

IMPACT FEE STUDY

2016 UPDATE STUDY OF LAND USE ASSUMPTIONS,
CAPITAL IMPROVEMENT PLAN & IMPACT FEES

WATER SUPPLY/DISTRIBUTION AND
WASTEWATER TREATMENT/COLLECTION

CITY OF MANVEL, TEXAS



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IMPACT FEE STUDY

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I. INTRODUCTION

A. BACKGROUND

The City of Manvel, Texas has elected to adopt Water and Wastewater Impact Fees to assist in the financing of Capital Improvements for these systems that are necessitated by growth and development anticipated in the City. In 2016, the City Council authorized Daniel Scott Engineering, LLC (DSE) to prepare the update of the Land Use Assumptions, Capital Improvement Plan (CIP), and Impact Fee Study in accordance with Chapter 395 of the Local Government Code (Impact Fee Legislation), which is the state legislation regulating this adoption process.

This 2016 Impact Fee Study represents an update of the 2013 Study, which was also prepared by DSE. The 2013 Study consisted of two separate documents – one consisting of the Land Use Assumptions and CIP, and the other consisting of the Impact Fee Study. In this 2016 update, the two documents have been combined into one for ease of use. This document; therefore, includes the basis for determination of the Water and Wastewater Impact Fee per Equivalent Service Unit (ESU), based on Land Use Assumptions and the corresponding CIP.

B. ADVISORY COMMITTEE

The City Council has appointed an Advisory Committee to give policy direction, guide the public hearing process, and make a recommendation to the Council regarding the final report and fee amount. This committee consists of the Manvel Planning, Development and Zoning Commission (PD&Z), which currently has one member representing the real estate industry, as required by the Impact Fee Legislation.

C. PLANNING PERIOD

The City of Manvel is located in a high growth corridor along SH 288, approximately 20 miles south of the City of Houston. The planning period for this Impact Fee Study will be for the ten-year period from 2016-2026 in accordance with requirements of the aforementioned Chapter 395. Population projections and resulting growth for the planning period can be found in the Land Use Assumptions, and details of the projects are shown in the CIP. Although many of the improvements planned for this period are in the core of the City (near SH 6 and FM 1128), these systems will be the backbone of an anticipated future integrated system that will ultimately serve a population well in excess of 100,000.

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D. CAPITAL IMPROVEMENTS

Water and Wastewater Capital Improvements are defined as *“any facility that has a life expectancy of three or more years and are owned and operated by or on behalf of a political subdivision: water supply, treatment and distribution facilities; wastewater collection and treatment facilities.”*

Costs for system improvements necessitated by regulatory changes, maintenance requirements, or to correct deficiencies in existing developed areas are not eligible for reimbursement by impact fees and are therefore not included in the CIP developed for the purposes of this study. Many of the improvements may be financed through the issuance of bonds, and therefore finance charges have been estimated and will be included in the fee calculation. Acquisition of land, easements, and engineering costs for the projects are eligible under the legislation and have also been included in the calculation.

E. IMPACT FEES

This document will establish the projected number of Equivalent Service Units estimated to be added to the City of Manvel’s water and wastewater system over the Planning Period, as well as the anticipated areas, which will require these services. The required Capital Improvements to be constructed can then be determined with cost estimates that will be utilized to calculate the proposed Impact Fees.

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II. LAND USE ASSUMPTIONS

A. BASIS

The Land Use Assumptions established herein are based on the following:

- The City's current Zoning Map.
- The Capital Improvements Program adopted in 2013 and updated in 2016.
- The Comprehensive Plan adopted in 2007 and updated in 2015.
- Area Growth projections provided by HGAC and other sources.
- United States Census Bureau data and previous historical data.
- Current growth trends experienced in the City.
- Availability of vacant tracts in the City.

B. SERVICE AREA

The Impact Fee Legislation defines Land Use Assumptions as: *“a description of the service area and projections of changes in land uses, densities, intensities and population in the service area over at least a ten-year period.”* The City of Manvel has elected to define the service area for Impact Fees as the current City Limits. The legislation also allows the City to impose impact fees in the City's Extraterritorial Jurisdiction; however, this would require that the City have the ability to provide utility service to these areas, which is currently beyond the system's capacity.

