



**Monday, August 26, 2024
Planning and Zoning Commission Meeting**

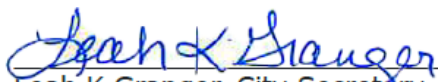
**Council Chambers
3815 Sachse Road, Building B
6:00 PM**

Planning and Zoning Commission meetings are streamed live online and available on-demand (<https://sachsetx.swagit.com/live>).

A. Regular Meeting

1. Call to Order: The Planning and Zoning Commission of the City of Sachse will hold a regular meeting on Monday, August 26, 2024, at 6:00 PM to consider the following items of business:
2. Invocation and Pledge of Allegiance to the U.S. and Texas Flags.
3. The public is invited to address the Board regarding any topic not already on the agenda. The time limit is 3 minutes per speaker. A Public Comment Card should be presented to the acting Secretary prior to the meeting. According to the Texas Open Meetings Act, the Board is prohibited from discussing any item not posted on the agenda but will take comments under advisement.
4. Consider approving the June 24, 2024, meeting minutes.
5. Conduct a public hearing to consider and act on a request to amend the existing gas station Special Use Permit, SUP 23-01, to revise the boundary, site, building layout, and add two additional gas pumps, generally located north of President George Bush Turnpike and east of Merritt Road, within Sachse city limits.
6. Receive an introduction to, review, and provide direction on Land Use Assumptions; Capital Improvement Plan; and Water, Wastewater, and Roadway Impact Fees.
7. Adjournment.

I, the undersigned authority, do hereby certify that this notice of a public meeting was posted in accordance with the regulations of the Texas Open Meetings Act and was posted on the bulletin board, an accessible location at Sachse City Hall.


Leah K Granger, City Secretary

Posted: 08/23/2024 by 5 p.m. | Removed: _____

Accommodation requests for persons with disabilities should be made at least 48 hours prior to the meeting by contacting Logan Thatcher, ADA Coordinator, via phone at 972-495-1212, via email at lthatcher@cityofsachse.com, or by appointment at 3815 Sachse Road, Building B, Sachse, Texas 75048.

A. Regular Meeting

Subject: 4. Consider approving the June 24, 2024, meeting minutes.

Meeting August 26, 2024 - Planning and Zoning Commission Meeting

Access Public

Type Action, Minutes

Fiscal Impact None

Recommended Action Approve the minutes as presented.

Goals

BACKGROUND

Minutes from the June 24, 2024, Council regular meeting.

POLICY CONSIDERATIONS

There are no policy considerations affiliated with this item.

RECOMMENDATION

Approve the minutes as presented.

File Attachments

1. Planning&ZoningCommission_Regular_Minutes_06.24.2024-unsigned

PLANNING AND ZONING COMMISSION OF THE CITY OF SACHSE JUNE 24, 2024, MEETING MINUTES

The Planning and Zoning Commission of the City of Sachse held a regular meeting on Monday, June 24, 2024, at 6:00 PM at Sachse City Hall, 3815-B Sachse Road. Those present were: Scott Ohman, Butch Kemper, Daniel Betten, Brian Cox.

Those absent were: MirHadi Taqui, Tiffany Anderson, Travis Mondok.

A. Regular Meeting

1. Call to Order: The Planning and Zoning Commission of the City of Sachse will hold a regular meeting on Monday, June 24, 2024, at 6:00 PM to consider the following items of business:

Vice Chairperson Ohman called the meeting to order at 6:20PM.

2. Invocation and Pledge of Allegiance to the U.S. and Texas Flags.

Mr. Kemper offered the invocation and Mr. Betten led the pledges.

3. The public is invited to address the Board regarding any topic not already on the agenda. The time limit is 3 minutes per speaker. A Public Comment Card should be presented to the acting Secretary prior to the meeting. According to the Texas Open Meetings Act, the Board is prohibited from discussing any item not posted on the agenda but will take comments under advisement.

No public comments were offered.

4. Consider approving the December 11, 2023, meeting minutes.

Mr. Ohman noted a correction that Mr. Betten was not listed as present on the December 11, 2023, minutes. Mr. Kemper made a motion to approve the minutes with changes noted. Mr. Betten seconded the motion, and it carried 4 - 0. None voted against.

5. Conduct a public hearing to consider and act upon amendments to Chapter 8 Subdivisions, Chapter 11 Zoning, Section 11-3, and Exhibit 11A, Article 6, and Article 9 to amend platting procedures.

Mr. Fienhals presented the recommended changes to the zoning ordinance to account for new legislation. Most notably, HB3699 allows City staff to be the approving authority for all plats. Vice Chairperson Ohman opened the public hearing at 6:28 pm. No comments were offered; therefore, the public hearing was closed at 6:28 p.m.

Mr. Cox made a motion to approve the item as presented. Mr. Betten seconded the motion, and it carried 4 - 0. None voted against.

6. Adjournment.

Vice Chairperson Ohman adjourned the meeting at 6:30 p.m.

Scott Ohman, Vice Chairperson

ATTEST:

George Kemper, Secretary

A. Regular Meeting

Subject:	5. Conduct a public hearing to consider and act on a request to amend the existing gas station Special Use Permit, SUP 23-01, to revise the boundary, site, building layout, and add two additional gas pumps, generally located north of President George Bush Turnpike and east of Merritt Road, within Sachse city limits.
Meeting	August 26, 2024 - Planning and Zoning Commission Meeting
Access	Public
Type	Action, Discussion, Information, Public Hearing
Fiscal Impact	None
Recommended Action	Staff recommends this item be postponed until the Planning and Zoning Commissions regular meeting scheduled for September 9, 2024 at 6:00 PM.
Goals	

BACKGROUND

This item was initially noticed based on the property boundary for the existing SUP. The proposed SUP amendment has increased the site area from the previously approved SUP, which requires additional notices to be sent out. As such, staff recommends the Planning and Zoning Commission postpone this item to a future Planning and Zoning Commission date. Notices of the public hearing will be re-sent and scheduled for the Planning and Zoning Commission Regular Meeting scheduled to be held on September 9, 2024, at 6:00 PM.

POLICY CONSIDERATIONS

There are no policy considerations affiliated with this item.

RECOMMENDATION

Staff recommends this item be postponed until the Planning and Zoning Commissions regular meeting scheduled for September 9, 2024 at 6:00 PM.

File Attachments None

A. Regular Meeting

Subject:	6. Receive an introduction to, review, and provide direction on Land Use Assumptions; Capital Improvement Plan; and Water, Wastewater, and Roadway Impact Fees.
Meeting	August 26, 2024 - Planning and Zoning Commission Meeting
Access	Public
Type	Discussion
Fiscal Impact	None
Recommended Action	Provide recommendations to the City Council on the imposition of impact fees.
Goals	Strategically invest in the City's existing and future infrastructure. Be a model of financial stewardship through growth management; responsible investment; and financial transparency.

BACKGROUND

The City of Sachse assesses impact fees for development to help pay for water, sanitary sewer, and roadway facilities required to serve that development. State law requires municipalities to update Land Use Assumptions (LUA), Capital Improvement Plan, and Impact Fee Ordinances every five years.

At their August 19, 2024, meeting, City Council appointed the Planning and Zoning Commission as the Capital Improvements Advisory Committee, and authorized them to work with City staff to provide recommendations to the City Council on the imposition of impact fees.

The Director of Development Services and the Director of Public Works are directed to commence the update of the impact fees, land use assumptions, and Capital Improvement Plan and procure such planning, engineering, and/or legal consultation deemed necessary to update the impact fee program for roadway, water, and wastewater facilities.

In accordance with the requirements of Chapter 395.052 of the Local Government Code, the City of Sachse has conducted an evaluation and report on the Capital Improvement Plan for roadway, water, and wastewater impact fees and calculated the maximum allowable fee for each.

POLICY CONSIDERATIONS

Authority is granted under Chapter 395, Financing Capital Improvements Required by New Development in Municipalities, Counties, and Certain Other Local Governments, of the Texas Local Government Code ("Ch. 395 of the TLGC") and Section 8-20, Impact Fee, of Chapter 8, Subdivisions, of the City's Code of Ordinances.

RECOMMENDATION

Provide recommendations to the City Council on the imposition of impact fees.

File Attachments

1. Presentation_Sachse CIAC Meeting #1(8-26-24)
2. DRAFT-Sachse Water, WW & Roadway Impact Fee Report (07-17-24)



The City of
SACHSE

2024-2034 Update to the Water, Wastewater & Roadway Land Use Assumptions, Capital Improvement Plan & Impact Fees

Water & Wastewater Impact Fees



BIRKHOFF, HENDRICKS & CARTER, LLP
PROFESSIONAL ENGINEERS
DALLAS, TEXAS

Roadway Impact Fees



August 26, 2024
CIAC Meeting #1

AGENDA



- Impact Fee 101
- 2024-2034 Study Update
 - Land Use Assumptions
 - Capital Improvement Plans (CIP)
 - Impact Fees
- Fee Benchmarking
- Next Steps
- Questions/Discussion

IMPACT FEE 101



What are Impact Fees?

- A one-time charge assessed to new development for a ***portion of the cost*** of water, wastewater and roadway infrastructure improvements attributable to new development
- Governed by Chapter 395 of the Texas Local Government Code; Established in Texas in 1987

5-Year Update Process

- State law requires update of impact fees at least once every 5-years. The three components are:
 1. Land Use Assumptions
 2. Capital Improvement Plan
 3. Adoption of Updated Impact Fees by ordinance

IMPACT FEE 101



The P&Z Commission was appointed by City Council to act as the Capital Improvement Advisory Committee (CIAC).

The role as the CIAC includes:

Review & Provide Comment on:

- Land Use Assumptions
- Impact Fee Capital Improvements Plan (CIP)
- Impact Fees

Final Requirement:

Provide Recommendation Letter to City Council for
Public Hearing

IMPACT FEE 101



Types of Impact Fees

Water & Wastewater

- Based on water meter size
- Collected at time of connection to system

Roadway

- Based on size and type of development
- Collected at time of building permit

2024-2034 STUDY UPDATE

Land Use Assumptions

- 10-year growth projections
- Includes growth of residential and non-residential land uses
- Based on 2017 Comprehensive Plan, and growth rate of 1.4% (CAGR)

POPULATION SUMMARY

Year	Population
2024	29,375
2034	34,023
Buildout	34,023



2024-2034 STUDY UPDATE



CAPITAL IMPROVEMENT PLAN (CIP)

- Proposed infrastructure improvements over 10-year horizon
- Existing (e.g., Recovery) projects can also be included, if they have capacity remaining to support new growth
- Eligible Project Costs:
 - Construction
 - Right-of-Way/Easements
 - Engineering/Professional Services
 - Debt service (assumed 4% interest rate)

IMPACT FEE CALCULATIONS

- Calculated Impact Fee = Utilized CIP Cost / Projected 10-Year Growth
- Per Chapter 395 LGC, Maximum Allowable Impact Fee is 50% of the Calculated Impact Fee Amount

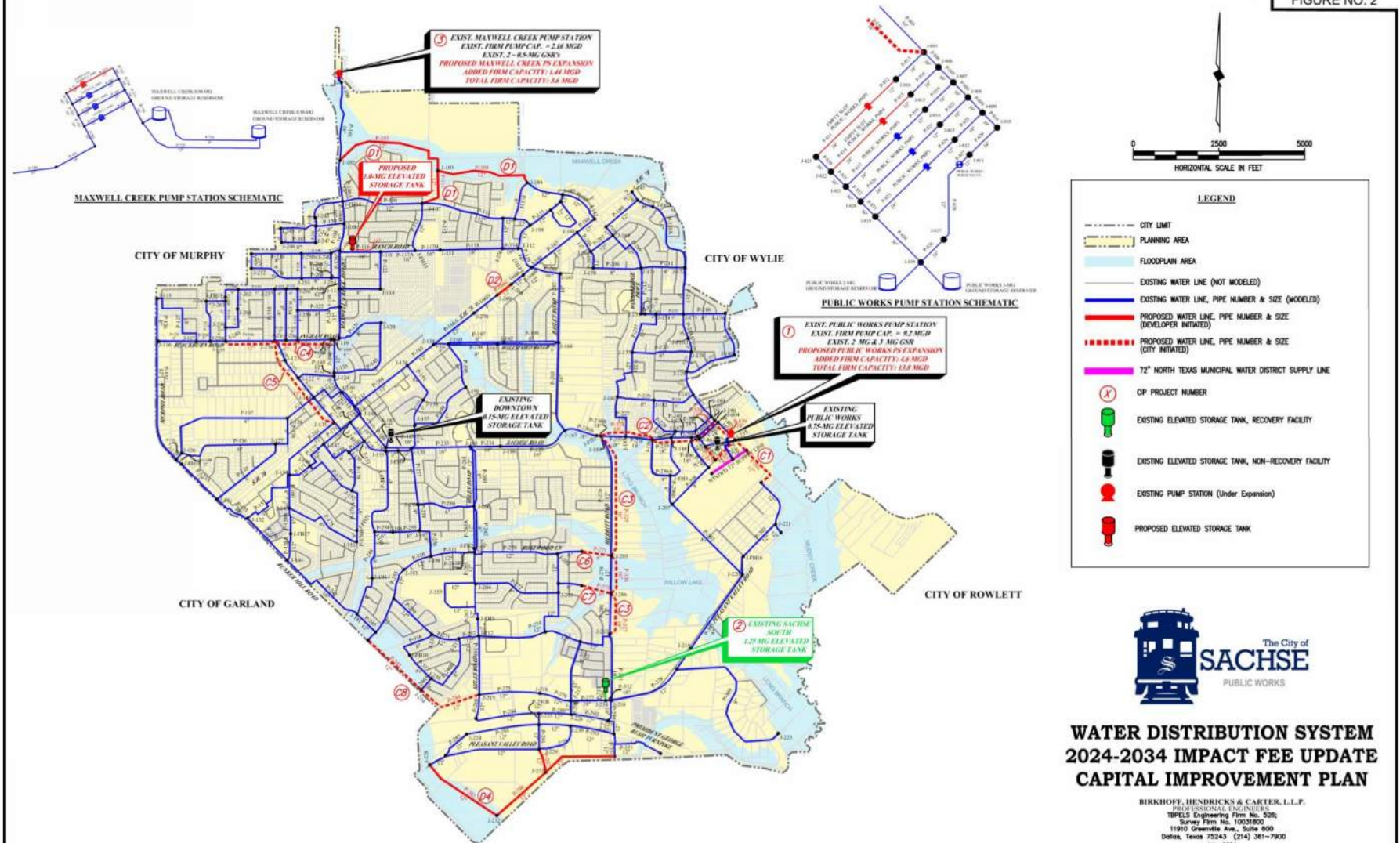
2024-2034 STUDY UPDATE

WATER DISTRIBUTION SYSTEM CIP



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SACHSE

FIGURE NO. 2



2024-2034 STUDY UPDATE



WATER CIP COST SUMMARY

Water Distribution System	Total Capital Cost	Total 20-Year Project Cost	Utilized Capacity During Fee Period
Existing Water Facilities	\$ 3,549,981	\$ 5,040,973	\$ 504,097
Existing Water System Subtotal:	\$ 3,549,981	\$ 5,040,973	\$ 504,097
Proposed Water Lines	\$ 7,211,358	\$ 10,240,128	\$ 5,972,314
Proposed Water Facilities	\$ 11,101,700	\$ 15,764,414	\$ 9,479,007
Impact Fee Expenses	\$ 18,687	\$ 18,687	\$ 18,687
Proposed Water System Subtotal:	\$ 18,331,745	\$ 26,023,229	\$ 15,470,008
TOTAL:	\$ 21,881,726	\$ 31,064,202	\$ 15,974,105

2024-2034 STUDY UPDATE



WATER IMPACT FEE CALCULATION

Maximum Water Impact Fee =	Eligible Existing Utilized Cost + Eligible Proposed Utilized Cost		
	Number of New Living Unit Equivalent over the Next 10 Years		
	=	$\frac{504,097}{1,885} + \frac{15,470,008}{1,885}$	$\frac{\$15,974,105}{1,885}$

