE

Cost estimates for all the improvements proposed, based upon today's cost, including construction and engineering are shown in **Table 4 – Proposed Water System Improvement**.

Table 4 – Proposed Water System Improvements

Name	Quantity	Description	Unit Price[(1)]	Cost
W-1	15,000 Feet	12" Pipe from Hidden Path Rd. to 2720	$175	$2,625,000
W-2	7,000 Feet	12" Pipe along the West side of 130	$175	$1,225,000
W-3	4,700 Feet	12" Pipe along Silent Valley Rd. from SH 130 to Stueve Ln.	$175	$822,500
W-4	3,000 Feet	12" Pipe from Silent Valley Rd to N. Mockingbird Ln.	$175	$525,000
W-5	1,200 Feet	12" Pipe along W. San Antonio St. from S. Mockingbird Ln. to Borchert Loop	$175	$210,000
W-6	2,000 Feet	12" Pipe along W. San Antonio St. from Borchert Loop to Windsor Blvd.	$175	$350,000
W-7	1,700 Feet	12" Pipe from W. San Antonio St. to Borchert Loop on the E. side of SH 130	$175	$297,500
W-8	2,200 Feet	12" Pipe from W. San Antonio St. to Borchert Dr. on the W. side of SH 130	$175	$385,000
W-9	3,000 Feet	12" Pipe from Borchert Dr. to Maple St. on the W. side of SH 130	$175	$525,000
W-10	4,000 Feet	12" Pipe S. of Maple St. on the W. side of SH 130	$175	$700,000
W-11	3,500 Feet	12" Pipe from City Line Rd. to State Park Rd.	$175	$612,500
W-12	2,200 Feet	12" Pipe along State Park Rd.	$175	$385,000
W-13	7,000 Feet	12" Pipe from State Park Rd. to W. Martin Luther Kng Jr Industrial Blvd.	$175	$1,225,000
W-14	1,600 Feet	12" Pipe along Cunningham	$175	$280,000
W-15	1,400 Feet	12" Pipe S. of Cunningham	$175	$245,000
W-16	3,400 Feet	12" Pipe S. of the Lockhart Municipal Airport	$175	$595,000
W-17	4,800 Feet	12" Pipe along Lovers Ln. to Brazos St.	$175	$840,000
W-18	3,000 Feet	12" Pipe from Lovers Ln. to Blackjack St.	$175	$525,000
W-19	4,200 Feet	12" Pipe from Water Plant to Blackjack St.	$175	$735,000
W-20	2,000 Feet	12" Pipe along Shady Ln.	$175	$350,000
W-21	3,000 Feet	12" Pipe from Mockinbird Ln to Stueve Ln	$175	$525,000
W-22	3,500 Feet	12" Pipe from Stueve Ln to SH 130	$175	$612,500
W-23	3,700 Feet	12" Pipe along SH 130 to Horshoe Rd	$175	$647,500
W-24	4,700 Feet	12" Pipe along SH 130 to N Colorado St.	$175	$822,500

Name	Quantity	Description	Unit Price[(1)]	Cost
W-25	2,000 Feet	12" Pipe from County View Rd to Payne Ln	$175	$350,000
W-26	10,000 Feet	12" Pipe along Hidden Path Rd connecting to Cypress Rd	$175	$1,750,000
W-27	10,000 Feet	12" Pipe on N. side of SH 130 E of Hidden Path Rd.	$175	$1,750,000
W-28	1 Each	Pressure Reducing Valve	$35,000	$35,000
W-29	1 Each	Pressure Reducing Valve	$35,000	$35,000
W-30	1 Each	Pressure Reducing Valve	$35,000	$35,000
W-31	1 Each	Elevated Storage Tank	$1,750,000	$1,750,000
		TOTAL		**$21,770,000**

(1) Unit prices are today's prices include engineering and surveying.

2.13 Present Wastewater Flows

The Lockhart collection and treatment system currently collects and treats essentially all of the domestic wastewater generated by the citizens of Lockhart. The wastewater collection system serves approximately 5,250 residential and commercial customers. A review of the wastewater flow records shown in **Table 5 – Historical Wastewater Usage Data**, indicates the average amount of wastewater flow received at the treatment plants is 71 gallons per capita per day and the peak flow is 259 gallons per capita per day.

