CITY OF FULSHEAR

"FIND YOUR FUTURE IN FULSHEAR"

30603 FM 1093 WEST/ PO BOX 279 ~ FULSHEAR, TEXAS 77441

PHONE: 281-346-1796 ~ FAX: 281-346-2556

WWW.FULSHEARTEXAS.GOV

CAPITAL IMPROVEMENTS ADVISORY COMMITTEE AGENDA SEPTEMBER 6, 2019

NOTICE IS HEREBY GIVEN OF A REGULAR MEETING OF THE CAPITAL IMPROVEMENTS ADVISORY COMMITTEE OF THE CITY OF FULSHEAR TO BE HELD ON FRIDAY, SEPTEMBER 6, 2019 AT 8:15 A.M. IN THE CITY HALL, 30603 FM 1093, FULSHEAR, TEXAS, FOR THE PURPOSE OF CONSIDERING THE FOLLOWING ITEMS.

"Incidental Meeting Notice: A quorum of the City of Fulshear City Council, Planning & Zoning Commission, City of Fulshear Development Corporation (Type A), Fulshear Development Corporation (Type B), Parks & Recreation Commission, Historic Preservation & Museum Commission, Zoning Board of Adjustment, or any or all of these, may be in attendance at the meeting specified in the foregoing notice, which attendance may constitute a meeting of such governmental body or bodies as defined by the Texas Open Meetings Act, Chapter 551, Texas Government Code. Therefore, in addition to the foregoing notice, notice is hereby given of a meeting of each of the above-named governmental bodies, the date, hour, place, and subject of which is the same as specified in the foregoing notice."

1. **Call to Order**
2. **Quorum**
3. **Citizen's Comments**

Citizens who desire to address the Capital Improvements Advisory Committee with regard to matters on the agenda will be received at this time. The number of speakers will be limited

to the first ten (10) speakers and each speaker is limited to three (3) minutes. Comments or discussion by planning and zoning members will only be made at the time the subject is scheduled for Consideration.

4. Consideration and possible action to approve Minutes from CIAC Meeting held on July 5, 2019

5. Consideration and possible action to receive the study report for Water and Wastewater Impact Fees

6. Adjournment

The Capital Improvements Advisory Committee reserves the right to adjourn into Executive Session at any time during the course of this meeting regarding the matters listed above, as authorized by Texas Government Code Section 551.071 (if necessary consultation with attorney).

Note: In compliance with the American Disabilities Act, this facility is wheelchair accessible and accessible parking spaces are available. Requests for accommodations or interpretive

service must be made at least 48 business hours prior to this meeting. Please contact the City Secretary's office at 281-346-1796 for further information.

I, Kimberly Kopecky, City Secretary of the City, do hereby certify that the above Notice of Meeting and Agenda for the Capital Improvements Advisory Committee of the City of Fulshear, Texas was posted on Thursday, August 29, 2019 at 5:00 p.m., in a place convenient and readily accessible at all times to the general public, in compliance with Chapter 551, TEXAS GOVERNMENT CODE.

Kimberly Kopecky
_____

Kimberly Kopecky – City Secretary

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CAPITAL IMPROVEMENTS ADVISORY COMMITTEE MINUTES JULY 5, 2019

1. Call to Order

A MEETING OF THE CIAC WAS CALLED TO ORDER BY CHAIRMAN PEARCE AT 8:45 A.M. ON FRIDAY, JULY 5, 2019 AT CITY HALL, 30603 FM 1093, FULSHEAR, TEXAS 77441.

2. Quorum

A QUORUM WAS PRESENT.

MEMBERS PRESENT

AMY PEARCE
JOAN BERGER
JASON CHERUBINI
RANDY STACY
GREGORY EHMAN
DAR HAKIMZADEH
JOHN DOWDALL

MEMBERS ABSENT

KAYLEEN NELSON

STAFF PRESENT
KIMBERLY KOPECKY
ZACH GOODLANDER
SHARON VALIANTE

OTHERS PRESENT
MIKE SHELTON
KAYE KAHLICH

3. Citizen's Comments

Citizens who desire to address the Capital Improvements Advisory Committee with regard to matters on the agenda will be received at this time. The number of speakers will be limited to the first ten (10) speakers and each speaker is limited to three (3) minutes. Comments or discussion by planning and zoning members will only be made at the time the subject is scheduled for Consideration.

THERE WERE NO CITIZEN COMMENTS.

4. Consideration and possible action to approve Minutes from CIAC Meeting held on June 7, 2019

A MOTION WAS MADE BY CIAC MEMBER EHMAN TO APPROVE MINUTES FROM CIAC MEETING HELD ON JUNE 7, 2019. IT WAS SECONDED BY CIAC MEMBER BERGER. THE MOTION WAS CARRIED BY THE FOLLOWING VOTE:

AYES: CIAC MEMBERS BERGER, CHERUBINI, DOWDALL, EHMAN, HAKIMZADEH, PEARCE AND STACY
NAYS: NONE
ABSENT: CIAC MEMBER KAYLEEN NELSON

5. Consideration and possible action to provide comments on the Draft Land Use Assumptions and Capital Improvement Plan for Water and Wastewater Impact Fees

A MOTION WAS MADE BY CIAC MEMBER EHMAN TO ACCEPT COMMENTS ON THE DRAFT LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENT PLAN FOR WATER AND WASTEWATER IMPACT FEES. IT WAS SECONDED BY CIAC MEMBER BERGER. THE MOTION WAS CARRIED BY THE FOLLOWING VOTE:

AYES: CIAC MEMBERS BERGER, CHERUBINI, DOWDALL, EHMAN, HAKIMZADEH, PEARCE AND STACY
NAYS: NONE
ABSENT: CIAC MEMBER KAYLEEN NELSON

6. Adjournment

A MOTION WAS MADE BY CIAC MEMBER EHMAN TO ADJOURN. IT WAS SECONDED BY CIAC MEMBER DOWDALL. THE MOTION WAS CARRIED BY THE FOLLOWING VOTE:

AYES: CIAC MEMBERS BERGER, CHERUBINI, DOWDALL, EHMAN, HAKIMZADEH, PEARCE, AND STACY
NAYS: NONE
ABSENT: CIAC MEMBER KAYLEEN NELSON

CHAIRMAN PEARCE ADJOURNED THE MEETING AT 8:51 A.M.

AGENDA MEMO

BUSINESS OF THE CAPITAL IMPROVEMENTS ADVISORY COMMITTEE (CIAC)
CITY OF FULSHEAR, TEXAS

AGENDA OF:	September 6, 2019	**AGENDA ITEM:**	
DATE SUBMITTED:	September 5, 2019	**DEPARTMENT:**	Planning and Development
PREPARED BY:	Sharon Valiante, Public Works Director, Zach Goodlander, Director of Development Services, Brant Gary, Assistant City Manager	**PRESENTER:**	Brant Gary, Assistant City Manager
SUBJECT:	**Consideration and possible action to receive the Study Report for Water and Wastewater Impact Fees**		
ATTACHMENTS:	**1. Water and Wastewater Impact Fee Study**		

EXECUTIVE SUMMARY

To impose an impact fee, a political subdivision must create a Capital Improvement Advisory Committee (CIAC) which must review the proposed impact fees. Kimley-Horn engineers prepared a report documenting the maximum assessible impact fees so Fulshear can continue the process of adopting water and wastewater impact fees. This meeting allows the CIAC to officially receive the draft report. Copies of the report are provided to the CIAC, available from the City Secretary at City Hall, and included electronically for the public as an attachment to the meeting agenda.

The report has been prepared in accordance with previous planning studies such as:

· Spring 2019 PASA Demographic Report

· 2019 Livable Center Study

· July 2019 Land Use Assumptions and Capital Improvement Plan Report

RECOMMENDATION

Staff recommends the CIAC provide written comments on the draft report by the next CIAC meeting on October 4, 2019.