Maximum Calculated Impact Fee = \$ 8,474.33

Allowable Maximum Water Impact Fee: (Max Impact Fee x 50%)* = \$4,237.17

** - Maximum allowable impact fee is 50% of the maximum calculated impact fee per Chapter 395 LGC*

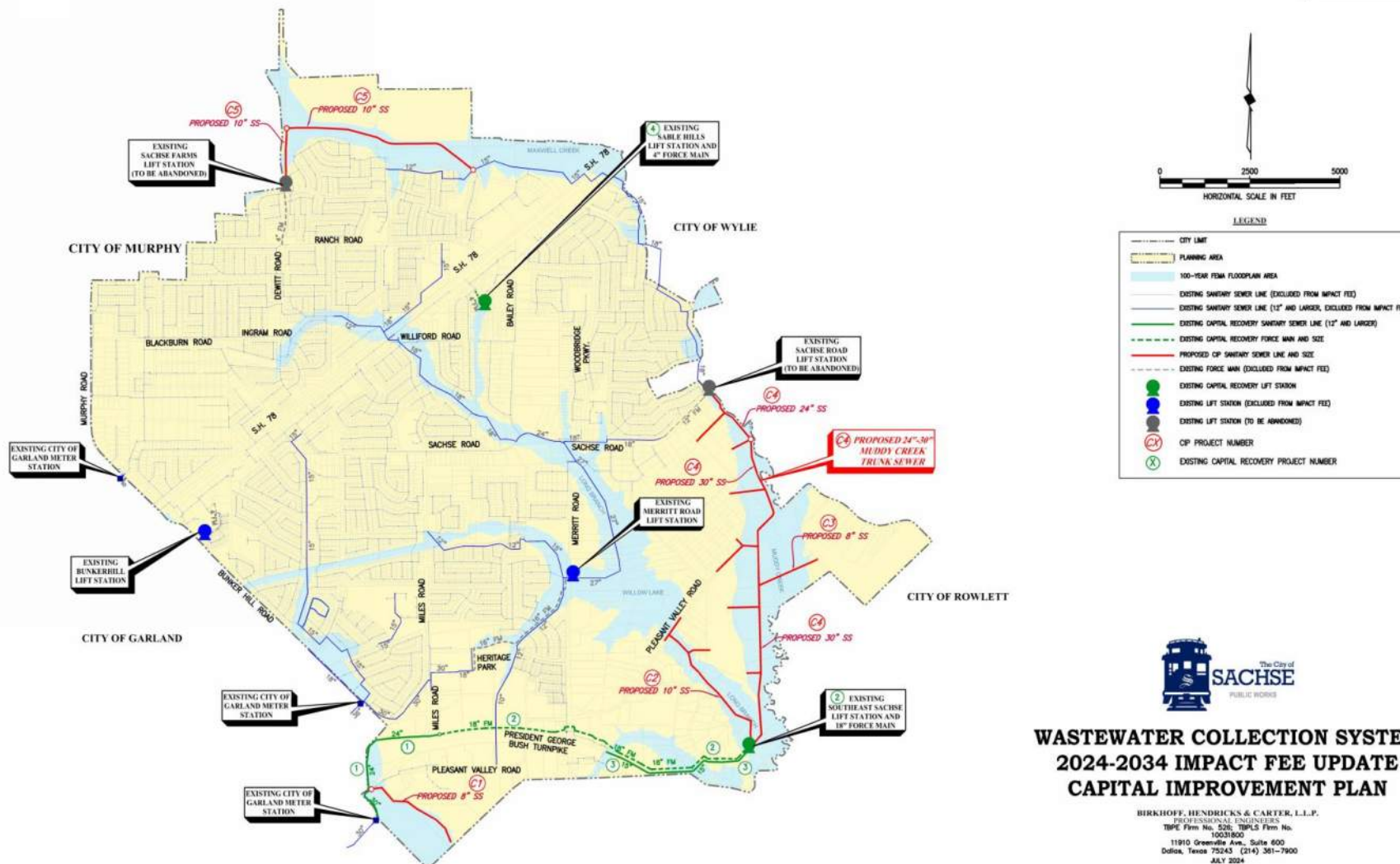
2024-2034 STUDY UPDATE

WASTEWATER COLLECTION SYSTEM CIP



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SACHSE

FIGURE NO. 4



2024-2034 STUDY UPDATE



WASTEWATER CIP COST SUMMARY

Wastewater System	Total 20-Year Project Cost	Utilized Capacity Cost During Fee Period
Existing Wastewater Collection Lines	\$3,463,687	\$1,872,999
Existing Wastewater Facilities: Lift Stations	\$8,943,135	\$2,626,251
Existing Wastewater System Planning Expenses	\$18,687	\$18,687
Subtotal: Existing Wastewater System	\$12,425,509	\$4,517,937
Proposed Wastewater Collection Lines	\$9,341,686	\$6,153,260
Subtotal: Proposed Wastewater System	\$9,341,686	\$6,153,260
TOTAL:	\$21,767,195	\$10,671,197

2024-2034 STUDY UPDATE

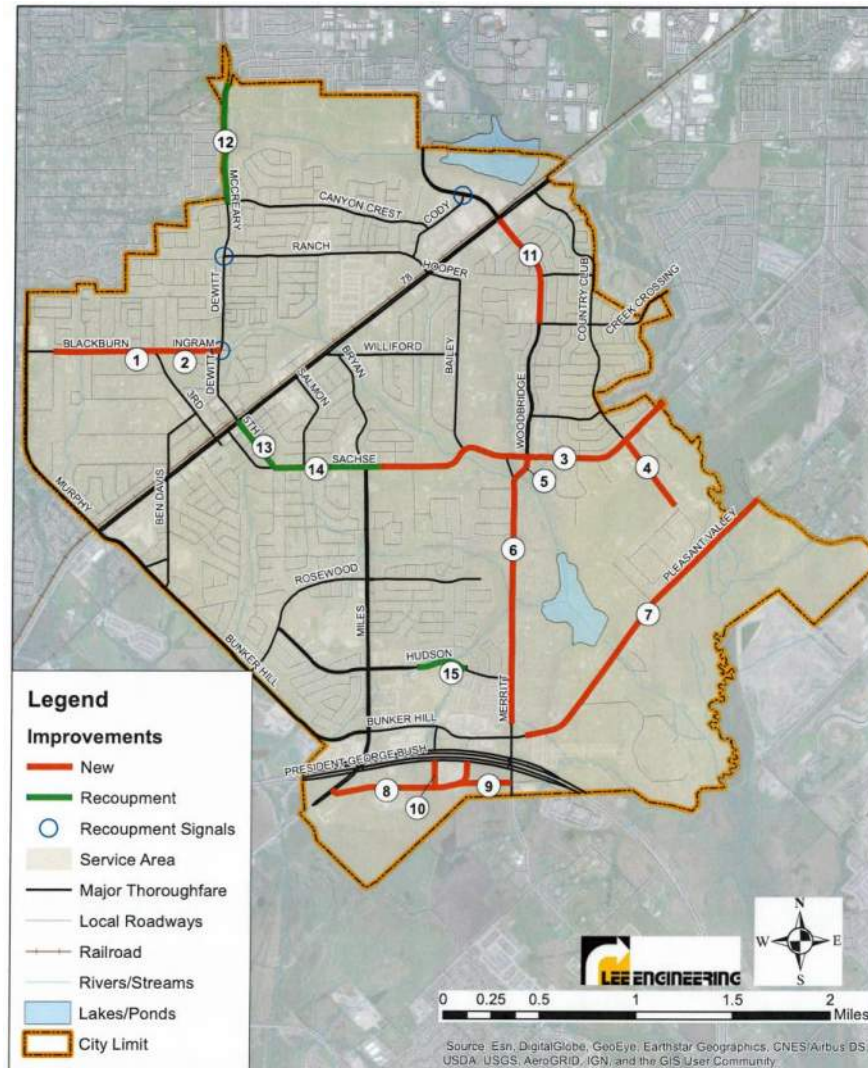


WASTEWATER IMPACT FEE CALCULATION

Maximum Wastewater Impact Fee =	$\frac{\text{Eligible Existing Utilized Cost} + \text{Eligible Proposed Utilized Cost}}{\text{Number of New Living Unit Equivalent over the Next 10 Years}}$			
	=	$\frac{\$4,517,937}{1,885}$	+ $\frac{\$6,153,260}{1,885}$	= $\frac{\$10,671,197}{1,885}$
Maximum Calculated Impact Fee =	<u>\$ 5,661.11</u>			
Allowable Maximum <u>Wastewater</u> Impact Fee: (Max Impact Fee x 50%)*	<u>\$2,830.56</u>			
<i>* - Maximum allowable impact fee is 50% of the maximum calculated impact fee per Chapter 395 LGC</i>				

2024-2034 STUDY UPDATE

ROADWAY SYSTEM CIP



2024-2034 STUDY UPDATE



ROADWAY CIP COST SUMMARY

ARTERIAL	PROJECT	PROJECT	TOTAL COST	COST OF	TOTAL PROJECT
	NUMBER	DESCRIPTION	W/O INTEREST	INTEREST	COST
Blackburn Road	1	Build a 4-lane divided section	\$ 2,580,000	\$ 1,083,600	\$ 3,663,600.00
Ingram Road	2	Build a 4-lane divided section	\$ 1,750,000	\$ 735,000	\$ 2,485,000.00
Sachse Road	3	Build a 4-lane divided section	\$ 8,090,000	\$ 3,397,800	\$ 11,487,800.00
Proposed Country Club Drive	4	Build a 3-lane undivided section	\$ 1,800,000	\$ 756,000	\$ 2,556,000.00
Proposed Merritt Road	5	Build a 4-lane divided section	\$ 1,060,000	\$ 445,200	\$ 1,505,200.00
Merritt Road	6	Build a 4-lane divided section	\$ 6,900,000	\$ 2,898,000	\$ 9,798,000.00
Pleasant Valley Road	7	Build a 4-lane divided section	\$ 9,600,000	\$ 4,032,000	\$ 13,632,000.00
Pleasant Valley Road	8	Build 3-lane undivided section	\$ 3,250,000	\$ 1,365,000	\$ 4,615,000.00
Proposed Minor Collector	9	Build a 3-lane undivided section	\$ 1,190,000	\$ 499,800	\$ 1,689,800.00
Nash Boulevard	10	Build a 3-lane undivided section	\$ 640,000	\$ 268,800	\$ 908,800.00
Woodbridge Parkway	11	Traffic control improvements			\$ 2,600,000.00
Grand Total:			\$ 36,860,000	\$ 15,481,200	\$ 54,941,200

2024-2034 STUDY UPDATE



ROADWAY RECOUPMENT COST SUMMARY **(PREVIOUS CIP PROJECTS WHICH HAVE BEEN COMPLETED)**

ARTERIAL	PROJECT	PROJECT	TOTAL PROJECT
	NUMBER	DESCRIPTION	COST
Maxwell Creek Road	12	Built 2-lanes of 4-lane divided	\$ 639,234
5th Street	13	Built a 4-lane undivided section	\$ 3,100,000
Sachse Road	14	Built a 4-lane divided section and roundabout at W Creek Ln	\$ 6,518,633
Hudson Drive	15	Built 2-lanes of 4-lane undivided	\$ 2,113,483
	16	3 Traffic Signals Constructed (Ingram/Dewitt, Ranch/Dewitt, Cody/Woodbridge)	\$ 1,062,343
Grand Total:			\$ 12,371,350

2024-2034 STUDY UPDATE



10-YEAR LAND USE ASSUMPTIONS

Service Area		Land Use	Residential	Office	Retail	Industrial	Public/ Institutional	Parks/ Open Space
		Unit	Dwelling Units	1,000 SF	1,000 SF	Acres	Acres	Acres
1	Year	2024	9,691	1,037	1,563	12	239	677
		2034	11,813	2,568	3,868	27	263	677
		Ultimate	11,918	2,617	3,941	27	265	677

2024-2034 STUDY UPDATE



SERVICE UNIT

- PM Peak Hour Vehicle-Mile
 - ITE *Trip Generation Manual*, 11th Edition
 - Workplace Travel Survey
- Service Units
 - Developed for each land use identified in “Land Use Assumptions for Impact Fees”

	Variable	PM Peak Trips (vehicles)	Trip Length (miles)	Vehicle-Miles
Residential	Dwelling Unit	0.94	3.0	2.82
Office	1,000 ft ²	1.44	3.0	4.32
Commercial / Retail	1,000 ft ²	3.71	3.0	11.13
Industrial	1,000 ft ²	0.99	3.0	2.97
Public / Institutional	1,000 ft ²	1.21	3.0	3.63
Parks / Open Space	Acre	13.08	3.0	39.24

2024-2034 STUDY UPDATE



PORTION OF CIP TO SERVE 10-YEAR GROWTH

Service Area	Existing		Year 2024 – 2034			Year 2034 - Ultimate	
	Vehicle - Miles 2024	Portion of Ultimate Vehicle – Miles	2034 Total Vehicle Miles	Vehicle - Miles Added 2024 – 2034	Portion of Ultimate Vehicle - Miles	Ultimate Vehicle - Miles	Vehicle - Miles Added 2034 - Ultimate
1	90,697	63.8%	140,531	49,834	35.0%	142,248	1,717
Total	90,697	63.8%	140,531	49,834	35.0%	142,248	1,717

Service Area	Service Area CIP	Portion of Capacity of Thoroughfare Attributed to Growth (2024-2034)	Cost of Thoroughfare Attributed to Growth (2024- 2034)
1	\$67,312,549.75	35.0%	\$23,559,392.41
Totals	\$67,312,549.75		\$23,559,392.41

2024-2034 STUDY UPDATE



MAXIMUM ROADWAY IMPACT FEE BY SERVICE AREA

Service Area 1

Calculated Roadway Impact Fee	=	Eligible Thoroughfare Cost Attributed Growth
-------------------------------	---	--

		Total Growth in Equivalent Service Units
--	--	--

=	$\frac{\$23,559,392.41}{49,834}$
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=	\$472.76	Use:	\$472
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Maximum Roadway Impact Fee Allowed:

\$472

x

50%

=

\$236.00

2024-2034 STUDY UPDATE



SAMPLE FEE BY LAND USE

SINGLE-FAMILY DWELLING UNIT

Vehicle-miles per Single-Family Dwelling Unit (0.94 Vehicles) x (3.0 Miles)	=	2.82	Vehicle-Miles
Maximum Roadway Impact Fee	=	\$236.00	/Vehicle-Mile
(2.82 vehicle miles) x (\$236.00/vehicle-mile)	=	<u>\$665.52</u>	Per Dwelling Unit