Table 5 – Historical Wastewater Usage Data

2018		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	0.99	1.16
February	1.02	1.29
March	1.19	4.31
April	1.06	1.28
May	1.10	1.41
June	1.06	1.31
July	1.05	1.34
August	1.05	1.47
September	1.07	1.99
October	1.04	2.41
November	0.76	1.00
December	0.99	3.91
Average	**1.03**	
Maximum		**4.31**

2019		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	0.94	2.94
February	0.85	1.09
March	0.90	1.20
April	1.06	1.95
May	1.12	2.71
June	1.21	2.76
July	1.03	1.20
August	1.07	1.76
September	1.04	1.44
October	1.01	2.04
November	0.93	1.26
December	0.91	1.12
Average	**1.01**	
Maximum		**2.94**

2020		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	0.94	1.45
February	0.92	1.26
March	1.04	1.83
April	1.09	2.30
May	1.21	3.24
June	1.03	1.44
July	1.04	1.32
August	0.98	1.27
September	1.10	3.70
October	0.97	1.23
November	0.97	1.21
December	0.98	1.93
Average	**1.02**	
Maximum		**3.70**

2021		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	0.97	1.40
February	1.10	1.85
March	0.93	1.16
April	1.08	4.11
May	1.45	4.48
June	1.17	2.28
July	1.38	3.30
August	1.04	1.34
September	1.05	1.93
October	1.21	3.86
November	1.02	1.97
December	0.98	1.20
Average	**1.11**	
Maximum		**4.48**

2022		
Month	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	1.00	2.78
February	1.11	2.00
March	1.13	2.82
April	1.01	1.29
May	0.99	1.30
June	1.03	1.21
July	0.98	1.27
August	1.05	1.70
September	1.02	1.37
October	0.98	1.30
November	1.02	1.71
December	1.15	3.38
Average	**1.04**	
Maximum		**3.38**

AVERAGE FOR JAN 2018 THROUGH DEC 2022

1.04 MGD

MAXIMUM FOR JAN 2017 THROUGH DEC 2022

4.48 MGD

2.14 COLLECTION SYSTEM

The existing sewage collection system that serves the City of Lockhart was initiated in early 1900, and has been extended as necessary through the years to keep pace with the City's growth. The majority of the older system is constructed of vitrified clay tile sewer pipe. The recently installed collector mains (mains installed in the past 30 years) are constructed of heavy weight PVC pipe. Collector line sizes are generally 6-inch and 8-inch and interceptor lines range from 10-inch to 24-inch in diameter. The depth of the collection system ranges from 3-feet to 18-feet below the ground surface, with a median depth of 6-7 feet for the majority of the lines. Most of the lines in the collection system have sufficient grades to maintain self-cleaning velocities. The majority of the collection system is in good condition.

The existing collection system is divided into two major drainage areas. Treatment Plant No.1 located on Larremore Street serves the northern drainage area and Treatment Plant No. 2 on FM 20 West serves the southern drainage area.

2.15 WASTEWATER TREATMENT PLANTS

2.15.1 WWTP NO. 1 (Larremore WWTP)

WWTP No. 1 was the only treatment facility to serve the City until WWTP No. 2 was constructed and placed into service in the spring of 1999. WWTP No. 1 received major upgrades in 1950 and 1986. The 1986 upgrade included construction of a number of process basins and replacement of the majority of process equipment within the existing concrete structures. The plant has a design capacity of 1.1 MGD and a peak capacity of 4.0 MGD. The aeration process is operated in the contact stabilization mode of the activated sludge process.

2.15.2 WWTP NO. 2 (FM 20 WWTP)

Construction was complete on WWTP No. 2 in 1998. The plant has a design capacity of 1.5 MGD and a peak capacity of 4.5 MGD, but the site layout was designed to allow expansion of the facilities to 4.5 MGD design and 13.5 MGD peak. The screenings and grit removal units will handle a capacity of 3.0 MGD design and 9.0 MGD peak. The facility is located on a 20.9-acre site on FM 20, southeast of town. The plant consists of raw sewage screening, grit removal, aeration basin, clarification, ultraviolet disinfection, sludge handling, and dewatering with a belt filter press. The two (2) treatment facilities have a combined capacity of 2.6 MGD design and 8.5 MGD peak.

2.16 FUTURE WASTEWATER FLOWS

The future wastewater flows are given in **Table 6 – Projected Future Wastewater Flows**. These flows are based upon an average flow of 71 gallons per capita per day and a peak flow of 259 gallons per capita per day for the projected population.

Table 6 – Projected Future Wastewater Flows

Year	Population	Wastewater Usage Average [1] (MGD)	Wastewater Usage Peak [2] (MGD)
2022	15,210	1.08	3.94
2032	23,832	1.69	6.17

[1] Based upon average per capita water usage of 71 gal/day
[2] Based upon peak per capita water usage of 259 gal/day

2.17 COLLECTION SYSTEM IMPROVEMENTS

The existing collection system is in relatively good condition but has a number of problems related to broken and deteriorated clay sewer mains.

There is approximately 122,000 linear feet of clay tile sewer pipe in the system. The probability is very high that a large percentage of the remainder of the clay tile pipe is in deteriorated condition and allows storm water flow to enter into the wastewater collection system. It is recommended that the City enter into a line televising program to determine which lines are in the most deteriorated condition and to assist in setting priorities for line replacements.

