

**CITY OF MANVEL
CAPITAL IMPROVEMENTS ADVISORY COMMITTEE MEETING
MONDAY JULY 26, 2021
6:00 P.M.**

Notice is hereby given that the Manvel Capital Improvements Advisory Committee will meet on July 26, 2021 at 6:00 p.m. The meeting will be held at the Manvel City Hall 20031 HWY 6, Manvel Tx 77578. This meeting is to consider and if appropriate, take action with respect to the items listed below.

This facility is wheelchair accessible and accessible parking spaces are available. Requests for accommodations or interpreter services must be made 48 hours prior to this meeting. Please contact the city secretary at 281-489-0630 x6 for further information.

The Manvel Capital Improvements Advisory Committee reserves the right to go into Executive Session on any item on this agenda under the appropriate exceptions to the Texas Open Meeting Act, Chapter 551, Texas Government Code.

CALL TO ORDER

SWEARING IN OF BOARD MEMBERS:

- Ryan Miller
- Kyle Marasckin
- Christine Diaz
- Alina Rogers
- Christy Kennard
- Dorothy Wynne
- Muhammed Alam

ROLL CALL

	<u>Present</u>	<u>Not Present</u>
Pos #1 Ryan Miller	_____	_____
Pos #2 Kyle Marasckin	_____	_____
Pos #3 Christine Diaz	_____	_____
Pos #4 Alina Rogers	_____	_____
Pos #5 Christy Kennard	_____	_____
Pos #6 Dorothy Wynne	_____	_____
Pos #7 Muhammed Alam	_____	_____

PLEDGE:

CITIZEN COMMENTS (LIMIT 3 MINUTES, MANVEL CITIZENS ONLY)

OLD BUSINESS

None

NEW BUSINESS

1. **Consideration and possible action to nominate and appoint a board Chairman and Vice Chairman.**
2. **Discussion on 2021 update study of Land Use Assumptions, Capital Improvement Plan & Impact Fees.**

ADJOURN

I, Tammy Bell, City Secretary for the City of Manvel, do hereby certify that the foregoing agenda was posted in a place convenient to the general public at Manvel City Hall, and said notice was posted on July 23, 2021 and remained posted continuously for at least 72 hours preceding the scheduled time of the meeting.



Tammy Bell
City Secretary

NOTICE TO THE PUBLIC OF POSSIBLE QUORUMS

A quorum of the Manvel City Council, Manvel Economic Development Corporation, Manvel Parks Board and Manvel Planning Development and Zoning Commission may be in attendance at the July 26, 2021 meeting of the Capital Improvements Advisory Committee. If such be the case, this notice shall serve as notice of meeting pursuant to the requirements of the Texas Open Meetings Act and subsequent opinions of the Texas Attorney General's Office. There will be no official City business or action of the aforementioned bodies taken during the meeting.



WATER AND WASTEWATER IMPACT FEES UPDATE

CAPITAL IMPROVEMENTS ADVISORY COMMITTEE MEETING

WORKSHOP: Draft Water and Wastewater Impact Fees

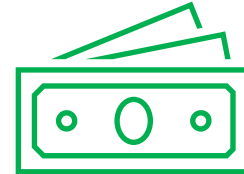
July 26, 2021



Water and Wastewater Impact Fee Background



- Governed by Chapter 395 of the Texas Local Government Code
- Why have Impact Fees?
 - ✓ Allows cities to recoup costs associated with infrastructure needed to serve future development
 - ✓ Alleviates burden of new facilities on existing customers
 - ✓ Makes “growth pay for a share of the growth”
- Study determines the maximum fee *allowed* by state law
- City Council sets the *actual* fee to be collected from new development

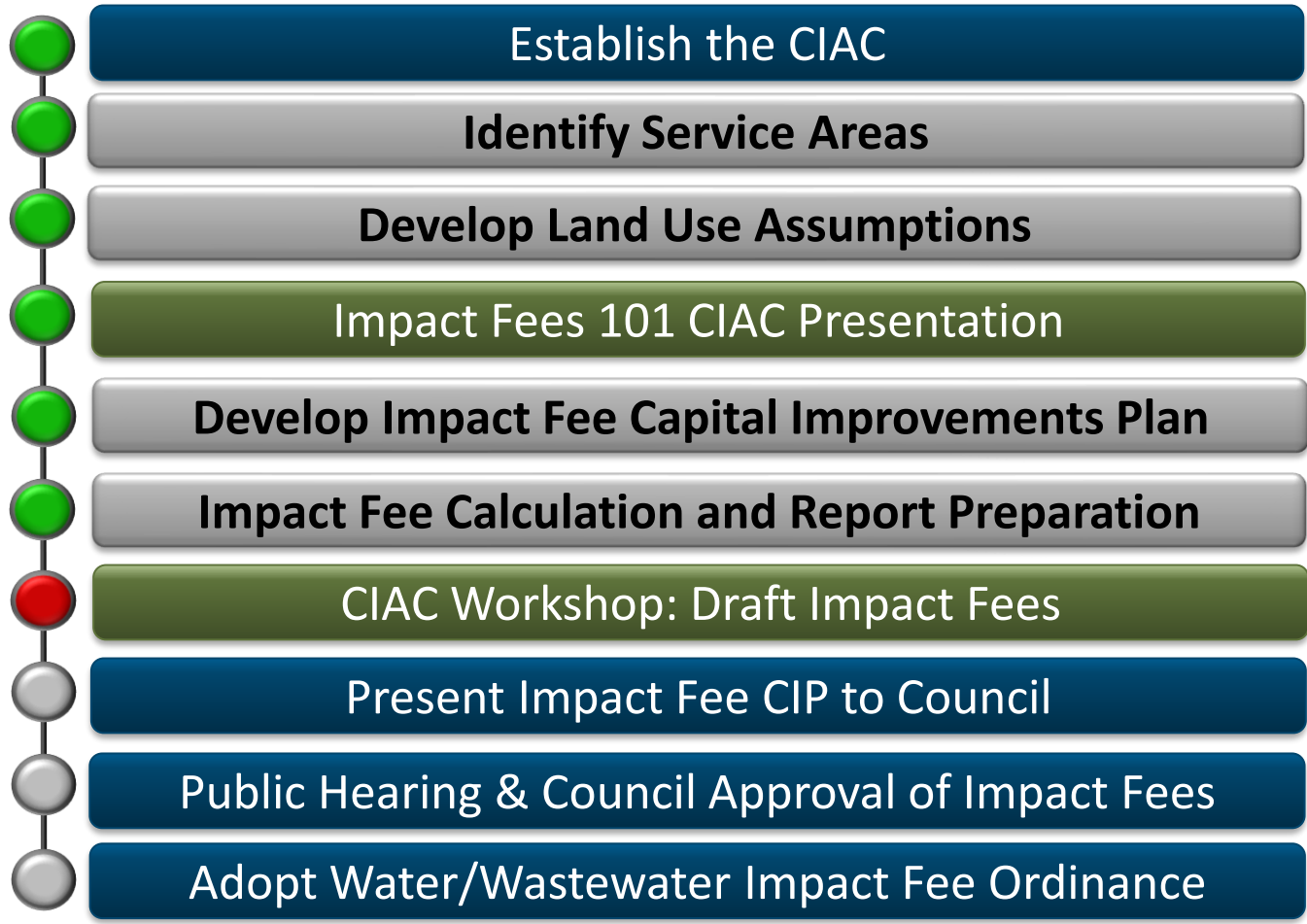




- To guide the conduct of the study
- Provide Input:
 - Land Use Assumptions
 - Capital Improvements Plans (CIPs) for Water and Wastewater
- Recommend impact fee rate to City Council
 - Written recommendation to Council

