

Professional

Engineering

Services

Water and
Wastewater
Impact Fee
Study Update

RFQ #24-001Q

Statement of Qualifications

City of Richwood, TX

April 1, 2024





Strand Associates, Inc.®
1906 Niebuhr Street
Brenham, TX 77833
(P) 979.836.7937
www.strand.com

April 1, 2024

Ms. Kirsten Garcia
City Secretary
City of Richwood
1800 Brazosport Boulevard
Richwood, TX 77531

Re: Request for Qualifications (RFQ) – Water and Wastewater Impact Fee Study Update, RFQ #24-001Q

Dear Ms. Garcia:

Thank you for the opportunity to submit our Statement of Qualifications (SOQ) to provide professional engineering and support services for the Water and Wastewater Impact Fee Study Update. Having recently completed several impact fee studies and updates, we have a firm understanding of the process for developing impact fee and are intimately familiar with the adoption requirements outlined in Chapter 395 of the Texas Local Government Code. We understand the primary study components include data collection, population projections, and land use assumptions, and the calculation of maximum allowable water and wastewater impact fees by meter size.

This SOQ demonstrates our ability to provide unsurpassed engineering services for this study. Our *client first* philosophy means that the interests of our clients are a priority. Toward this end, we are excited to offer a highly qualified and responsive team to assist the City in completing this project.

With our selection, the City will realize sound solutions that are effective for its budget and schedule, while achieving the goals of this project. The following unique features of our team will result in successful service to the City:

- **First-hand knowledge of Richwood’s existing water and wastewater infrastructure – providing essential value to this project.**
- **Record of proven performance for similar studies – resulting in technically sound solutions.**
- **Intimate knowledge and understanding of the impact fee development and updating process in Chapter 395 – meeting state adoption requirements.**
- **Available, knowledgeable, and committed staff – yielding responsive service to the City.**

The City’s primary contact will be:

Ryan D. Tinsley P.E., ENV SP
Project Manager
1906 Niebuhr Street, Brenham, TX 77833
Phone: 979-836-7937 | Email: Ryan.Tinsley@strand.com

Our firm meets the appropriate state licensing requirements to perform engineering services in the state of Texas (Registration Number F-8405). If there are any questions concerning our SOQ, please do not hesitate to contact us. We value the opportunity to help the City meet its engineering needs.

Sincerely,

STRAND ASSOCIATES, INC.®

Ryan D. Tinsley, P.E., ENV SP
Project Manager

Kelly M. Hajek, P.E.
Quality Control Engineer

P240.230/RDT:bsp



Table of Contents

	Section Page No.
Section 1 – Introduction and Executed Signature Page	
Firm Overview, Contact Information, and Acceptance Statement.....	1
Section 2 – Qualifications	
Seventy-Eight Years of Service Signifies Organizational Strength and Commitment to Quality	1
Integrated, Corporate-Wide Scheduling Program Proves Availability of Staff	4
Expertise and Experience with Relevant Studies Instills Confidence in Successful Project for the City of Richwood	5
Section 3 – Qualifications of Staff	
Team’s Record of Proven Performance Results in Technically Sound Solutions	1
• Resumes	
Section 4 – Familiarity / History within the Region	
Broad Experience Demonstrates Delivery Capabilities	1
• Project Experience Tables	
Section 5 – References	
References Attest to the Success of Similar Projects	1
• Letters of Commendation	
Section 6 – Technical Approach	
Approach to Adoption Process Defined in Chapter 395 Results in Efficient Calculation of Maximum Allowable Impact Fee for Water and Wastewater	1
Proven Quality Control Program Yields Successful Projects	3
State-of-the-Art Equipment and Facilities Enables Us to Address All Types of Engineering Challenges	4
Section 7 – Sample Documents (Digital Format)	
• City of Brenham 2023 Impact Fee Study Report	
• City of Brenham Impact Fee Public Hearing Presentation No. 1	
• City of Brenham Impact Fee Public Hearing Presentation No. 2	



Section 1 – Introduction and Executed Signature Page

Firm Overview

Established in 1946, we are a dynamic firm with 12 offices across the country and completed projects in 48 states. The most recent *Engineering News-Record* Top 500 Design Firm rankings based on annual billings, has us at 179. Our areas of specialization include civil and municipal engineering; stormwater management; water supply engineering; wastewater treatment and conveyance engineering; transportation engineering; **impact fee studies**; electrical and heating, ventilation, and air conditioning (HVAC) engineering; building/facility engineering, architecture, and sustainable design; aviation; natural gas distribution; wetland delineation, mitigation, and restoration; ecosystem study and restoration; geographic information systems (GIS) and mapping; land development; construction observation; and financial assistance services.



A thorough firm history can be found in the *Qualifications* section of this SOQ. It is anticipated that our firm will be able to provide the full range of services required for this study without assistance from subconsultants.

Contact Information

Strand Associates, Inc.®
1906 Niebuhr Street
Brenham, TX 77833
Phone: 979-836-7937

Primary Contact:

Ryan D. Tinsley P.E., ENV SP
Project Manager
Phone: 979-836-7937
Email: Ryan.Tinsley@strand.com

Acceptance Statement

The submission of this Statement of Qualifications (SOQ) indicates acceptance by Strand Associates, Inc.® of the stipulations contained in the Request for Qualifications (RFQ) and the terms and conditions of the Professional Services Agreement included therein.

Signature of Authorized Corporate Officer:


Joseph M. Bunker, Corporate Secretary


Date



Section 2 – Qualifications

Seventy-Eight Years of Service Signifies Organizational Strength and Commitment to Quality

We have been providing exceptional civil and environmental engineering service to clients since 1946. We attribute our organizational strength to our talented engineers, effective management, and, most of all, commitment to nurturing long-term client relationships. Our Corporate Mission states that we are “dedicated to helping clients succeed through excellence in engineering.” In accordance with this mission, we are continually expanding our staff and service offerings to broaden our base of experience and knowledge so that we can provide more creative and comprehensive solutions to meet the continually evolving needs of each client.

Through trust, reliance, and professional relationships, clients have enabled us to achieve 78 years of excellence in engineering.

In an ongoing commitment to serve our Texas clientele effectively and efficiently, our Brenham staff has now grown to 26 and we anticipate continuing to add to this talented group to provide an even broader array of expertise and greater depth of experience for clients. Additionally, the nature of our projects continues to evolve in harmony with the increasingly complex needs of clients.



Brenham office.

Wide Range of Services Meet All Project Needs

Our areas of specialization include the following:

- **Civil and municipal engineering**
- Transportation engineering
- **Wastewater treatment and conveyance engineering**
- **Water supply engineering**
- Stormwater management
- Electrical and heating, ventilation, and air conditioning (HVAC) engineering
- Building/facility engineering, architecture, and sustainable design
- Aviation
- Natural gas distribution
- Wetland delineation, mitigation, and restoration
- Ecosystem study and restoration
- **Geographic information systems (GIS) and mapping**
- **Impact fee studies**
- Surveying and right of way acquisition
- Land development
- Construction-related services
- Financial assistance

Our services are tailored to the needs of clients.



Strategic Office Locations Conveniently Serve Clients Throughout the Region

To serve our national client base efficiently, we have multiple offices throughout the U.S.



Civil and environmental engineering and science services are provided from multiple offices throughout the U.S.

Reliable Consulting Service Has Cultivated Long-Standing Client Relationships

Clients rely on us as a partner in addressing their engineering and science needs. We have developed and continue to maintain long-standing affiliations, many extending into several decades of service. Our service is flexible and tailored to the unique needs of each client. For some, we serve as appointed engineers and are active committee members; for others, we serve as specialty consultants to their in-house staff on an as-needed basis.

Our commitment to long-term client relationships is a major factor in our success.

We understand the value clients place on *consistency* of personnel, *continuity* in project development, and *responsiveness* to questions or concerns. Accordingly, we expend every effort to make sure that the team initially chosen is involved with a project from beginning to end, and that project inquiries are handled promptly and thoroughly.

Effective Management Practices Provide a Stable Foundation

To serve clients effectively, we employ a *horizontal project management structure*. For each project, a principal engineer is assigned to provide technical and office resource support. Other day-to-day decisions, however, are made at the project level by the engineers most familiar and involved with the work.

With our organizational structure, critical decisions are made by those most familiar with the day-to-day work on the project.

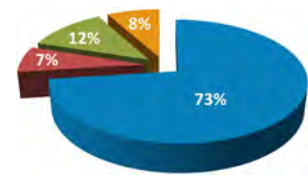
Clients find reassurance in the fact that each of our engineers is supported by the expertise of a multidisciplinary engineering firm. This approach enables use of all our resources while maintaining the personal involvement associated with a single point of contact – an individual trained to assist through plan development, design, and implementation.

Only with solid management practices could a company thrive in this industry for 78 years.



High Level of Service Made Possible Because of Dedicated, Results-Oriented Staff

Our expert staff of 495 employees embodies the academic backgrounds and experience of all disciplines normally necessary to complete a project successfully. More than 60 colleges and universities are represented on our staff. Our engineers average more than 11 years of experience and the majority are licensed or have advanced degrees. We are managed by our active engineering staff.



- Professional Engineers/ Specialists
- Other Professionals
- Technical Support
- Administrative Support

2024 Staff Resources

- **Total Staff**.....**495**
- **Engineers**..... **360* (73%)**
 - Environmental engineers/specialists 88
 - Civil engineers..... 119
 - Transportation engineers 88
 - Aviation engineers..... 10
 - Structural engineers..... 23
 - Electrical engineers 21
 - Mechanical engineers 11
- **Other Professionals** **35 (7%)**
 - Business development 13
 - Architects 2
 - Information technologists..... 10
 - Right of way acquisition agents 3
 - Professional land surveyors..... 7
- **Technical Support** **62 (12%)**
 - Field technicians..... 25
 - Office technicians/CADD operators..... 37
- **Administrative Support** **38 (8%)**
 - Clerical, accounting, human resources 38

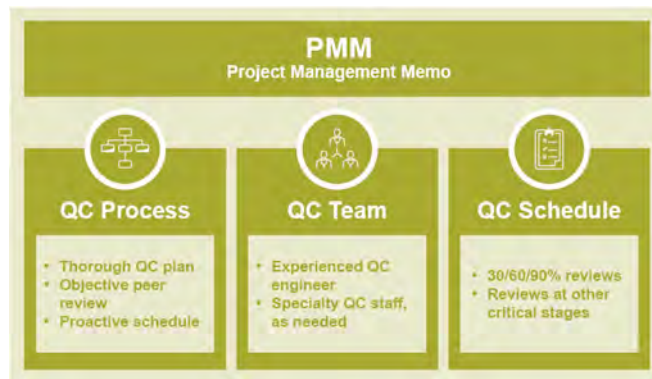
* Twelve (12) of these are LEED® accredited or ISI envision professionals.

Innovative Project Management Techniques Produce Quality, On-Time, Cost-Effective Projects

Our internal Quality Control (QC) program focuses on applying quality peer review at each stage of the design process. As the project is scoped, the Project Manager issues a Project Management Memorandum (PMM) describing the individual QC plan for the project and identifying a key Quality Control Engineer – an individual responsible for critiquing the design for technical accuracy, constructability, and conformance to project objectives at critical stages throughout project development.

Our approach to managing projects effectively involves ongoing quality control reviews.

We have a corporate-wide scheduling program that can provide up-to-date status reports on the schedule of every staff member at each office. Because we know the 2-year workload of each employee, we can make a commitment to a client’s schedule.



Quality review program defines commitment to excellence.



Awards and Recognition Demonstrate Leadership in Evolution and Application of Innovative Technology

Our designs have gained local and national acclaim and we are consistently included in *Engineering News-Record's (ENR)* lists of top design firms. These rankings are based on annual engineering fees generated through our Brenham office as well as across our entire firm. Our current rankings are: Texas and Louisiana Top Design Firms – 87; National Top 500 Design Firms – 179. As there are hundreds of engineering firms in Texas and thousands across the country, these rankings indicate the relative depth of services we provide each year – a direct result of the high value we place on long-term client relationships.



We have received distinctions and client praise for our ability to coordinate and facilitate challenging projects that solve problems and create opportunities for multiple stakeholders.

Integrated, Corporate-Wide Scheduling Program Proves Availability of Staff

We understand the City desires a consultant whose team has ample availability to complete its project efficiently and effectively. Our customized, integrated staff scheduling program proves the availability of our team to complete the City's project on schedule.

Statement of Availability

The personnel on the proposed project team have time in their schedules to assist the City. If awarded the contract and once a project is defined, we will input project hours into our scheduling program to dedicate the time necessary to the schedules of each project team member. Once assigned, the personnel on the project will not change.

About Our Scheduling Program

Our customized staff scheduling program helps determine staff availability relative to project deadlines. The program contains currently scheduled hours for employees up to 2 years from the present date. Project Managers can run reports to determine how many total hours are scheduled and for which project(s) a staff member is assigned. This program also integrates with our accounting system to facilitate billing.

Our customized, integrated staff scheduling program gives us up-to-date status reports on the schedule of every staff member.

At the start of every project, the Project Manager enters the associated hours assigned for each staff member each month. All projects in the scheduling program are updated monthly and staff availability is reviewed at that time to distribute workload appropriately among employees. We can then affirm that ample time is available for staff to meet project deadlines.

By utilizing our integrated scheduling program to project current staff workload and upcoming project deadlines, we can determine if completing tasks or meeting deadlines for a specific project may become an issue. We can then reallocate internal resources, as necessary, before an issue develops.



Team's percentage of availability leads to responsive service.

We are confident the availability of our team is more than sufficient to meet the City's project schedule, as substantiated by the accompanying graph.



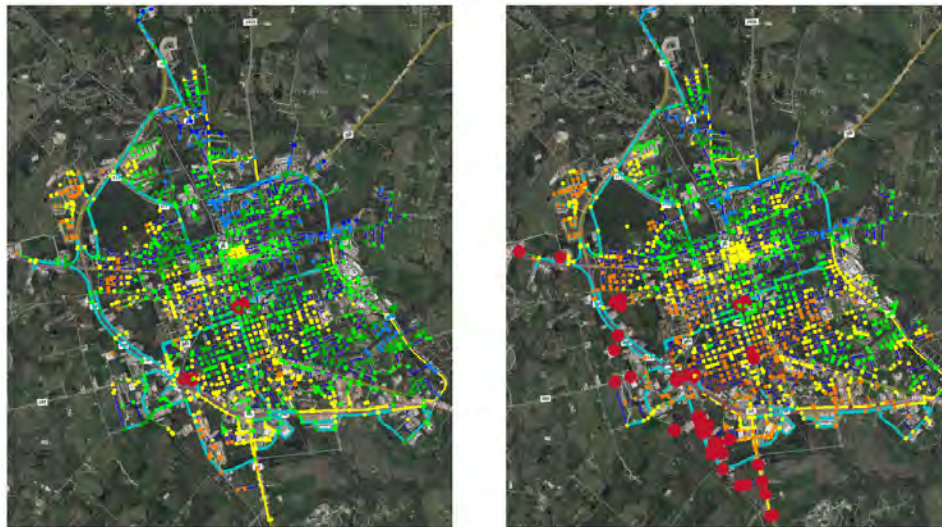
Expertise and Experience with Relevant Studies Instills Confidence in Successful Project for the City of Richwood

Our team has worked together to complete many similar studies, several of which are described below. In addition to the projects featured in this section, our firm is very familiar with local site conditions in the Richwood area – we are also currently serving the nearby cities of Brazoria, Sweeny, El Campo, and Rosenberg.

2023 Impact Fee Study for Water, Wastewater, and Roadways – Brenham, TX

The City of Brenham had contemplated adopting impact fees for many years but thought it might deter development. As development interest increased, so did the need for costly infrastructure improvements, including expansion of the City’s surface water treatment plant. As a result, the City began exploring alternative means to fund infrastructure improvements and in 2023 hired us to prepare its initial impact fee study. This study included calibration of an existing water model and development of a hydraulic and hydrologic wastewater collection system model.

The scope for that study shares similarities to the one proposed for the City of Richwood. The water model calibration began with a data collection phase, followed by updates, fire flow testing, and calibration of the City’s hydraulic water model in WaterGEMS. The WaterGEMS model revealed future pressure deficiencies, should the anticipated growth occur without improvements to the existing water system. Capital improvements were identified and the model was re-run with the proposed improvements.



Water system pressures, existing versus 10-year system pressures without improvements.

Concurrently, we prepared and calibrated a hydraulic and hydrologic wastewater collection system model in InfoWorks ICM (or Integrated Catchment Model). The City used lift station runtimes coupled with lift station drawdown tests to determine peaking factors within the sewershed of each lift station, instead of using flow monitors. The wastewater model identified potential areas of sanitary sewer overflows, which in turn helped to identify needed wastewater capital improvements.

Our team worked with City staff to prepare land use assumptions, building upon previous efforts completed by our firm and others. Known or anticipated future developments were added to the 20-year land use assumptions map, population density assumptions were made, and population projections prepared and presented to City staff and the City’s Capital Improvements Advisory Committee (CIAC) to gain their concurrence.

Expertise and experience with relevant studies instills confidence in successful project for the City of Richwood.

**Reference:
Stephanie Doland
Director of
Development Services
979-337-7269**



Capital improvement plans were then prepared for water, wastewater, and roadway improvements needed to serve future development anticipated to occur over a period of up to 10 years. While some of these improvements were extensions of the City’s infrastructure to serve future developments, most of the improvements were required to maintain regulatory compliance with the Texas Commission on Environmental Quality.

The water, wastewater, and roadway capital improvement plans totaled \$65.5 million, \$34.3 million, and \$78.1 million, respectively, in 2023 dollars. The portions of these capital improvements attributable to development were used to calculate the maximum allowable water and wastewater impact fees by meter size and maximum allowable roadway impact fee by development unit. Initial adoption of impact fees occurred in February 2024.

Sample documents from this project, in digital format (PDF), are included in *Section 7*.

Water Supply and Treatment Expansion Plan – Brenham, TX

We prepared a study of the City of Brenham’s water supply and treatment facilities to assist the City in preparing for unprecedented growth. The study assessed population projections and water demands for the years 2042, 2062, and 2082. Through the population and water demand evaluation, we determined that the City will need to expand its water supply and treatment capacities from 6.984 MGD to 12.70 MGD by the year 2042. We also evaluated the condition of the existing 6.984 MGD surface water treatment facility to determine which portions of the facility were in need of rehabilitation and the best way to expand the facility at the existing site.

Reference:
Debbie Gaffey
General Manager of
Public Utilities
979-337-7510

One of the early steps during the study was to determine the capacity of the existing 24-inch raw water main that carries the entire water supply for the city from Lake Somerville to the water treatment plant. The study revealed that based on the design of the line, its maximum capacity is 8.35 MGD. Knowing the capacity of the line, we prepared rough cost opinions for the construction of a second raw water main. The study also included evaluation of groundwater within the City of Brenham, near the Lake, and near Chappell Hill.

Based on the cost opinions for a second raw water main and the groundwater study, the City decided to further evaluate a second supply via groundwater. This evaluation looked at four alternatives for supply and treatment. Two of the alternatives centered around groundwater wells with treatment that would tie into the water distribution system. The other two alternatives assessed expansion of the water treatment plant to 8.35 MGD via conventional treatment methods or a combination of low- and high-pressure membrane filtration combined with conventional treatment methods.

2022 Utility Master Plans and Impact Fees – Sealy, TX

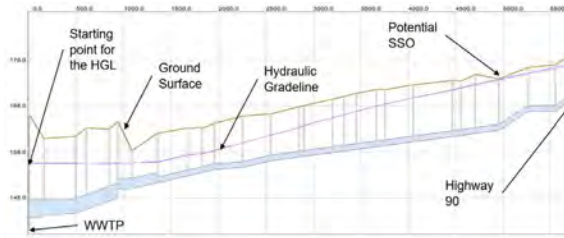
Our firm was hired in 2018 to assist the City of Sealy with its initial adoption of impact fees for water and wastewater. With the recent completion of the I-10 reconstruction project between the city and nearby Katy, the City began seeing considerable development interest as families continue to move further outside of Harris County.

Reference:
Kimbra Hill
City Manager
979-885-3511

In 2022, the City hired our firm to prepare utility master plans to identify capital improvements and annual operations expenditures to support its ever-expanding water, wastewater, and natural gas utilities for a period of 20 years or more. Additionally, this project provided an opportunity to update the City’s water and wastewater impact fees to fund or recoup costs for capital improvements needed to serve new development.



One of the most exciting aspects of this project was the tools that were created and continue to be used by our staff in support of the City. Our firm prepared and calibrated a new water model in WaterGEMS, a new wastewater model in XPSWMM, and a new natural gas model in KYPipe-Gas Module. Our team



Wastewater system model, West Front Street hydraulic grade line, 5-year, 3-hour storm.

performed fire flow testing and lift station drawdown testing to improve the quality of the models. Additionally, the City retained ADS Environmental Services to perform sanitary flow monitoring, which assisted in calibrating the hydraulic and hydrologic wastewater model.

Capital improvement plans were then prepared for water, wastewater, and natural gas for a period of 20 years or more. Once completed, the portions of the capital improvement plans that were attributable to new development for a period of up to 10 years was separated and routed through the impact fee development process.

The water, wastewater, and natural gas master plans totaled \$70.4 million, \$44.9 million, and \$11.4 million, respectively, in 2023 dollars. The portions of those capital improvements attributable to development were used to calculate the maximum allowable water and wastewater impact fees by meter size. The impact fee update occurred in June 2023.

Water and Sanitary Sewer System Capacity and Conveyance Evaluation and Impact Fees – Hempstead, TX

As the City of Houston and surrounding urban area continues to push west, the City of Hempstead has seen a recent uptick in residential, commercial, and industrial development. As development has increased, so has the need to increase the capacity of existing infrastructure. Noting this trend, in 2023 the City hired us to prepare its initial impact fee study, and impact fees have now been adopted.

Reference:
Fredrick Alexander
Public Works Director
979-826-8313

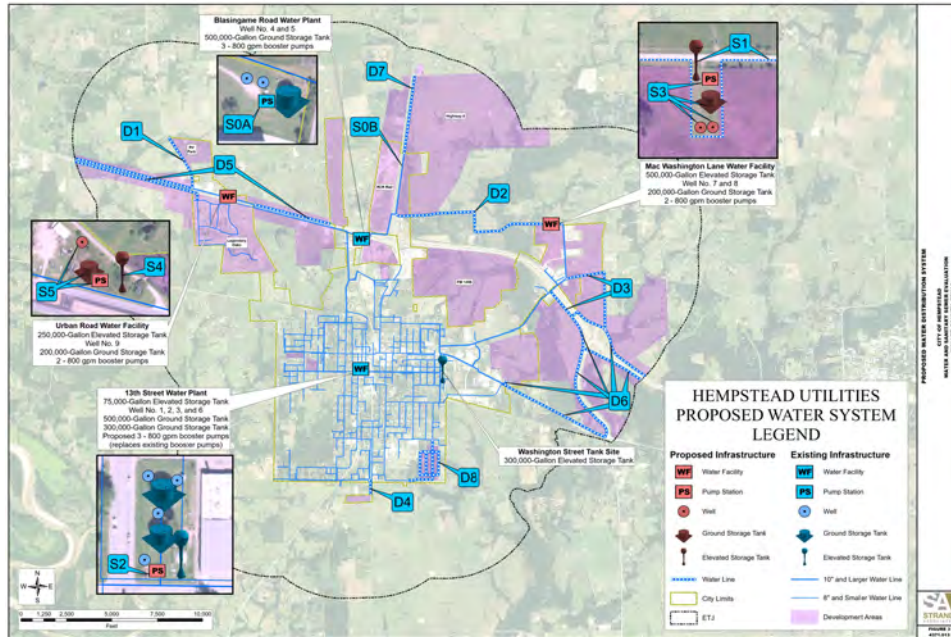
In addition to the impact fee study, we were hired to prepare a citywide water model. Similar to the City of Richwood project scope, the water model development began with a data collection phase, followed by fire flow testing and calibration of the City's water model in WaterGEMS.

Our team worked with City staff to prepare land use assumptions. Known or anticipated future developments were added to the 10-year land use assumptions map, population density assumptions were made, and population projections prepared and presented to City staff and the City's CIAC to gain their concurrence.

Capital improvement plans were then prepared for water and wastewater improvements needed to serve future development anticipated to occur over a period of up to 10 years. While some of these improvements were extensions of the City's infrastructure to serve future developments, most of the improvements were required to maintain regulatory compliance with the Texas Commission on Environmental Quality.



The water and wastewater capital improvement plans totaled \$115.7 million, \$106.3 million of which is attributable to anticipated growth over the next 10 years. The portions of those capital improvements attributable to development were used to calculate the maximum allowable water and wastewater impact fees by meter size. The impact fee update occurred in August 2023.



Water System Capital Improvements Plan – Hempstead.

2024 Impact Fee Study for Water and Wastewater and Street Pavement Assessment – Bellville, TX

The City of Bellville elected to pursue the development of impact fees for water and wastewater for the first time. This included a pavement assessment of all city streets and the development of opinions of probable construction costs to reconstruct street segments in order to develop a street maintenance and reconstruction plan. The scope of the impact fee project also included development of a citywide water model. Existing water infrastructure data has been collected and fire flow tests completed. Future steps include the calibration of the City’s hydraulic water model in WaterGEMS. Formation of the City’s CIAC is anticipated in the coming months.

Reference:
Shawn Jackson
City Administrator
979-865-3136

2023 Water Impact Fee Study – Tarkington Special Utility District (SUD)

The Tarkington SUD elected to pursue the development of water impact fees for the first time. The scope of the project included development of a districtwide water model. Existing water infrastructure data has been collected, fire flow tests completed, and the City’s hydraulic water model in WaterGEMS calibrated. The District’s CIAC was formed in November 2023 and its first meeting to discuss the draft land use assumptions (LUAs) and water capital improvement plan (CIP) occurred in January 2024. The public hearing for LUAs and CIP was held mid-March. The preliminary draft assessable impact fees have been calculated in preparation for the second CIAC meeting, which is anticipated to occur early in April 2024. Future steps include preparation of a draft Water Impact Fee letter including the final LUAs, final CIP, and draft assessable impact fees for water facilities, participating in a second public hearing to discuss the final assessable impact fees and the final report, and assisting SUD with preparation of a draft impact fee policy.

Reference:
LB Chapman
General Manager
281-592-6060



Critical Repair and Reinvestment Plan – Louisville and Jefferson County Metropolitan Sewer District (MSD) – Louisville, KY

This ‘first of its kind’ plan identified, documented, and prioritized future spending needs within the wastewater, stormwater, flood protection, and property management service areas of MSD, a utility that serves a population greater than 750,000. We are including this project because of the role our Project Manager played and since it shows our ability to provide similar services on even a larger scale. The study delivered a holistic prioritized list of capital projects with funding needs for the next 20 years.

Reference:
Stephanie Laughlin
Infrastructure
Planning Program
Manager
502-540-6955

We collaborated with a team of consultants to author the plan. Our role was to lead the wastewater and flood protection service areas and support the overall plan by assisting in the stormwater services area, providing stakeholder process facilitation and completing deputy project manager duties.



Stakeholder facilitation led by our firm.

The wastewater services area planning addressed needs within MSD’s separate sanitary sewer system, combined sewer system, and at its five regional water quality treatment centers (WQTCs). The separate sanitary sewer system covers most of Jefferson County and includes the mitigation of known SSOs and implementation of a CMOM program. The combined sewer system projects will manage the discharge from more than 100 CSOs and implement projects previously planned in the LTCP.

One challenging addition to the study was the 50-year look ahead for the 120 MGD Morris Forman WQTC. The MSD asked our team to add this comprehensive evaluation when its existing plant flooded following a rain of biblical proportions. The look ahead considered alternatives from restoring equipment and processes at the site to constructing new liquid phase treatment at a remote site. Alternatives for liquid phase treatment include conventional BNR, carbon and phosphorus capture with de-ammonification, and use of membrane bioreactors in lieu of secondary clarifiers and effluent filters. An average daily flow of 120 MGD with a peak flow of up to 600 MGD was considered.

The flood protection services area planning addresses both reliability and capacity concerns throughout the Ohio River Flood Protection System (ORFPS). The ORFPS is generally comprised of two main parts, the 29.5-mile-long system of floodwalls and levees that protect Jefferson County from floods on the Ohio River and the 16 flood pumping stations that lift interior drainage over the floodwalls and levees when the Ohio River is at flood stage. The Louisville Reach of the ORFPS was constructed in the early 1950s in response to the Great Flood of 1937. The Southwestern Reach of the ORFPS was constructed following a 100-year storm event that occurred in 1964.

The floodwalls and levees were found to be in an acceptable condition, but requiring continued maintenance at appropriate levels. However, the flood pumping stations need significant rehabilitations or replacements. Much of the pumping equipment in these stations is original, dating back to the early 1950s.

There was also a concern that the stations are no longer appropriately sized, given the increased frequency of intense storms. Our team performed condition assessments, determined current pumping capacity of each station, and evaluated needed capacities for five levels of service. Flood pumping station project components include replacements of pumps, motors, and electrical switchgear to improve reliability.

The completed plan identified \$4.3 billion in needed wastewater, stormwater, flood protection, and property management improvements over the next 20 years.



Section 3 – Qualifications of Staff

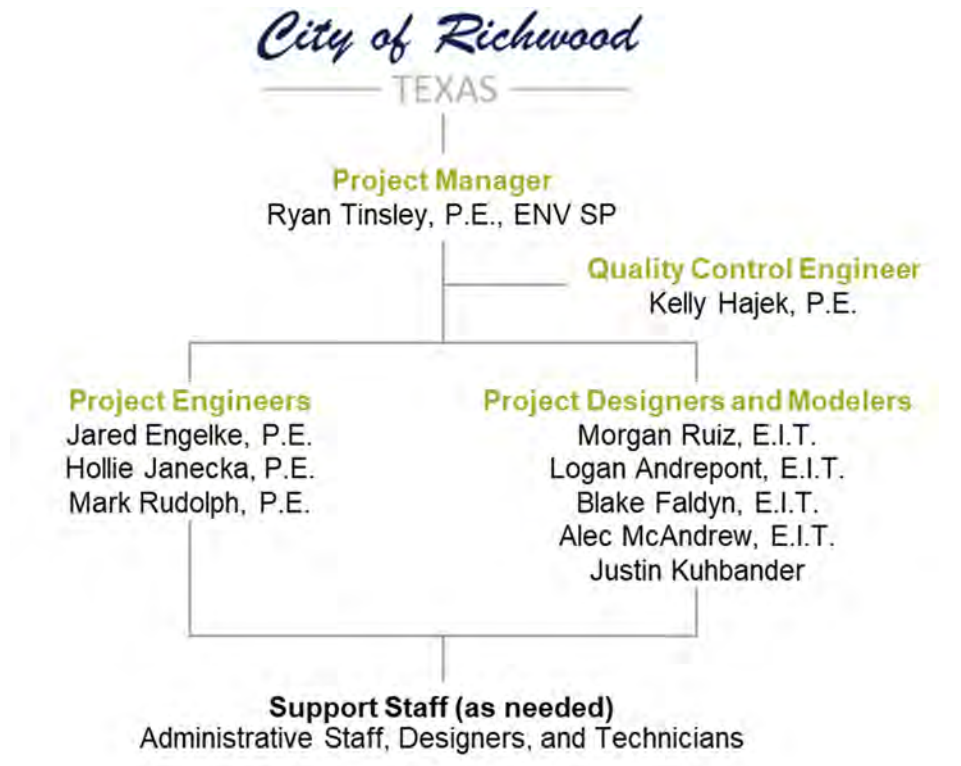
Team’s Record of Proven Performance Results in Technically Sound Solutions

This section provides information on the key personnel who comprise our project team. Engineering services for this project will be provided from our Brenham, Texas, office, which currently has a staff of 26. Our firmwide staff count is 495, and detailed information about our staff resources is provided in the *Qualifications* section.

Our team will be responsive to the City’s needs, provide smooth and effective communications, and capitalize on the talents of both in-house and client-team members. Ryan Tinsley, P.E., ENV SP; Kelly Hajek, P.E.; Jared Engelke, P.E.; Hollie Janecka, P.E.; and Mark Rudolph, P.E., are licensed Professional Engineers registered to practice in the state of Texas and, per the Texas Engineering Practice Act, are in good standing.

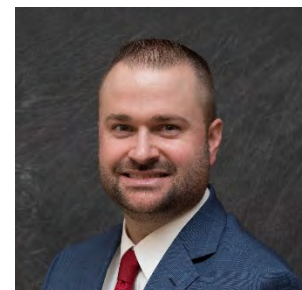
Below is an organizational chart of our team followed by a brief description of each team member and their potential role on this assignment. Full resumes are included at the end of this section.

Our team will be responsive to the City’s needs, provide smooth communication, and capitalize on the talents of both in-house and client-team members.



Project Manager

Ryan D. Tinsley, P.E., ENV SP, will serve as our Project Manager and will be responsible for communication with the City, staff coordination, and project administration. Ryan has 22 years of experience providing planning, design, and construction-related services. Ryan is the Director of Operations for the Brenham office as well as the Discipline Coordinator for the Municipal, Stormwater, Pumping-Conveyance, and Transportation Group. In these roles, Ryan provides operational support and oversight for a variety of projects ranging from smaller utility extensions to large water production projects.



Ryan has 22 years of engineering experience.



Examples of Ryan’s recent planning experience includes the City of Brenham Water Supply and Treatment Expansion Plan and 2023 Impact Fee Study for Water, Wastewater, and Roadways; the City of Sealy 2022 Utility Master Plans for Water, Wastewater, and Natural Gas; the Louisville-Jefferson County Metropolitan Sewer District 20-Year Comprehensive Plan (Ohio River Flood Protection System); and various Master Plans, Capital Improvement Plans, and Preliminary Engineering Studies for the cities of Richwood, Hearne, Hempstead, and Splendora, and the South Cleveland Water Supply Corporation. Additional design experience includes the City of Richwood North Water Plant; the City of Sealy Downtown Water Well and 2023 Rexville Road Water Plant; and the City of Brenham Baker Katz Lift Station, Stone Hollow Lift Station, and Ralston Creek Lift Station Elevation.

Quality Control Engineer

Kelly M. Hajek, P.E., has 20 years of experience and serves as the Sales Coordinator and Senior Project Manager for the Brenham office. Kelly has managed numerous water supply and storage, water distribution, sanitary sewer collection system, wastewater treatment plant, drainage system, street, sidewalk, generator, and commercial and educational land development projects, including federally funded projects. Kelly has experience working with many governmental agencies, including cities, counties, the Texas Department of Transportation (TxDOT), General Land Office (GLO), and the Texas Commission on Environmental Quality (TCEQ).



Kelly has 20 years of diverse experience and has completed many successful water and wastewater projects.

Kelly has managed and/or designed a wide variety of water and wastewater projects, including the City of Brenham Water Supply and Treatment Expansion Plan, Surface Water Treatment Plant Rehabilitation and Expansion, and 2023 Impact Fee Study for Water, Wastewater, and Roadways; City of Sealy 2018 Impact Fee Analysis; City of Hempstead Water and Sewer Evaluation; City of Bastrop 2018 TxCDBG Sanitary Sewer Improvements; City of Splendora TxCDBG Sanitary Sewer Improvements; multiple phases of the City of Brazoria CDBG Sanitary Sewer Rehabilitation; City of Snook 2019 TxCDBG Water Improvements; City of Brenham 2016 TxCDBG Church Street EST Rehabilitation, and several phases of the City of Brenham's Water Main Replacements over the past decade.

Project Engineers

Jared D. Engelke, P.E., has 17 years of experience in design, plan development, and construction staging management and administration on municipal and DOT urban and rural highway projects. Jared’s experience includes sidewalk and roadway improvement projects for various Texas communities. In addition, Jared has served as project engineer for numerous bridge reconstruction and rehabilitation projects, as well as site developments.



Jared has 17 years of engineering experience.

Jared’s recent project experience includes the City of Richwood GLO CDBG-MIT MOD Street, Drainage, and Water Main Improvements; City of Richwood 2021 Stormwater Master Plan Drainage Improvements – Phases 1 and 2; City of Brenham 2023 Impact Fee Study for Water, Wastewater, and Roadways; City of Hempstead Water and Sewer Evaluation and Impact Fee Study for Water and Wastewater; City of Bellville Impact Fee Study for Water and Wastewater; City of Eagle Lake AMI Water Meter Replacement; the Austin County-MIT MOD Roadway and Drainage Improvements; Washington County-MIT MOD Road and Bridge Replacement; Lee County CR 226 Bridge Replacement; City of Brenham 2016 GLO CDBG-MIT Drainage Improvements; City of Hempstead GLO CDBG-MIT City-wide Drainage Improvements; City of Brenham GLO CDBG-MIT MOD City Street and Drainage Improvements; Washington County Old Plantation Road Reconstruction, and City of Brenham Chappell Hill Road and Martin Luther King Jr. Parkway Reconstruction.



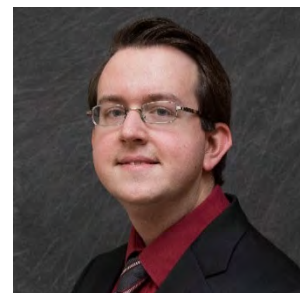
Hollie A. Janecka, P.E., has 8 years of engineering design experience and serves as the Discipline Coordinator for Water and Wastewater groups in our Brenham office. She has engineering experience working with AutoCAD Civil 3-D, StormCAD, SewerCAD, and GIS software to create construction drawings. She also has experience in commercial and residential land development, including design of site layouts, water main, drainage elements, roadways, and storm sewers. Hollie has experience working with many governmental agencies, including GLO, FEMA, and CDBG.



Hollie has 8 years of engineering experience.

Hollie’s recent water and wastewater project experience includes the City of Brenham Water Supply and Treatment Expansion Plan and Groundwater Supply Phase I; City of Hempstead Water and Sewer Evaluation; Tarkington Special Utility District Water CIP and Impact Fees; South Cleveland Water Supply Corporation Water Master Plan; City of Weimar Water Quality Study; City of Schulenburg Comprehensive Water Study; Chappell Hill Water Supply Corporation Water System Evaluation; City of Cleveland ARPA 2021 CLFRF New Elevated Storage Tank and 12-inch Water Line Improvements; City of Dayton Tram Road Booster Pumping Station, Rosewood Booster Pumping Station and Water Well, Southwest Sanitary Sewer Rehabilitation, and 2016 FM 1960 12-inch Water Line Extension; City of Schulenburg 2019 Street and Utility Improvements and 2018 Water and Sewer Improvements; and the City of Somerville 2021 Street, Water, and Sanitary Sewer Bond Improvements.

Mark A. Rudolph, P.E., has been involved in the design of various municipal, water, wastewater, natural gas distribution, and GIS projects. He has also been involved in the preparation and submission of TCEQ applications for renewal and amendment of wastewater and stormwater permits. Mark has extensive experience with state and federal funded projects, as well as coordination with state agencies, including the TCEQ, TWDB, and Texas RRC.

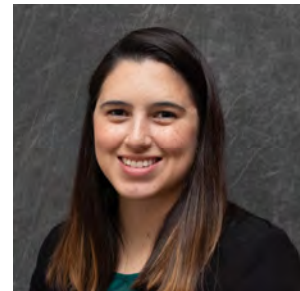


Mark has 6 years of engineering experience.

Mark’s recent project experience includes the City of Sealy 2022 Impact Fee Analysis and TxCDBG Sewer Replacement; Central Washington County Water Supply Corporation TWDB Water Plant, New Standpipe, and New Water Well; and the City of Brazoria GLO Wastewater Treatment Plant (WWTP) Rehabilitation, Trunk Sewer Line Replacement, CDBG Force Main Extension, CDBG Sewer Replacements, Highway 36 Sewer Replacement, Railroad Water Line Crossing, and Elevated Storage Tank and Ground Storage Tank Rehabilitation.

Project Designers and Modelers

Morgan E. Ruiz, E.I.T., joined our firm in 2019 and has experience designing groundwater treatment plants, distribution line extensions and improvements to existing systems, and sanitary sewer collection projects. Other experience includes analysis of when water system improvements are needed to remain in compliance with TCEQ standards based on future expected development and water system modeling software. She also has experience working on TxCDBG and GLO funded projects. Morgan has performed construction management services on many projects.



Morgan has 4 years of engineering experience.

Morgan’s recent project experience includes the City of Richwood North Water Plant, CDBG-DR Pipe Bursting, and Sanitary Sewer Replacement; City of Brenham 2023 Impact Fee Study for Water, Wastewater, and Roadways, Water Source Evaluation, and Groundwater Wells – Phase 1; City of Sealy 2022 Utility Master Plans and Impact Fees and Utility Rate Study; City of Hempstead Water and Sewer Evaluation; Tarkington Special Utility District Water CIP and Impact Fees; City of Sweeny GLO CDBG-MIT Sanitary Sewer Improvements; City of El Campo ARPA Water Improvements; City of Woodbranch Village TWDB Water Plant; and City of Snook TxCDBG Water Storage Tank.

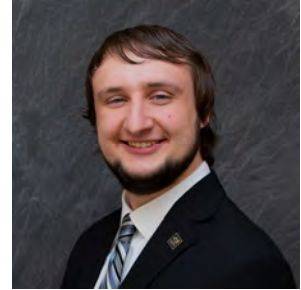


Logan G. Andrepont, E.I.T., joined our firm in 2019 and has broad municipal engineering experience, including design of sanitary sewers, water mains, and roadways. Logan has also performed RPR services on many projects. Logan’s recent project experience includes the City of Richwood North Water Plant Water Main Extensions; City of Huntsville 2022 Sanitary Sewer Improvements; City of Caldwell ARPA Sanitary Sewer Improvements and GLO CDBG-MIT Hurricane Harvey Street, Drainage, Sanitary Sewer, and Lift Station Improvements; City of Rockdale GLO CDBG-MIT Ham Branch Watershed Drainage Improvements; City of Sealy 2019 TxCDBG Sewer Improvements; City of Brenham Ralston Creek Lift Station Improvements, Munz Lift Station Replacement, and Old Chappell Hill Road Improvements; and City of Brazoria 2021 CDBG Force Main Extension.



Logan has 5 years of engineering experience.

Blake E. Faldyn, E.I.T., received a B.S. in Civil and Environmental Engineering from Texas A&M University and joined our firm in 2021. Blake has diverse municipal experience, including water distribution, water modeling, impact fees, and sanitary sewer collection. Blake has also performed RPR services on many projects.



Blake has diverse design, construction administration, and RPR experience.

Blake’s recent project experience includes the City of Richwood ARPA South Water Plant; City of Sealy 2022 Utility Master Plans and Impact Fees; City of Hempstead Water System Model Development; City of Brenham Water System Model Development; Tarkington Special Utility District Water CIP and Impact Fees; and City of Sealy ARPA Sanitary Sewer Improvements and ARPA Lift Station Improvements.

Alec S. McAndrew, E.I.T., received a B.S. in Environmental Engineering from the University of Texas at Austin and joined our firm in 2023. Alec’s recent water and wastewater project experience includes the City of Brenham Surface Water Treatment Plant Rehabilitation and Expansion, 2023 Impact Fee Study for Water, Wastewater, and Roadways, and ARPA WWTP Improvements; City of Brazoria GLO WWTP Improvements; and City of Luling WWTP Sludge De-Watering and Water Reclamation Study.



Alec has recent water and wastewater project experience.

Justin M. Kuhbander has 14 years of experience analyzing hydraulic and hydrologic networks using SWMM, PC-SWMM, HydroCAD, InfoWorks, and HEC-RAS. Justin has experience calibrating hydraulic and hydrologic models used to analyze various alternatives to address capacity issues and mitigate CSOs and SSOs in Texas, Ohio, Michigan, Kentucky, and Indiana. He also has experience managing flow monitoring programs in support of the hydraulic model development. Justin is a registered Professional Engineer in Ohio and works in our Cincinnati office.



Justin has 14 years of engineering experience.

Justin has been involved in the site selection, installation and maintenance of the flow monitors as well as performing quality control of the flow monitoring data both in the office and in the field. Justin also has experience designing storm and sanitary collection systems, including gravity sewer, pump stations, and force mains, which enables him to provide support on projects from start to finish.

Justin has familiarity with the City of Richwood, most recently reviewing flow monitoring data to suggest an approach to reduce infiltration and inflow within the City’s sanitary collection system.



Resumes

Project Manager

Ryan D. Tinsley, P.E., ENV SP

Quality Control Engineer

Kelly M. Hajek, P.E.

Project Engineers

Jared D. Engelke, P.E.