Prepared By
Kimley»Horn

Water and Wastewater Impact Fees

City of Fulshear, Texas
September 2019
067794900

Kimley-Horn and Associates, Inc.
TBPE Firm Registration: F928
11700 Katy Freeway, Suite 800
Houston, TX 77079

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Title

Water and Wastewater Impact Fee Study for Fulshear, Texas

Site Name

SEPTEMBER 2019
PROJECT NUMBER: 067779000

Prepared for:

Prepared by:

KIMLEY-HORN AND ASOCIATES, INC.
10700 KATY FREEWAY, SUITE 800
HOUSTON, TEXAS 77079
FIRM REGISTRATION NO. F-928

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SECTION 1: EXECUTIVE SUMMARY

The City of Fulshear, Texas is creating an Impact Fee program in accordance with Chapter 395 of the Texas Local Government Code. This document provides information about the assumptions for current and predicted land uses within the city. Also, it provides the ten-year capital improvements plan. Chapter 395 requires that cities provide this information for public review prior to authorizing an Impact Fee process.

1.1 LAND USE ASSUMPTIONS

Fulshear must describe the Land Use Assumptions which provide the basis for residential and employment growth projections within the political subdivision. As defined by Chapter 395, these assumptions include a description of changes in land uses, densities, and projected development in the service area. The land use assumptions then determine the need and timing of water and wastewater infrastructure improvements to serve future development. Section 395.0455 allows Fulshear to adopt systemwide land use assumptions which cover all the area subject to the jurisdiction of the political subdivision for the purpose of creating impact fees.

The PASA report focuses on projections the years from 2017 through 2027. This report shows how the PASA data was extrapolated to the impact fee timeframe. Table 1 summarizes the 10-year population projections.

Table 1: Ten Year Population Projection

Year	*City*	*ETJ*	*Total*
2019	14,141	18,271	32,412
2029	31,846	64,422	96,268
10-Year Population Growth Projection			**Increase 63,856**

The Fulshear Service Area is projected to experience a significant amount of residential and employment growth within the next ten years. This is consistent with the Future Land Use Plan in the Service Area.

1.2 WATER AND WASTEWATER CAPITAL IMPROVEMENT PLANS

In August 2018, Fulshear City Council adopted the Water and Wastewater Master Plans prepared by Freese and Nichols (FNI Master Plans). Improvements necessary to serve the 10-year (2019-

2029) needs were evaluated based on the FNI master plans. Generally, the master plans recommended infrastructure improvements with capacity beyond the 10-year requirement; however, Chapter 395 only allows recovery of costs to serve the 10-year planning period. The projected total recoverable cost attributed to new growth to construct the infrastructure needed through 2029 are:

- Water: ..... $ 25,490,754
- Wastewater: ..... $ 40,756,519

The City opted not to perform a detailed financial analysis for distribution of the recoverable costs. Therefore, per Chapter 395.014, credit equal to 50 percent of the total projected cost of implementing the capital improvements plan will be applied. A portion of the remainder can be assessed as the planning window extends beyond 2029 and as the impact fees are updated in the future.

1.3 IMPACT FEE CALCULATION

The impact fee law defines a service unit as follows, "Service Unit means a standardized measure of consumption attributable to an individual unit of development calculated in accordance with generally accepted engineering or planning standards and based on historical data and trends applicable to the political subdivision in which the individual unit of development is located during the previous 10 years". Therefore, the City of Fulshear defines a service unit as unit of development that consumes the amount of water requiring a standard 1-inch meter. For a development that requires a different size meter, a service unit equivalent is established at a multiplier based on its capacity with respect to the 1-inch meter. The equivalency factors and associated impact fee by meter size is shown in the report.

Based on the City's 10-year growth projections and the associated demand (consumption) values, the report shows how many additional service units will be required by the year 2029. Based on the additional service units and the recoverable capital improvements plans the City may assess up to the following maximum impact fees:

- Water: .....$2,488.27 per service unit
- Wastewater: .....$3,598.91 per service unit
- **Total: ..... $6,087.17 per service unit**

1.4 IMPACT FEE AUTHORIZATION PROCESS

Impact Fees are a mathematical calculation that determines a maximum fee equivalent for new development paying for growth. A successful impact fee program is designed so that it is predictable for both the development community and City. An impact fee program is equitable since similar developments pay a similar fee regardless if they are the first or last to develop. An impact fee program is transparent through the public process. An impact fee program is flexible in that funds can be used on priority projects and not just on project adjacent to a specific development. An impact fee program is consistent with other City goals and objectives for growth. For example, the actual collection rate set by Council may be determined to be less than the maximum assessable impact fee to achieve and be in alignment with other City goals and objectives for growth.

Chapter 395 of the Texas Local Government Code the generalized process for enacting Impact Fees including the following seven major steps:

1 Appoint Capital Improvement Advisory Committee (completed May 2019)
2 Publish Land Use Assumptions and Capital Improvement Plans (completed June 2019)
3 Hold Public Hearing on Land Use Assumptions and Capital Improvement Plans (completed July 2019)
4 Publish Impact Fee Study (this document)
5 Receive Capital Improvement Advisory Committee written comments on Impact Fee Study
6 Hold Public Hearing on Impact Fee
7 Approve adoption of Impact Fees

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SECTION 2: LAND USE ASSUMPTIONS

This section provides an overview of the general methodology used to generate the land use assumptions and lists the land use assumptions.

2.1 LAND USE ASSUMPTION METHODOLOGY

Fulshear generated the population growth projections in this report based on reasonable and generally accepted planning principles. The following factors were considered in developing these projections:

- Character, type, density, and quantity of existing development;
- Current zoning plans;
- Future Land Use Plan;
- Growth trends;
- Location of vacant land;
- Physical restrictions (i.e. flood plains, railroads); and
- Physical development capacity of Fulshear.

Existing and future population estimates were obtained using projections provided in the on-going Water Master Plan study. In addition, the Water and Wastewater population projections were compared against the household and employment projections developed for the Impact Fee study, as well as estimates provided by City staff.

2.2 SERVICE AREA

Figure 1 shows the geographic boundary of the proposed impact fee service areas for water facilities. These service areas cover the Certificate of Convenience and Necessity (CCN) area in the City of Fulshear and its Extra-Territorial Jurisdiction (ETJ) that are currently being served or are planned to be served in the future by City water facilities. The figure also shows the location of proposed Capital Improvement Projects.