CIAC = Capital Improvements Advisory Committee

Impact Fee Process



CIAC =
Capital
Improvements
Advisory
Committee

LUA =
Land Use
Assumptions

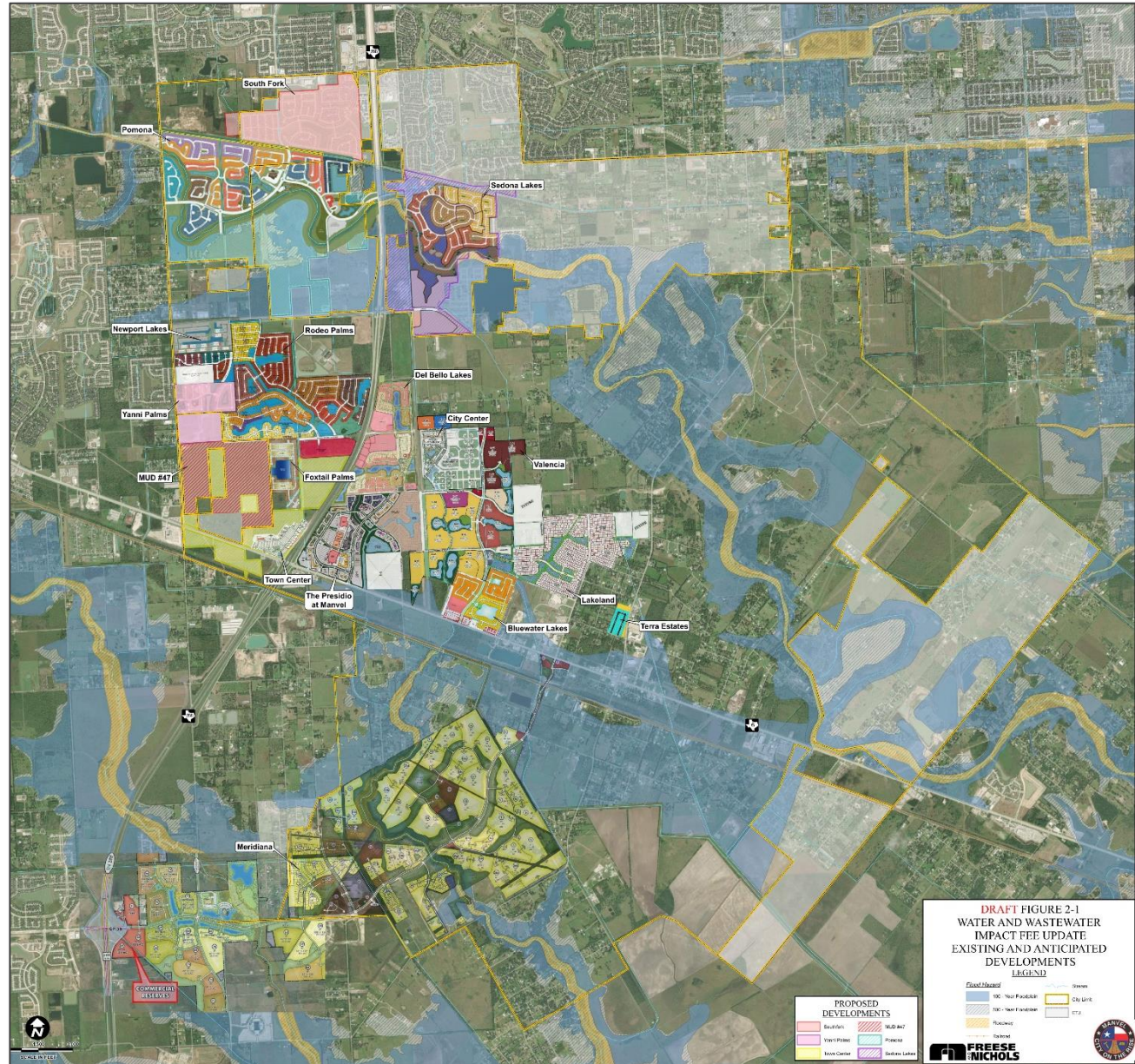
CIP =
Capital
Improvements
Plan

Land Use Assumption





Anticipated Developments within City Limits and ETJ

- Growth Projections developed during the Master Plan projects



Water and Wastewater Impact Fee Service Area and SUEs

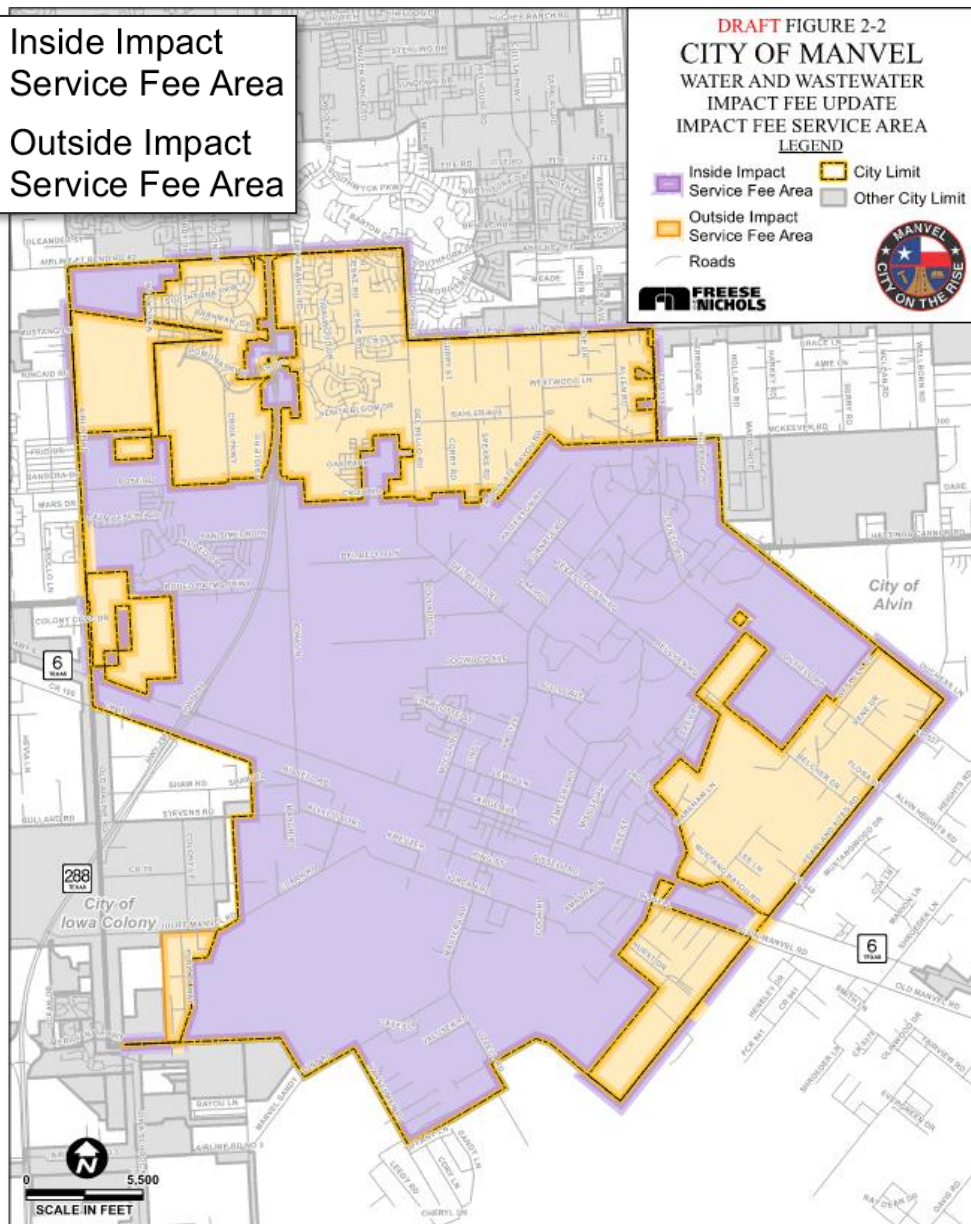


-  Inside Impact Service Fee Area
-  Outside Impact Service Fee Area

DRAFT FIGURE 2-2
CITY OF MANVEL
WATER AND WASTEWATER
IMPACT FEE UPDATE
IMPACT FEE SERVICE AREA
LEGEND

-  Inside Impact Service Fee Area
-  Outside Impact Service Fee Area
-  City Limit
-  Other City Limit
-  Roads



10-Year Growth in Service Unit Equivalents (SUEs) for *Water* and *Wastewater*

3,434

Water Impact Fee Eligible Capital Improvements Plan



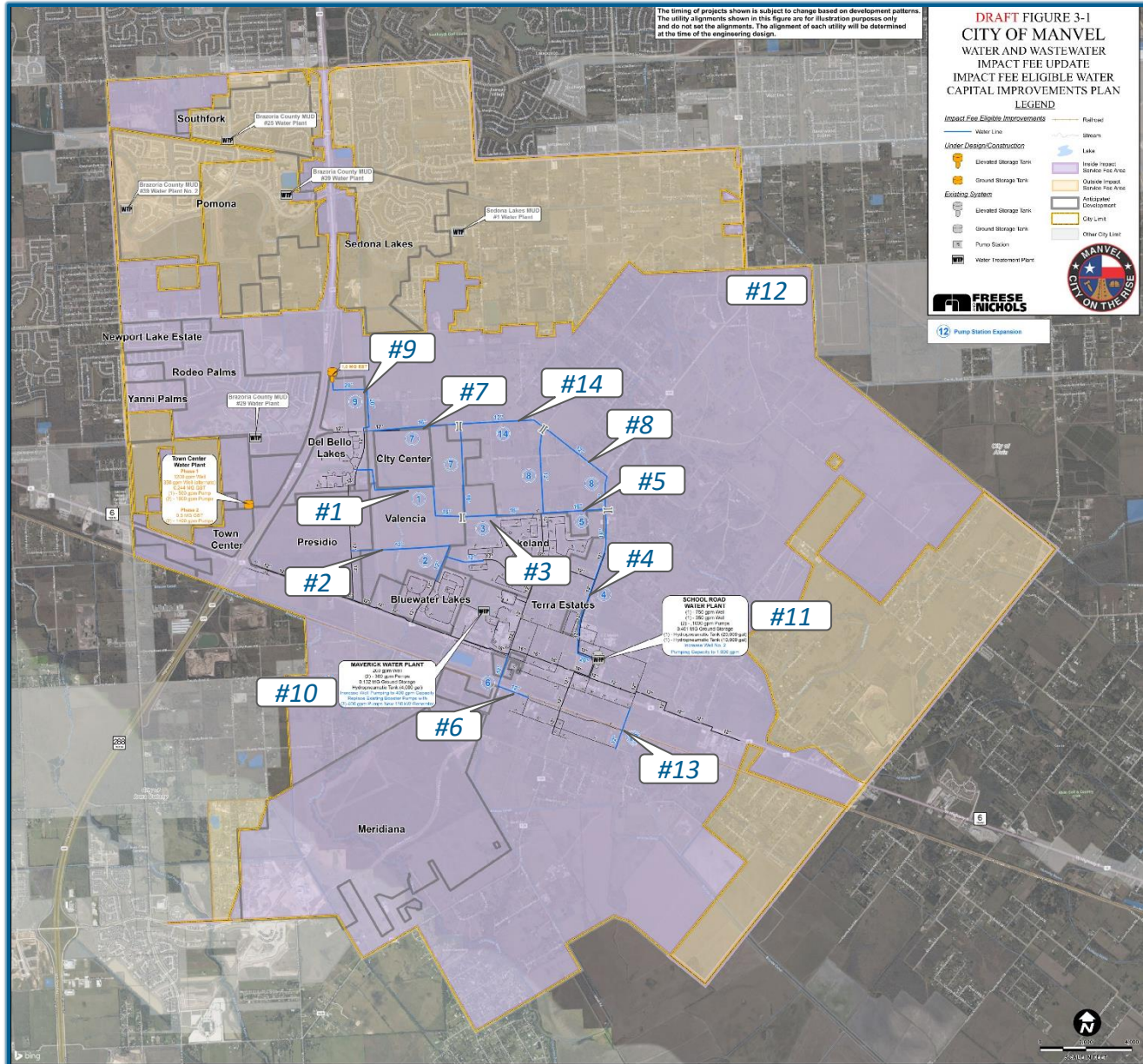
Impact Fee Eligible CIP No.	Description of Project	Capital Cost ⁽¹⁾ (2021 Dollars)	10-Year IF Eligible Cost ⁽³⁾ (2021 Dollars)
Ongoing			
A	Master Water Plan and Impact Fee Update	\$67,500	\$67,500
B	Del Bello 1 MG EST (2022) ⁽²⁾	\$3,390,000	\$1,356,000
Proposed			
1	Manvel City Center Interconnect	\$1,584,800	\$633,920
2	Sowell Interconnect	\$1,597,400	\$638,960
3	Dogwood Avenue - Phase 1	\$723,800	\$289,520
4	Masters Line Waterline Extension Phase 3	\$1,776,600	\$710,640
5	Dogwood Avenue - Phase 2	\$666,400	\$266,560
6	Bissell Road Loop	\$860,000	\$344,000
7	Del Bello interconnect	\$1,967,000	\$786,800
8	Del Bello and Masters Road Loop	\$1,880,200	\$752,080
9	Manvel Parkway Waterline Extension	\$1,509,400	\$603,760
10	Maverick Plant Improvements	\$1,032,500	\$722,750
11	School Road Plant Improvements	\$3,360,000	\$2,352,000
12	Pump Station Expansion	\$10,360,000	\$2,072,000
13	Cemetery Road Loop Phase 2	\$630,600	\$252,240
14	Del Bello Spur to Del Bello Blvd Loop	\$1,109,200	\$443,680
15	Master Water Plan and Impact Fee Study (2025/26)	\$75,000	\$75,000
16	Master Water Plan and Impact Fee Study (2030/31)	\$87,000	\$87,000
Water Project Total		\$32,677,400	\$12,454,410

(1) Cost from draft Master Water Plan Update and includes 25% contingencies and 15% engineering.

(2) Capital cost utilized excludes the \$2.2 M is accounted for in previously issued G/O bond.