Hollie A. Janecka, P.E.

Mark A. Rudolph, P.E.

Project Designers and Modelers

Morgan E. Ruiz, E.I.T.

Logan G. Andrepont, E.I.T.

Blake E. Faldyn, E.I.T.

Alec S. McAndrew, E.I.T.

Justin M. Kuhbander, P.E.

Ryan D. Tinsley, P.E., ENV SP

AREAS OF EXPERTISE

- Water Conveyance and Production
- Wastewater Collection and Treatment
- Flood Pumping and Protection
- Roadway, Streetscape and Trails
- Bridge and Culvert Replacements
- Land Acquisition

PROFESSIONAL EXPERIENCE

Ryan serves as the Director of Operations for our Brenham office, responsible for developing staff and providing technical oversight on a variety of projects. Ryan is also the Discipline Coordinator for the Brenham office's Municipal, Stormwater, Pumping-Conveyance, and Transportation group. Ryan oversees the group's efforts on projects ranging from smaller utility replacements to larger transportation projects.

Water Conveyance and Production experience includes water lines and transmission mains up to 42 inches in diameter and totaling over 150 miles in length, booster pumping stations up to 30 MGD, water storage tanks up to 3 million gallons, and groundwater wells.

- **Impact Fee Studies, Utility Master Plans, Capital Improvement Plans, and Preliminary Engineering Studies, Texas** – Project Manager for plans prepared for the Cities of Richwood, Brenham, Hearne, Sealy, and Splendora, and Quality Control Engineer for plans prepared for the Cities of Hempstead and Magnolia, and the South Cleveland Water Supply Corporation.
- **North Water Plant – City of Richwood, Texas** – Project Manager for a \$4M project to construct a 600 GPM water well, a 350,000-gallon ground storage tank, a 1,500 GPM booster pumping station, and 5,980 LF of 12-, 8-, and 6-inch water main extensions to improve both water supply and water pressures within the northern parts of the City's distribution system.
- **Downtown Water Well and Raw Water Main – City of Sealy, Texas** – Project Manager for the design and construction of a 1,500 GPM water well with 2,000 LF of 10-inch raw water main connecting the well site to the Silliman Road Water Plant to improve water supply and redundancy within the City's water distribution system.
- **Rexville Road Water Plant – City of Sealy, Texas** – Project Manager for the design and construction of a 1,500 GPM water well, a 500,000-gallon ground storage tank, and a booster pumping station to improve water supply and redundancy within the City's water distribution system.
- **FY2019 Water Main Replacements – City of Brenham, Texas** – Project Manager for the installation of 11,365 LF of 8-, 6-, and 4-inch water main to upsize and replace the City's aging cast iron and asbestos cement water mains. Replacements were primarily located under streets in downtown Brenham and throughout Blinn College.
- **Downtown Water Main Replacement – City of Sealy, Texas** – Project Manager for a \$2.6M project to install 11,360 LF of 12-, 8-, 6-, and 4-inch water main to upsize and replace the City's aging water mains on Main Street, Silliman Street, and Fowlkes Street. Replacements also included bores under three different railroads and two TxDOT highways.
- **Sunrise Water Transmission Main Rehabilitation and Booster Pumping Station Replacement – City of Portsmouth, Ohio** – Project Manager for this project to rehabilitate 5,240 LF of 30-inch cast iron main that is nearly 100 years old. The transmission main conveys potable water from the water plant to the 20.75 MGD Sunrise Reservoir. The project slip-lined the cast iron main with 3,950 LF of 24-inch HDPE pipe with the remaining sections replaced with 24-inch ductile iron pipe. The existing Sunrise Booster Pumping Station was also replaced with a prepackaged booster pumping station.
- **Northern Division Connection, Phases 1, 2 and 3 – Kentucky-American Water, Kentucky** – Project Manager for a \$14M project to construct 84,100 LF of 16-inch water transmission main, 20,300 LF of 6-inch water main extensions, a 2 MGD pre-

YEARS OF EXPERIENCE

22

YEARS WITH FIRM

19

EDUCATION

B.S. Civil Engineering – University of Louisville, Kentucky, 2004

M. Eng. Civil Engineering – Structural Emphasis, University of Louisville, Kentucky, 2005

REGISTRATION

Professional Engineer in Kentucky and Texas

CERTIFICATIONS

Envision Sustainability Professional

Ryan D. Tinsley, P.E., ENV SP



packaged booster pumping station, a 600,000-gallon elevated water storage tank with mixing system, a 300,000-gallon elevated water storage tank with an altitude valve, and four pressure reducing valves.

Wastewater Collection and Treatment

experience includes over 50 miles of gravity sewers and force mains up to 30 inches in diameter, pumping stations up to 20 MGD, and wastewater treatment plant upgrades.

- **Baker Katz Development Sanitary Sewer Improvements – City of Brenham, Texas** – Project Manager for a \$1.1M project to construct 6,900 LF of 12-, 10-, and 8-inch gravity sanitary sewer, 2,720 LF of 6-inch force main, three aerial creek crossings, a new 380 gpm lift station (900-gpm ultimate capacity), and an emergency generator. The project was constructed across a City-owned park property to serve a proposed commercial development, future residential development, and the Brenham State Supported Living Center.
- **Stone Hollow Lift Station Replacement – City of Brenham, Texas** – Project Manager for a \$2.1M project to construct 1,600 LF of 16-inch, 15-inch, and 8-inch gravity sanitary sewer, 1,950 LF of 12-inch force main, an aerial creek crossing, and a new 1,590 gpm triplex lift station. The project was constructed in heavily developed residential and commercial areas.
- **Nolin River Watershed Sewer Infrastructure – Hardin County Water District No. 2, Kentucky** – Construction Services Coordinator for this project to sewer the Nolin River Watershed, including the historic Town of Glendale and a planned 1,550-acre industrial development park. The project installed nearly 140,000 LF of gravity sewers and force mains, four regional pumping stations, 16 stream crossings, two railroad bores, and 30 road crossings (including a bore under I-65) to convey flows to a regional wastewater treatment plant just south of Elizabethtown.
- **Jeffersontown Force Main – Louisville-Jefferson County Metropolitan Sewer District, Kentucky** – Project Manager for a \$6M project that consisted of 27,000-linear feet of 24-inch force main, 14 combination

air valve assemblies, three state highway bores, one railroad bore, and 52 easements. The force main was constructed through heavily developed residential and commercial areas.

- **Roberts Drive and Sixth Street Pump Station Improvements – City of Ashland, Kentucky** – Lead Design Engineer for the replacement of the Sixth Street Pump Station and force main improvements. This \$7M construction project consisted of the replacement of two sanitary pumping stations (totaling 1,500 HP) with variable frequency drives to provide a 20 MGD total pumping capacity. Additionally, 3-miles of 20-inch and 30-inch force main was constructed through heavily developed residential and commercial areas.

Flood Pumping and Protection experience includes planning and construction-related services for flood pumping stations ranging from 51 to 4,155 MGD in pumping capacity for the Louisville Metropolitan Sewer District.

- **20-Year Comprehensive Facilities Plan – Louisville-Jefferson County Metropolitan Sewer District, Kentucky** – Technical lead and writer for the flood protection volume of the plan, evaluating each of MSD's 16 flood pumping stations for needed reliability, capacity, and electrical redundancy improvements. The evaluation considered current level of service, rainfall atlas updates, level of development, increased frequency of extreme storms, and secondary power alternatives. The evaluation recommended 34 projects and annual allocations totaling over \$466M to improve the reliability and capacity of MSD's flood pumping stations, floodwalls, and levees.

AWARDS AND HONORS

- American Society of Civil Engineers
 - Distinguished Service Award, 2019
 - KY Young Engineer of the Year, 2014
 - KY Young Engineer of the Year, 2012

Kelly M. Hajek, P.E.

AREAS OF EXPERTISE

- Federally Funded Projects
- Sanitary Sewer
- Utility Relocation Coordination
- Water Storage Tanks
- Stormwater
- Construction Management

PROFESSIONAL EXPERIENCE

Kelly joined O'Malley Engineers (now Strand Associates, Inc.®) in October 2006. O'Malley Engineers was acquired by Strand Associates, Inc.® in 2015.

Kelly has performed deed research, construction inspection, drafting, estimating, and engineering design. Kelly works on projects throughout all phases of work, including bid, design, construction management, and project management. She has performed engineering design for water distribution, sanitary sewer collection, paving and drainage and commercial and educational land development projects.

Her current duties consist of engineering design and construction management and project management. Kelly has worked with many governmental agencies, including Cities, Counties, the Texas General Land Office (GLO), TxDOT, and the TCEQ.

- **Impact Fee Studies, Texas** – Quality Control Engineer for the City of Brenham and City of Hempstead Impact Fee Studies.

Water Supply and Treatment experience:

- **Surface Water Treatment Plant Rehabilitation and Expansion, Brenham, Texas** – Project Manager for the design, bid, and construction of the City's Surface Water Treatment Plant (WTP). The project includes the expansion of the low lift pump station; rapid mix following the injection of coagulants and polymers; addition of tube settlers to the existing clarifiers; new solids contact basin; rehabilitation of the four existing filters basins; addition of two new filters' addition of transfer pumps; addition of high service pumps; chemical feed modifications; a new standby generator; and SCADA system improvements. This project is currently in preliminary design and is anticipated to bid in the spring of

2025. The project is anticipated to be completed by late 2027.

- **Water System Evaluation, Chappell Hill Water Supply Corporation, Texas** – Served as the project engineer for a study of water system infrastructure, including storage tanks, booster pumps, and water mains, as well as evaluation of future improvements to the system based on current and future needs identified by CHWSC.
- **Water Supply and Treatment Expansion Plan, Brenham, Texas** – Project Manager for a study of the City's water supply and treatment facilities to assist the City in preparing for unprecedented growth. The study assessed population projections and water demands for the years 2042, 2062, and 2082. We also evaluated portions of the facility that required rehabilitation and the best way to expand the facility at the existing site. The study also included evaluation of groundwater within the City, near the Lake, and near Chappel Hill by a groundwater hydrologist. Based on the cost opinions for a second raw water main and the groundwater study, the City decided to further evaluate a second supply via groundwater. This evaluation looked at four alternatives for supply and treatment. Two of the alternatives centered around groundwater wells with treatment that would tie into the water distribution system. The other two alternatives assessed expansion of the WTP to 8.35 MGD via conventional treatment methods or a combination of low- and high-pressure membrane filtration combined with conventional treatment methods.
- **Groundwater Supply Phase I, Brenham, Texas** – Project Manager for design- and construction-phase services for the rehabilitation and testing of an existing water well in the Jasper Aquifer. The

YEARS OF EXPERIENCE

20

YEARS WITH FIRM

17

EDUCATION

B.S. Civil Engineering – Texas A&M University, 2004

REGISTRATION

Professional Engineer in Texas

Kelly M. Hajek, P.E.

project also includes the construction of a new well in the Catahoula Aquifer on the same site. The project will conclude with a blending study to determine treatment required to blend the well water with the City's existing distribution system, that is supplied by treated surface water, before moving into Phase II. Phase II will include design and construction of groundwater treatment facilities.

Utility experience:

- **Utility Extensions to Box Store at FM149 and FM1488, City of Magnolia, Texas** – Design, bid, and construction phase services of approximately 4.6 miles of 16-inch water main, 1.6 miles of 15-inch gravity sanitary sewer, two sanitary sewer lift stations, and 1.1-mile of sanitary sewer force main.
- **TCF Utility Extensions and New Sidewalk, City of Sealy, Texas** – Project Manager for gas main, water main, and sanitary sewer main extensions and a four-foot-wide concrete sidewalk for a new development near the intersection of FM3538 and the IH-10 Frontage Road in the City of Sealy. This project was funded with grant funds.
- **Business Center Sanitary Sewer Extension, City of Brenham, Texas** – Project Manager for the design, bid, and construction phases of a sanitary sewer extension to serve several lots within the City's Business Center. The extension includes approximately 3,000 LF of 8" gravity sanitary sewer, approximately 600 LF of 4" force main, and a 126 gpm lift station.
- **Sika Lift Station and Sanitary Sewer, City of Sealy, Texas** – Project Manager for the plan development, design, bid, and construction-phase services for installing approximately 1,500 feet of gravity sewer, a 320-gpm lift station, and approximately 2 miles of force main sewer.
- **FM 1960 12-inch Water Line Extension, City of Dayton, Texas** – Project Manager for the design and construction phase of approximately 4,000 LF of 12-inch water line extension. The project included bores across FM 1960 and bores under four natural gas pipelines.

Wastewater experience:

- **Wastewater Treatment Plant Permit Major Amendment, City of Hempstead, Texas** – Project Manager for the major amendment to the City of Hempstead's existing wastewater treatment plant's discharge permit. The City is seeking a major amendment for the expansion of their facility due to rapid growth.
- **Greenbrier Sewer Extension, City of Bryan, Texas** – Project Engineer for the design and construction phase of approximately 1,295 LF of 24-inch gravity sanitary sewer extension. The sanitary sewer line was constructed of ductile iron due to shallow depths of cover. The project also included the installation of two aerial creek crossings.
- **Wastewater Treatment Plant Evaluation, City of Snook, Texas** – Project Manager for the evaluation of the City's existing wastewater treatment facility. The facility was evaluated based on condition and capacity. It was determined through this evaluation that the City would expand their facility and decommission the existing treatment units.
- **2.0 MGD WWTP Expansion – Sealy, Texas** – Project Engineer for the design of the WWTP expansion in response to growth within the city. The new WWTP is a dual train activated sludge system with a new influent pumping station and headworks with screening and grit removal, new high efficiency blowers, aerobic digestion, belt filter press dewatering, chlorine disinfection, a new control building, and a 750kW diesel powered generator.

PROFESSIONAL AFFILIATION

- Texas Society of Professional Engineers
- Chi Epsilon (Civil Engineering Honor Society)
- Tau Beta Pi (Engineering Honor Society)
- Water Environment Association of Texas (WEAT)

Jared D. Engelke, P.E.

AREAS OF EXPERTISE

- Roadway Design
- Drainage Design
- Studies
- Plan Preparation
- Construction Observation
- Owner and Agency Coordination
- Utility Design

PROFESSIONAL EXPERIENCE

Jared has been with our firm for 17 years. He has extensive municipal and transportation engineering experience on a wide variety and complexity of projects. His recent experience is listed below.

Transportation/Municipal experience:

- **MIT MOD Street Reconstruction and Water Main Improvements, City of Richwood, Texas** – Project Manager for the design and construction for reconstruction of three city streets and replacement and addition of water main. Reconstruction of the existing concrete streets will include drainage enhancements. Construction is anticipated to begin in 2024.
- **2021 Stormwater Master Plan Drainage Improvements – Phases I and II, City of Richwood, Texas** – Project Manager for the design and construction of citywide drainage improvements. The improvements primarily consisted of expanding and concrete lining existing drainage ditches. This project was completed in 2022. The construction cost was \$1.3 million.
- **2020 Richwood Street Improvements, City of Richwood, Texas** – Project Manager for the plan development, design, and reconstruction of 10,000 feet of residential street repairs and the addition of 2,500 feet of new sidewalk. The construction cost was \$1.5 million, and the project was completed in early 2022.
- **South Yaupon Sidewalk Project, City of Richwood, Texas** – Project Manager for the design of approximately 2,000 feet of sidewalk for the City of Richwood. The intent of the project is to provide a continuous pedestrian route from the eastern half of the city to Gladys Polk Elementary School. The sidewalk is in residential areas and involves new and replacement sidewalk, the addition of pedestrian ramps, and the replacement of an existing pedestrian bridge.

The project was designed to comply with Richwood City and ADA standards, as well as stay within the existing City right of way.

- **Impact Fee Studies, Texas** – Project Manager for City of Hempstead and City of Bellville Impact Fee Studies. Roadway Impact Fee Study Lead for City of Brenham.
- **MIT MOD Roadway and Drainage Improvements, Austin County, Texas** – Project Manager for the design-, bid-, and construction-phase services for roadway and drainage improvements to four sections of roadway, including a bridge replacement, and the rehabilitation of approximately 1.5 miles of an existing drainage channel. The projects are located throughout the county and are currently in the application phase. Design is anticipated to begin this winter and construction is anticipated to begin in 2024.
- **MIT MOD Road and Bridge Replacement – Washington County, Texas** – Project Manager for the design-, bid-, and construction-phase services for the realignment of Meyersville Road, including the replacement of an existing bridge. The newly constructed roadway and bridge will be elevated to be above the 100-year storm event. The project is currently in the application phase. Design is anticipated to begin in 2024.
- **MIT MOD Street Reconstruction and Drainage Improvements, City of Brenham, Texas** – Project Manager for the design and construction for reconstruction of two city streets. Reconstruction of the existing asphalt streets will include drainage enhancements. The project is currently in the application phase. Design is anticipated to begin this winter and construction is anticipated to begin in 2024.

YEARS OF EXPERIENCE

17

YEARS WITH FIRM

17

EDUCATION

B.S. Civil/Environmental Engineering – University of Wisconsin-Madison, 2007

Technical Communication Certificate – University of Wisconsin-Madison, 2007

REGISTRATION

Professional Engineer in Texas and Wisconsin

Jared D. Engelke, P.E.



- **GLO and FEMA Mitigation CR 226 Bridge Replacement, Lee County, Texas** – Project Manager for the design and construction of a new bridge on CR 226. This will include an H&H study of the drainage area to determine a new higher elevation for the bridge. New roadway approaches will also be constructed to a high elevation to avoid road closure during heavy rain events. Design has begun and construction is anticipated to begin in 2024.
- **2016 GLO CDBG-MIT Drainage Improvements, City of Brenham, Texas** – Project Manager for the design and construction for approximately 5,800 linear feet of streambank restoration/stabilization on Hogg Branch. This project is currently in the preliminary design phase and anticipated to bid in 2024. Construction cost is anticipated to be approximately \$2.8 million.
- **GLO CDBG-MIT City-wide Drainage Improvements, City of Hempstead, Texas** – Project Manager for the design and construction of citywide drainage improvements. This project includes reshaping of existing ditches, appropriately sizing culvert pipes, and hydrologically enhancing an existing drainage channel. The project is currently out for bid. Construction cost is anticipated to be approximately \$7.7 million.
- **2021 TDA Street Improvements, City of Todd Mission, Texas** – Project Manager for street reconstruction of three streets. The construction cost was approximately \$300,000 and the project was completed in summer 2023.
- **2022 Pavement Asset Assessment, City of Eagle Lake, Texas** – Project Manager for a pavement asset assessment conducted with the Director of Public Works. We drove each street in the city to perform a visual inspection of pavement conditions. We used Pavement Surface Evaluation Rating (PASER) guidelines to rate each street segment on the PASER rating scale of 1 to 10. The results were compiled and mapped for the City in GIS, with maps provided for use by the City in determining which roads need basic maintenance, major maintenance, or reconstruction. Rehabilitation and

reconstruction options and cost opinions were provided for street segments with a PASER rating of 4 or less.

- **Old Plantation Road Improvements – Washington County, Texas** – Project Manager for the design and reconstruction of approximately 1.2 miles of Old Plantation Road near Chappell Hill, Texas. Improvements include rehabilitation of an existing bridge. The construction cost was \$288,000 and the project was completed in 2023.
- **Drain Line Repair, Aransas County Airport, Texas** – Project Manager for the design and construction of a storm sewer line experiencing failures. The pipe failures are under existing taxiway pavement. The project is currently under construction.
- **2020 DRP Austin Street Sidewalk and Drainage Project, City of Hempstead, Texas** – Project Manager for this \$450,000 Texas Department of Agriculture grant construction project. This project is located on the north and south sides of Austin Street (State Highway 159), with spot improvements on 11th Street and Bremond Street. The project includes demolition of existing concrete sidewalk and curb and gutter and the installation of new concrete sidewalks, ADA compliant ramps, decorative and enhanced lighting, replacement and installation of existing storm sewer, and related appurtenances.
- **Old Chappell Hill Road and FM 577 Intersection, City of Brenham, Texas** – Project Manager for the design and reconstruction of approximately 1,500 feet of Old Chappell Hill Road east of FM 577 and intersection improvements at FM 577. The roadway and intersection were widened, and the pavement was upgraded from asphalt to concrete. The construction cost was approximately \$730,000 and the project was completed in early 2022.

PROFESSIONAL AFFILIATIONS

- American Society of Civil Engineers

Hollie A. Janecka, P.E.



AREAS OF EXPERTISE

- Utility Engineering
- Stormwater Analysis
- Land Development
- Federally Funded Projects
- Construction Management
- Water Storage Tanks

PROFESSIONAL EXPERIENCE

Hollie joined Strand Associates, Inc.[®] in 2016, and has performed various engineering tasks, including design services, construction inspection, drafting, estimating, and construction management. She has been involved throughout all phases of work, including design, bid, construction management, and project management. Hollie has performed engineering design for water supply and distribution, sanitary sewer collection, storm sewer, water main, site layout and grading, and roadway construction. She has engineering design experience using AutoCAD Civil 3D, StormCAD, SewerCAD, and GIS software to create and modify construction drawing. She has worked with many governmental agencies, including Cities, Counties, the Texas General Land Office (GLO), TxDOT, and the TCEQ.

Drainage experience:

- **Stormwater Management Master Plan, City of Richwood, Texas** – Project Engineer who assisted in identifying and preparing cost opinions for various alternatives for preparation of a community-wide Stormwater Management Master Plan to evaluate measures to relieve long-standing flooding and drainage issues in the city. The master plan, completed in 2021, included development of a long-term stormwater and drainage capital improvement project budget and plan, including exploring potential sources and methods of funding assistance.

Water Supply experience:

- **12-Inch Water Line Improvements, City of Cleveland, Texas** – Project consists of installing approximately 2,200 LF of 12-inch water distribution line along Birch Street and James Avenue to replace older lines and provide adequate water pressure to the northwest area of the City. The work includes several tie-ins to existing water lines, fire hydrant installations, service connections, abandonment of existing water lines and

related appurtenances. The project went to the bidding phase and began construction in spring 2023.

- **ARPA 2021 CLFRF New Elevated Storage Tank, City of Cleveland, Texas** – Design and construction phase services for a new 500,000-gallon steel multilegged elevated storage tank to be constructed to provide water supply to a new elementary and middle school on the northwest side of the City. A water model was done to verify adequate supply and distribution consumptions during fire flow and peak demand situations. This project includes new 12-inch water piping, an altitude valve system, a mixing system to prevent stagnant water, site grading and an asphalt driveway.
- **GLO CDBG-DR 14-inch Water Line, City of La Grange, Texas** – Project consists of about a mile of new 14-inch water line travelling from an existing pumping station to an existing elevated storage tank that will tie-in water services, replace existing smaller lines, and provide adequate pressure and capacity for La Grange’s water system. Flooding from Hurricane Harvey caused the water well along the route to go out of service and significantly diminished water service in La Grange.
- **Water Master Plan, South Cleveland Water Supply Corporation, Cleveland, Texas** – Modeled the Corporation’s water system via WaterGEMS and studied the system’s existing capacity. Inserted future development into the model to show problem areas and developed a 20-year plan to help future expansion.
- **2017 USDA-RD Distribution Improvements, Tarkington Special Utility District, Tarkington, Texas** – Construction-phase services for installation of two new 150,000-gallon

YEARS OF EXPERIENCE

8

YEARS WITH FIRM

8

EDUCATION

B.S. Civil Engineering
Texas A&M University, 2016

REGISTRATION

Professional Engineer in
Texas

Hollie A. Janecka, P.E.



elevated storage tanks, pump station improvements from the two tanks, and replacement and new installation of water line to serve the community. This project consisted of corresponding with TxDOT to get the lines and new connections constructed properly. It also corresponded with three different contractors that needed to work together to get the system operating efficiently. This required good communication throughout the year-long construction duration.

- **Water Quality Study, City of Weimar, Texas** – Analyzed the City’s water system to evaluate its red water issue. After studying the water samples and becoming familiar with the City’s system, we wrote a report with recommendations to reduce redness.
- **Comprehensive Water Study, City of Schulenburg, Texas** – Analyzed the City’s water capacity and distribution system via Water GEMS and came up with a 30-year plan to help the future expansion of the City. This included lots of correspondence with the City to understand its system.
- **Tram Road Booster Station, City of Dayton, Texas** – Design-phase services for a new booster pumping station, ground storage tank, rehabilitation of water well and related piping. Design of the project is complete, but the City has put the construction on hold.
- **2016 FM 1960 12-inch Water Line Extension, City of Dayton, Texas** – Design and construction-phase services for installation of approximately 4,000 linear feet of 12-inch water lines to serve many residential and commercial customers. The project also included two bores across FM 1960 and an approximate 12-foot deep bore underneath four main gas lines.

Wastewater Collection System experience:

- **Babylon Lane Wastewater Treatment Plant Facilities Planning, City of Schulenburg, Texas** – Obtaining sampling and reviewing data for the collection system. Preparing a facilities plan from the data and forecasts for future demands to provide a summary for the possible future wastewater treatment plant.

- **0.175 MGD WWTP, City of Snook, Texas** – Design-phase services for the WWTP expansion in response to a new development within the city. The expansion took place at the existing treatment plant site. The existing WWTP will remain operational until the new expansion is in service. The new WWTP is an Aero-Mod package plant that includes blowers, pumps, and all ancillary equipment and appurtenances. The Aero-Mod unit is suitable to provide adequate nutrient removal to meet the TCEQ’s effluent criteria. The existing drying beds will remain in place to operate with the new upgraded plant. There will also be a new administration building with control, office, and chlorination rooms.
- **2.0 MGD Wastewater Treatment Plant (WWTP) Expansion, City of Sealy, Texas** – Construction-phase services for a new WWTP. The project includes installation of an operations building, treatment module with two clarifiers, blower building, belt filter press, and two detention ponds. This project was completed in 2020.

Additional experience:

- **Water and Sanitary Sewer System Capacity and Conveyance Evaluation and Impact Fees – City of Hempstead, Texas** – Evaluate the City’s existing water and sanitary sewer system and identify capital improvements needed for the City’s water and sanitary sewer facilities. The project also includes the development of impact fees associated with the capital improvements and development of a Citywide water model.

PROFESSIONAL AFFILIATIONS

- Texas Society of Professional Engineers, Brazos Chapter Treasurer

Mark A. Rudolph, P.E.

AREAS OF EXPERTISE

- Wastewater Collection and Treatment
- Water Storage and Distribution
- Wastewater Permitting
- Geographic Information Systems (GIS)
- Natural Gas Distribution

PROFESSIONAL EXPERIENCE

Mark joined our firm in July 2018, with a Masters' degree from Texas A&M University. His primary focuses are water, wastewater, and natural gas distribution. Mark has experience with all phases of a project's lifespan, including design services, bid-related services, and construction management.

Wastewater Treatment Plant experience:

- **ARPA WWTP Improvements, City of Brenham, Texas** – Currently performing design, bidding, and construction phase services for improvements to the City's WWTP, including rehabilitation of a decommissioned treatment unit and blowers, and conversion of a chlorine disinfection system to UV disinfection.
- **WWTP Improvements, City of El Campo, Texas** – Currently performing design, bidding, and construction phase services for this project, including improvements to the plant's aeration system, installation of a new belt filter press, and replacement of the effluent weir and old aeration piping.
- **Various WWTP Permit Amendments and Renewals, Texas** – Prepared and submitted applications to the TCEQ to renew/amend permits for over 20 facilities across the State of Texas. Permits include TPDES discharge permits, sludge permits, and stormwater permits for WWTP facilities.
- **North and South WWTP Sludge Dewatering Study, City of Luling, Texas** – Currently performing an evaluation of multiple equipment alternatives to replace the current sludge drying beds at two WWTPs. The study also includes evaluation of a new reclaimed water system for the City's South WWTP.
- **Various WWTP Studies, Southwest Water Corporation, Texas** – Currently performing services related to condition and

capacity evaluations for 5 WWTP facilities in the greater Houston area.

- **Ultraviolet (UV) Disinfection Study, City of Brenham, Texas** – Performed evaluation for replacement of City's current chlorine disinfection system at the WWTP with a UV disinfection system.

Wastewater Collection System experience:

- **Trunk Sewer Line Replacement, City of Brazoria, Texas** – Performed design, bidding, and construction phase services related to installation of approximately 10,000 LF of 18- and 20-inch sanitary sewer main, directly upstream of the City's WWTP.

Water Treatment and Storage experience:

- **Water System Evaluation, Chappell Hill Water Supply Corporation, Texas** – Performed a study of water system infrastructure, including storage tanks, booster pumps, and water mains, as well as evaluation of future improvements to the system based on current and future needs identified by CHWSC.
- **Texas Water Development Board (TWDB) Water Plant, New Standpipe, and New Water Well, Central Washington County Water Supply Corporation, Texas** – Performed construction phase services for installation of a new water well, expansion of an existing water plant, and installation of a new standpipe. Coordinated with the TWDB to comply with grant program requirements.

Water Distribution System experience:

- **Rosenberg ARPA Water Line Improvements, City of Rosenberg, Texas** – Currently performing design, bidding, and construction phase services for the installation of approximately 8,000 linear feet of PVC water main.

YEARS OF EXPERIENCE

6

YEARS WITH FIRM

6

EDUCATION

M.E. Civil Engineering – Texas A&M University, 2018

B.S. Petroleum Engineering – Texas A&M University, 2016

REGISTRATION

Professional Engineer in Texas

Mark A. Rudolph, P.E.



- **Highway 36 Water Main Extension, City of Sealy, Texas** – Performed design, bidding, and construction phase services related to installation of approximately 4,000 LF of 12- and 14-inch PVC and HDPE water main.
- **Water Main Replacements, City of Brenham, Texas** – Performed design, bidding, and construction phase services related to installation of approximately 11,000 LF of 6- and 8-inch PVC water main.

GIS experience:

- **Lead and Copper Service Line GIS Layer Development, City of El Campo, Texas** – Currently performing services related to creation of a new layer for the City's web-based GIS system to show locations of known lead water services lines.
- **Water and Sanitary Sewer GIS Database Development, City of Luling, Texas** – Currently performing services related to creation of a new GIS database for the City's drinking water and sanitary sewer infrastructure.
- **Web Based GIS Water System Map Development, Central Washington County Water Supply Corporation, Texas** – Performed services relating to preparation and troubleshooting of a web-based GIS map of the WSC's water system. Services included training WSC personnel on day-to-day use of the web-based application.

Morgan E. Ruiz, E.I.T.

AREAS OF EXPERTISE

- Water Supply and Distribution
- Utility Engineering
- Water Wells
- TCEQ Compliance

PROFESSIONAL EXPERIENCE

Morgan joined our firm in November 2019. She has been involved in design, bidding, and construction management services for water, wastewater, and municipal projects.

- **Impact Fee Studies, Texas** – Project Designer for the City of Brenham and City of Sealy Impact Fee Studies.

Water Supply and Distribution experience:

- **North Water Plant, City of Richwood, Texas** – Project Designer for the construction of a 600 gpm water well, 350,000-gallon ground storage tank, booster pumping station, chlorine building, diesel generator, and water main extensions to improve water supply and water pressure in the northern part of the City’s water distribution system. These improvements also increased the City’s overall water capacity to keep up with TCEQ’s requirements for the growing community.
- **CDBG-DR Walnut Drive Water Improvements, City of Richwood, Texas** – Replaced 1,530 linear feet of 6- and 8- inch water main. Replaced waterline on Cedar Drive to install gate valves needed for maintenance on street. TxDOT permitting for tie-ins within the TxDOT right-of-way.
- **ARPA Water Improvements, City of El Campo, Texas** – Project Designer for the construction of a 1,000 gpm water well, ground storage tank, and 7,5000 linear feet of water main. These components replaced outdated and undersized water infrastructure.
- **TWDB Water Plant, City of Woodbranch Village, Texas** – Oversaw construction of a new ground storage tank and booster pumping station. Coordinated with TWDB and provided monthly required documents to the funding agency.
- **TxCDBG Water Storage Tank, City of Snook, Texas** – Installed a 53,000-gallon

bolted steel ground storage tank to replace an undersized and outdated tank and a liquid propane generator was installed as a backup power source.

- **Water Well Consultation, City of Sweeny, Texas** – Assisted the City with water softener analysis corrosion study, administrative documentation, and other items required to obtain TCEQ approval to put existing well back into service.
- **Waterline Improvements, City of Sweeny, Texas** – Design- and construction-related services for the installation of 32,310 linear feet of 6-, 8-, 10-, and 12- inch water main to upsize and replace the City’s aging system.
- **Downtown Water Well, City of Sealy, Texas** – Design- and construction-related services to construct a 1,000 gpm water well and 2,000 linear feet raw water main. The raw water main transported the well water to an existing booster pumping station.
- **Rexville Road Water Plant, City of Sealy, Texas** – Design- and construction-related services to construct a 1,000 gpm well, 500,00-gallon ground storage tank, and pre-packaged booster pumping station. The well is anticipated to begin construction in mid-2024 and other plant components in mid-2025.

Wastewater experience:

- **CDBG-DR Pipe-Bursting, City of Richwood, Texas** – Project consisted of pipe bursting 2,900 linear feet of clay sanitary sewer lines in residential areas and replacing 12 manholes with precast concrete manholes.
- **Sanitary Sewer Replacement, City of Richwood, Texas** – Sanitary sewer replacement and manhole installation. Additional manhole needed to realign sewer slope to TCEQ compliance.

YEARS OF EXPERIENCE

4

YEARS WITH FIRM

4

EDUCATION

B.S. Civil Engineering,
Iowa State University,
Ames, Iowa, 2019

REGISTRATION

Engineer-in-Training

Morgan E. Ruiz, E.I.T.



- **GLO CDBG-MIT Sanitary Sewer Improvements, City of Sweeny, Texas** – Design, bid, and construction phase services for sanitary sewer improvements throughout the city. These improvements include replacement of the City’s trunk sewer line, installation of lift station generators, and flood protection for the City’s wastewater treatment plant. This project is currently in the design stage and is anticipated to start construction in early 2024.

Municipal experience:

- **CDBG-DR Street Rehabilitation, City of Todd Mission, Texas** – Project Designer providing street rehabilitation, which includes replacing the existing road with cement stabilized base, cold mix asphalt, and replacing culverts. The culvert sizes were increased to increase the conveyance capacity of the drainage system, with associated ditch grading.
- **Street Rehabilitation, City of Magnolia, Texas** – Project Designer for a street rehabilitation project consisting of six streets for a total of 8,700 linear feet of road rehabilitation. Each road was milled and mixed the existing base and asphalt to create the base with an asphalt surface.

Logan G. Andrepont, E.I.T.



AREAS OF EXPERTISE

- Surveying
- Construction Management
- Lift Station Design
- RPR Services
- Utility Engineering

PROFESSIONAL EXPERIENCE

Logan received his B.S. in Civil Engineering from Texas A&M University and joined our firm in 2019. Logan’s recent project experience is listed below.

- **North Water Plant, Water Main Extensions, City of Richwood, Texas** – This project is one of four parts of the North Water Plant project which will increase the pressure and create additional water main loops inside the nearby subdivision. The Water Main Extension portion involved installing close to 6,000 feet of 6-, 8-, and 12-inch water main primarily by horizontal directional drilling. Approximately 450 feet water main were installed underneath major drainage ways inside the subdivision. Construction was completed in May 2021. Primary Role: Design Engineer for this portion.
- **2023 Brenham Business Center Sanitary Sewer Improvements, City of Brenham, Texas** – Design-, bid-, and construction-related services for sewer improvements to existing lift stations, force main, gravity sanitary sewer, and aerial crossing. The project will relocate and upsize an existing lift station to have initial capacity of 130-gpm and a future capacity of 240-gpm. The new lift station will expand the local service area and allow for the installation of approximately 2,900 linear feet (LF) of 8-inch gravity installation. This project will bid out in early 2024 and is estimated to cost \$780,000. Primary Role: Designer and Construction Administrator.
- **ARPA Sanitary Sewer Improvements, City of Caldwell, Texas** – Design-, bid-, and construction-related services for the replacement of three of the City’s existing sanitary sewer lift stations. The lift stations are more than 30 years old and require necessary replacement and upsizing. Design includes new wet well, pumps, fittings and valves, electrical controls rack and emergency generator along with gravity and force main piping to tie new station into the

City’s system. We assisted the City in evaluating the future needs of the areas with respect to potential residential and commercial development to allow the City’s sewer system to grow with the boom in development. The design project is complete and will be bid out in late January 2024 with an anticipated cost of \$1.1 million. Primary Role: Lift Station Designer.

- **GLO CDBG-MIT Hurricane Harvey Street, Drainage, Sanitary Sewer, and Lift Station Improvements, City of Caldwell, Texas** – Design-, bid-, and construction-related services for street reconstruction, installation of box culverts and other drainage improvements, installation of approximately 4,800 LF of sanitary sewer main replacements, and installation of a new sanitary sewer lift station. The design for this project is completion and awaiting authorization from GLO to proceed into bidding and construction. Primary Roles: Lift Station Designer and Secondary Utility Designer.
- **GLO CDBG-MIT Ham Branch Watershed Drainage Improvements, City of Rockdale, Texas** – Design-, bid-, and construction-phase services for drainage improvements across Rockdale. The improvements include approximately 1,700 LF of 48-inch underground storm sewers, 3,00 LF of streambank stabilization, 120 LF of box culvert replacement and upsizing, and 1,000 LF of dedicated drainage channel establishment. The project started construction in January 2024 and is anticipated to be completed in December 2024 and will cost approximately \$3.5 million. Primary Roles: Assistant Manager and Construction Administrator.
- **2022 Sanitary Sewer Improvements, City of Brenham, Texas** – Design-, bid-, and construction-related services for sewer improvements to existing lift stations, force main, gravity sanitary sewer, and aerial

YEARS OF EXPERIENCE

5

YEARS WITH FIRM

5

EDUCATION

B.S. Civil Engineering – Texas A&M University, 2019

REGISTRATION

Engineer-in-Training

Logan G. Andrepont, E.I.T.



crossing. The project involves replacing two existing lift stations, the first being a new 1,500-gpm triplex lift station and the second being a 600-gpm duplex lift station; and installing approximately 1,900 feet of force main, 1,550 feet of gravity sewer replacement, and a 60-foot aerial creek crossing. The 1,500 gpm lift station was also relocated outside the floodplain and is expected to be surrounded on three sides by a 2- to 3-foot retaining wall. The primary purpose of this project is to increase capacity and remove deficiencies in the existing creek crossing. The project was split into one lift station project and one utility project. The utility project was completed in November 2023 for \$930,000. The lift station project is estimated to be completed in March 2024 for approximately \$1.15 million.

- **2022 AJ-11 Basin Sanitary Sewer Improvements, City of Huntsville, Texas** – Design-, bid-, and construction-related services for sewer improvements to an existing gravity sanitary sewer. The project will replace approximately 9,600 LF of 18- and 24-inch sanitary sewer by direct replacement and bore. This project will increase capacity for developments coming to the city. The project is estimated to be completed by early 2024 with a total project cost of \$2.4 million. Primary Role(s): Designer and Construction Administrator.
- **NB-06 Basin Sanitary Sewer Rehabilitation, City of Huntsville, Texas** – Design-, bid-, and construction-related services for sewer improvements to an existing gravity sanitary sewer. The project will replace approximately 6,600 LF of 6-, 8-, and 10-inch sanitary sewer by pipe bursting and cured-in-place methods and replacement and rehabilitation of 48 manholes. The project is estimated to be completed in the spring of 2024 with an estimated cost of \$1.15 million. Primary Role(s): Secondary Designer and Construction Administrator.
- **Raw Water Intake Repair at Lake Somerville, City of Brenham, Texas** – Served as the Resident Project Representative (RPR) for construction of an all-weather access road with bridge and soldier pile retaining wall to provide improved access to the City’s raw water intake and pumping

station on Lake Somerville. The bridge structure consisted of four spans with abutments and bents supported by drilled shafts. The soldier pile wall ranged from 7 to 16 feet in height and was approximately 135 feet long. The project was completed in November 2021 at a total cost of approximately \$4,900,000.

- **2021 CDBG Force Main Extension, City of Brazoria, Texas** – Performed design services as the Secondary Designer for the improvements to an existing force main. The project will extend the existing force main by approximately 3,100 LF to move the outfall to the trunk sewer line, where there is greater capacity. The project is currently under construction and is anticipated to finish in early July 2022. The project is anticipated to cost approximately \$307,000. Primary Role: Designer.
- **2017 Storm Damage Repair Projects Munz Lift Station and Force Main Improvements, City of Brenham, Texas** – The project replaced the existing lift station with a new station, including new pumps. This new station was placed 3 feet above the existing floodplain elevation and moved away from the creek. Work also involved installing two new manholes and replacing the existing 4-inch force main with a 6-inch to serve future development. The 6-inch force main was installed by directional bore. This project was completed in August 2021 at a project cost of \$285,000. Primary Roles: Project Designer and RPR during construction.

PROFESSIONAL AFFILIATIONS

- American Society of Civil Engineers

Blake E. Faldyn, E.I.T.

AREAS OF EXPERTISE

- Gas, Water, and Wastewater Hydraulics Modeling
- Natural Gas Distribution
- Impact Fee Development
- Water Storage and Distribution
- Geographic Information System (GIS)
- Wastewater Collection

PROFESSIONAL EXPERIENCE

Blake joined our firm in December 2021, with a B.S. in Civil and Environmental Engineering from Texas A&M University. He has experience in survey, design, bidding, and construction-phase services in the municipal and water disciplines. His primary focuses are natural gas, water, and wastewater hydraulics modeling and the development of impact fees.

Water experience:

- **ARPA South Water Plant, City of Richwood, Texas** – Project Designer for the installation of a new booster pump station to improve water pressure in the southern part of the City’s water distribution system. This project is currently in the construction phase and is anticipated to be completed by May 2024.
- **Water System Model Development, City of Hempstead, Texas** – Performed services related to creation of a full scale, system wide software model of the City’s water supply distribution system and the development of water and sanitary sewer impact fees as part of an impact fee study.
- **Water System Model Development, City of Brenham, Texas** – Performed services related to updating and calibrating a full scale, system wide software model of the City’s water supply distribution system and the development of water and sanitary sewer impact fees as part of a water system evaluation and impact fee study.
- **Water System Model Development, City of Tarkington Special Utility, Texas** – Performed services related to updating and calibrating a full scale, system wide software model of the City’s water supply distribution system and the development of water impact fees as part of an impact fee study.

- **Water System Model Development, City of Bellville, Texas** – Currently performing services related to creation of a full scale, system wide software model of the City’s water supply distribution system and the development of water and sanitary sewer impact fees as part of an impact fee study.
- **Highway 90 Waterline Improvements, City of Liberty, Texas** – Performed design phase services related to installation of approximately 2,200 LF of 8-inch PVC water main. This project was completed in October 2023.

Wastewater experience:

- **Wastewater System Model Development, City of Brenham, Texas** – Performed services relating to creation of a system wide software model of the City’s wastewater collection system and the development of water and sanitary sewer impact fees as part of an impact fee study.
- **ARPA Sanitary Sewer Improvements, City of Sealy, Texas** – Currently performing construction-phase services relating to the construction of approximately 2,600 LF of 6-inch force main and 8-inch PVC gravity sewer and seven manholes. This project is currently in the construction phase and is anticipated to be completed by August 2023.
- **ARPA Lift Station Improvements, City of Sealy, Texas** – Currently performing construction-phase services relating to the construction of lift station improvements. This project is currently in the construction phase and is anticipated to be completed by May 2024.
- **Highway 36 Sanitary Sewer Extension, City of Sealy, Texas** – Currently performing construction-phase services relating to the construction of

YEARS OF EXPERIENCE

2

YEARS WITH FIRM

2

EDUCATION

B.S. Civil Engineering – Texas A&M University, 2021

REGISTRATION

Engineer-in-Training

Blake E. Faldyn, E.I.T.



approximately 5,000 LF of 6-inch force main and 8-inch PVC gravity sewer and one lift station. The project is currently in the construction phase and is anticipated to be completed by July 2024.

- **Allens Creek Trunk Sewer Replacement, City of Sealy, Texas** – Project Manager for the replacement of approximately 2,400 LF of 24-inch PVC gravity sewer. This project is currently in the design phase and is anticipated to bid in June 2024.