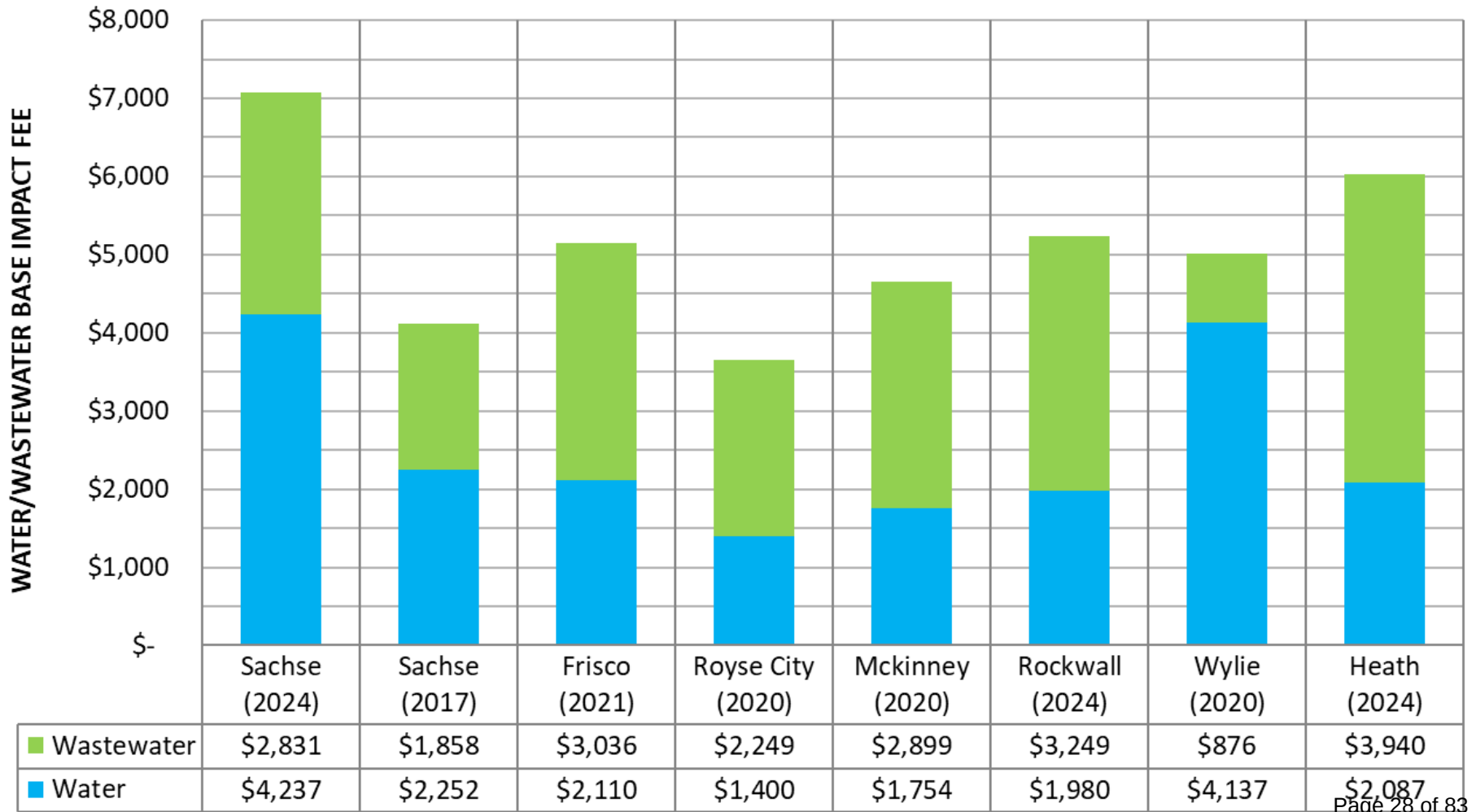
SHOPPING CENTER (>150 SF)

Vehicle-miles per 1,000 SF for Shopping Center (3.40 Vehicles) x (3.0 Miles) x (0.71 Non-Pass-by Rate)	=	7.24	Vehicle-Miles
Maximum Roadway Impact Fee	=	\$236.00	/Vehicle-Mile
(7.24 vehicle miles) x (\$236.00/vehicle-mile)	=	<u>\$1,708.64</u>	Per 1,000 SF

BENCHMARKING



SACHSE 2024 WATER & WASTEWATER IMPACT FEE UPDATE BENCHMARK COMPARISON OF CALCULATED IMPACT FEE RATES



BENCHMARKING



ROADWAY IMPACT FEES

TO BE ADDED PRIOR TO MEETING TIME

NEXT STEPS



SCHEDULE OF MEETINGS AND ACTIONS

CIAC Meeting	City Council Meeting	City Staff / Consulting Engineer	Meeting/Action	Agenda and/or Action Required
Monday Aug. 26, 2024			CIAC Meeting #1	Impact Fee 101 & 1 st Review of LUA, CIP & Water, Wastewater & Roadway Impact Fees
Monday September 9, 2024			CIAC Meeting #2 ² (If necessary)	2 nd Review of LUA, CIP & Water, Wastewater & Roadway Impact Fees
	Monday Sept. 16, 2024		City Council	I. Resolution Establishing: Date of Nov. 4, 2024, for Public Hearing on LUA, CIP & Amendment of Impact Fees
		Thursday Sept. 19, 2024	BHC	Submit <u>Final</u> Water, Wastewater & Roadway Impact Fee report to City Staff.
		Friday Sept. 20, 2024	City Staff	Upload the Water, Wastewater & Roadway Impact Fee report to the City website.
		Friday Sept. 20, 2024	Public Notice (City Staff)	City Staff to provide public notice to local newspaper for publication.
		Thursday Sept. 26, 2024 ³	Public Notice	Public notice published in local newspaper for Public Hearing on Nov. 4, 2024, for LUA, CIP & Amendment of Impact Fees.
			Written Comments Due from CIAC	File written comments on LUA, CIP & Water, Wastewater & Roadway Impact Fees no later than Friday, Oct. 25, 2024⁴
	Monday Nov. 4, 2024		City Council Public Hearing	I. Public Hearing: LUA, CIP, & Amendment of Water, Wastewater & Roadway Impact Fees II. Resolution Adopting:⁵ Approval of Amended Water, Wastewater & Roadway Impact Fees, or table until no later than December 2, 2024

NEXT STEPS



SCHEDULE FOOTNOTES

1. The advisory committee is composed of not less than five members who shall be appointed by a majority vote of the governing body of the political subdivision. Not less than 40 percent of the membership of the advisory committee must be representatives of the real estate, development, or building industries who are not employees or officials of a political subdivision or governmental entity. If the political subdivision has a planning and zoning commission, the commission may act as the advisory committee if the commission includes at least one representative of the real estate, development, or building industry who is not an employee or official of a political subdivision or governmental entity. If no such representative is a member of the planning and zoning commission, the commission may still act as the advisory committee if at least one such representative is appointed by the political subdivision as an ad hoc voting member of the planning and zoning commission when it acts as the advisory committee.
2. 2nd meeting of CIAC not required if LUA and CIP is approved at 1st CIAC meeting.
3. Public Notice must be published at least 31 days before the date of the Public Hearing.
4. The CIAC shall file its written comments on proposed amendments to the land use assumptions, capital improvements plan and impact fee before the 5th business day before the date of the Public Hearing on the amendments.
5. Amendment to Impact Fee must be approved or disapproved within 30 days of Public Hearing.



The City of
SACHSE

2024-2034 Water, Wastewater & Roadway Impact Fee Update

QUESTIONS AND DISCUSSION



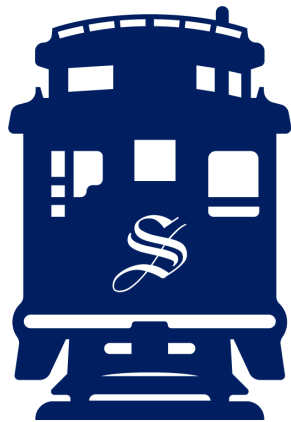
BIRKHOFF, HENDRICKS & CARTER, L.L.P.
PROFESSIONAL ENGINEERS
DALLAS, TEXAS

August 26, 2024
CIAC Meeting #1

**ENGINEERING EVALUATION
REPORT FOR THE**

**WATER, WASTEWATER & ROADWAY
2024 - 2034 IMPACT FEE UPDATE**

Submitted To:



The City of
SACHSE

Submitted By:

BIRKHOFF, HENDRICKS & CARTER, L.L.P.
*SPECIALIZING IN CIVIL ENGINEERING FOR
MUNICIPALITIES AND GOVERNMENTAL AGENCIES*
WATER & WASTEWATER IMPACT FEES
TBPE Firm No. 526

In Association With:

LEE ENGINEERING, L.L.C.
TRAFFIC ENGINEERS
ROADWAY IMPACT FEES
TBPE Firm No. 450

July 2024



DRAFT
07-17-24
PROFESSIONAL ENGINEER

CITY OF SACHSE, TEXAS
ENGINEERING EVALUATION FOR THE
WATER, WASTEWATER, & ROADWAY
2024 - 2034 IMPACT FEE UPDATE

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APPENDIX "A": WATER SYSTEM - UTILIZED CAPACITY TABLES

- (1) Existing Water Facilities
- (2) Existing Water Distribution Lines
- (3) Proposed CIP Water Lines
- (4) Proposed CIP Water Facilities

APPENDIX "B": WASTEWATER SYSTEM - UTILIZED CAPACITY TABLES

- (1) Existing Wastewater Facilities
- (2) Existing Wastewater Collection Lines
- (3) Proposed Wastewater Collection Line

CITY OF SACHSE 2024 REVIEW AND UPDATE OF THE WATER AND WASTEWATER IMPACT FEES

SECTION 1 - WATER & WASTEWATER IMPACT FEES

A. INTRODUCTION

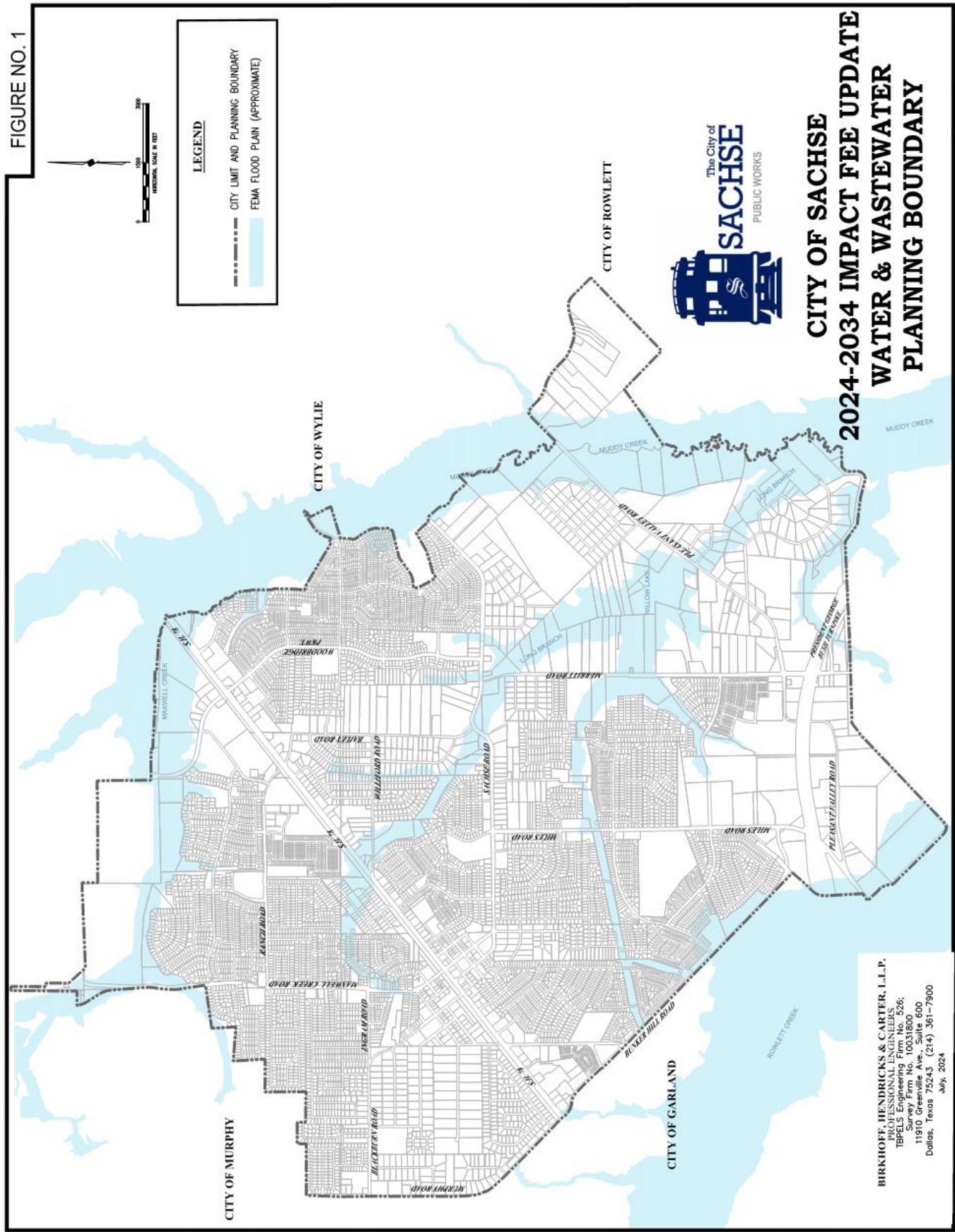
In accordance with the requirements of Chapter 395.052 of the Local Government Code, this report establishes the City of Sachse Capital Improvement Plan for water and wastewater impact fees and calculates the maximum allowable fee for each. Chapter 395.052, of the Local Government Code is an act that provides guidelines for financing capital improvements required by new development in municipalities, counties, and certain other local governments. Under Chapter 395, political subdivisions receive authorization to enact or impose impact fees on land that is located within their political subdivision's corporate boundaries or extraterritorial jurisdictions. No governmental entity or political subdivision can enact or impose an impact fee unless they receive specific authorization by state law or by Chapter 395.

An "Impact Fee" is a charge or assessment imposed by a political subdivision for new development within its service area in order to generate revenue for funding or recouping the costs of capital improvements of facility expansions necessitated by and attributable to the new development.¹ The City of Sachse Water and Wastewater Service Area (planning boundary) for Impact Fees includes all land within the current city limits. The planning boundary for Water and Wastewater Impact Fees are shown in Figure 1. The first step in determining an impact fee is preparation of land use and growth assumptions for the service area for the next ten years. That step has been completed as part of the City of Sachse water and wastewater master plan updates. Next, a Capital Improvements Plan must be created to describe the water and wastewater infrastructure that will be necessary to serve the anticipated land uses and growth. The following items can be included in the impact fee calculation:

- 1) A portion of the cost of the new infrastructure that is to be paid by the City, including engineering, property acquisition and construction cost.
- 2) Existing excess capacity in lines and facilities that will serve future growth, and which were paid for in whole by the City or in part by the City with or without Developer participation.
- 3) Interest and other finance charges on bonds issued by the City to cover its portion of the project cost. A bond interest rate of 4% is assumed for this analysis.

¹ P. 831, Texas Local Government Code, West's Texas Statutes and Codes, 1998 Edition.

Figure 1 – Planning Boundary



These items are summed, and the utilized capacity is calculated over the impact fee period. The maximum allowable impact fee per service unit may not exceed fifty percent of the calculated maximum amount of the total utilized capital improvement cost divided by the total number of new standard service units. This maximum allowable impact fee recovers a portion of the City's costs to construct facilities to serve the new developments and growth. However, the City may recover the maximum fee by crediting the portion of utility service revenue generated by new service units during the 10-year program period.

The City of Sachse originally adopted water and wastewater impact fees in 2012. The subsequent review and analysis of water and wastewater impact fees completed in 2017 resulted in no changes to the originally adopted impact fee amounts. The current imposed water and wastewater impact fees are summarized below:

	Impact Fees Imposed Per Service Unit (5/8" Meter Size)
Water	\$2,521.69
Wastewater	\$1,857.68

Chapter 395 requires that an update of the land use assumptions, capital improvement plan, and impact fees be performed every five years, unless it is determined by the political subdivision after a review that such an update is not necessary.

This document constitutes the 2024 update of the City's water and wastewater Capital Improvements Plans (CIP), and the resulting revision of the maximum allowable impact fees. As required by state law, the study period is a ten-year period with 2024 as the base year. The engineering analysis of the water and wastewater systems is based on established land use in year 2024 and on projected land uses in the year 2034 and at Buildout. Those land uses determine the utilization of the existing and proposed infrastructure. The engineering analysis portion of the City of Sachse, 2024 Impact Fee Update determines utilized capacity cost of the water distribution and wastewater collection systems between the year 2024 and 2034.