(3) Impact fee eligible portion of the CIP project costs

Water Impact Fee Eligible Capital Improvement Plan



WATER IMPACT FEE CIP

**Impact Fee Eligible
Water CIP:**

\$12,454,410

Wastewater Impact Fee Eligible Capital Improvements Plan



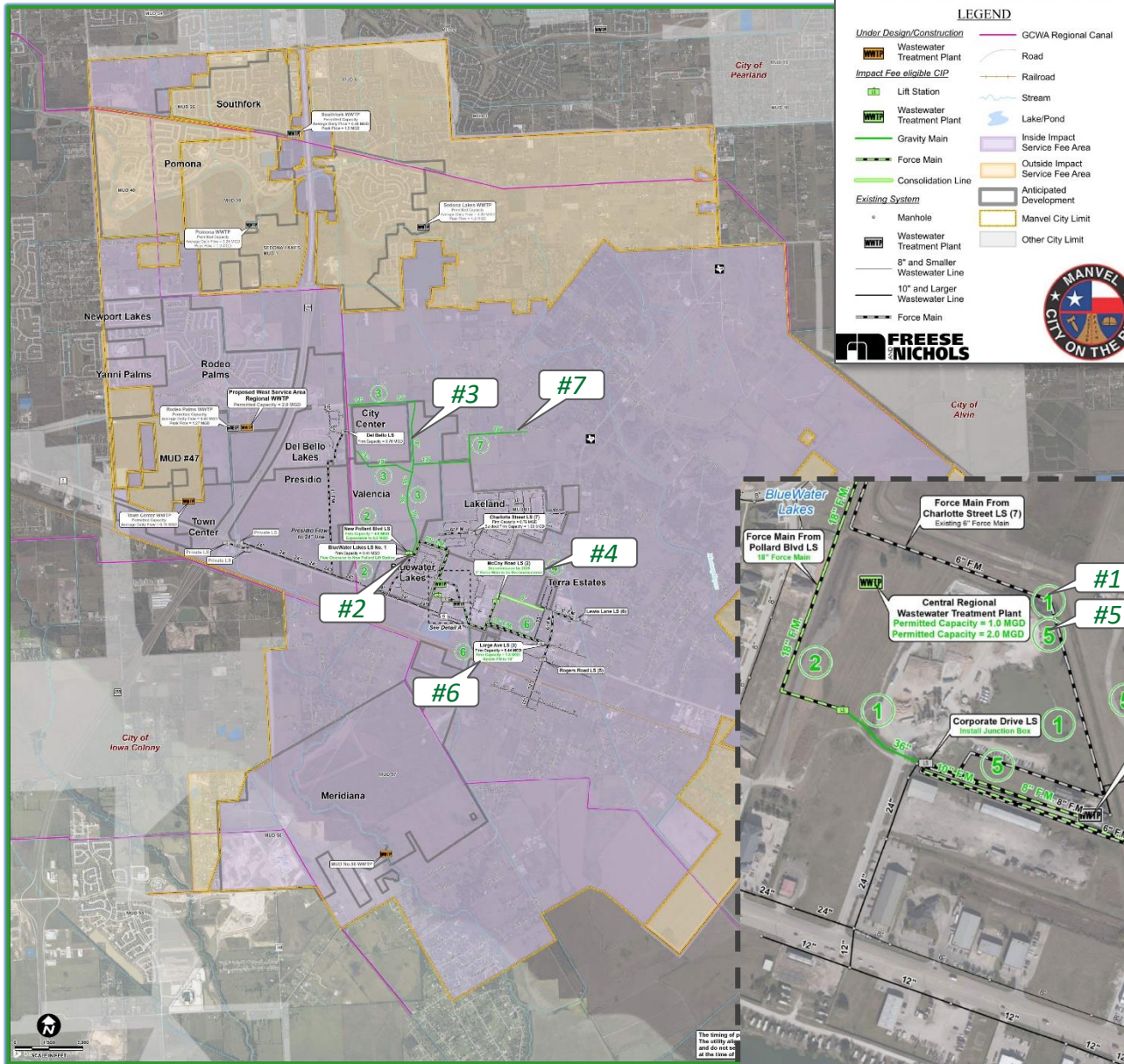
Impact Fee Eligible CIP No.	Description of Project	Capital Cost ⁽¹⁾ (2021 Dollars)	10-Year IF Eligible Cost ⁽²⁾ (2021 Dollars)
Ongoing			
A	Master Wastewater Plan and Impact Fee Update	\$61,200	\$61,200
Proposed			
1	1.0 MGD Expansion of the Central Regional Wastewater Treatment Plant (Phase 1)	\$26,741,900	\$26,741,900
2	New 4.0 MGD Pollard Blvd Lift Station and 18-inch Force Main (Phase 1) ⁽³⁾	\$3,324,354	\$2,160,830
3	12/15/18/30-inch Lines through Valencia Development ⁽³⁾	\$4,330,058	\$1,732,023
4	8-inch Gravity Main along McCoy Drive and Lewis Lane	\$753,800	\$678,420
5	Expansion of the Central Region Wastewater Treatment Plant to 2.0 MGD Capacity (Phase 2)	\$15,904,500	\$6,361,800
6	12-inch Del Bello SPUR Gravity Main	\$1,555,200	\$388,800
7	Master Wastewater Plan and Impact Fee Study (2025/26)	\$75,000	\$75,000
8	Master Wastewater Plan and Impact Fee Study (2030/31)	\$87,000	\$87,000
Wastewater Project Total		\$52,833,012	\$38,286,973

(1) Cost includes 25% contingencies, and 20% engineering for facility projects and 15% engineering for line projects.

(2) Impact fee eligible portion of the CIP project costs.

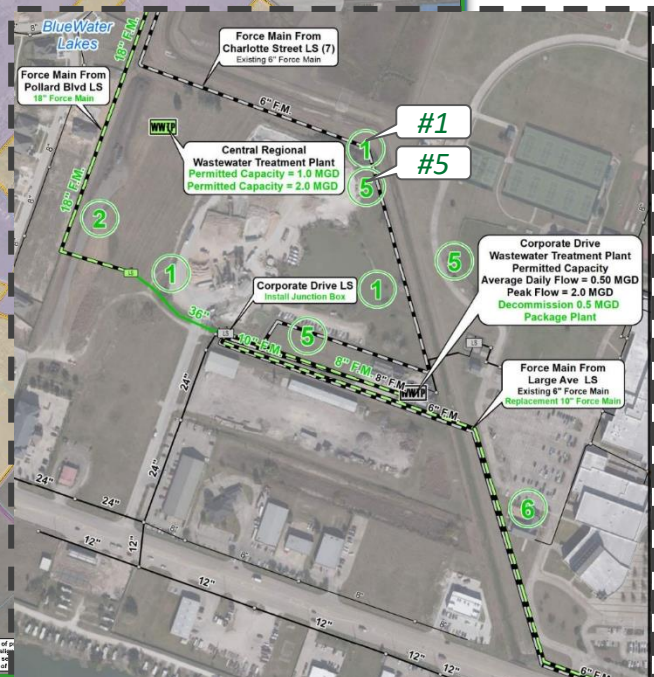
(3) Cost attributed to oversizing beyond Valencia capacity requirement.

Wastewater Impact Fee Eligible Capital Improvement Plan



**WASTEWATER
IMPACT FEE CIP**

**Impact Fee Eligible
Wastewater CIP:
\$38,286,973**



Water and Wastewater Impact Fee Calculations



Determine Portion of Water and Wastewater 10-Year CIP Eligible for Impact Fees



Utilize Land Use Assumptions to Calculate Growth in New Service Units



Texas Local Government Code* allows for 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 debt, that are included in the capital improvements plan

- Utilizing this method for Impact Fee calculation

*Texas Local Government Code §395.014

Water and Wastewater Impact Fee Calculations



Impact Fee Equation:

$$\text{Impact Fee Per SUE} = \frac{\text{Eligible CIP Cost} - \text{Rate Credit}}{\text{Service Unit Growth}}$$

SUE = Service Unit Equivalent (connection for a single family home)

Eligible CIP Cost = 10-year capital cost (2021 – 2031)

Rate Credit = Chapter 395 requirements: reduce the eligible CIP cost by performing a credit analysis to determine the percent of utility bill used for growth CIP

Service Unit Growth = Derived from land use assumptions for 10-year growth in SUEs

Calculated Draft Water and Wastewater Impact Fees



Maximum Allowable Impact Fee Calculation

	Water	Wastewater
Total Impact Fee Eligible CIP Costs ⁽¹⁾	\$12,454,410	\$38,286,973
Total Eligible Impact Fee Costs ⁽²⁾	\$16,742,640	\$51,469,720
Growth in Service Units	3,434	
Maximum Allowable Impact Fee⁽³⁾⁽⁴⁾	\$4,875	\$14,988

(1) Impact fee eligible portion of the CIP project costs

(2) Includes financing costs at 3.0% interest rate

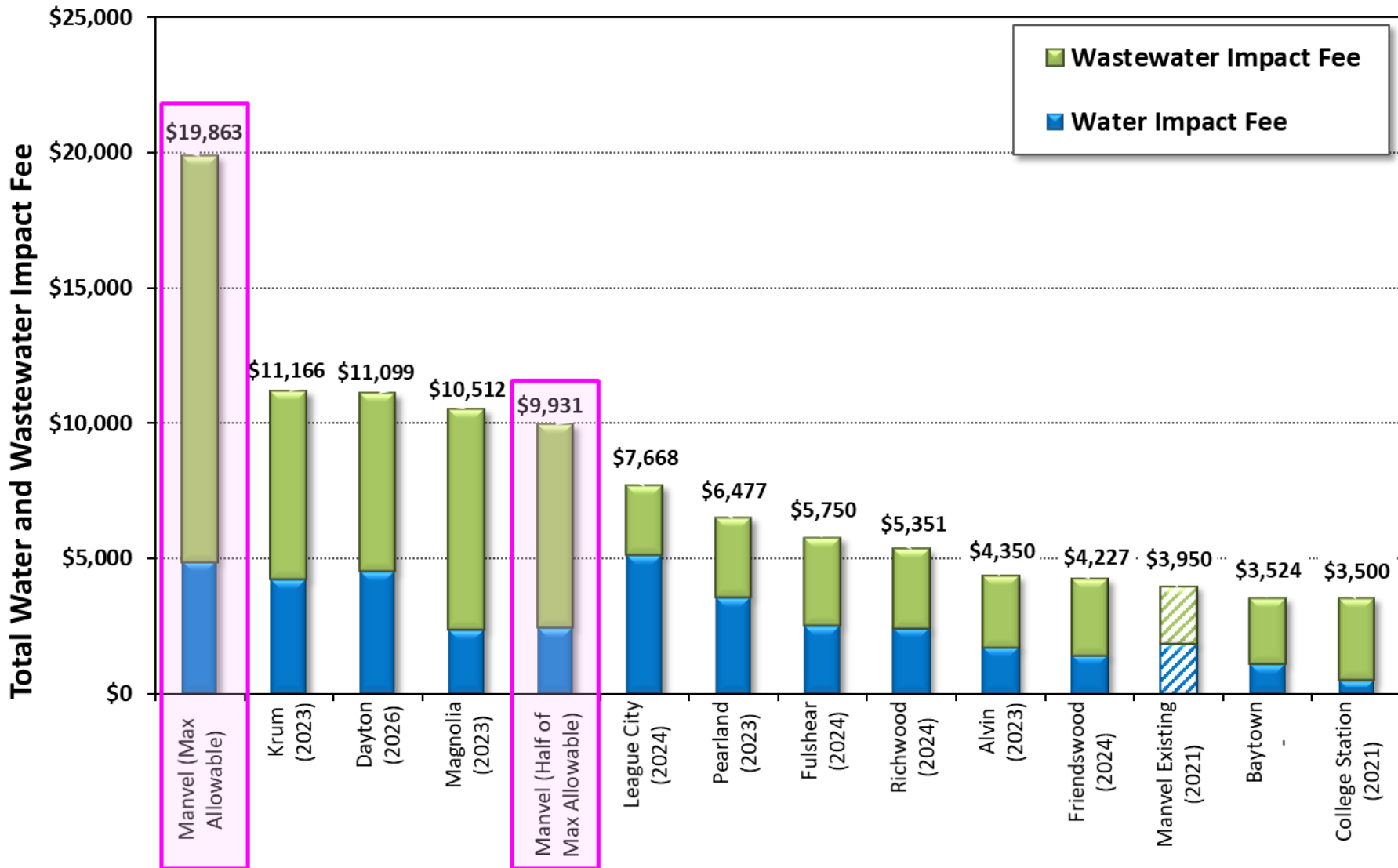
(3) Applied calculated impact fee credit per service unit of \$0

(4) Maximum Allowable Impact Fee = (Total Eligible CIP Costs after Credit) / Growth in Service Units

Total Maximum Allowable Impact Fee = \$19,863

CIP = Capital Improvements Plan

Benchmark Cities: Impact Fees Comparison



Projected year of next impact fee update in parenthesis

Water and Wastewater Impact Fee Schedule by Meter Size



Meter Size	Service Unit Equivalent	Impact Fees		
		Water	Wastewater	Total
3/4"	1.0	\$4,875	\$14,988	\$19,863
1"	1.6	\$7,800	\$23,980	\$31,780
1-1/2"	4.0	\$19,500	\$59,952	\$79,452
2"	6.4	\$31,200	\$95,923	\$127,123
3"	12.8	\$62,400	\$191,846	\$254,246
4"	20.0	\$97,500	\$299,760	\$397,260
6"	40.0	\$195,000	\$599,520	\$794,520
8"	64.0	\$312,000	\$959,232	\$1,271,232
10"	92.0	\$448,500	\$1,378,896	\$1,827,396

Maximum Allowable Impact Fee Per Service Unit

Water and Wastewater Impact Fee Schedule by Meter Size



Meter Size	Service Unit Equivalent	Impact Fees		
		Water	Wastewater	Total
3/4"	1.0	\$2,438	\$7,494	\$9,932
1"	1.6	\$3,900	\$11,990	\$15,890
1-1/2"	4.0	\$9,750	\$29,976	\$39,726
2"	6.4	\$15,600	\$47,962	\$63,562
3"	12.8	\$31,200	\$95,923	\$127,123
4"	20.0	\$48,750	\$149,880	\$198,630
6"	40.0	\$97,500	\$299,760	\$397,260
8"	64.0	\$156,000	\$479,616	\$635,616
10"	92.0	\$224,250	\$689,448	\$913,698

Half of Maximum Allowable Impact Fee Per Service Unit

Schedule for Water & Wastewater Impact Fee Development



TENTATIVE SCHEDULE

Action Item	Date	Action By
Establish CIAC	2016	City Staff, Council
CIAC Impact Fees 101 Presentation	6/14/2021	City Staff, CIAC, FNI
Draft Impact Fee Report to CIAC	7/20/2021	City Staff, FNI
CIAC Workshop: Draft W/WW Impact Fees	7/26/2021	City Staff, CIAC, FNI
Impact Fee CIP Presentation to Council	8/16/2021	City Staff, Council, FNI
Council Resolution approving the Impact Fee Land Use and CIP	8/16/2021	City Staff, Council
Submit Advertising for Public Hearing	8/18/2021	City Staff
CIAC submits written comments to Council	by 9/13/2021	City Staff, CIAC
Public Hearing on W/WW Impact Fee Update and 1 st reading of the Ordinance	9/20/2021	City Staff, CIAC City Staff, Council, FNI
2 nd reading of the Ordinance	10/4/2021	
Adopt Ordinance Implementing Impact fees		



Richard Weatherly, P.E.