Natural Gas experience:

- **Gas System Model Development, City of Navasota, Texas** – Performed services relating to creation of a full scale, system wide software model of the City’s natural gas distribution system.
- **Gas System Model Development, City of Sealy, Texas** – Performed services relating to creation of a full scale, system wide software model of the City’s natural gas distribution system and the development of the City’s natural gas master plan as part of a master planning and impact fee study.
- **Gas System Model Development, City of Rockport, Texas** – Performed services relating to creation of a full scale, system wide software model of the City’s natural gas distribution system.
- **Hollister Street Gas Regulator Station Replacement, City of Navasota, Texas** – Currently performing services relating to replacement of an existing natural gas regulator station. This project was completed in September 2023.
- **Pecan Lakes Gas Line Extension, City of Navasota, Texas** – Currently performing design, bidding, and construction-phase services related to installation of approximately 15,300 linear feet (LF) of polyethylene gas line, replacement and upsizing of approximately 2,150 LF of polyethylene gas line, and installation of a new natural gas regulator station.
- **Steel Gas Main Pressure Testing, City of Brenham, Texas** – Currently performing design, bidding, and construction-phase services related to pressure testing approximately 5,000 LF of existing 4-inch

steel gas main using nitrogen gas along with the removal of six service taps and two valves. This project is anticipated to be completed by September 2024.

GIS experience:

- **Utility Master Plans and Impact Fees, City of Sealy, Texas** – Performed services relating to preparation of existing and proposed maps and fact sheets to highlight approximately 40 potential water, sanitary sewer, and natural gas Capital Improvement Plan projects for the City’s water, sanitary sewer, and natural gas systems for the next 20 years as part of a master planning and impact fee study.
- **Water and Sanitary Sewer Evaluation, City of Hempstead, Texas** – Performed services related to preparation of existing and proposed water and sanitary sewer maps for the next 10 years as part of an impact fee study.
- **2023 Impact Fee Study, City of Brenham, Texas** – Performed services related to preparation of existing and proposed water and sanitary sewer maps for the next 10 years as part of an impact fee study.
- **Water Impact Fee Study, Tarkington Special Utility District** – Currently performing services related to preparation of existing and proposed water maps for the next 10 years as part of an impact fee study.
- **Impact Fee Study and Pavement Assessment, City of Bellville, Texas** – Currently performing services related to preparation of existing and proposed water, sanitary sewer, and roadway maps for the next 10 years as part of an impact fee study.

Alec S. McAndrew, E.I.T.



AREAS OF EXPERTISE

- Surface and Ground Water Treatment
- Wastewater Permitting
- Geographic Information Systems (GIS)
- Wastewater Collection and Treatment
- Water Storage and Distribution
- CAD

PROFESSIONAL EXPERIENCE

Alec joined our firm in July 2023, with a bachelor's degree in Environmental Engineering from The University of Texas at Austin. His primary focuses are water and wastewater. Alec has experience with all phases of a project's lifespan, including design services, bid-related services, and construction management.

Wastewater experience includes the following:

- **ARPA Wastewater UV Disinfection, City of Brenham, Texas** – Currently performing design services for the conversion of the chlorine contact chamber to UV disinfection.
- **Various Wastewater Treatment Plant (WWTP) Permit Renewals, Texas** – Prepared and submitted applications to the TCEQ to renew/amend WWTP Permits for five municipalities across the state of Texas. Permits include TPDES discharge permits, stormwater permits, and sludge permits for WWTP facilities.
- **GLO WWTP Rehabilitation, City of Brazoria, Texas** – Currently performing design, bidding, and construction-phase services related to the rehabilitation of the WWTP, including clarifiers, aeration basin, pumps, electrical, intake structure, and MCC building.
- **WWTP Sludge De-Watering and Water Reclamation Study, City of Luling, Texas** – Performed a study of the solid residuals from the WWTP to determine the most efficient sludge de-watering method for this plant. Performed a design and cost analysis for the addition of a water reclamation system for use on a neighboring property.

Water experience includes surface and ground water treatment plant design, water system analysis, and impact fee assessment.

- **Surface Water Treatment Plant (SWTP) Rehabilitation and Expansion, City of Brenham, Texas** – Currently performing

design services for the rehabilitation of existing structures and expansion of the SWTP from 6.984 MGD to 8.35 MGD. This includes improvements and expansion of the low lift pump station, rapid mixers, clarifiers, filters, transfer pumps, high service pumps, centrifuges along with concrete and walkway repairs.

- **Water Plant TTHM Aerators, Washington County, Texas** – Currently designing aeration system to remove TTHM from rural groundwater supply for Central Washington County Water Supply Corporation.

GIS experience includes uploading data on maps to reflect the current or future state of water and wastewater systems.

- **Impact Fee Study, City of Brenham, Texas** – Utilized GIS maps to overlay the projected projects for the water system to display the location and scope of the changes to the whole system.

CAD experience includes using AutoCAD to form design drawings and using WaterGEMS to model water and wastewater systems.

- **Various Wastewater Treatment Plant (WWTP) Permit Renewals, Texas** – Utilized AutoCAD to create and alter exhibits for the WWTP permits, including site maps, design amendments, and process flow diagrams.
- **Impact Fee Study, City of Brenham, Texas** – Utilized the WaterGEMS software to model future conditions on the water and wastewater systems for the City of Brenham. Created multiple scenarios to display the portions of the system which would be affected by growth and then used the software to test projects which resolve the issues.

YEARS OF EXPERIENCE

1

YEARS WITH FIRM

1

EDUCATION

B.S. Environmental Engineering – University of Texas at Austin, 2023

REGISTRATION

Engineer-in-Training

Justin Kuhbender, P.E.

AREAS OF EXPERTISE

- Hydraulic and Hydrologic Modeling
- Sanitary Sewer Design
- Pump Station and Force Main Design

PROFESSIONAL EXPERIENCE

(Partial Listing)

Alamo Heights Water Reclamation Facility Demolition and Pump Station, Butler County Water and Sewer Department (BCWSD), Ohio – Performed an analysis to determine the most cost-effective solution for the demolition of the Alamo Heights Water Reclamation Facility. Developed and calibrated a hydraulic model using InfoWorks ICM software to determine sizing and was lead designer for a pump station, force main and equalization basin.

West Fairfield Township Pump Stations, Butler County Water and Sewer Department (BCWSD), Ohio – Performed an analysis to divert flows in the Butler County service area to the LeSourdsville WRF. Developed a hydraulic model using InfoWorks ICM software to determine capacities for two new pumps stations and rehabilitated an existing station and sizing of a new equalization tank. Was the design lead for the pump stations and force mains.

Bethel Sanitary Sewer Replacement, Clermont County Water Resources Department (CCWRD), Ohio – Managed sanitary sewer flow monitor data, which was used to calibrate a hydraulic model using InfoWorks CS. The model was used to assess collection system capacity and showed additional storage at an EQ basin was no longer needed saving the County \$1.1 million. Acted as the lead design engineer for the design of 7,000 LF of sanitary sewer replacement.

Shayler Run Collection System Improvements, CCWRD, Ohio – Managed sanitary sewer flow monitor data, which was later used to calibrate a hydraulic and hydrologic model using InfoWorks ICM. The model was used to assess collection system capacity and perform a sensitivity analysis of the impact of I/I removal on the sizing of collection system improvements. Reviewed CCTV data and developed a plan for rehabilitation of the collection system.

As-Needed Model Support Services, CCWRD, Ohio – Served as the sole consultant for as-needed modeling services. Services included providing updates to the model based on completed projects, incorporating models from other consultants, analyzing future growth projections and analyzing alternatives to provide capacity for future growth.

Ross Road SSO Elimination, Fairfield, Ohio – Calibrated the City’s hydraulic sanitary sewer model to determine the cause of an SSO. Several alternatives were analyzed, the selected alternative was a relief sewer to divert flow from Ross Road to Woodridge Boulevard. Was the lead designer and prepared design drawings and construction specifications for the sewer design.

Homeward Way Pump Station Replacement, City of Fairfield, Ohio – Calibrated the City’s sanitary sewer hydraulic model to recommend pump station capacity. Preliminary design included pump selection and site layout.

Sanitary Sewer Model Update, City of Hamilton, Ohio – Updated the City’s systemwide sanitary sewer model using the software XP-SWMM to determine capacity issues. Tasks include calibrating the model using historic flow monitoring data, review of CCTV data and results of smoke testing to determine potential sources of I/I.

Northern Kentucky Sanitation District No. 1 Church Street CSO Reduction, Sanitation District No. 1 of Northern Kentucky, Taylor Mill, Kentucky – Responsibilities included validating the existing model based on alternatives. The preferred alternative included street load separation, private source disconnections, replacement of two 36- and 48-inch pipes with a 72-inch pipe, a biofiltration basin, and regulator improvements.

YEARS OF EXPERIENCE

14

YEARS WITH FIRM

5


EDUCATION

B.S. Civil and Environmental Engineering, University of Dayton, 2009

REGISTRATION

Professional Engineer in Ohio

Justin Kuhbander, P.E.



Lower Mill Creek Systems Analysis - Metropolitan Sewer District of Greater Cincinnati, Ohio – Responsibilities included an update of the systemwide model for use in developing and analyzing alternatives in the 50-square-mile watershed. This project also included analysis of various alternatives for the Mill Creek basin ranging from deep tunnels, HRTs, RTCs, stormwater separations, and regulator improvements.

Combined Sewer Master Plan Update, City of Sandusky, Ohio – Review of an existing combined sewer system model to identify capacity issues in the system and to reduce the volume and frequency of overflow events. Review includes analysis of existing overflow data, review of collection system flow monitoring, analysis of wastewater treatment plant capacity as it relates to the conveyance system and determining and evaluating potential alternatives. This project is currently in progress.

S2 Grant Project Plan, Various Clients in Michigan – Created and updated sanitary sewer system models using XPSWMM and InfoWorks ICM to identify system capacity issues and evaluate alternatives. Managed and performed QC of flow monitoring data, including location recommendations for flow monitors to ensure quality data was used to calibrate the hydraulic and hydrologic model. Clients include:

- Flint, Michigan
- City of Ecorse, Michigan
- Village of Paw Paw, Michigan
- Village of Niles, Michigan
- Meridian Charter Township, Michigan
- City of Lansing, Michigan
- Village of Baldwin, Michigan

Main and Lawn Flood Study, City of Hamilton, Ohio – Created a hydraulic model of the City's stormwater sewer system using the XPSWMM software. The model was used to determine the capacity of the system and analyze several alternatives. The selected alternative was a large diameter relief sewer which is currently in design.

Stormwater Master Plan, City of Hamilton, Michigan – Developed a hydraulic and hydrologic stormwater model to assist in the development of a master plan to solve stormwater-related issues. Also performed alternative analysis to determine the optimal solutions to all of the City's issues including pipe replacement, stormwater rerouting, and creating natural channels and regional stormwater detention facilities.

Flow Monitoring Programs – Installed, maintained, and removed flow monitors. Also performed QC of flow monitoring data and provided location recommendations for flow monitors to ensure quality data was used to calibrate hydraulic and hydrologic models for planning various municipal projects. Clients have included:

- Tri-Cities Wastewater Authority
- City of Columbia City, Indiana
- Metropolitan Sewer District of Greater Cincinnati
- Clermont County Water Resources Department
- City of Lebanon, Ohio
- City of Fairfield
- Butler County Water Resources Department
- City of Mason, Ohio

PROFESSIONAL AFFILIATIONS

- Mill Creek Watershed Council of Communities
- Ohio Water Environment Association Collections Committee
- Water Environment Federation



Section 4 – Familiarity/History within the Region

Broad Experience Demonstrates Delivery Capabilities

We have successfully completed projects for the City and many other communities within the region. Most of these projects have been completed entirely by staff in our Brenham office, which is located within the 150-mile radius of the City of Richwood.

As noted in our *Technical Approach* section, impact fee studies require a wide range of experience, including data collection, population and land use assumptions, modeling and assessments, capital improvement plans, and impact fee calculations.

Some of these tasks require an intimate understanding of Chapter 395 of the Texas Local Government Code and its processes. Many of these tasks, specifically data collection, modeling, and preparation of opinions of probable cost (OPCs), are common on most all water and wastewater infrastructure projects. Our firm has both the local knowledge and regional experience necessary to perform all aspects of an impact fee study efficiently.

The table below provides a listing of our relevant experience for local government entities within the last 10 years. Additional information on the many similar projects completed for these entities may be found on the following project experience tables and in the *Qualifications* section.

Client	Project Type				
	Impact Fee Studies	CIPs & OPCs	GIS & Modeling	Water Infrastructure	Wastewater Infrastructure
City of Richwood, TX		✓	✓	✓	✓
City of Bellville, TX	✓	✓	✓	✓	
City of Brazoria, TX		✓		✓	✓
City of Brenham, TX	✓	✓	✓	✓	✓
City of Caldwell, TX		✓	✓	✓	✓
City of Cleveland, TX		✓	✓	✓	
City of Daisetta, TX		✓		✓	✓
City of Dayton, TX		✓	✓	✓	
City of El Campo, TX		✓	✓	✓	✓
City of Giddings, TX		✓	✓	✓	✓
City of Hearne, TX		✓	✓		
City of Hempstead, TX	✓	✓	✓	✓	✓
City of Huntsville, TX		✓			✓
City of La Grange, TX		✓	✓	✓	✓



Client	Project Type				
	Impact Fee Studies	CIPs & OPCs	GIS & Modeling	Water Infrastructure	Wastewater Infrastructure
City of Liberty, TX		✓		✓	✓
City of Rosenberg, TX		✓		✓	✓
City of Sealy, TX	✓	✓	✓	✓	✓
City of Schulenburg, TX		✓	✓	✓	✓
City of Splendora, TX		✓	✓	✓	✓
City of Somerville, TX		✓		✓	✓
City of Snook, TX		✓		✓	✓
City of Sweeny, TX		✓		✓	✓
City of Weimar, TX		✓	✓	✓	
Central Washington County Water Supply Corporation		✓	✓	✓	N/A
Chappell Hill Water Supply Corporation		✓	✓	✓	N/A
Lee County Fresh Water Supply District 1		✓		✓	N/A
Prairie View A&M University		✓	✓	✓	✓
Rice Consolidated Independent School District		✓		✓	✓
South Cleveland Water Supply Corporation		✓	✓		N/A
Tarkington Special Utility District	✓	✓	✓	✓	N/A

Water Plant Project Experience				
Project	Services	Construction Cost	Completed	Contact
Surface Water Treatment Plant Rehabilitation and Expansion – Brenham, Texas	We have been hired by the City of Brenham for the design, bid, and construction of its Surface Water Treatment Plant (WTP) Rehabilitation and Expansion project. The project includes expansion of the low lift pump station; rapid mix following the injection of coagulants and polymers; addition of tube settlers to the existing clarifiers; a new solids contact basin; rehabilitation of the four existing filters basins; addition of two new filters; addition of transfer pumps; addition of high service pumps; chemical feed modifications; a new standby generator; and SCADA system improvements. This project is currently in preliminary design and is anticipated to bid in the spring of 2025. The project is anticipated to be complete in late 2027.	Estimated: \$21.8M	Anticipated Late 2027	Debbie Gaffey General Manager of Public Utilities 979-337-7510
2023 Rexville Road Water Plant – Sealy, Texas	Design- and construction-phase services for a 1,500 gpm water well, a 500,000-gallon ground storage tank, and a booster pumping station to improve water supply and water pressures, and to keep up with increased demands within the northern parts of the city water distribution system. This project is anticipated to be completed in 2025.	Estimated: \$5.4M	Anticipated 2025	Kimbra Hill City Manager 979-885-3511
North Water Plant – Richwood, Texas	Design and construction-phase services for a 600 gpm water well, a 350,000-gallon ground storage tank, a 1,500 gpm booster pumping station, and 5,980 feet of 12-, 8-, and 6-inch water main extensions to improve both water supply and water pressures within the northern parts of the city water distribution system, including the Oakwood Shores subdivision. This project is currently under construction.	Estimated: \$3.2M	2024	Clif Custer Public Works Director 979-265-2082
Water Supply and Treatment Expansion Plan – Brenham, Texas	Prepared a study of the City of Brenham's water supply and treatment facilities to assist the City in preparing for unprecedented growth. The study assessed population projections and water demands for the years 2042, 2062, and 2082. Through the population and water demand evaluation, it was determined that the City will need to expand its water supply and treatment capacities from 6.984 MGD to 12.70 MGD by the year 2042. We also evaluated the condition of the existing 6.984 MGD surface water treatment facility to determine what portions of the facility require rehabilitation and the best way to expand the facility at the existing site. One of the early steps during the study was to determine the capacity of the existing 24-inch raw water main that carries the entire water supply for the city from Lake Somerville to the water treatment plant. The study revealed that based on the design of the line, its maximum capacity is 8.35 MGD. Knowing the capacity of the line, we prepared rough cost opinions for the construction of a second raw water main. The study also included evaluation of groundwater within the City of Brenham, near the Lake, and near Chappell Hill by a groundwater hydrologist. Based on the cost opinions for a second raw water main and the groundwater study, the City decided to further evaluate a second supply via groundwater. This evaluation looked at four alternatives for supply and treatment. Two of the alternatives centered around groundwater wells with treatment that would tie into the water distribution system. The other two alternatives assessed expansion of the water treatment plant to 8.35 MGD via conventional treatment methods or a combination of low- and high-pressure membrane filtration combined with conventional treatment methods.	N/A (Study)	2023	Debbie Gaffey General Manager of Public Utilities 979-337-7510

Water Plant Project Experience				
Project	Services	Construction Cost	Completed	Contact
2016 Surface Water Treatment Plant Protective Coatings Rehabilitation – Brenham, Texas	This project consisted of coating/recoating facilities at the surface water treatment plant, including minor repairs and incidentals. Items coated included all three clarifiers (interior and exterior, including steel and concrete components), non-aluminum handrails, portions of the chemical feed platform and support structure, concrete flow distribution/splitter box, above ground piping, exterior walls of 600,000-gallon concrete potable water storage tank, exterior walls of the 1 MG concrete potable water storage tank, interior and exterior of the 750,000-gallon raw water storage tank, and sealing of cracks on the concrete walls of the clarifiers.	Estimated: \$745,000 Actual: \$558,400	2018	Debbie Gaffey General Manager of Public Utilities 979-337-7510
2016 Surface Water Treatment Plant Rehabilitation – Brenham, Texas	This project consisted of mechanical rehabilitation of select parts of the mixing and sludge collection systems internal to clarifier No. 2 and clarifier No. 3. The project also included rehabilitation of catwalks, bridges, kickplates, handrails, grating, and decking in various locations throughout the plant and adjustment to all the weir troughs in all three clarifiers.	Estimated: \$375,000 Actual: \$410,300	2016	Debbie Gaffey General Manager of Public Utilities 979-337-7510
2015 Water Pumping Station – Lee Co. FWSD #1, Texas	Design- and construction-phase services for a new water station funded with TWDB funds. Design included two 53,000-gallon ground storage tanks, one new 5,000-gallon pressure tank and rehab of one existing 5,000-gallon pressure tank, two 275 gpm booster pumps, new pump house, gas chlorination facilities for two existing water wells, piping for new pump station, electrical and controls, site fencing, and site work.	Estimated: \$500,000 Actual: N/A	NA	Darleen Lehmann President 979-540-8551
Rosewood Booster Pumping Station – Dayton, Texas	Design- and construction-phase services for the construction of a pump building, chlorination building, generator relocation, wellhead and yard piping, electrical, minor demolition, and various site improvements. Project also included a 16-inch water line from the new pumping station facilities to the existing distribution system, and a gravity sanitary sewer line and appurtenances along Rosewood Street.	Estimated: \$925,000 Actual: \$1.0M	2015	Kimberly Judge City Manager 936-258-2642
2012 TxCDBG Water Booster Pump Replacement – Daisetta, Texas	Design- and construction-phase services for removal and replacement of two end suction booster pumps (one without motor), including concrete pad and one horizontal split case booster pump, including concrete pad.	Estimated: \$100,000 Actual: \$121,187	2013	Joan Caruthers City Secretary 936-536-6761

Water Well Project Experience

Project Name	Services Provided	Construction Cost	Completed	Contact
Groundwater Supply Phase I – Brenham, Texas	Design- and construction-phase services for the rehabilitation and testing of an existing water well in the Jasper Aquifer. The project also includes the construction of a new well in the Catahoula Aquifer on the same site. The project will conclude with a blending study to determine treatment required to blend the well water with the City’s existing distribution system that is supplied by treated surface water, before moving into Phase 2. Phase 2 will include design and construction of groundwater treatment facilities.	Estimated: \$1.74M	Anticipated 2025	Debbie Gaffey General Manager of Public Utilities 979-337-7510
Downtown Water Well and Raw Water Main – Sealy, Texas	Design- and construction-related services to construct a 1,000 gpm water well with 2,000 feet of 10-inch raw water main connecting the well site to the Silliman Road Water Plant to improve water supply and redundancy within the City’s water distribution system. This project is currently under construction.	Estimated: \$2.4M	Anticipated 2024	Kimbra Hill City Manager 979-885-3511
New Water Well at North Water Plant – Richwood, Texas	Design- and construction-phase services for a new public water supply well. The new well is a two-string, underreamed, gravel-packed well with 18-inch carbon steel casing to a depth of 300 feet with 25 feet of 12-inch stainless-steel wire wrapped screen, and with 12-inch carbon steel blank liner under the screen to a total depth of 340 feet. Production from the well is 600 gpm. The well is equipped with a submersible pump and motor.	Estimated: \$500,000 Actual: \$318,630	2023	Clif Custer Public Works Director 979-265-2082
Well No. 4 – Central Washington County Water Supply Corporation – Washington County, Texas	Design- and construction-phase services for a new public water supply well. Design was made for a two-string, underreamed, gravel-packed well with a projected depth of 1,150 feet, dependent on results of test well procedures that were a part of the construction phase. The casing and screen size designed for a base bid was 10-inch carbon steel with 4-inch stainless-steel wire wrap. The casing and screen size designed for an alternate bid was 12-inch carbon steel with 6-inch stainless steel wire wrap. Because of budget constraints, a one-string straight wall well with 10-inch carbon steel casing and gravel packed 4-inch stainless-steel wire wrapped screen was constructed. The well was constructed to a total depth of 1,140 feet with screens starting at a depth of 1052 feet. The production rate of the well is 200 gpm. The well construction also included test well procedures consisting of production testing and collection of water samples from three depths in the test well. The well is equipped with a 200 gpm submersible pump and motor.	Estimated: \$375,000 Actual: \$481,974	2022	Ken Miller Board President 713-376-7909
Water Well No. 4 – Rice Consolidated Independent School District – Altair, Texas	Design and construction phase services for a new water well no. 4. The project consisted of plugging the existing well No. 2 located at the site of the new well before construction began. The project also included pump and motor, electrical equipment, piping connection to the new well, and site fencing.	Estimated: \$350,000 Actual: \$347,460	2016	Douglas Behlen Rice Consolidated ISD 979-230-3531
Well No. 9 and Ground Storage Tank – Prairie View A&M University – Prairie View, Texas	Design- and construction-phase services for a new water well, welded steel 300,000-gallon ground storage tank, and booster pump station modifications. The design included drilling a new 1,600-foot-deep water well within an existing water plant site. A new welded steel ground storage tank was constructed with concrete ring foundation and new piping to tie into the existing ground storage tank and well. The three existing booster pumps were fitted with new soft starters to help alleviate surge issues. The project also included modifications to the chlorination and polyphosphate equipment, site grading, and concrete paving.	Actual: \$1.8 million	2016	Derrick Elder Assistant Director Campus Planning and Space Management 936-261-9172

Water Well Project Experience

Project Name	Services Provided	Construction Cost	Completed	Contact
Water Well No. 4 – Dayton, Texas	Design- and construction-phase services for plugging the existing 16- by 10-inch, 1,300-foot well and construction of an underreamed, gravel packed well with an oil lubricated line shaft pump and motor capable of pumping 2,000 gpm at 450 feet TDH with 400 feet of 12-inch column pipe, airline, wire line tubing, and accessories.	Estimated: \$1.2M Actual: \$920,300	2015	Kimberly Judge City Manager 936-258-2642
Water Well No. 4 – Chappell Hill Water Supply Corporation, Texas	Design- and construction-phase services for drilling a 200-gpm public water supply well.	Estimated: \$330,000 Actual: \$284,610	2014	Edward Bentley General Manager 979-277-1122
TxCDBG Water Well Rehabilitation – Daisetta, Texas	Design- and construction-phase services to pull the existing pump, motor, and airline from well Nos. 3 and 4, jet all debris from the well to its bottom, and perform a camera survey. Project also included installation of a new submersible pump and motor, new wiring, new airline, and installation of existing 4-inch pump column with one additional 21-foot joint of 4-inch galvanized steel pump column in well Nos. 3 and 4.	Estimated: \$80,000 Actual: \$53,011	2013	Joan Caruthers City Secretary 936-536-6761
Water Well No. 8 and No. 9 – La Grange, Texas	Design- and construction-phase services for the construction of two underreamed, gravel packed water wells with submersible pumps and motors capable of pumping 200 gpm each. Both wells included a carbon steel column pipe, check valves, electrical cables, airlines, and accessories.	Estimated: \$700,000 Actual: \$138,000	2013	Frank Menefee Interim City Manager 979-968-5805
Water Well No. 5, Including Piping and Electrical Connections – Sweeny, Texas	Design- and construction-phase services for plugging existing well No. 12 and constructing a new well with a submersible pump and motor. Project also included wellhead piping, site piping, site electrical equipment, wiring, and related site work.	Estimated: \$150,000 Actual: \$154,300	2013	Lindsay Koskiniemi City Manager 979-548-3321

New Water Storage Tank Project Experience

Project	Services Provided	Construction Cost	Completed	Contact
TxCDBG Henderson Hill Ground Storage Tank –Schulenburg, Texas	Design- and construction-phase services for a new 200,000-gallon, welded steel, ground storage tank with a new fiberglass aerator on a support structure located next to the tank. This project included tying in two different raw water lines, rerouting the chlorine line and electrical line, and demolition of the existing tank. This new tank was constructed in the same location as the existing ground storage tank.	Estimated: \$1.2M Actual: \$1.1M	2023	Tami Walker City Administrator 979-743-4126
TxCDBG Water System Improvements – Snook, Texas	Design- and construction-phase services for a 53,000-gallon, bolted, galvanized steel ground storage tank. This project facilitated the replacement of an outdated storage tank and installation of a liquid propane engine-driven generator as a backup power source. Construction was completed in 2023.	Estimated \$215,000 Actual: \$202,021	2023	John See, III Mayor 979-272-3021
ARPA CLFRF New Elevated Storage Tank – Cleveland, Texas	Design- and construction-phase services for a new 500,000-gallon, steel, multilegged elevated storage tank (EST) to be constructed to provide water supply to a new elementary and middle school on the northwest side of the city. A water model was developed to verify adequate supply and distribution consumptions for fire flow and peak demand situations. This project includes new 12-inch water piping, an altitude valve system, a mixing system to prevent stagnant water, site grading, and an asphalt driveway.	Estimated: \$1.9M Actual: \$2.0M	2022	Robert Meadows Utilities Superintendent 281-592-2667
TxCDBG Wolters Avenue Ground Storage Tank – Schulenburg, Texas	Design- and construction-phase services for a new 300,000-gallon, prestressed concrete, ground storage tank with a new fiberglass aerator placed on the roof of the tank structure. The project included tying in two different raw water lines, rerouting the chlorine line and electrical line, and demolition of the existing tank. The existing concrete ground storage tank remained in service until the new one was constructed, assuring continued adequate water capacity for the city.	Estimated: \$1.2M Actual: \$1.0M	2020	Tami Walker City Administrator 979-743-4126
Water Distribution System Improvements – Tarkington Special Utility District – Cleveland, Texas	Design of two new 150,000-gallon ESTs; altitude valves for the two ESTs, including related plant piping and electrical; and approximately 7 miles of new 8- and 12-inch distribution lines to upgrade the existing distribution system, including appurtenances. Our services included design and construction-phase services.	Estimated: \$2.9M Actual: \$2.7M	2019	LB Chapman General Manager 281-592-6060
TWDB Water Plant Improvements – Lee County Fresh Water Supply District No. 1 – Giddings, Texas	Design- and construction-phase services for a new water pumping station funded with TWDB funds. This project included two 53,000-gallon GSTs, one new 5,000-gallon pressure tank, rehabilitation of one existing 5,000-gallon pressure tank, two 275 gpm booster pumps, new pump house, gas chlorination facilities for two existing water wells, piping for new pumping station, electricals and controls, site fencing, and site work.	Estimated: \$590,937 Actual: \$682,500	2017	Darleen Lehmann President 979-540-8551
TxCDBG Ground Storage Tank at Well No. 9 – Schulenburg, Texas	Design- and construction-related services for a new 200,000-gallon, welded steel GST. The project included all new piping, valves, fittings, and pipe supports, and a tie into the new GST. The tank was constructed adjacent to the existing tank and aerator tower, enabling the existing tank to remain in service and avoid interruption to the City's water service.	Estimated: \$300,000 Actual: \$319,400	2016	Tami Walker City Administrator 979-743-4126
New Peach Street Ground Storage Tank –Sweeny, Texas	Design- and construction-phase services for dismantling and removing an existing 426,000-gallon, bolted, galvanized steel GST and constructing a new 426,000-gallon, bolted, galvanized steel GST using the existing concrete ring wall portion of the foundation.	Estimated: \$220,000 Actual: \$218,070	2014	Lindsay Koskiniemi City Manager 979-548-3321

Water Storage Tank Rehabilitation Project Experience				
Project	Services Provided	Construction Cost	Completed	Contact
Eagle Street Elevated Storage Tank Rehabilitation – Weimar, Texas	Blasting and recoating of an existing 300,000-gallon, multilegged EST. This project included replacement of the roof vent, all exterior and interior ladders, double obstruction light, and other appurtenances. An aesthetic portion of this project is the exterior lighting on the balcony. This lighting is user-controlled, multicolored, and shines on the tank logo.	Estimated: \$455,919 Actual: \$451,032	2022	Dolores Stoever Interim City Manager 979-725-8554
TxCDBG Highway 36 Elevated Storage Tank Rehabilitation – Somerville, Texas	Blasting and recoating of an existing 150,000-gallon, pedestal EST. This project includes replacement of the roof vent, interior ladder, probes, and lighting. There is also some electrical work being done to improve communication of the radio system to send appropriate signals back to the water plant. This will avoid future complications and overflow of the tank.	Estimated: \$316,371 Actual: \$284,800	2022	Kathy Pollock Assistant to the City Administrator 979-596-1122
Atlow Elevated Storage Tank Rehabilitation – Brenham, Texas	Blasting and recoating of an existing 300,000-gallon EST. This project includes replacement of the obstruction light, roof vent, all safety climb devices on the ladders, and gaskets.	Estimated: \$340,000 Actual: \$271,150	2022	Shawn Bolenbarr Public Utilities Project Manager 979-337-7414
Interstate 10 Elevated Storage Tank Rehabilitation – Schulenburg, Texas	Design and construction-phase services for the blasting and recoating of an existing 300,000-gallon EST. The project included replacement of several hatches, the vent, safety climb devices, and the overflow weir.	Estimated: \$400,000 Actual: \$345,450	2021	Tami Walker City Administrator 979-743-4126
Wolters Avenue Elevated Storage Tank Rehabilitation – Schulenburg, Texas	Rehabilitation of the EST consisted of removal and replacement of existing interior and exterior coating systems on the 300,000-gallon tank. There are two different pump stations in the upper pressure plane, so VFDs were installed on each pump station booster pump to maintain adequate pressure in the upper pressure plane.	Estimated: \$490,000 Actual: \$439,500	2019	Tami Walker City Administrator 979-743-4126
Elevated Storage Tank Rehabilitation – Tarkington Special Utility District – Cleveland, Texas	Design and construction-phase services for the rehabilitation and recoating of two 100,000-gallon ESTs. This project also included replacement of hatches and removal of some equipment.	Estimated: \$350,000 Actual: \$335,550	2019	LB Chapman General Manager 281-592-6060
Rexville Elevated Storage Tank – Sealy, Texas	Design, bid, and construction-phase services for the rehabilitation of the interior and exterior of a 400,000-gallon spheroid EST and various repairs. The project included replacement of light fixtures, wiring, conduit, replacement of the obstruction light, installation of handrail on the top of the tank, and miscellaneous structural repairs.	Estimated: \$413,000 Actual: \$278,500	2019	Kimbra Hill City Manager 979-885-3511
TxCDBG Church Street Elevated Storage Tank Rehabilitation – Brenham, Texas	Design services for the rehabilitation of a 300,000-gallon EST. The project included lead abatement, miscellaneous structural repairs, and interior and exterior recoating of the tank.	Estimated: \$400,000 Actual: \$346,000	2018	Debbie Gaffey General Manager of Public Utilities 979-337-7510
TxCDBG Water Tank Rehabilitation – Daisetta, Texas	Design services for the rehabilitation of a 100,000-gallon EST and a 125,000-gallon bolted, galvanized steel ground storage tank (GST). The project consisted of miscellaneous structural repairs and interior and exterior recoating of the elevated tank and interior coating of the GST with a 100 percent solids elastomeric polyurethane coating system.	Estimated: \$285,000 Actual: \$274,544	2017	Joan Caruthers City Secretary 936-536-6761

Water Storage Tank Rehabilitation Project Experience				
Project	Services Provided	Construction Cost	Completed	Contact
500,000-Gallon Elevated Storage Tank Rehabilitation – Caldwell, Texas	Recoating and repair of a 500,000-gallon, leg-style EST. Performed sandblast surface preparation for coating the entire interior wetted area of tank with the specified coating. Removed and disposed of existing roof vent structure, including neck, and installed new 24-inch diameter neck and painted stainless-steel vent. Removed and disposed of existing leg-mounted ladder and cage and replaced with new ladder.	Estimated: \$300,000 Actual: \$251,000	2015	Camden White City Administrator 979-567-3271
Ward Bend Road Ground Storage Tank Rehabilitation – Sealy, Texas	Design, bid, and construction-phase services for the rehabilitation of interior and exterior coating of a 200,000-gallon GST and miscellaneous repairs. There are public areas and/or residences within 500 feet of this facility; therefore, control of emissions from sandblasting was required. The height of this GST is approximately 28 feet and the diameter is approximately 35 feet.	Estimated: \$100,000 Actual: \$88,514	2014	Kimbra Hill City Manager 979-885-3511
Rosewood Ground Storage Tank Rehabilitation – Dayton, Texas	Design- and construction-phase services for complete rehabilitation of an existing 1 MG GST, including removal (sandblasting) and application of a new protective coating systems on the interior and exterior of the tank. The scope of improvements also included upgrading the existing overflow capacity to accommodate a new water well that would be pumping to the existing tank, relocating the tank fill line to accommodate the new water well, and upgrading other miscellaneous tank components.	Estimated: \$380,000 Actual: \$299,300	2014	Kimberly Judge City Manager 936-258-2642
Peach Street Elevated Storage Tank and Ground Storage Tank Rehabilitation – Sweeny, Texas	Design- and construction-phase services for the rehabilitation of a 75,000-gallon EST and a 426,000-gallon GST. The rehabilitation of the EST included miscellaneous structural repairs and interior and exterior recoating. The bolted, galvanized steel GST rehabilitation consisted of miscellaneous structural repairs, including numerous repairs to the tank floor and application of a 100 percent solids elastomeric polyurethane coating system to the interior of the tank.	Estimated: \$295,000 Actual: \$285,805	2013	Lindsay Koskiniemi City Manager 979-548-3321
Longpoint Standpipe No. 1 Rehabilitation – Central Washington County Water Supply Corporation	Design- and construction-phase services for the rehabilitation of a 12-foot-diameter by 116-foot-high standpipe and a 7-foot-diameter by 12-foot-high filter tank at the Longpoint water plant. Project included sandblasting the interior and applying a new coating system, performing high pressure wash of painted exteriors, spot cleaning and priming of areas where prime coat has failed, and overcoating the entire exterior. Project also included replacing the roof hatch, vent, vent neck, flexible conduit, and electrode holders. The base plates were sealed with caulk.	Estimated: \$100,000 Actual: \$103,700	2013	Ken Miller Board President 713-376-7909
500,000-Gallon Elevated Tank Rehabilitation – Prairie View A&M University	Design-phase services for the rehabilitation of a 500,000-gallon, pedestal-style EST. Repairs included sandblasting and recoating the interior wet surfaces and the entire exterior of the tank while maintaining pressure in the water distribution system. Other improvements included the installation of temporary electrical and control equipment to operate two continuous running booster pumps and installation of a new roof hatch, vent structure, and safety climb devices.	Estimated: \$400,000 Actual: Payment process handled by the University	2013	Derrick Elder 936-261-9172

Water Distribution System Project Experience				
Project Name	Services Provided	Construction Cost	Completed	Contact
EDA Hwy 290 Water and Parking Improvements – Giddings, Texas	Design-, bid-, and construction-phase services for the installation of approximately 10,500 feet of new 12-inch water line along the Highway 290 corridor. A new parking lot consisting of approximately 2,200 square yards of new hot mix asphalt pavement surface, regrading, drainage improvements, and accessible vehicle parking will also be part of the project. The project is being funded through a Federal Economic Development Administration grant to improve commercial development along the Highway 290 Corridor. Construction is underway and is anticipated to be completed in early 2024.	Estimated: \$2.1M Actual: \$1.87M	Anticipated 2024	Spencer Schneider City Manager 979-540-2710
TWDB Water System Improvements – El Campo, Texas	Design of approximately 28,000 feet of 6- through 12-inch water distribution lines to replace old, deteriorated lines to complete loops for increased fire protection flow rates, including service lines, valves, and appurtenances, and replace approximately 3,500 feet of 6-inch sanitary sewer line to maintain separation from water lines. Also designed a SCADA system for the water system and electrical upgrades at the Wilson Road water pumping station. While design was started and completed in 2016 under TWDB funding, construction funding was not available at that time. The project was on hold until the recent ARPA CLFRF funding provided the City with money for construction. Construction has started.	Estimated: \$3.2M	Anticipated 2024	Jerry Lewis Director of Utilities 979-541-5075
ARPA Raw Water Main Air Valves – Brenham, Texas	Design-, bid-, and construction-related services for the replacement of combination air release valves on the City's 24-inch raw water line. The raw water line is the City's only water supply from Lake Somerville to the City's surface water treatment plant.	Estimated: \$454,000 Actual: \$343,024	2023	Dane Rau Public Works Director 979-337-7407
Highway 90 Water Line Improvements – Liberty, Texas	Project consisted of approximately 2,200 feet of 8-inch water distribution line along Highway 90, replacing a damaged water main. The work included several tie-ins to existing water lines, fire hydrant installations, service connections, abandonment of existing water lines, and related appurtenances. The contractor had to follow all TxDOT installation requirements for the tie-ins to existing lines.	Estimated: \$356,190 Actual: \$248,746	2023	Tom Warner City Manager 936-336-3684
12-inch Water Line Improvements – Cleveland, Texas	Project consisted of approximately 2,200 feet of 12-inch water distribution line along Birch Street and James Street to connect an existing 12-inch line into Water Plant No. 5 for better water pressures. The work included several tie-ins to existing water lines, fire hydrant installations, service connections, abandonment of existing water lines, and related appurtenances. There was also an alternative bid to replace a 2-inch existing water line with a new 6-inch water line along Hickory Street. The northwestern portion of Cleveland has several smaller water lines that do not provide adequate pressure to the residents and the rest of the system. This project was a result of the new EST built for the school to provide better pressures and the ability to fill the tank faster.	Estimated: \$416,135 Actual: \$327,130	2023	Robert Meadows Utilities Superintendent 281-592-2667
GLO CDBG-DR 14-inch Water Line Improvements – La Grange, Texas	Project consists of about a mile of new 14-inch water line traveling from an existing pumping station to an existing EST that will tie in water services, replace existing smaller lines, and provide adequate pressure and capacity for La Grange's water system. Flooding from Hurricane Harvey caused the water well along the route to go out of service and significantly diminished water service in La Grange. Construction of this project was difficult because of the different utility conflicts and railroad bore. We communicated with the City and contractor multiple times every week and made site visits to keep the project running smoothly.	Estimated: \$2.8M Actual: \$1.1M	2022	Frank Menefee Interim City Manager 979-968-5805

Water Distribution System Project Experience				
Project Name	Services Provided	Construction Cost	Completed	Contact
2019 Railroad Water Line Crossing – Brazoria, Texas	Design services for the installation of 250 LF of 10-inch PVC water main inside a 20-inch steel casing by dry bore under the Union Pacific Railroad (UPRR) tracks in Brazoria. We assisted the City with permitting through UPRR. The project also included two tie-ins to existing 10-inch water lines.	Estimated: \$115,978 Actual: \$119,478	2020	Sheila Williams City Manager 979-798-2489
2018 Water Line Relocation – Brazoria, Texas	Design- and construction-phase services for the installation of approximately 250 feet of 10-inch water line in 20-inch welded steel casing by dry bore crossing the railroad tracks. This project also included all related tie-ins, valves, and fittings for a fully operational water line. This project was federally funded through FEMA because this is one of two crossings that ties the north side and south side of the city together through its water system.	Actual: \$119,478	2020	Sheila Williams City Manager 979-798-2489
Comprehensive Water Study – South Cleveland Water Supply Corporation, Texas	Analysis of the water capacity and distribution system via WaterGEMS software and development of a 20-year plan to help with future expansion. A report was prepared summarizing the findings and future recommendations of the infrastructure and distribution system.	N/A	2019	Cookie McKee Office Manager 281-659-9771
Water Distribution System Improvements – Tarkington Special Utility District, Liberty County, Texas	Design of two new 150,000-gallon ESTs, altitude valves for the new ESTs – including related plant piping and electrical – and approximately 7 miles of new 8- and 12-inch distribution lines to upgrade the existing distribution system, including appurtenances. We provided design and construction-phase services.	Estimated: \$2.8M Actual: \$2.7M	2019	LB Chapman General Manager 281-592-6060
CDBG Water Improvements – Sweeny, Texas	Design- and construction-phase services for replacing approximately 2,000 linear feet of 6-inch water line. The project included connection to 25 new and existing water services, new fire hydrants to improve fire protection, valves, and other appurtenances.	Estimated: \$220,000 Actual: \$178,601	2018	Lindsay Koskiniemi City Manager 979-548-3321
Wolters Avenue Utilities – Schulenburg, Texas	Design- and construction-phase services for the replacement of approximately 1,600 linear feet of 6-inch water line. The project also included approximately 1,500 linear feet of 6-inch PVC gravity sanitary sewer by pipe bursting, as well as direct replacement. Project included connection to existing water and sewer services, new fire hydrants to improve fire protection, manholes, valves, and other appurtenances.	Estimated: \$550,000 Actual: \$556,678	2018	Tami Walker City Administrator 979-743-4126
TWDB Water Plant Improvements – Lee County Fresh Water Supply District No. 1 – Giddings, Texas	Design- and construction-phase services for a new water pumping station funded with TWDB funds. This project included two 53,000-gallon ground storage tanks, one new 5,000-gallon pressure tank, rehabilitation of one existing 5,000-gallon pressure tank, two 275 gpm booster pumps, new pump house, gas chlorination facilities for two existing water wells, piping for new pumping station, electrical and controls, site fencing, and site work.	Estimated: \$590,937 Actual: \$682,500	2017	Darleen Lehmann President 979-540-8551
FM 1960 12-inch Water Line Extension – Dayton, Texas	Design- and construction-phase services for installation of approximately 4,000 LF of 12-inch PVC water line, including valves, fittings, service connections, fire hydrants, and other appurtenances. The project required easements and coordination with TxDOT because of two crossings.	Estimated: \$397,000 Actual: \$253,515	2017	Kimberly Judge City Manager 936-258-2642
Water Distribution System Improvements – Brenham, Texas	Design- and construction-phase services for replacement of 6-inch AC water lines with 6-inch PVC water lines in a residential area.	Estimated: \$395,000 Actual: \$340,128	2016	Dane Rau Public Works Director 979-337-7407