Figure 1: Water Service Area and CIP Projects

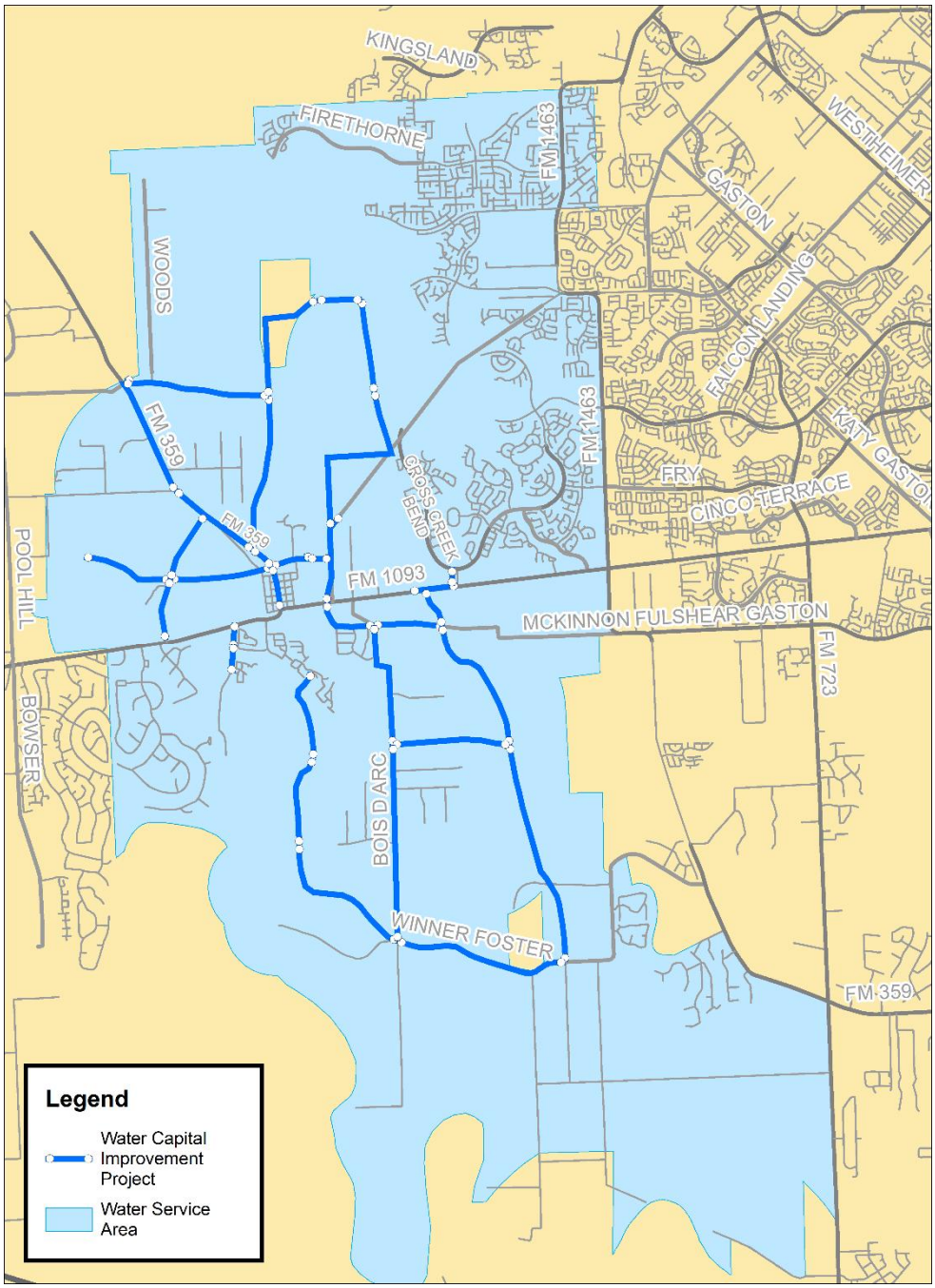

Figure 2 shows the geographic boundary of the proposed impact fee service area for wastewater facilities. The wastewater service area covers the CCN area in the City of Fulshear and its ETJ that are currently being served or are planned to be served in the future by City wastewater facilities. The figure also shows the location of proposed Capital Improvement Projects.

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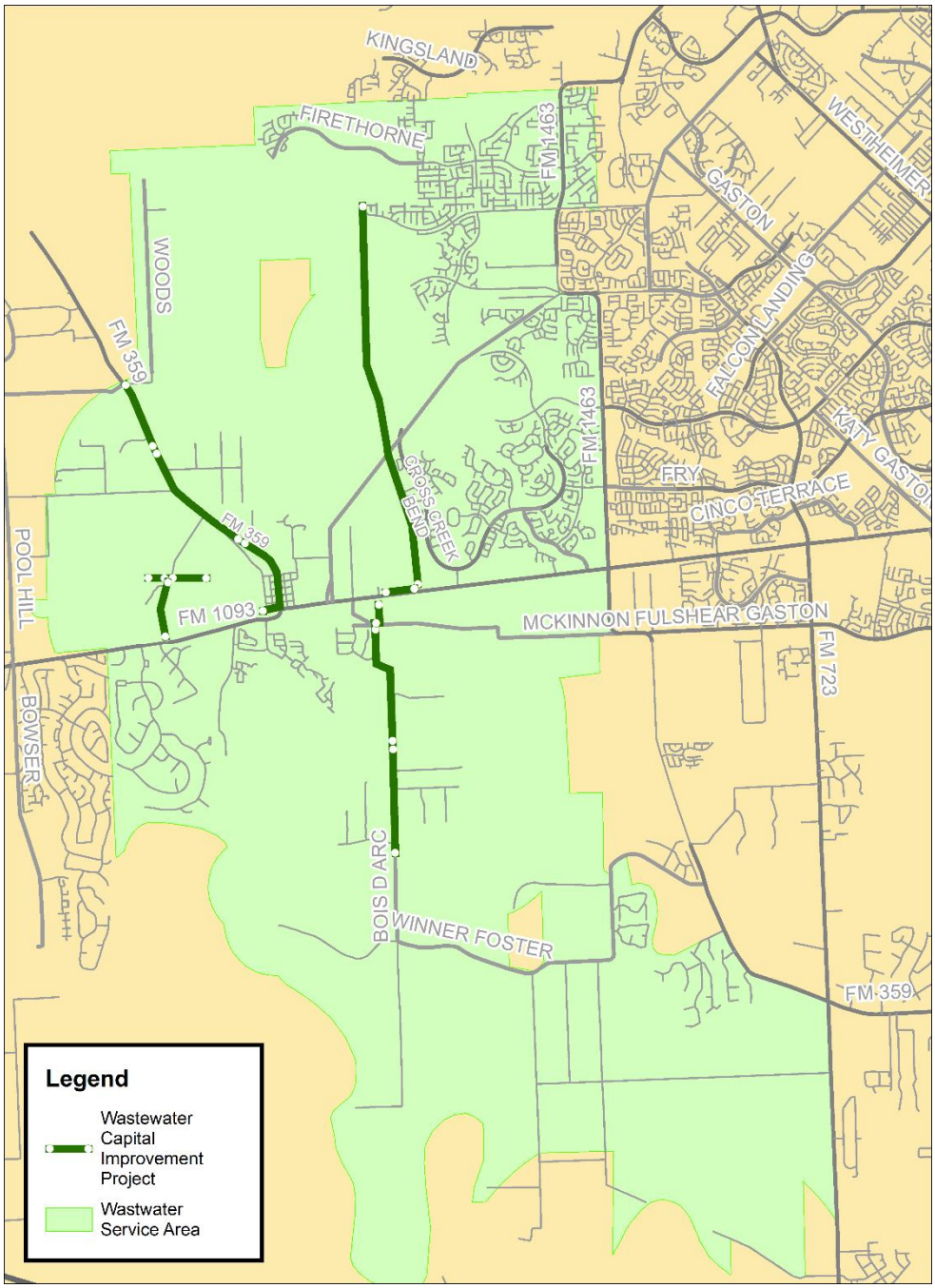
Figure 2: Wastewater Service Area and Proposed CIP Projects



SECTION 3: POPULATION AND EMPLOYMENT

This section describes data on population growth within the service area over the next ten years (2019 – 2029).

Population estimates for the base year (2019) and ten-year window (2029) were performed based upon the Waster master plan, the Water and Wastewater service area boundaries, and input from City staff.

3.1 DEVELOPED AREAS

Figure 3 shows which parcels in the Service Area are developed versus undeveloped. Parcel level development was estimated based on parcel geographic files provided by the Fort Bend County Appraisal District and aerial survey.

The current area in Fulshear's extra-territorial jurisdiction (ETJ) is approximately 32,782 acres. Approximately 8.1% of the ETJ is developed, with an additional 1.6% developed for public uses such as streets or municipal facilities. For this analysis, partially developed parcels were considered developed only if the majority of the parcel area was built to the future land use. Fulshear includes a significant amount of undeveloped land which will not likely be completely developed within the ten year Impact Fee timeframe.