Indicated in **Figure 2 – Wastewater System Capital Improvements Plan** are the proposed improvements needed to serve the future development of the City. Major trunk mains and lift stations are shown to provide service within the service area. Lift stations are expensive to construct, maintain, and operate, but are required in some instances to move the wastewater from one drainage area to another. Additional lift stations are required to provide service for future growth in Lockhart, including:

1. FM 20 East
2. Pecan Branch
3. Boggy Creek
4. Plum Creek
5. South Commerce

The proposed FM 20 East Lift Station will serve the area between FM 20 East and County Road 208. The proposed Pecan Branch lift station will serve portion of the Pecan Branch drainage basin. The Boggy Creek Lift Station will serve a portion of the Boggy Creek drainage basin north of County Road 218 between County Road 219 and the service area boundary. The proposed Plum Creek Lift Station will serve the area within the northern City limits along Highway 183 North. The South Commerce Lift Station will serve the area along South Commerce St.

The proposed sewer corridor lines were laid out in accordance with findings of the Northwest Sewer Capacity Study dated June of 2022. The lines around the Plum Creek and South Commerce lift stations were laid out in accordance with the findings of the Lockhart Regional Lift Station Study dated July of 2022.

2.18 Future Wastewater Treatment Needs

The City of Lockhart has two (2) wastewater treatment facilities to receive and treat the raw sewage production from the City residences and businesses. WWTP No. 1 was upgraded in 1986 and WWTP No. 2 was initially placed into operation in February, 1999. Both plants are operated by the Guadalupe-Blanco River Authority, who has the responsibility for meeting the effluent requirements imposed by the TCEQ. The combined plant capacity is 2.6 MGD design flow and 8.5 MGD peak flow, which is adequate to meet the City's needs through the year 2032.

2.19 Cost Estimate

Cost estimates for all the proposed wastewater system improvements based on today's cost including construction and engineering are shown in **Table 7 – Proposed Wastewater System Improvements**.

Table 7 – Proposed Wastewater System Improvements

Name	Quantity	Description	Unit Price[(1)]	Cost
S-1	12,000 Feet	12" Pipe extension past SH 130 to Hidden Path Rd	$200	$2,400,000
S-2	3,300 Feet	12" Pipe between SH 130 and Windridge	$200	$660,000
S-3	1,500 Feet	12" W of SH 130 to San Antonio St.	$200	$300,000
S-4	7,000 Feet	12" Pipe along County Ln.	$200	$1,400,000
S-5	9,300 Feet	18" Pipe along SH 130 and San Antonio St.	$250	$2,325,000
S-6	5,000 Feet	18" Pipe under SH 130 S of Maple St.	$250	$1,250,000
S-7	3,500 Feet	18" Pipe from State Park Rd. to Old Fentress Rd.	$250	$875,000
S-8	1,700 Feet	12" Pipe S of Old Fentress Rd.	$200	$340,000
S-9	1,500 Feet	12" Pipe along State Park Rd.	$200	$300,000
S-10	1,700 Feet	12" Pipe N of State Park Rd.	$200	$340,000
S-11	5,500 Feet	12" Pipe along Cunningham Rd	$200	$1,100,000
S-12	4,300 Feet	18" Pipe along Clear Fork Plum Creek	$250	$1,075,000
S-13	1,500 Feet	12" Pipe E of 183	$200	$300,000
S-14	3,200 Feet	18" Pipe along railroad W of Stueve Ln.	$250	$800,000
S-15	2,200 Feet	18" Pipe along Stueve Ln.	$250	$550,000
S-16	7,000 Feet	24" Pipe along Tank St.	$300	$2,100,000
S-17	2,500 Feet	30" Pipe along railroad	$350	$875,000
S-18	12,000 Feet	12" Pipe under SH 130 to N Colorado St.	$200	$2,400,000

Name	Quantity	Description	Unit Price[(1)]	Cost
S-19	2,200 Feet	12" Pipe S of SH 130 to N Colorado St.	$200	$440,000
S-20	6,000 Feet	12" Pipe E of Plum Creek Lift Station	$200	$1,200,000
S-21	5,200 Feet	12" Pipe along Lovers Ln.	$200	$1,040,000
S-22	3,900 Feet	12" Pipe W of Century Oaks Lift Station	$200	$780,000
S-23	2,800 Feet	10" Pipe E of Century Oaks Lift Station	$180	$504,000
S-24	5,000 Feet	18" Pipe along S Commerce St.	$250	$1,250,000
S-25	1,800 Feet	12" Pipe E of S Commerce St.	$200	$360,000
S-26	2,500 Feet	18" Pipe along S Commerce St.	$250	$625,000
S-27	4,300 Feet	12" Pipe W of Pecan Branch Lift Station	$200	$860,000
S-28	2,000 Feet	12" Pipe W of FM 20 East Lift Station	$200	$400,000
S-29	1 Each	Boggy Creek Lift Station	$1,500,000	$1,500,000
S-30	1,300 Feet	Boggy Creek Force Main	$150	$195,000
S-31	1 Each	Plum Creek Lift Station	$1,500,000	$1,500,000
S-32	5,500 Feet	Plum Creek Force Main	$150	$825,000
S-33	1 Each	South Commerce Lift Station	$1,500,000	$1,500,000
S-34	10,400 Feet	South Commerce Force Main	$150	$1,560,000
S-35	1 Each	Pecan Branch Lift Station	$1,500,000	$1,500,000
S-36	6,200 Feet	Pecan Branch Force Main	$150	$930,000
S-37	1 Each	FM 20 East Lift Station	$1,500,000	$1,500,000
		TOTAL		**$37,859,500**

[(1)] Unit prices are today's prices including engineering and surveying.