B. WATER & WASTEWATER IMPACT FEE GLOSSARY

1. Advisory Committee means the capital improvements advisory committee established by the City for purposes of reviewing and making recommendations to the City Council on adoption of the City's impact fee program.
2. Area-Related Facility means a capital improvement or facility expansion which is designated in the impact fee capital improvements plan and which is not a site-related facility. Area-Related Facility may include capital improvements that are located off-site, or within or on the perimeter of the development site.
3. Assessment means the determination of the amount of the maximum impact fee per service unit that can be imposed on new development.
4. Capital Improvement means either a water facility or a wastewater facility with a life expectancy of three or more years, to be owned and operated by or on behalf of the City.
5. City means the City of Sachse, Texas.
6. Credit means the amount of the reduction of an impact fee due, determined under this ordinance or pursuant to administrative guidelines that is equal to the value of area-related facilities provided by a property owner pursuant to the City's subdivision or zoning regulations or requirements, for the same type of facility.
7. Debt Service means the 20-year financing costs of projects applied to all eligible existing and proposed water and wastewater facilities.
8. Facility Expansion means either a water facility expansion or a sewer facility expansion.
9. Impact Fee means either a fee for water facilities or a fee for wastewater facilities, imposed on new development by the City pursuant to Chapter 395 of the Texas Local Government Code in order to generate revenue to fund or recoup the costs of capital improvements or facility expansion necessitated by and attributable to such new development. Impact fees do not include the dedication of rights-of-way or easements for such facilities, or the construction of such improvements, imposed pursuant to the City's zoning or subdivision regulations.

10. Impact Fee Capital Improvements Plan means either a water capital improvements plan or a wastewater capital improvement plan adopted or revised pursuant to the impact fee regulations.
11. Land Use Assumptions means the projections of population and growth, and associated changes in land uses, densities and intensities over at least a ten-year period, as adopted by the City and as may be amended from time to time, upon which the capital improvements plans are based.
12. Land Use Equivalency Table means a table converting the demands for capital improvements generated by various land uses to numbers of service units, as may be amended from time to time.
13. New Development means the subdivision of land; the construction, reconstruction, redevelopment, conversion, structural alteration, relocation, or enlargement of any structure; or any use or extension of the use of land; any of which increases the number of service units.
14. Recoupment means the imposition of an impact fee to reimburse the City for capital improvements that the City had previously oversized to serve new development.
15. Service Area means either a water service area or wastewater service area which impact fees for capital improvements or facility expansion will be collected for new development occurring within such area, and within which fees so collected will be expended for those types of improvements or expansions identified in the type of capital improvements plan applicable to the service area.
16. Service Unit means the applicable standard units of measure shown on the land use equivalency table in the Impact Fees Capital Improvements Plan that can be converted to water meter equivalents, for water or for wastewater facilities, which serves as the standardized measure of consumption, use or generation attributable to the new unit of development.
17. Site-Related Facility means an improvement or facility which is for the primary use or benefit of a new development, and/or which is for the primary purpose of safe and adequate provision

of water or wastewater facilities to serve the new development, and which is not included in the impact fees capital improvements plan and for which the property owner is solely responsible under subdivision or other applicable development regulations.

18. Utility Connection means installation of a water meter for connecting a new development to the City's water system, or connection to the City's wastewater system.
19. Wastewater Facility means a wastewater interceptor or main, lift station or other facility included within and comprising an integral component of the City's collection system for wastewater. Wastewater facility includes land, easements or structure associated with such facilities. Wastewater facility excludes site-related facilities.
20. Wastewater Facility Expansion means the expansion of the capacity of any existing wastewater improvement for the purpose of serving new development, but does not include the repair, maintenance, modernization, or expansion of an existing sewer facility to serve existing development.
21. Wastewater Capital Improvements Plan means the adopted plan, as may be amended from time to time, which identifies the wastewater facilities or wastewater expansions and their associated costs which are necessitated by and which are attributable to new development, for a period not to exceed 10 years.
22. Water Facility means a water main, pump station, storage tank or other facility included within and comprising an integral component of the City's water storage or distribution system. Water facility includes CCN acquisition, land, easements or structures associated with such facilities. Water facility excludes site-related facilities.
23. Water Facility Expansion means the expansion of the capacity of any existing water facility for the purpose of serving new development, but does not include the repair, maintenance, modernization, or expansion of an existing water improvement to serve existing development.
24. Water Capital Improvements Plan means the adopted plan, as may be amended from time to time, which identifies the water facilities or water expansions and their associated costs which are necessitated by and which are attributable to new development, for a period not to exceed 10 years.

25. Water Meter means a device for measuring the flow of water to a development, whether for domestic or for irrigation purposes.

C. LAND USE ASSUMPTIONS SUMMARY

Under Chapter 395, of the Local Government Code, “Land Use Assumptions” includes a description of service area and projections of changes in land uses, densities, intensities, and population in the service area for a minimum of a 10-year period.

The Land Use Assumptions used in this update were prepared based on the City's future land use plan, with modifications applied where applicable based on input provided by City Staff. The Land Use Assumptions for the 2024 Impact Fee Update were utilized to establish the Land Use Summary for the water and wastewater systems in Table 1. The 10-Year growth projection was calculated using a compounded average annual growth rate of approximately 1.4% and it is assumed that ultimate population (Buildout) will occur by the end of the 10-year planning period (year 2034).

TABLE NO. 1
LAND USE SUMMARY

Year	Population
2024	29,375
2034	34,023
Buildout	34,023

D. DEFINITION OF A SERVICE UNIT – WATER AND WASTEWATER

Chapter 395 of the Local Government Code requires that impact fees be based on a defined service unit. A “service unit” means a standardized measure of consumption, use generation, or discharge attributable to an individual unit of development calculated in accordance with generally accepted engineering or planning standards. This impact fee defines a water and wastewater service unit to be a 5/8-inch water meter and has referred to this service unit as a Single Family Living Unit Equivalent (SFLUE). The SFLUE is based on the continuous duty capacity of a 5/8-inch water meter. This is the City of Sachse’s typical meter used for a single family detached dwelling, and therefore is considered to be equivalent to one “living unit”. Other meter sizes can be compared to the 5/8-inch meter through a ratio of water flows as published by the American Water Works Association as shown in Table No. 2 below. This same ratio is then used to determine the proportional water and wastewater impact fee amount for each water meter size.

TABLE NO. 2
LIVING UNIT EQUIVALENCIES
FOR VARIOUS TYPES AND SIZES OF WATER METERS

Meter Type	Meter Size	LUE (Ratio to 5/8" x 3/4" Meter)
Simple	5/8" x 3/4"	1
Simple	3/4"	1.5
Simple	1"	2.5
Simple	1-1/2"	5
Simple	2"	8
Compound	2"	8
Turbine	2"	16
Compound	3"	16
Turbine	3"	35
Compound	4"	25
Turbine	4"	65
Compound	6"	50
Turbine	6"	140
Compound	8"	80
Turbine	8"	240
Compound	10"	115
Turbine	10"	350
Turbine	12"	440

Source: AWWA Standard C700 (2002) - C702 (2001)

E. CALCULATION OF WATER & WASTEWATER – LIVING UNIT EQUIVALENTS

The City provided a table of existing water meters categorized by size. Based on the information provided, there are 10,123 water meters serving the City's existing population of 29,375 residents and businesses in the City's service area. Table No. 3 shows the number of existing water meters, the factor for living units per meter size, and the new living unit equivalents (LUE's) calculated for each water meter size in the 10-year period based on projected population growth.

TABLE NO. 3
WATER AND WASTEWATER LIVING UNIT EQUIVALENTS BY METER SIZE

Meter Size	2024			2034			New Living Units During Impact Fee Period
	Meter Count	Living Units per Meter	Total Living Units	Meter Count	Living Units per Meter	Total Living Units	
5/8" x 3/4"	9,468	1.00	9,468	10,824	1.00	10,823	1,355
1"	340	2.50	850	389	2.50	971	121
1½"	85	5.00	425	97	5.00	485	60
2"	183	8.00	1,464	209	8.00	1,673	209
3"	34	16.00	544	39	16.00	621	77
4"	8	25.00	200	9	25.00	228	28
6"	5	50.00	250	6	50.00	285	35
8"	0	80.00	0	0	80.00	0	0
10"	0	350.00	0	0	350.00	0	0
Totals:	10,123		13,201	11,572		15,086	1,885

F. WATER DISTRIBUTION SYSTEM

Hydraulic models of the City's water system were updated to reflect recently constructed projects and future projects associated with buildout development conditions. The models were loaded based on residential population projections shown in Table 1, and the future non-residential land use growth as shown by the City's future land use plan. Model loads were assigned for employment projections in a similar manner. These modeled facilities include major distribution lines, pump stations, ground storage reservoirs and elevated storage tanks.

The models were run for a 72-hour Extended Period Simulation to ensure proper sizing of the distribution lines and facilities to meet peak demand periods.

1) Existing Pump Stations, Ground Storage Reservoirs & Elevated Storage Tanks

The existing water distribution system includes the facilities as shown below:

TABLE NO. 4
EXISTING PUMP STATIONS & GROUND STORAGE

Pump Station	Number of Pumps	Firm Capacity (Largest Pump on Standby) (MGD)	Number of Ground Storage Reservoirs	Total Ground Storage Available (MG)
Maxwell Creek Pump Station	3	2.16	2	1.0
Public Works Pump Station	3	9.20	2	5.0
Total:	6	11.36	4	6.0

TABLE NO. 5
WATER DISTRIBUTION SYSTEM -- EXISTING ELEVATED STORAGE

Elevated Storage Tanks	Capacity (MG)
Sachse South Elevated Storage Tank	1.25
Downtown Elevated Storage Tank	0.15
Public Works Elevated Storage Tank	0.75
Total:	2.15

The pump stations and ground storage facilities were analyzed based on the maximum daily water demand, while elevated storage tanks act dynamically and were therefore analyzed utilizing the difference between the maximum hourly demand and the maximum daily demand.

2) Water Distribution Lines

The water distribution lines consist of all lines within the service area planning boundary supplying water to customers in the City of Sachse. Water lines vary in size from 3/4-inch service lines to 18-inch and larger transmission lines. Unless a smaller diameter water line is expected to be constructed by the City, only those water lines larger than 8-inches in diameter were considered in the Impact Fee calculations. The capital cost of water distribution lines includes construction cost, appurtenances (water valves, fire hydrants, taps, etc.), utility relocations, purchase of easements and engineering costs. Actual costs were used for those existing projects where records were available and provided by the City. Financing cost is included for each project assuming a bond rate of 4.0% over a 20-year term.

City initiated water lines include the full cost of the proposed facility. Developer initiated water line projects which are 12-inches or less in diameter are not included in this Impact Fee analysis, as the cost for these size lines are the responsibility of the developer.

3) Existing Treated Water Supply

The City of Sachse currently receives treated water from the North Texas Municipal Water District (NTMWD). The cost of treated water supply is excluded from the impact fee calculations.

4) Capital Improvement Plan

The additions to the 2024 Water Distribution System, which are included in the Impact Fee study period, are shown in Figure 2 on the following page.

In order to meet the demands of the anticipated residential and non-residential growth over the next 10-years, certain water distribution system improvements are required. The Water System Capital Improvement Plan provided in Figure 2 shows the recommended water system improvements. Table No. 6 itemizes each project and the project cost.

Actual capital cost, including construction, engineering, and easements of the various elements of the existing water distribution was utilized where the information was known. The existing cost of facilities was determined from records provided by the City of Sachse. For proposed projects, an average unit cost in 2024 dollars has been estimated based on a limited survey of recently bid projects, plus an estimated cost for engineering and easements. These recommended improvements form the basis for the Water System Capital Improvement Plan and totals \$20,531,726. Adding the cost of financing brings the total Water System Capital Improvement Plan cost to \$29,147,202.

Figure 2: 2024-2034 Water Distribution System Improvements

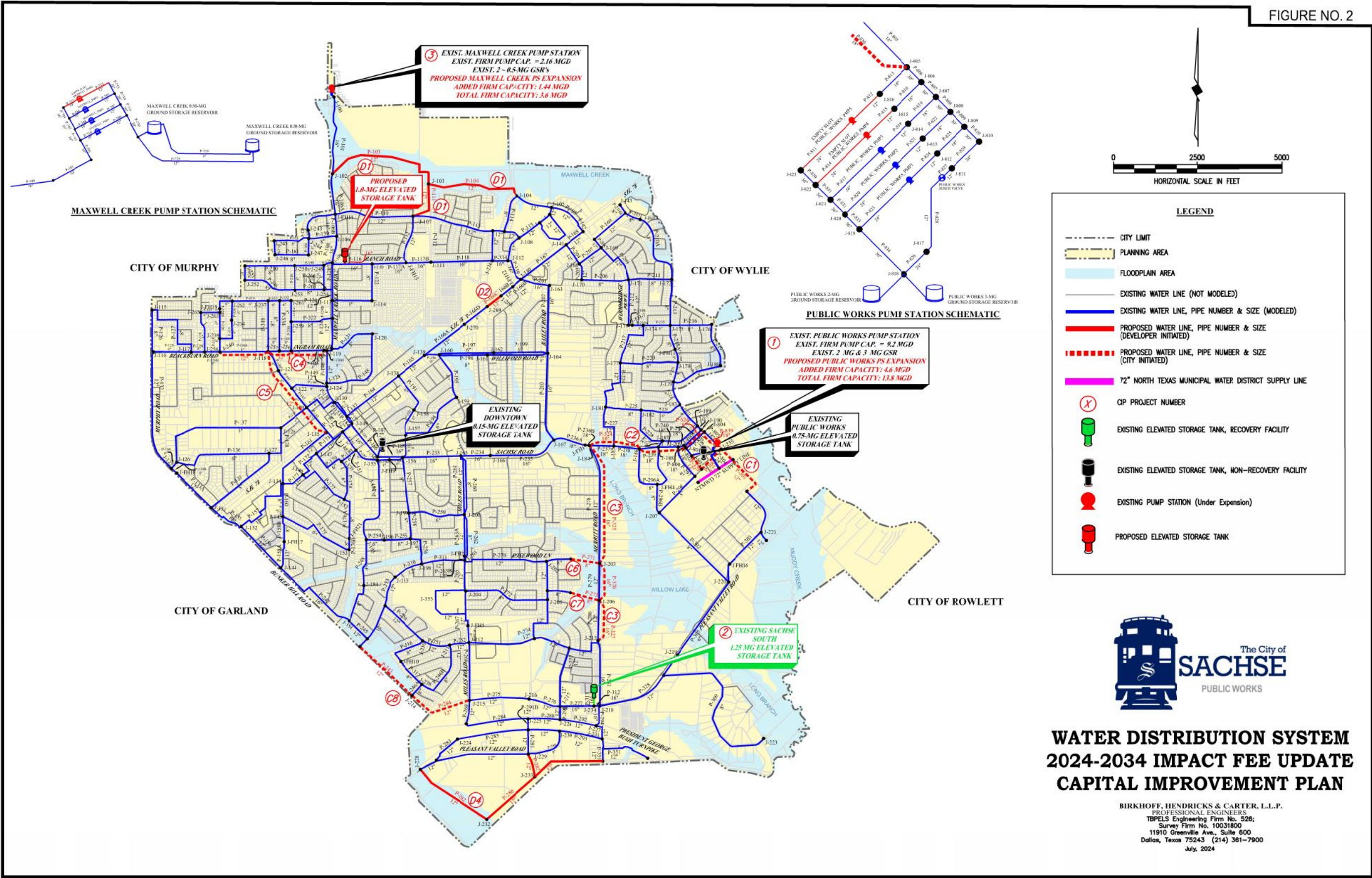


TABLE NO. 6
IMPACT FEE CAPITAL IMPROVEMENT PLAN

PROPOSED WATER LINES

Project No.	Project	Size	Opinion of Project Cost ⁽¹⁾	Debt Service ⁽²⁾	Total Project Cost
C1	Country Club Dr to Public Works 0.75MG EST 12-inch Water Line	12"	\$ 1,063,412	\$ 446,633	\$ 1,510,045
C2	Sachse Rd 18-inch Water Line (from Public Works Pump Station to Merrit Rd)	18"	\$ 1,540,153	\$ 646,864	\$ 2,187,017
C3	Merrit Road 16-inch Water Line (from Sachse Rd to Hudson Rd)	16"	\$ 1,445,368	\$ 607,055	\$ 2,052,423
C4	Blackburn Rd/ Ingram Rd 12-inch Water Line (from Oaklawn Dr to Dewitt Rd)	12"	\$ 983,197	\$ 412,943	\$ 1,396,139
C5	3rd Street 12-inch Water Line	12"	\$ 772,728	\$ 324,546	\$ 1,097,274
C6	Rosewood Lane to Merrit Road 8-inch Water Line	8"	\$ 175,000	\$ 73,500	\$ 248,500
C7	Kerley Lane to Merrit Road 8-inch Water Line	8"	\$ 179,000	\$ 75,180	\$ 254,180
C8	Bunker Hill Road 12-inch Water Line (from Concord Dr to Miles Rd)	12"	\$ 1,052,500	\$ 442,050	\$ 1,494,550
Subtotal: Proposed Water Lines			\$ 7,211,358	\$ 3,028,770	\$ 10,240,128