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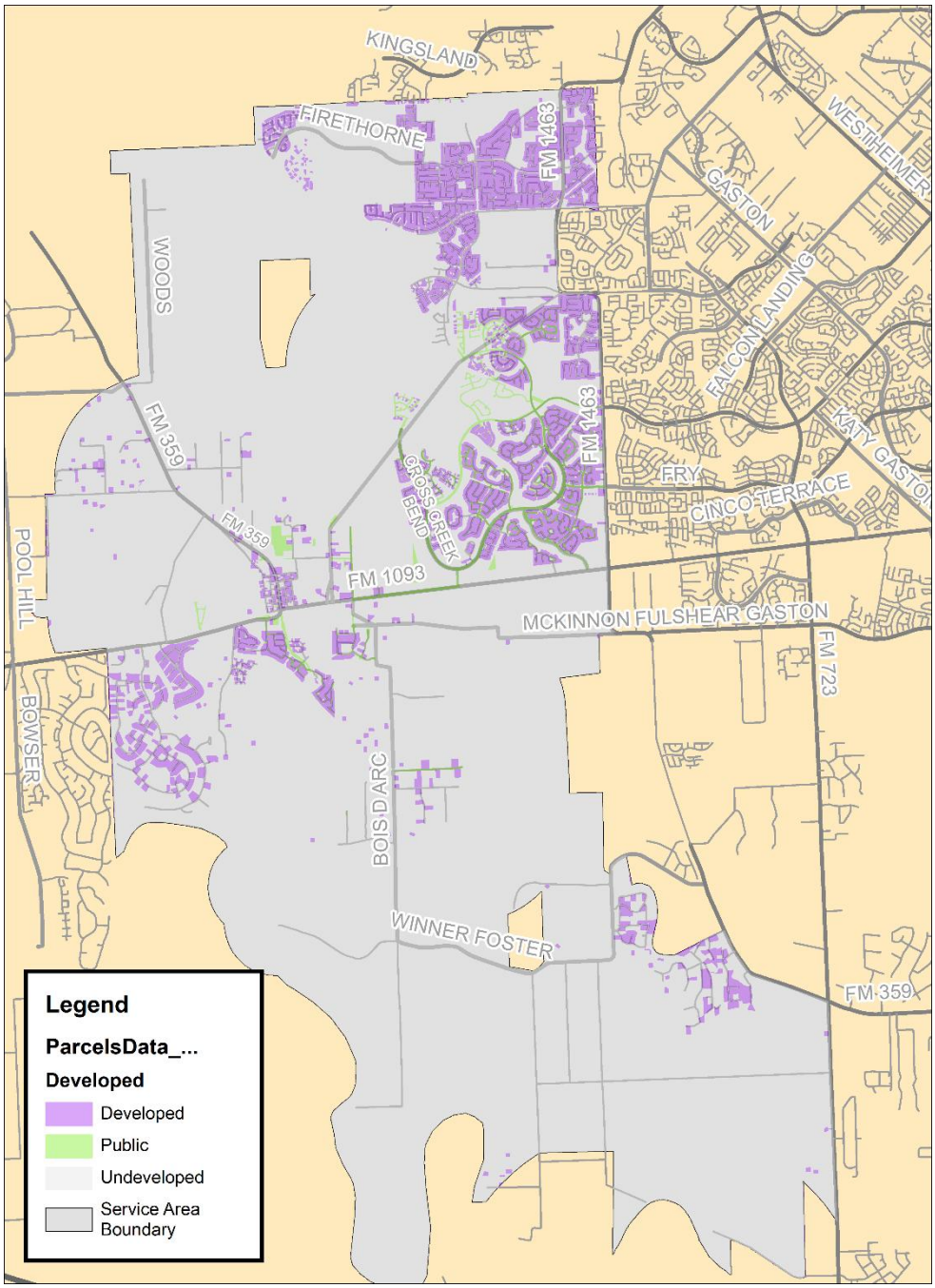
Figure 3: Map of Developed Areas



This study selected 2019 as the base year. For parcels identified as developed, existing residential and employment estimates for 2019 were obtained using existing building information provided by the City, Fort Bend County Appraisal District, and an aerial survey of existing development. For multifamily units, a density calculation was performed based on the building's

footprint and average densities throughout the city. A standard conversion factor of square footage per unit was utilized to determine the number of units. Building footprint data and aerials determined employment square footage estimates.

3.2 POPULATION PROJECTIONS

Fulshear must describe the Land Use Assumptions which provide the basis for residential and employment growth projections within the political subdivision. As defined by Chapter 395, these assumptions include a description of changes in land uses, densities, and projected development in the service area. The land use assumptions then determine the need and timing of water and wastewater infrastructure improvements to serve future development. Section 395.0455 allows Fulshear to adopt systemwide land use assumptions which cover all the area subject to the jurisdiction of the political subdivision for the purpose of creating impact fees.

The maximum impact fee determination is required to be based on the projected growth and corresponding capacity in a 10-year window. This study considers the ten-year timeframe from 2019 to 2029. The land use assumptions are based on demographic data taken from the Spring 2019 City of Fulshear Demographic Update by Population and Survey Analysts (PASA). The PASA report breaks down growth projections within the City Limits and Extra-Territorial Jurisdiction (ETJ).

The PASA report focuses on projections the years from 2017 through 2027. This report shows how the PASA data was extrapolated to the impact fee timeframe. Table 1 summarizes the 10-year population projections.

Table 2: Ten Year Population Projection

Year	*City*	*ETJ*	*Total*
2019	14,141	18,271	32,412
2029	31,846	64,422	96,268
10-Year Population Growth Projection			**Increase 63,856**

Figure 4 shows the PASA population projections and the extended projection to 2019 in a graph.

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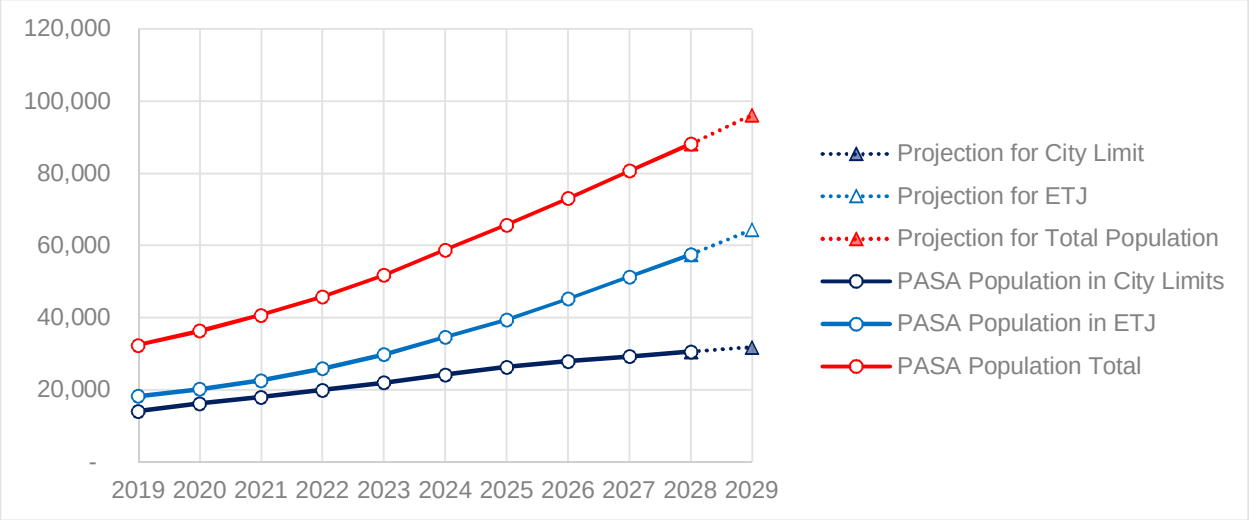
Figure 4: Population Projection Graph



The City of Fulshear assumes undeveloped parcels to build-out with a density similar to the Cross Creek Ranch development. The PASA Report identifies that the weighted mean household size in the Study Area has a population density of 3.15 persons per residential unit. This report assumes a population density of 3.15 persons per residential unit for undeveloped parcels at build-out. Table 2 shows the estimated number of current residential units and 10-year projected residential units.

Table 3: Ten Year Projected Residential Units

Year	*Population City + ETJ*	*People per Residential Unit*	*Residential Units*
2019	32,412	3.15	10,289
2029	96,268	3.15	30,561
10-Year Growth in Residential Units Projection			***Increase 20,272***

The Fulshear Service Area is projected to experience a significant amount of residential and employment growth within the next ten years. This is consistent with the Future Land Use Plan in the Service Area.

Section 395.0455 allows Fulshear to adopt systemwide land use assumptions which cover all the area subject to the jurisdiction of the political subdivision for the purpose of creating impact fees. The following shows the systemwide assumption for population growth in the 10 year window:

- Cross Creek Ranch portions that are nearly built-out as of 2017: 424.84 acres
- Population of CCR selected Areas (H01 H02, H16, H11, H12): 2,766 people
- Selected CCR areas population per acre: 6.51 people per acre
- Area ETJ: 26,377 acres
- Percent expected to be residential: 60 percent
- Area factored for non-residential uses: 15,826 acres
- Buildout Population (everything at CCR density) 103,037 people
- Projected Future Growth: 75,003 people
- Population growth in the ten-year window as a percent of future growth: 85.1% Percent

This report cannot predict which developments will be completed first and to what extent they will be completed in the ten-year time frame. Based on the ratio of projected overall growth to the buildout population, this report uses a systemwide land use assumption that 85.1 percent of the projected future development will occur within the ten-year impact fee study timeframe.

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SECTION 4: CAPITAL IMPROVEMENT PLANS

The City has identified the utility projects needed to accommodate the projected growth within the City. Freese and Nichols, Inc. completed Fulshear's water and wastewater master plans in 2018.

4.1 EXCESS CAPACITY AND DEFICIENCIES

The Water and Wastewater Master Plan includes analysis of the capacity of the existing water distribution and wastewater collection systems.