3.0 CALCULATION OF FEE

3.1 UNIT USAGE STATISTICS

Design standards (unit usage statistics) for the water and sewer systems have been developed by TRC Engineers, Inc. Those standards are shown in **Table 8 – Capacity Demand for Each New Water LUE** and **Table 9 – Capacity Demand for Each New Water LUE**.

3.2 CONVERSION TABLE

Section 395.014(a)(4) of the Impact Fee Act requires:

> ...an equivalency or conversion table establishing the ratio of a service unit to various types of land used, including residential, commercial, and industrial....

Water meter size, expressed in the common units of living unit equivalents (LUE's), was determined to be the most appropriate measure for calculating the fees due from any individual customer. Water meter size was selected as the unit determinant for fee collection for the following reasons:

- It allows the use of an American Water Works Association (AWWA) published standard.
- This standard includes both safe continuous flow and safe maximum flow which will thereby accommodate all requests for service.
- These standards are those used by building owners, professional engineers and architects, and City staff for sizing meters and plumbing fixtures.
- Meters are a physical element which can be maintained and controlled by the City, thus allowing the monitoring of the accuracy of meter sizing. The City can require any necessary replacement of meters which can be shown to have been sized too small for a development and collect additional impact fees required by the change in meters.
- Particularly in the larger meter sizes, the builder may have to pay for more capacity than needed for the development, thus resulting in a potential payment above actual costs. However, these large-meter customers will be able to use that excess capacity if later building expansions occur or if use patterns change. Moreover, the capacity purchased would be a marketable amenity which would add value to the property.
- The use of water meter size allows equitable cost assignment to each of the three (3) customer classes identified in Chapter 395 (residential, commercial and industrial).

Since water meter size is the basis for calculation of both water and wastewater fees, the base fee should be applied to the smallest meter used by the City. The following policies are suggested:

- The standard used for the ratio of the continuous duty maximum flow rate should be derived from AWWA C700-C703 (in gpm).
- The City's smallest water meter (3/4") should be the base unit for impact fee assessment.
- The Impact Fee Ordinance should have the schedule published as shown in **Table 10 – LUE Equivalencies for Various Types and Sizes of Water Meters**, which includes both compound and turbine meters.
- The use of a turbine meter, in connection with displacement meters in a compound meter installation, would require the use of the turbine meter schedule.

Table 10 – LUE Equivalencies for Various Types and Sizes of Water Meters shows a conversion table for various types and sizes of water meters in the Lockhart water system. Because the fee calculation was based on water meter size, the LUE/meter conversion table applies equally to all land used. **Table 11 – Current Meter Count and Estimation of LUE** shows the current number of LUE's on the Lockhart water system.

Typically, some concern is expressed that water meters are not always a reasonable means of calculating wastewater flows, particularly for certain consumptive types of commercial uses (car washes, restaurants) or industrial processes. Additionally, any land use might have a large meter for irrigation purposes, thus overrepresenting its wastewater flows. However, experience has indicated that few such exceptional customers choose to have a separate wastewater meter because of the installation and maintenance expense incurred. Because no alternative means for assessing flow is practical, it is recommend that the water meter also be adopted as the basis for wastewater impact fees.

However, given the potential that some consumptive commercial and industrial customers may be considerably overcharged for sewer capacity demand when water meter size is used for calculating wastewater impact fees, it is also recommends that the ordinance provide for exceptions. Specifically, the ordinance should permit individual wastewater customers to present data, prepared by a professional engineer, documenting expected wastewater flow below that which is indicated by meter-size determinations for a lower sewer fee. For irrigation-only water meters, the ordinance should provide for a water-only impact fee.

3.3 Projected Service Units for New Development

The estimated demand per LUE shown in **Table 8 – Capacity Demand for Each New Water LUE** and **Table 9 – Capacity Demand for Each New Water LUE** was applied to the existing population of 15,210 and projected population of 23,832 in 2032 to yield the estimated water and wastewater service demands shown in **Table 12 – Estimated Water Service Demand by Facility Type** and **Table 13 – Estimated Wastewater Service Demand by Facility Type**.