The City has elected to establish Impact Fees on a system-wide basis. Currently, the City has several standalone systems (Municipal Utility Districts) providing water and wastewater to residents and businesses. It is the long-term goal established in the City's Comprehensive Plan to integrate these systems in order to provide greater efficiency of operation, redundancy of service, and ability to meet requirements of the Texas Commission on Environmental Quality (TCEQ). As growth reaches population thresholds set by the TCEQ, the City will need to provide enhancements, such as elevated storage tanks, redundant water supply, and future surface water supply.

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C. POPULATION PROJECTIONS

According to the United States Census Bureau (Table 1), the population for the City of Manvel was estimated at 7,165 on July 1, 2014. This represents an increase of 38% from the 2010 Official Census, and an increase of 1,986 people in four years. After an increase of 70% (2,133 people) from 2000 (3,046) to 2010 (5,179), the Census Bureau continues to document the recent population explosion being observed in Manvel.

Over the last 44 years of Census data, the City of Manvel hasn't always experienced linear population increases. The City witnessed a tremendous population spike of 3,248% from 1970 to 1980, but then a tapering off from 1980 to 1990. Despite the 18% decrease from 1990 to 2000, the City has experienced an average annual population increase of 11.6% since 1970.

The 2013 Impact Fee Study incorporated an average annual increase of 6% for the population projection, which proved to be consistent with the 6.3% increase observed by the Census Bureau. However, it should be noted that, since 2010, the population in Manvel has increased by 8.5% per year.

TABLE 1
US CENSUS BUREAU

Geography Name	Year	Household Population	% Increase	Population Increase
Manvel	1970	106		
Manvel	1980	3,549	3,248%	3,443
Manvel	1990	3,733	5%	184
Manvel	2000	3,046	-18%	(687)
Manvel	2010	5,179	70%	2,133
Manvel	2014	7,165	38%	1,986
		AVERAGE PER YEAR		
		SINCE 1970:	11.6%	160
		SINCE 1980:	2.1%	106
		SINCE 1990:	2.8%	143
		SINCE 2000:	6.3%	294
		SINCE 2010:	8.5%	497

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The City’s 2007 Comprehensive Plan projected a build-out population of 155,257 within the combined 40 square miles of the City and its ETJ. Growth trends for the current decade are on a similar track with Houston Galveston Area Council (HGAC) projecting a population increase of 12,177 by 2026. The HGAC population projections for the planning period are presented in Table 2.

TABLE 2
HGAC POPULATION PROJECTIONS

Geography Name	Year	Household Population	% Increase	Population Increase
Manvel	2016	7,212		
Manvel	2017	7,546	4.6%	334
Manvel	2018	8,168	8.2%	622
Manvel	2019	9,095	11.3%	927
Manvel	2020	9,908	8.9%	813
Manvel	2021	11,366	14.7%	1,458
Manvel	2022	12,616	11.0%	1,250
Manvel	2023	13,938	10.5%	1,322
Manvel	2024	16,163	16.0%	2,225
Manvel	2025	17,828	10.3%	1,665
Manvel	2026	19,389	8.8%	1,561
		AVERAGE: TOTAL:	10.4%	12,177

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D. GROWTH RATE

According to the Census Bureau, the City of Manvel has experienced a growth rate of 8.5% per year over the last four years. In turn, HGAC projects the City’s growth rate at 10.4% over the next ten years. While the 2013 Impact Fee Study implemented a conservative annual growth rate of 6%, the recommendation of this 2016 Updated Study is to increase the growth rate for the planning period between 2016 and 2026 to **9%**.

This 9% Growth Rate is recommended for the projection of population and resulting service units for the calculation of the Impact Fee amount. Table 3 indicates the resulting population projections by year, with a total estimated population growth of **9,861**.

TABLE 3
9% ANNUAL GROWTH RATE PROJECTIONS

Source	Year	Household Population	% Increase	Population Increase
<i>US Census Data</i>	2000	3,046		
	2010	5,179	70	
	2014	7,165	38	
HGAC	2016	7,212	9	
Manvel	2017	7,861	9	649
Manvel	2018	8,569	9	707
Manvel	2019	9,340	9	771
Manvel	2020	10,180	9	841
Manvel	2021	11,097	9	916
Manvel	2022	12,095	9	999
Manvel	2023	13,184	9	1,089
Manvel	2024	14,370	9	1,187
Manvel	2025	15,664	9	1,293
Manvel	2026	17,073	9	1,410
		AVERAGE: TOTAL:	9%	9,861

III. CAPITAL IMPROVEMENT PLAN

A. CAPITAL IMPROVEMENTS PROGRAM

The City of Manvel adopted their current Capital Improvements Program in April of 2016, which provided proposed projects for water, wastewater, facility, planning, and streets. The program provided a list of 30 projects to be completed in the next 5 years (2016-2020). Since the planning period for the Impact Fee adoption process is *10 years*, all of the eligible water and sewer projects from the Capital Improvements Program will be included, as well as other projects anticipated within the 10-year range.