PROPOSED WATER FACILITIES

Project No.	Project	Added Capacity	Opinion of Project Cost ⁽¹⁾	Debt Service ⁽²⁾	Total Project Cost
9	Maxwell Creek Pump Station Expansion	3.6 MGD	\$ 5,101,700	\$ 2,142,714	\$ 7,244,414
10	Public Works Pump Station - Add New 4.6 MGD Pump	4.6 MGD	\$ 500,000	\$ 210,000	\$ 710,000
11	Proposed 1.0-MG Elevated Storage Tank	1.0 MG	\$ 5,500,000	\$ 2,310,000	\$ 7,810,000
Subtotal: Proposed Facilities			\$ 11,101,700	\$ 4,662,714	\$ 5,764,414

PLANNING EXPENSES

Project No.	Project	Opinion of Cost (1)(b)	Debt Service ⁽²⁾	Total Project Cost
	Water Impact Fee Update	\$ 18,687	\$ -	\$ 18,687
Subtotal, Planning Expenses:		\$ 18,687	\$ -	\$ 18,687
Water Distribution System CIP Grand Total:		\$ 18,331,745	\$ 7,691,484	\$ 26,023,229

Notes:

- (1) Opinion of Project Cost includes:
 - a) Engineer's Opinion of Construction Cost
 - b) Professional Services Fees (Survey, Engineering, Testing, Legal)
 - c) Cost of Easement or Land Acquisitions
- (2) Debt Service based on 20-year simple interest bonds at 4%

Utilized Capacity

Utilized capacity for the water distribution system was calculated based on the size of water line required for each model year (2024, 2034 and Buildout). The models of the water distribution system are based on the 72-hour extended period simulation (EPS). The raw water pump stations, the water treatment plants, and pump stations capacities are generally based on the average or maximum daily system demand, while transmission and distribution facilities are sized based on either the maximum hourly demand or the minimum hourly demand, whichever demand is greater for a particular water line. Often, the capacity of a water line is determined by the flows generated by the minimum hourly demand. The minimum hourly flows are usually higher in those lines which are used to refill elevated storage. Table No. 7 below shows the unit flow assumptions used for analysis of each element of the distribution system:

TABLE NO. 7
WATER DISTRIBUTION SYSTEM ANALYSIS
BASIS OF DEMAND CALCULATION

Type of Facilities	Demand Type	Impact Fee Per Capita Use
Pumping	Maximum Day	350 gallons/day per person
Distribution System	Maximum Hour	665 gallons/day per person
Ground Storage	Maximum Day x 6 Hours / 24 Hours / Day	
Elevated Storage	Maximum Hour (Distribution) –Maximum Day (Pumping) x 6 Hours / 24 Hours / Day	

For each line segment in the water distribution model, the Buildout flow rate in any given line was compared to the flow rate in the same line for the 2024 and the 2034 models. The utilized capacity was then calculated for each year based on the Buildout being 100 percent capacity. The utilized capacity during the Impact Fee period is the difference between the year 2024 percent utilized and the year 2034 percent utilized. The utilized capacity for each water distribution facility, both existing and proposed, is presented by the Impact Fee Capacity Calculation Tables provided in Appendix A. Table No. 8 summarizes the cost and the utilized capacity of the proposed water lines, pump stations, ground storage reservoirs and elevated storage facilities included, and the capital recovered in the impact fee period of 2024-2034. Table No. 8 also summarizes the cost and the utilized capacity for existing water facilities included in the capital recovery period.

TABLE NO. 8
SUMMARY OF ELIGIBLE CAPITAL COST & UTILIZED CAPACITY COST

Water System	Total Capital Cost (\$)	Total 20-Year Project Cost (\$)	Utilized Capacity During Fee Period (\$)
Existing Water Facilities	\$ 3,549,981	\$ 5,040,973	\$ 2,110,175
Existing Water System Subtotal:	\$ 3,549,981	\$ 5,040,973	\$ 2,110,175
Proposed Water Lines	\$ 7,211,358	\$ 10,240,128	\$ 6,540,959
Proposed Water Facilities	\$ 11,101,700	\$ 15,764,414	\$ 10,565,669
Impact Fee Expenses	\$ 18,687	\$ 18,687	\$ 18,687
Proposed Water System Subtotal:	\$ 18,331,745	\$ 26,023,229	\$ 17,125,315
TOTAL:	\$ 21,881,726	\$ 31,064,202	\$ 19,235,490

G. WASTEWATER COLLECTION SYSTEM

1) General

The wastewater collection system components in the impact fee analysis include existing and proposed trunk sewer lines, wastewater lift stations, and force mains. The City's wastewater is conveyed to and treated by the wastewater facilities at the City of Garland through metering stations. The wastewater treatment facilities are excluded from this impact fee update.

2) Wastewater Sub-Basins

A total of six (6) wastewater sub-basins were delineated within the wastewater planning area. These areas are typically defined by the natural topography, the existing wastewater collection system, major roads, and land uses. Figure 3 illustrates that general study area boundary and identifies the major wastewater collection sub-basins. Flows generated from these sub-basins reach the City of Garland's Rowlett Creek Wastewater Treatment Plant through three different meter stations located along the City's western planning boundary as shown by Figure 4 presented later in this report.

3) Collection Lines

The wastewater collection system analysis covered existing and proposed lift stations, force main, and collection lines 12-inches and larger in diameter. Generally, sanitary sewer line sizes 12-inches in diameter and smaller were omitted from the calculation of maximum impact fee, unless identified as a City-initiated and funded capital improvement project.

The wastewater project cost includes necessary appurtenances (manholes, aerial crossings, and the like), purchase of easements, utility relocation, pavement removal and replacement, and engineering costs. For existing Impact Fee projects, actual costs were utilized where known and provided by the City. Future project cost estimates were based on 2024 average unit cost per linear feet and includes engineering, easements, and construction cost. Financing cost is included for each project assuming a bond rate of 4.0% over a 20-year term.

Unit cost for proposed sanitary sewer lines larger than 12-inches in diameter, are anticipated to be constructed by the City. City-initiated sanitary sewer lines include the full cost of the proposed improvements and are included in this Impact Fee analysis.

All eligible existing sanitary sewer lines within the study area that were paid for by the City and have capacity available were included in the Impact Fee Study. The eligible existing and proposed wastewater lines and facilities are shown on Figure 4.

4) Treatment

Wastewater collected and conveyed through the City of Sachse collection system is discharged through three City of Garland meter stations, where wastewater is further transported to the City of Garland's Rowlett Creek Wastewater Treatment Facility. The cost of wastewater treatment is excluded from the Impact Fee Study.

Figure 3 – Wastewater Collection Sub-Basins

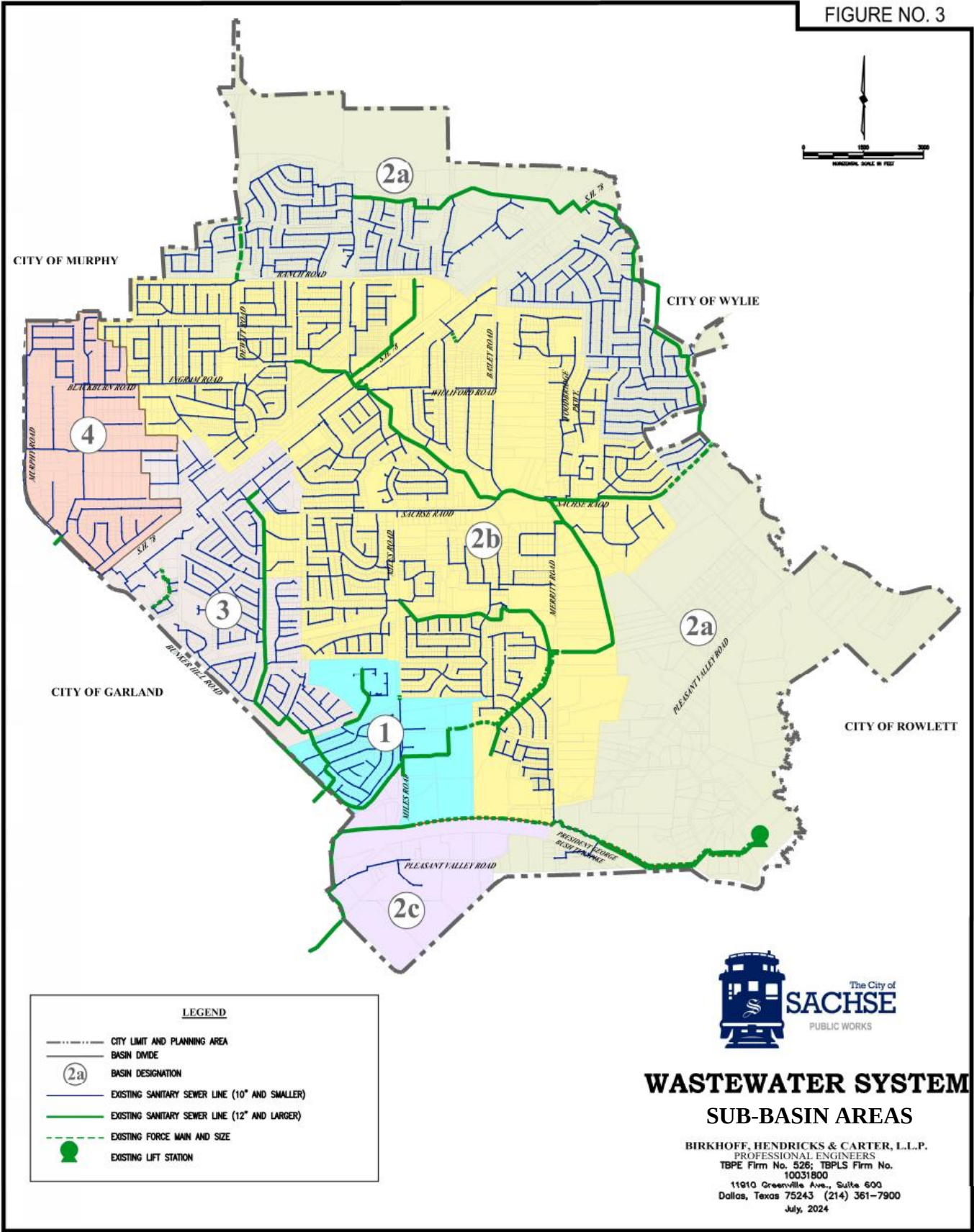


Figure 4: 2024-2034 Wastewater Collection System Capital Improvement Plan

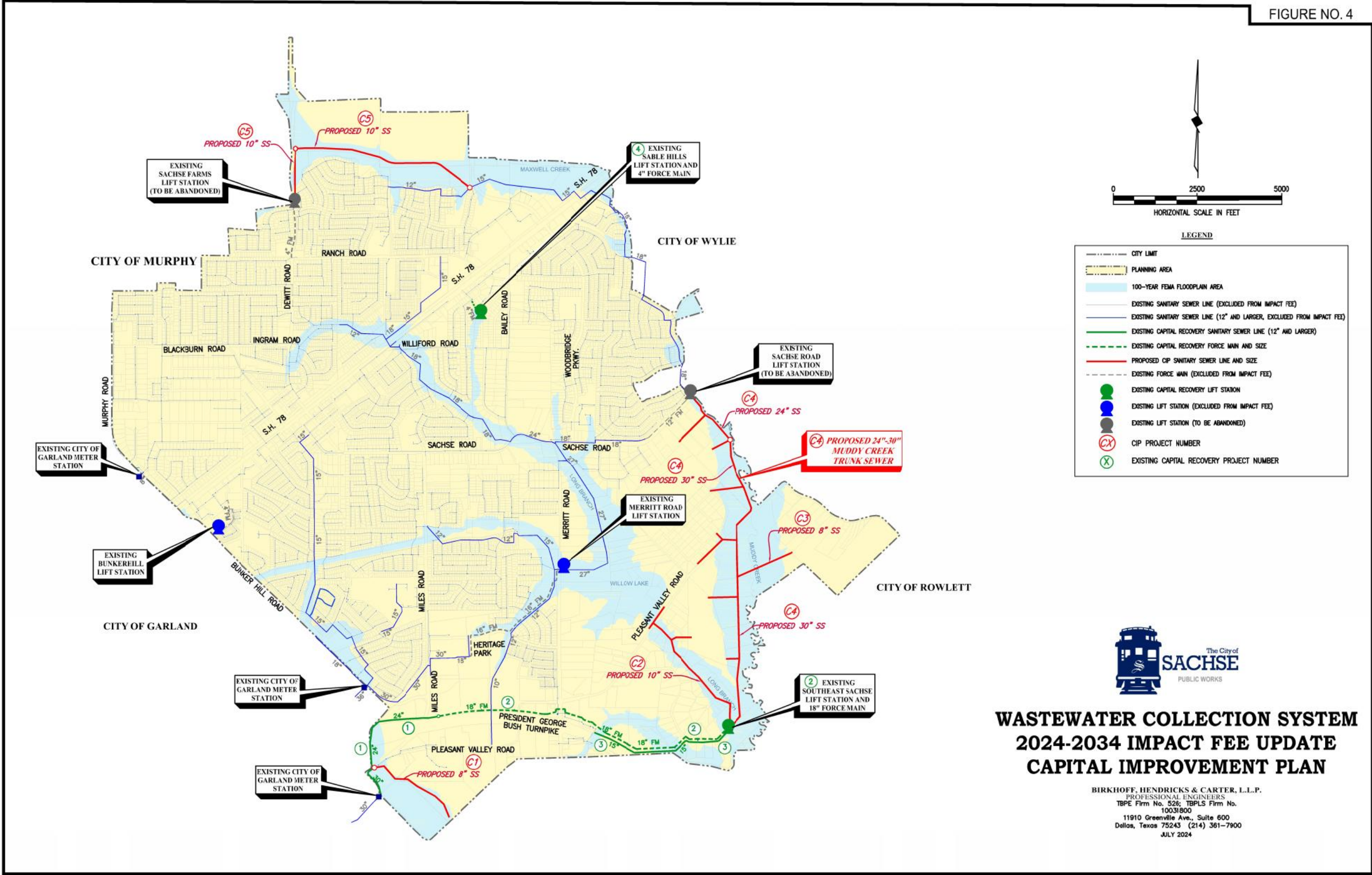


TABLE NO. 9A
10-YEAR IMPACT FEE CAPITAL RECOVERY PLAN

Project I.D.	Project	Total Capital Cost ⁽¹⁾	Debt Service ⁽²⁾	Total 20-Year Project Cost
EXISTING WASTEWATER LIFT STATIONS				
2	Southeast Sachse Lift Station and 18" Force Main	\$5,161,583	\$2,434,383	\$7,595,966
4	Sable Hills Lift Station and 4" Force Main	\$915,423	\$431,746	\$1,347,169
	SUBTOTAL:	\$6,077,006	\$2,866,129	\$8,943,135
EXISTING WASTEWATER COLLECTION LINES				
1	Southeast Sachse Lift Station and 24"-30" Gravity Outfall	\$1,406,069	\$663,151	\$2,069,220
3	Eastview Drive - PGBT 15" Sanitary Sewer to Southeast Lift Station	\$947,563	\$446,904	\$1,394,467
	SUBTOTAL:	\$2,353,632	\$1,110,055	\$3,463,687
EXISTING WASTEWATER SYSTEM PLANNING EXPENSES				
	Wastewater System Impact Fee Update	\$18,687	\$0	\$18,687
	SUBTOTAL:	\$18,687	\$0	\$18,687
EXISTING WASTEWATER SYSTEM TOTAL:		\$8,449,325	\$3,976,184	\$12,425,509