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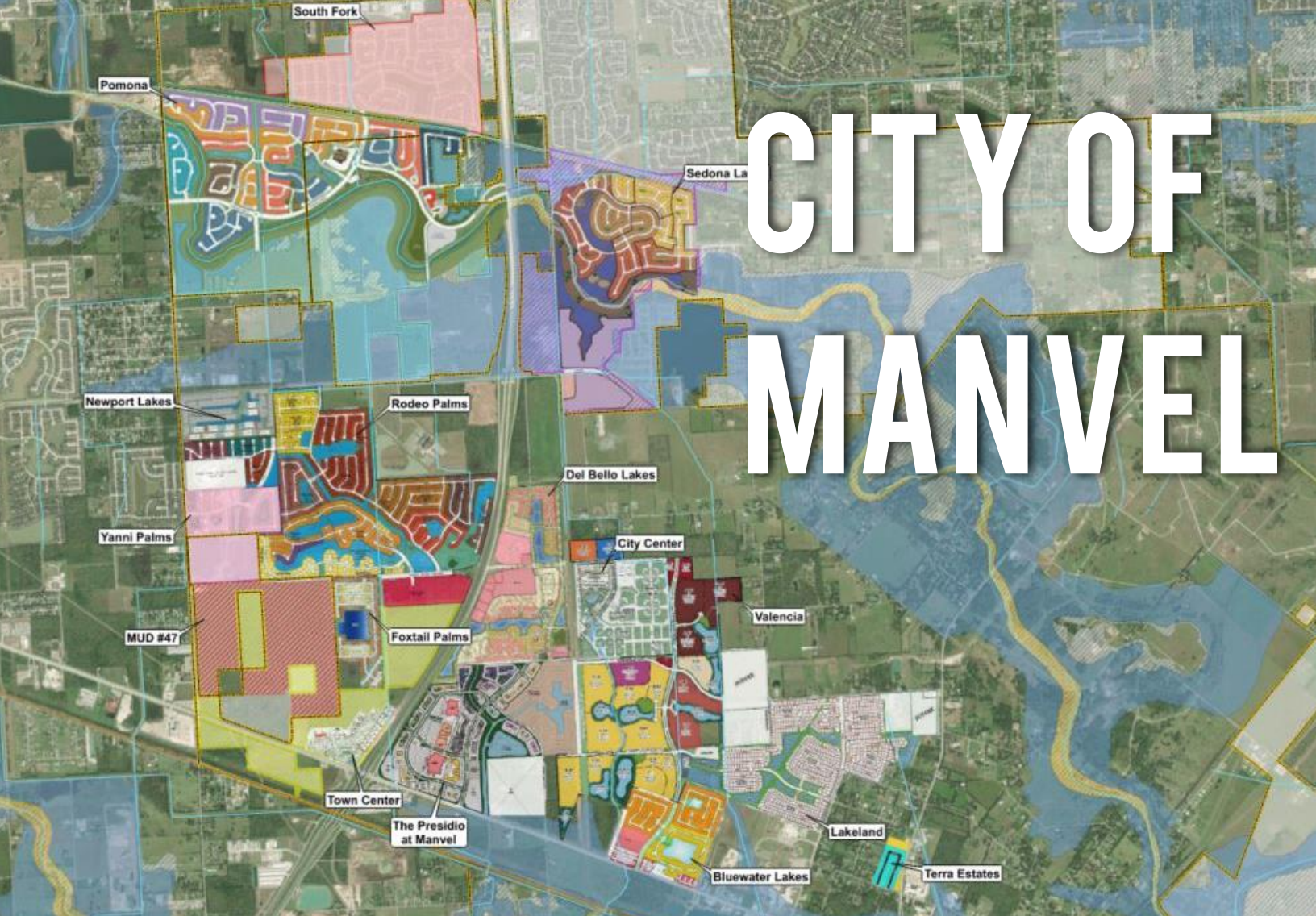
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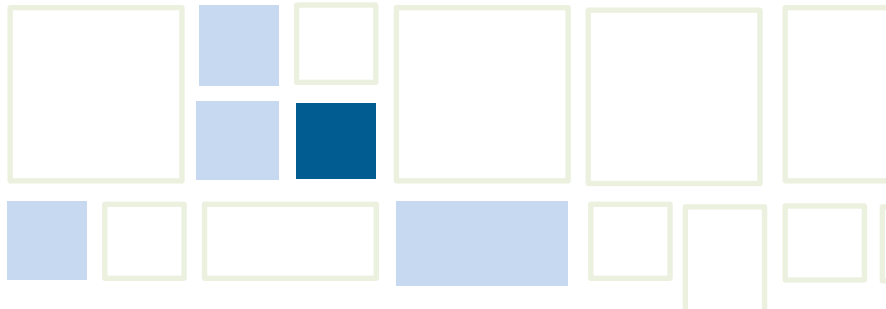


CITY OF MANVEL

DRAFT 2021 WATER AND WASTEWATER IMPACT FEE UPDATE

PREPARED FOR:
City of Manvel

PREPARED BY:
Freese and Nichols, Inc.
11200 Broadway St., Suite 2320
Pearland, Texas 77584
832-456-4700



DRAFT
**2021 WATER AND WASTEWATER
IMPACT FEE UPDATE**

Prepared for:

City of Manvel

DRAFT

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FIRM F-2144

Prepared by:

FREESE AND NICHOLS, INC.
11200 Broadway St, Suite 2320
Pearland, Texas 77584
832-456-4700

FNI Project No.: MNV20766



CAPITAL IMPROVMEENTS ADVISORY COMMITTEE

- Member Ryan Miller
- Member Kyle Marasckin
- Member Christine Diaz
- Member Alina Rogers
- Member Christy Kennard
- Member Dorothy Wynne
- Member Muhammad Alam

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Appendices

Appendix A	Chapter 395, Texas Local Government Code
Appendix B	Water CIP Opinions of Probable Construction Cost (OPCC) Estimates
Appendix C	Wastewater CIP Opinions of Probable Construction Cost (OPCC) Estimates

1.0 BACKGROUND AND SCOPE

The City of Manvel, Texas (City) currently assesses water and wastewater impact fees as per Texas Local Government Code (TLGC) Section 395. The City authorized Freese and Nichols, Inc. (FNI) to perform an impact fee update for the City’s water and wastewater systems. The purpose of this report is to document the land use assumptions and capital improvements plan which will be used in the development and calculation of water and wastewater impact fees for the City of Manvel and also document the calculated maximum allowable impact fees. The methodology used herein satisfies the requirements of the TLGC Section 395 (**Section 1.1**) for the establishment of impact fees.

1.1 TEXAS LOCAL GOVERNMENT CODE

Chapter 395 of the Texas Local Government Code (**Appendix A**) requires an impact fee analysis before impact fees can be created, updated, and assessed. Chapter 395 defines an impact fee as “a charge or assessment imposed by a political subdivision against new development in order to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development.” In September 2001, Chapter 395 was amended creating the current procedure for implementing impact fees. Chapter 395 identifies the following items as impact fee eligible costs:

- Construction contract price
- Surveying and engineering fees
- Land acquisition costs
- Fees paid to the consultant preparing or updating the capital improvements plan (CIP)
- Projected interest charges and other finance costs for projects identified in the CIP

Chapter 395 also identifies items that impact fees cannot be used to pay for, such as:

- Construction, acquisition, or expansion of public facilities or assets other than those identified on the capital improvements plan
- Repair, operation, or maintenance of existing or new capital improvements
- Upgrading, updating, expanding, or replacing existing capital improvements to serve existing development in order to meet stricter safety, efficiency, environmental, or regulatory standards

- Upgrading, updating, expanding, or replacing existing capital improvements to provide better service to existing development
- Administrative and operating costs of the political subdivision
- Principal payments and interest or other finance charges on bonds or other indebtedness, except as allowed above

As a funding mechanism for capital improvements, impact fees allow cities to recover the costs associated with new or facility expansion in order to serve future development. Statutory requirements mandate that impact fees be based on a specific list of improvements identified in a capital improvements program and only the cost attributed (and necessitated) by new growth over a 10-year period may be considered. As projects in the program are completed, planned costs are updated with actual costs to more accurately reflect the capital expenditure of the program. Additionally, new capital improvement projects may be added to the system.

1.2 IMPACT FEE DEVELOPMENT

1.2.1 Planning Period

The planning period of this impact fee update for Manvel will be from 2021 to 2031 (10 years).

1.2.1 Land Use Assumption

According to TLGC Chapter 395, Impact fee land use assumptions include 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 10-year period. The impact fee service area for water and wastewater may include all or part of the land within the City Limits or Extraterritorial Jurisdiction (ETJ). The land use and growth projections will be developed for Manvel for the Impact Fee planning period.

1.2.2 Capital Improvements

The City's 2021 Master Water Plan Update and Master Wastewater Plan Update projects developed phased, prioritized recommendations for water and wastewater capital improvement plan (CIP) projects for 5-year, 10-year, and 20-year planning periods. The Impact Fee development process will utilize project recommendations and demand and flow projections developed as part of the City's master plans. The impact fee calculation is limited to project recommendations within the next 10 years that will serve



projected growth. Ongoing or under design capital projects that will serve growth within the planning period will also be included in the impact fee calculation.

1.2.3 Service Units

According to Chapter 395 of the Texas Local Government Code, the maximum impact fee may not exceed the amount determined by dividing the cost of capital improvements required by the total number of service units attributed to new development during the capital recovery fee eligibility period (2021 - 2031). A water service unit is defined as the service equivalent to a water connection for a single-family residence. This is also known as a service unit equivalent (SUE). For the purpose of this study, a wastewater service unit is defined as the wastewater service provided to a customer with a water connection for a single-family residence. Existing and future water and wastewater service area populations and service unit equivalents (SUEs) were developed based on City's projected land use and growth information.

The service associated with public, commercial, and industrial connections is converted into service unit equivalents based upon the capacity of the meter used to provide service. The number of service units correlating to each meter size is based on the safe maximum operating capacity of the appropriate meter type. American Water Works Association (AWWA) standards C700 (Cold Water Meters – Displacement Type), C-701 (Turbine Meters), and C702 (Cold Water Meters – Compound Type) were utilized to determine the safe maximum operating capacity. The service unit equivalent for each meter size utilized by the City of Manvel is listed in **Table 1-1**.

Table 1-1: Service Unit Equivalent by Meter Size

Meter Size	Meter Type	AWWA Standard	Safe Maximum Operating Capacity ⁽¹⁾ (gpm)	Service Unit Equivalent Factor
3/4"	Displacement	C700	25	1.0
1"	Displacement	C700	40	1.6
1-1/2"	Turbine	C701	100	4.0
2"	Turbine	C701	160	6.4
3"	Compound	C702	320	12.8
4"	Compound	C702	500	20.0
6"	Compound	C702	1,000	40.0
8"	Compound	C702	1,600	64.0
10"	Compound	C702	2,300	92.0

(1) Safe maximum operating capacity is based on AWWA standards C700, C701, and C702 (November 2018 addendum to AWWA Manual M6).

Manvel typically serves single-family residences with minimum 3/4-inch water meters and commercial customers with 2-inch meters .

1.2.4 Impact Fees

This report will calculate the maximum allowable water and wastewater impact fees per TLGC Chapter 395. The TLGC Section 395.014 allows for 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. This method will be utilized for the impact fee calculation.