3.4 CIP Development for Existing and Future Needs

Facility unit statistics shown in **Table 8 – Capacity Demand for Each New Water LUE** and **Table 9 – Capacity Demand for Each New Wastewater LUE** were used to project facility needs for both existing and future customers. **Table 12 – Estimated Water Service Demand by Facility Type** and **Table 13 – Estimated Wastewater Service Demand by Facility Type** show current needs and deficiencies, if any, for existing customers, as well as projected capacity needs for growth. Although not shown in **Table 12 – Estimated Water Service Demand by Facility Type** and **Table 13 – Estimated Wastewater Service Demand by Facility Type**, both the water and sewer system will require additional lines by 2032, which are addressed in the capital improvements program (see **Table 15 – Water CIP Inventory and Costing** and **Table 16 – Wastewater CIP Inventory and Costing**).

Table 15 – Water CIP Inventory and Costing and **Table 16 – Wastewater CIP Inventory and Costing** present the inventory of facilities as required in Chapter 395. They show the required allocation of existing and future CIP facility needs for existing development; future development within the next ten (10) years; and excess capacity for subsequent future development. For each generation of utility customers, these tables show facility needs which will be met by Existing Facilities and Future Facilities.

Cost allocations are also shown in **Table 15 – Water CIP Inventory and Costing** and **Table 16 – Wastewater CIP Inventory and Costing**. Cost estimates for each facility were taken from actual cost of existing facilities which have excess capacity (see **Table 14 – Cost of Existing Facilities with Excess Capacity**) and projected costs of future facilities (see **Table 4 – Proposed Water System Improvements** and **Table 7 – Proposed Wastewater System Improvements**). An appropriate cost share was attributed to 2022-2032 growth, as determined from capacity allocations shown. Finance cost was added by increasing the construction cost by fifty (50) percent. Finally, costs were expressed on a per-LUE basis. Total capital costs for 2022-2032 growth were then summed for each utility.

Table 8 – Capacity Demand for Each New Water LUE

Facility	Basis	Capacity Per LUE
Wells [(a)]	0.6 gal/min per connection	712 gallons/day
Raw Water Transmission	0.6 gal./min. per connection	712 gallons/day
Treatment [(c)]	0.6 gal/min per connection	712 gallons/day
Booster Pumps [(b)]	0.6 gal/min per connection	712 gallons/day
Elevated Storage [(b)]	200 gal per connection	165 Gallons

(a)TCEQ Standard 290.45(b)(1)(D)(i)
(b)TCEQ Standard 290.45(b)(1)(D)(ii)
(c)TCEQ Standard 290.45(a)(6)

Table 9 – Capacity Demand for Each New Wastewater LUE

Facility	Basis	Capacity Per LUE
Treatment	TCEQ Standards Average Day	167 gallons/day

Based on an average per capita use of 71 gpd/capita and 2.35 people per LUE per Tables 6 and 11

Table 10 – LUE Equivalencies for Various Types and Sizes of Water Meters

Meter Type	Meter Size	Continuous Duty Maximum Rate (gpm)	Ratio To 3/4" Meter
Simple	5/8" x 3/4"	10	0.667
Simple	3/4"	15	1.000
Simple	1"	25	1.667
Simple	1-1/2"	50	3.333
Simple	2"	80	5.333
Compound	2"	80	5.333
Turbine	2"	100	6.667
Compound	3"	175	11.667
Turbine	3"	220	14.667
Compound	4"	300	20.000
Turbine	4"	420	28.000
Compound	6"	675	45.000
Turbine	6"	865	57.667

SOURCE: AWWA Standards C700, C701, C702, C703.

Table 11 – Current Meter Count and Estimation of LUE

Meter Size	Number Of Meters[(a)]	LUEs Per Meter[(b)]	Number Of LUEs[(c)]
3/4"	4,950	1	4,950
1"	157	1.667	262
1-1/2"	20	3.333	67
2"	131	5.333	699
3"	26	11.667	303
4"	10	20.000	200
TOTAL	**5,294**		**6,481**
Population			15,210
Population/LUE			2.35

(a) SOURCE: City of Lockhart
(b) See Table 10
(c) January 2022 estimate

Table 12 – Estimated Water Service Demand by Facility Type

Facility Type	Volume	
	2022	2032
LUE'S (a)	**6,481**	**10,154**
WELLS MGD:		
Estimated Demand (b)	4.61	7.23
Estimated Demand minus Carrizo Supply (g)	1.94	4.56
Existing Capacity	4.60	4.60
Excess/(Deficiency)	2.66	0.04
RAW WATER TRANSMISSION:		
Estimated Demand (c)	4.61	7.23
Estimated Demand minus Carrizo Supply (g)	1.94	4.56
Existing Capacity	5.20	5.20
Excess/(Deficiency)	3.26	0.64
WATER TREATMENT PEAK MGD:		
Estimated Demand (c)	4.61	7.23
Estimated Demand minus Carrizo Supply (g)	1.94	4.56
Existing Capacity	5.70	5.70
Excess/(Deficiency)	3.76	1.14
BOOSTER PUMP MGD:		
Estimated Demand (d)	4.61	7.23
Existing Capacity (f)	6.92	6.92
Excess/(Deficiency)	2.31	(0.31)
ELEVATED WATER STORAGE MGD:		
Estimated Demand (e)	1.07	1.68
Existing Capacity	1.55	1.55
Excess/(Deficiency)	0.48	(0.13)

(a) 2022 LUE's based on count of equivalent meters. 2032 LUE's determined by 2022 persons per LUE and projected 2032 population of 23,832 people per the Sept 2022 LUA meeting.