TABLE NO. 9B
10-YEAR IMPACT FEE CAPITAL IMPROVEMENT PLAN

Project I.D.	Project	Total Capital Cost ⁽¹⁾	Debt Service ⁽²⁾	Total 20-Year Project Cost
PROPOSED WASTEWATER COLLECTION LINES				
C1	Miles Road Sanitary Sewer	\$378,200	\$178,372	\$556,572
C2	Southeast Willow Lake Sanitary Sewer lines	\$614,450	\$289,796	\$904,246
C3	Elm Grove Sanitary Sewer Extension	\$232,697	\$109,748	\$342,445
C4	Lower Muddy Creek 24-30" Trunk Sewer and Extensions	\$4,061,343	\$1,915,471	\$5,976,814
C5	Sachse Farm Lift Station Relief Sewer	\$1,061,139	\$500,470	\$1,561,609
	SUBTOTAL:	\$6,347,829	\$2,993,857	\$9,341,686
PROPOSED WASTEWATER SYSTEM TOTAL:		\$6,347,829	\$2,993,857	\$9,341,686

Notes:

1. Opinion of Cost includes:
 - a. Engineer's Opinion of Construction Cost
 - b. Professional Services Fees (Survey, Engineering, Testing, Legal)
 - c. Cost of Easement or Land Acquisitions
2. Debt Service based on 20-year simple interest bonds at 4.0%

5) Utilized Capacity

The utilized capacities for the wastewater collection system were calculated based on land absorption from the residential and non-residential population growth projections in accordance with the City's future land use plan. The land uses within each wastewater basins were assessed, and average daily flow rates were derived based on the design assumptions summarized in Table No. 10.

TABLE NO. 10
RESIDENTIAL AND NON-RESIDENTIAL DESIGN ASSUMPTIONS

Non-Residential Land Use	Average Daily Flow (gpad)	Residential Land Use	Dwelling Density (Units/Ac)	Population Density (People/Unit)	Average Daily flow per Capita (Gallons)
Comm/Retail	1,200	Low Density Residential	4.00	3.20	100
Turnpike Commercial	1,400	Estate Residential	0.80	3.40	100
Turnpike Mixed-Use	1,600	Turnpike Mixed-Use	8.00	1.50	80
Neighborhood Retail Mixed-Use	1,000	Neighborhood Retail Mixed-Use	4.00	1.70	80
Old Town Mixed-Use	1,200	Old Town Mixed-Use	4.00	1.50	80
Public	900	Medium Density Residential	7.00	2.50	80
Industrial	800	Single Family Urban Residential	4.00	2.00	80
		High Density Residential	20.00	2.00	80

Population for the years 2023, 2022 and 2021 were taken from population projections established by the North Central Texas Council of Governments (NCTCOG) and for year 2020 and 2010 population data was taken from Census data. For 2024 population calculations, lot counts were calculated based on units per acre in different Land Use Assumption areas and multiplied with the calculated population per unit value based on existing data to get the projected population. The growth rates were used to calculate 2034 and Buildout design flows for the boundary region.

Table No. 14 below summarizes the project cost and utilized cost over the impact fee period of 2024 – 2034 for each element of the wastewater system. The utilized capacity for each existing and proposed wastewater facility and collection line is presented in detail in the Wastewater Impact Fee Utilized Capacity Tables provided in Appendix “B”.

TABLE NO. 11
SUMMARY OF ELIGIBLE CAPITAL COST & UTILIZED CAPACITY COST

Wastewater System	Total 20-Year Project Cost	Utilized Capacity Cost During Fee Period
Existing Wastewater Collection Lines	\$3,463,687	\$1,872,999
Existing Wastewater Facilities: Lift Stations	\$8,943,135	\$2,626,251
Existing Wastewater System Planning Expenses	\$18,687	\$18,687
Subtotal: Existing Wastewater System	\$12,425,509	\$4,517,937
Proposed Wastewater Collection Lines	\$9,341,686	\$6,153,260
Subtotal: Proposed Wastewater System	\$9,341,686	\$6,153,260
TOTAL:	\$21,767,195	\$10,671,197

H. CALCULATION OF MAXIMUM IMPACT FEES - WATER & WASTEWATER SYSTEM

The maximum impact fees for the water and wastewater systems are calculated separately by dividing the cost of the capital improvements or facility expansions necessitated and attributable to new development in the service area within the ten-year period by the number of living units anticipated to be added to City within the ten year period as shown on Table No. 3. The calculations are shown below:

Maximum Water Impact Fee =	$\frac{\text{Eligible Existing Utilized Cost} + \text{Eligible Proposed Utilized Cost}}{\text{Number of New Living Unit Equivalent over the Next 10 Years}}$
	$= \frac{\$2,110,175}{1,885} + \frac{\$17,125,315}{1,885} = \frac{\$19,235,490}{1,885}$
Maximum Calculated Impact Fee =	<u>\$ 10,204.50</u>
Allowable Maximum Water Impact Fee: (Max Impact Fee x 50%)* =	<u>\$5,102.25</u>
<i>* - Maximum allowable impact fee is 50% of the maximum calculated impact fee per Chapter 395 LGC</i>	

Maximum Wastewater Impact Fee =	$\frac{\text{Eligible Existing Utilized Cost} + \text{Eligible Proposed Utilized Cost}}{\text{Number of New Living Unit Equivalent over the Next 10 Years}}$
	$= \frac{\$4,517,937}{1,885} + \frac{\$6,153,260}{1,885} = \frac{\$10,671,197}{1,885}$
Maximum Calculated Impact Fee =	<u>\$ 5,661.11</u>
Allowable Maximum Wastewater Impact Fee: (Max Impact Fee x 50%)* =	<u>\$2,830.56</u>
<i>* - Maximum allowable impact fee is 50% of the maximum calculated impact fee per Chapter 395 LGC</i>	

Based on the Maximum Impact Fee Calculation for Water and Wastewater, Table No. 12 calculates the maximum impact fee for the various sizes of water meters.

TABLE NO. 12
ALLOWABLE MAXIMUM IMPACT FEE PER
METER SIZE

Meter Type	Meter Size	LUE	Maximum Impact Fee		Total
			Water	Wastewater	
Simple	5/8" x 3/4"	1	\$5,102.25	\$2,830.56	\$7,932.81
Simple	3/4"	1.5	\$7,653.38	\$4,245.83	\$11,899.21
Simple	1"	2.5	\$12,755.63	\$7,076.39	\$19,832.01
Simple	1-1/2"	5	\$25,511.25	\$14,152.78	\$39,664.03
Simple	2"	8	\$40,818.00	\$22,644.44	\$63,462.44
Compound	2"	8	\$40,818.00	\$22,644.44	\$63,462.44
Turbine	2"	16	\$81,636.00	\$45,288.88	\$126,924.88
Compound	3"	16	\$81,636.00	\$45,288.88	\$126,924.88
Turbine	3"	35	\$178,578.75	\$99,069.43	\$277,648.18
Compound	4"	25	\$127,556.25	\$70,763.88	\$198,320.13
Turbine	4"	65	\$331,646.25	\$183,986.08	\$515,632.33
Compound	6"	50	\$255,112.50	\$141,527.75	\$396,640.25
Turbine	6"	140	\$714,315.00	\$396,277.70	\$1,110,592.70
Compound	8"	80	\$408,180.00	\$226,444.40	\$634,624.40
Turbine	8"	240	\$1,224,540.00	\$679,333.20	\$1,903,873.20
Compound	10"	115	\$586,758.75	\$325,513.83	\$912,272.58
Turbine	10"	350	\$1,785,787.50	\$990,694.25	\$2,776,481.75
Turbine	12"	440	\$2,244,990.00	\$1,245,444.20	\$3,490,434.20

CITY OF SACHSE
THOROUGHFARE CAPITAL IMPROVEMENT PLAN
ROADWAY IMPACT FEES

SECTION 2 - ROADWAY IMPACT FEES

The first step in the development impact fee process is the development of a 10-year Capital Improvement Plan (CIP). This capital improvement plan includes projects intended for construction by the City of Sachse in the next 10 years to serve existing and future development.

Existing Facilities

The City of Sachse arterial and major collector street system is partially developed at this time. Several roadways in developed areas are partially built to current thoroughfare plan standards. Many existing streets are two-lane asphalt roadways with open surface drainage.

The existing Principal/Major Thoroughfares within the City include President George Bush Turnpike, State Highway 78 (SH 78), Woodbridge Parkway, Merritt Road, Sachse Road, Miles Road, Pleasant Valley Road, Bunker Hill Road, Murphy Road, Dewitt Road, Ranch Road, and Ingram Road/Blackburn Road. Several roadways, including SH 78, are under the operation and maintenance jurisdiction of the Texas Department of Transportation (TxDOT). The President George Bush Turnpike is under the operation and maintenance jurisdiction of the North Texas Toll Authority (NTTA).

Proposed Facilities

The City of Sachse adopted an updated thoroughfare plan in 2017 that is the basis for development of the future street system. The thoroughfare system is a conventional network conforming to a hierarchical, functional classification system developed to support the forecast traffic demands of future land use.

The highest classification of roadway is the Principal Thoroughfare type facility, followed by the Minor Thoroughfare facilities. These roadways are generally multiple lanes – 4 lanes for Minor or 6 lanes for Principal Thoroughfares. These roadways also generally include medians that serve the function of controlling access, separating opposing traffic movements and providing an area for the storage of left turning vehicles. The lower classifications are the Collector facilities that are developed to serve the adjoining development. The character of the developments served should determine the sizes and alignments of collector roadways.

Capital Improvement Plan for Roadway Impact Fees

The thoroughfare facilities determined for inclusion in the Capital Improvement Plan of this study are tabulated in **Table 1A** and graphically illustrated in **Figure 1**. Each listed project includes a description of the planned improvements, the approximate project length, and an engineer's opinion of probable cost to the City. In addition, under existing State Statute, a municipalities' cost associated with TxDOT facilities can be financed with impact fees. All roadways included in the 2024 CIP are identified in the City of Sachse Thoroughfare Plan. **Table 1B** shows recoupment costs for projects completed as part of the previous CIPs with debt not retired. These recoupment projects are also illustrated in **Figure 1**.

The engineer's opinions of probable construction cost were prepared without the benefit of a detailed preliminary engineering study for each project. The costs are based on data provided by the City of Sachse and on recent roadway project construction bids. Financing costs for the projects in the thoroughfare CIP were also included in the total estimated cost and the interest rate of 5% was provided by the City of Sachse.

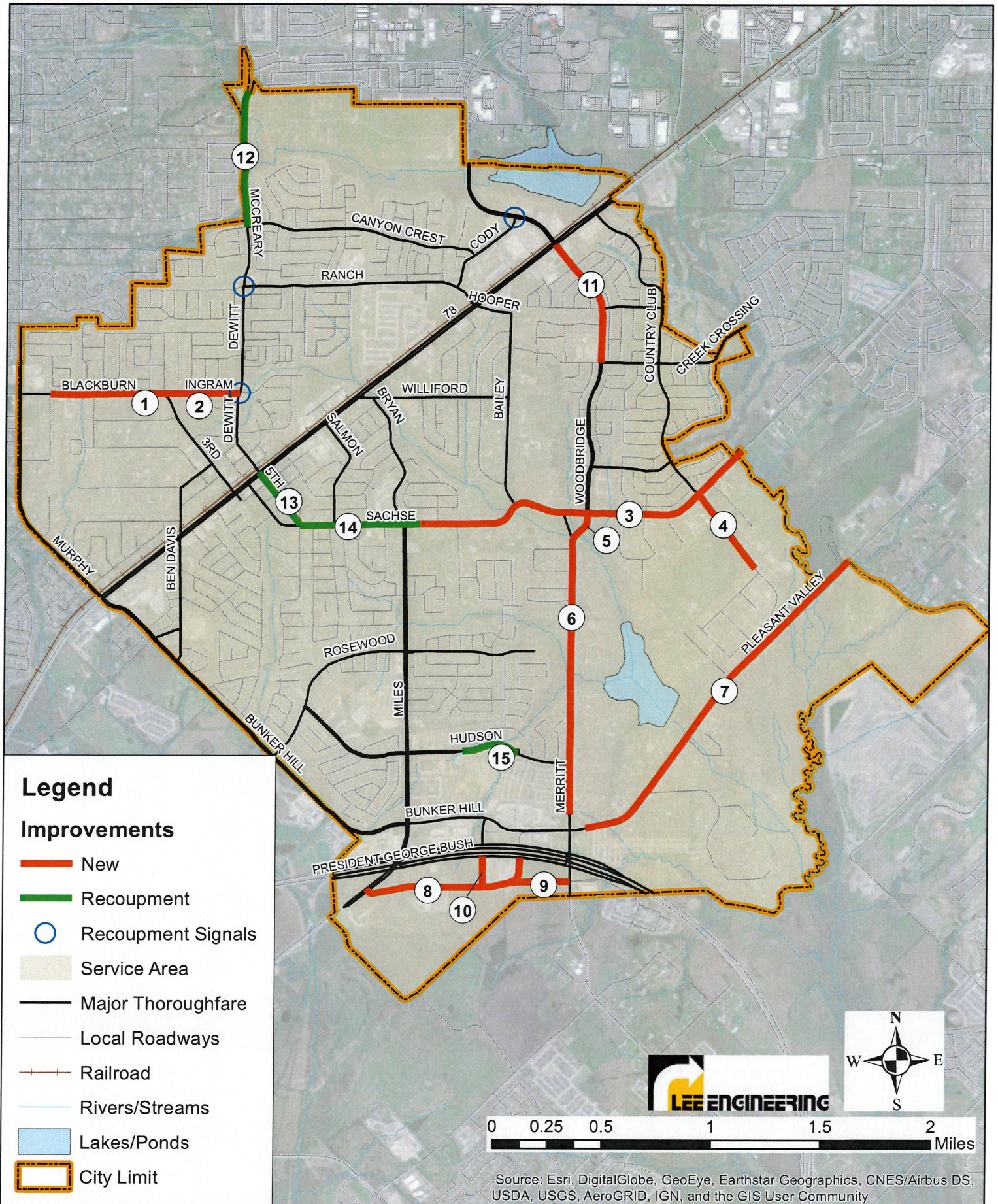
**Table 1A - Thoroughfare Capital Improvement Plan
City of Sachse 2024 Impact Fee Update**