1.2.5 Capital Improvements Advisory Committee

As part of the impact fee development, FNI will conduct workshops with the City's appointed capital Improvements Advisory Committee (CIAC) and the City Council. This committee consists of the Manvel Planning, Development, and Zoning Commission (PD&Z) and was established in 2016. The CIAC's role includes reviewing the land use assumptions and impact fee capital improvement plans (CIPs), and recommending an impact fee rate to the City Council. The City Council sets the impact fees to be collected.

1.3 LIST OF ABBREVIATIONS

The list of abbreviations used in this report are presented in **Table 1-2**.

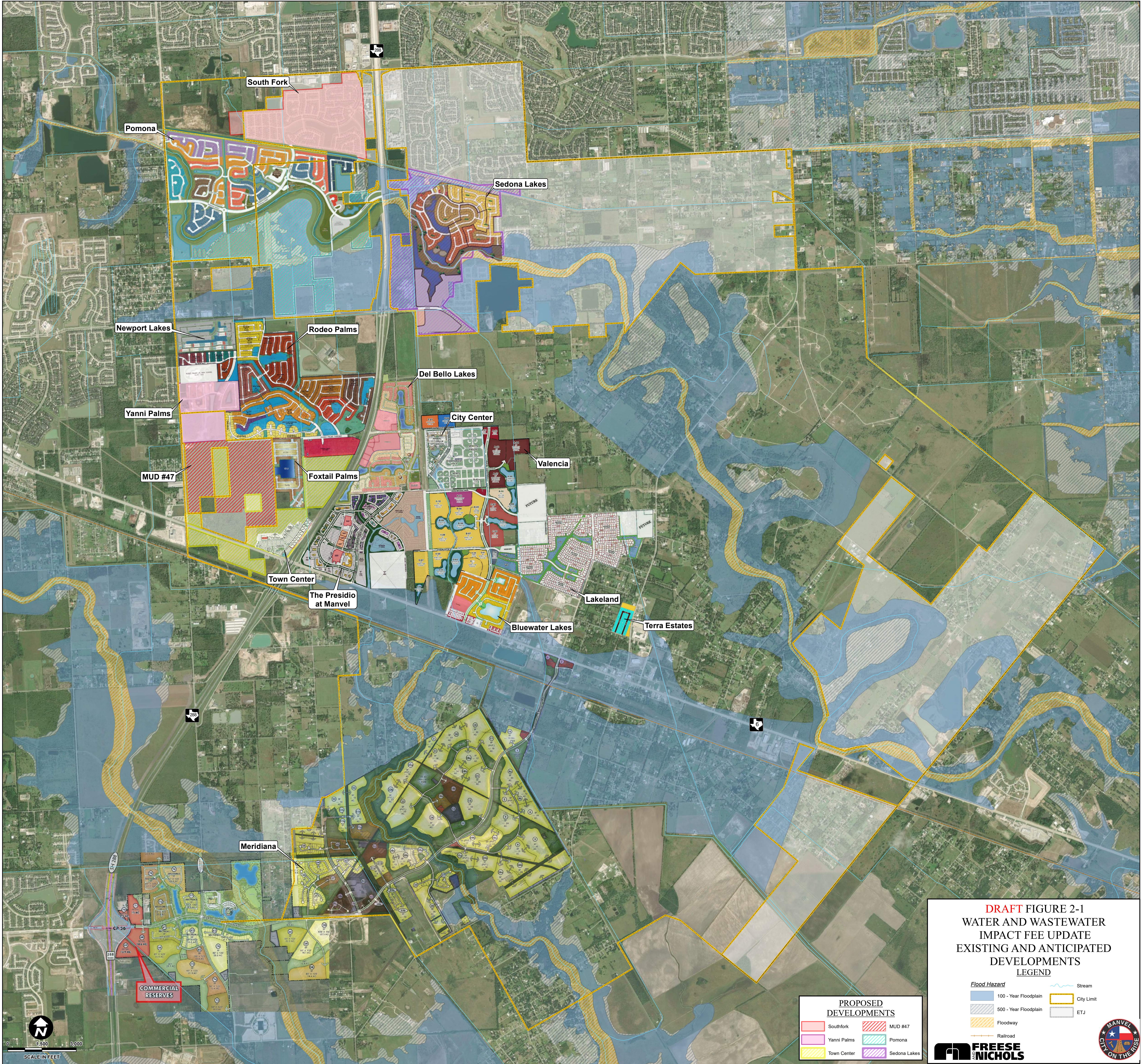
Table 1-2: List of Abbreviations

Abbreviation	Actual
AWWA	American Water Works Association
CIAC	Capital Improvement Advisory Committee
CIP	Capital Improvement Plan
EST	Elevated Storage Tank
ETJ	Extraterritorial Jurisdiction
FM	Farm to Market
FNI	Freese and Nichols, Inc.
gpm	gallons per minute
MGD	Million Gallons per Day
OPCC	Opinion of Probable Construction Cost
PD&Z	Planning, Development, and Zoning
SH	State Highway
SUE	Service Unit Equivalent
TLGC	Texas Local Government Code
WWTP	Wastewater Treatment Plant

2.0 LAND USE ASSUMPTIONS

Land use and growth projections are important elements in the analysis of water distribution and wastewater collection systems. To assist the City of Manvel in determining the need and timing of capital improvements to serve future development, a reasonable estimation of future growth is required. These assumptions will become the basis for the preparation of impact fee capital improvement plans for water and wastewater facilities.

FNI worked with City staff to develop growth projections and land use assumptions for the City of Manvel during this study. City staff identified existing and anticipated developments within the City Limits and ETJ. These developments within the City Limits and ETJ are shown on **Figure 2-1**.



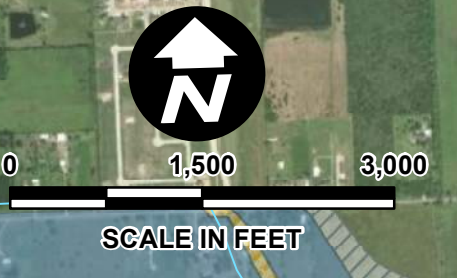
DRAFT FIGURE 2-1
WATER AND WASTEWATER
IMPACT FEE UPDATE
EXISTING AND ANTICIPATED
DEVELOPMENTS
LEGEND

PROPOSED DEVELOPMENTS

	Southfork		MUD #47
	Yanni Palms		Pomona
	Town Center		Sedona Lakes

Flood Hazard

	100 - Year Floodplain		Stream
	500 - Year Floodplain		City Limit
	Floodway		ETJ
	Railroad		



FREESE NICHOLS

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2.1 SERVICE UNIT PROJECTIONS

The magnitude and distribution of the growth in service units will dictate where future water and wastewater infrastructure is required. It is important to note that projecting future growth is challenging, especially for relatively small geographic areas such as individual cities, because it can be difficult to predict how fast or slow development will occur when there are a variety of circumstances that can impact it.

2.1.1 Existing Service Units

The City currently serves customers along Highway 6 between SH 288 and FM 1128 (Masters Rd) and also in the Lakeland, Bluewater Lakes, and Del Bello Lakes developments. The City of Manvel Utility Billing Department provided existing numbers of water meters with meter sizes. According to the data, the City had 1,368 active water meters as of July 2021. Approximately 89% of the meters were residential and ¾-inch in size. Approximately 3% were irrigation meters, and the remaining were commercial. The meter size information from the City was utilized to calculate the existing SUEs in Manvel based on the equivalent factors presented in **Table 1-1**. Irrigation meters were excluded from this calculation as Manvel does not currently charge impact fees for irrigation meters. **Table 2-1** summarizes the calculated existing SUEs in the City of Manvel.

Table 2-1: Existing Service Unit Equivalents

Meter Size	Service Unit Equivalent Factor	Meter Count	Service Unit Equivalent
3/4"	1.0	1,245	1,245
1"	1.6	27	43
1-1/2"	4.0	27	108
2"	6.4	27	173
3"	12.8	0	0
4"	20.0	0	0
6"	40.0	0	0
8"	64.0	0	0
10"	92.0	0	0
Total			1,569

2.1.2 Projected Service Units and Developments

FNI received future projection information from the City, developers, and reports for the anticipated developments shown on **Figure 2-1**. The developers of each anticipated development supplied projected buildout connections and an approximate growth per year. For developments where a phasing plan was unavailable, FNI worked with the City staff to develop growth assumptions. In addition to the known developments, growth projections were also developed for select areas within the impact fee service area identified as having potential for growth (infill areas) within the 10-year planning period. A summary of the projected growth in SUEs, data sources and assumptions is documented in **Table 2-2**.

Table 2-2: Growth in Service Unit Equivalent Projection

Development/Area ⁽¹⁾⁽²⁾	SUE Growth 2021-2031	Buildout Year	Information Source
Presidio	537	2041	Buildout SUEs from developer; to be completed in 5-15 years; assuming starts in 2026; 25% BO by 2031.
Valencia	1,250	2027	Information from developer.
Manvel City Center	1,081	2031	Calculated based on approved proposed land use plan scheme B from March 2020.
Terra Estates	66	2023	From City.
City Central (infill areas)	500	Beyond 2041	Assumed 50 connections/year through 2031 in areas North of Lakeland and Valencia, and East of Lakeland and Bluewater Lakes along FM 1128.
Total Projected Growth in SUEs	3,434		

(1) Excludes the growth in SUEs at Bluewater Lakes and Del Bello developments due to existing development agreements.

(2) No additional connections projected in the Lakeland development beyond 2021.

2.2 IMPACT FEE SERVICE AREA

Per TLGC Chapter 395, the impact fee service area may include all or part of the land within the City Limits or ETJ. The City elected to define the service area for this impact fee update as the existing City Limits. The water and wastewater impact fee service areas have the same boundaries and is shown on **Figure 2-2**.

Water and Wastewater Service Units

The existing and projected 10-year service unit equivalents (SUEs) were developed for the water and wastewater impact fee service areas based on land use and growth projections and are presented in **Table 2-3**.

Table 2-3: Water and Wastewater Impact Fee Service Areas SUEs

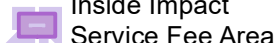
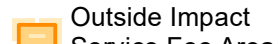



Year	Water SUEs ⁽¹⁾⁽²⁾⁽³⁾	Wastewater SUEs ⁽¹⁾⁽²⁾
2021	1,569	1,569
2031	5,003	5,003
Growth in SUEs	3,434	3,434