Wastewater Treatment Plant Project Experience				
Project	Services Provided	Construction Cost	Completed	Contact
ARPA WWTP Improvements – Brenham, Texas	Design-, bid-, and construction-related services for the rehabilitation of the old treatment plant unit to bring the unit back online and increase the total plant capacity. In addition, the project includes the rehabilitation and/or replacement of the aeration blowers to increase efficiencies. The project also includes replacements of the City's existing chlorine gas and sulfur dioxide de-chlorination systems with an ultraviolet disinfection system.	Estimated: \$2.5M	Anticipated 2025	Debbie Gaffey General Manager of Public Utilities 979-337-7510
GLO CDBG-MIT Wastewater Treatment Plant Rehabilitation – Brazoria, Texas	Topographic survey, design, bidding-related, and construction-related services for the GLO CDBG-MIT Wastewater Treatment Plant Rehabilitation. The project consists of removal of solids from the oxidation ditch, replacement of the aerators in the oxidation ditch, replacement of the existing influent screen with a mechanical screen, replacement of the clarifier mechanisms, replacement of the return activated sludge (RAS) wet well and pumps, rehabilitation of the sludge boxes and valves, rehabilitation of the sludge drying beds, replacement of the influent pumps, and rehabilitation of the control building. This project recently went out for bids.	Estimated: \$2.6M	Anticipated 2025	Sheila Williams City Manager 979-798-2489
CDBG WWTP Improvements – Sweeny, Texas	Design- and construction-related services for the replacement of existing mechanical aerators and the mechanical screen at the WWTP. The project included replacement of existing equipment and connection to existing local control panels. The existing equipment had been in service since the plant's construction in 1993. One of the existing aerators had been inoperable for several years. Because of the single treatment train configuration of the plant, the aeration basin needed to remain in service during construction. Careful planning was necessary to ensure the aeration basin was still functional while the equipment was replaced.	Estimated: \$375,000 Actual: \$358,000	2022	Lindsay Koskiniemi City Manager 979-548-3321
0.175 MGD WWTP – Snook, Texas	Design-phase services for WWTP expansion in response to a new development within the city. The expansion took place at the existing treatment plant site. The new WWTP is an Aero-Mod package plant that includes blowers, pumps, and all ancillary equipment and appurtenances. The Aero-Mod unit is suitable for removing nutrients to TCEQ effluent criteria. There is also a new administration building with control, office, and chlorination rooms. As part of this project, we also designed a 250-gallon liquid propane powered generator for emergency backup purposes.	Estimated: \$2.2M Actual: \$2.9M	2021	John See III Mayor 979-272-3021
2.0 MGD WWTP Expansion – Sealy, Texas	Design of the WWTP expansion in response to growth within the city. The WWTP expansion included acquisition of neighboring property to enable construction of a new treatment facility without disturbing the existing site. The new WWTP is a dual train activated sludge system with a new influent pumping station and headworks with screening and grit removal, new high efficiency blowers, aerobic digestion, belt filter press dewatering, chlorine disinfection, a new control building, and a 750kW diesel-powered generator. The dual train design enables only half of the facility to be used until flows and loadings require use of the second treatment train.	Estimated: \$13.5M Actual: \$15.5M	2020	Kimbra Hill City Manager 979-885-3511
Clarifier and Motor Control Center Improvements – Sweeny, Texas	Design- and construction-related services for the replacement of two existing clarifiers, including all rakes, troughs, weirs, motors, bridges, and other related equipment. The project also included replacing all the motor control center equipment with modern PLCs, touch screen control, and SCADA-capable equipment. The project also included a new emergency generator. During Hurricane Harvey, the plant was under more than 8 feet of water. The old emergency generator was mounted only 2 feet above the ground, so it became fully submerged during the flood. The new generator was designed to be installed on a pad 10 feet above ground to avoid future interruption of service because of flooding. The projects were broken out into the clarifier portion and the electrical portion and bid separately. Both projects were completed on time and within budget.	Estimated: \$2.0M Actual: \$1.3M	2018	Lindsay Koskiniemi City Manager 979-548-3321

Wastewater Treatment Plant Project Experience

Project	Services Provided	Construction Cost	Completed	Contact
Kallus Street WWTP Mechanical Bar Screen Replacement – Schulenburg, Texas	Design- and construction-phase services for the replacement of the existing mechanical screen at the City’s Kallus Plant. The existing screen was nearing the end of its useful service life. We evaluated several different screen manufacturers and models, but many would require extensive modification of the headworks structure and increase the project cost significantly. It was decided that the same model screen would be used, along with a new local control panel. Electrical power and controls from the plant’s motor control center were evaluated and determined to be in good condition for reuse; this saved costs.	Estimated: \$120,000 Actual: \$115,000	2017	Tami Walker City Administrator 979-743-4126
2015 Kallus Street WWTP Clarifier Improvements – Schulenburg, Texas	Design- and construction-phase services for the rehabilitation of an existing final clarifier. The rehabilitation included installation of a new drive assembly, scraper mechanism, aluminum skirt, effluent weir, effluent pipe, inlet trough, race skimmer, mechanical overload device, bridge assembly with handrail, scum pipe, electrical equipment, control equipment, and all other appurtenances.	Estimated: \$250,000 Actual: \$244,900	2016	Tami Walker City Administrator 979-743-4126
2015 CDBG WWTP Improvements – Sweeny, Texas	Design- and construction-phase services for the rehabilitation of the existing WWTP, including new RAS/WAS pumps, new NPW system piping and valves, submersible pumps for influent lift station, new chlorination equipment, and other miscellaneous improvements to the WWTP.	Estimated: \$205,000 Actual: \$184,767	2015	Lindsay Koskineemi City Manager 979-548-3321
2013 Babylon WWTP Sludge Pumping Station Improvements – Schulenburg, Texas	Design- and construction-phase services for removal of pump Nos. 1 and 2, including related piping and pipe support, and the installation of two new sludge pumps, including related piping, electrical and controls, and concrete slab.	Estimated: \$130,000 Actual: \$130,000	2014	Tami Walker City Administrator 979-743-4126

Wastewater Collection System and Lift Station Project Experience				
Project Name	Services Provided	Construction Cost	Completed	Contact
ARPA Sanitary Sewer Improvements – Caldwell, Texas	Design-, bid-, and construction-related services for replacement of three of the City’s existing sanitary sewer lift stations. Design includes new wet well, pumps, fittings and valves, and electrical controls rack and emergency generator, along with gravity and force main piping to tie the new station into the city system. We are assisting the City in evaluating the future needs of the areas with respect to potential residential and commercial development to enable the city sewer system to grow with the boom in development. Boundary surveying services are also being provided to assist the City in purchasing new property for the new lift stations. Construction began in late 2023.	Estimated: \$2.5M	Anticipated 2024	Camden White City Administrator 979-567-3271
Highway 36 Sanitary Sewer Extension – Sealy, Texas	Design services for installation of approximately 5,200 feet of 6-, 8-, and 10-inch polyvinyl chloride gravity sewer and force main, including a new 270 gpm duplex lift station. The project advertise for bids and began construction in 2023. This project included an evaluation of multiple force main alignments to determine the optimal discharge location for the proposed lift station based on current city sanitary sewer infrastructure. The lift station includes pumps sized for 270 gpm to accommodate short- and mid-term anticipated wastewater flows, as well as a wet well capable of handling flows of up to 1,600 gpm in anticipation of the future peak demand conditions.	Estimated: \$1.1M	Anticipated 2024	Kimbra Hill City Manager 979-885-3511
Basin NB-06 Sanitary Sewer Evaluation Survey and Rehabilitation – Huntsville, Texas	This project consists of approximately 56,000 feet of collection line and 248 manholes. The sewers are located in forested urban and residential areas around Elkin Lake. Preliminary services consisted of smoke testing and manhole inspections to identify areas where I/I is severe and rehabilitation is needed. We utilized computer tablets in the field to document our findings, including a GoPro camera to provide high-quality pictures to document manhole conditions. This field information was stored in a database we developed, and a report was generated that included our findings and observations. This report included rehabilitation methods and an engineer’s opinion of probable construction cost for the critical portions of the system to be rehabilitated. The resulting rehabilitation project replaced up to 9,700 feet of sanitary sewer by pipe bursting, 3,175 feet of sanitary sewer by open-cut methods, and 108 manholes.	Estimated: \$2.3M	Anticipated 2024	Mark McClure Professional Engineer 936-294-5789
2022 Sanitary Sewer Improvements – Brenham, Texas	Design services for sewer improvements to existing lift stations, force main, gravity sanitary sewer, and an aerial crossing. The project involves replacing two existing lift stations, the first being a new 1,500 gpm triplex lift station and the second being a 600 gpm duplex lift station; and installing approximately 1,900 feet of force main, 1,550 feet of gravity sewer replacement, and a 60-foot aerial creek crossing. The 1,500 gpm lift station was also relocated outside the floodplain and is expected to be surrounded on three sides by a 2- to 3-foot retaining wall.	Estimated: \$2.7M	Anticipated 2024	Shawn Bolenbarr Public Utilities Project Manager 979-337-7414
2020 TxCDBG Sanitary Sewer Replacements – Caldwell, Texas	Design-phase services for the installation of approximately 2,400 feet of 6-inch PVC sanitary sewer line, 3,500 feet of 8-inch PVC sanitary sewer line, and 1,150 feet of 4-inch, Schedule 80 PVC sanitary sewer by open cut. The existing clay line was under the travel lane of FM 975, 14th Street, and South Broadway Street, and there was not enough room to relocate the line outside of the pavement. All the existing manholes along the route were replaced with new precast concrete manholes and all sewer services replaced up to the property line. Extensive coordination was needed with TxDOT because of a future improvement project along FM 975.	Estimated: \$230,670 Actual: \$255,450	2023	Camden White City Administrator 979-567-3271

Wastewater Collection System and Lift Station Project Experience				
Project Name	Services Provided	Construction Cost	Completed	Contact
2022 Highway 21 Sanitary Sewer Crossing – Caldwell, Texas	Design services for the installation of approximately 615 feet of 8-inch PVC sanitary sewer line by open cut and 110 feet of 8-inch PVC sanitary sewer in 16-inch steel casing by boring under Highway 21. To minimize damage to the pavement, boring installation was specified. Along the route two new precast concrete manholes and a sewer service were installed up to the property line to service a new development.	Estimated: \$50,000 Actual: \$50,000	2022	Camden White City Administrator 979-567-3271
2021 County Yard Lift Station – Schulenburg, Texas	Design- and construction-phase services for a new 75 gpm lift station to replace an outdated lift station on the west side of the city. This project consisted of preparing a new boundary survey of the site adjacent to the existing property and design of a new wet well with pumps, three new manholes for sewer line rerouting, an electrical rack, and concrete pad, fencing, and gate.	Estimated: \$354,480 Actual: \$370,621	2022	Tami Walker City Administrator 979-743-4126
Munz Lift Station Improvements – Brenham, Texas	Design- and construction-phase services for the relocation and replacement of the existing lift station with a new 360 gpm lift station. Because of recent floods and erosion, the existing lift station was subject to sliding into the creek. To prevent such an occurrence, the new lift station was elevated above the base flood elevation and moved away from the creek. The project also included minor gravity sewer relocation to tie in to the new lift station, as well as upsizing the existing 4-inch force main to serve future development. The new force main was 6 inches in diameter and installed in one 1000-foot directional bore behind several residential houses.	Estimated: \$377,000 Actual: \$285,000	2021	Shawn Bolenbarr Public Utilities Project Manager 979-337-7414
GLO CDBG-DR Sanitary Sewer Improvements – Liberty, Texas	Plan development, application, design, and construction-related services for the replacement of approximately 2,000 feet of 12-inch sanitary sewer line, services, manholes, and other appurtenances. During recent flood events, the city experienced severe I/I that overloaded the City's WWTP. The City identified a section of the collection system contributing significantly to I/I that needed to be replaced. The line route includes several conflicts with existing utilities and storm sewer, as well as a railroad crossing and TxDOT highway crossings. To reduce impact on roadways, businesses, and residents, pipe bursting was used.	Estimated: \$311,000 Actual: \$324,250	2021	Tom Warner City Manager 936-336-3684
2019 TxCDBG Sanitary Sewer Replacements – Sealy, Texas	Design- and construction-phase services for the installation of 12-, 8-, and 6-inch PVC gravity sanitary sewer by open cut in various streets in Sealy. The project included connections to existing services, tie-ins to existing manholes, pavement repair, culvert replacements, and related appurtenances.	Estimated: \$311,500 Actual: \$330,059	2021	Kimbra Hill City Manager 979-885-3511
Baker Katz Sanitary Sewer Improvements – Brenham, Texas	Design, permit assistance, bid-, and construction-related services to serve future recreational, commercial, and residential developments on US 290. As part of our design services, we prepared a preliminary sanitary sewer study to analyze and identify alternative alignments that would minimize cost while providing adequate capacity for future developments. The project included approximately 6,900 feet of gravity sewer ranging from 8- to 12-inches, 2,735 feet of 6-inch force main, four aerial crossings, a 380 gpm lift station with a precast concrete wet well sized for 900 gpm pumping capacity, an emergency generator, by-pass pumping, and decommissioning of an aging lift station at the Brenham State Supported Living Center.	Estimated: \$1.3M Actual: \$967,236* <i>*The City constructed a portion of the project themselves, which is why there is a considerable difference between the OPCC and low bid.</i>	2021	Shawn Bolenbarr Public Utilities Project Manager 979-337-7414



Section 5 – References

References Attest to the Success of Similar Projects

Our Corporate Mission states that we are “dedicated to helping clients succeed through excellence in engineering.” In accordance with this mission, we are continually expanding our staff and service offerings to broaden our base of experience and knowledge so that we can provide more creative and comprehensive solutions for our clients.

Long-standing relationships demonstrate quality of engineering services.

We have developed and continue to maintain long-standing affiliations, many extending into several decades of service. For some clients, we serve as appointed engineers and are active committee members; for others, we serve as specialty consultants to their in-house staff on an as-needed basis. Our service is flexible and tailored to the unique needs of each client.

We encourage the City to contact our references, as we are confident they will attest to our capabilities. We have also provided letters of commendation on the pages that follow.

Reference	Description of Service	Years of Service
Clif Custer Director of Public Works City of Richwood 1800 North Brazosport Boulevard Richwood, TX 77531 979-265-2082 ccuster@richwoodtx.gov	General Municipal; Drainage; Water; Transportation; and Master Planning	5 Years
Dane Rau Public Works Director City of Brenham 200 West Vulcan Street Brenham, TX 77833 979-337-7407 drau@cityofbrenham.org	On-Call; General Municipal; Development Reviews; Drainage; Water; Wastewater; Transportation; and Impact Fees	50+ Years
Kimbra Hill City Manager City of Sealy 415 Main Street Sealy, TX 77474 979-885-3511 khill@ci.sealy.tx.us	On-Call; General Municipal; Development Reviews; Drainage; Water; Wastewater; Transportation; and Impact Fees	30+ Years
Shawn Jackson City Administrator City of Bellville 30 South Holland Bellville, TX 77418 979-865-3136 sjackson@cityofbellville.com	General Municipal; Development Reviews; Drainage; Water; Wastewater; Transportation; and Impact Fees	40+ Years
Danna Welter City Administrator City of Splendora 26090 FM 2090 Road Splendora, TX 77372 281-689-3197 dannawelter@gmail.com	General Municipal; Development Reviews; Drainage; Water; Wastewater; Transportation; and Master Planning	30+ Years



Reference	Description of Service	Years of Service
Fredrick Alexander Public Works Director City of Hempstead 1125 Austin Street Hempstead, TX 77445 979-826-8313 falexander@hempsteadcitytx.gov	General Municipal; Development Reviews; Drainage; Water; Wastewater; Transportation; and Impact Fees	50+ Years
Charles "Tink" Jackson City Manager City of Eagle Lake 100 East Main Street Eagle Lake, TX 77434 979-234-2640 citymanager@coeltx.net	General Municipal; Development Reviews; Drainage; Water; Wastewater; and Transportation	50+ Years
LB Chapman General Manager Tarkington Special Utility District (SUD) 19396 Highway 321 Cleveland, TX 77327 281-592-6060 lbchapman.tsud@gmail.com	Water and Impact Fees	7 Years
Spencer Schneider City Manager City of Giddings 118 East Richmond Street Giddings, TX 78942 979-540-2716 sschneider@giddings.net	On-Call; General Municipal; Development Reviews; Drainage; Water; Wastewater; and Transportation	40+ Years



CITY OF GIDDINGS

118 E. RICHMOND STREET, GIDDINGS, TX 78942

979 540-2710 FAX 979 542-0950

March 7, 2022

Re: Recommendation for Strand Associates

To Whom It May Concern:

This letter is to inform you that Strand Associates, Inc. has been the City of Giddings' engineering firm since the 1980s. They have performed all of the City of Giddings' engineering work which has included an expansion of our wastewater treatment facilities, new water production facilities, and many utility replacement projects. They have also completed thorough reviews on many developments within the City. We have been very satisfied with their work and highly recommend their services.

Sincerely,

Spencer Schneider

City Manager



June 24, 2020

Re: Reference for Strand Associates, Inc

To Whom It May Concern:

The City of Brenham has utilized Strand Associates, Inc for over 50 years on many of our infrastructure projects ranging from small sanitary sewer extensions to large facility/infrastructure projects. Over this time, the City of Brenham has come to know Strand to be a reliable firm that provides and expects quality engineering work. Strand is also focused on customer relationships and goes above and beyond to provide assistance when called upon.

Strand's ability to customize their services to the specific needs of each project is a testament to the quality, reliability, and responsiveness that they rightfully take pride in. Strand delivers upon all of the city's expectations and services as a professional and courteous extension of our city's staff. I personally have 20 years of experience working with Strand Associates, Inc. I am confident in Strand's expertise and abilities and do not hesitate to call upon Strand staff for advice on projects and to discuss ongoing and future projects. Based on my experience, I would recommend Strand's services to other municipalities for their project needs.

Sincerely

A handwritten signature in blue ink that reads "Dane Rau". The signature is written in a cursive style with a long, sweeping underline that extends to the left.

Dane Rau
Director of Public Works



Section 6 – Technical Approach

Approach to Adoption Process Defined in Chapter 395 Results in Efficient Calculation of Maximum Allowable Impact Fee for Water and Wastewater

Our philosophy for quality-of-life infrastructure initiatives begins with the end goal in mind. By thoroughly understanding the motivations and desired outcomes of our project partners, we can help chart the proper approach to achieving project objectives. The manner in which we communicate with the City will set the stage for a successful study. This is especially important for a study such as this.

Interaction with City Staff and Capital Improvements Advisory Committee (CIAC)

We will start this assignment by holding a kickoff meeting with City staff to understand their goals and objectives for the study. We will develop a communication structure that clearly identifies points of contact, project schedules, and a communication schedule. We find that weekly or biweekly status updates by phone, with e-mail summaries of decisions and issues discussed, and face-to-face meetings with the client (as desired) keep things moving. This communication structure and reporting will be important throughout the services we provide.

Project Approach

Our typical approach to impact fee studies is divided into five phases: *data collection, population assumptions and land use assumptions, modeling and assessments, capital improvement plans, and impact fee calculation.* Our team is fully committed to providing excellence in engineering throughout each of these phases.

- **Data Collection**

Data collection is many times the most important step of a planning project. Data gathered and reviewed becomes the foundation upon which future decisions are made. The project team will gain an in-depth understanding of the City’s water and wastewater systems not just by reviewing previous studies, but also by interviewing City staff most familiar with the City’s infrastructure and by relying on past project experience within the city.

The project team will perform an array of tests during this phase, including fire flow tests for water modeling and flow monitoring, pumping, and drawdown tests for wastewater modeling, if desired. While many tests may be performed over a couple days or even several weeks, flow monitoring would be more extensive. Flow monitors would be used to establish average dry- and wet-weather sanitary flow rates within the sanitary sewer collection system. Flow monitors would be installed for a minimum of 90 to 120 days and would remain in place so data can be collected through a variety of storm events so the wastewater model may be properly calibrated for the desired return interval storm event.

The project team has in-house experience installing, maintaining, and collecting flow monitoring data, as well as experience working with consultants that specialize in performing flow monitoring that work directly for the clients we serve. We look forward to discussing both options with the City in the future.

Visual assessments of the City’s water and wastewater facilities, including its water production, pumping, and storage facilities and wastewater lift stations and treatment facility will be performed during the data collection phase.

We are also aware that the City currently sends collected wastewater to the City of Clute for treatment and that the Clute WWTP is nearing the point at which plant

By thoroughly understanding the motivations and desired outcomes of our project partners, we can help chart the proper approach to achieving project objectives.



Our holistic approach is centered on maximizing the City’s return on investment.



expansion will need to be considered. We will work with City staff exploring the feasibility and cost effectiveness of the City constructing its own WWTP.

- **Population Assumptions and Land Use Assumptions**

The population of Texas, especially that in the Greater Houston area, is increasing at an alarming rate. The development pressure facing many cities in this area has led to significant investments being made by those cities to meet ever-expanding infrastructure needs. Like others, the City is expected to see growth over the next 5, 10, and 25 years, making infrastructure planning and project prioritization even more critical than ever before.

Water and wastewater service areas will be reviewed and projections in changes in land uses, densities, and populations will be considered. Known and anticipated future developments, as well as those areas where development interest has been expressed in the past, will be examined and future water and wastewater flow projections will be calculated for a period of up to 10 years.

- **Modeling and Assessments**

Testing results gathered during the data collection phase will be used to inform future decisions as well as to further calibrate the City's water model and prepare a wastewater model. These models will be updated based on the latest geographic information system (GIS), recently compiled by our firm, and facility information provided by the City.

The project team has experience creating, calibrating, and maintaining hydraulic water distribution system models using WaterGEMS, InfoWater, and KYPipe. The project team also has experience with hydraulic and hydrologic wastewater collection system models in InfoWorks ICM and XPSWMM, among others.

The water model and potential wastewater model will be used to simulate existing and future demands, evaluate minimum pressures and capacity restraints, review fire flow availability and water age, and predict sanitary sewer surcharging and overflows, as well as to identify and right-size capital improvements that will be needed to meet the growing demands of the City.

Risk-based assessments will also be prepared to prioritize infrastructure replacements and/or expansions based on impacts to existing infrastructure and the likelihood of failure. Coincidence-frequency analyses like this will improve confidence that the City is allocating resources where it is most needed.

- **Capital Improvement Plans**

Projects identified as part of the three previous phases will be compiled and prioritized into Capital Improvement Plans (CIP) for water and wastewater for the next 10 years, as allowed by Chapter 395. CIP maps will be prepared to show project locations and limits, with project designators correlating to tables describing the CIP projects in greater detail.

Opinions of probable project cost will be prepared for each CIP project. It is anticipated that cost opinions will be developed to the Association for the Advancement of Cost Engineering (AACE) Class 4 level. Cost opinions may be prepared in current year dollars but may also be escalated to account for inflation.

Depending on the outcome of the feasibility analysis and cost effectiveness of the City constructing its own WWTP, the costs associated with construction of a new WWTP or costs associated with expanding the shared Clute WWTP will be included in the CIP.



• **Impact Fee Calculation**

Using the portions of the CIP project costs attributable to growth for the next 10 years, and population projections, we will calculate the maximum allowable impact fees for water and wastewater by water meter size. The maximum allowable impact fees will be presented to the CIAC, who will then make a formal recommendation on the impact fee amounts (up to but not exceeding the maximum) to the City Council. The City Council will make the final determination as to the impact fee amount to be adopted.

Project Management

Our overall project management approach includes developing a communication plan, tracking schedules and costs, preparing project reports, and providing quality control reviews. Our project delivery process will instill confidence that the finished project meets desired outcomes, schedules, and budgets.

Project management approach instills confidence.

Proactive Management Approach



Conclusion

We are excited for the opportunity to continue serving the City of Richwood and are committed to providing a high level of engineering service in an efficient manner. The City will receive excellent and responsive service with our straightforward approach to engineering.

Proven Quality Control Program Yields Successful Projects

To promote quality on City projects, we have developed an internal Quality Control (QC) program that focuses on applying quality peer review at each step of the design process. We understand that quality is no longer defined by end-of-the-line checking. As each project is scoped, a Project Management Memorandum (PMM) is issued describing the individual QC plan for that project. This plan identifies the Key QC Engineer, the individual responsible for critiquing the design for technical adequacy, constructability, and conformance to project objectives, at critical stages throughout the project.

The Key QC Engineer is experienced with projects of similar scope and has basic knowledge of the project elements but typically is not part of the project design team. This enables them to give an objective perspective when reviewing the work. By assembling the QC plan at project scoping, all team members are aware of the stages at which quality reviews will take place and can plan accordingly.

At the completion of design, the Key QC Engineer signs the QC plan, indicating that all reviews have been completed. By adherence to the above practices, we have been able to provide quality engineering work within project budgets and schedules.



QC program defines commitment to excellence.

Estimating Methods

We will use past City projects and other past Texas projects for bid item costs in preparation of our opinion of probable construction cost (OPCC). As the CIP development progresses and the scope of work becomes clearer, the OPCCs will be refined to develop a more accurate picture of anticipated costs. We will also reach out to local contractors and specialty suppliers to fine-tune anticipated costs.



State-of-the-Art Equipment and Facilities Enables Us to Address All Types of Engineering Challenges

To serve clients better, we continually upgrade the technology at each of our offices and train our staff on the effective use of the latest tools available. Our offices are comparably equipped with videoconferencing equipment, enabling face-to-face communications between our clients and our experts around the nation. Our Zoom system is linked to our offices via real-time voice and high-definition video. Videoconferencing computers are integrated with a Local Area Network (LAN) and Wide Area Network (WAN), permitting direct digital sharing of Computer-Aided Design (CAD) and other drawings across the videoconferencing network.

The system also includes data-sharing via remote-operated video cameras, television monitors, high-definition computer monitors, and high-speed computers. Our system enables teams in different offices to interact seamlessly. With ready access, we can bring our experts together cost effectively by eliminating the added expenses of time and travel.



Videoconferencing enables us to meet efficiently with team members across all our offices.

Our equipment enables the resources of each office to be shared with all other offices.

Because of our considerable history with state-of-the-art interoffice communications, we can integrate, seamlessly, the expertise and experience of our local staff with that of our staff nationwide.



Section 7 – Sample Documents



Strand Associates, Inc.[®]
1906 Niebuhr Street
Brenham, TX 77833
(P) 979.836.7937
www.strand.com

February 9, 2024

Ms. Stephanie Doland, Director of Development Services
City of Brenham
200 West Vulcan Street
Brenham, TX 77833

Re: 2023 Impact Fee Study
City of Brenham, Texas

Dear Ms. Doland:

Enclosed is the final 2023 Impact Fee Study.

Please call me at 979-836-7937 should you have any questions.

Sincerely,

STRAND ASSOCIATES, INC.[®]

Ryan D. Tinsley, P.E., ENV SP

Enclosure: Report

TBPE No. F-8405
TBPLS No. 10030000

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Report for City of Brenham, Texas

2023 Impact Fee Study

Prepared by:

STRAND ASSOCIATES, INC.®
TBPE No. F-8405
TBPLS No. 10030000
1906 Niebuhr Street
Brenham, TX 77833
www.strand.com

February 2024



TABLE OF CONTENTS

Page No.
or Following

2023 IMPACT FEE STUDY

Introduction	1
Texas Local Government Code Chapter 395	1
Development of Impact Fees	2
Water and Wastewater Service Areas.....	2
Roadway Facility Service Areas.....	3
Existing and Future Land Use Assumptions.....	3
Population Projections	4
CIPs.....	6
Public Input and Feedback.....	8
Water, Wastewater, and Roadway Impact Fees.....	10
Maximum Allowable Impact Fee Calculation	10
Maximum Allowable Water Impact Fee	11
Maximum Allowable Wastewater Impact Fee.....	12
Maximum Allowable Roadway Impact Fee.....	12
Maximum Allowable Water and Wastewater Impact Fee by Water Meter Size.....	13
Maximum Allowable Roadway Impact Fee by Vehicle–Miles Consumed	13
Water, Wastewater, and Roadway Impact Fees Adopted by Neighboring Communities	15
CIAC Recommended Impact Fees.....	16
Conclusion	16

TABLES

Table 1	Water CIP Summary	6
Table 2	Wastewater CIP Summary	7
Table 3	Roadway CIP Summary	8
Table 4	Maximum Allowable Water Impact Fee	11
Table 5	Maximum Allowable Wastewater Impact Fee	12
Table 6	Maximum Allowable Roadway Impact Fee	12
Table 7	Water and Wastewater Impact Fees for Various Water Meter Types and Sizes.....	13
Table 8	Roadway Fee per DU.....	14

FIGURES

Figure 1	Population Projections.....	4
Figure 2	Impact Fees for Different Cities	15

APPENDICES

APPENDIX A–TEXAS LOCAL GOVERNMENT CODE CHAPTER 395

APPENDIX B–FUTURE LAND USE MAP

APPENDIX C–WATER IMPACT FEE SERVICE AREA AND CIP

APPENDIX D–WASTEWATER IMPACT FEE SERVICE AREA AND CIP

APPENDIX E–ROADWAY IMPACT FEE SERVICE AREA AND CIP

APPENDIX F–WRITTEN COMMENTS, CAPITAL IMPROVEMENTS ADVISORY COMMITTEE

INTRODUCTION

This report documents the City of Brenham, Texas (City) 2023 Impact Fee Study (Study) for the development of maximum allowable impact fees for water, wastewater, and roadway facilities. Texas Local Government Code Chapter 395 (Chapter 395) authorizes political subdivisions, such as cities, to assess impact fees in Texas for water-, wastewater-, and roadway-related capital improvement plan (CIP) projects attributable to new development. Chapter 395 was followed to develop the maximum allowable impact fees for the Study.

TEXAS LOCAL GOVERNMENT CODE CHAPTER 395

Before an impact fee can be assessed, Chapter 395 requires that a CIP be prepared or updated by qualified professionals. See Texas Local Government Code Chapter 395 in Appendix A. Chapter 395 defines an impact fee as “a charge or assessment imposed by a political subdivision against new development in order to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development.” An impact fee may be imposed only to pay the costs of constructing capital improvements or facility expansions, including and limited to:

- Construction contract price.
- Surveying and engineering fees.
- Land acquisition costs, including land purchases, court awards, attorney’s fees, and expert witness fees.
- Fees actually paid or contracted to be paid to an independent qualified engineer or financial consultant preparing or updating the CIP who is not an employee of the political subdivision (City).

Impact fees may not be adopted or used to pay for:

- Construction, acquisition, or expansion of public facilities or assets other than capital improvements or facility expansions identified in the CIP.
- Repair, operation, or maintenance of existing or new capital improvements or facility expansions.
- Upgrading, updating, expanding, or replacing existing capital improvements to serve existing development in order to meet stricter safety, efficiency, environmental, or regulatory standards.
- Upgrading, updating, expanding, or replacing existing capital improvements to provide better service to existing development.
- Administrative and operating costs of the political subdivision, as allowed.
- Principal payments and interest or other finance charges on bonds or other indebtedness, except as allowed by Section 395.012 of Chapter 395.

Impact fees allow cities to recover a portion of the cost associated with infrastructure constructed to serve future development; therefore, the cost is not fully borne by existing rate payers. Chapter 395 requires that impact fees collected are spent on projects listed on the CIPs developed by the Study and allows only the growth over a 10-year period to be attributable to the cost of each project.

DEVELOPMENT OF IMPACT FEES

An initial step in the impact fee development process is the formation of the City's Capital Improvements Advisory Committee (CIAC). Chapter 395 Section 395.058 discusses the cross section of individuals the CIAC is required to be composed of, with one alternative being that the Planning and Zoning Commission (P&Z) may act as the CIAC "if at least one such representative is appointed by the political subdivision as an ad hoc voting member of the planning and zoning commission." Chapter 395 also requires that one member reside in the City's ETJ if the City intends to assess impact fees within the extraterritorial jurisdiction (ETJ), which the City desired. The City Council appointed several ad hoc members to the existing P&Z to form the CIAC. The CIAC members are as follows:

Dr. Paul LaRoche, III, Councilmember, Ward 3	Blake Brannon, ETJ Representative
Lindi Braddock, Real Estate Representative*	Randy Hodde, Real Estate Representative
M. Keith Behrens, P&Z Chair (CIAC Chair)	Dr. Deanna Alfred, P&Z Vice-Chair
Calvin Kossie, P&Z, Secretary	Christopher Cangelosi, P&Z Commissioner
Darren Heine, P&Z Commissioner (CIAC Vice-Chair)	Cayte Neil, P&Z Commissioner
Cyndee Smith, P&Z Commissioner	

*Following being appointed to the CIAC, Lindi Braddock was unable to serve.

Many of the subsequent steps outlined in Chapter 395 for the development of impact fees were included in the *Service Areas, Land Use Assumptions, and Population Projections Technical Memorandum* (Tech Memo), dated August 18, 2023. The Tech Memo establishes the service areas, land use assumptions, and population projections developed with the assistance of City staff and the City's CIAC. The Future Land Use Map (Appendix B) was adopted by the City Council on December 7, 2023, in accordance with Chapter 395.

WATER AND WASTEWATER SERVICE AREAS

Existing water and wastewater service areas can generally be determined from the location of the respective mains. Chapter 395 allows the City limits, as well as the City's ETJ, to be considered the service area for water and wastewater facilities. Strand Associates, Inc.[®] (Strand) understands that the City prefers to include the City's ETJ within the water and wastewater service area. The dashed outer boundary in the Future Land Use Map in Appendices C and D show the City's ETJ and the limits of the water and wastewater service areas, respectively. The service units for water and wastewater improvements will be assessed in terms of residential equivalent connections (REC), or the volume of water used by a standard 1-inch water meter during a 1-day period. Single-family residential units are equivalent to one REC. Multifamily residential, commercial, and industrial units will be adjusted to reflect their respective demand on the water and wastewater distribution and collection systems, and in accordance with their ratio to a 1-inch water meter as established by the American Water Works Association (AWWA).

ROADWAY FACILITY SERVICE AREAS

Chapter 395 defines roadway service areas differently than water and wastewater service areas. Roadway service areas can be no more than 6 miles and are confined to the existing City limits. The Roadway Impact Fee Service Area Map in Appendix E shows that one roadway service area encompassing the entirety of the City limits is being evaluated for the Study.

The service units for roadway improvements will be assessed as the number of vehicle-miles. A vehicle-mile is the capacity consumed in a single lane in the PM peak hour by a vehicle making a trip 1 mile in length. The PM peak hour is used as a basis for transportation planning and the estimation of trips caused by new development.

EXISTING AND FUTURE LAND USE ASSUMPTIONS

The Future Land Use Map in Appendix B was created using the City's Existing and Future Land Use Maps from the 2019 Comprehensive Plan as a foundation. Before updating the land uses to match what has been developed since 2019, the current City limits and ETJ were updated to reflect tracts of land that have been annexed since the 2019 land use maps were created. The parcels in the 2019 Future Land Use Map were reviewed and updated based on their current land uses as of June 2023. Parcels that were found to be developed as of June 2023 had their land use updated to be consistent with their use. The properties that are undeveloped or currently being developed are hatched to show future land uses (such as residential, commercial, or industrial). See Appendix B for the Future Land Use Map.

POPULATION PROJECTIONS

From 1970 through 2020, the City averaged a modest population growth rate of approximately 1.35 percent, according to the United States Census Bureau. Looking forward, the City’s 2019 Comprehensive Plan considered a variety of population projection methodologies to predict the City’s future population growth. The five lower 20-year population projections shown in Figure 1 were modeled using the same methodologies that were used in the City’s 2019 Comprehensive Plan. The 2019 Comprehensive Plan models were recalculated to reflect more recent rates and were updated appropriately.

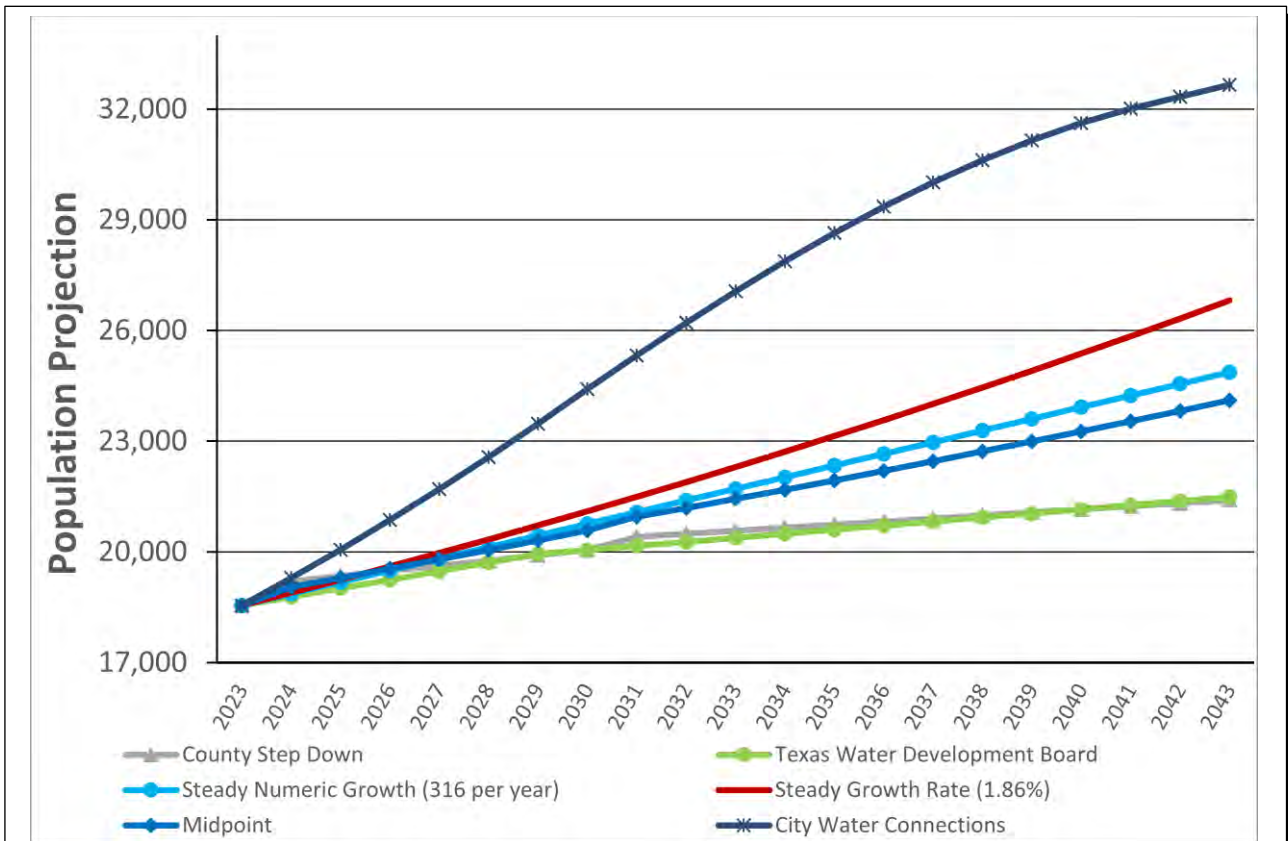


Figure 1 Population Projections

- County Step Down—This method assumed the population of the City reflects a percentage of the projected population of Washington County, Texas (County) in a given year. The graph in Figure 1 assumes that the City accounts for approximately 52.5 percent of the total population of the County. This percentage comes from the Texas Water Development Board (TWDB) projections for the City and County.
- TWDB—This government organization creates its own projections for cities at the beginning of every decade (i.e., 2020, 2030, 2040, and continuing) based on the number of projected water connections across the state of Texas. TWDB projections have been updated since the development of the 2019 Comprehensive Plan and updates are reflected in Figure 1.
- Steady Numeric Growth—This linear model assumes that the population will increase by approximately 316 people each year. This was the average growth per year from 2018 to 2023.
- Steady Growth Rate—This exponential model is based on the 1.86 percent compound annual growth rate (CAGR) the City had from 2018 to 2023.
- Midpoint—This model takes the average population from the lower County Step Down projection and the higher Steady Growth Rate projection.

The five methodologies evaluated in the City's 2019 Comprehensive Plan did not anticipate the City's current population (18,549, as of June 2023) would be achieved until between 2027 and 2034, depending on the methodology used. Because of this, it was decided that a higher population projection was needed based on known and anticipated future developments.

Strand recently worked with the City to evaluate its water system and, in doing so, prepared an additional population projection based on the number of projected water connections that the City anticipates adding to the water distribution system over the next 20 years. The City reviewed these new projections and accepted them for the purposes of planning for future growth as it relates to its water expansion study and the Study.

CIPs

As part of this Study, and as required by Chapter 395, water, wastewater, and roadway CIPs were developed. The CIPs were presented during a public hearing and adopted by the City Council on December 7, 2023. The adopted water, wastewater, and roadway CIPs are shown in Tables 1, 2, and 3, respectively. The associated service area maps with project IDs are included in Appendices C, D, and E.

Water CIP Projects		Opinion of Probable Costs
ID	Project Name	10-Year Costs (Escalated)
WT1	Surface Water Treatment Plant Improvements	\$4,021,076
WT2	Loesch Street Water Plant	\$11,700,000
WT3	Westside Water Plant	\$15,616,875
WS1	Highway 36 South Elevated Storage Tank	\$3,348,768
WS2	Gun and Rod Road Elevated Storage Tank	\$2,705,078
WM1	Highway 36 South Water Main Extension	\$486,375
WM2	Old Masonic Road Water Main Replacement and Extension	\$639,229
WM3	Dixie Road Water Main Extension	\$677,244
WM4	Mustang Road Water Main Extension	\$294,977
WM5	FM 2935 Water Main Extension	\$1,696,114
WM6	Highway 290 West Water Main Replacement	\$323,517
WM7	FM 332 Water Main Extension	\$866,999
WM8	Highway 290 East–Phase 1 Water Main Extension	\$625,352
WM9	Highway 105 Water Main Replacement and Extension	\$479,959
WM10	Small Area Plan Water Main Extension	\$1,257,507
WM11	Highway 290 East–Phase 2 Water Main Extension	\$327,504
Study	Water Impact Fee Study	\$65,000
Total 10-Year Escalated Water CIP Costs:		\$45,131,575

FM = Farm-to-Market

Table 1 Water CIP Summary

Wastewater CIP Projects		Opinion of Probable Costs
ID	Project Name	10-Year Costs (Escalated)
WWT1	Wastewater Treatment Plant Expansion Study	\$31,620
WWP1	Stone Hollow Lift Station, Force Main, and Gravity Sewer Replacement	\$301,509
WWP2	Business Center Lift Station–Phase 1, Force Main, and Gravity Sewer Replacement	\$1,439,074
WWP3	Industrial Boulevard Lift Station, Force Main, and Gravity Sewer Replacement	\$692,137
WWP4	Highway 105 Lift Station, Force Main, and Gravity Sewer Replacement	\$3,346,378
WWP5	TxDOT Lift Station and Force Main	\$548,385
WWP6	Old Masonic Road Lift Station, Force Main, and Gravity Sewer	\$1,468,627
WWP7	Henderson Park Lift Station (Pump Replacement), Force Main, and Gravity Sewer Replacement	\$313,212
WWP8	Munz Lift Station, Force Main, and Gravity Sewer Replacement	\$4,668,392
WWP9	Liberty Village Lift Station (Pump Replacement) and Gravity Sewer Replacement	\$384,439
WWP10	Mustang Road Lift Station, Force Main, and Gravity Sewer	\$1,237,439
WWP11	Business Center Lift Station–Phase 2 Force Main Replacement	\$561,451
WWP12	Ralston Creek Lift Station (Pump Replacement) and Force Main Replacement	\$1,050,765
WWP13	Highway 290 East Lift Station–Phase 1, Force Main, and Gravity Sewer	\$402,598
WWP14	K of C Hall Lift Station and Force Main	\$1,276,449
WWP15	Baker Katz Lift Station, Force Main, and Gravity Sewer Replacement	\$2,630,696
WWP16	Highway 36 South No. 2 Lift Station and Force Main	\$1,622,276
WWC1	Dixie Road Gravity Sewer Extension	\$191,552
WWC2	FM 2935 Gravity Sewer Extension	\$864,801
WWC3	FM 332 Gravity Sewer Extension	\$342,679
WWC4	Highway 105 Gravity Sewer Extension	\$396,058
WWC5	Highway 290 East Gravity Sewer Extension–Phase 2	\$95,111
WWC6	Highway 36 North Gravity Sewer Extension	\$615,288
Study	Wastewater Impact Fee Study	\$110,000
Total 10-Year Escalated Wastewater CIP Costs:		\$24,590,935

K of C = Knights of Columbus

Table 2 Wastewater CIP Summary

Roadway CIP Projects		Opinion of Probable Costs
ID	Project Name	10-Year Costs (Escalated)
R1	Tom Green Street	\$6,318,265
R2	Schulte Boulevard Extension	\$2,479,225
R3	East Stone Street	\$6,832,797
R4	West Gun and Rod Road	\$2,827,324
R5	East Gun and Rod Road	\$2,798,166
R6	South Saeger Street	\$5,874,096
R7	Old Mill Creek Road	\$4,695,907
R8	Burleson Street	\$6,382,390
R9	North Dixie Street	\$5,079,093
R10	North Saeger Street	\$3,518,071
R11	Dixie Road Extension	\$4,470,477
R12	North Dixie Street	\$2,684,716
R13	South Blue Bell Road Extension	\$22,403,793
R14	Small Area Plan Collector	\$7,321,226
R15	Independence Road	\$3,769,669
R16	Salem Road	\$1,194,895
R17	Old Chappell Hill Road	\$655,382
R18	South Chappell Hill Street	\$995,746
I1	Academy–Austin Intersection	\$4,596
Study	Roadway Impact Fee Study	\$75,000
Total 10-Year Escalated Roadway CIP Costs:		\$90,380,835

Table 3 Roadway CIP Summary

PUBLIC INPUT AND FEEDBACK

At the time of this Study there have been eight public meetings. Minutes from the meetings are available on the City’s Web site or at City Hall. A brief summary of the public meeting dates, public comments, meeting topics, and CIAC action items are as follows:

1. CIAC Meeting No. 1, July 24, 2023–Seven CIAC Members were present along with City staff and representatives from Strand. The meeting was called to order and there were no public comments. The Regular Session included a presentation by Strand titled *Draft Land Use Assumptions Fulfill Important Steps in the Impact Fee Development Process*. No formal action was taken by the CIAC. The meeting lasted approximately 2 hours.
2. CIAC Meeting No. 2A, September 12, 2023–Seven CIAC Members were present along with City staff and representatives from Strand. The meeting was called to order and there were no public comments. The Regular Session included a presentation by Strand titled *Roadway Impact Fees Provide Supplemental Funding Source for Needed Roadway Capacity Improvements*. The following CIAC consensus items were supported by all CIAC members:

- Water Study's population projections.
- Single service area for Roadway Impact Fees.
- Roadway CIP to include all 18 projects presented.
- Proposed prioritization of Roadway CIP's projects.