ARTERIAL	PROJECT NUMBER	BOUNDARY		FUNCTIONAL CLASSIFICATION	EXISTING CROSS SECTION	PROJECT DESCRIPTION	LENGTH (ft)	TOTAL COST		COST OF		TOTAL PROJECT COST
		FROM	TO					W/O INTEREST	INTEREST			
Blackburn Road	1	Hilltop Trail	3rd Street	Minor Arterial	2 lanes undivided	Build a 4-lane divided section	2,700	\$ 2,580,000	\$ 1,083,600	\$ 3,663,600.00		
Ingram Road	2	3rd Street	Dewitt Road	Minor Arterial	2 lanes undivided	Build a 4-lane divided section	1,800	\$ 1,750,000	\$ 735,000	\$ 2,485,000.00		
Sachse Road	3	400 feet east of Bryan Street/Miles Road	East City Limit	Minor Arterial	2 lanes undivided	Build a 4-lane divided section	8,600	\$ 8,090,000	\$ 3,397,800	\$ 11,487,800.00		
Proposed Country Club Drive	4	Sachse Road	Aldridge Drive	Collector	-	Build a 3-lane undivided section	2,300	\$ 1,800,000	\$ 756,000	\$ 2,556,000.00		
Proposed Merritt Road	5	Sachse Road	Merritt Road	Minor Arterial	-	Build a 4-lane divided section	900	\$ 1,060,000	\$ 445,200	\$ 1,505,200.00		
Merritt Road	6	Proposed Merritt Road	550 feet north of Pleasant Valley Road	Minor Arterial	2 lanes undivided	Build a 4-lane divided section	6,600	\$ 6,900,000	\$ 2,898,000	\$ 9,798,000.00		
Pleasant Valley Road	7	400 feet east of Merritt Road	Northeast City Limit	Minor Arterial	2 lanes undivided	Build a 4-lane divided section	9,200	\$ 9,600,000	\$ 4,032,000	\$ 13,632,000.00		
Pleasant Valley Road	8	Miles Road	PGBT	Collector	2 lanes undivided	Build 3-lane undivided section	4,300	\$ 3,250,000	\$ 1,365,000	\$ 4,615,000.00		
Proposed Minor Collector	9	Pleasant Valley Road	Merritt Road	Collector	-	Build a 3-lane undivided section	1,500	\$ 1,190,000	\$ 499,800	\$ 1,689,800.00		
Nash Boulevard	10	PGBT	Proposed Minor Collector/ Pleasant Valley Road	Collector	-	Build a 3-lane undivided section	750	\$ 640,000	\$ 268,800	\$ 908,800.00		
Woodbridge Parkway	11	SH 78	Creek Crossing Lane	Minor Arterial	4 lanes divided	Traffic control improvements	3,300			\$ 2,600,000.00		
Grand Total:								CIP PROJECT TOTALS :		\$ 36,860,000	\$ 15,481,200	\$ 54,941,200

**Table 1B - Recoupment Projects Completed with Previous CIP
City of Sachse 2024 Impact Fee Update**

ARTERIAL	PROJECT NUMBER	BOUNDARY		FUNCTIONAL CLASSIFICATION	PREVIOUS CROSS SECTION	EXISTING CROSS SECTION	PROJECT DESCRIPTION	LENGTH (ft)	TOTAL PROJECT	
		FROM	TO							COST
Maxwell Creek Road	12	North City Limit	Canyon Crest Drive	Minor Arterial	2 lanes undivided, concrete	4 lanes divided, concrete	Built 2-lanes of 4-lane divided	3,200	\$	639,234
5th Street	13	SH 78	Sachse Road	Minor Arterial	2 lanes undivided, asphalt	4 lanes undivided, concrete	Built a 4-lane undivided section	1,600	\$	3,100,000
Sachse Road	14	5th Street	400 feet west of Bryan Street	Minor Arterial	2 lanes undivided, asphalt	4 lanes divided, concrete	Built a 4-lane divided section and roundabout at W Creek Ln	2,900	\$	6,518,633
Hudson Drive	15	Eastern School Driveway	Hudson Court	Collector	2 lanes undivided, concrete	4 lanes undivided, concrete	Built 2-lanes of 4-lane undivided	1,600	\$	2,113,483
	16	3 Traffic Signals Constructed (Ingram/Dewitt, Ranch/Dewitt, Cody/Woodbridge)							\$	1,062,343
Grand Total:										
CIP PROJECT TOTALS :										\$ 12,371,350

Figure 1:
CITY OF SACHSE
Roadway Impact Fee Eligible Capital Improvements



IMPACT FEE CALCULATION

I. INTRODUCTION

The next step of the Development Impact Fee process is the determination of the maximum fee per service unit that can be charged by the City for new developments. The fee is calculated by dividing the costs of the capital improvements identified as necessary to serve growth forecast to occur during the 10-year planning period by the number of service units of growth forecast to occur. The specific steps, as described in following paragraphs of this section include:

1. Determination of a standard service unit;
2. Identification of service areas for the City;
3. Identification of that portion of the total capital improvements necessary to serve the projected growth over the next 10-year period;
4. Analysis of the total capacity, level of current usage, and commitment for usage of capacity of existing improvements;
5. Determination of the “standard service unit” and equivalency tables establishing the ratio of a service unit to the types of land use forecast for growth.

II. SERVICE UNIT

To determine the impact fee rate applied to thoroughfare facilities the standard service unit selected was “**PM Peak Hour Vehicle-Miles.**” This service unit can be obtained by multiplying the number of trips generated by a specific land use type during the PM peak hour (vehicles) by the average trip length (miles) for that land use. The PM peak hour was chosen because it is usually considered the critical time for roadway analyses. The trip generation data were directly obtained or derived for each defined land use type from “*Trip Generation Manual, 11th Edition*” of the Institute of Transportation Engineers, which is the standard data reference to determine vehicle trip generation characteristics of particular land use types and densities. Trip length information for each land use specified was based on data developed by the Federal Highway Administration (FHWA) in the 2022 and 2017 *National Household Travel Surveys*. The trip length was set at a maximum of three (3) miles for any land use, as this trip length was assumed to be the maximum average distance a trip would travel on roadways within each service area in the City of Sachse. **Table 2** shows the typical service units for each land use type.

Table 2 - Service Unit Calculation by Land Use Type
City of Sachse 2024 Roadway Impact Fee Study Update

	Variable	PM Peak Trips ¹ (vehicles)	Trip Length ² (miles)	Vehicle-Miles
Residential	Dwelling Unit	0.94	3.0	2.82
Office	1,000 ft ²	1.44	3.0	4.32
Commercial / Retail	1,000 ft ²	3.71	3.0	11.13
Industrial	1,000 ft ²	0.99	3.0	2.97
Public and Institutional	1,000 ft ²	1.21	3.0	3.63
Parks and Recreational	Acre	13.08	3.0	39.24

¹ Based on *ITE Trip Generation, 11th Edition*

² Based on *FHWA National Household Travel Survey, 2022 and 2017*

SERVICE AREAS

The State Statute governing the imposition of development impact fees require that collection and expenditure of fees imposed for street facilities “...is limited to an area within the corporate boundaries of the political subdivision and shall not exceed six miles.” To comply with this State Law, one (1) service area was established for the City of Sachse to ensure that funds are spent within six miles of where they are collected. The service area includes most of the developable land within the city limits of Sachse. Within Sachse, the growth and intensities of growth for the ultimate development of the City and that portion of the service area expected to occur during the 10-year period, 2024-2034, is forecast. The service area is shown in **Figure 1**.

III. ASSUMPTIONS AND EVALUATION CRITERIA

Determination of the eligible costs of capital improvements to serve the forecast growth over the 10-year period from 2024 to 2034 was based on data provided by the City of Sachse. The basic criteria and assumptions made for this study include the following:

1. Costs of existing facilities constructed to serve new development have been included, and City of Sachse staff identified projects of this type.
2. Bond interest costs are included.
3. Street facility improvements, although necessary for additional capacity by new growth, will logically serve all existing and future growth by improved safety and drainage characteristics. Therefore, the 10-year eligible costs have been proportioned as the ratio of the 10-year growth to the total number of service units determined for the build-out.

Table 3 shows the portion of ultimate build-out service units that will be attributable to growth within the next 10 years and is used to pro-rate the identified costs in the service area.

In order to maintain the equity of impact fee assessment, the cost for streets included in the 10-year Capital Improvement Plan will include the total cost of the street facilities, not reduced by any expected participation. Rather, construction by a developer of an arterial facility within or off-site should be treated as a credit to the impact fee assessment.

**Table 3 - Summary of Vehicle-Mileage Distribution by Development Period
City of Sachse 2024 Roadway Impact Fee Study Update**

	Existing		2024 - 2034		Year 2034 - Ultimate		
Service Area	Vehicle-Miles 2024	Portion of Ultimate Vehicle-Miles	Vehicle-Miles Added 2024 - 2034	Portion of Ultimate Vehicle-Miles	Vehicle-Miles Added 2034 - Ultimate	Portion of Ultimate Vehicle-Miles	Ultimate Vehicle-Miles
1	90,697	0.638	49,834	0.350	1,717	0.012	142,248
Total	90,697		49,834		1,717		142,248

ELIGIBLE COSTS

Table 4 presents a summary of the roadway capital improvement costs for the service area. The 10-year portion of the total costs was calculated using the data from **Table 3**. Costs of these projects included only those costs that will be paid for by the City of Sachse.

IV. DETERMINATION OF STANDARD SERVICE UNIT AND EQUIVALENCY

The determination of growth of service units and resulting impact fee rates were then made. **Table 5** presents the derivation of service unit equivalents for each of the six defined land use types. The service unit equivalents are referenced to and based on the residential land use.

Table 6 presents a summary of the calculations and resulting eligible costs per service unit. Under current State law, municipalities are required to administer a detailed financial analysis to support the use of an impact fee higher than 50 percent of the eligible costs. As an alternative to performing the financial analysis, the impact fee can be set at or below 50 percent of the total eligible costs. The total eligible costs per service unit are shown in **Table 6**. The City will use either a detailed financial analysis to adjust for tax credits or will use 50 percent of these eligible costs.

V. IMPACT FEE CALCULATION METHODOLOGY

The methodology for calculating the maximum *allowable* impact fee for roadway facilities can be summarized in the following three steps. First, determine the cost of the roadway facilities (existing roadways eligible for recuperation of construction cost and proposed roadways) that can be attributed to new growth over the 10-year period. This calculation is summarized on page 14.

**Table 4 - Summary of Capital Improvement Cost
City of Sachse 2024 Roadway Impact Fee Study Update**

Service Area	Zone Cost of Thoroughfare	Portion of Capacity of Thoroughfare Attributed to Growth (2024 - 2034)	Cost of Thoroughfare Attributed to Growth (2024 - 2034)
1	\$67,312,549.75	0.350	\$23,559,392.41
Totals	\$67,312,549.75		\$23,559,392.41

**Table 5 - Thoroughfare Land Use Equivalency
City of Sachse 2024 Roadway Impact Fee Study Update**

Land Use	Development Unit	Veh-Miles / Development Unit (1)	SU Equivalency (2)
Residential	Dwelling Unit	2.82	1.00
Office	1,000 ft ²	4.32	1.53
Commercial / Retail	1,000 ft ²	11.13	3.95
Industrial	1,000 ft ²	2.97	1.05
Public and Institutional	1,000 ft ²	3.63	1.29
Parks and Recreational	Acre	39.24	13.91

Notes:

- (1) Based on data from the ITE *Trip Generation Manual*, 11th Edition and the FHWA *National Household Travel Survey* (2022 and 2017) (see Table 2)
- (2) Ratio of each land use to service unit of Residential

**Table 6 - Impact Fee Calculation for Thoroughfare
City of Sachse 2024 Roadway Impact Fee Study Update**

Service Area	Cost of Thoroughfare Attributed to Growth (2024 - 2034)	Number of New Service Units (2024 - 2034)	Cost Per Service Unit	Cost Per Service Unit (Rounded)
1	\$23,559,392.41	49,834	\$472.76	\$472
Totals	\$23,559,392.41	49,834		

Calculation for Service Area 1

Cost of Roadway Facilities (Tables 1A and 1B) = \$67,312,549.75

Proportion of Capacity Attributable to New Growth (Table 3) = 0.350

Cost of Roadway Facilities Attributable to Growth (2024-2034):

$$\$67,312,549.75 \times 0.350 = \$23,559,392.41$$

The second step is to determine the maximum *calculated* impact fee. The maximum *calculated* impact fee is the ratio of the total cost for roadway facilities attributable to growth in the next ten years (2024-2034) divided by the total growth in equivalent service units (ESU). The maximum calculated impact fee is:

Maximum Roadway Impact Fee = $\frac{\text{Eligible Thoroughfare Cost Attributed to Growth (Table 4)}}{\text{Total Growth in Equivalent Service Units (Table 3)}}$

$$= \frac{\$23,559,392.41}{49,834 \text{ ESU}}$$

$$= \$472.76 / \text{ESU} = \$472 / \text{ESU (Rounded)}$$

This amount represents the maximum *calculated* impact fee for roadway facilities. For the final step, the current impact fee legislation requires the City to produce a financial analysis to support a fee greater than 50 percent of the eligible costs or to reduce the maximum calculated impact fee by 50 percent. If the City chooses to use a maximum allowable impact fee of 50 percent of the maximum calculated fee the amount would be $\$472 \times 50\% = \236.00 .

Impact Fee Calculation Example

The land use equivalency table is provided in **Table 7**. This table identifies the total service units generated by specific uses within each land use category. To obtain the impact fee to be charged for a particular land use, the impact fee per service unit adopted by the City and the service units per development unit generated for that particular land use from **Table 7** are used. Examples for calculating the impact fee for both a single-family dwelling unit and a 50,000 ft² shopping center (commercial / retail facility) assuming an impact fee of \$236.00 per service unit are shown on page 16.

Table 7 - Land Use Equivalency
City of Sachse 2024 Roadway Impact Fee Study Update

CATEGORY	LAND USE	DEVELOPMENT UNITS ¹	ITE TRIP RATE ²	TRIP LENGTH ³	PASS-BY TRAFFIC ⁴	SERVICE UNITS ⁵	MAX ALLOWABLE IMPACT FEE / DEVELOPMENT UNIT ⁶
RESIDENTIAL							
	Single-Family Detached	Dwelling Unit	0.94	3.0	0	2.82	\$665.52
	Multifamily Housing (Low-Rise)	Dwelling Unit	0.51	3.0	0	1.53	\$361.08
	Multifamily Housing (Mid-Rise)	Dwelling Unit	0.39	3.0	0	1.17	\$276.12
	Multifamily Housing (High-Rise)	Dwelling Unit	0.32	3.0	0	0.96	\$226.56
	Mobile Home	Dwelling Unit	0.58	3.0	0	1.74	\$410.64
OFFICE							
	Office Building	1,000 ft ² GFA	1.44	3.0	0	4.32	\$1,019.52
	Medical Office	1,000 ft ² GFA	3.93	2.8	0	11.00	\$2,596.00
COMMERCIAL							
	Automobile Care Center	1,000 ft ² GFA	3.11	3.0	0.28	6.72	\$1,585.92
	Building Materials/Lumber	1,000 ft ² GFA	2.25	3.0	0	6.75	\$1,593.00
	Drive-In Bank	1,000 ft ² GFA	21.01	2.4	0.35	32.78	\$7,736.08
	Fast Food Restaurant	1,000 ft ² GFA	33.03	2.4	0.55	35.67	\$8,418.12
	Free-Standing Discount Store	1,000 ft ² GFA	4.86	3.0	0.20	11.66	\$2,751.76
	Garden Center/Nursery	1,000 ft ² GFA	6.94	3.0	0	20.82	\$4,913.52
	Golf Course	Acres	0.28	3.0	0	0.84	\$198.24
	Hardware/Paint Store	1,000 ft ² GFA	2.98	2.8	0.26	6.17	\$1,456.12
	Home Improvement Store	1,000 ft ² GFA	2.29	3.0	0.42	3.98	\$939.28
	Hotel	Rooms	0.59	3.0	0	1.77	\$417.72
	Pharmacy/Drugstore	1,000 ft ² GFA	10.25	2.8	0.49	14.64	\$3,455.04
	Convenience Store/Gas Station (4-5.5k SF Pumps)		22.76	2.4	0.75	13.66	\$3,223.76
	Sit-Down Restaurant	1,000 ft ² GFA	9.05	2.8	0.43	14.44	\$3,407.84
	Shopping Center (>150 SF)	1,000 ft ² GFA	3.40	3.0	0.29	7.24	\$1,708.64
	Shopping Plaza (40-150k SF)	1,000 ft ² GFA	5.19	3.0	0.40	9.34	\$2,204.24
	Strip Retail Plaza (<40k SF)	1,000 ft ² GFA	6.59	3.0	0.40	11.86	\$2,798.96
	Supermarket	1,000 ft ² GFA	8.95	2.8	0.24	19.05	\$4,495.80
INDUSTRIAL							
	Light Industrial	1,000 ft ² GFA	0.65	3.0	0	1.95	\$460.20
	Mini-Warehouse	1,000 ft ² GFA	0.15	3.0	0	0.45	\$106.20
	Warehouse	1,000 ft ² GFA	0.18	3.0	0	0.54	\$127.44
INSTITUTIONAL							
	School	Students	0.16	3.0	0	0.48	\$113.28
	Day Care Center	Students	0.79	3.0	0.44	1.33	\$313.88
	Nursing Home	1,000 ft ² GFA	0.59	3.0	0	1.77	\$417.72
	House of Worship	1,000 ft ² GFA	0.49	3.0	0	1.47	\$346.92

¹ GFA = Gross Floor Area

² (Vehicles); Based on *ITE Trip Generation Manual, 11th Edition*

³ (Miles); Based on FHWA *National Household Travel Survey (2022, 2017, and 2009)*; or a maximum of 3 miles

⁴ Percentage of traffic already passing by site - land use is an intermediate destination

⁵ (Vehicle-Miles)

⁶ Based on 50% of maximum calculated impact fee for each service area

* The land uses and trip generation characteristics listed in this chart are intended as examples. The complete table of land uses and trip generation characteristics is contained in the Institute of Transportation Engineers *Trip Generation Manual, 11th Edition*, which is incorporated herein by reference.