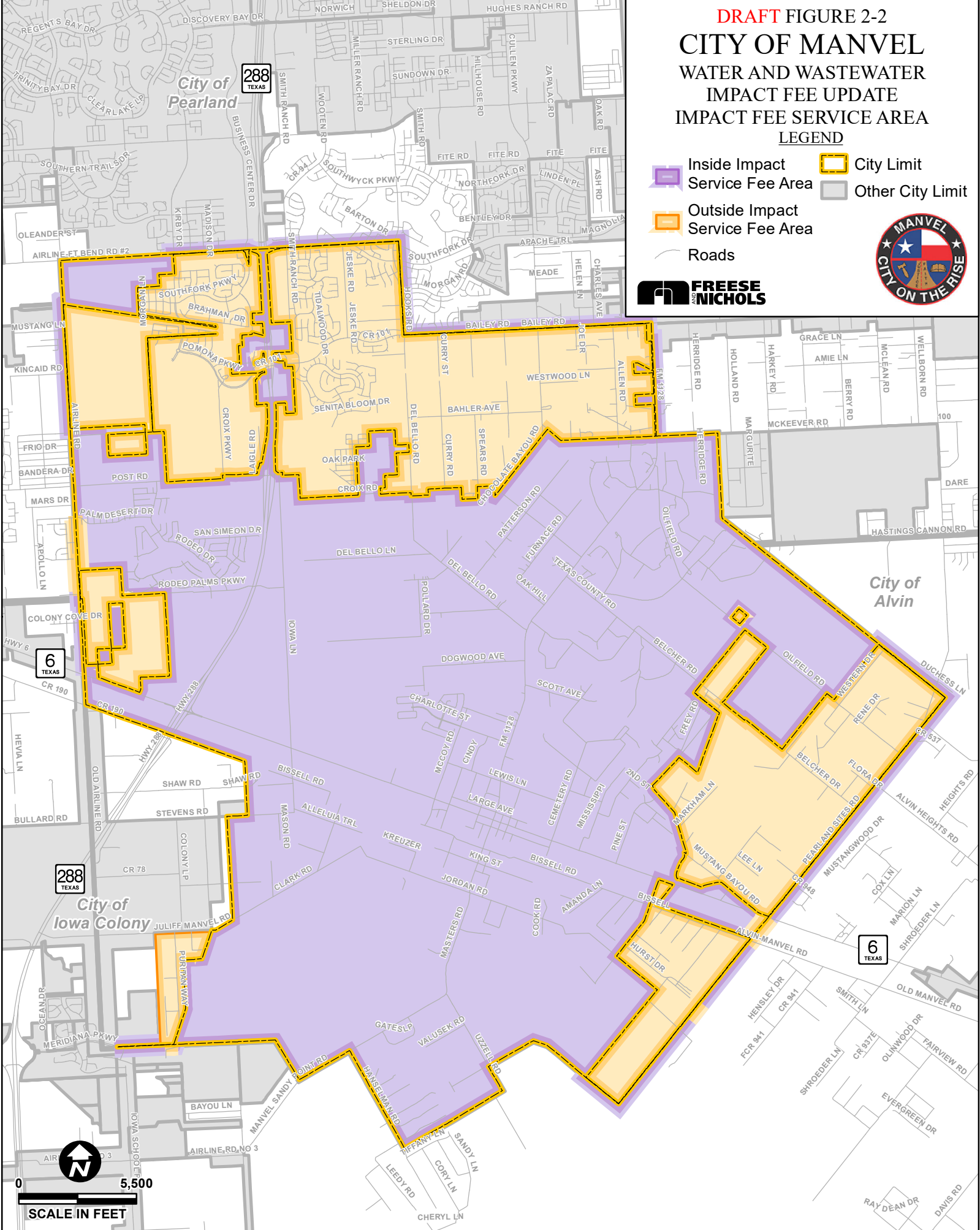
(1) 2031 SUEs exclude the growth in ESCFs at Bluewater Lakes and Del Bello developments due to existing development agreements.

(2) 2031 SUEs also exclude projected public water and wastewater SUEs within the future Manvel City Center.

(3) Irrigation connections excluded from impact fee eligible SUE calculation.

DRAFT FIGURE 2-2
CITY OF MANVEL
WATER AND WASTEWATER
IMPACT FEE UPDATE
IMPACT FEE SERVICE AREA
LEGEND

-  Inside Impact Service Fee Area
-  Outside Impact Service Fee Area
-  City Limit
-  Other City Limit
-  Roads



3.0 CAPITAL IMPROVEMENTS PLAN

Water and wastewater capital improvement plans (CIPs) were developed for the City of Manvel as part of the City’s 2021 master water and wastewater plans. The improvements recommended in the master plans will provide the required capacity and reliability to meet projected 20-year water demands and wastewater flows. The water and wastewater CIP projects that are required to serve growth within the next 10 years were identified for inclusion in the water and wastewater impact fee analysis.

3.1 WATER AND WASTEWATER SYSTEM IMPROVEMENTS

The City’s 2021 water and wastewater master plans included proposed water and wastewater system projects and capital costs. A summary of the costs for each of the proposed projects serving growth in the 10-year period used in the impact fee analysis is shown in **Table 3-1** and **Table 3-2**. Detailed water and wastewater project costs are included in **Appendix B** and **Appendix C**, respectively. The proposed 10-year water system projects are shown on **Figure 3-1**. The proposed 10-year wastewater system projects are shown on **Figure 3-2**.



Table 3-1: Water Impact Fee Eligible Capital Improvements Plan Summary

Impact Fee Eligible CIP No.	Description of Project	Capital Cost ⁽¹⁾ (2021 Dollars)
Ongoing		
A	Master Water Plan and Impact Fee Update	\$67,500
B	Del Bello 1 MG EST (2022) ⁽²⁾	\$3,390,000
Proposed		
1	Manvel City Center Interconnect	\$1,584,800
2	Sowell Interconnect	\$1,597,400
3	Dogwood Avenue - Phase 1	\$723,800
4	Masters Line Waterline Extension Phase 3	\$1,776,600
5	Dogwood Avenue - Phase 2	\$666,400
6	Bissell Road Loop	\$860,000
7	Del Bello interconnect	\$1,967,000
8	Del Bello and Masters Road Loop	\$1,880,200
9	Manvel Parkway Waterline Extension	\$1,509,400
10	Maverick Plant Improvements	\$1,032,500
11	School Road Plant Improvements	\$3,360,000
12	Pump Station Expansion	\$10,360,000
13	Cemetery Road Loop Phase 2	\$630,600
14	Del Bello Spur to Del Bello Blvd Loop	\$1,109,200
15	Master Water Plan and Impact Fee Study (2025/26)	\$75,000
16	Master Water Plan and Impact Fee Study (2030/31)	\$87,000
Water Project Total		\$32,677,400

(1) Cost from draft Master Water Plan Update and includes 25% contingencies and 15% engineering.

(2) Capital cost utilized excludes the \$2.2 M is accounted for in previously issued G/O bond.

Table 3-2: Wastewater Impact Fee Eligible Capital Improvements Plan Summary

Impact Fee Eligible CIP No.	Description of Project	Capital Cost ⁽¹⁾ (2021 Dollars)
Ongoing		
A	Master Wastewater Plan and Impact Fee Update	\$61,200
Proposed		
1	1.0 MGD Expansion of the Central Regional Wastewater Treatment Plant (Phase 1)	\$26,741,900
2	New 4.0 MGD Pollard Blvd Lift Station and 18-inch Force Main (Phase 1) ⁽²⁾	\$3,324,354
3	12/15/18/30-inch Lines through Valencia Development ⁽²⁾	\$4,330,058
4	8-inch Gravity Main along McCoy Drive and Lewis Lane	\$753,800
5	Expansion of the Central Region Wastewater Treatment Plant to 2.0 MGD Capacity (Phase 2)	\$15,904,500
6	12-inch Del Bello SPUR Gravity Main	\$1,555,200
7	Master Wastewater Plan and Impact Fee Study (2025/26)	\$75,000
8	Master Wastewater Plan and Impact Fee Study (2030/31)	\$87,000
Wastewater Project Total		\$52,833,012

(1) Cost includes 25% contingencies, and 20% engineering for facility projects and 15% engineering for line projects.

(2) Cost attributed to oversizing beyond Valencia capacity requirement.

Planning level capital costs were calculated as part of the 2021 Master Water Plan Update and 2021 Master Wastewater Plan Update for the recommended improvements. The costs are provided as estimates based on previous similar engineering experience in 2021 dollars and include an allowance for engineering, surveying, and contingencies. Costs do not include easements or land acquisition, except where specifically noted. The planning level capital costs for wastewater projects do not include individual service connections or subdivision lines.

The timing of projects shown is subject to change based on development patterns. The utility alignments shown in this figure are for illustration purposes only and do not set the alignments. The alignment of each utility will be determined at the time of the engineering design.

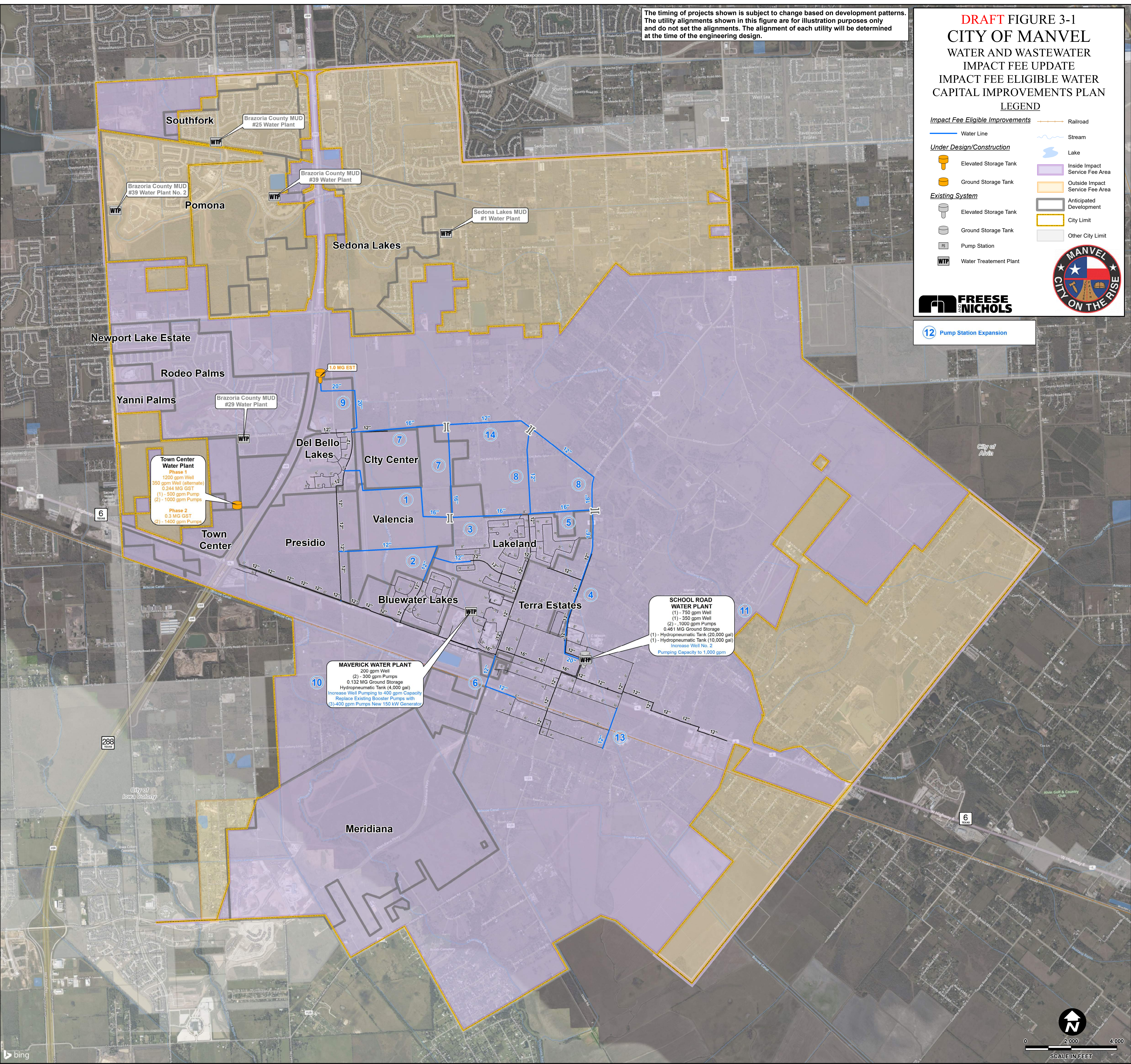
DRAFT FIGURE 3-1
CITY OF MANVEL
 WATER AND WASTEWATER
 IMPACT FEE UPDATE
 IMPACT FEE ELIGIBLE WATER
 CAPITAL IMPROVEMENTS PLAN

LEGEND

- | | |
|---|-----------------------------------|
| Impact Fee Eligible Improvements | — Railroad |
| — Water Line | — Stream |
| Under Design/Construction | — Lake |
| — Elevated Storage Tank | — Inside Impact Service Fee Area |
| — Ground Storage Tank | — Outside Impact Service Fee Area |
| Existing System | — Anticipated Development |
| — Elevated Storage Tank | — City Limit |
| — Ground Storage Tank | — Other City Limit |
| — Pump Station | |
| — WTP | |