The meeting lasted approximately 1.5 hours.

3. CIAC Meeting No. 2B, October 24, 2023—Six CIAC Members were present along with City staff and representatives from Strand. The meeting was called to order and there were no public comments. The Regular Session included a presentation by Strand titled *Water and Wastewater Impact Fees Provide Funds Needed to Support Future Capacity Improvements*. The following CIAC consensus items were supported by all CIAC members:

- Water and Wastewater CIPs will include all proposed projects.
- Proposed prioritization of CIP projects.

The meeting lasted approximately 1.5 hours.

4. Public Hearing No. 1, December 7, 2023—The Mayor and all City Council members were present at Public Hearing No. 1 in addition to City staff, representatives from Strand, and other citizens. Approximately four citizens were in attendance. Strand gave a presentation titled *Land Use Assumptions and Capital Improvement Plans Fulfill Important Steps in the Impact Fee Development Process*, which was followed by several questions and answers from the City Council and other citizens. The Regular Session included Resolution No. R-23-044 Adopting Land Assumptions and Water, Wastewater, and Roadway Capital Improvement Plans for the Possible Implementation of Impact Fees in the City of Brenham, Texas. Resolution No. R-23-044 passed unanimously. The public hearing lasted approximately 2 hours.
5. CIAC Meeting No. 3, December 19, 2023—Nine CIAC Members were present along with City staff and representatives from Strand. The meeting was called to order and there were no public comments. The Regular Session included a presentation by Strand titled *Impact Fees Fund Improvements Needed to Serve New Development while Maintaining Regulatory Compliance and Quality of Service*. No formal action was taken by the CIAC. The meeting lasted less than 2 hours.
6. Developer's Workshop, January 11, 2024—The developer's workshop was well attended by local developers, local business owners, the Economic Development Foundation, City staff, and representatives from Strand. A total of 38 individuals were in attendance. Strand gave a presentation titled *Impact Fees Fund Improvements Needed to Serve New Development while Maintaining Regulatory Compliance and Quality of Service*. Following the presentation, City staff and Strand fielded numerous questions from those in attendance. The workshop lasted approximately 2 hours.

7. CIAC Meeting No. 4, January 23, 2024—Eight CIAC Members were present along with City Staff and representatives from Strand. The meeting was called to order and there were numerous public comments. The Regular Session included a presentation by City Staff and Strand regarding the current state of the City's water, wastewater, and roadway infrastructure. The CIAC voted to recommend impact fee rates that are 90 percent, 20 percent, and 0 percent of the maximum assessable impact fees for water, wastewater, and roadway, respectively. The meeting lasted approximately 4 hours.
8. Public Hearing No. 2, February 1, 2024—The Mayor and all City Council members were present at Public Hearing No. 2 in addition to City staff, representatives from Strand, and other citizens. Strand gave a presentation titled *Impact Fees Fund Improvements Needed to Serve New Development while Maintaining Regulatory Compliance and Quality of Service*, which was followed by several questions and answers from City Council and other citizens. No action was taken as a result of the public hearing. The public hearing lasted approximately 1.5 hours.

WATER, WASTEWATER, AND ROADWAY IMPACT FEES

Impact fee analysis for water, wastewater and roadway impact fees considers the percentage of each project cost within the CIPs that is attributable to new development over the next 10-year period within the defined service area. For this Study, anticipated development between 2023 and 2033 was considered. Existing water, wastewater, and roadway capacities, and additional capacities serving development beyond 2033, are not eligible according to Chapter 395; therefore, these costs were not included in the impact fee development.

MAXIMUM ALLOWABLE IMPACT FEE CALCULATION

Chapter 395 states the impact fee per service unit may not exceed the amount determined by subtracting a credit from the cost of the capital improvements and dividing that amount by the total number of projected service units determined. Chapter 395 provides the following two methods to choose from for determining the credit:

1. 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 CIP.
2. A credit equal to 50 percent of the total projected cost of implementing the CIP.

The CIAC elected to calculate the credit based on the 50 percent method previously described. Chapter 395 also requires the consideration of project financing costs (added), existing fund balances (subtracted), and interest earned on impact fee fund balances (subtracted). These elements are either added or subtracted from the 10-year escalated CIP costs to determine a pre-credit recoverable cost.

In developing the components of the financial model several assumptions were made, including:

1. Financing
 - a. Projects funded by debt minus what has already been collected in previous impact fees.
 - b. 20-year debt terms at 5 percent interest.
2. Debt taken out is spent over a 3-year time frame.
3. Interest earned on deposits—1.28 percent, based on the TexPool rate of monthly performance as of April 6, 2023.
4. Average inflation of CIP costs—4 percent, based on Engineering News Record Construction Cost Index (2003 through 2023).

MAXIMUM ALLOWABLE WATER IMPACT FEE

The maximum allowable water impact fee per service unit is summarized in Table 4. The maximum allowable impact fee includes the CIP costs to serve development during the next 10 years, financing costs, existing fund balance, interest, and credit in accordance with Chapter 395.

Water Impact Fee	
10-Year Escalated CIP Costs:	\$45,131,575
Financing Cost (+):	\$8,874,838
Existing Fund Balance (-):	--
Interest Earnings (-):	(\$2,121,935)
Pre-Credit Recoverable Costs:	\$51,884,478
Pre-Credit Recoverable Costs:	\$51,884,478
50% Credit:	(\$25,942,239)
Maximum Recoverable Costs:	\$25,942,239
Service Units:	4,870
Maximum Allowable Impact Fee Per Service Unit:	\$5,327

Table 4 Maximum Allowable Water Impact Fee

MAXIMUM ALLOWABLE WASTEWATER IMPACT FEE

The maximum allowable wastewater impact fee per service unit is summarized in Table 5. The maximum allowable impact fee includes the CIP costs to serve development during the next 10 years, financing costs, existing fund balance, interest, and credit in accordance with Chapter 395.

Wastewater Impact Fee	
10-Year Escalated CIP Costs:	\$24,590,935
Financing Cost (+):	\$7,312,484
Existing Fund Balance (-):	--
Interest Earnings (-):	(\$1,687,373)
Pre-Credit Recoverable Costs:	\$30,216,047
Pre-Credit Recoverable Costs:	\$30,216,047
50% Credit:	(\$15,108,023)
Maximum Recoverable Costs:	\$15,108,023
Service Units:	4,870
Maximum Allowable Impact Fee Per Service Unit:	\$3,102

Table 5 Maximum Allowable Wastewater Impact Fee

MAXIMUM ALLOWABLE ROADWAY IMPACT FEE

The maximum allowable roadway impact fee per service unit is summarized in Table 6. The maximum allowable impact fee includes the CIP costs to serve development during the next 10 years, financing costs, existing fund balance, interest, and credit in accordance with Chapter 395.

Roadway Impact Fee	
10-Year Escalated CIP Costs:	\$90,380,835
Financing Cost (+):	\$27,486,907
Existing Fund Balance (-):	--
Interest Earnings (-):	(\$5,761,522)
Pre-Credit Recoverable Costs:	\$112,106,220
Pre-Credit Recoverable Costs:	\$112,106,220
50% Credit:	(\$56,053,110)
Maximum Recoverable Costs:	\$56,053,110
Service Units:	52,435
Maximum Allowable Impact Fee Per Service Unit:	\$1,069

Table 6 Maximum Allowable Roadway Impact Fee

MAXIMUM ALLOWABLE WATER AND WASTEWATER IMPACT FEE BY WATER METER SIZE

The American Water Works Association (AWWA) publishes equivalency tables that equate the maximum continuous duty flow for a standard residential water meter to larger meters. The associating water and wastewater impact fees are then scaled up based on the ratio of the standard residential water meter to that of a larger water meter. See Table 7 for the water and wastewater impact fees for various water meter types and sizes.

Meter Size (inch)	Meter Type	Continuous Duty Maximum Flow Rate (gpm)	Ratio to 1-Inch Meter	Maximum Allowable Impact Fees	
				Water	Wastewater
1	Displacement Type	25	1	\$5,327	\$3,102
1.5	Displacement Type	50	2	\$10,654	\$6,204
2	Displacement Type	80	3.2	\$17,046	\$9,926
2	Compound	80	3.2	\$17,046	\$9,926
3	Compound	175	7	\$37,289	\$21,714
3	Turbine Vertical Shaft	220	8.8	\$46,878	\$27,298
3	Turbine High Velocity	350	14	\$74,578	\$43,428
4	Compound	300	12	\$63,924	\$37,224
4	Turbine Vertical Shaft	420	16.8	\$89,494	\$52,114
4	Turbine High Velocity	650	26	\$138,502	\$80,652
6	Compound	675	27	\$143,829	\$83,754
6	Turbine Vertical Shaft	865	34.6	\$184,314	\$107,329
6	Turbine High Velocity	1,400	56	\$298,312	\$173,712
8	Compound	900	36	\$191,772	\$111,672
8	Turbine High Velocity	2,400	96	\$511,392	\$297,792
10	Turbine High Velocity	3,500	140	\$745,780	\$434,280
12	Turbine High Velocity	4,400	176	\$937,552	\$545,952

Table 7 Water and Wastewater Impact Fees for Various Water Meter Types and Sizes

MAXIMUM ALLOWABLE ROADWAY IMPACT FEE BY VEHICLE-MILES CONSUMED

The Institute of Transportation Engineers (ITE) publishes a Trip Generation Manual. The ITE Trip Generation Manual includes the number of vehicle miles consumed by various land use categories per development unit (DU). Development units vary between categories but are often based on number of dwelling units or gross floor area (GFA). The maximum roadway impact fees for various categories can be found in Table 8.

Land Use Category	DU	Vehicle Miles	Impact Fee per DU
Residential			
Assisted Living	Beds	1.19	\$1,274
Mobile Home Park	DU	2.88	\$3,078
Multifamily (Low-Rise)	DU	2.53	\$2,707
Multifamily (Mid-Rise)	DU	1.94	\$2,070
Senior Adult Housing–Attached	DU	1.24	\$1,327
Senior Adult Housing–Detached	DU	1.49	\$1,592
Single-Family (Detached)	DU	4.67	\$4,989
Industrial			
General Light Industrial–Default	1,000 sf GFA	3.88	\$4,152
Industrial Park	1,000 sf GFA	2.03	\$2,172
Manufacturing	1,000 sf GFA	4.42	\$4,727
Mini-Warehouse	1,000 sf GFA	0.90	\$958
Utility	1,000 sf GFA	12.91	\$13,797
Warehousing	1,000 sf GFA	1.08	\$1,150
Lodging			
Hotel	Room	2.93	\$3,131
Motel/Other Lodging Facilities	Room	1.79	\$1,911
Office			
Corporate Headquarters Building	1,000 sf GFA	7.80	\$8,338
General Office Building–Default	1,000 sf GFA	8.63	\$9,221
Government Office Building	1,000 sf GFA	10.26	\$10,968
Medical-Dental Office Building	1,000 sf GFA	23.58	\$25,207
Single Tenant Office Building	1,000 sf GFA	10.56	\$11,289
United States Post Office	1,000 sf GFA	67.26	\$71,901
Recreational			
Multiplex Movie Theater	1,000 sf GFA	37.02	\$39,574
Recreational Community Center	1,000 sf GFA	15.00	\$16,035
Institutional			
Church	1,000 sf GFA	2.28	\$2,433
Day Care Center	1,000 sf GFA	28.93	\$30,921
Elementary School	Students	0.74	\$794
Fire and Rescue Station (Private)	1,000 sf GFA	2.88	\$3,079
High School	Students	0.65	\$695
Junior/Community College	Students	0.51	\$546
Library	1,000 sf GFA	48.96	\$52,338
Middle School/High School	Students	0.70	\$745
Private School (K-8)	Students	1.21	\$1,291
Private School (K-12)	Students	0.79	\$844
Medical			
Animal–Veterinary Clinic	1,000 sf GFA	14.75	\$15,770
Clinic	1,000 sf GFA	22.03	\$23,549
Hospital	1,000 sf GFA	5.13	\$5,488
Nursing Home	Beds	0.84	\$893
Dining			
Coffee/Donut Shop with Drive-Thru	1,000 sf GFA	38.83	\$41,514
Coffee/Donut Shop without Drive-Thru	1,000 sf GFA	32.16	\$34,380
Drinking Place	1,000 sf GFA	28.29	\$30,238
Fast Food with Drive-Thru	1,000 sf GFA	49.35	\$52,752
Fast Food without Drive-Thru	1,000 sf GFA	44.10	\$47,146
Fine Dining Restaurant	1,000 sf GFA	14.50	\$15,502
High Turnover Restaurant (Sit Down)	1,000 sf GFA	17.13	\$18,308
Services			
Bank (Walk-In)	1,000 sf GFA	20.20	\$21,594
Bank (Drive-In)	Drive-In Lanes	48.83	\$52,199
Hair Salon	1,000 sf GFA	2.82	\$3,015
Automobile			
Automated Car Wash	1,000 sf GFA	23.64	\$25,274
Automobile Care Center	1,000 sf GFA	5.61	\$5,997
Automobile Parts/Service Center	1,000 sf GFA	3.72	\$3,972
Automobile Parts Sales	1,000 sf GFA	7.75	\$8,285
Automobile Sales (New)	1,000 sf GFA	5.04	\$5,384
Automobile Sales (Used)	1,000 sf GFA	7.80	\$8,343
Convenience Store/Gas Station	Fuel Positions	22.49	\$24,043
Gasoline/Service Station	Fuel Positions	16.60	\$17,743
Quick Lubrication Vehicle Stop	1,000 sf GFA	15.69	\$16,775
Self-Service Car Wash	Wash Stalls	9.22	\$9,861
Tire Store	1,000 sf GFA	7.80	\$8,343
Other Retail			
Building Materials and Lumber Store	1,000 sf GFA	3.75	\$4,005
Department Store	1,000 sf GFA	3.79	\$4,049
Discount Store	1,000 sf GFA	7.67	\$8,203
Free-Standing Discount Store	1,000 sf GFA	10.79	\$11,534
Furniture Store	1,000 sf GFA	0.68	\$725
Hardware/Paint Store	1,000 sf GFA	6.12	\$6,542
Home Improvement Superstore	1,000 sf GFA	3.69	\$3,940
Liquor Store	1,000 sf GFA	30.90	\$33,033
Nursery (Garden Center)	1,000 sf GFA	13.48	\$14,411
Drugstore with Drive-Thru	1,000 sf GFA	14.51	\$15,507
Drugstore without Drive-Thru	1,000 sf GFA	11.10	\$11,865
Shopping Center–Default	1,000 sf GFA	6.70	\$7,161
Sporting Goods Superstore	1,000 sf GFA	4.16	\$4,444
Supermarket	1,000 sf GFA	18.88	\$20,178
Tractor Supply Store	1,000 sf GFA	2.53	\$2,699

sf = square feet

Table 8 Roadway Fee per DU

WATER, WASTEWATER, AND ROADWAY IMPACT FEES ADOPTED BY NEIGHBORING COMMUNITIES

A “waterfall” chart of water, wastewater, and roadway impact fees that have been adopted by neighboring communities can be found in Figure 2, along with the year in which the impact fees were adopted. The chart shows the City relative to neighboring communities if the City were to adopt the maximum allowable impact fees for water, wastewater, and roadways. The CIAC’s formal recommendation for initially setting the impact fees (i.e., 90 percent, 20 percent, and 0 percent of the maximum allowable impact fees for water, wastewater, and roadway, respectively) is also included in Figure 2. It should be noted that not all of the impact fees adopted by neighboring communities are the maximum allowable for that city.

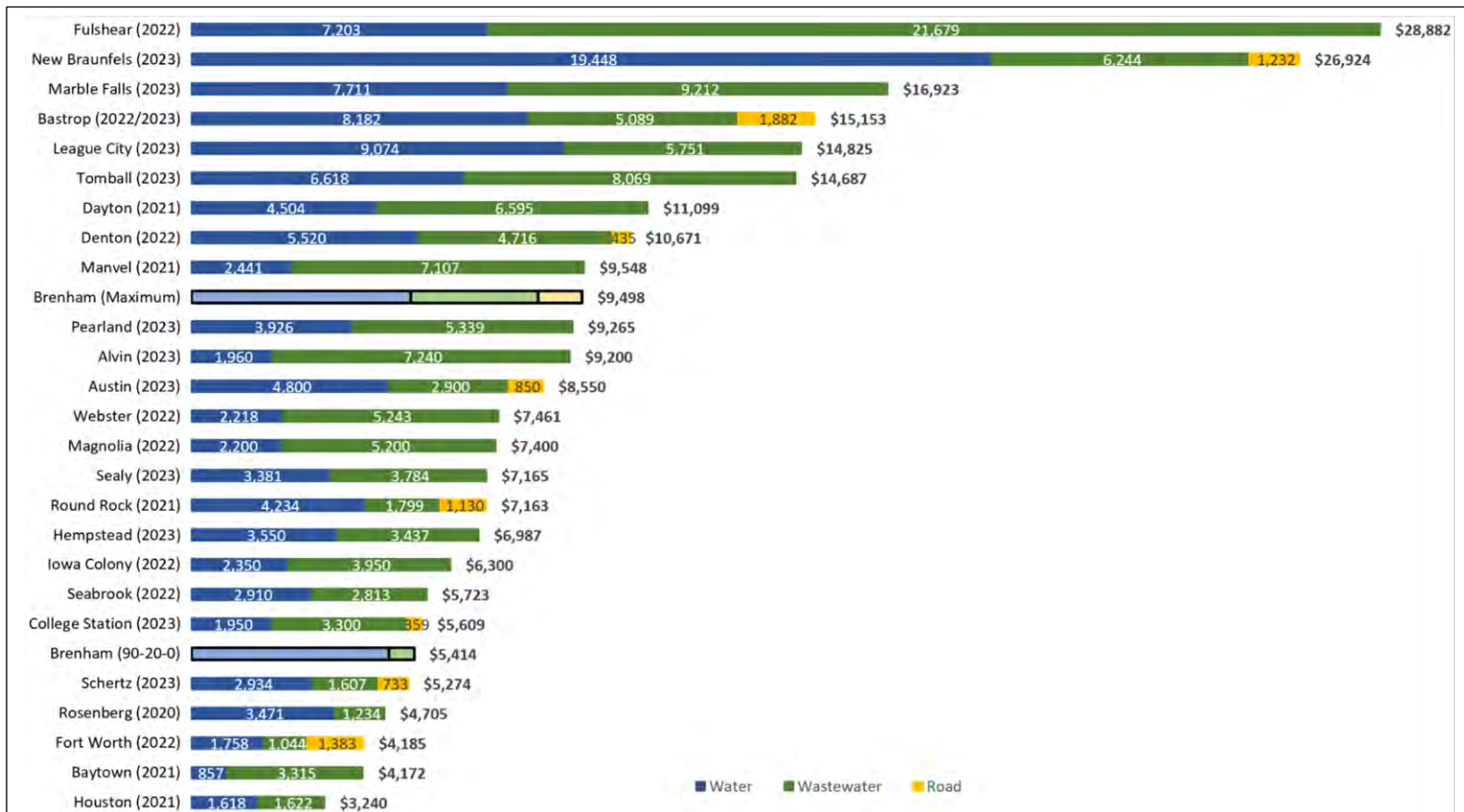


Figure 2 Impact Fees for Different Cities

CIAC RECOMMENDED IMPACT FEES

The CIAC provided a memorandum to the Mayor and City Council providing written comments and a formal recommendation of impact fee amounts for water, wastewater, and roadway impact fees. See Appendix F in which the CIAC recommends impact fees (per service unit) of \$4,794, \$620, and \$0 for water, wastewater, and roadway, respectively.

CONCLUSION

This report has documented the City's Study. The development of these impact fees has been in accordance with Chapter 395 for the compilation of maximum allowable impact fees for water, wastewater, and roadway facilities, building off the Tech Memo previously provided.

LOCAL GOVERNMENT CODE

TITLE 12. PLANNING AND DEVELOPMENT

SUBTITLE C. PLANNING AND DEVELOPMENT PROVISIONS APPLYING TO MORE THAN ONE
TYPE OF LOCAL GOVERNMENT

CHAPTER 395. FINANCING CAPITAL IMPROVEMENTS REQUIRED BY NEW DEVELOPMENT IN
MUNICIPALITIES, COUNTIES, AND CERTAIN OTHER LOCAL GOVERNMENTS

SUBCHAPTER A. GENERAL PROVISIONS

Sec. 395.001. DEFINITIONS. In this chapter:

(1) "Capital improvement" means any of the following facilities that have a life expectancy of three or more years and are owned and operated by or on behalf of a political subdivision:

(A) water supply, treatment, and distribution facilities; wastewater collection and treatment facilities; and storm water, drainage, and flood control facilities; whether or not they are located within the service area; and

(B) roadway facilities.

(2) "Capital improvements plan" means a plan required by this chapter that identifies capital improvements or facility expansions for which impact fees may be assessed.

(3) "Facility expansion" means the expansion of the capacity of an existing facility that serves the same function as an otherwise necessary new capital improvement, in order that the existing facility may serve new development. The term does not include the repair, maintenance, modernization, or expansion of an existing facility to better serve existing development.

(4) "Impact fee" means a charge or assessment imposed by a political subdivision against new development in order to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development. The term includes amortized charges, lump-sum charges, capital recovery fees, contributions in aid of construction, and any other fee that functions as described by this definition. The term does not include:

(A) dedication of land for public parks or payment in lieu of the dedication to serve park needs;

(B) dedication of rights-of-way or easements or construction or dedication of on-site or off-site water distribution, wastewater

collection or drainage facilities, or streets, sidewalks, or curbs if the dedication or construction is required by a valid ordinance and is necessitated by and attributable to the new development;

(C) lot or acreage fees to be placed in trust funds for the purpose of reimbursing developers for oversizing or constructing water or sewer mains or lines; or

(D) other pro rata fees for reimbursement of water or sewer mains or lines extended by the political subdivision.

However, an item included in the capital improvements plan may not be required to be constructed except in accordance with Section 395.019(2), and an owner may not be required to construct or dedicate facilities and to pay impact fees for those facilities.

(5) "Land use assumptions" includes a description of the service area and projections of changes in land uses, densities, intensities, and population in the service area over at least a 10-year period.

(6) "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.

(7) "Political subdivision" means a municipality, a district or authority created under Article III, Section 52, or Article XVI, Section 59, of the Texas Constitution, or, for the purposes set forth by Section 395.079, certain counties described by that section.

(8) "Roadway facilities" means arterial or collector streets or roads that have been designated on an officially adopted roadway plan of the political subdivision, together with all necessary appurtenances. The term includes the political subdivision's share of costs for roadways and associated improvements designated on the federal or Texas highway system, including local matching funds and costs related to utility line relocation and the establishment of curbs, gutters, sidewalks, drainage appurtenances, and rights-of-way.

(9) "Service area" means the area within the corporate boundaries or extraterritorial jurisdiction, as determined under Chapter 42, of the political subdivision to be served by the capital improvements or facilities expansions specified in the capital improvements plan, except roadway facilities and storm water, drainage, and flood control facilities. The service area, for the purposes of this chapter, may include all or part of the land within the political subdivision or its extraterritorial jurisdiction, except for roadway facilities and storm water, drainage, and

flood control facilities. For roadway facilities, the service area is limited to an area within the corporate boundaries of the political subdivision and shall not exceed six miles. For storm water, drainage, and flood control facilities, the service area may include all or part of the land within the political subdivision or its extraterritorial jurisdiction, but shall not exceed the area actually served by the storm water, drainage, and flood control facilities designated in the capital improvements plan and shall not extend across watershed boundaries.

(10) "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 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.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 1989, 71st Leg., ch. 566, Sec. 1(e), eff. Aug. 28, 1989;

Acts 2001, 77th Leg., ch. 345, Sec. 1, eff. Sept. 1, 2001.

SUBCHAPTER B. AUTHORIZATION OF IMPACT FEE

Sec. 395.011. AUTHORIZATION OF FEE. (a) Unless otherwise specifically authorized by state law or this chapter, a governmental entity or political subdivision may not enact or impose an impact fee.

(b) Political subdivisions may enact or impose impact fees on land within their corporate boundaries or extraterritorial jurisdictions only by complying with this chapter, except that impact fees may not be enacted or imposed in the extraterritorial jurisdiction for roadway facilities.

(c) A municipality may contract to provide capital improvements, except roadway facilities, to an area outside its corporate boundaries and extraterritorial jurisdiction and may charge an impact fee under the contract, but if an impact fee is charged in that area, the municipality must comply with this chapter.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.012. ITEMS PAYABLE BY FEE. (a) An impact fee may be imposed only to pay the costs of constructing capital improvements or facility expansions, including and limited to the:

- (1) construction contract price;
- (2) surveying and engineering fees;

(3) land acquisition costs, including land purchases, court awards and costs, attorney's fees, and expert witness fees; and

(4) fees actually paid or contracted to be paid to an independent qualified engineer or financial consultant preparing or updating the capital improvements plan who is not an employee of the political subdivision.

(b) Projected interest charges and other finance costs may be included in determining the amount of impact fees only if the impact fees are used for the payment of principal and interest on bonds, notes, or other obligations issued by or on behalf of the political subdivision to finance the capital improvements or facility expansions identified in the capital improvements plan and are not used to reimburse bond funds expended for facilities that are not identified in the capital improvements plan.

(c) Notwithstanding any other provision of this chapter, the Edwards Underground Water District or a river authority that is authorized elsewhere by state law to charge fees that function as impact fees may use impact fees to pay a staff engineer who prepares or updates a capital improvements plan under this chapter.

(d) A municipality may pledge an impact fee as security for the payment of debt service on a bond, note, or other obligation issued to finance a capital improvement or public facility expansion if:

(1) the improvement or expansion is identified in a capital improvements plan; and

(2) at the time of the pledge, the governing body of the municipality certifies in a written order, ordinance, or resolution that none of the impact fee will be used or expended for an improvement or expansion not identified in the plan.

(e) A certification under Subsection (d)(2) is sufficient evidence that an impact fee pledged will not be used or expended for an improvement or expansion that is not identified in the capital improvements plan.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 1995, 74th Leg., ch. 90, Sec. 1, eff. May 16, 1995.

Sec. 395.013. ITEMS NOT PAYABLE BY FEE. Impact fees may not be adopted or used to pay for:

(1) construction, acquisition, or expansion of public facilities or assets other than capital improvements or facility expansions identified in the capital improvements plan;

(2) repair, operation, or maintenance of existing or new capital improvements or facility expansions;

(3) upgrading, updating, expanding, or replacing existing capital improvements to serve existing development in order to meet stricter safety, efficiency, environmental, or regulatory standards;

(4) upgrading, updating, expanding, or replacing existing capital improvements to provide better service to existing development;

(5) administrative and operating costs of the political subdivision, except the Edwards Underground Water District or a river authority that is authorized elsewhere by state law to charge fees that function as impact fees may use impact fees to pay its administrative and operating costs;

(6) principal payments and interest or other finance charges on bonds or other indebtedness, except as allowed by Section 395.012.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.014. CAPITAL IMPROVEMENTS PLAN. (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 the 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 the 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 the 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 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) 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.

(b) The analysis required by Subsection (a)(3) may be prepared on a systemwide basis within the service area for each major category of capital improvement or facility expansion for the designated service area.

(c) The governing body of the political subdivision is responsible for supervising the implementation of the capital improvements plan in a timely manner.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 2, eff. Sept. 1, 2001.

Sec. 395.015. MAXIMUM FEE PER SERVICE UNIT. (a) The impact fee per service unit may not exceed the amount determined by subtracting the amount in Section 395.014(a)(7) from the costs of the capital improvements described by Section 395.014(a)(3) and dividing that amount by the total number of projected service units described by Section 395.014(a)(5).

(b) If the number of new service units projected over a reasonable period of time is less than the total number of new service units shown by the approved land use assumptions at full development of the service area, the maximum impact fee per service unit shall be calculated by dividing the costs of the part of the capital improvements necessitated by and attributable to projected new service units described by Section 395.014(a)(6) by the projected new service units described in that section.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 3, eff. Sept. 1, 2001.

Sec. 395.016. TIME FOR ASSESSMENT AND COLLECTION OF FEE. (a) This subsection applies only to impact fees adopted and land platted before June 20, 1987. For land that has been platted in accordance with Subchapter A, Chapter 212, or the subdivision or platting procedures of a political subdivision before June 20, 1987, or land on which new development occurs or is proposed without platting, the political subdivision may assess the impact fees at any time during the development approval and building process. Except as provided by Section 395.019, the political subdivision may collect the fees at either the time of recordation of the subdivision plat or connection to the political subdivision's water or sewer system or at the time the political subdivision issues either the building permit or the certificate of occupancy.

(b) This subsection applies only to impact fees adopted before June 20, 1987, and land platted after that date. For new development which is platted in accordance with Subchapter A, Chapter 212, or the subdivision or platting procedures of a political subdivision after June 20, 1987, the political subdivision may assess the impact fees before or at the time of recordation. Except as provided by Section 395.019, the political subdivision may collect the fees at either the time of recordation of the subdivision plat or connection to the political subdivision's water or sewer system or at the time the political subdivision issues either the building permit or the certificate of occupancy.

(c) This subsection applies only to impact fees adopted after June 20, 1987. For new development which is platted in accordance with Subchapter A, Chapter 212, or the subdivision or platting procedures of a political subdivision before the adoption of an impact fee, an impact fee may not be collected on any service unit for which a valid building permit is issued within one year after the date of adoption of the impact fee.

(d) This subsection applies only to land platted in accordance with Subchapter A, Chapter 212, or the subdivision or platting procedures of a political subdivision after adoption of an impact fee adopted after June 20, 1987. The political subdivision shall assess the impact fees before or at the time of recordation of a subdivision plat or other plat under Subchapter A, Chapter 212, or the subdivision or platting ordinance or procedures of any political subdivision in the official records of the county clerk of the county in which the tract is located. Except as provided by Section 395.019, if the political subdivision has water and wastewater capacity available:

(1) the political subdivision shall collect the fees at the time the political subdivision issues a building permit;

(2) for land platted outside the corporate boundaries of a municipality, the municipality shall collect the fees at the time an application for an individual meter connection to the municipality's water or wastewater system is filed; or

(3) a political subdivision that lacks authority to issue building permits in the area where the impact fee applies shall collect the fees at the time an application is filed for an individual meter connection to the political subdivision's water or wastewater system.

(e) For land on which new development occurs or is proposed to occur without platting, the political subdivision may assess the impact fees at any time during the development and building process and may collect the fees at either the time of recordation of the subdivision plat or connection to the political subdivision's water or sewer system or at the time the political subdivision issues either the building permit or the certificate of occupancy.

(f) An "assessment" means a determination of the amount of the impact fee in effect on the date of occurrence provided in this section and is the maximum amount that can be charged per service unit of such development. No specific act by the political subdivision is required.

(g) Notwithstanding Subsections (a)-(e) and Section 395.017, the political subdivision may reduce or waive an impact fee for any service unit that would qualify as affordable housing under 42 U.S.C. Section 12745, as amended, once the service unit is constructed. If affordable housing as defined by 42 U.S.C. Section 12745, as amended, is not constructed, the political subdivision may reverse its decision to waive or reduce the impact fee, and the political subdivision may assess an impact fee at any time during the development approval or building process or after the building process if an impact fee was not already assessed.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.
Amended by Acts 1997, 75th Leg., ch. 980, Sec. 52, eff. Sept. 1, 1997;
Acts 2001, 77th Leg., ch. 345, Sec. 4, eff. Sept. 1, 2001.

Sec. 395.017. ADDITIONAL FEE PROHIBITED; EXCEPTION. After assessment of the impact fees attributable to the new development or execution of an agreement for payment of impact fees, additional impact fees or increases in fees may not be assessed against the tract for any reason unless the number of service units to be developed on the tract increases. In the event of the increase in the number of service units, the impact fees to be imposed are limited to the amount attributable to the additional service units.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.018. AGREEMENT WITH OWNER REGARDING PAYMENT. A political subdivision is authorized to enter into an agreement with the owner of a tract of land for which the plat has been recorded providing for the time and method of payment of the impact fees.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.019. COLLECTION OF FEES IF SERVICES NOT AVAILABLE. Except for roadway facilities, impact fees may be assessed but may not be collected in areas where services are not currently available unless:

(1) the collection is made to pay for a capital improvement or facility expansion that has been identified in the capital improvements plan and the political subdivision commits to commence construction within two years, under duly awarded and executed contracts or commitments of staff time covering substantially all of the work required to provide service, and to have the service available within a reasonable period of time considering the type of capital improvement or facility expansion to be constructed, but in no event longer than five years;

(2) the political subdivision agrees that the owner of a new development may construct or finance the capital improvements or facility expansions and agrees that the costs incurred or funds advanced will be credited against the impact fees otherwise due from the new development or agrees to reimburse the owner for such costs from impact fees paid from other new developments that will use such capital improvements or facility expansions, which fees shall be collected and reimbursed to the owner at the time the other new development records its plat; or

(3) an owner voluntarily requests the political subdivision to reserve capacity to serve future development, and the political subdivision and owner enter into a valid written agreement.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.020. ENTITLEMENT TO SERVICES. Any new development for which an impact fee has been paid is entitled to the permanent use and benefit of the services for which the fee was exacted and is entitled to receive immediate service from any existing facilities with actual capacity to serve the new service units, subject to compliance with other valid regulations.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.021. AUTHORITY OF POLITICAL SUBDIVISIONS TO SPEND FUNDS TO REDUCE FEES. Political subdivisions may spend funds from any lawful source to pay for all or a part of the capital improvements or facility expansions to reduce the amount of impact fees.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.022. AUTHORITY OF POLITICAL SUBDIVISION TO PAY FEES. (a) Political subdivisions and other governmental entities may pay impact fees imposed under this chapter.

(b) A school district is not required to pay impact fees imposed under this chapter unless the board of trustees of the district consents to the payment of the fees by entering a contract with the political subdivision that imposes the fees. The contract may contain terms the board of trustees considers advisable to provide for the payment of the fees.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by:

Acts 2007, 80th Leg., R.S., Ch. 250 (S.B. 883), Sec. 1, eff. May 25, 2007.

Sec. 395.023. CREDITS AGAINST ROADWAY FACILITIES FEES. Any construction of, contributions to, or dedications of off-site roadway facilities agreed to or required by a political subdivision as a condition of development approval shall be credited against roadway facilities impact fees otherwise due from the development.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.024. ACCOUNTING FOR FEES AND INTEREST. (a) The order, ordinance, or resolution levying an impact fee must provide that all funds collected through the adoption of an impact fee shall be deposited in interest-bearing accounts clearly identifying the category of capital improvements or facility expansions within the service area for which the fee was adopted.

(b) Interest earned on impact fees is considered funds of the account on which it is earned and is subject to all restrictions placed on use of

impact fees under this chapter.

(c) Impact fee funds may be spent only for the purposes for which the impact fee was imposed as shown by the capital improvements plan and as authorized by this chapter.

(d) The records of the accounts into which impact fees are deposited shall be open for public inspection and copying during ordinary business hours.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.025. REFUNDS. (a) On the request of an owner of the property on which an impact fee has been paid, the political subdivision shall refund the impact fee if existing facilities are available and service is denied or the political subdivision has, after collecting the fee when service was not available, failed to commence construction within two years or service is not available within a reasonable period considering the type of capital improvement or facility expansion to be constructed, but in no event later than five years from the date of payment under Section 395.019(1).

(b) Repealed by Acts 2001, 77th Leg., ch. 345, Sec. 9, eff. Sept. 1, 2001.

(c) The political subdivision shall refund any impact fee or part of it that is not spent as authorized by this chapter within 10 years after the date of payment.

(d) Any refund shall bear interest calculated from the date of collection to the date of refund at the statutory rate as set forth in Section 302.002, Finance Code, or its successor statute.

(e) All refunds shall be made to the record owner of the property at the time the refund is paid. However, if the impact fees were paid by another political subdivision or governmental entity, payment shall be made to the political subdivision or governmental entity.

(f) The owner of the property on which an impact fee has been paid or another political subdivision or governmental entity that paid the impact fee has standing to sue for a refund under this section.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 1997, 75th Leg., ch. 1396, Sec. 37, eff. Sept. 1, 1997;

Acts 1999, 76th Leg., ch. 62, Sec. 7.82, eff. Sept. 1, 1999; Acts 2001, 77th Leg., ch. 345, Sec. 9, eff. Sept. 1, 2001.

Sec. 395.041. COMPLIANCE WITH PROCEDURES REQUIRED. Except as otherwise provided by this chapter, a political subdivision must comply with this subchapter to levy an impact fee.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.0411. CAPITAL IMPROVEMENTS PLAN. The political subdivision shall provide for a capital improvements plan to be developed by qualified professionals using generally accepted engineering and planning practices in accordance with Section 395.014.

Added by Acts 2001, 77th Leg., ch. 345, Sec. 5, eff. Sept. 1, 2001.

Sec. 395.042. HEARING ON LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN. To impose an impact fee, a political subdivision must adopt an order, ordinance, or resolution establishing a public hearing date to consider the land use assumptions and capital improvements plan for the designated service area.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 5, eff. Sept. 1, 2001.

Sec. 395.043. INFORMATION ABOUT LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN AVAILABLE TO PUBLIC. On or before the date of the first publication of the notice of the hearing on the land use assumptions and capital improvements plan, the political subdivision shall make available to the public its land use assumptions, the time period of the projections, and a description of the capital improvement facilities that may be proposed.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 5, eff. Sept. 1, 2001.

Sec. 395.044. NOTICE OF HEARING ON LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN. (a) Before the 30th day before the date of the hearing on the land use assumptions and capital improvements plan, the political subdivision shall send a notice of the hearing by certified mail to any person who has given written notice by certified or registered mail to the municipal secretary or other designated official of the political subdivision requesting notice of the hearing within two years preceding the

date of adoption of the order, ordinance, or resolution setting the public hearing.

(b) The political subdivision shall publish notice of the hearing before the 30th day before the date set for the hearing, in one or more newspapers of general circulation in each county in which the political subdivision lies. However, a river authority that is authorized elsewhere by state law to charge fees that function as impact fees may publish the required newspaper notice only in each county in which the service area lies.

(c) The notice must contain:

(1) a headline to read as follows:

"NOTICE OF PUBLIC HEARING ON LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN RELATING TO POSSIBLE ADOPTION OF IMPACT FEES"

(2) the time, date, and location of the hearing;

(3) a statement that the purpose of the hearing is to consider the land use assumptions and capital improvements plan under which an impact fee may be imposed; and

(4) a statement that any member of the public has the right to appear at the hearing and present evidence for or against the land use assumptions and capital improvements plan.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 5, eff. Sept. 1, 2001.

Sec. 395.045. APPROVAL OF LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN REQUIRED. (a) After the public hearing on the land use assumptions and capital improvements plan, the political subdivision shall determine whether to adopt or reject an ordinance, order, or resolution approving the land use assumptions and capital improvements plan.

(b) The political subdivision, within 30 days after the date of the public hearing, shall approve or disapprove the land use assumptions and capital improvements plan.

(c) An ordinance, order, or resolution approving the land use assumptions and capital improvements plan may not be adopted as an emergency measure.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 5, eff. Sept. 1, 2001.

Sec. 395.0455. SYSTEMWIDE LAND USE ASSUMPTIONS. (a) In lieu of adopting land use assumptions for each service area, a political subdivision may, except for storm water, drainage, flood control, and roadway facilities, adopt systemwide land use assumptions, which cover all of the area subject to the jurisdiction of the political subdivision for the purpose of imposing impact fees under this chapter.

(b) Prior to adopting systemwide land use assumptions, a political subdivision shall follow the public notice, hearing, and other requirements for adopting land use assumptions.

(c) After adoption of systemwide land use assumptions, a political subdivision is not required to adopt additional land use assumptions for a service area for water supply, treatment, and distribution facilities or wastewater collection and treatment facilities as a prerequisite to the adoption of a capital improvements plan or impact fee, provided the capital improvements plan and impact fee are consistent with the systemwide land use assumptions.

Added by Acts 1989, 71st Leg., ch. 566, Sec. 1(b), eff. Aug. 28, 1989.

Sec. 395.047. HEARING ON IMPACT FEE. On adoption of the land use assumptions and capital improvements plan, the governing body shall adopt an order or resolution setting a public hearing to discuss the imposition of the impact fee. The public hearing must be held by the governing body of the political subdivision to discuss the proposed ordinance, order, or resolution imposing an impact fee.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 5, eff. Sept. 1, 2001.

Sec. 395.049. NOTICE OF HEARING ON IMPACT FEE. (a) Before the 30th day before the date of the hearing on the imposition of an impact fee, the political subdivision shall send a notice of the hearing by certified mail to any person who has given written notice by certified or registered mail to the municipal secretary or other designated official of the political subdivision requesting notice of the hearing within two years preceding the date of adoption of the order or resolution setting the public hearing.

(b) The political subdivision shall publish notice of the hearing before the 30th day before the date set for the hearing, in one or more newspapers of general circulation in each county in which the political subdivision lies. However, a river authority that is authorized elsewhere by state law to charge fees that function as impact fees may publish the

required newspaper notice only in each county in which the service area lies.

(c) The notice must contain the following:

(1) a headline to read as follows:

"NOTICE OF PUBLIC HEARING ON ADOPTION OF IMPACT FEES"

(2) the time, date, and location of the hearing;

(3) a statement that the purpose of the hearing is to consider the adoption of an impact fee;

(4) the amount of the proposed impact fee per service unit; and

(5) a statement that any member of the public has the right to appear at the hearing and present evidence for or against the plan and proposed fee.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 5, eff. Sept. 1, 2001.

Sec. 395.050. ADVISORY COMMITTEE COMMENTS ON IMPACT FEES. The advisory committee created under Section 395.058 shall file its written comments on the proposed impact fees before the fifth business day before the date of the public hearing on the imposition of the fees.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 5, eff. Sept. 1, 2001.

Sec. 395.051. APPROVAL OF IMPACT FEE REQUIRED. (a) The political subdivision, within 30 days after the date of the public hearing on the imposition of an impact fee, shall approve or disapprove the imposition of an impact fee.

(b) An ordinance, order, or resolution approving the imposition of an impact fee may not be adopted as an emergency measure.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 5, eff. Sept. 1, 2001.

Sec. 395.052. PERIODIC UPDATE OF LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN REQUIRED. (a) A political subdivision imposing an impact fee shall update the land use assumptions and capital improvements plan at least every five years. The initial five-year period begins on the day the capital improvements plan is adopted.

(b) The political subdivision shall review and evaluate its current land use assumptions and shall cause an update of the capital improvements plan to be prepared in accordance with Subchapter B.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 6, eff. Sept. 1, 2001.