Service Area 1 – Example Calculations

SINGLE-FAMILY DWELLING

- Vehicle-Miles per Development Unit for Single-Family Dwelling Unit
 $(1 \text{ Dwelling Unit}) \times (2.82 \text{ Vehicle-Miles / Dwelling Unit}) = 2.82 \text{ Vehicle-Miles}$
- Assumed Roadway Impact Fee = \$236.00 / Service Unit:
 $(2.82 \text{ Vehicle-Miles}) \times (\$236.00 / \text{Vehicle-Miles}) = \$ 665.52$

50,000 ft² SHOPPING CENTER

- Vehicle-Miles per Development Unit for Shopping Plaza
 $(50,000 \text{ ft}^2) \times (9.34 \text{ Vehicle-Miles / } 1,000 \text{ ft}^2) = 467.00 \text{ Vehicle-Miles}$
- Assumed Roadway Impact Fee = \$236.00 / Service Unit:
 $(467.00 \text{ Vehicle-Miles}) \times (\$236.00 / \text{Vehicle-Miles}) = \$ 110,212.00$



The City of
SACHSE

**WATER AND WASTEWATER
2024-2034 IMPACT FEE UPDATE**

APPENDIX “A”

**WATER SYSTEM
IMPACT FEE DATA**

**PUMP STATIONS
ELEVATED STORAGE TANKS
TRANSMISSION LINES
DISTRIBUTION LINES**

TABLE NO. A-1
CITY OF SACHSE, TEXAS
WATER DISTRIBUTION IMPACT FEE STUDY
EXISTING WATER FACILITIES

	Year Const.	Total Capacity	Cost (\$)				Capacity Utilized (%)			Capacity Utilized (\$)	
			+ Const.	Engineering, Testing and Property Acquisition	Debt Service Interest Rate %	20 Year Debt Service Utilizing Simple Interest	Total 20 Yr. Project Cost \$	2024	2034	During Impact Fee Period	In The CRF Period
Pump Station Improvements											
Existing Elevated Storage Tanks											
Sachse South 1.25-MG Elevated Storage Tank	2019	1.25-MG	3,549,981.14	\$0	4%	\$1,490,992	\$5,040,973	58%	100%	42%	\$2,930,798
Existing Facility Total			\$3,549,981			\$1,490,992	\$5,040,973				\$2,930,798
											\$5,040,973
											\$2,110,175
											\$2,110,175

TABLE NO. A-2
CITY OF SACHSE, TEXAS
WATER SYSTEM IMPACT FEE STUDY
PROPOSED CIP - WATER LINES

+ Average Unit costs are based in '2024' dollars unless otherwise indicated and includes engineering and easements.

Pipe Number	Length (Ft.)	Diameter (Inches)	+ Avg. Unit Cost (\$/Ft.)	Total Capital Cost (\$)	Debt Service Interest Rate %	20 Year Debt Service Utilizing Simple Interest	Total 20 Year Project Cost (\$)	(%) Utilized Capacity			(\$ Utilized Capacity		
								2024	2034	During Fee Period	2024	2034	During Fee Period
C1. Country Club Dr to Public Works 0.75MG EST 12-inch Water Line													
2 301	818.804	12	\$250.00	\$204,701		\$85,974	\$290,675	0%	68%	68%	\$0	\$196,414	\$196,414
300	2,942.97	12	\$250.00	\$735,742		\$309,012	\$1,044,754	0%	74%	74%	\$0	\$769,387	\$769,387
329	491.874	12	\$250.00	\$122,969		\$51,647	\$174,615	0%	68%	68%	\$0	\$118,988	\$118,988
Subtotal:	4,254			\$1,063,412	4.0%	\$446,633	\$1,510,045				\$0	\$1,084,789	\$1,084,789
C2. Sachse Rd 12-inch Water Line (from Public Works Pump Station to Merritt Rd)													
2 325	3,471.97	12	\$250.00	\$867,993		\$364,557	\$1,232,550	0%	100%	100%	\$0	\$1,232,550	\$1,232,550
326	1,144.07	12	\$250.00	\$286,018		\$120,127	\$406,145	0%	100%	100%	\$0	\$406,145	\$406,145
327	1,544.57	12	\$250.00	\$386,142		\$162,180	\$548,322	0%	100%	100%	\$0	\$548,322	\$548,322
Subtotal:	6,161			\$1,540,153	4.0%	\$646,864	\$2,187,017				\$0	\$2,187,017	\$2,187,017
C3. Merritt Road 16-inch Water Line (from Sachse Rd to Hudson Rd)													
2 839	557.165	16	\$350.00	\$195,008		\$81,903	\$276,911	0%	86%	86%	\$0	\$238,305	\$238,305
801	717.399	16	\$350.00	\$251,090		\$105,458	\$356,547	0%	90%	90%	\$0	\$321,883	\$321,883
324	2,855.06	16	\$350.00	\$999,271		\$419,694	\$1,418,964	0%	74%	74%	\$0	\$1,046,768	\$1,046,768
Subtotal:	4,130			\$1,445,368	4.0%	\$607,055	\$2,052,423				\$0	\$1,606,956	\$1,606,956
C4. Blackburn Rd/ Ingram Rd 12-inch Water Line (from Oaklawn Dr to Dewitt Rd)													
2 343	312.138	12	\$250.00	\$78,035		\$32,774	\$110,809	0%	20%	20%	\$0	\$22,320	\$22,320
344	1,145.38	12	\$250.00	\$286,344		\$120,264	\$406,608	0%	23%	23%	\$0	\$93,810	\$93,810
345	463.767	12	\$250.00	\$115,942		\$48,696	\$164,637	0%	38%	38%	\$0	\$62,562	\$62,562
346	519.096	12	\$250.00	\$129,774		\$54,505	\$184,279	0%	32%	32%	\$0	\$58,969	\$58,969
347	1,492.41	12	\$250.00	\$373,103		\$156,703	\$529,806	0%	24%	24%	\$0	\$126,775	\$126,775
Subtotal:	3,933			\$983,197	4.0%	\$412,943	\$1,396,139				\$0	\$364,436	\$364,436
C5. 3rd Street 12-inch Water Line													
2 P-358	964.145	12	\$250.00	\$241,036		\$101,235	\$342,271	0%	24%	24%	\$0	\$81,901	\$81,901
P-359	749.931	12	\$250.00	\$187,483		\$78,743	\$266,226	0%	20%	20%	\$0	\$54,196	\$54,196
P-360	681.547	12	\$250.00	\$170,387		\$71,562	\$241,949	0%	23%	23%	\$0	\$56,685	\$56,685
P-361	695.29	12	\$250.00	\$173,823		\$73,005	\$246,828	0%	20%	20%	\$0	\$48,484	\$48,484
Subtotal:	3,091			\$772,728	4.0%	\$324,546	\$1,097,274				\$0	\$241,266	\$241,266
C6. Rosewood Lane to Merritt Road 8-inch Water Line													
2 271	875	8	\$200.00	\$175,000		\$73,500	\$248,500	0%	100%	100%	\$0	\$248,500	\$248,500
Subtotal:	875			\$175,000	4.0%	\$73,500	\$248,500				\$0	\$248,500	\$248,500
C7. Kerley Lane to Merritt Road 8-inch Water Line													
2 273	895	8	\$200.00	\$179,000		\$75,180	\$254,180	0%	58%	58%	\$0	\$146,883	\$146,883
Subtotal:	895			\$179,000	4.0%	\$75,180	\$254,180				\$0	\$146,883	\$146,883

CITY OF SACHSE, TEXAS
WATER SYSTEM IMPACT FEE STUDY
PROPOSED CIP - WATER LINES

+ Average Unit costs are based in '2024' dollars unless otherwise indicated and includes engineering and easements.

Pipe Number	Length (Ft.)	Diameter (Inches)	+ Avg. Unit Cost (\$/Ft.)	Total Capital Cost (\$)	Debt Service Interest Rate %	20 Year Debt Service Utilizing Simple Interest	Total 20 Year Project Cost (\$)	Utilized Capacity (%)			Utilized Capacity (\$)		
								2024	2034	During Fee Period	2024	2034	During Fee Period
C8. Bunker Hill Road 12-inch Water Line (from Concord Dr to Miles Rd)													
2	2340	12	\$250.00	\$585,000		\$245,700	\$830,700	0%	39%	39%	\$0	\$321,600	\$321,600
244	1,870.00	12	\$250.00	\$467,500		\$196,350	\$663,850	0%	51%	51%	\$0	\$339,512	\$339,512
Subtotal:	4,210			\$1,052,500	4.0%	\$442,050	\$1,494,550				\$0	\$661,112	\$661,112
PROPOSED TOTAL:		4,254		\$7,211,358		\$3,028,770	\$10,240,128				\$0	\$6,540,959	\$6,540,959

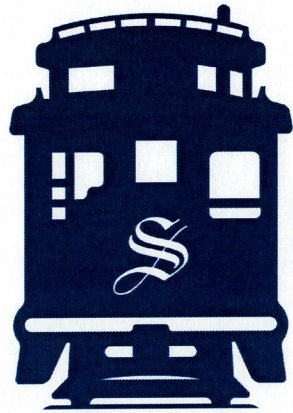
1 - City Participates in Cost Oversize

2 - City Initiates and Funds

TABLE NO. A-3
CITY OF SACHSE, TEXAS
WATER DISTRIBUTION IMPACT FEE STUDY
PROPOSED WATER FACILITIES

+ Average Unit costs are based in '2024' dollars unless otherwise indicated and includes engineering and easements.

	Added Capacity	Cost (\$)				Capacity Utilized (%)			Capacity Utilized (\$)		
		+ Const.	Debt Service Interest Rate %	20 Year Debt Service Utilizing Simple Interest	Total 20 Yr. Project Cost \$	2024	2034	During Impact Fee Period	2024	2034	In The CRF Period
Proposed Pump Station Improvements											
Maxwell Creek Pump Station Expansion	3.6 MGD	\$5,101,700	4%	\$2,142,714	\$7,244,414	60%	100%	40%	\$4,346,648	\$7,244,414	\$2,897,766
Public Works Pump Station - Add New 4.6 MGD Pump	4.6 MGD	\$500,000	4%	\$210,000	\$710,000	0%	93%	93%	\$0	\$660,300	\$660,300
Storage Improvements											
Proposed 1.0-MG Elevated Storage Tank	1.0 MG	\$5,500,000	4%	\$2,310,000	\$7,810,000	0%	90%	90%	\$0	\$7,007,603	\$7,007,603
Proposed Facility Total		\$11,101,700		\$4,662,714	\$15,764,414				\$4,346,648	\$14,912,317	\$10,565,669



The City of
SACHSE

**WATER AND WASTEWATER
2024-2034 IMPACT FEE UPDATE**

APPENDIX “B”

**WASTEWATER SYSTEM
IMPACT FEE DATA**

**LIFT STATIONS
FORCE MAINS
COLLECTION LINES**

TABLE NO. B-1
CITY OF SACHSE, TEXAS
WASTEWATER SYSTEM IMPACT FEE UPDATE
IMPACT FEE CAPITAL IMPROVEMENT PLAN
EXISTING Wastewater System Recovery

Project I.D.	Project	Total Capital Cost ⁽¹⁾	Debt Service ⁽²⁾	Total 20-Year Project Cost	10-Year Utilized Capacity Cost
EXISTING WASTEWATER LIFT STATIONS & TREATMENT					
2	Southeast Sachse Lift Station and 18" Force Main	\$5,161,583	\$2,434,383	\$7,595,966	\$2,102,352
4	Sable Hills Lift Station and 4" Force Main	\$915,423	\$431,746	\$1,347,169	\$523,899
	SUBTOTAL:	\$6,077,006	\$2,866,129	\$8,943,135	\$2,626,251
EXISTING WASTEWATER COLLECTION LINES					
1	Southeast Sachse Lift Station and 24"-30" Gravity Outfall	\$1,406,069	\$663,151	\$2,069,220	\$638,570
3	Eastview Drive - PGBT 15" Sanitary Sewer to Southeast Lift Station	\$947,563	\$446,904	\$1,394,467	\$1,234,429
	SUBTOTAL:	\$2,353,632	\$1,110,055	\$3,463,687	\$1,872,999
EXISTING WASTEWATER SYSTEM PLANNING EXPENSES					
	Wastewater System Impact Fee Update	\$18,687	\$0	\$18,687	\$18,687
	SUBTOTAL:	\$18,687	\$0	\$18,687	\$18,687
	EXISTING WASTEWATER SYSTEM TOTAL:	\$8,449,325	\$3,976,184	\$12,425,509	\$4,517,937

TABLE NO. B-2
CITY OF SACHSE, TEXAS
WASTEWATER SYSTEM IMPACT FEE UPDATE
IMPACT FEE CAPITAL IMPROVEMENT PLAN
PROPOSED Wastewater System Capital Improvement Program (C.I.P.)

Project I.D.	Project	Total Capital Cost ⁽¹⁾	Debt Service ⁽²⁾	Total 20-Year Project Cost	10-Year Utilized Capacity Cost
PROPOSED WASTEWATER COLLECTION LINES					
C1	Miles Road Sanitary Sewer	\$378,200	\$178,372	\$556,572	\$415,417
C2	Southeast Willow Lake Sanitary Sewer lines	\$614,450	\$289,796	\$904,246	\$216,263
C3	Elm Grove Sanitary Sewer Extension	\$232,697	\$109,748	\$342,445	\$281,183
C4	Lower Muddy Creek 24-30" Trunk Sewer and Extensions	\$4,061,343	\$1,915,471	\$5,976,814	\$5,240,397
C5	Sachse Farm Lift Station Relief Sewer	\$1,061,139	\$500,470	\$1,561,609	\$0
	SUBTOTAL:	\$6,347,829	\$2,993,857	\$9,341,686	\$6,153,260
	PROPOSED WASTEWATER SYSTEM TOTAL:	\$6,347,829	\$2,993,857	\$9,341,686	\$6,153,260