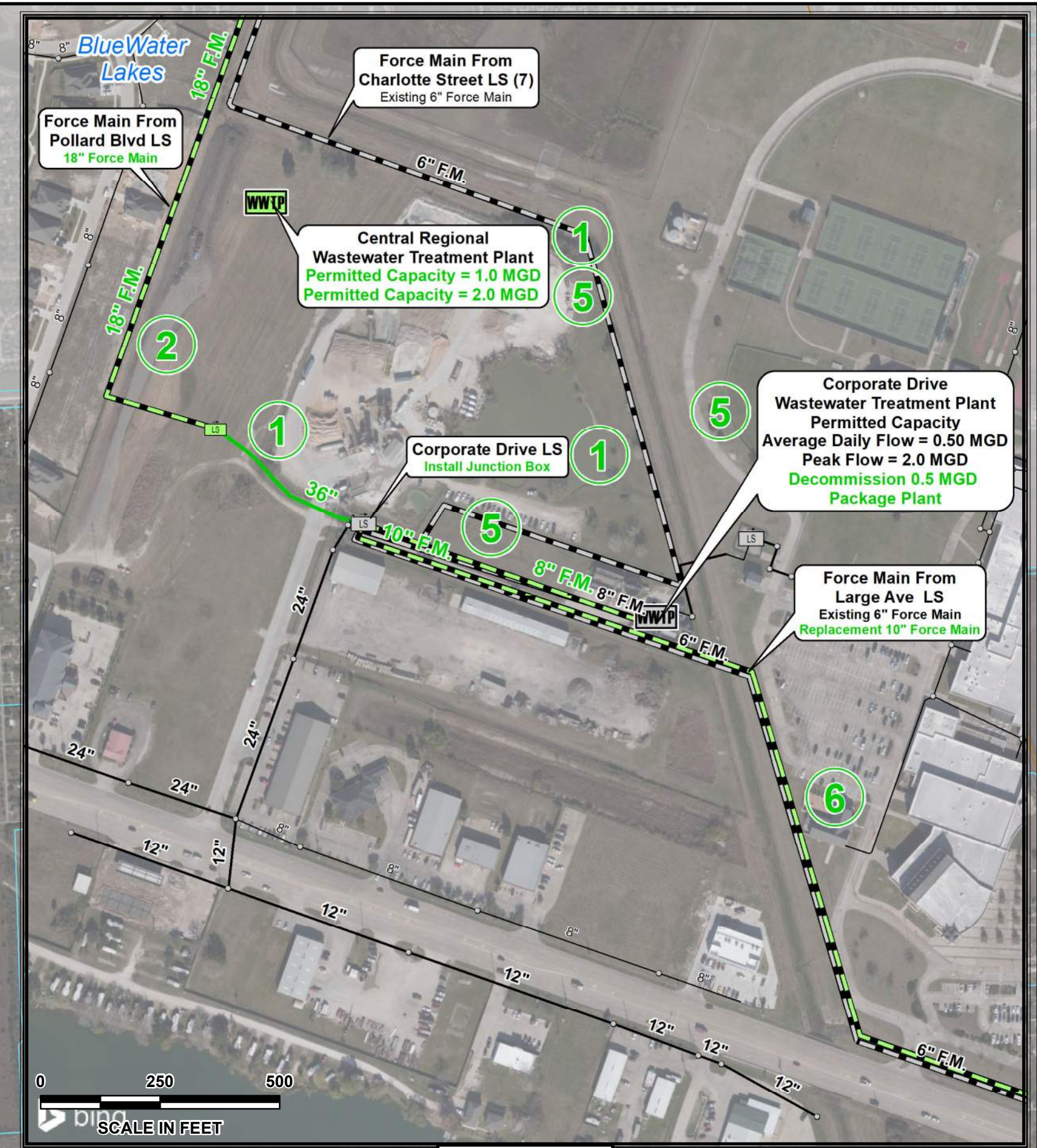
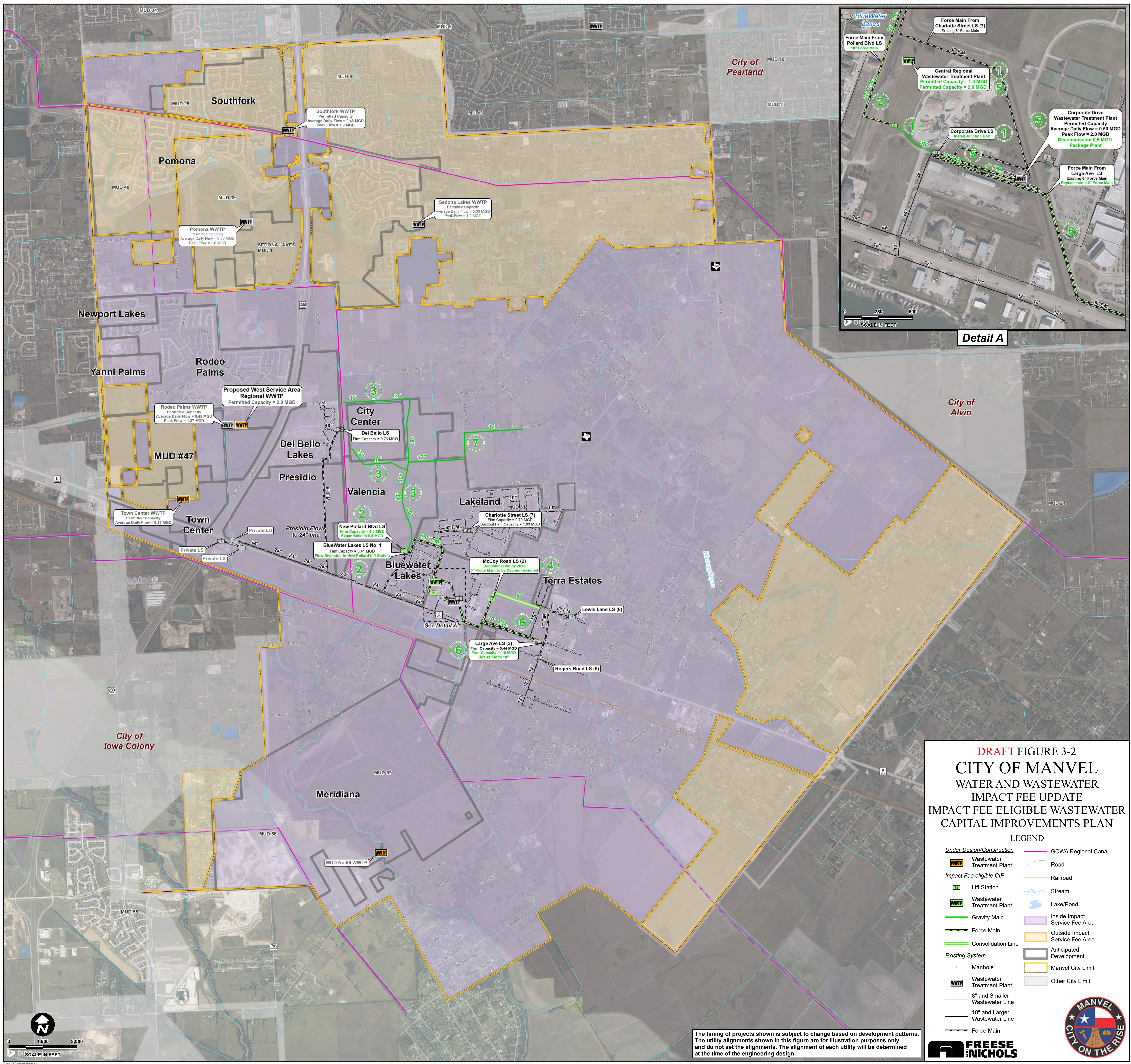
12 Pump Station Expansion



Town Center Water Plant
 Phase 1
 1200 gpm Well
 350 gpm Well (alternate)
 0.244 MG GST
 (1) - 500 gpm Pump
 (2) - 1000 gpm Pumps
 Phase 2
 0.3 MG GST
 (2) - 1400 gpm Pumps

MAVERICK WATER PLANT
 200 gpm Well
 (2) - 300 gpm Pumps
 0.132 MG Ground Storage
 Hydropneumatic Tank (4,000 gal)
 Increase Well Pumping to 400 gpm Capacity
 Replace Existing Booster Pumps with
 (3) 400 gpm Pumps New 150 kW Generator

SCHOOL ROAD WATER PLANT
 (1) - 750 gpm Well
 (1) - 350 gpm Well
 (2) - 1000 gpm Pumps
 0.461 MG Ground Storage
 (1) - Hydropneumatic Tank (20,000 gal)
 (1) - Hydropneumatic Tank (10,000 gal)
 Increase Well No. 2
 Pumping Capacity to 1,000 gpm



DRAFT FIGURE 3-2
CITY OF MANVEL
WATER AND WASTEWATER
IMPACT FEE UPDATE
IMPACT FEE ELIGIBLE WASTEWATER
CAPITAL IMPROVEMENTS PLAN

LEGEND

Under Design/Construction	GCWA Regional Canal
Wastewater Treatment Plant	Road
Impact Fee eligible CIP	Railroad
Lift Station	Stream
Wastewater Treatment Plant	Lake/Pond
Gravity Main	Inside Impact Service Fee Area
Force Main	Outside Impact Service Fee Area
Consolidation Line	Anticipated Development
Existing System	Manvel City Limit
Manhole	Other City Limit
Wastewater Treatment Plant	
8" and Smaller Wastewater Line	
10" and Larger Wastewater Line	
Force Main	

The timing of projects shown is subject to change based on development patterns. The utility alignments shown in this figure are for illustration purposes only and do not set the alignments. The alignment of each utility will be determined at the time of the engineering design.



4.0 WATER AND WASTEWATER IMPACT FEE ANALYSES

The water and wastewater impact fee analyses include determining the utilization of proposed projects within the capital improvement plans (**Section 3.0**) required to serve new development over the next 10-year time period. For these projects, the impact fee is calculated as a percentage of the project cost, based upon the percentage of the project's capacity required to serve development projected to occur between 2021 and 2031. Capacity serving existing development and development projected to occur beyond the 10-year period is not impact fee eligible.

4.1 WATER AND WASTEWATER CAPACITY ANALYSES

The impact fee eligible water and wastewater projects were evaluated to determine the proportion of the project that will be utilized within the next 10 years. The 10-year utilization will define the percentage of the project cost that is impact fee eligible. A summary of the project costs required for the 10-year growth period used in the impact fee analysis for both the water and wastewater systems are shown in **Table 4-1** and **Table 4-2**, respectively. The 2021 percent utilization is the portion of a project's capacity required to serve existing development and is therefore not included in the impact fee eligible cost. The 2031 percent utilization is the portion of the project's capacity that will be utilized by 2031. The 2021 - 2031 percent utilization is the portion of the project's capacity required to serve growth from 2021 to 2031. The portion of a project's total cost that is used to serve growth projected to occur from 2021 through 2031 is calculated as the total project cost multiplied by the 2021 - 2031 percent utilization. Only this portion of the cost is used in the calculation of the maximum allowable impact fee.

Table 4-1: Cost Allocation for Water Impact Fee Calculation

Project ID	Description of Project	Percent Utilization			Costs Based on 2021 Dollars			
		2021 ⁽¹⁾	2031	2021-2031	Capital Cost	Current Development	10-Year (2021 - 2031)	
Ongoing	A	Master Water Plan and Impact Fee Update	0%	100%	100%	\$67,500	\$0	\$67,500
	B	Del Bello 1 MG EST (2022) ⁽²⁾	0%	40%	40%	\$3,390,000	\$0	\$1,356,000
	Sub Total					\$3,457,500	\$0	\$1,423,500
Proposed ⁽³⁾	1	Manvel City Center Interconnect	0%	40%	40%	\$1,584,800	\$0	\$633,920
	2	Sowell Interconnect	0%	40%	40%	\$1,597,400	\$0	\$638,960
	3	Dogwood Avenue - Phase 1	0%	40%	40%	\$723,800	\$0	\$289,520
	4	Masters Line Waterline Extension Phase 3	0%	40%	40%	\$1,776,600	\$0	\$710,640
	5	Dogwood Avenue - Phase 2	0%	40%	40%	\$666,400	\$0	\$266,560
	6	Bissell Road Loop	0%	40%	40%	\$860,000	\$0	\$344,000
	7	Del Bello interconnect	0%	40%	40%	\$1,967,000	\$0	\$786,800
	8	Del Bello and Masters Road Loop	0%	40%	40%	\$1,880,200	\$0	\$752,080
	9	Manvel Parkway Waterline Extension	0%	40%	40%	\$1,509,400	\$0	\$603,760
	10	Maverick Plant Improvements	25%	95%	70%	\$1,032,500	\$258,125	\$722,750
	11	School Road Plant Improvements	25%	95%	70%	\$3,360,000	\$840,000	\$2,352,000
	12	Pump Station Expansion	0%	20%	20%	\$10,360,000	\$0	\$2,072,000
	13	Cemetery Road Loop Phase 2	0%	40%	40%	\$630,600	\$0	\$252,240
	14	Del Bello Spur to Del Bello Blvd Loop	0%	40%	40%	\$1,109,200	\$0	\$443,680
	15	Master Water Plan and Impact Fee Study (2025/26)	0%	100%	100%	\$75,000	\$0	\$75,000
	16	Master Water Plan and Impact Fee Study (2030/31)	0%	100%	100%	\$87,000	\$0	\$87,000
Sub Total					\$29,219,900	\$1,098,125	\$11,030,910	
Total					\$32,677,400	\$1,098,125	\$12,454,410	

(1) Utilization in 2021 on proposed projects indicates a portion of the project that will be used to address deficiencies within the existing system, and therefore are not eligible for capital recovery fee cost recovery for future growth.