(b) Capacity Demand = 712 gallons/LUE/day.

(c) Capacity Demand = 712 gallons/LUE/day.

(d) Capacity Demand = 712 gallons/LUE/day.

(e) Capacity Demand = 165 gallons/LUE.

(f) Assumes completion of HSPS expansion project.

(g) Carrizo Water Supply assumed to be 3,000 acre-ft/year (2.67 mgd)

(h) Table does not include 1.0 MGD from Luling

Table 13 – Estimated Wastewater Service Demand by Facility Type

Facility Type	Volume	
	2022	2032
LUE'S (a)	**6,481**	**10,154**
WASTEWATER TREATMENT PEAK MGD:		
Estimated Demand (b)	1.08	1.69
Existing Capacity	2.60	2.60
Excess/(Deficiency)	1.52	0.91

(a) Wastewater LUE's same as water.
(b) Capacity demand based on 167 gallons/LUE/day

Table 14 – Cost of Existing Facilities with Excess Capacity

WATER			
SUPPLY			
Well	3B	$169,148	
	4A	$118,917	
	5A	$96,025	
	9A	$623,902	
	10	$623,902	
	11	$412,793	
	12	$402,258	
	TOTAL		**$2,446,945**
RAW WATER TRANSMISSION			
Raw Water Pump Station		$296,495	
Well 9 Transmission Main		$300,415	
Plum Creek Raw Water Main		$349,246	
Ethridge Raw Water Main		$394,413	
Well 12 Transmission Main		$146,183	
18" Raw Water Main		$49,353	
Carrizo Water Supply		$3,075,277	
	TOTAL		**$4,611,382**
TREATMENT			
Water Plant			$2,310,484
BOOSTER PUMPS			
High Service Pump Station Expansion			$989,000
ELEVATED STORAGE			
City Line Rd Pump Station		$1,025,000	
0.5 MG Elevated Storage		$1,716,000	
	TOTAL		**$2,741,000**

TRANSMISSION MAINS			
18" MLK Water Main		$460,601	
18" SH 130 Main Phase 1		$217,666	
18" SH 130 Main Phase 2		$606,143	
Bufkin Water Main		$294,685	
	TOTAL		**$1,579,095**
		TOTAL WATER	**$14,677,906**

WASTEWATER			
TREATMENT			$3,653,000
COLLECTION LINES			
FM 20 Trunk Main		$1,827,000	
Borchert Lane 12" Sewer		$133,349	
	TOTAL		**$1,960,349**
		TOTAL WASTEWATER	**$5,613,349**

(a) Costs are all original capital construction costs.

Table 15 – Water CIP Inventory and Costing

FACILITY		CONSTRUCT COST	CONSTRUCT COST PLUS INTEREST	FACILITY CAPACITY (mgd or gals)				NEXT 10-YEAR CAPITAL COST TOTAL	NEXT 10-YEAR COST PER LUE
TYPE	NAME			TOTAL	FOR CURRENT CUST	EXCESS <10 YEARS	EXCESS >10 YEARS		
SUPPLY									
EXISTING FACILITIES				MGD					
	Wells	$2,446,945	$3,670,418	4.60	1.94	2.62	0.04	$2,086,958.34	$568.12
	Subtotal Existing Wells	$2,446,945	$3,670,418	4.60	1.94	2.62	0.04	$2,086,958.34	$568.12
TOTAL WELL		**$2,446,945**	**$3,670,418**	**4.60**	**1.94**	**2.66**	**0.04**	**$2,086,958.34**	**$568.12**
RAW WATER TRANSMISSION									
EXISTING FACILITIES				MGD					
	Raw Water Main	$1,536,105	$2,304,158	5.20	1.94	2.62	0.64	$1,158,950.70	$315.49
	Subtotal Existing Raw Water	$1,536,105	$2,304,158	5.20	1.94	2.62	0.64	$1,158,950.70	$315.49
TOTAL RAW WATER		**$1,536,105**	**$2,304,158**	**5.20**	**1.94**	**2.62**	**0.64**	**$1,158,950.70**	**$315.49**
TREATMENT									
EXISTING FACILITIES				MGD					
	Water Treatment Plant	$2,310,484	$3,465,726	5.70	1.94	2.62	1.14	$1,590,287.01	$432.91
	Subtotal Existing Treatment	$2,310,484	$3,465,726	5.70	1.94	2.62	1.14	$1,590,287.01	$432.91
TOTAL WATER TREATMENT		**$2,310,484**	**$3,465,726**	**5.70**	**1.94**	**2.62**	**1.14**	**$1,590,287.01**	**$432.91**
PUMPING									
EXISTING FACILITIES									
	HSPS Expansion	$989,000	$1,483,500	6.92	4.61	2.31	0	$494,357.65	$134.58
	Subtotal Existing Facilities	$989,000	$1,483,500	6.92	4.61	2.31	0	$494,357.65	$134.58
TOTAL WATER PUMPAGE		**$989,000**	**$1,483,500**	**6.92**	**4.61**	**2.31**	**0**	**$494,357.65**	**$134.58**
ELEVATED STORAGE									
EXISTING FACILITIES				MG					