Sec. 395.053. HEARING ON UPDATED LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN. The governing body of the political subdivision shall, within 60 days after the date it receives the update of the land use assumptions and the capital improvements plan, adopt an order setting a public hearing to discuss and review the update and shall determine whether to amend the plan.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.054. HEARING ON AMENDMENTS TO LAND USE ASSUMPTIONS, CAPITAL IMPROVEMENTS PLAN, OR IMPACT FEE. A public hearing must be held by the governing body of the political subdivision to discuss the proposed ordinance, order, or resolution amending land use assumptions, the capital improvements plan, or the impact fee. On or before the date of the first publication of the notice of the hearing on the amendments, the land use assumptions and the capital improvements plan, including the amount of any proposed amended impact fee per service unit, shall be made available to the public.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.055. NOTICE OF HEARING ON AMENDMENTS TO LAND USE ASSUMPTIONS, CAPITAL IMPROVEMENTS PLAN, OR IMPACT FEE. (a) The notice and hearing procedures prescribed by Sections 395.044(a) and (b) apply to a hearing on the amendment of land use assumptions, a capital improvements plan, or an impact fee.

(b) The notice of a hearing under this section must contain the following:

(1) a headline to read as follows:

"NOTICE OF PUBLIC HEARING ON AMENDMENT OF IMPACT FEES"

(2) the time, date, and location of the hearing;

(3) a statement that the purpose of the hearing is to consider the amendment of land use assumptions and a capital improvements plan and

the imposition of an impact fee; and

(4) a statement that any member of the public has the right to appear at the hearing and present evidence for or against the update.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 345, Sec. 7, eff. Sept. 1, 2001.

Sec. 395.056. ADVISORY COMMITTEE COMMENTS ON AMENDMENTS. The advisory committee created under Section 395.058 shall file its written comments on the proposed amendments to the land use assumptions, capital improvements plan, and impact fee before the fifth business day before the date of the public hearing on the amendments.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.057. APPROVAL OF AMENDMENTS REQUIRED. (a) The political subdivision, within 30 days after the date of the public hearing on the amendments, shall approve or disapprove the amendments of the land use assumptions and the capital improvements plan and modification of an impact fee.

(b) An ordinance, order, or resolution approving the amendments to the land use assumptions, the capital improvements plan, and imposition of an impact fee may not be adopted as an emergency measure.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.0575. DETERMINATION THAT NO UPDATE OF LAND USE ASSUMPTIONS, CAPITAL IMPROVEMENTS PLAN OR IMPACT FEES IS NEEDED. (a) If, at the time an update under Section 395.052 is required, the governing body determines that no change to the land use assumptions, capital improvements plan, or impact fee is needed, it may, as an alternative to the updating requirements of Sections 395.052-395.057, do the following:

(1) The governing body of the political subdivision shall, upon determining that an update is unnecessary and 60 days before publishing the final notice under this section, send notice of its determination not to update the land use assumptions, capital improvements plan, and impact fee by certified mail to any person who has, within two years preceding the date that the final notice of this matter is to be published, give written notice by certified or registered mail to the municipal secretary or other designated official of the political subdivision requesting notice of

hearings related to impact fees. The notice must contain the information in Subsections (b) (2)-(5).

(2) The political subdivision shall publish notice of its determination once a week for three consecutive weeks in one or more newspapers with general circulation in each county in which the political subdivision lies. However, a river authority that is authorized elsewhere by state law to charge fees that function as impact fees may publish the required newspaper notice only in each county in which the service area lies. The notice of public hearing may not be in the part of the paper in which legal notices and classified ads appear and may not be smaller than one-quarter page of a standard-size or tabloid-size newspaper, and the headline on the notice must be in 18-point or larger type.

(b) The notice must contain the following:

(1) a headline to read as follows:

"NOTICE OF DETERMINATION NOT TO UPDATE

LAND USE ASSUMPTIONS, CAPITAL IMPROVEMENTS

PLAN, OR IMPACT FEES";

(2) a statement that the governing body of the political subdivision has determined that no change to the land use assumptions, capital improvements plan, or impact fee is necessary;

(3) an easily understandable description and a map of the service area in which the updating has been determined to be unnecessary;

(4) a statement that if, within a specified date, which date shall be at least 60 days after publication of the first notice, a person makes a written request to the designated official of the political subdivision requesting that the land use assumptions, capital improvements plan, or impact fee be updated, the governing body must comply with the request by following the requirements of Sections 395.052-395.057; and

(5) a statement identifying the name and mailing address of the official of the political subdivision to whom a request for an update should be sent.

(c) The advisory committee shall file its written comments on the need for updating the land use assumptions, capital improvements plans, and impact fee before the fifth business day before the earliest notice of the government's decision that no update is necessary is mailed or published.

(d) If, by the date specified in Subsection (b) (4), a person requests in writing that the land use assumptions, capital improvements plan, or impact fee be updated, the governing body shall cause an update of the land

use assumptions and capital improvements plan to be prepared in accordance with Sections 395.052-395.057.

(e) An ordinance, order, or resolution determining the need for updating land use assumptions, a capital improvements plan, or an impact fee may not be adopted as an emergency measure.

Added by Acts 1989, 71st Leg., ch. 566, Sec. 1(d), eff. Aug. 28, 1989.

Sec. 395.058. ADVISORY COMMITTEE. (a) On or before the date on which the order, ordinance, or resolution is adopted under Section 395.042, the political subdivision shall appoint a capital improvements advisory committee.

(b) 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. If the impact fee is to be applied in the extraterritorial jurisdiction of the political subdivision, the membership must include a representative from that area.

(c) The advisory committee serves in an advisory capacity and is established to:

(1) advise and assist the political subdivision in adopting land use assumptions;

(2) review the capital improvements plan and file written comments;

(3) monitor and evaluate implementation of the capital improvements plan;

(4) file semiannual reports with respect to the progress of the capital improvements plan and report to the political subdivision any perceived inequities in implementing the plan or imposing the impact fee; and

(5) advise the political subdivision of the need to update or revise the land use assumptions, capital improvements plan, and impact fee.

(d) The political subdivision shall make available to the advisory committee any professional reports with respect to developing and implementing the capital improvements plan.

(e) The governing body of the political subdivision shall adopt procedural rules for the advisory committee to follow in carrying out its duties.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

SUBCHAPTER D. OTHER PROVISIONS

Sec. 395.071. DUTIES TO BE PERFORMED WITHIN TIME LIMITS. If the governing body of the political subdivision does not perform a duty imposed under this chapter within the prescribed period, a person who has paid an impact fee or an owner of land on which an impact fee has been paid has the right to present a written request to the governing body of the political subdivision stating the nature of the unperformed duty and requesting that it be performed within 60 days after the date of the request. If the governing body of the political subdivision finds that the duty is required under this chapter and is late in being performed, it shall cause the duty to commence within 60 days after the date of the request and continue until completion.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.072. RECORDS OF HEARINGS. A record must be made of any public hearing provided for by this chapter. The record shall be maintained and be made available for public inspection by the political subdivision for at least 10 years after the date of the hearing.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.073. CUMULATIVE EFFECT OF STATE AND LOCAL RESTRICTIONS. Any state or local restrictions that apply to the imposition of an impact fee in a political subdivision where an impact fee is proposed are cumulative with the restrictions in this chapter.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.074. PRIOR IMPACT FEES REPLACED BY FEES UNDER THIS CHAPTER. An impact fee that is in place on June 20, 1987, must be replaced by an impact fee made under this chapter on or before June 20, 1990. However, any political subdivision having an impact fee that has not been replaced under this chapter on or before June 20, 1988, is liable to any party who, after June 20, 1988, pays an impact fee that exceeds the maximum permitted under Subchapter B by more than 10 percent for an amount equal to two times the difference between the maximum impact fee allowed and the actual impact fee imposed, plus reasonable attorney's fees and court costs.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.075. NO EFFECT ON TAXES OR OTHER CHARGES. This chapter does not prohibit, affect, or regulate any tax, fee, charge, or assessment specifically authorized by state law.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.076. MORATORIUM ON DEVELOPMENT PROHIBITED. A moratorium may not be placed on new development for the purpose of awaiting the completion of all or any part of the process necessary to develop, adopt, or update land use assumptions, a capital improvements plan, or an impact fee.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 441, Sec. 2, eff. Sept. 1, 2001.

Sec. 395.077. APPEALS. (a) A person who has exhausted all administrative remedies within the political subdivision and who is aggrieved by a final decision is entitled to trial de novo under this chapter.

(b) A suit to contest an impact fee must be filed within 90 days after the date of adoption of the ordinance, order, or resolution establishing the impact fee.

(c) Except for roadway facilities, a person who has paid an impact fee or an owner of property on which an impact fee has been paid is entitled to specific performance of the services by the political subdivision for which the fee was paid.

(d) This section does not require construction of a specific facility to provide the services.

(e) Any suit must be filed in the county in which the major part of the land area of the political subdivision is located. A successful

litigant shall be entitled to recover reasonable attorney's fees and court costs.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.078. SUBSTANTIAL COMPLIANCE WITH NOTICE REQUIREMENTS. An impact fee may not be held invalid because the public notice requirements were not complied with if compliance was substantial and in good faith.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Sec. 395.079. IMPACT FEE FOR STORM WATER, DRAINAGE, AND FLOOD CONTROL IN POPULOUS COUNTY. (a) Any county that has a population of 3.3 million or more or that borders a county with a population of 3.3 million or more, and any district or authority created under Article XVI, Section 59, of the Texas Constitution within any such county that is authorized to provide storm water, drainage, and flood control facilities, is authorized to impose impact fees to provide storm water, drainage, and flood control improvements necessary to accommodate new development.

(b) The imposition of impact fees authorized by Subsection (a) is exempt from the requirements of Sections 395.025, 395.052-395.057, and 395.074 unless the political subdivision proposes to increase the impact fee.

(c) Any political subdivision described by Subsection (a) is authorized to pledge or otherwise contractually obligate all or part of the impact fees to the payment of principal and interest on bonds, notes, or other obligations issued or incurred by or on behalf of the political subdivision and to the payment of any other contractual obligations.

(d) An impact fee adopted by a political subdivision under Subsection (a) may not be reduced if:

(1) the political subdivision has pledged or otherwise contractually obligated all or part of the impact fees to the payment of principal and interest on bonds, notes, or other obligations issued by or on behalf of the political subdivision; and

(2) the political subdivision agrees in the pledge or contract not to reduce the impact fees during the term of the bonds, notes, or other contractual obligations.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 2001, 77th Leg., ch. 669, Sec. 107, eff. Sept. 1, 2001.

Sec. 395.080. CHAPTER NOT APPLICABLE TO CERTAIN WATER-RELATED SPECIAL DISTRICTS. (a) This chapter does not apply to impact fees, charges, fees, assessments, or contributions:

(1) paid by or charged to a district created under Article XVI, Section 59, of the Texas Constitution to another district created under that constitutional provision if both districts are required by law to obtain approval of their bonds by the Texas Natural Resource Conservation Commission; or

(2) charged by an entity if the impact fees, charges, fees, assessments, or contributions are approved by the Texas Natural Resource Conservation Commission.

(b) Any district created under Article XVI, Section 59, or Article III, Section 52, of the Texas Constitution may petition the Texas Natural Resource Conservation Commission for approval of any proposed impact fees, charges, fees, assessments, or contributions. The commission shall adopt rules for reviewing the petition and may charge the petitioner fees adequate to cover the cost of processing and considering the petition. The rules shall require notice substantially the same as that required by this chapter for the adoption of impact fees and shall afford opportunity for all affected parties to participate.

Added by Acts 1989, 71st Leg., ch. 1, Sec. 82(a), eff. Aug. 28, 1989.

Amended by Acts 1995, 74th Leg., ch. 76, Sec. 11.257, eff. Sept. 1, 1995.

Sec. 395.081. FEES FOR ADJOINING LANDOWNERS IN CERTAIN MUNICIPALITIES. (a) This section applies only to a municipality with a population of 115,000 or less that constitutes more than three-fourths of the population of the county in which the majority of the area of the municipality is located.

(b) A municipality that has not adopted an impact fee under this chapter that is constructing a capital improvement, including sewer or waterline or drainage or roadway facilities, from the municipality to a development located within or outside the municipality's boundaries, in its discretion, may allow a landowner whose land adjoins the capital improvement or is within a specified distance from the capital improvement, as determined by the governing body of the municipality, to connect to the capital improvement if:

(1) the governing body of the municipality has adopted a finding under Subsection (c); and

(2) the landowner agrees to pay a proportional share of the cost of the capital improvement as determined by the governing body of the

municipality and agreed to by the landowner.

(c) Before a municipality may allow a landowner to connect to a capital improvement under Subsection (b), the municipality shall adopt a finding that the municipality will benefit from allowing the landowner to connect to the capital improvement. The finding shall describe the benefit to be received by the municipality.

(d) A determination of the governing body of a municipality, or its officers or employees, under this section is a discretionary function of the municipality and the municipality and its officers or employees are not liable for a determination made under this section.

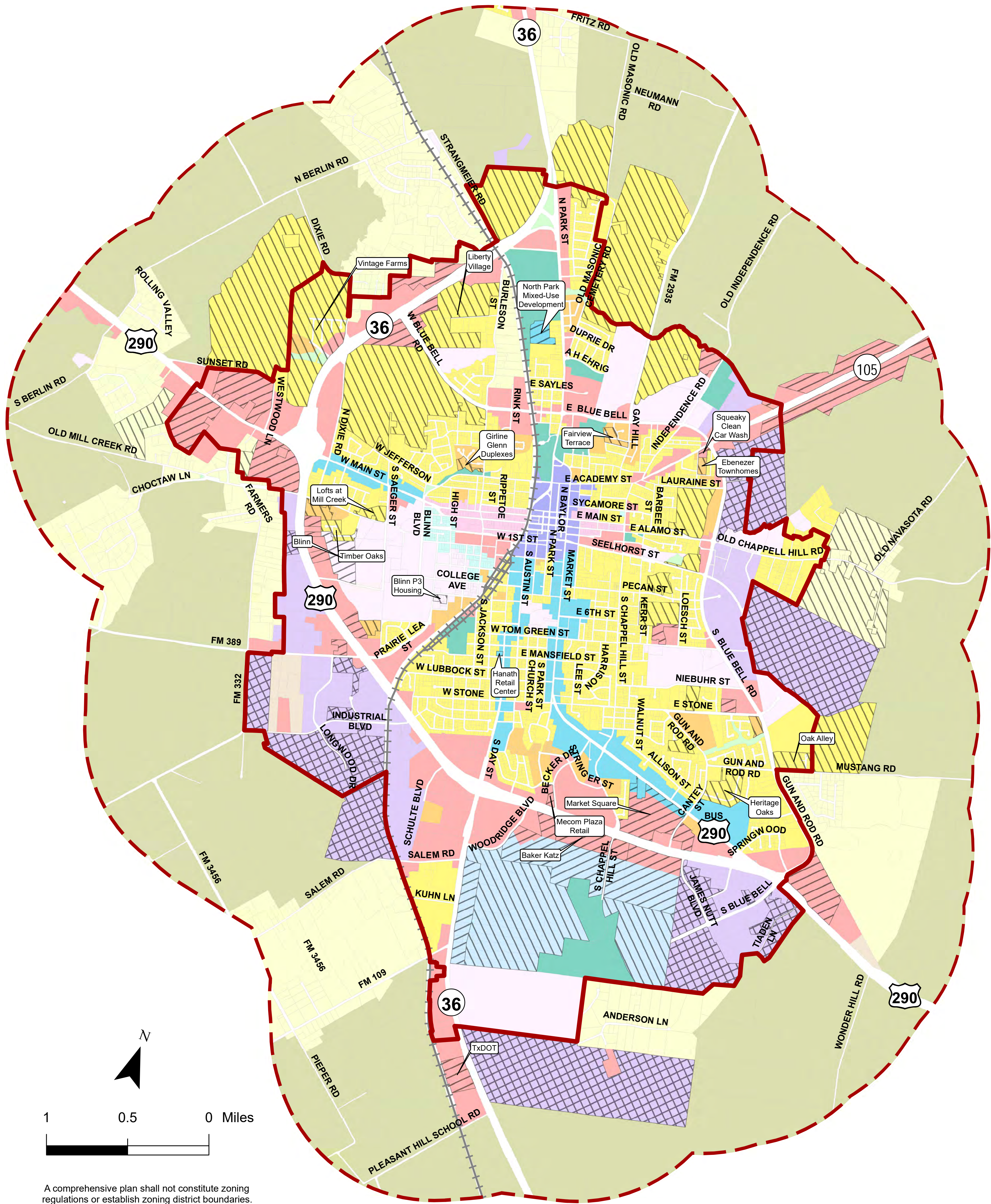
Added by Acts 1997, 75th Leg., ch. 1150, Sec. 1, eff. June 19, 1997.

Amended by:

Acts 2011, 82nd Leg., R.S., Ch. 1043 (H.B. 3111), Sec. 5, eff. June 17, 2011.

Acts 2011, 82nd Leg., R.S., Ch. 1163 (H.B. 2702), Sec. 100, eff. September 1, 2011.

**APPENDIX B
FUTURE LAND USE MAP**



Brenham, TX Future Land Use

Legend

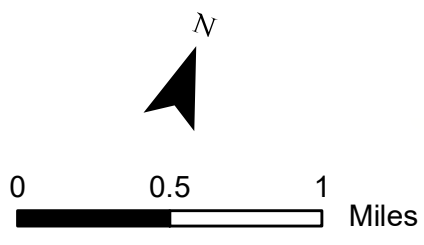
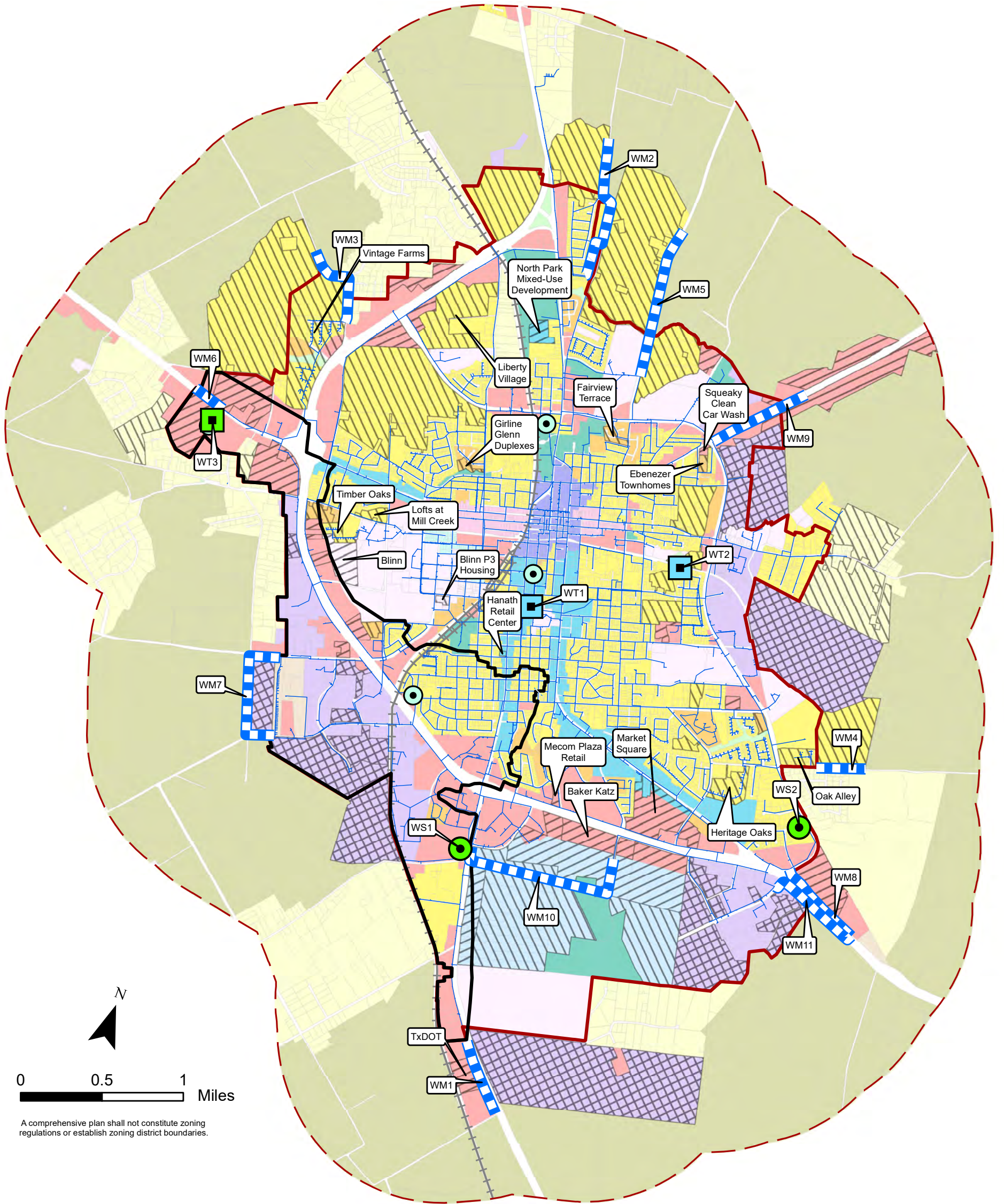
Future Land Use Plan

- Rural
- Open Space
- Park
- Estate Residential
- Single Family Residential
- Manufactured Homes
- Multi-Family Residential

- Mixed Use Blinn Adjacent
- Mixed Use Downtown Adjacent
- Corridor Mixed Use
- Planned Development
- Downtown
- Local Public Facilities
- Commercial
- Industrial

- City Limits
- ETJ
- Railroad
- Future Commercial
- Future Industrial
- Future Residential

APPENDIX C
WATER IMPACT FEE SERVICE AREA AND CIP



A comprehensive plan shall not constitute zoning regulations or establish zoning district boundaries.

Brenham, TX Water Impact Fee Service Area

Legend

Future Land Use Plan

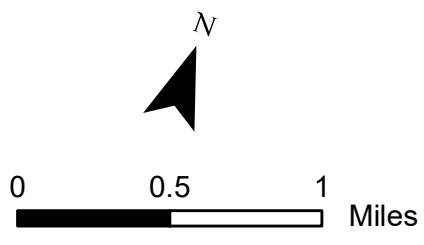
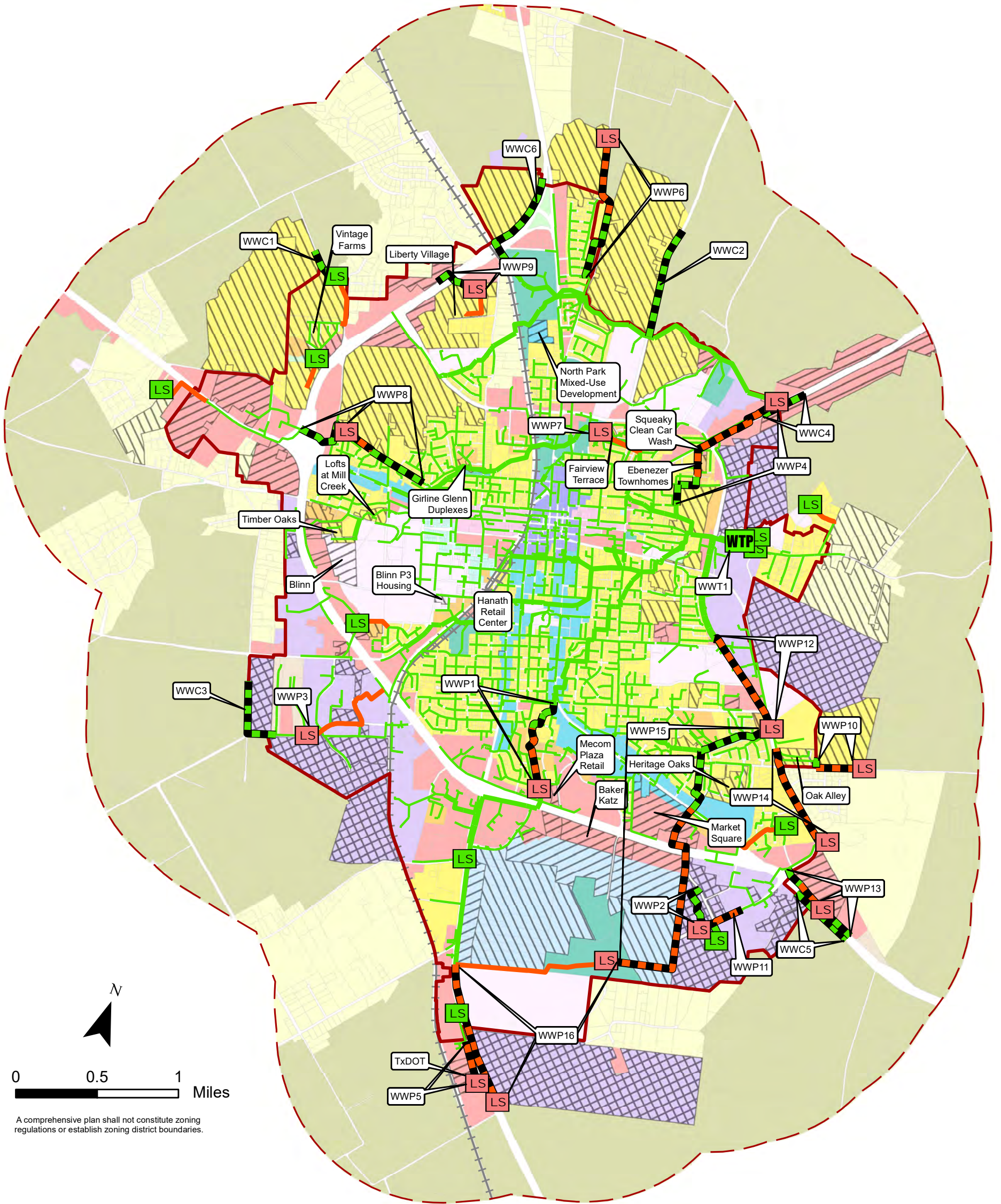
- Rural
- Open Space
- Park
- Estate Residential
- Single Family Residential
- Manufactured Homes
- Multi-Family Residential

- Mixed Use Blinn Adjacent
- Mixed Use Downtown Adjacent
- Corridor Mixed Use
- Planned Development
- Downtown
- Local Public Facilities
- Commercial
- Industrial

- City Limits
- Extraterritorial Jurisdiction Boundary
- Railroad
- Future Commercial
- Future Residential
- Pressure Zone Boundary

- #### Existing Infrastructure
- Water Main
 - Elevated Storage Tank
 - Water Treatment Plant
- #### Proposed Improvements
- Water Main
 - Elevated Storage Tank
 - Water Treatment Plant

APPENDIX D
WASTEWATER IMPACT FEE SERVICE AREA AND CIP



A comprehensive plan shall not constitute zoning regulations or establish zoning district boundaries.

Brenham, TX Wastewater Impact Fee Service Area

Legend

Future Land Use Plan

- Rural
- Open Space
- Park
- Estate Residential
- Single Family Residential
- Manufactured Homes
- Multi-Family Residential

- Mixed Use Blinn Adjacent
- Mixed Use Downtown Adjacent
- Corridor Mixed Use
- Planned Development
- Downtown
- Local Public Facilities
- Commercial
- Industrial

- City Limits
- Extraterritorial Jurisdiction Boundary
- Railroad
- Future Commercial
- Future Industrial
- Future Residential

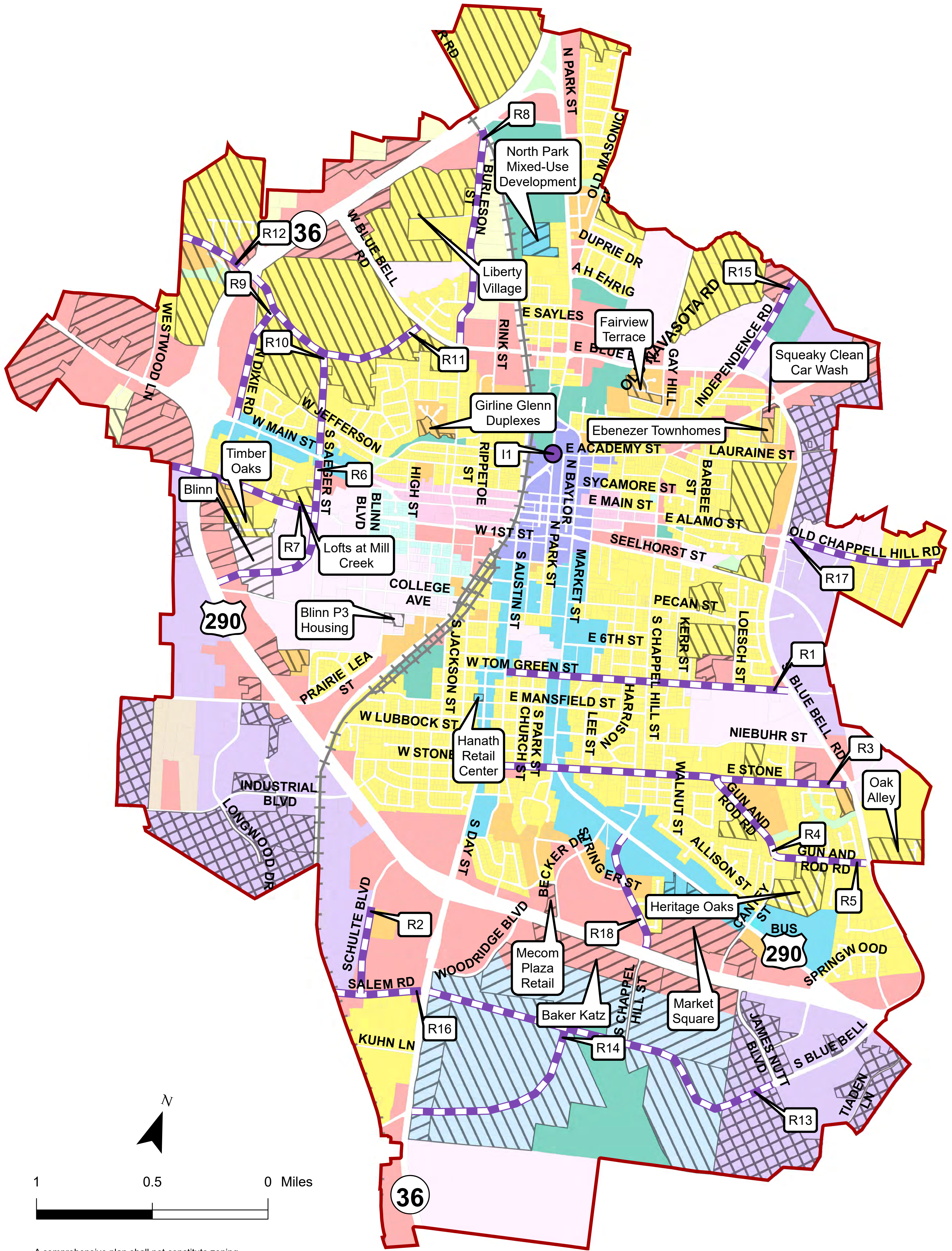
Existing Infrastructure

- Gravity Sewer >12"
- Gravity Sewer <12"
- Force Main
- Wastewater Treatment Plant
- Lift Station

Proposed Improvements

- Gravity Sewer
- Force Main
- Lift Station

APPENDIX E
ROADWAY IMPACT FEE SERVICE AREA AND CIP



A comprehensive plan shall not constitute zoning regulations or establish zoning district boundaries.

Brenham, TX Roadway Impact Fee Service Area

Legend

- | | | |
|--|---|--|
| <p>Future Land Use Plan</p> <ul style="list-style-type: none"> Rural Open Space Park Estate Residential Single Family Residential Manufactured Homes Multi-Family Residential | <ul style="list-style-type: none"> Mixed Use Blinn Adjacent Mixed Use Downtown Adjacent Corridor Mixed Use Planned Development Downtown Local Public Facilities Commercial Industrial | <ul style="list-style-type: none"> City Limits Railroad Future Commercial Future Industrial Future Residential Roadway CIP Projects Intersection CIP Projects |
|--|---|--|



MEMORANDUM

To: Mayor Atwood Kenjura and Brenham City Council

From: Capital Improvements Advisory Committee
Stephanie Doland, Director of Development Services

CC: Carolyn Miller, City Manager
Debbie Gaffey, General Manager of Public Utilities
Dane Rau, Public Works Director
Timothy McRoberts, Strategic Budget Officer
Daniel McCracken, Utility Compliance Manager

Subject: Written Comments, Capital Improvements Advisory Committee

Date: January 24, 2024

During their regular Council meeting on May 4, 2023 the Brenham City Council approved a Professional Services Agreement with Strand Associates to perform an Impact Fee Study in accordance with Chapter 395 of the Texas Local Government Code. Impact fees for water, wastewater and roadways have since been evaluated to help finance infrastructure improvements needed in response to growth and new development. Impact fees reduce the economic burden on existing rate payers by imposing a fee with new development for capital improvements necessitated and attributable to the new development.

As per Local Government Code Chapter 395, the formation of a Capital Improvements Advisory Committee (CIAC) is required to review, advise, and recommend adoption of assessing impact fees following the results of the study. The CIAC was appointed by Council on July 13, 2023 and is comprised of the seven (7) member Planning and Zoning Commission as well as a Council representative – Dr. Paul LaRoche, III, a representative of the extraterritorial jurisdiction (ETJ) – Blake Brannon, and two real estate representatives – Lindi Braddock and Randy Hodde.

Following the appointment of the Committee, City Staff, Strand Associates and the CIAC began the steps outlined in Chapter 395 of the Texas Local Government Code to fully review and consider necessary infrastructure improvements for a twenty-year period. To summarize, the work of the CIAC was spread across five workshop-like meetings which included consideration of the following:

- Review of the City of Brenham Comprehensive Plan and associated Future Land Use Map.

- Review of population projections as outlined in the Comprehensive Plan and Water Study.
- Prepared Land Use Assumptions in conjunction with 10-year development projections and population growth models.
- Reviewed planned development projects in conjunction with anticipated infrastructure needs for water, wastewater and roadway facilities.
- Developed a Capital Improvement Plan for Water amounting to three (3) Water Treatment Projects, two (2) Water Storage Projects, 11 Water Main Projects and one (1) Water Impact Fee Study with a total cost (in 2023 dollars) of \$65,490,1000 and a 10 year escalated cost (inflation adjustment) of \$45,131,575.
- Developed a Capital Improvement Plan for Wastewater amounting to one (1) Wastewater Treatment project, 16 Wastewater Pumping Projects, six (6) Wastewater Collection Projects and one (1) Wastewater Impact Fee Study with a total cost (in 2023 dollars) of \$34,264,000 and a 10 year escalated cost (inflation adjustment) of \$24,590,935.
- Developed a Capital Improvement Plan for Roadways which includes 18 Roadway Capacity Increase projects and one (1) Intersection Capacity Increase project with a total cost (in 2023 dollars) of \$78,099,000 and a 10 year escalated cost (inflation adjustment) of \$90,380,835.

In accordance with the procedures outlined by Texas Local Government Code Chapter 395 and to present the work of the CIAC, a Public Hearing at a Special City Council meeting was held on December 7, 2023. During the meeting, Strand Associates presented the aforementioned Land Use Assumptions and the Capital Improvement Plans for water, wastewater and roadways. Following the Public Hearing portion of the meeting, the City Council accepted the recommendation of the CIAC and adopted via Resolution (R-23-044) the Land Use Assumptions and Capital Improvement Plans attached hereto as Exhibit A.

Following the Public Hearing and adoption of the Land Use Assumptions and Capital Improvement Plans, the CIAC met again to review the final calculations prepared by Strand Associates and consider the Maximum Assessable Impact Fees as included below (Table 1).

On January 23, 2024 the CIAC met to deliberate and determine a recommendation to City Council concerning the rate of Impact Fees to be assessed on water, wastewater and roadways. The committee received feedback during a Developer Workshop hosted on January 10, 2024 and additional Citizen Comments during the final CIAC meeting. Over the more than four (4) hours the CIAC met, the Committee carefully deliberated the findings of the Impact Fee Study and feedback received from the community. Following presentations by City Staff and Strand Associates, the **CIAC recommended to Council the assessment of the following:**

- **Impact Fees for Water at ninety percent (90%) the Maximum Assessable Rate;**
- **Impact Fees for Wastewater at twenty percent (20%) the Maximum Assessable Rate;**
- **To accept the results of the Roadway Impact Fee Study and adopt an Impact Fee of \$0 for Roadways.**

The motion to adopt the above-stated Impact Fee percentages received a passing vote of 5-2 with Committee Members Dr. Paul LaRoche, III and Ms. Cayte Neil in opposition in general due to a desire for an increased percentage in the water and roadway impact fees.

Included below is a summary of the findings and deliberations of the Committee:

- The City of Brenham, specifically in the past five (5) years, has seen an increase in the number of annual single-family home permits and construction in general.
- Due to increased development in all areas of the Community without the shared cost of necessary improvements to infrastructure between the development community and existing City of Brenham rate payers, the City is required to “catch-up” in terms of funding projects such as the expansion of the water treatment plant.
- The Committee further discussed that Impact Fees to the Water Utility were a top priority due to the requirement to expand the Water Treatment plant within the next five (5) years and remain in good standing with TCEQ without adopting a moratorium on development. For these reasons, the Committee determined that the rate associated with the Water Impact Fee should be set at the largest amount when compared to wastewater and roadways.
- If Impact Fees were previously implemented prior to the addition of the 600+ single-family homes that have been permitted over the course of the previous five-years, the Impact Fee study would have resulted in a lesser Maximum Assessable Impact Fee and more balanced approach to cost sharing between developers and existing rate payers.
- Even with the addition of Impact Fees, rate payers are expected to experience an increase in the water utility rate, the percentage of which will depend on the amount of Impact Fees collected.
- As further detailed in the work of the Housing Task Force and the 2021 ResIntel Housing Study, the need for additional housing options throughout Brenham remains a top priority of the community. Therefore, the Committee was cognizant of the balance between setting an Impact Fee that would assist in the costs associated with the Capital Improvement Plans identified, while remaining competitive against area cities to not stifle or slow growth within Brenham.
- Additionally, the committee considered the need for development to contribute revenue to pay off debt on the multi-year bond issuance already underway to fund the water infrastructure improvements outlined in the adopted Capital Improvement List.
- Following a ‘City Finance 101’ discussion and understanding that sales tax revenue and ad valorem tax do not contribute to the Utility Funds, the Committee understood that while the Water Impact Fee was the prevailing priority, the need to begin to contribute to the Wastewater fund is essential to avoid a situation similar to the water system in the next five to ten years.
- Again, the CIAC weighed the cost of adopting an Impact Fee that would increase revenues to fund necessary improvements against the added cost to developers in an economy with increasing interest rates and significant inflation. Therefore, the Committee determined that Roadway Impact Fees, while a priority, would be reconsidered in future years. In conjunction with deliberations on the Roadway Impact Fee, the CIAC urged City Staff to re-evaluate additional funding sources and development standards associated with the construction and expansion of roadways adopted on the Thoroughfare Plan.
- Finally, the Committee reviewed the proposed Impact Fees adopted by area cities and to remain competitive desired a total Impact Fee amount that would remain in the bottom third of neighboring communities.

In conclusion, the CIAC accepted all findings of the Impact Fee Study and determined that the Maximum Assessable Rate for water, wastewater and roadways was a significant expense. The Committee was united in the determination to prioritize assessing Impact Fees on water and

wastewater to spread the cost of required infrastructure improvements between existing City of Brenham rate payers and future development. The CIAC carefully considered the roadway Impact Fee and ultimately determined that adopting too costly of an Impact Fee may deter growth in both residential and commercial development. Texas Local Government Code 395 requires the CIAC to meet on an annual basis and the Committee determined that additional consideration of adopting a roadway impact fee would be re-evaluated at that time.

Next Steps:

- Thursday February 1, 2024: Public Hearing Considering the Adoption of Impact Fees
- Thursday February 15, 2024: First Reading of an Ordinance Considering the Adoption of Impact Fees
- Thursday March 7, 2024: Second and Final Reading of an Ordinance Considering the Adoption of Impact Fees

Exhibits:

- Resolution (R-23-044)

	Water	Wastewater	Roadway
10-Year Escalated CIP Costs:	\$ 45,131,575	\$ 24,590,935	\$ 90,380,835
Financing Cost (+):	\$ 8,874,838	\$ 7,312,484	\$ 27,486,907
Existing Fund Balance (-):	-	-	-
Interest Earnings (-):	(2,121, 935)	\$ (1,687,373)	\$ (5,761,522)
Pre-Credit Recoverable Costs:	\$ 51,884,478	\$ 30,216,047	\$ 112,106,220
Pre-Credit Recoverable Costs:	\$ 51,884,478	\$ 30,216,047	\$ 112,106,220
50% Credit:	\$ (25,942,239)	\$ (15,108,023)	\$ (56,053,110)
Maximum Recoverable Costs:	\$ 25,942,239	\$ 15,108,023	\$ 56,053,110
Service Units	\$ 4,870	\$ 4,870	\$ 52,435
Maximum Assessable Impact Fee per Service Unit:	\$ 5,327	\$ 3,102	\$ 1,069
CIAC Recommended Impact Fee per Service Unit:	\$ 4,794	\$ 620	-

Strand Associates, Inc.® (SAI)

Public Hearing: Land Use Assumptions and Capital Improvement Plans Fulfill Important Steps in the Impact Fee Development Process

City of Brenham

December 7, 2023

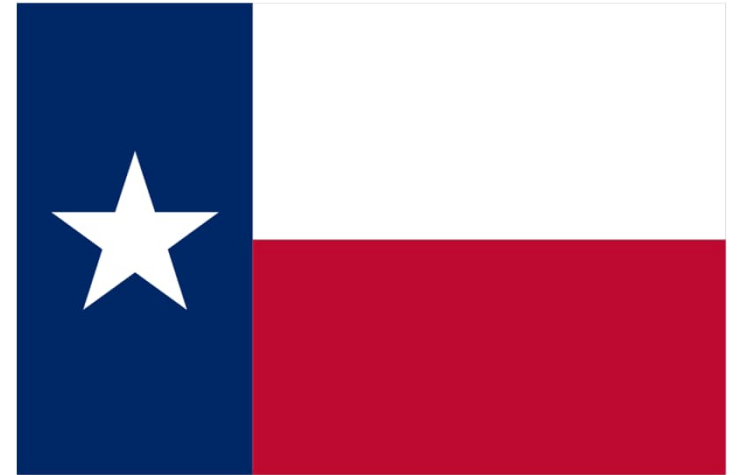


Agenda

- What is an Impact Fee? Why Adopt Impact Fees?
- Impact Fee Development Process
- Land Use Assumptions (LUAs), Service Areas, and Service Units
- Water Capital Improvement Plan (CIP) Projects
- Wastewater CIP Projects
- Roadway CIP Projects
- Next Steps

What is an Impact Fee?

- Charge or assessment imposed by a City to generate revenue to fund or recoup costs of capital improvements or facility expansions associated with new development
- Governed by Texas Local Government Code, Chapter 395
- Can be assessed for water, wastewater, roadway, and drainage facilities and expansions thereof
- Items payable by impact fees include construction costs, survey and engineering fees, land acquisition costs, and consulting fees to prepare and update the CIPs
- Calculations consider only the portion of the CIPs attributable to new development over a period of 10 years



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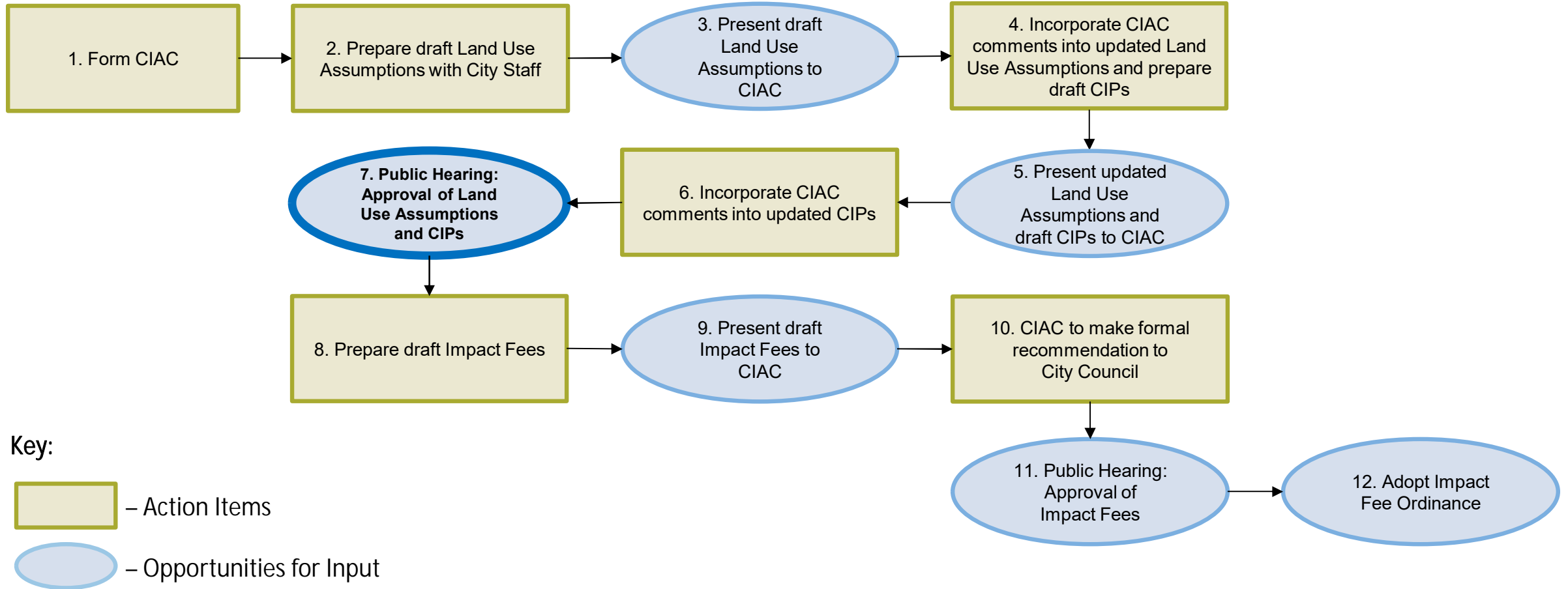
Why Adopt Impact Fees?