(2) For the Del Bello EST ongoing project, capital cost utilized excludes the \$2.2 M is accounted for in previously issued G/O bond.

(3) Proposed projects from 2021 Master Water Plan.

Table 4-2: Cost Allocation for Wastewater Impact Fee Calculation

Project ID	Description of Project	Percent Utilization			Costs Based on 2021 Dollars			
		2021 ⁽¹⁾	2031	2021-2031	Capital Cost	Current Development	10-Year (2021-2031)	
Ongoing	A	Master Wastewater Plan and Impact Fee Update	0%	100%	100%	\$61,200	\$0	\$61,200
	Sub Total					\$61,200	\$0	\$61,200
Proposed	1	1.0 MGD Expansion of the Corporate Drive Central Regional Wastewater Treatment Plant (Phase 1)	0%	100%	100%	\$26,741,900	\$0	\$26,741,900
	2	New 4.0 MGD Pollard Blvd Lift Station and 18-inch Force Main (Phase 1) ⁽²⁾	20%	85%	65%	\$3,324,354	\$664,871	\$2,160,830
	3	12/15/18/30-inch Lines through Valencia Development ⁽²⁾	0%	40%	40%	\$4,330,058	\$0	\$1,732,023
	4	8-inch Gravity Main along McCoy Drive and Lewis Lane	10%	100%	90%	\$753,800	\$75,380	\$678,420
	5	Expansion of the Central Region Wastewater Treatment Plant to 2.0 MGD Capacity (Phase 2)	55%	95%	40%	\$15,904,500	\$8,747,475	\$6,361,800
	6	12-inch inch Del Bello SPUR Gravity Main	0%	25%	25%	\$1,555,200	\$0	\$388,800
	7	Master Wastewater Plan and Impact Fee Study (2025/26)	0%	100%	100%	\$75,000	\$0	\$75,000
	8	Master Wastewater Plan and Impact Fee Study (2030/31)	0%	100%	100%	\$87,000	\$0	\$87,000
Sub Total					\$52,771,812	\$9,487,726	\$38,225,773	
Total					\$52,833,012	\$9,487,726	\$38,286,973	

(1) Utilization in 2021 on proposed projects indicates a portion of the project that will be used to address deficiencies within the existing system, and therefore are not eligible for impact fee cost recovery for future growth.

(2) Capital Cost reflects City's oversizing share only. Therefore, the percent utilization only considers projected 10-year growth outside of the Valencia development.

4.2 CALCULATION OF MAXIMUM ALLOWABLE IMPACT FEES

Chapter 395 of the Texas Local Government Code states that the maximum impact fee may not exceed the amount determined by dividing the cost of capital improvements required by the total number of service units attributed to new development during the impact fee eligibility period (2021 – 2031). TLGC Chapter 395 also requires that the City either discount 50% from the computed maximum fee or have a plan for awarding 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. The City of Manvel elected to establish a reimbursement method and performed a service revenue rate credit analysis, described in **Section 4.2.1**. The maximum allowable water and wastewater impact fees are calculated in **Section 4.2.2** and **Section 4.2.3**, respectively.

4.2.1 Rate Credit Analysis

Only the portions of the water and wastewater projects that are impact fee eligible were included in the impact fee calculation. All of these projects will be funded by impact fees and not by ad valorem tax or utility service revenues, and therefore result in a \$0 rate credit per water and wastewater SUE.

4.2.2 Maximum Allowable Water Impact Fee

The total maximum allowable water impact fee calculation is summarized in **Table 4-3**. The total eligible impact fee costs include the projected capital improvement costs to serve 10-year development and the projected finance cost for the capital improvements.

Table 4-3: Water Impact Fee Calculation

Water Impact Fee	
Total IF Eligible Capital Improvement Costs	\$12,454,410
Total Eligible Financing Costs ⁽¹⁾	\$4,288,230
Total Eligible Impact Fee Costs	\$16,742,640
Growth in Service Units	3,434
Pre-Credit Maximum Water Impact Fee per Service Unit⁽²⁾	\$4,875
Impact Fee Rate Credit per Service Unit ⁽³⁾	\$0
Maximum Allowable Water Impact Fee⁽³⁾	\$4,875

(1) 20-year finance costs calculated utilizing 3.0% interest rate

(2) Total eligible costs divided by the growth in service units.

(3) Calculated impact fee credit per service unit applied (Section 4.2.1).

(4) Maximum allowable water impact fee is maximum water impact fee minus the impact fee credit per service unit.

4.2.3 Maximum Allowable Wastewater Impact Fee

The total maximum allowable wastewater impact fee calculation is summarized in **Table 4-4**. The total eligible impact fee costs include the projected capital improvement costs to serve 10-year development and the projected finance cost for the capital improvements.

Table 4-4: Wastewater Impact Fee Calculation

Wastewater Impact Fee	
Total Eligible Capital Improvement Costs	\$38,286,973
Total Eligible Financing Costs ⁽¹⁾	\$13,182,747
Total Eligible Impact Fee Costs	\$51,469,720
Growth in Service Units	3,434
Maximum Wastewater Impact Fee per Service Unit⁽²⁾	\$14,988
Impact Fee Rate Credit per Service Unit ⁽³⁾	\$0
Maximum Allowable Wastewater Impact Fee⁽⁴⁾	\$14,988

(1) 20-year finance costs calculated utilizing 3.0% interest rate

(2) Total eligible costs divided by the growth in service units.

(3) Calculated impact fee credit per service unit applied (Section 4.2.1).

(4) Maximum allowable water impact fee is maximum water impact fee minus the impact fee credit per service unit.

4.2.4 Schedule of Maximum Allowable Water and Wastewater Impact Fees

Table 4-5 shows the schedule of maximum allowable water and wastewater impact fees by water meter size, based on the service unit equivalents from the American Water Works Association (AWWA) standards C700, C701, and C702 discussed in **Section 2.3**.

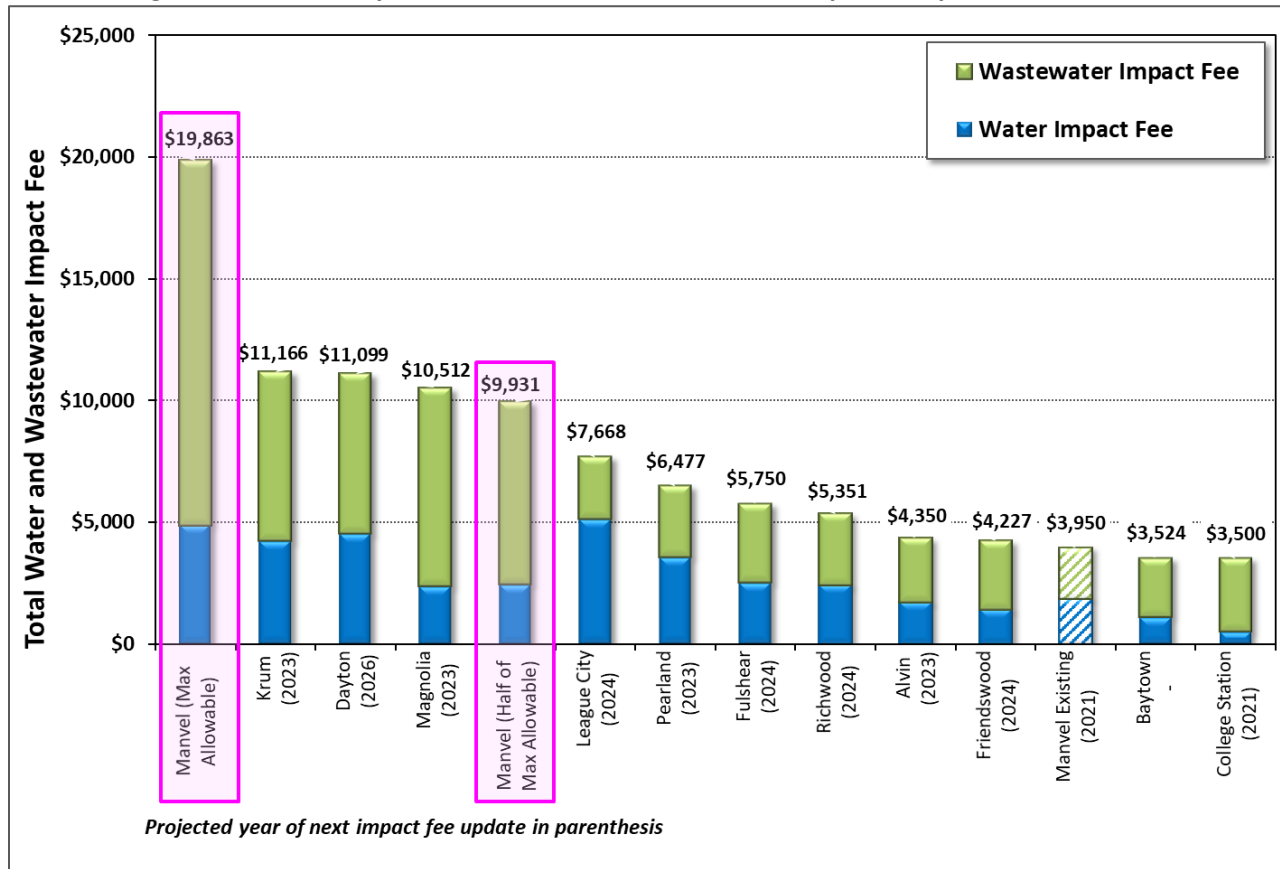
Table 4-5: Schedule of Maximum Allowable Impact Fees by Meter Size

Meter Size	Meter Type	Service Unit Equivalent	Impact Fees		
			Water	Wastewater	Total
3/4"	Displacement	1.0	\$4,875	\$14,988	\$19,863
1"	Displacement	1.6	\$7,800	\$23,980	\$31,780
1-1/2"	Turbine	4.0	\$19,500	\$59,952	\$79,452
2"	Turbine	6.4	\$31,200	\$95,923	\$127,123
3"	Compound	12.8	\$62,400	\$191,846	\$254,246
4"	Compound	20.0	\$97,500	\$299,760	\$397,260
6"	Compound	40.0	\$195,000	\$599,520	\$794,520
8"	Compound	64.0	\$312,000	\$959,232	\$1,271,232
10"	Compound	92.0	\$448,500	\$1,378,896	\$1,827,396

4.3 WATER AND WASTEWATER IMPACT FEE COMPARISON

A comparison graph showing adopted water and wastewater impact fees in benchmark cities is presented on **Figure 4-1**. The graph also shows where the City of Manvel would compare with other cities if the maximum allowable water and wastewater impact fees were adopted. For comparison only, **Figure 4-1** shows where the City would compare if half of maximum allowable water and wastewater impact fees were adopted.

Figure 4-1: Comparison of Water and Wastewater Impact Fee per Service Unit



5.0 IMPACT FEE ADOPTION

5.1 PUBLIC HEARING

The amended Chapter 395 of the Texas Local Government Code requires a public hearing to be held to present any update to the impact fee. The presentations shall include a discussion of the new land use assumptions and capital improvement plans and calculated maximum allowable impact fees. The required public hearing is proposed to be held on September 20, 2021, at the City of Manvel City Hall. Public hearing date will be set by Council and advertised more than 30 days prior to the public hearings.

5.2 ORDINANCE

Once the public hearings are held, the political subdivision shall approve or disapprove the amendment of land use assumptions and capital improvements plan and the proposed ordinance, order or resolution modifying the impact fee within 30 days after the public hearing.