B. EXISTING CITY FACILITIES

Currently, the potable water facilities operated by the City consist of the following:

- Distribution mains ranging from 4-inches to 16-inches in diameter
- School Road Water Plant with the following assets:
 - (1) 950 gallons per minute (gpm) well
 - (1) 350 gpm well
 - (1) 100 gpm well
 - (1) 175,000 gallon ground storage tank (GST)
 - (1) 125,000 gallon GST
 - (3) 500 gpm booster pumps
 - (1) 20,000 gallon hydro-pneumatic tank
 - (1) 10,000 gallon hydro-pneumatic tank
 - chlorination facilities
- Corporate Drive water well with 90 gpm well and chlorination facilities

Currently the wastewater system operated by the City consists of the following:

- Force mains ranging from 2" to 10" diameter
- Gravity mains ranging from 4" to 24" diameter
- 0.25 million gallons per day (MGD) wastewater treatment plant
- Six (6) lift stations

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C. MUNICIPAL UTILITY DISTRICTS

In addition to the City-maintained systems, there are several Municipal Utility Districts (MUDs) that have been created in the City Limits and are operated by others to serve residents that reside in these developments. It is the long-term objective of the City to integrate these systems that will ultimately be owned and operated by the City. These systems are as follows:

- MUD 29: Rodeo Palms
- MUD 30: The Presidio
- MUD 61: Lakeland
- MUD 56 and 57: Seven Oaks/Meridiana
- MUD 42: Argovitz Properties

In addition to these MUDs, there are also several that exist in the City's ETJ that will possibly be annexed into the City in the future.

D. PROJECTS

As discussed, the Capital Improvements Program (PROGRAM) identified 30 projects for water, wastewater, facility, planning, and streets. The Capital Improvement Plan (CIP) contained within this 2016 Updated Impact Fee Study document consists of only eligible water and wastewater projects from the City's PROGRAM.

Twelve (12) water projects and six (6) wastewater projects were identified within the PROGRAM and are included in Table 4. The approximate subtotal costs are \$10.9M for the water projects and \$18.1M for the wastewater projects. Detailed project descriptions can be found in *Section IV. Project Data Sheets* of the PROGRAM.

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TABLE 4
CAPITAL IMPROVEMENT PLAN

<u>WATER PROJECTS</u>	<u>APPROXIMATE COST</u>
Master Water Plan	\$ 50,000
Water Plant Improvements	\$ 410,000
Rogers Road West Waterline Loop	\$ 270,000
Rogers Road East Waterline Loop	\$ 130,000
Cemetery Waterline Loop	\$ 200,000
Charlotte Waterline Loop	\$ 210,000
Tankersley Waterline Loop	\$ 310,000
SH6 East Waterline Extension	\$ 670,000
FM1128 Waterline Extension Phase 2	\$ 950,000
Elevated Storage Tank	\$ 1,400,000
Purchase Surface Water Rights Phase 1	\$ 5,000,000
<u>Del Bello Waterline Extension</u>	<u>\$ 1,300,000</u>
SUBTOTAL WATER	\$ 10,900,000
<u>WASTEWATER PROJECTS</u>	<u>APPROXIMATE COST</u>
Master Wastewater Plan	\$ 50,000
Large Road Sanitary Sewer	\$ 250,000
Regional Wastewater Treatment Plant	\$ 10,000,000
SH6 East Wastewater Extension	\$ 2,600,000
FM1128 Wastewater Extension	\$ 2,600,000
<u>Del Bello Wastewater Extension</u>	<u>\$ 2,600,000</u>
SUBTOTAL WASTEWATER	\$ 18,100,000

Other future projects to be included with the 10-year timeframe that will be implemented with Impact Fee funds are as follows:

TABLE 5
ADDITIONAL PROJECTS

<u>ADDITIONAL PROJECTS</u>	<u>APPROXIMATE COST</u>
Purchase Surface Water Rights Phase 2	\$5,000,000
<u>Impact Fee Study (Two 5-Year Updates)</u>	<u>\$ 50,000</u>
Subtotal Additional WATER Projects:	\$5,050,000

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Interest expenses will be included in the determination of the impact fee maximum amount to support the debt service for a portion of the projects detailed above. It is assumed (for purposes of this report) the Bond projects will be financed for 10 years, and interest rates will average 2% (based on average rates for the Texas Water Development Board SRF loan Program). Therefore, interest expenses are as follows:

TABLE 6
TOTAL PROJECT COSTS

	<u>Water</u>	<u>Wastewater</u>
CIP Project Costs (Table 4)	\$10,900,000	\$18,100,000
<u>Additional Projects (Table 5)</u>	<u>\$ 5,050,000</u>	<u>\$ 0</u>
<i>Subtotal Project Costs</i>	<i>\$15,950,000</i>	<i>\$18,100,000</i>
Interest Rate per Annum	2%	2%
Term	10 years	10 years
<u>Approximate Interest Costs</u>	<u>\$ 3,190,000</u>	<u>\$ 3,620,000</u>
<i>Interest Costs (1/2)</i>	<i>\$ 1,595,000</i>	<i>\$ 1,810,000</i>
TOTAL PROJECT COSTS	\$17,545,000	\$19,910,000

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IV. IMPACT FEES

The impact fee amount per equivalent service unit will be determined based on the number of service units projected to be added to the systems over the 10-year planning period. The single family residence will be considered as the standard service unit. Table 7 establishes Equivalent Service Units for water meters based on AWWA hydraulic capacities standard to the engineering industry.

A. ADMINISTRATIVE ITEMS

- a. The impact fee will be *assessed* (subject to future updates) at the time that a plat is filed (where applicable), and *collected* during the building permit process, as identified in the impact fee legislation.
2. Parks and temporary construction trailers will not be assessed any impact fees.
3. Houses and businesses obtaining additional meter(s) for fire line or lawn irrigation purposes only will not pay the impact fee associated with water or wastewater.
4. The Architect or Engineer for the Owner will size the water meter for the development based on industry standards.
5. Governmental buildings and churches will not pay the water and sewer impact fees based on the proposed assessment method. Schools are exempt from payment of impact fees unless the board of trustees consents to a specific agreement in accordance with Chapter 395, Local Government Code.
6. When an existing water meter is changed out, additional impact fees will only be assessed if the meter size is increased. The fee will be based on the incremental increase in the Service Units.
7. When meters are changed out for the same size meter or a smaller meter, no Impact Fee will be assessed.
8. If an existing home is currently on a private well and/or septic system, and public water or sewer become available:
 - a. If the homeowner connects within 1 year of the installation of the City services, they will not have to pay impact fees.
 - b. If the homeowner has not connected to City services within that first year, they can connect within the second year and pay ½ of the impact fee.
 - c. If the homeowner has not connected to City services within the first two years, they will pay the full impact fee at the time of their connection.
9. Impact fees do not include tap or meter fees; these regulations do not waive any tap or meter fees.

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B. EQUIVALENT SERVICE UNITS

The Impact Fee Legislation requires that the study provide a “*definitive table establishing the specific quantity of use, consumption, generation, or discharge of a service unit for each category of capital improvements or facility expansions, and an equivalent or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial, and industrial.*”

Many municipalities have determined that the method that is the most equitable and easy to administer is based on the water meter size required to support the proposed building or facility. The American Water Works Association has published tables identifying the industry standard rated flow rates for meters of various sizes.

These flow rates are compared to the standard residential meter (3/4” for Manvel) as one service unit, and provide an equivalency factor to determine the total impact fee. This method is recommended since it provides the most equitable determination of actual *impact* of the development on the water and wastewater systems.

TABLE 7
EQUIVALENT METER TABLE

ACTUAL METER SIZE (inches)	EQUIVALENCY FACTOR
¾	1.00
1	1.67
1 ½	3.33
2	5.33
3	10.00
4	16.67
6	33.33
8	53.33
10	76.67

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According to the City of Manvel Utility Billing Department, there are currently 433 water meters in the School Road Water Plant Service Area. As shown on Table 8, the majority (390 out of 433) are standard ¾” residential meters. Another 22 meters service larger homes and have 1” meters. The meters larger than 2” service commercial developments.