For the water system, the master plan assessed the current supply, pumping, and storage capacity to determine that there are no current deficiencies in the system and there is some excess capacity to serve future growth. For water supply, the report shows that there is currently supply in excess of the TCEQ required capacity. For storage, the report shows that there is currently adequate storage when the hydropneumatics tanks are considered; however, the system will require additional storage capacity after combining with Cross Creek. For pumping, the report shows that there is excess pumping capacity. Proposed capital projects related to addressing capacity deficiencies have been either removed from the Impact Fee CIP or the percentage of proposed use for the ten-year window has been reduced.

For the wastewater system, the master plan assessed the capacity of the existing collection system in terms of treatment capacity and surcharge capacity of the collection system. For treatment capacity, the report shows there is need for treatment plant consolidation and a new lift station to provide treatment capacity at the desired locations. For the surcharge capacity, the report shows improvements are required including new lift stations. Proposed capital projects related to addressing capacity deficiencies have been either removed from the Impact Fee CIP or the percentage of proposed use for the ten-year window has been reduced.

4.2 UTILITY CREDIT REDUCTION

Chapter 395.014 requires the impact fee calculation to enumerate either "a plan for awarding:

> (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."

Fulshear has elected to calculate fees based on the 50 percent utility credit reduction instead of performing a detailed financial analysis for distribution of the recoverable costs. Therefore, per Chapter 395.014, credit equal to 50 percent of the total projected cost of implementing the capital improvements plan will be applied. A portion of the remainder can be assessed as the planning window extends beyond 2029 and as the impact fees are updated in the future.

4.3 WATER CAPITAL IMPROVEMENT PLANS

The Water Impact Fee Capital Improvements Plan was developed using projects identified in the Master Plan. Chapter 395 only allows cost recovery associated with eligible projects in a ten (10) year window from the time of the impact fee study. Seventeen (17) projects are identified in the water CIP from 2017-2026. The total cost of these projects is **$68,622,000**. The projected total CIP recoverable cost through impact fees is **$49,020,681.** A 4% finance cost is then added to increase the pre-credit total to $50,981,508. After the fifty percent (50%) utility credit reduction is applied, **$25,490,754** is recoverable through impact fees serving the 10-year system needs. The water impact fee capital improvements are shown in Table 3 and illustrated in Figure 5.

Table 4: Water Capital Improvement Plan

Project Number	*Capital Improvement Plan Project Description*	*Total Project Cost*	*Addresses Existing Deficiency*	*2019-2029 Required Capacity*	*Projected Recoverable Cost*
1	*16-inch Huggins Trans. Line*	*$1,615,500*	*39%*	*46%*	***$744,342***
2	*12/16-inch FM 359 Transmission Line - Phase 1*	*$3,118,600*	*50%*	*35%*	***$1,095,798***
3	*16-inch FM West Transmission Line*	*$4,939,500*	*50%*	*35%*	***$1,735,617***
4	*16-inch Katy-Fulshear/McKinnon Rd Transmission Line*	*$5,758,100*	*20%*	*65%*	***$3,750,682***
5	*1.0 MG South Elevated Storage Tank*	*$3,120,000*	*20%*	*65%*	***$2,032,290***
6	*12-inch James Ln Transmission Line*	*$1,013,700*	*50%*	*35%*	***$356,189***

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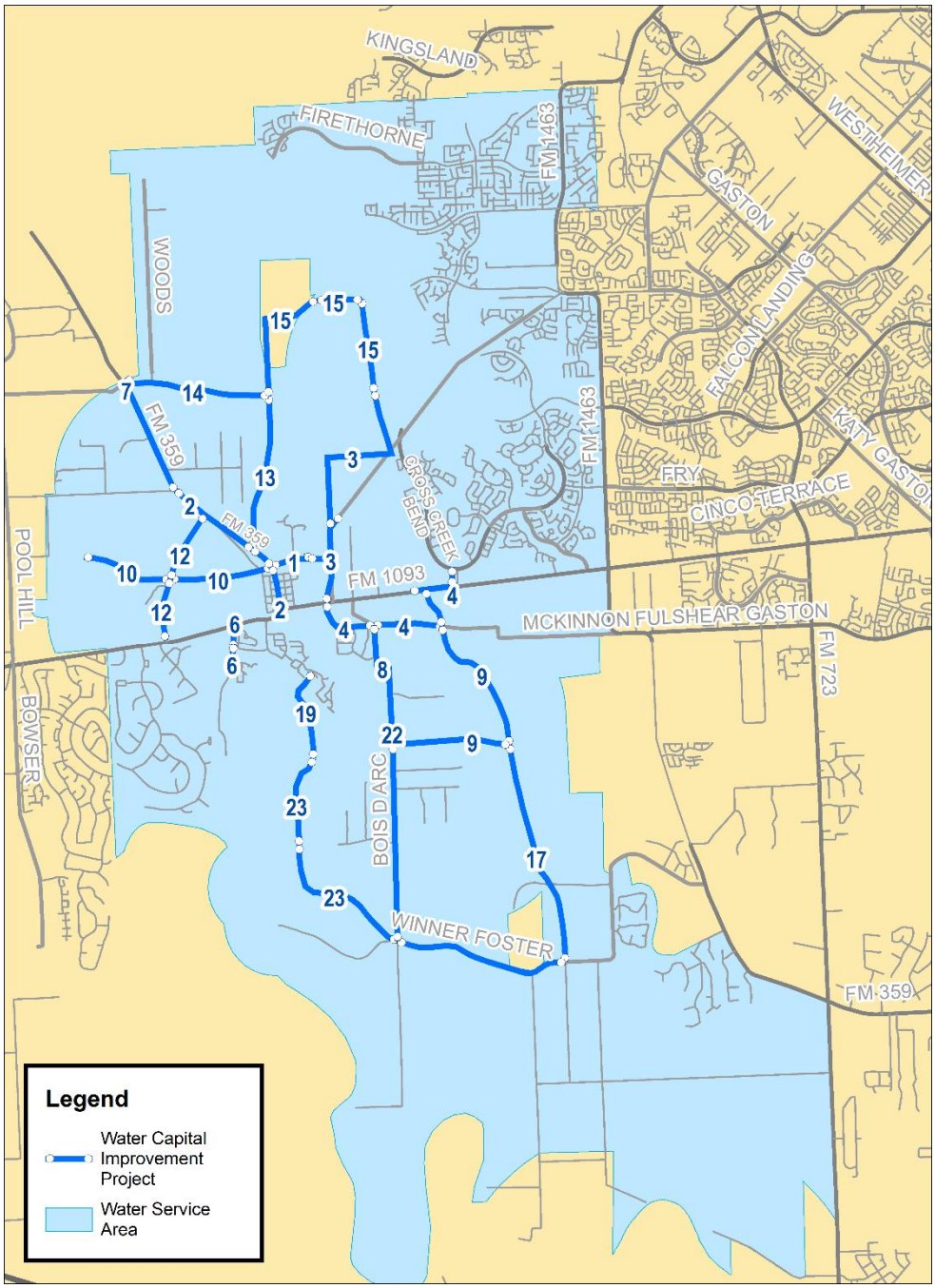
Project Number	Capital Improvement Plan Project Description	Total Project Cost	Addresses Existing Deficiency	2019-2029 Required Capacity	Projected Recoverable Cost
7	12-inch FM 359 Transmission Line - Phase 2	$1,623,600	0%	85%	**$1,382,292**
8	16-inch Bois D'Arc Lane Transmission Line	$3,278,600	10%	75%	**$2,463,458**
9	16-inch Texas Heritage Pkwy South Transmission Line -Phase 1	$4,420,800	30%	55%	**$2,437,519**
10	12/16-inch West Fulshear Transmission Line	$3,398,000	25%	60%	**$2,043,472**
11	Water Plant No. 2	$16,021,200	0%	85%	**$13,640,049**
12	12-inch Future Polo Ranch Transmission Line	$2,404,000	0%	85%	**$2,046,706**
13	16-inch North Fulshear Transmission Line - Phase 1	$3,173,200	0%	85%	**$2,701,583**
14	16-inch Fulshear Farms Transmission Line Loop	$2,323,300	0%	85%	**$1,978,000**
15	16-inch Transmission Line Loop	$6,217,100	0%	85%	**$5,293,084**
16	1.0 MG North Elevated Storage Tank	$3,120,000	0%	85%	**$2,656,290**
17	16/12-inch Texas Heritage Parkway South Transmission Line - Phase 2	$3,076,800	0%	85%	**$2,619,511**
	Total	$68,622,000			**$48,976,881**

Figure 5: Water CIP Projects



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4.4 WATER PROJECT DESCRIPTIONS:

A detailed description of the water CIP projects identified in Table 3, and the project costs are shown below:

1. **16-inch Huggins Transmission Line**

   This project consists of the construction of 3,800 linear feet of a new 16-inch transmission line along extended Huggins Road from Katy-Fulshear Road to FM 359. This project increases the capacity of an existing 10-inch line, so the majority of the project cost is for existing capacity.