FACILITY		CONSTRUCT COST	CONSTRUCT COST PLUS INTEREST	FACILITY CAPACITY (mgd or gals)				NEXT 10-YEAR CAPITAL COST TOTAL	NEXT 10-YEAR COST PER LUE
TYPE	NAME			TOTAL	FOR CURRENT CUST	EXCESS <10 YEARS	EXCESS >10 YEARS		
	Elevated Storage	$2,741,000	$4,111,500	1.55	1.07	0.48	0	$1,275,214.88	$347.14
	Subtotal Existing Facilities	$2,741,000	$4,111,500	1.55	1.07	0.48	0	$1,275,214.88	$347.14
NEW FACILITIES									
	Elevated Storage Tank (W-21)	$1,750,000	$2,625,000	0.5	0.00	0.02	0.48	$105,000.00	$28.58
	Subtotal New Facilities	$1,750,000	$2,625,000	0.5	0.00	0.02	0.48	$105,000.00	$28.58
TOTAL ELEVATED STORAGE		**$4,491,000**	**$6,736,500**					**$1,380,214.88**	**$375.73**
MAJOR TRANSMISSION LINES									
EXISTING FACILITIES				MGD					
	Major Transmission Lines	$4,654,372	$6,981,558	8	4.00	3.00	1.00	$2,618,084.25	$712.70
	Subtotal Existing Transmission	$4,654,372	$6,981,558	8	4.00	3.00	1.00	$2,618,084.25	$712.70
NEW FACILITIES									
	Major Transmission Lines (W-1 to W-30)	$20,020,000	$30,030,000	10	0.00	8.00	2.00	$24,024,000.00	$6,539.87
	Subtotal New Facilities	$20,020,000	$30,030,000	10	0.00	8.00	2.00	$24,024,000.00	$6,539.87
TOTAL TRANSMISSION LINES		**$24,674,372**	**$37,011,558**					**$26,642,084.25**	**$7,252.57**
FEE UPDATE COST (Water Portion)								**$16,485.00**	**$4.49**
MASTER PLAN (Water Portion)								**$150,000.00**	**$40.83**
TOTALS		**$36,447,906**	**$54,671,859**					**$33,519,337.83**	**$9,124.71**

(a) Interest assumed to be 50% for all categories.

Table 16 – Wastewater CIP Inventory and Costing

FACILITY		CONSTRUCT COST	CONSTRUCT COST PLUS INTEREST	FACILITY CAPACITY (mgd or gals)				NEXT 10-YEAR CAPITAL COST TOTAL	NEXT 10-YEAR COST PER LUE
TYPE	NAME			TOTAL	FOR CURRENT CUST	EXCESS <10 YEARS	EXCESS >10 YEARS		
TREATMENT									
EXISTING FACILITIES				PEAK MGD					
	FM 20 WWTP	$3,653,000	$5,479,500	2.60	1.08	0.61	0.91	$1,292,310.62	$351.80
	Subtotal Existing Facilities	$3,653,000	$5,479,500	2.60	1.08	0.61	0.91	$1,292,310.62	$351.80
	TOTAL WASTEWATER TREATMENT	**$3,653,000**	**$5,479,500**	**2.60**	**1.08**	**0.61**	**0.91**	**$1,292,310.62**	**$351.80**
PUMPING									
EXISTING FACILITIES									
	Airport Lift Station expansion	$658,482	$987,723	1.40	0.50	0.80	0.10	$564,413.14	$153.65
NEW FACILITIES									
	Boggy Crk Lift Station (S-29)	$1,500,000	$2,250,000	0.70		0.35	0.35	$1,125,000.00	$306.25
	Plum Crk Lift Station (S-31)	$1,500,000	$2,250,000	2.00		1.00	1.00	$1,125,000.00	$306.25
	South Commerce Lift Station (S-33)	$1,500,000	$2,250,000	2.80		1.40	1.40	$1,125,000.00	$306.25
	Pecan Branch Lift Station (S-35)	$1,500,000	$2,250,000	0.30		0.15	0.15	$1,125,000.00	$306.25
	FM 20 East Lift Station (S-37)	$1,500,000	$2,250,000	0.30		0.15	0.15	$1,125,000.00	$306.25
	Subtotal New Facilities	$7,500,000	$11,250,000	6.10		3.05	3.05	$5,625,000.00	$1,531.25
	TOTAL WASTEWATER PUMPING	**$7,500,000**	**$11,250,000**	**6.10**		**3.05**	**3.05**	**$5,625,000.00**	**$1,531.25**
MAJOR COLLECTION LINES									
EXISTING FACILITIES				MGD					
	FM 20 Trunk Main & Borchert Lane 12" Sewer	$1,960,349	$2,940,524	1.00	0.35	0.45	0.20	$1,323,235.58	$360.21
	Subtotal Existing Facilities	$1,960,349	$2,940,524	1.00	0.35	0.45	0.20	$1,323,235.58	$360.21
NEW FACILITIES									
	Major Collection Line (S-1 to S-28 and S-30,32,34,36)	$30,359,000	$45,538,500	8	0	6.00	2	$34,153,875.00	$9,296.49