TABLE 8
CURRENT WATER METERS BY SIZE

METER SIZE (inches)	CURRENT QUANTITY	EQUIVALENCY FACTOR	TOTAL NUMBER OF EQUIVALENT METERS
¾	390	1.00	390
1	22	1.67	37
1½	2	3.33	7
2	13	5.33	69
3	4	10.00	40
4	0	16.67	0
6	2	33.33	67
8	0	53.33	0
10	0	76.67	0
TOTAL	433	TOTAL	609

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Utilizing the 9% Growth Rate recommended in Section II. Land Use Assumptions, the number of Equivalent Service Units projected to be added from 2016-2026 can be determined. According to the HGAC data, there are currently 2,793 total households within the City limits of Manvel in 2016. With a current population of 7,212, this equates to a ratio of **2.6** persons per household. Additionally, the current number of commercial developments utilizing City water represent approximately: $176 / 609 = 29\%$ of the existing ESUs.

Assuming a continued density of 2.6 people per household, and a continued increase in commercial development of 25%, the following increase in equivalent service units will provide the basis for determining the maximum allowable impact fee that may be charged by the City:

TABLE 9
EQUIVALENT SERVICE UNITS

Citywide Increase in population for planning period (2016-2026):	9,861
Corresponding Increase in Commercial Development (at 25%):	2,465
Total Projected increase in population (9,861 + 2,465):	12,326
Projected increase in Population per Service Unit:	12,326 / 2.6
Increase in Service Units for planning period (2016-2026) =	4,741 ESU

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C. MAXIMUM IMPACT FEE DETERMINATION

Chapter 395 of the Local Government Code was amended in 2001 to include that the City must provide for one of the following from Section 395.014 Paragraph (a) (7):

- (A) *a credit for the portion of ad valorem tax and utility service revenues generated by new service units during the program period that is used for the payment of improvements, including the payment of debt, that are included in the Capital Improvements Plan; or*
- (B) *in the alternative, a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan.*

The City of Manvel has elected to follow option (B) and provide the credit equal to 50 percent of the CIP resulting in the following recommended Impact Fees. Therefore:

TABLE 10
MAXIMUM IMPACT FEES

Total Cost of Water Projects from CIP/Increase in Service Units (2016-2026)			
$\$17,545,000 / 4,741 = \$ 3,700 / \text{ESU}$			
Total Cost of Wastewater Projects from CIP/Increase in Service Units (2016-2026)			
$\$19,910,000 / 4,741 = \$ 4,200 / \text{ESU}$			
Maximum Water Impact Fee:	$\$ 3,700 \times 50\%$	=	$\$ 1,850 / \text{ESU}$
Maximum Wastewater Impact Fee:	$\$ 4,200 \times 50\%$	=	$\$ 2,100 / \text{ESU}$
Maximum Total Impact Fee:	$\$ 1,850 + \$2,100$	=	$\\$ 3,950 / \text{ESU}$

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V. SUMMARY AND RECOMMENDATIONS

The City of Manvel, Texas has elected to adopt Water and Wastewater Impact Fees to assist in the financing of Capital Improvements for the systems that are necessitated by growth and development anticipated in the City.

- The Planning Period for this Impact Fee Study is **2016-2026**.
- A growth rate of **9%** per year is recommended for projection of population and resulting service units for the calculation of the Impact Fee amount.
- The projected population increase for this Planning Period is **9,861** people.
- The equivalent increase in service units are **4,741 ESU**.
- Total Costs for eligible Water Projects identified in the CIP equate to **\$17,545,000**.
- Total Costs for eligible Wastewater Projects identified in the CIP equate to **\$19,910,000**.

Based on the information presented in this 2016 Impact Fee Study, the Impact Fee Advisory Committee recommends that the City Council adopt the following Impact Fee rates:

RECOMMENDED WATER IMPACT FEE	=	\$ 1,850 / ESU
RECOMMENDED WASTEWATER IMPACT FEE	=	\$ 1,150 / ESU
<hr/>		
RECOMMENDED TOTAL IMPACT FEE	=	\$ 3,000 / ESU