   Project Cost: $1,615,500

2. **12/16-inch FM 359 Transmission Line – Phase 1**

   This project consists of 11,100 linear feet of 12-inch and 16-inch water along FM 359 beginning at the intersection of FM 1093 and extending north. This project serves existing development, so the project is estimated to be half for existing capacity.

   Project Cost: $3,118,600

3. **16-inch FM 1093 West Transmission Line**

   This project consists of 15,400 linear feet of 16-inch water line beginning near the intersection of FM 1093 and Katy-Fulshear Road and extending north. This project serves existing development, so the project is estimated to be half for existing capacity.

   Project Cost: $4,939,500

4. **16-inch Katy-Fulshear/McKinnon Road Transmission Line**

   This project consists of 13,900 linear feet of 16-inch water line beginning near the intersection of FM 1093 and Katy Fulshear Road and extending west along McKinnon Road, and then north to FM 1093 and Cross Creek Ranch Boulevard. This project serves some existing development, so the project is estimated to be one-fifth for existing capacity.

   Project Cost: $5,758,100

5. **1.0 MG South Elevated Storage Tank**

   This project consists of a 1 million gallon elevated storage tank located near the intersection of Bois D'Arc Lane and McKinnon Road. This project serves some existing development, so the project is estimated to be one-fifth for existing capacity.

Project Cost: $3,120,000

6. **12-inch James Lane Transmission Line**

This project consists of 3,200 linear feet of 12-inch water line beginning at the intersection of FM 1093 and James Lane and extending south. This project serves existing development, so the project is estimated to be half for existing capacity.

Project Cost: $1,013,700

7. **12-inch FM 359 Transmission Line – Phase II**

This project consists of 4,500 linear feet of 12-inch water line beginning at the termination of Project 2 and continuing north along FM 359. This project entirely serves future development.

Project Cost: $1,623,600

8. **16-inch Bois D'Arc Lane Transmission Line**

This project consists of 7,800 linear feet of 16-inch water line extending south down Bois D'Arc Lane beginning at the intersection of Bois D'Arc Lane and McKinnon Road. This project serves some existing development, so the project is estimated to be one-tenth for existing capacity.

Project Cost: $3,278,600

9. **16-inch Texas Heritage Parkway South Transmission Line – Phase I**

This project consists of 15,200 linear feet of 16-inch water beginning just north of the intersection of Bois D'Arc Lane and Lea Road and continuing east to Texas Heritage Parkway and then north along Texas Heritage Parkway. This project serves some existing development, so the project is estimated to be 30% for existing capacity.

Project Cost: $4,420,800

10. **12/16-inch West Fulshear Transmission Line**

This project consists of 11,200 linear feet of 12-inch and 16-inch water lines to serve the Fulshear Polo Ranch Development and the Fulshear Lakes Development. This project serves some existing development, so the project is estimated to be one-quarter for existing capacity.

Project Cost: $3,398,000

11. **Water Plant No. 2**

This project consists of the construction of a water treatment plant located near the Fulshear Polo Ranch Development.

Project Cost: $16,021,200

12. 12-inch Future Polo Ranch Transmission Line

This project consists of 7,800 linear feet of a 12-inch water line to serve the future Fulshear Polo Ranch Development. This project entirely serves future development.

Project Cost: $2,404,000

13. 16-inch North Fulshear Transmission Line – Phase 1

This project consists of 9,000 linear feet of 16-inch water line beginning near the intersection of Wallis Street and FM 359 and extending north. This project entirely serves future development.

Project Cost: $3,173,200

14. 16-inch Fulshear Farms Transmission Line Loop – Phase 1

This project consists of 8,400 linear feet of 16-inch water line beginning near the intersection of FM 359 and Hunt Road and extending east. This project entirely serves future development.

Project cost: $2,323,300

15. 16-inch Transmission Line Loop

This project consists of 19,100 linear feet of 16-inch water line beginning at the termination of Projects 13 and 14, looping around to the north near the Tamarron Development and extending south to the termination of Project 3 at Katy-Fulshear Road near Cross Creek Ranch. This project entirely serves future development.

Project Cost: $6,217,100

16. 1.0 MG North Elevated Storage Tank

This project consists of a 1 million elevated ground storage tank located near the Tamarron Development. This project entirely serves future development.

Project Cost: $3,120,000

17. 12/16-inch Texas Heritage Parkway South Transmission Line – Phase II

This project consists of 12,000 linear feet of 12-inch and 16-inch water lines beginning at the termination of Project 9 and continuing south to the intersection of Winner Foster Road and Pirtle Road. This project entirely serves future development.

Project Cost: $3,076,800

4.5 WASTEWATER CAPITAL IMPROVEMENT PLANS

The Wastewater Impact Fee Capital Improvements Plan was developed using projects identified in the Master Plan. Chapter 395 only allows cost recovery associated with eligible projects in a ten (10) year window from the time of the impact fee study. Twelve (12) projects are identified in the wastewater CIP from 2017-2026. The total cost of these projects is **$131,558,800**. The projected total CIP recoverable cost through impact fees is **$78,377,921.** A 4% finance cost is then added on to increase the pre-credit total to $81,513,038. After the fifty percent (50%) utility credit reduction is applied, **$40,756,519** is recoverable through impact fees serving the 10-year system needs. The impact fee capital improvements for wastewater are shown in Table 5 and illustrated in Figure 6.

Table 5: Wastewater Capital Improvement Plan

Project Number	*Capital Improvement Plan Project Description*	*Total Project Cost*	*Addresses Existing Deficiency*	*2019-2029 Required Capacity*	*Projected Recoverable Cost*
1	*3.0 MGD Cross Creek Ranch WWTP Expansion to 4.0 MGD*	*$37,440,000*	*50%*	*35%*	***$13,155,480***
2	*9.3 MGD WWTP Diversion Lift Station and 20-inch Force Main*	*$11,594,000*	*30%*	*55%*	***$6,392,642***
3	*24/27/30/36-inch FM 359 Interceptor - Phase I*	*$6,864,900*	*0%*	*85%*	***$5,844,604***
4	*30-inch Texas Heritage Parkway Interceptor*	*$10,019,500*	*10%*	*75%*	***$7,528,402***
5	*2.6 MGD West Fulshear Lift Station*	*$1,554,800*	*0%*	*85%*	***$1,323,718***
6	*15/18-inch West Fulshear Interceptor - Phase I*	*$1,646,000*	*0%*	*85%*	***$1,401,363***
7	*3.5 MGD Regional Wastewater Treatment Facility*	*$44,460,000*	*10%*	*75%*	***$33,406,133***
8	*30/36/48/54-inch Bois D'Arc Interceptor - Phase I*	*$11,787,300*	*25%*	*60%*	***$7,088,588***
9	*Expansion of the Diversion Lift Station from 9.3 MGD to 14.6 MGD*	*$4,233,900*	*64%*	*21%*	***$907,700***