- Development will occur regardless...
- Infrastructure improvements are needed to serve new development while maintaining regulatory compliance and the quality of life the existing citizens have come to appreciate
- Impact fees provide an alternative means to fund portions of costly off-site infrastructure improvements and facility expansions needed to serve new development
- Lessens the burden of increasing utility rates and taxes on existing residents and employers that are currently paying for such infrastructure improvements



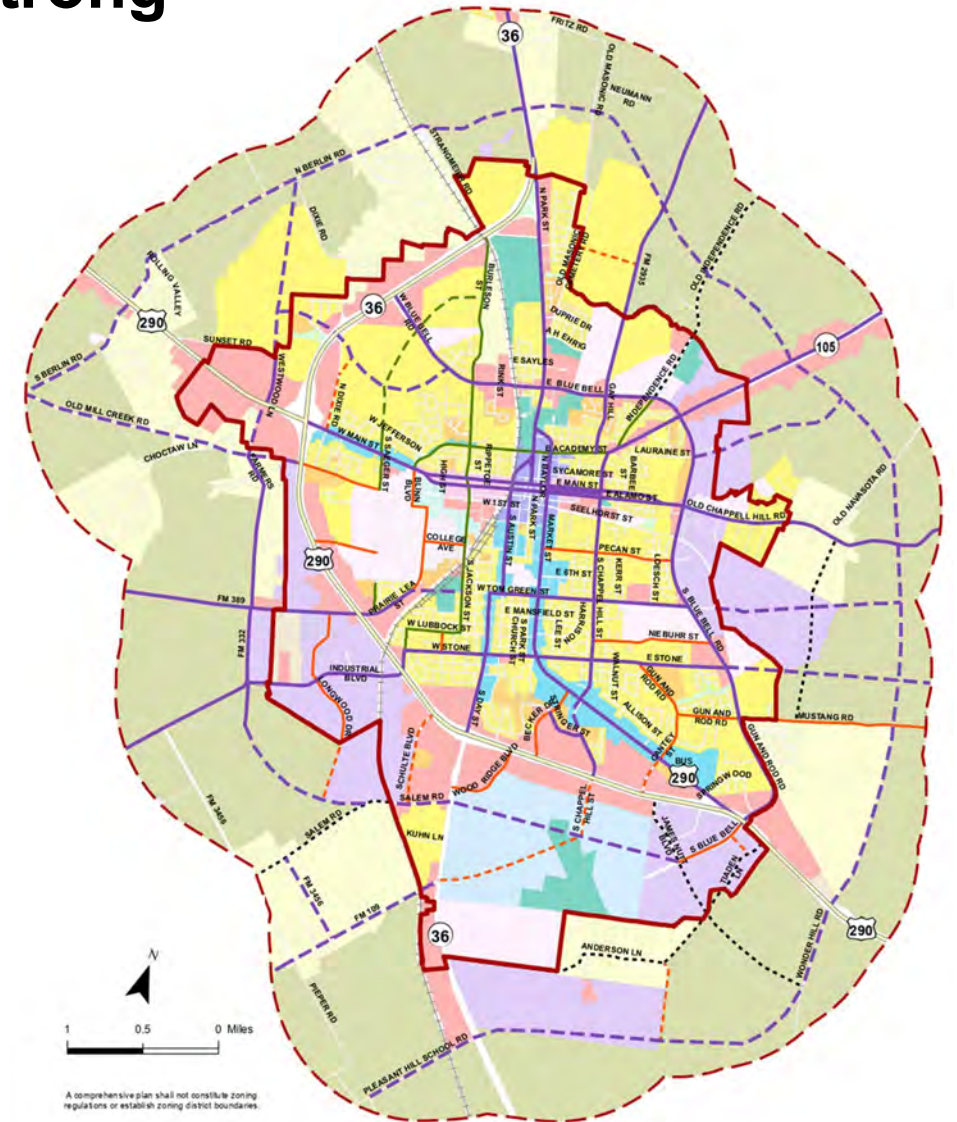
Church Street Elevated Storage Tank

Impact Fee Development Process Provides Multiple Opportunities for Input and Comment



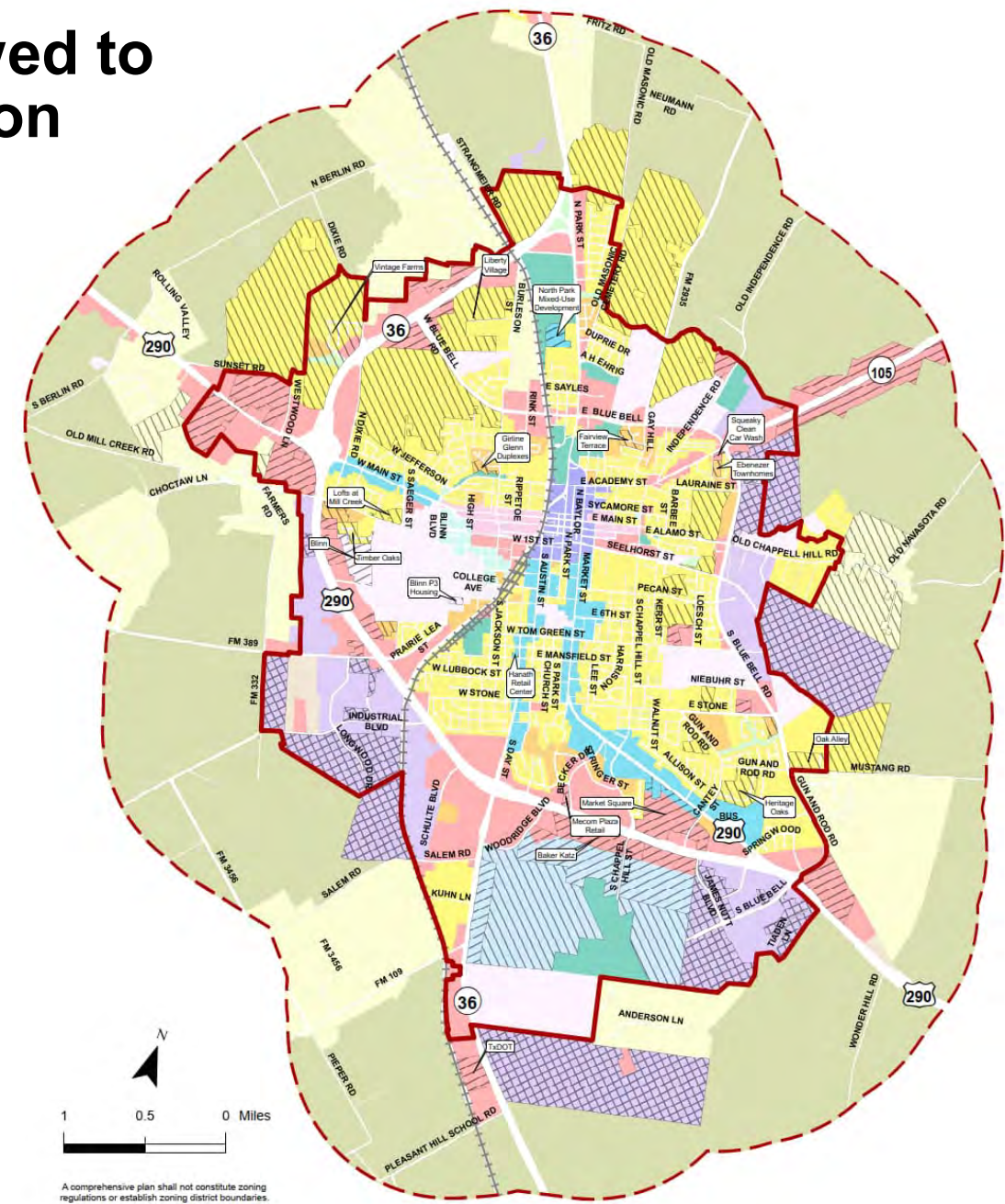
Appropriate Development of LUAs Delivers Strong Foundation for Impact Fee Process

- LUAs: description of the service area and projections of changes in land uses, densities, and population in the service area over a 10-year period
- Work with City staff throughout process
- Use of comprehensive planning builds on past work
- Integrate known and anticipated future developments
- Incorporate population trends and density projections from state planning entities and other available data
- Present draft LUAs to CIAC and incorporate feedback



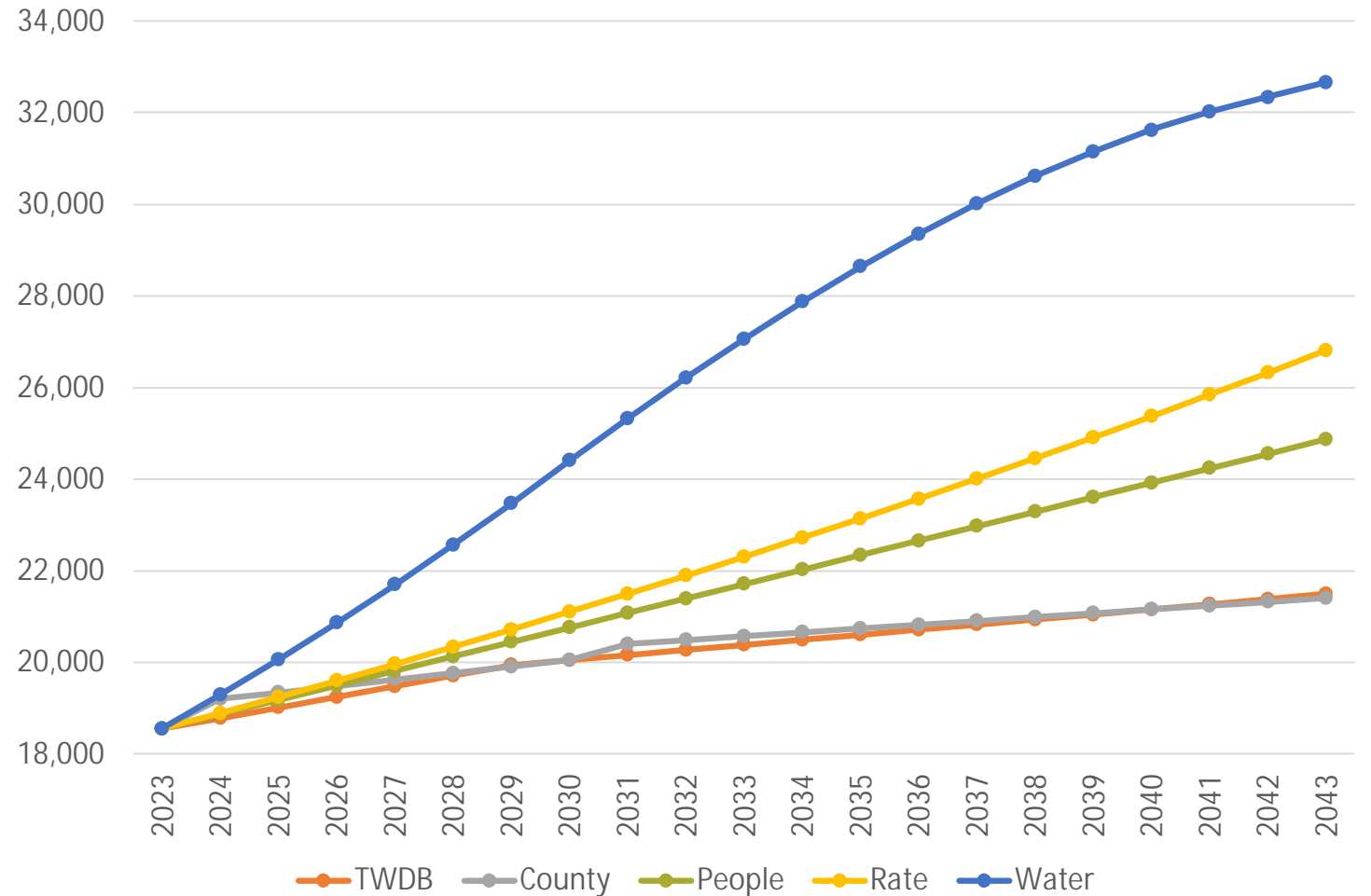
Population Density Assumptions Reviewed to Identify Possible Full Build-Out Population

- Initial residential density assumptions:
 - 52% acreage usable for residences
 - 48% usable for streets, drainage, and open spaces
 - Single family residential = 6 units per acre
 - Multi-family residential = 20 units per acre
 - Estate residential = 3 units per acre
 - U.S. Census Bureau = 2.36 people per household
- Population density example:
 - 100-acre single family residential development
 - 52 acres available for residential use
 - 312 single family residences assumed
 - Population increase = 736 people



Comprehensive Plan Methodology Replicated in Preparation of LUA Population Projections

- Four methodologies used to project population growth, tied closely to TWDB and historical growth trends
- Current population of 18,549 was not anticipated to be achieved until between 2027 and 2034 depending on methodology used
- Higher population projection needed based on known and anticipated future developments



Water Study Considered as Basis for LUA Population Projections

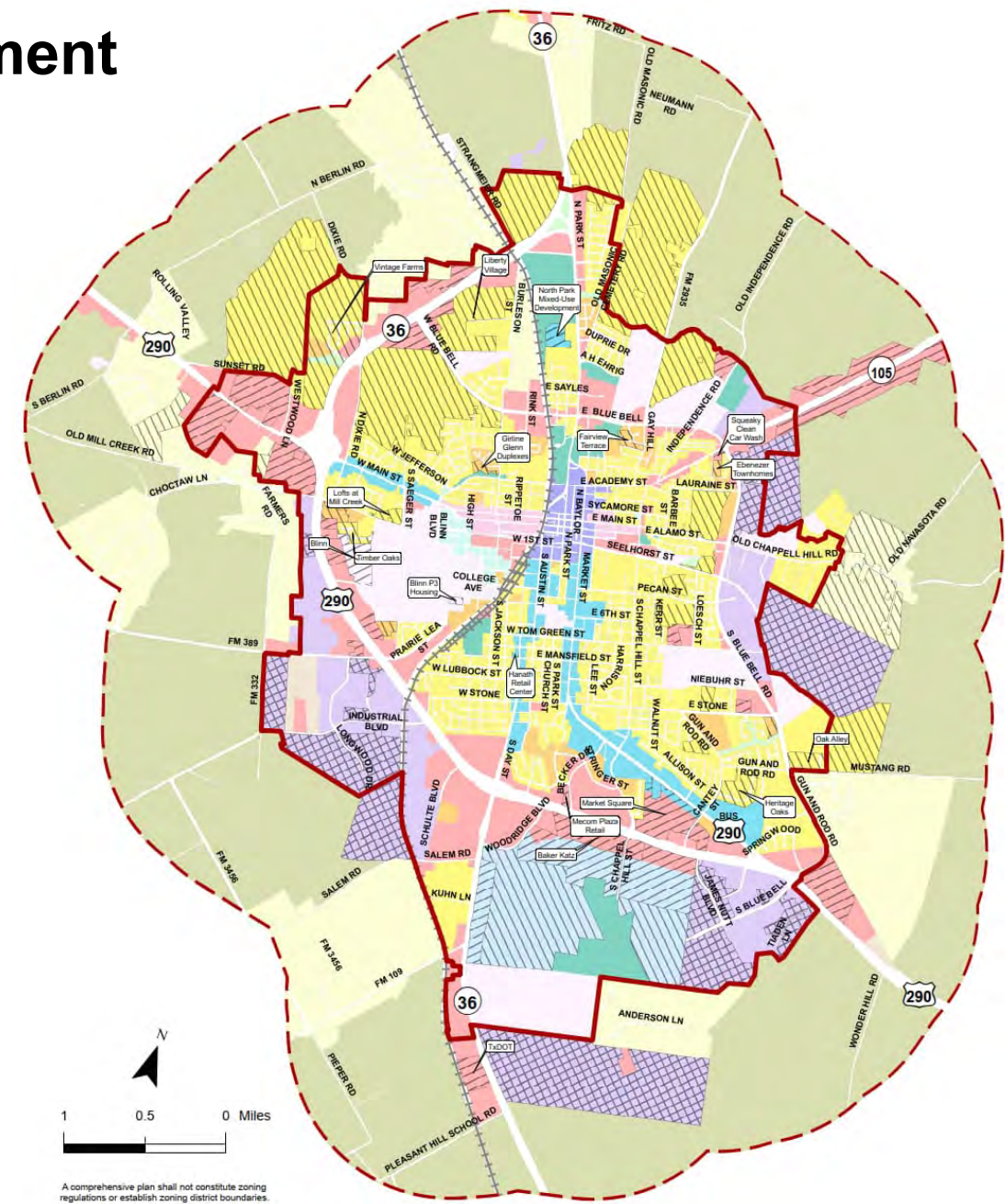
- Water study’s population projections:
 - + 4.0% annually for first 8 years
 - 0.25% annual growth rate reduction for years 9-20 (i.e., 3.75%, 3.50%, ...)
 - Results in a 20-year population of 32,660
 - 60% of 20-year growth anticipated in the first 10 years

- Systemwide LUA’s population projections:
 - Full build-out yields a population growth of 14,524
 - Results in a 20-year population of 33,073
 - 62% within City limits; 38% in ETJ boundary area

Year	TWDB	Steady (County Ratio)	Steady Growth (People)	Steady Growth (Rate)	Water Study
2023	18,549	18,549	18,549	18,549	18,549
2024	18,781	19,201	18,865	18,894	19,291
2025	19,013	19,342	19,181	19,245	20,062
2026	19,245	19,483	19,497	19,603	20,865
2027	19,478	19,625	19,813	19,968	21,699
2028	19,710	19,766	20,129	20,339	22,567
2029	19,942	19,907	20,445	20,718	23,470
2030	20,048	20,048	20,761	21,103	24,409
2031	20,159	20,405	21,077	21,496	25,324
2032	20,269	20,489	21,393	21,895	26,211
2033	20,380	20,572	21,709	22,303	27,062
2034	20,491	20,655	22,025	22,718	27,874
2035	20,602	20,738	22,341	23,140	28,641
2036	20,712	20,822	22,657	23,570	29,357
2037	20,823	20,905	22,973	24,009	30,017
2038	20,934	20,988	23,289	24,455	30,618
2039	21,044	21,072	23,605	24,910	31,153
2040	21,155	21,155	23,921	25,374	31,621
2041	21,266	21,238	24,237	25,846	32,016
2042	21,377	21,322	24,553	26,326	32,336
2043	21,488	21,405	24,869	26,816	32,660

Service Units Provide Basis of Measurement for Collection of Impact Fees

- Service units
 - Means to measure use of capital facilities by new development
- Water & Wastewater = Connections
 - Capacity consumed by a single equivalent residential water meter connection
 - 5/8" meter rated for 10 gpm continuous flow
 - Impact fees may be escalated based on water meter types and sizes per AWWA
- Roadways = Vehicle-Miles
 - Capacity consumed in a single lane in the PM peak hour by a vehicle making a trip one mile in length



TCEQ's Capacity Requirements Drives Need for Water Production Improvements based on Connection Growth

- TCEQ connections
 - Current = 10,283 connections (August 2023)
 - 10-year = 4,870 connections
- Water supply – 0.6 gpm per connection
 - TCEQ granted an ACR of 0.40 gpm per connection
 - 5,800 gpm = 14,500 total connections (70.9%)
- Water treatment – 0.6 gpm per connection
 - TCEQ granted an ACR of 0.40 gpm per connection
 - 4,850 gpm = 12,125 total connections (84.8%)



Lake Somerville Intake Facility

Water Source Evaluation and Water Treatment Plant Expansion Plan Identified Need for Incremental Water Production Improvements

- Surface Water Treatment Plant Improvements:
 - Upgrade facility with conventional treatment methods
 - Increase capacity from 6.984 mgd to 8.350 mgd
 - Provides ~2,370 additional connections
- Groundwater Treatment Plant Improvements:
 - Three sites identified at Loesch Street, Jackson Street Park, and Westside Elevated Storage Tank
 - Two wells, treatment, ground storage, and pumping
 - Provides ~1,770 additional connections per each



Surface Water Treatment Plant

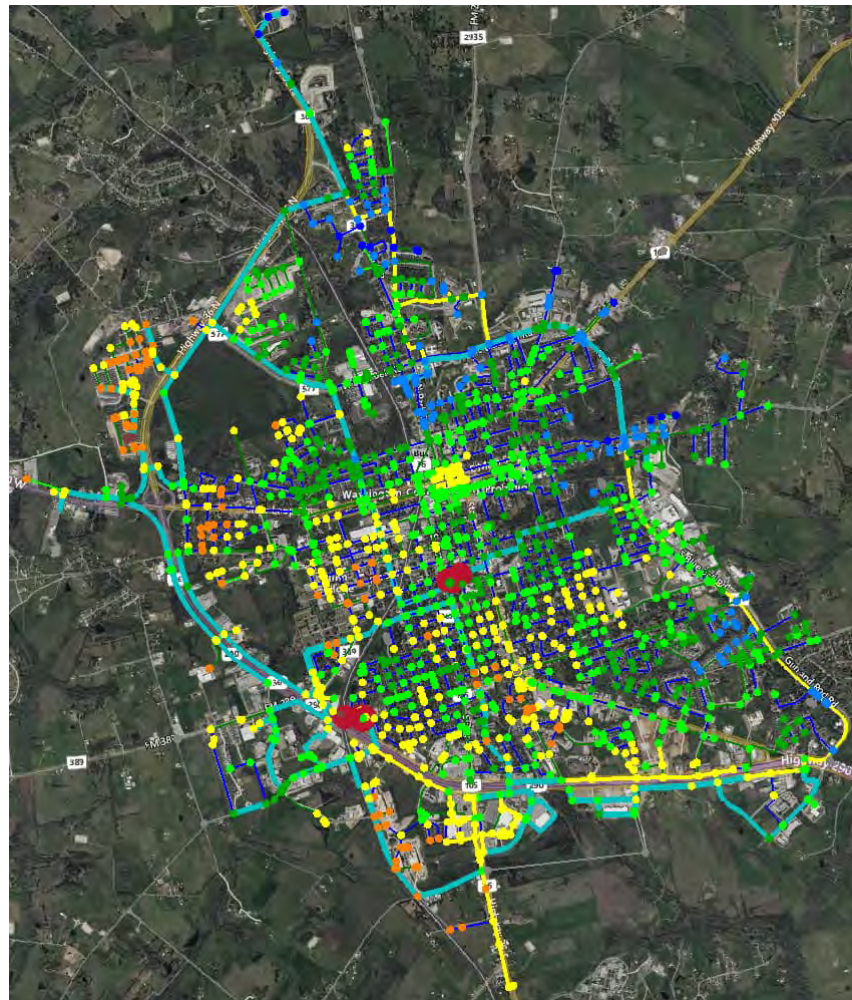
Water Storage and Pumping Improvements Required to Maintain System Pressures and Meet TCEQ Capacity Requirements

- Total storage – 200 gallons per connection
 - 4,000,000 gallons = 20,000 total connections (51.4%)
- Elevated storage – 100 gallons per connection
 - 1,400,000 gallons = 14,000 total connections (73.5%)
- Service pumping – 0.653 gpm per connection
 - WTP – 6,100 gpm = 9,342 total connections (110.1%)
 - Atlow – 1,500 gpm = 2,297 total connections (60.6%)
- System pressures – minimum of 35 psi

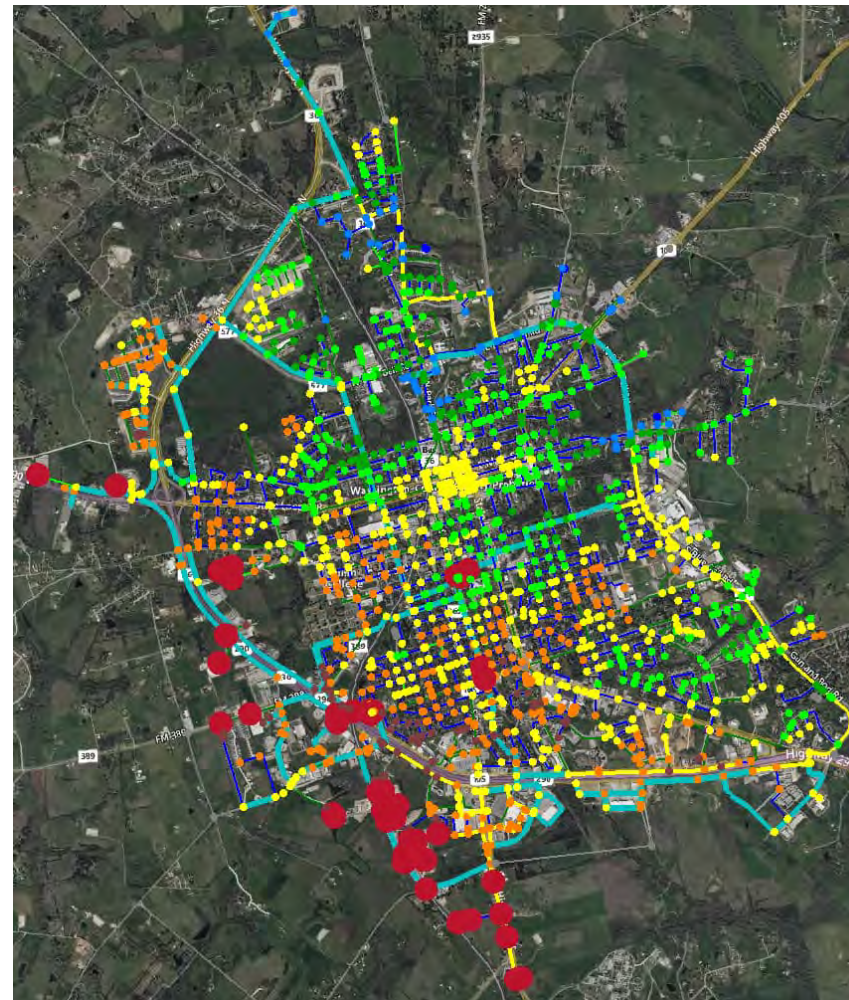


Atlow Elevated Storage Tank

Calibrated Hydraulic Model Used to Simulate System Pressure Changes Because of Anticipated 10-Year Development Growth

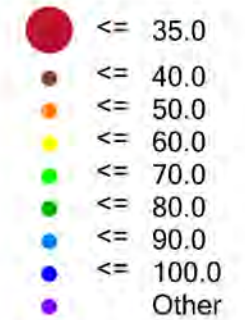


Existing System Pressures



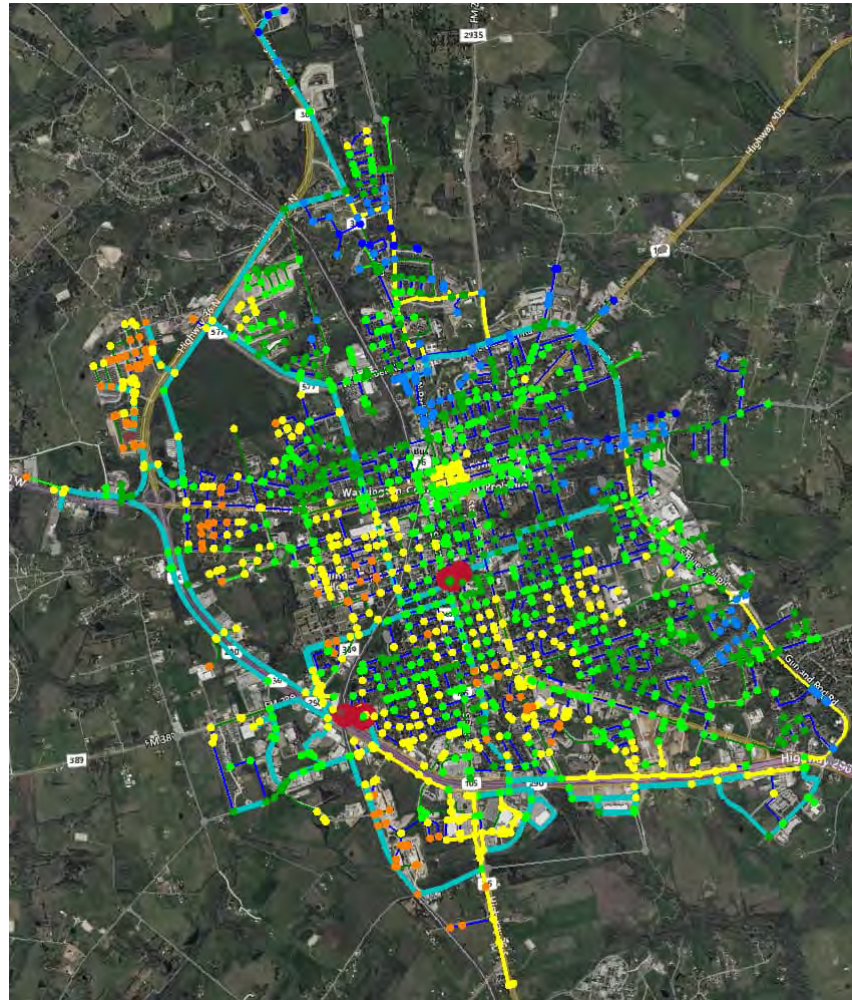
10-Year System Pressures (No Improvements)

Color Coding Legend
Junction: Pressure (Minimum) (psi)

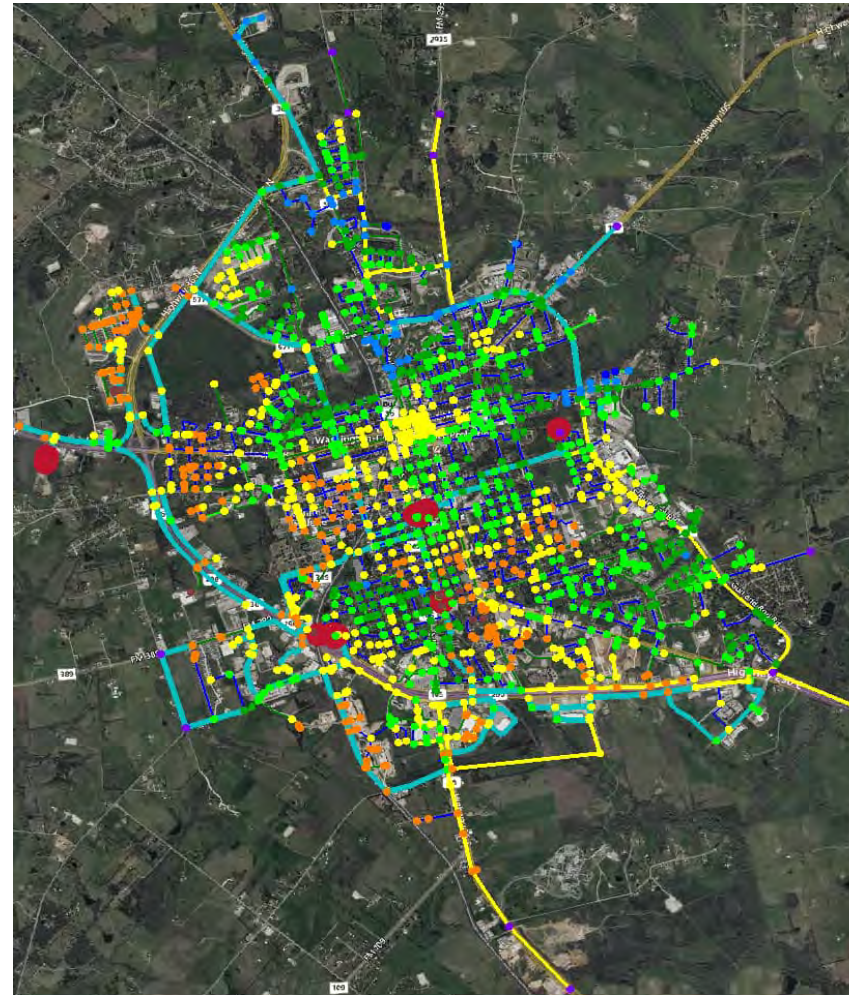


Legend

Pressure Plane Expansion Improvements Needed to Minimize Development-Related Pressure Deficiencies Along US Highway 290

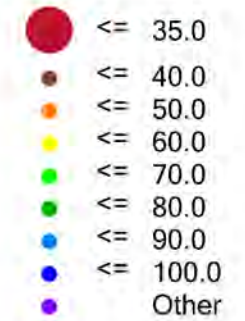


Existing System Pressures



10-Year System Pressures (with Improvements)

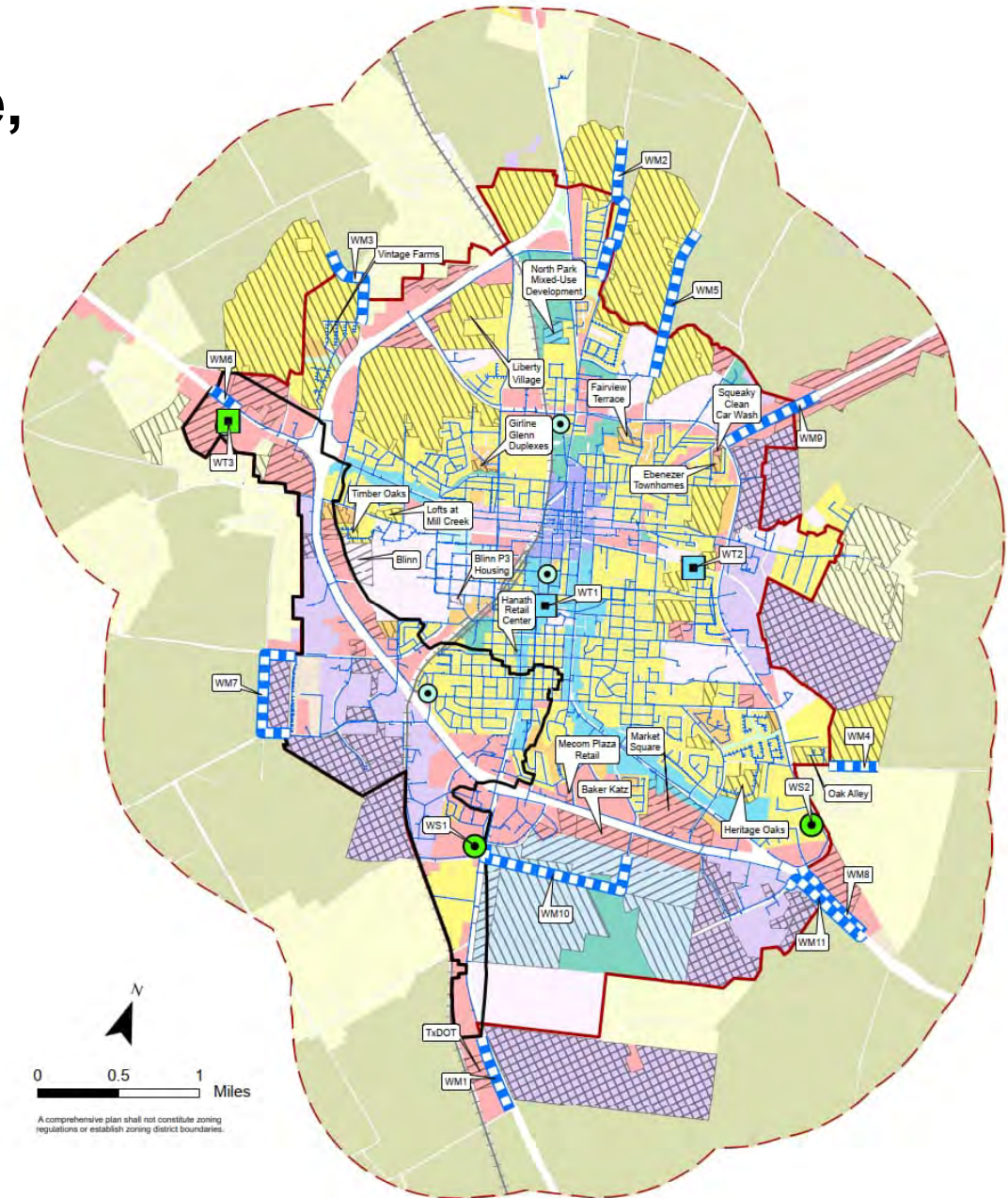
Color Coding Legend
Junction: Pressure (Minimum) (psi)



Legend

TCEQ Compliance Maintained through Combination of Water Treatment, Storage, Pumping, and Distribution Projects

- WT = Water Treatment (3 projects)
- WS = Water Storage (2 projects)
- WM = Water Mains (11 projects)
- Study = Water Impact Fee Study



Water Impact Fees Fund Eligible Capacity Improvements on the Water CIP

Water CIP Projects				Connections Served By Project				Opinion of Probable Costs		
ID	Name	Year	Project Description	Ultimate	Existing	10-Year	10-Year (%)	Total Costs (2023 Dollars)	10-Year Costs (2023 Dollars)	10-Year Costs (Escalated)
WT1	SWTP Improvements	2023	Expansion of Surface Water Treatment Plant from 6.984 MGD to 8.350 MGD.	12,322	10,283	2,039	16.5%	\$ 24,300,000	\$ 4,021,076	\$ 4,021,076
WT2	Loesch Street Water Plant	2023	Construct a groundwater plant having two wells, BPS, GST, and treatment facilities.	1,505	0	1,505	100.0%	\$ 11,700,000	\$ 11,700,000	\$ 11,700,000
WT3	Westside Water Plant	2031	Construct a groundwater plant having two wells, BPS, GST, and treatment facilities.	1,505	0	1,326	88.1%	\$ 12,700,000	\$ 11,189,502	\$ 15,616,875
WS1	Hwy 36 South EST	2025	Construct a 300,000-gallon EST in the Westside Pressure Plane.	1,955	0	1,955	100.0%	\$ 3,036,000	\$ 3,036,000	\$ 3,348,768
WS2	Gun and Rod Road EST	2030	Construct a 300,000-gallon EST in the Main Pressure Plane.	1,955	0	1,298	66.4%	\$ 3,036,000	\$ 2,015,718	\$ 2,705,078
WM1	Hwy 36 South WM	2025	2,800 LF of 10-inch water main extension to Pleasant Hill School Road/FM 35.	195	0	116	59.5%	\$ 741,250	\$ 440,949	\$ 486,375
WM2	Old Masonic Road WM	2026	5,300 LF of 8-inch water main replacement and extension along Old Masonic Road.	375	100	162	43.2%	\$ 1,289,900	\$ 557,237	\$ 639,229
WM3	Dixie Road WM	2027	2,800 LF of 12-inch water main extension along Dixie Road.	1,255	0	885	70.5%	\$ 805,000	\$ 567,669	\$ 677,244
WM4	Mustang Road WM	2028	1,700 LF of 6-inch water main extension along Mustang Road.	306	0	192	62.7%	\$ 378,900	\$ 237,741	\$ 294,977
WM5	FM 2935 WM	2028	5,200 LF of 10-inch water main extension along FM 2935.	683	0	683	100.0%	\$ 1,366,450	\$ 1,367,010	\$ 1,696,114
WM6	Hwy 290 West WM	2029	1,700 LF of 12-inch water main replacement along Highway 290 West.	105	10	53	50.5%	\$ 496,700	\$ 250,715	\$ 323,517
WM7	FM 332 WM	2029	4,500 LF of 12-inch water main extension along Industrial Blvd, FM 332, and FM 389.	23	0	12	52.2%	\$ 1,287,800	\$ 671,896	\$ 866,999
WM8	Hwy 290 East WM, P1	2030	3,200 LF of 10-inch water main extension along Highway 290 East.	45	0	25	55.0%	\$ 847,250	\$ 465,988	\$ 625,352
WM9	Hwy 105 WM	2031	3,500 LF of 12-inch water main replacement and extension along Highway 105.	79	30	27	34.2%	\$ 1,006,200	\$ 343,891	\$ 479,959
WM10	Small Area Plan WM	2032	5,900 LF of 10-inch water main extension along a future road alignment.	806	0	443	55.0%	\$ 1,576,250	\$ 866,351	\$ 1,257,507
WM11	Hwy 290 East WM, P2	2032	3,000 LF of 12-inch water main extension along Highway 290 East.	19	0	5	26.3%	\$ 857,400	\$ 225,632	\$ 327,504
Study	Study	2023	Water Impact Fee Study	1	0	1	100.0%	\$ 65,000	\$ 65,000	\$ 65,000
								\$ 65,490,100	\$ 38,022,374	\$ 45,131,575

TCEQ Chapter 217 Identifies Need for Wastewater Collection, Pumping, and Treatment Improvements based on Increased Sanitary Flows

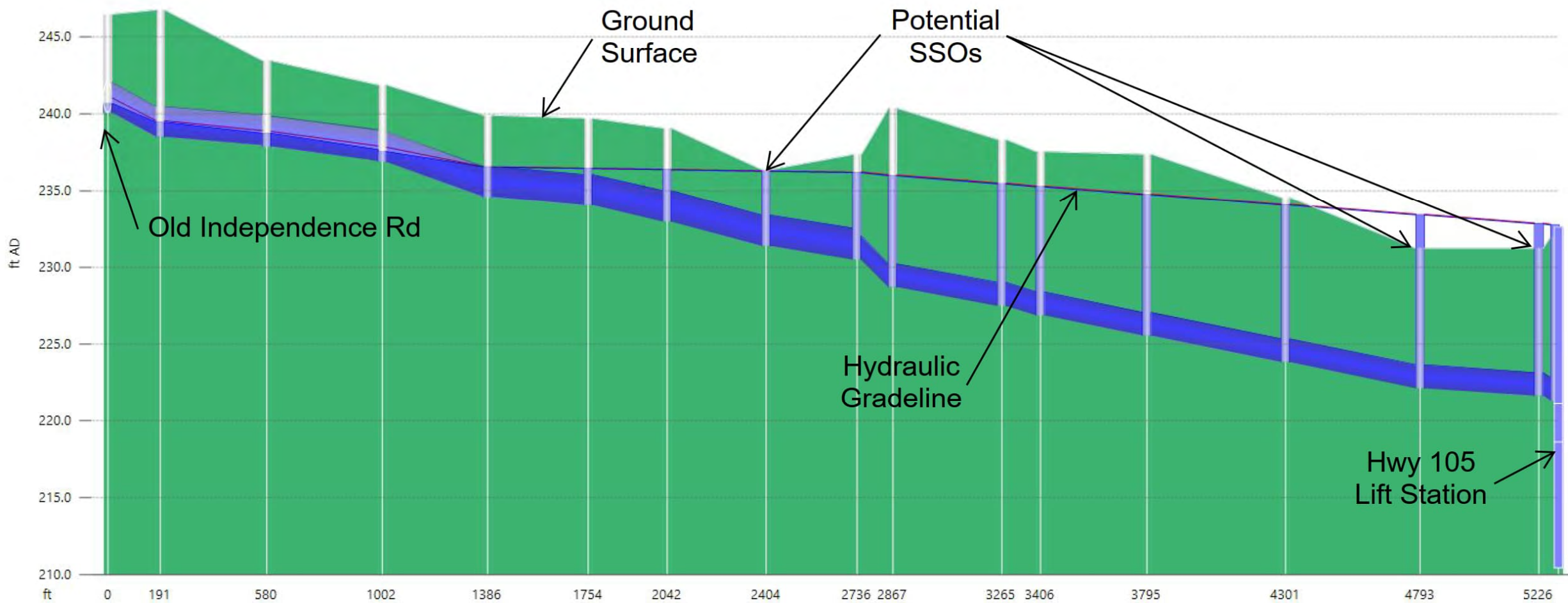
- Wastewater treatment
 - Rated = 3.55 mgd daily average flow (daf)
 - Current = 1.95 mgd daf (54.9%)
- Lift stations and force mains
 - 19 lift stations with varying rated capacities
 - Rated capacity is the volume of wastewater a lift station can pump with its largest pump out of service
- Sanitary sewers
 - Gravity sewer slopes are established to allow a velocity not less than 2.0 feet per second when the pipes are flowing at full capacity