FACILITY		CONSTRUCT COST	CONSTRUCT COST PLUS INTEREST	FACILITY CAPACITY (mgd or gals)				NEXT 10-YEAR CAPITAL COST TOTAL	NEXT 10-YEAR COST PER LUE
TYPE	NAME			TOTAL	FOR CURRENT CUST	EXCESS <10 YEARS	EXCESS >10 YEARS		
	Subtotal New Facilities	$30,359,000	$45,538,500	8	0	6.00	2	$34,153,875.00	$9,296.49
TOTAL MAJOR COLLECTION LINES		**$30,359,000**	**$45,538,500**	**8**	**0**	**6.00**	**2**	**$34,153,875.00**	**$9,296.49**
FEE UPDATE COST (Wastewater Portion)								**$16,485.00**	**$4.49**
MASTER PLAN (Wastewater Portion)								**$150,000.00**	**$40.83**
TOTALS		**$43,472,349**	**$65,208,524**					**$42,560,906.20**	**$11,584.84**

(a) Interest assumed to be 50% for all categories.

4.0 SUMMARY

Table 17 – Water and Wastewater Maximum Impact Fees shows the remainder of the fee calculation process. A credit of fifty (50) percent of the total calculated fee is required by recent legislative changes to Chapter 395 if a credit for ad valorem tax and utility service revenues is not applied.

The maximum total water impact fee, with credits is $4,562.36 per LUE. For wastewater, the maximum fee, with credits, is $5,792.42 per LUE. The maximum total for the two utilities is $10,354.32 for one LUE of service.

Higher fees will be charged for larger meter sizes, according to the fee multipliers shown in **Table 10 – LUE Equivalencies for Various Types and Sizes of Water Meters**.

Table 17 – Water and Wastewater Capital Cost Summary

Utility	Facility	Cost/LUE	Credit/LUE	Maximum Fee/LUE
WATER	Wells	$568.12	$284.06	$284.06
	Raw Water Transmission	$315.49	$157.75	$157.75
	Treatment	$432.91	$216.46	$216.46
	Pumping	$134.58	$67.29	$67.29
	Elevated Storage	$375.73	$187.86	$187.86
	Major Transmission	$7,252.57	$3,626.29	$3,626.29
	Fee Update Cost	$4.49	$2.24	$2.24
	Master Plan	$40.83	$20.42	$20.42
TOTAL WATER CAPITAL COSTS		**$9,124.71**	**$4,562.36**	**$4,562.36**
WASTEWATER	Treatment	$351.76	$175.88	$175.88
	Lift Stations (a)	$1,531.09	$765.55	$765.55
	Major Collection	$9,296.49	$4,648.25	$4,648.25
	Fee Update Cost	$4.49	$2.24	$2.24
	Master Plan	$40.83	$20.42	$20.42
TOTAL WASTEWATER CAPITAL COSTS		**$11,584.84**	**$5,792.42**	**$5,792.42**
TOTAL WATER AND WASTEWATER CAPITAL COSTS		**$20,708.64**	**$10,354.32**	**$10,354.32**

FIGURE 1

Water System Capital Improvements Plan


CITY OF
Lockhart
TEXAS
WATER LINE NETWORK
N
LEGEND
EXISTING WATER LINE
PROPOSED WATER LINE
CITY LIMITS
This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the ground survey, and represents only the approximate relative location of property boundaries.
0
0.5
1 Miles
W-31
PROPOSED 2720
500,000 GAL ELEVATED
STORAGE TANK
WATER PLANT
UNION PACIFIC RR (MK&T RR)
HWY 142
OLD KELLEY RD
OLD McMAHAN RD
SEAWILLOW RD
TUMBLEWEED TRL
STONEY DAILE RD
BOGGY CREEK RD
CLARK LP
JOLLEY RD
COUNTY VIEW RD
BORCHERT LP
FM 20
FM 672

FIGURE 2

Wastewater System Capital Improvements Plan

CITY OF

Lockhart

TEXAS

SEWER LINE NETWORK