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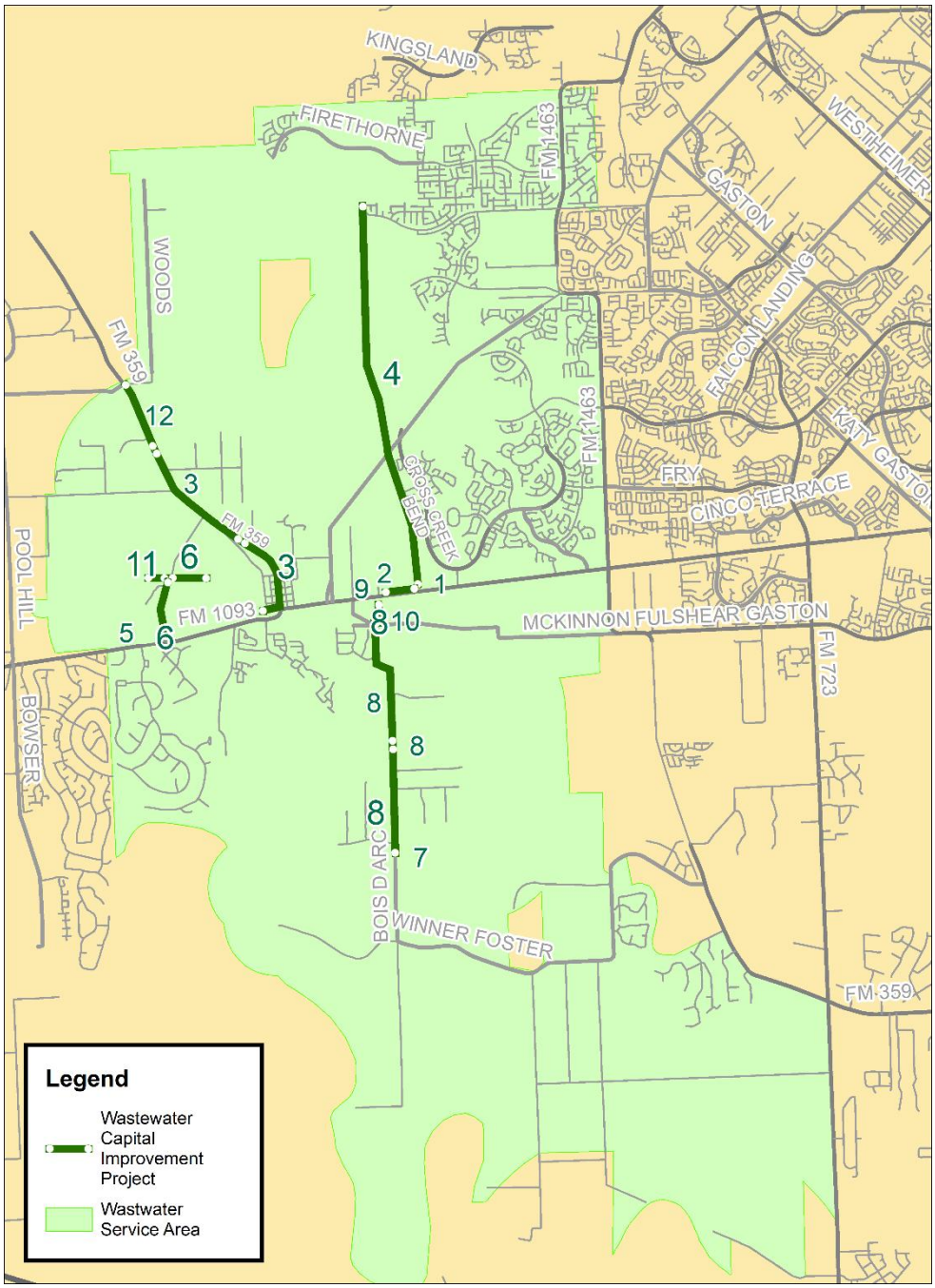
Project Number	*Capital Improvement Plan Project Description*	*Total Project Cost*	*Addresses Existing Deficiency*	*2019-2029 Required Capacity*	*Projected Recoverable Cost*
10	*Existing City of Fulshear WWTP Decommissioning*	*$448,500*	*100%*	*0%*	***$0***
11	*12-inch West Fulshear Interceptor - Phase II*	*$297,600*	*0%*	*85%*	***$253,369***
12	*18-inch FM 359 Interceptor - Phase II*	*$1,212,300*	*0%*	*85%*	***$1,032,122***
	Total	*$131,558,800*			***$78,377,921***

Figure 6: Wastewater CIP Projects



4.6 WASTEWATER PROJECT DESCRIPTIONS:

A detailed description of the wastewater CIP projects identified in Table 4, and their respective costs are shown below:

1. **3.0 MGD Cross Creek Ranch WWTP Expansion to 4.0 MGD**

   This project consists of the expansion of the existing Cross Creek Ranch WWTP to 4.0 MGD and decommissioning the existing WWTP. This project serves existing development, so the project is estimated to be half for existing capacity.

   Project Cost: $37,440,000

2. **9.3 MGD WWTP Diversion Lift Station and 20-inch Force Main**

   This project consists a 9.3 MGD lift station and 11,300 LF of 20-inch force main located near the existing Fulshear WWTP at FM 359 and FM 1093. This project serves some existing development, so the project is estimated to be 30% for existing capacity.

   Project Cost: $11,594,000

3. **24/27/30/36-inch FM 359 Interceptor – Phase I**

   This project consists of 15,100 LF of 24/27/30/36-inch sewer lines located near the intersection of FM 1093 and FM 359 and extending north along FM 359. This project entirely serves new development.

   Project Cost: $6,864,900

4. **30-inch Texas Heritage Parkway Interceptor**

   This project consists of 21,800 LF of 30-inch sewer line beginning at the Cross Creek Ranch WWTP and extending north along the future Texas Heritage Parkway. This project serves some existing development, so the project is estimated to be one-tenth for existing capacity.

   Project Cost: $10,019,500

5. **2.6 MGD West Fulshear Lift Station**

   This project consists of a 2.6 MGD lift station located just east of the intersection of FM 1093 and Bessie's Creek Trace. This project entirely serves new development.

   Project Cost: $1,554,800

6. **15/18-inch West Fulshear Interceptor – Phase I**

This project consists of 5,900 linear feet of 15/18-inch sewer lines beginning at the future West Fulshear Lift Station and extending north through the future Fulshear Polo Ranch development. This project entirely serves new development.

Project Cost: $1,646,000

7. **3.5 MGD Regional Wastewater Treatment Facility**

This project consists of a 3.5 MGD Regional WWTP located just south of the intersection of Bois D'Arc Lane and Red Bird Lane. This project serves some existing development, so the project is estimated to be one-tenth for existing capacity.

Project Cost: $44,460,000

8. **30/36/48/54-inch Bois D'Arc Interceptor – Phase I**

This project consists of 17,200 of 30/36/48/54-inch sewer lines beginning at the future 3.5 MGD Regional WWTP and extending north along Bois D'Arc Lane. This project serves some existing development, so the project is estimated to be one-quarter for existing capacity.

Project Cost: $11,787,300

9. **Expansion of the Diversion Lift Station from 9.3 MGD to 14.6 MGD**

This project consists of expanding the future diversion lift station from 9.3 MGD to 14.6 MGD. This project partially serves existing development.

Project Cost: $4,233,900

10. **Existing City of Fulshear WWTP Decommission**

This project consists of decommissioning the existing WWTP located near the intersection of FM 359 and FM 1093. This project entirely serves existing development.

Project Cost: $448,500

11. **12-inch West Fulshear Interceptor - Phase II**

This project consists of 1,500 linear feet of 12-inch sewer line connecting to the 15/18-inch West Fulshear Interceptor (Project 6) and extending west through the future Fulshear Polo Ranch development. This project entirely serves future development.

Project Cost: $297,600

12. 18-inch FM 359 Interceptor – Phase II

This project consists of 4,400 linear feet of 18-inch sewer line beginning at the termination of the 24-inch sewer line as part of the FM 359 Interceptor Phase I (Project 3) and extending north along FM 359. This project entirely serves future development.

Project Cost: $1,212,300

SECTION 5: IMPACT FEE CALCULATION

This section documents the calculation for water and wastewater impact fees for system improvements required to serve new development. These fees were originally developed in accordance with Chapter 395 of the Local Government Code. The purpose of this report is to satisfy the requirements of the law and provide the City with an updated impact fee capital improvements plan and associated impact fees.

The following excerpt from Chapter 395 of the code defines the requirements for impact fee calculation:

"(a) The political subdivision shall use qualified professionals to prepare the capital improvements plan and to calculate the impact fee. The capital improvements plan must contain specific enumeration of the following items:

(1) a description of the existing capital improvements within the service area and the costs to upgrade, update, improve, expand, or replace the improvements to meet existing needs and usage and stricter safety, efficiency, environmental, or regulatory standards, which shall be prepared by a qualified professional engineer licensed to perform such professional engineering services in this state;

(2) an analysis of the total capacity, the level of current usage, and commitments for usage of capacity of the existing capital improvements, which shall be prepared by a qualified professional engineer licensed to perform such professional engineering services in this state;

(3) a description of all or the parts of the capital improvements or facility expansions and their costs necessitated by and attributable to new development in the service area based on the approved land use assumptions, which shall be prepared by a qualified professional engineer licensed to perform such professional engineering services in this state;

(4) a definitive table establishing the specific level or quantity of use, consumption, generation, or discharge of a service unit for each category of capital improvements or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including but not limited to residential, commercial, and industrial;

(5) the total number of projected service units necessitated by and attributable to new development within the service area based on the approved land use assumptions and calculated in accordance with generally accepted engineering or planning criteria;

(6) the projected demand for capital improvements or facility expansions required by new service units projected over a reasonable period of time, not to exceed 10 years; and

(7) plan for awarding:

(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 project cost of implementing the capital improvements plan."

5.1 DEFINITION OF SERVICE UNITS

Chapter 395 of the Local Government Code defines a service unit as follows; "Service Unit means a standardized measure of consumption attributable to an individual unit of development calculated in accordance with generally accepted engineering or planning standards and based on historical data and trends applicable to the political subdivision in which the individual unit of development is located during the previous 10 years."

Therefore, the City of Fulshear defines a service unit based on historical water usage over the past 10 years as compared to the estimated residential units. The residential unit is the development type that predominately uses a 1-inch meter. For this study, the measure of consumption per service unit is based on a 1-inch meter.

5.2 WATER IMPACT FEE CALCULATION

The Water impact Fees are calculated by dividing the recoverable capital project costs (in the ten-year window) by the number of service units anticipated in the next ten years.

Table 6 shows the calculation of historic water demand per service unit.

Table 6: Average Water Consumption Per Service Unit

Year	Population*	Residential Units (3.15 persons/unit)	Water Usage Average Day Demand (MGD)	Consumption per Service Unit (GPD)
2013	7,174	2,277	0.79	347
2014	7,899	2,508	0.95	379
2015	9,078	2,882	1.10	382
2016	9,640	3,060	1.31	428
Average Consumption per Service Unit				**384**

***Population data from City of Fulshear Water and Wastewater Master Plan prepared by Freese & Nichols, Inc. and from the City of Fulshear.**

Based on the City's 10-year growth projections and the resulting water demand projections, water service will be required for an additional 13,125 service units. A service unit, which is a unit of development that consumes approximately 384 gallons per day (GPD), is a typical residential connection that uses a 1-inch meter. Table 4 shows the calculation.

Table 7: Calculation of 10-Year Additional Water Service Units

Year	Average Day Demand (MGD)	Service Unit Demand (GPD)	Service Units
2019	2.37	384	6,172
2029	7.41	384	19,297
10-year Additional Service Units			**13,125**

Impact fee law allows for a credit calculation to credit back the utility revenues or ad valorem taxes that are allocated for paying a portion of future capital improvements. The intent of this credit is to prevent the City from double charging development for future capital improvements via impact fees and utility rates. If the City chooses not the do a financial analysis to determine the credit value they are required by law to reduce the recoverable cost by 50 percent. The City not chose to perform a financial analysis. Table 8 shows the 10-year recoverable costs and the associated impact fee per service unit.

Table 8: 10-Year Water Recoverable Costs

Item	**Cost**
Recoverable Impact Fee CIP Costs	$49,020,681
Apply 4% Finance Rate for Pre-Credit Total	$66,177,919
Credit for Utility Revenues (50%)	$33,088,960
Maximum Recoverable Cost for Impact Fee	$33,088,960

The impact fee per service unit is calculated as follows:

$$\text{Impact fee per service unit} = \frac{\text{10-year recoverable costs}}{\text{10-year additional service units}}$$

$$\text{10-year recoverable costs} = \$33,088,960$$

$$\text{Impact fee per service unit} = \frac{\$33,088,960}{13,298}$$

$$\text{Impact fee per service unit} = \$2,488.27$$

Therefore, the maximum assessable impact fee per service unit is $2,488.27. For a development that requires a different size meter, a service unit equivalent is established at a multiplier based on its capacity with respect to the 1-inch meter. Table 9 lists the maximum impact fee that could be assessed for other meter sizes is based on equivalent capacity to the base meter.

Table 9: Water Service Unit Equivalent

Meter Size*	Maximum Continuous Operating Capacity (GPM)**	Service Unit Equivalent	Maximum Assessable Impact Fee
1" PD	25	1.0	$ 2,488.27
2" PD	80	3.2	$ 7,962.45
2" MACH 10	100	4.0	$ 9,953.06
3" COMP	175	7.0	$ 17,417.86
4" COMP	300	12.0	$ 29,859.19
6" COMP	675	27.0	$ 67,183.18
*PD=Positive Displacement Meter, TURB=Turbine Meter, COMP=Compound Meter, MACH 10=Mach 10 Solid State Ultrasonic Meter			
**Operating capacities obtained from American Water Works Association (AWWA) C-700-15, C-701-15, and C-702-15			

5.3 WASTEWATER IMPACT FEE CALCULATION

The Wastewater impact Fees are calculated by dividing the recoverable capital project costs (in the ten-year window) by the number of service units anticipated in the next ten years. The approved City of Fulshear Water and Wastewater master plan projects future flow

Table 10: Average Wastewater Consumption Per Service Unit

Year	Population*	Residential Units (3.15 persons/unit)	Wastewater Usage Average Day Demand (MGD)	Consumption per Service Unit (GPD)
2021	29,090	9,234	2.90	314.0
2026	55,512	17,622	5.60	317.8
2036	88,794	28,188	9.01	319.6
Projected Average Consumption per Service Unit				**317**
*Population data from City of Fulshear Water and Wastewater Master Plan prepared by Freese & Nichols, Inc. and from the City of Fulshear.				

Based on the City's 10-year growth projections and the resulting water demand projections, water service will be required for an additional 40,172 service units. A service unit, which is a unit of development that discharges approximately 317 gallons per day (GPD), is based on a typical residential connection that uses a 1-inch meter. Table 11 shows the calculation.

Table 11: Calculation of 10-Year Additional Wastewater Service Units

Year	Average Day Demand (MGD)	Service Unit Demand (GPD)	Service Units
2019	1.96	317	6,183
2029	6.62	317	20,883
10-year Additional Service Units			**14,700**

Impact fee law allows for a credit calculation to credit back the utility revenues or ad valorem taxes that are allocated for paying a portion of future capital improvements. The intent of this credit is to prevent the City from double charging development for future capital improvements via impact fees and utility rates. If the City chooses not the do a financial analysis to determine the credit value they are required by law to reduce the recoverable cost by 50 percent. The City not chose to perform a financial analysis. Table 12 shows the 10-year recoverable costs and the associated impact fee per service unit.

Table 12: 10-Year Wastewater Recoverable Costs

Item	**Cost**
Recoverable Impact Fee CIP Costs	$78,377,921
Apply 4% Finance Rate for Pre-Credit Total	$105,810,194
Credit for Utility Revenues (50%)	$52,905,097
Ten Year Recoverable CIP Cost	$52,905,097
Maximum Recoverable Cost for Impact Fee	**$3,598.91**

The impact fee per service unit is calculated as follows:

$$\text{Impact fee per service unit} = \frac{\text{10-year recoverable costs}}{\text{10-year additional service units}}$$

$$\text{10-year recoverable costs} = \$52,905,097$$

$$\text{Impact fee per service unit} = \frac{\$52,905,097}{14,700}$$

$$\text{Impact fee per service unit} = \$3,598.91$$

Therefore, the maximum assessable impact fee per service unit is $3,598.91. For a development that requires a different size meter, a service unit equivalent is established at a multiplier based on its capacity with respect to the 1-inch water meter. Table 13 lists the maximum impact fee that could be assessed for other meter sizes is based on equivalent capacity to the base water meter.

Table 13: Wastewater Service Unit Equivalent

Meter Size*	Maximum Continuous Operating Capacity (GPM)**	Service Unit Equivalent	Maximum Assessable Impact Fee
1" PD	25	1	$3,598.91
2" PD	80	3.2	$11,516.51
2" MACH 10	100	4	$14,395.64
3" COMP	175	7	$25,192.36
4" COMP	300	12	$43,186.91
6" COMP	675	27	$97,170.54
*PD=Positive Displacement Meter, TURB=Turbine Meter, COMP=Compound Meter, MACH 10=Mach 10 Solid State Ultrasonic Meter			
**Operating capacities obtained from American Water Works Association (AWWA) C-700-15, C-701-15, and C-702-15			