Table C.2. - Minimum and Maximum Pipe Slopes

Size of Pipe (inches)	Minimum Slope (%)	Maximum Slope (%)
6	0.50	12.35
8	0.335	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.115	2.83
21	0.095	2.30
24	0.08	1.93
27	0.07	1.65
30	0.06	1.43
33	0.055	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

TCEQ Chapter 217, Table C.2

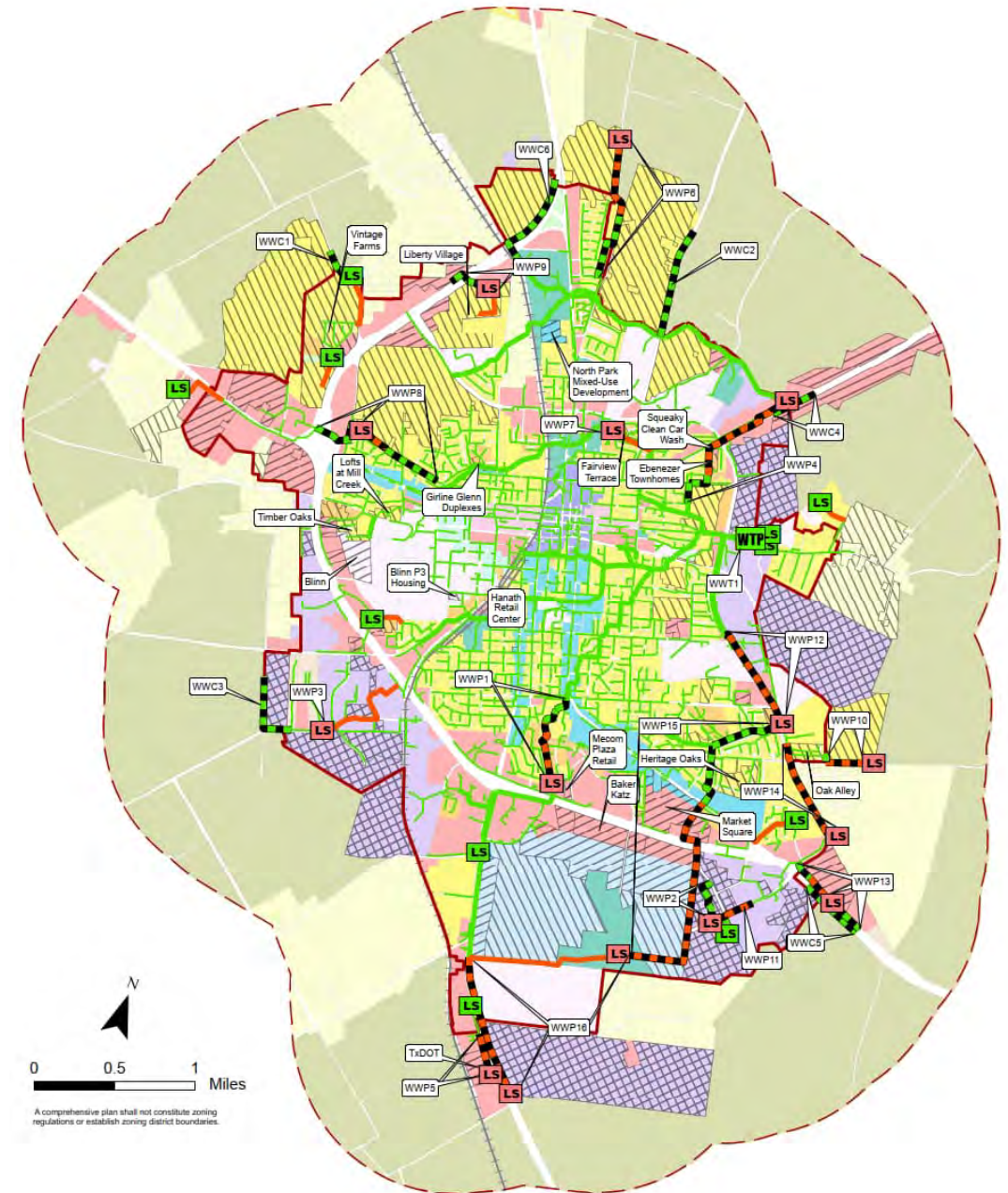
Wastewater Collection Model Considers Inflow and Infiltration to Identify Needed Wastewater Infrastructure Improvements



InfoWorks Integrated Catchment Modeling Output (10-Year Growth, Peak Flows, No Improvements)

TCEQ Compliance Maintained through Combination of Wastewater Treatment, Pumping, and Collection Projects

- WWT = Wastewater Treatment (1 project)
- WWP = Wastewater Pumping (16 projects)
- WWC = Wastewater Collection (6 projects)
- Study = Wastewater Impact Fee Study

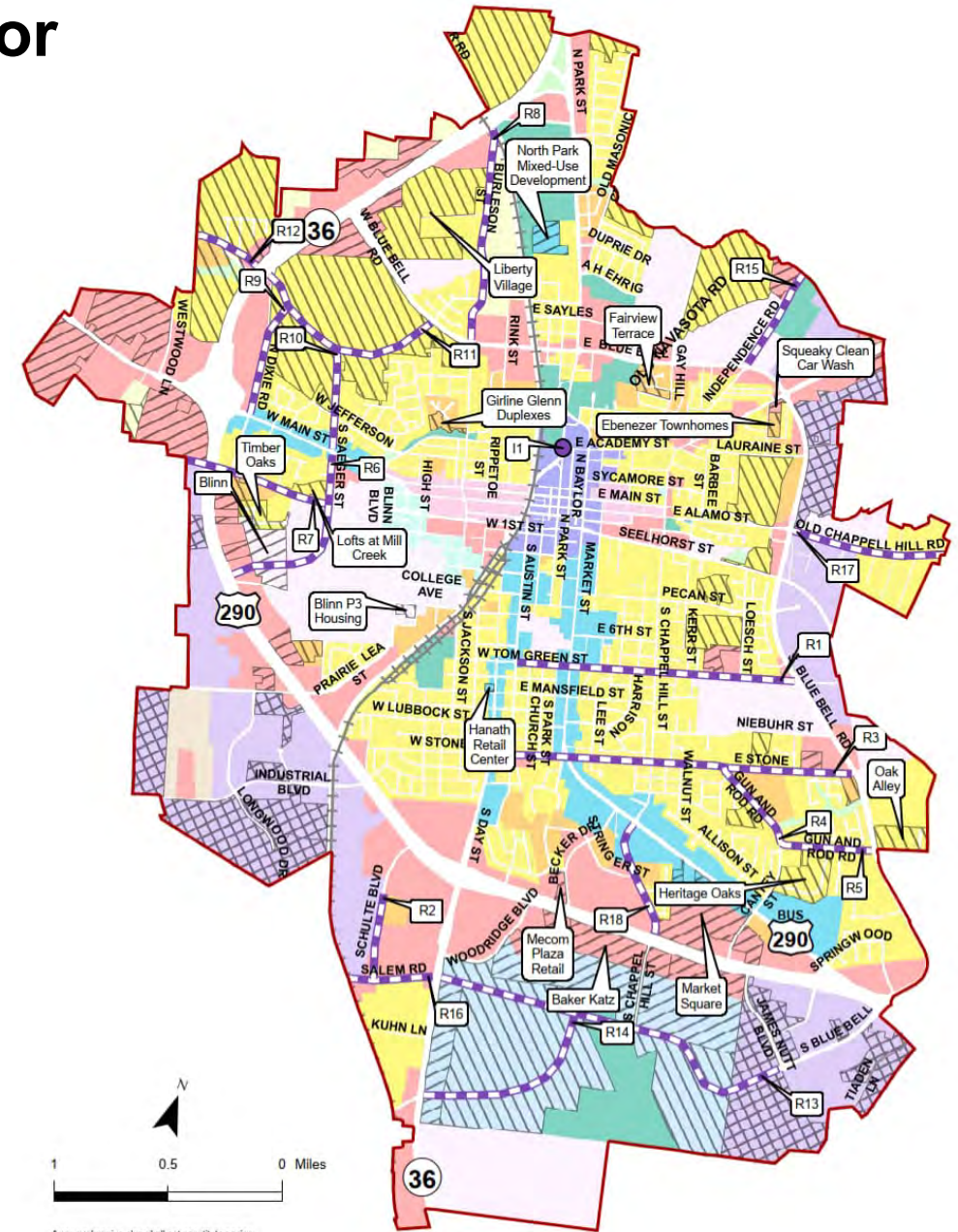


Wastewater Impact Fees Fund Eligible Capacity Improvements on the Wastewater CIP

Wastewater CIP Projects				Connections Served By Project				Opinion of Probable Costs		
ID	Name	Year	Project Description	Ultimate	Existing	10-Year	10-Year (%)	Total Costs (2023 Dollars)	10-Year Costs (2023 Dollars)	10-Year Costs (Escalated)
WWT1	WWTP Expansion Study	2032	Begin planning for an expansion of the existing WWTP.	14,040	10,283	2,039	14.5%	\$ 150,000	\$ 21,784	\$ 31,620
WWP1	Stone Hollow LS	2023	1,590-gpm lift station (replacement) with 12-inch force main and 15 & 16-inch sewers.	1,908	845	272	14.3%	\$ 2,115,000	\$ 301,509	\$ 301,509
WWP2	Business Center LS, P1	2024	126-gpm lift station (replacement) with 4-inch force main and 8-inch gravity sewer.	151	1	145	96.0%	\$ 1,413,000	\$ 1,356,854	\$ 1,439,074
WWP3	Industrial Boulevard LS	2024	630 to 870-gpm lift station (replacement) and connect to force main and gravity sewer.	756	240	280	37.0%	\$ 1,762,000	\$ 652,593	\$ 692,137
WWP4	Hwy 105 LS	2025	2,250-gpm lift station (replacement) with 12-inch force main and 15-inch gravity sewer.	2,700	800	1,598	59.2%	\$ 5,126,000	\$ 3,033,833	\$ 3,346,378
WWP5	TxDOT LS	2025	120-gpm lift station (new) with 4-inch force main.	144	0	76	52.8%	\$ 942,000	\$ 497,167	\$ 548,385
WWP6	Old Masonic Road LS	2026	180-gpm lift station (new) with 4-inch force main and 8-inch gravity sewer.	216	0	162	75.0%	\$ 1,707,000	\$ 1,280,250	\$ 1,468,627
WWP7	Henderson Park LS	2027	3,400-gpm lift station (pump replacement) and connect to force main and gravity sewer.	4,080	1,725	2,349	57.6%	\$ 456,000	\$ 262,535	\$ 313,212
WWP8	Munz LS	2027	2,250-gpm lift station (replacement) with 12-inch force main and 15-inch gravity sewer.	2,700	225	2,070	76.7%	\$ 5,104,000	\$ 3,913,067	\$ 4,668,392
WWP9	Liberty Village LS	2028	300-gpm lift station (pump replacement) with 8-inch gravity sewer.	360	164	146	40.6%	\$ 764,000	\$ 309,844	\$ 384,439
WWP10	Mustang Road LS	2028	180-gpm lift station (new) with 4-inch force main and 8-inch gravity sewer.	216	0	192	88.9%	\$ 1,122,000	\$ 997,333	\$ 1,237,439
WWP11	Business Center LS, P2	2029	4-inch force main replacement (replaces existing 3-inch force main).	66	1	47	71.2%	\$ 611,000	\$ 435,106	\$ 561,451
WWP12	Ralston Creek LS	2029	3,500-gpm lift station (pump replacement) with 16-inch force main replacement.	4,200	1,600	2,274	54.1%	\$ 1,504,000	\$ 814,309	\$ 1,050,765
WWP13	Hwy 290 East LS, P1	2030	70-gpm lift station (new) with 4-inch force main and 8-inch gravity sewer.	84	0	25	29.8%	\$ 1,008,000	\$ 300,000	\$ 402,598
WWP14	K of C Hall LS	2030	500-gpm lift station (replacement) with 6-inch force main replacement.	600	26	316	52.7%	\$ 1,806,000	\$ 951,160	\$ 1,276,449
WWP15	Baker Katz LS	2031	1,200-gpm lift station (pumps) with 10-inch force main and 15 & 18-inch gravity sewers.	1,440	456	770	53.5%	\$ 3,525,000	\$ 1,884,896	\$ 2,630,696
WWP16	Hwy 36 South No. 2 LS	2032	600-gpm lift station (new) with 6-inch force main.	720	0	388	53.9%	\$ 2,074,000	\$ 1,117,656	\$ 1,622,276
WWC1	Dixie Road Sewer	2027	8-inch gravity sewer extension along Dixie Road.	125	0	90	72.0%	\$ 223,000	\$ 160,560	\$ 191,552
WWC2	FM 2935 Sewer	2028	8-inch gravity sewer extension along FM 2935.	683	0	683	100.0%	\$ 697,000	\$ 697,000	\$ 864,801
WWC3	FM 332 Sewer	2029	8-inch gravity sewer extension along Industrial Blvd and FM 332.	23	0	12	52.2%	\$ 509,000	\$ 265,565	\$ 342,679
WWC4	Hwy 105 Sewer	2031	8-inch gravity sewer extension along Highway 105.	49	0	27	55.1%	\$ 515,000	\$ 283,776	\$ 396,058
WWC5	Hwy 290 East Sewer, P2	2032	8-inch gravity sewer extension along southside of Highway 290 East.	19	0	5	26.3%	\$ 249,000	\$ 65,526	\$ 95,111
WWC6	Hwy 36 North Sewer	2032	8- and 12-inch gravity sewer extension along Highway 36 North.	275	0	151	54.9%	\$ 772,000	\$ 423,898	\$ 615,288
Study	Study	2023	Wastewater Impact Fee Study	1	0	1	100.0%	\$ 110,000	\$ 110,000	\$ 110,000
								\$ 34,264,000	\$ 20,136,221	\$ 24,590,935

Single Service Area Provides Flexibility for Roadway Impact Fees to be Spent on Highest Priority Capacity Improvements

- Single service area preferred since development will generate trips to all areas for school, groceries, shopping, parks, etc.
- Roadway service area is limited to City limits and cannot exceed 6 miles in length
- Roadway CIP projects are required to:
 - Be on an approved Thoroughfare Plan
 - Be classified as a collector or arterial
 - Increase roadway capacity by adding lanes or striping to provide a two-way left-turn lane
- 20 potential projects, both recent and future, have been identified that meet this criteria



A comprehensive plan shall not constitute zoning regulations or establish zoning district boundaries.

Vehicle-Miles Provides Basis of Measurement for Roadway Impact Fees

- Vehicle-Mile = Capacity consumed in a single lane in the PM peak hour by a vehicle making a trip one-mile in length
- Future Supply = Vehicle-Miles of Capacity Constructed
 - Length, future lanes, and lane capacity
- Existing Demand = Vehicle-Miles Currently Consumed
 - Length, existing lanes, and existing peak hour traffic volumes
- Net Vehicle-Miles of Capacity Added
 - Net Added = Future Supply - Existing Demand
- Percent of Roadway Capacity Attributable to New 10-Year Growth
 - Percent Attributable = Net Added / Future Supply = 90.5%

Roadway Type	Description	Hourly Vehicle-Mile Capacity per Lane-Mile of Roadway Facility
2U-G	Rural Cross-Section (i.e., gravel, dirt, etc.)	100
2U-H	Two lane undivided – rural setting, high speed	770
2U	Two lane undivided – built-out	410
2U-OP	Two lane undivided with on-street parking	330
2U-Half	Two lane undivided – half of a 4 lane divided	410
3U	Three lane undivided (two-way, left-turn lane)	510
3U-OP	Three lane undivided with on street parking	410
4U	Four lane undivided	680
4D	Four lane divided	810
5U	Five lane undivided	770
6U	Six lane undivided	770
6D	Six lane divided	900
7U	Seven lane undivided	860

Roadway Impact Fees Fund Eligible Capacity Improvements on the Roadway CIP

Roadway CIP Projects				Opinion of Probable Costs			
ID	Name	Year	Project Description	Total Costs (2023 Dollars)	10-Year (Percentage)	10-Year Costs (2023 Dollars)	10-Year Costs (Escalated)
R1	Tom Green Street	2024	Expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from SH 36 to FM 577.	\$ 6,581,000	90.5%	\$ 5,957,278	\$ 6,318,265
R2	Schulte Blvd Extension	2025	Construction of a three lane undivided (two-way, left-turn lane) concrete roadway from Salem Road to Schulte Boulevard.	\$ 2,483,000	90.5%	\$ 2,247,671	\$ 2,479,225
R3	East Stone Street	2026	Expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from Business SH 36 to FM 577.	\$ 6,580,000	90.5%	\$ 5,956,373	\$ 6,832,797
R4	West Gun and Rod Road	2027	Expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from E Stone Street to Gun & Rod Road.	\$ 2,618,000	90.5%	\$ 2,369,876	\$ 2,827,324
R5	East Gun and Rod Road	2027	Expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from Gun and Rod Road to FM 577.	\$ 2,591,000	90.5%	\$ 2,345,435	\$ 2,798,166
R6	South Saeger Street	2028	Construction of a three lane undivided (two-way, left-turn lane) concrete roadway from US 290 to Business 290.	\$ 5,230,000	90.5%	\$ 4,734,320	\$ 5,874,096
R7	Old Mill Creek Road	2028	Expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from the City Limits to Saeger Street.	\$ 4,181,000	90.5%	\$ 3,784,741	\$ 4,695,907
R8	Burleson Street	2029	Expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from FM 577 to the City Limits.	\$ 5,464,000	90.5%	\$ 4,946,143	\$ 6,382,390
R9	North Dixie Street	2030	Construction of a three lane undivided (two-way, left-turn lane) concrete roadway from Business 290 to Dixie Road.	\$ 4,181,000	90.5%	\$ 3,784,741	\$ 5,079,093
R10	North Saeger Street	2030	Expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from Business 290 to Dixie Road.	\$ 2,896,000	90.5%	\$ 2,621,528	\$ 3,518,071
R11	Dixie Road Extension	2030	Construction of a three lane undivided (two-way, left-turn lane) concrete roadway from SH 36 to FM 577.	\$ 3,680,000	90.5%	\$ 3,331,224	\$ 4,470,477
R12	North Dixie Street	2031	Construction of a three lane undivided (two-way, left-turn lane) concrete roadway from Business SH 36 to City Limits.	\$ 2,125,000	90.5%	\$ 1,923,601	\$ 2,684,716
R13	S Blue Bell Road Extension	2031	Construction of a four lane divided concrete roadway from SH 36 to South Blue Bell Road.	\$ 17,733,000	90.5%	\$ 16,052,334	\$ 22,403,793
R14	Small Area Plan Collector	2032	Construction three lane undivided (two-way, left-turn lane) concrete roadway from S Blue Bell Road Extension to SH 36.	\$ 5,572,000	90.5%	\$ 5,043,907	\$ 7,321,226
R15	Independence Road	2032	Expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from FM 577 to the City Limits.	\$ 2,869,000	90.5%	\$ 2,597,087	\$ 3,769,669
R16	Salem Road	2020	Prior expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from SH 36 to the City Limits.	\$ 1,320,000	90.5%	\$ 1,194,895	\$ 1,194,895
R17	Old Chappell Hill Road	2021	Prior expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from FM 577 to the City Limits.	\$ 724,000	90.5%	\$ 655,382	\$ 655,382
R18	South Chappell Hill Street	2023	Prior expansion to a three lane undivided (two-way, left-turn lane) concrete roadway from US 290 to Business 290.	\$ 1,100,000	90.5%	\$ 995,746	\$ 995,746
I1	Academy-Austin Intersection	2025	Intersection improvements consisting of pavement restriping and installation of new signals.	\$ 96,000	4.3%	\$ 4,167	\$ 4,596
Study	Study	2023	Roadway Impact Fee Study	\$ 75,000	100.0%	\$ 75,000	\$ 75,000
				\$ 78,099,000	-	\$ 70,621,447	\$ 90,380,835

Next Steps

Action	Date	Completed
CIAC Presentation No. 1 - Draft Land Use Assumptions	July 24, 2023	✓
CIAC Presentation No. 2A - Land Use Assumptions and Draft Roadway CIPs	September 12, 2023	✓
CIAC Presentation No. 2B - Draft Water and Wastewater CIPs	October 24, 2023	✓
City Council - Public Hearing for Approval of Land Use Assumptions and CIPs	December 7, 2023	✓
CIAC Presentation No. 3 - Draft Impact Fees	December 19, 2023	
Developer's Workshop with City Staff and CIAC	Mid-January 2024	
City Council - Public Hearing for Approval of Impact Fees	February 1, 2024	
City Council - Adopt Impact Fee Ordinance (First Reading)	February 15, 2024	
City Council - Adopt Impact Fee Ordinance (Second Reading)	March 7, 2024	

Questions?



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Public Hearing: Impact Fees Fund Improvements Needed to Serve New Development while Maintaining Regulatory Compliance and Quality of Service

City of Brenham

February 1, 2024

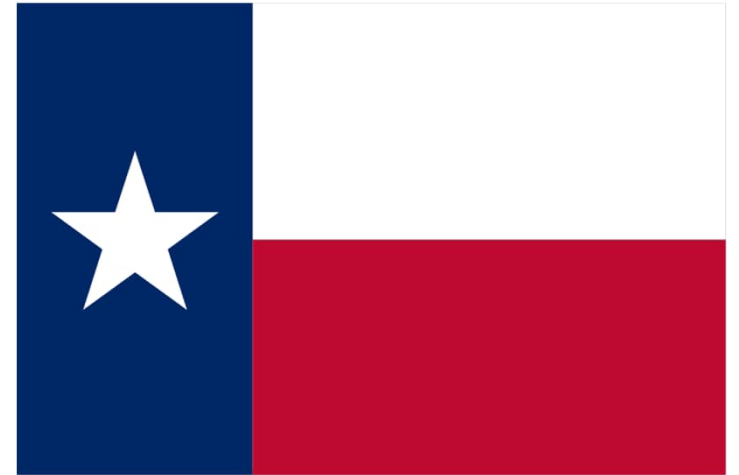


Agenda

- What is an Impact Fee?
- Impact Fee Development Process
- Approved Land Use Assumptions (LUAs) and Capital Improvement Plans (CIPs)
- Maximum Assessable Impact Fees and CIAC's Formal Recommendation
- Hypothetical Developments
- Next Steps

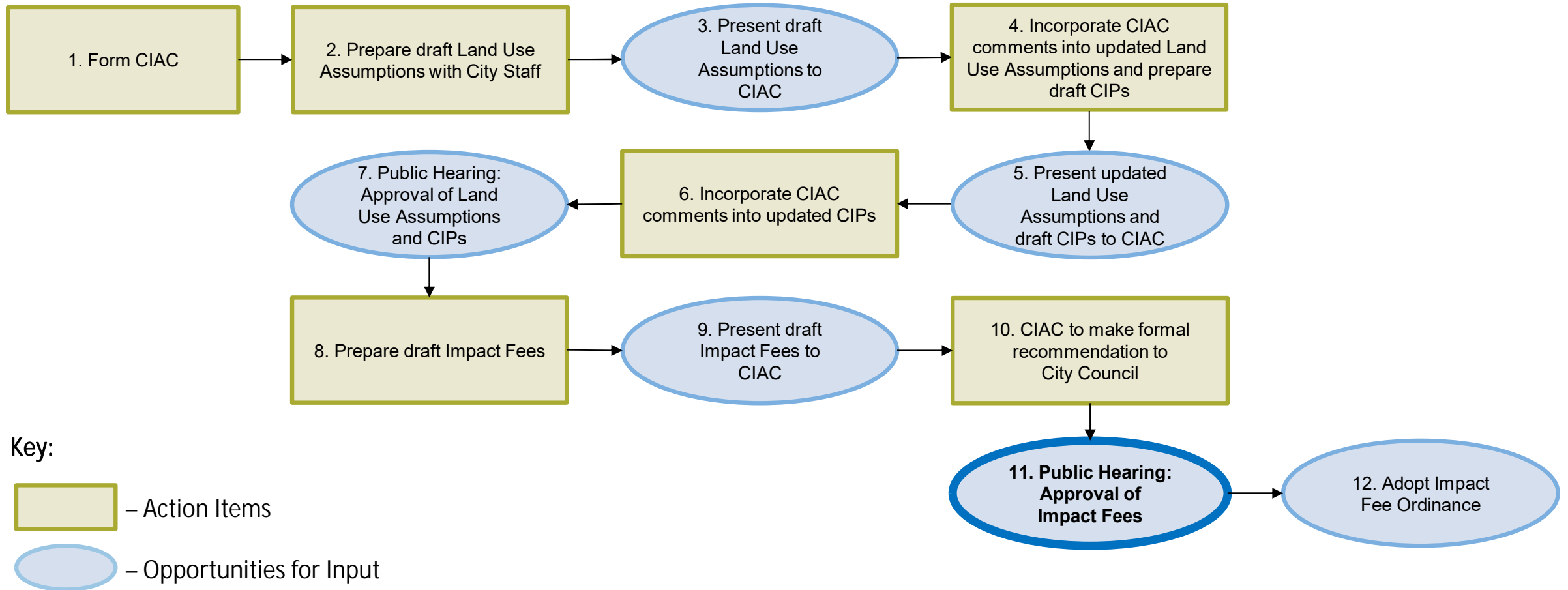
What is an Impact Fee?

- Charge or assessment imposed by a City to generate revenue to fund or recoup costs of capital improvements or facility expansions associated with new development
- Governed by Texas Local Government Code, Chapter 395
- Items payable by impact fees include construction costs, survey and engineering fees, land acquisition costs, and consulting fees to prepare and update the CIPs
- Calculations consider only the portion of the CIPs attributable to new development over a period of 10 years
- Lessens the burden of increasing utility rates and taxes on existing residents and employers that are currently paying for such infrastructure improvements



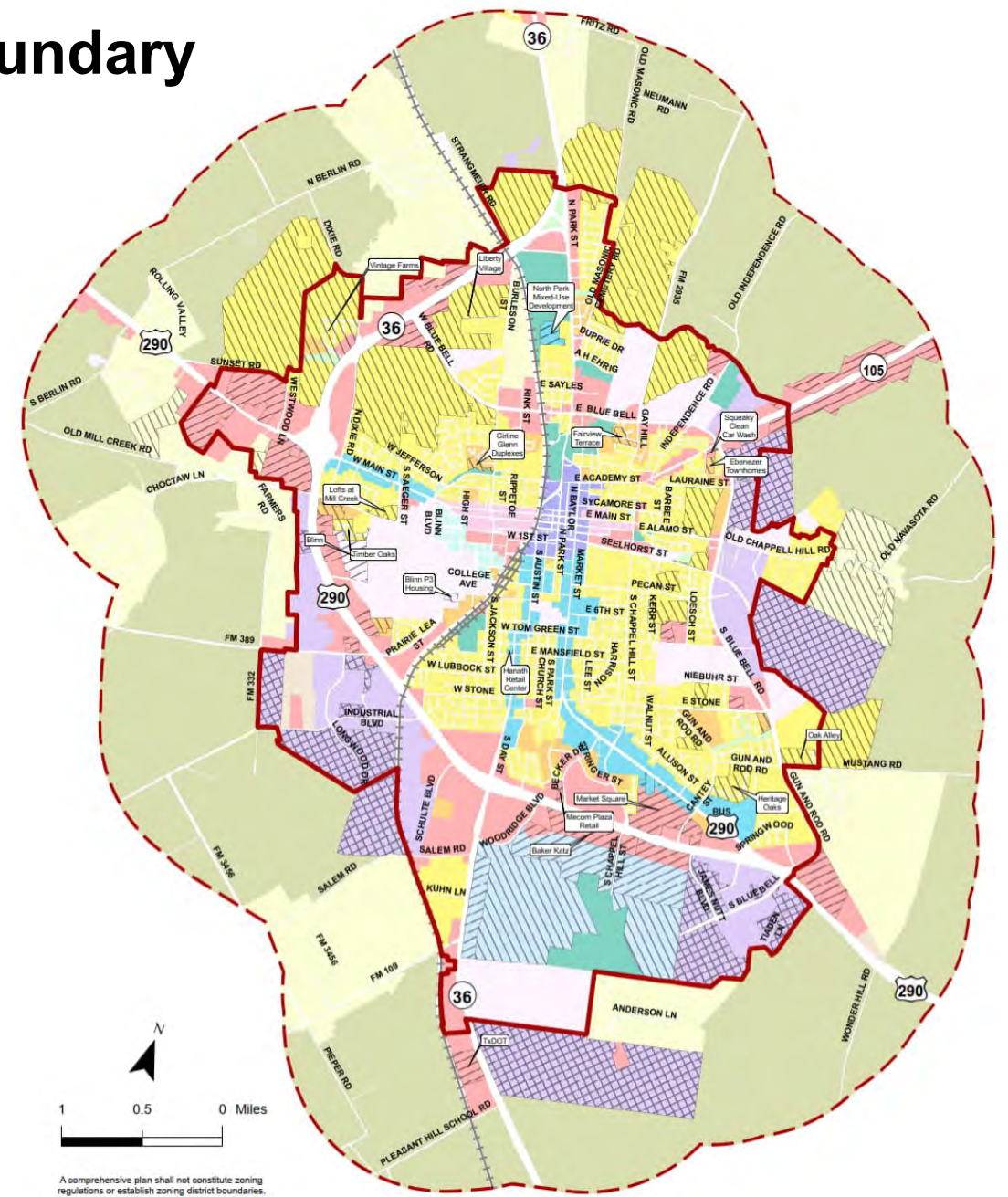
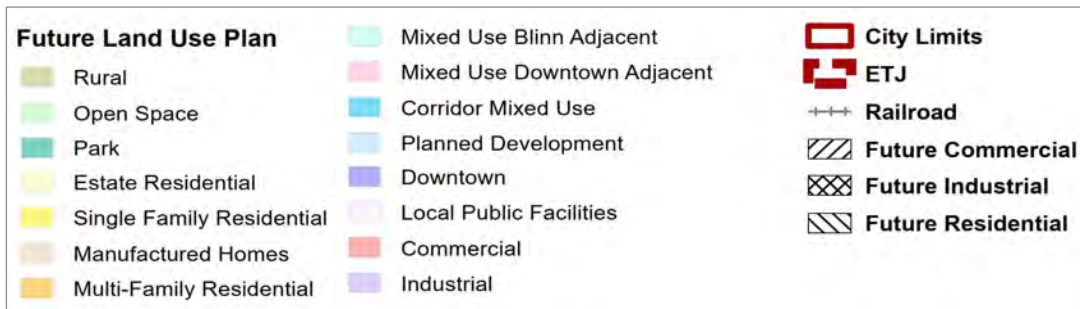
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Impact Fee Development Process Provides Multiple Opportunities for Input and Comment



Approved LUAs Defines Service Area Boundary for Water and Wastewater Impact Fees

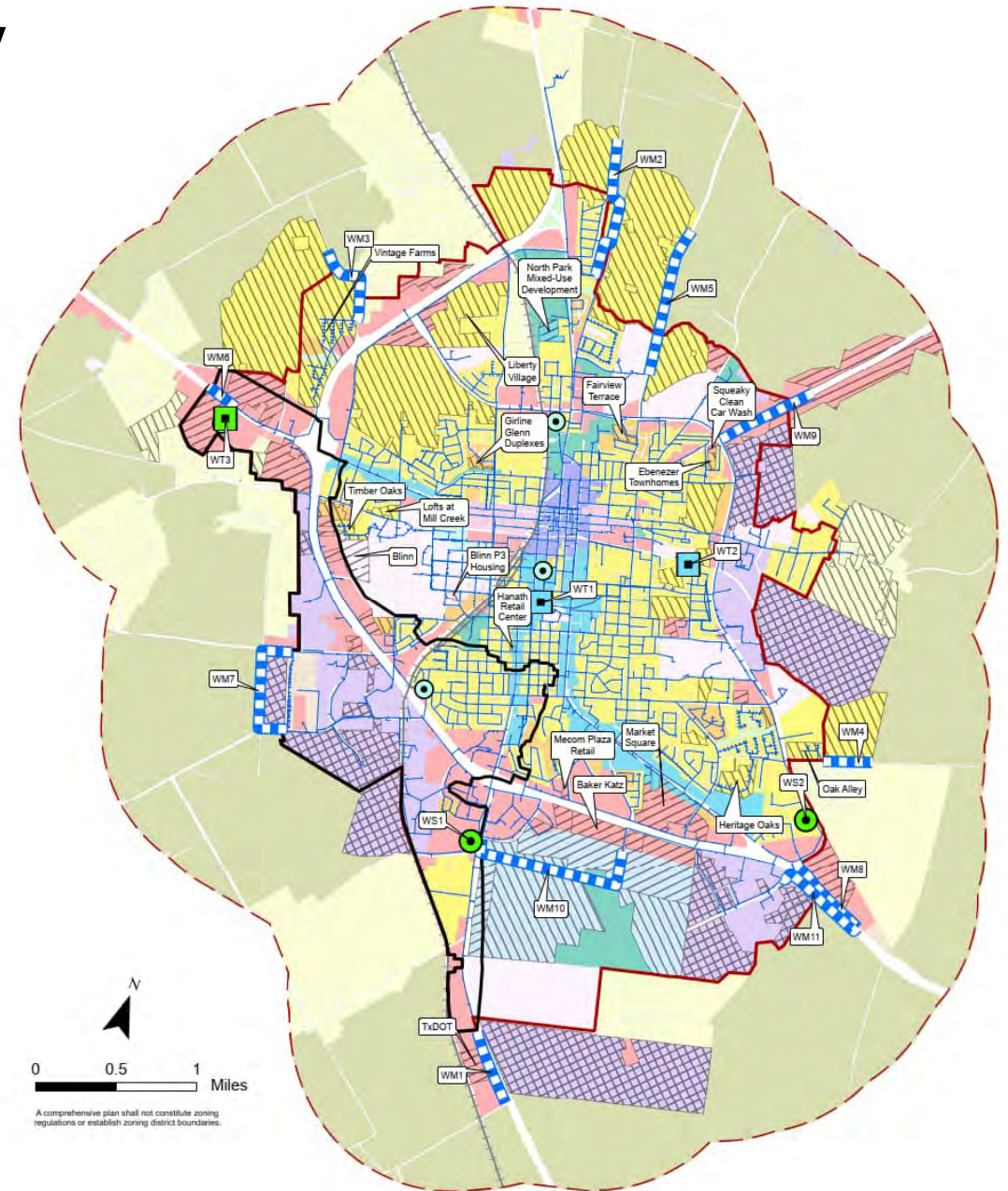
- LUAs: description of service area and projections of changes in land uses, densities, and population in the service area over a 10-year period
- Water Study Population Projections:
 - Current (2023) = 18,549 people
 - 10-Year (2033) = 27,062 people
- Service Unit = Equivalent residential water meter connection rated for 25 gpm of continuous flow



A comprehensive plan shall not constitute zoning regulations or establish zoning district boundaries.

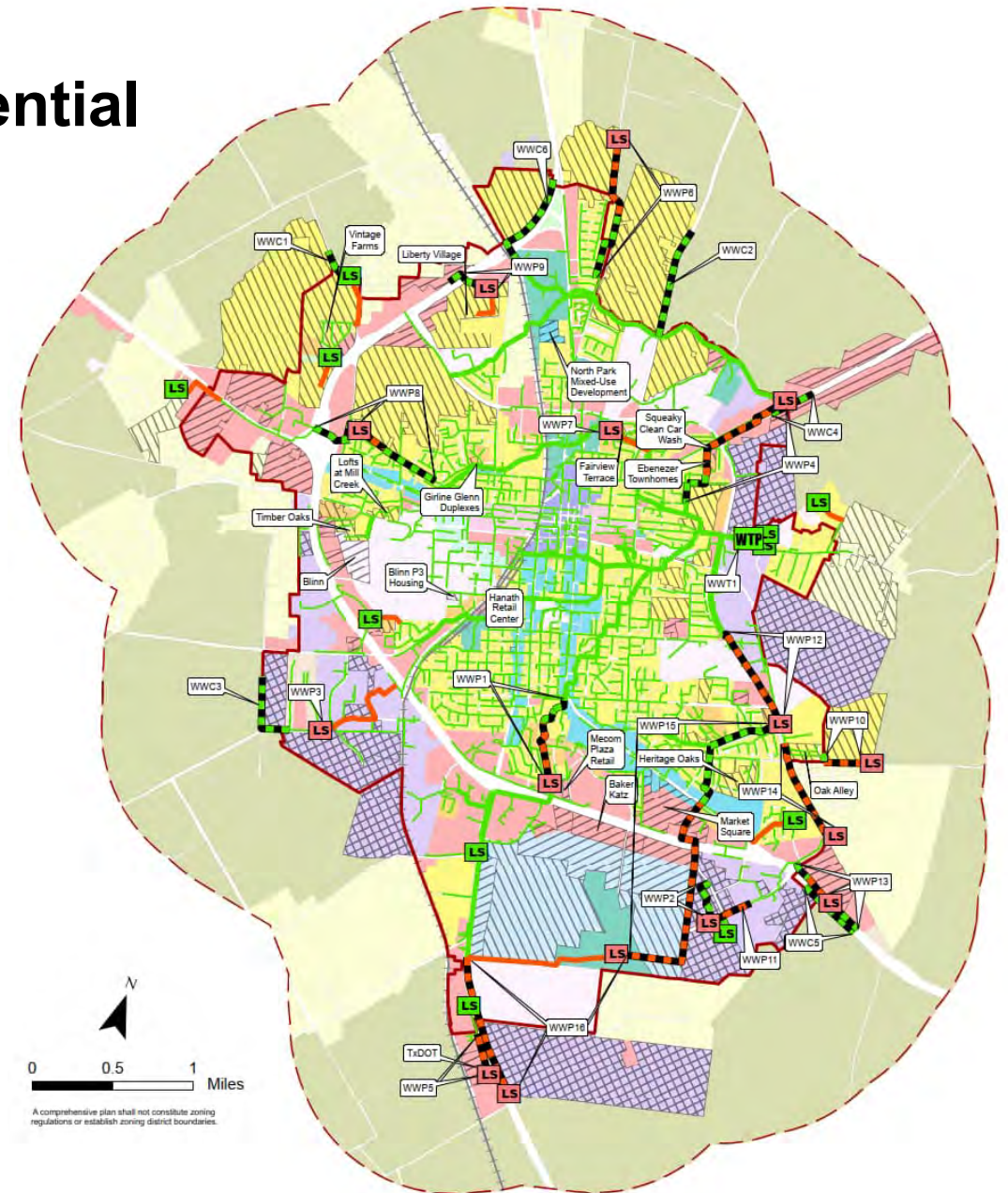
Approved Water CIP Maintains Regulatory Compliance and Quality of Service

- Water CIP Project Summary:
 - WT = Water Treatment (3 projects)
 - WS = Water Storage (2 projects)
 - WM = Water Mains (11 projects)
 - Study = Water Impact Fee Study
- Opinion of Probable Costs:
 - Total Costs (2023) = \$65,490,100
 - 10-Year Costs (2023) = \$38,022,374
 - 10-Year Costs (Escalated) = \$45,131,575



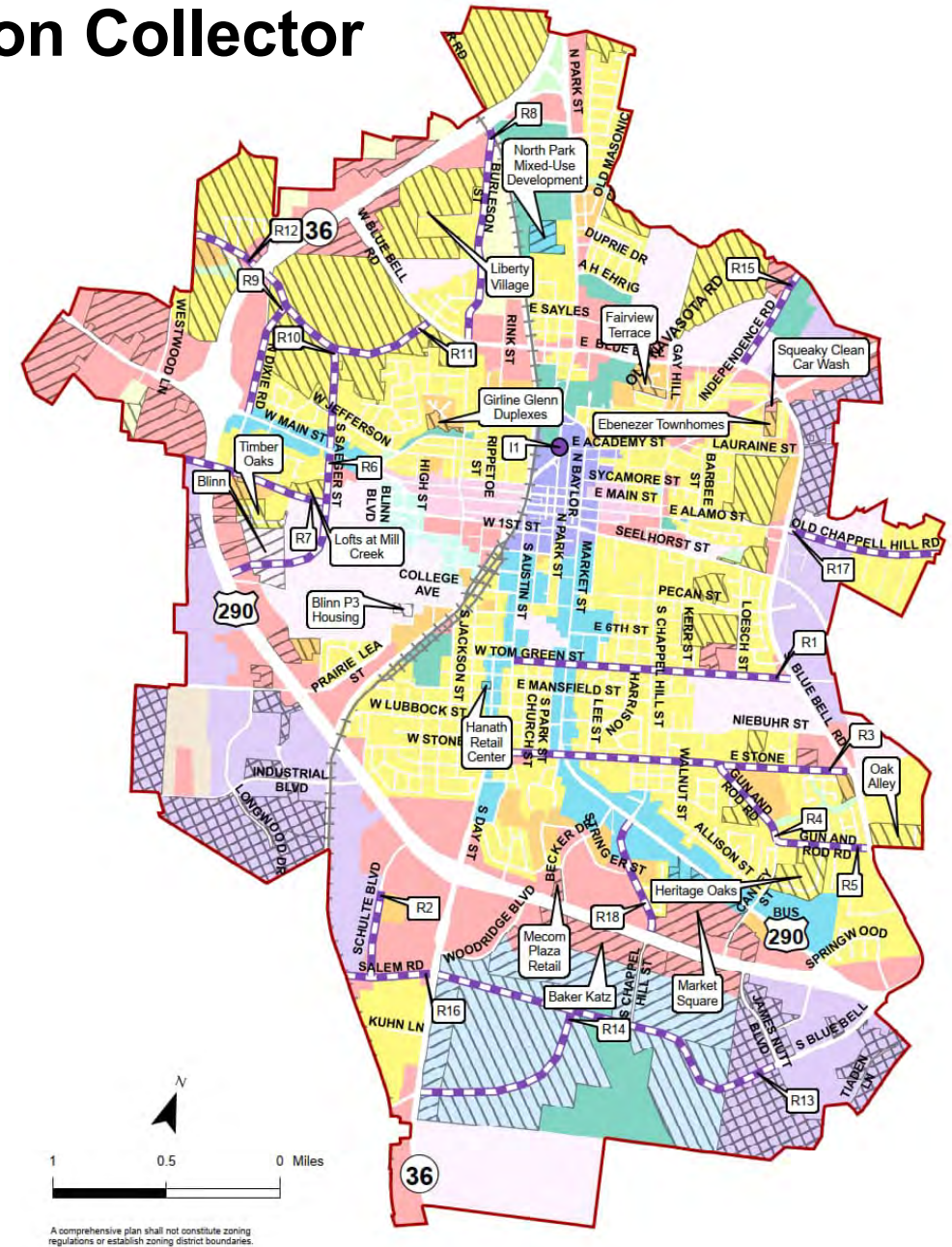
Approved Wastewater CIP Maintains Regulatory Compliance and Reduces Potential of Sewer Surcharging and Overflows

- Wastewater CIP Project Summary:
 - WWT = Wastewater Treatment (1 project)
 - WWP = Wastewater Pumping (16 projects)
 - WWC = Wastewater Collection (6 projects)
 - Study = Wastewater Impact Fee Study
- Opinion of Probable Costs:
 - Total Costs (2023) = \$34,264,000
 - 10-Year Costs (2023) = \$20,136,221
 - 10-Year Costs (Escalated) = \$24,590,935



Approved Roadway CIP Increases Capacity on Collector and Arterial Roadways within the City Limits

- Service Unit = Vehicle-Mile (capacity consumed in a single lane in the PM peak hour by a vehicle making a trip one mile in length)
- Roadway CIP Project Summary:
 - R = Roadway Capacity (18 projects)
 - I = Intersection Capacity (1 project)
 - Study = Roadway Impact Fee Study
- Opinion of Probable Costs:
 - Total Costs (2023) = \$78,099,000
 - 10-Year Costs (2023) = \$70,621,447
 - 10-Year Costs (Escalated) = \$90,380,835



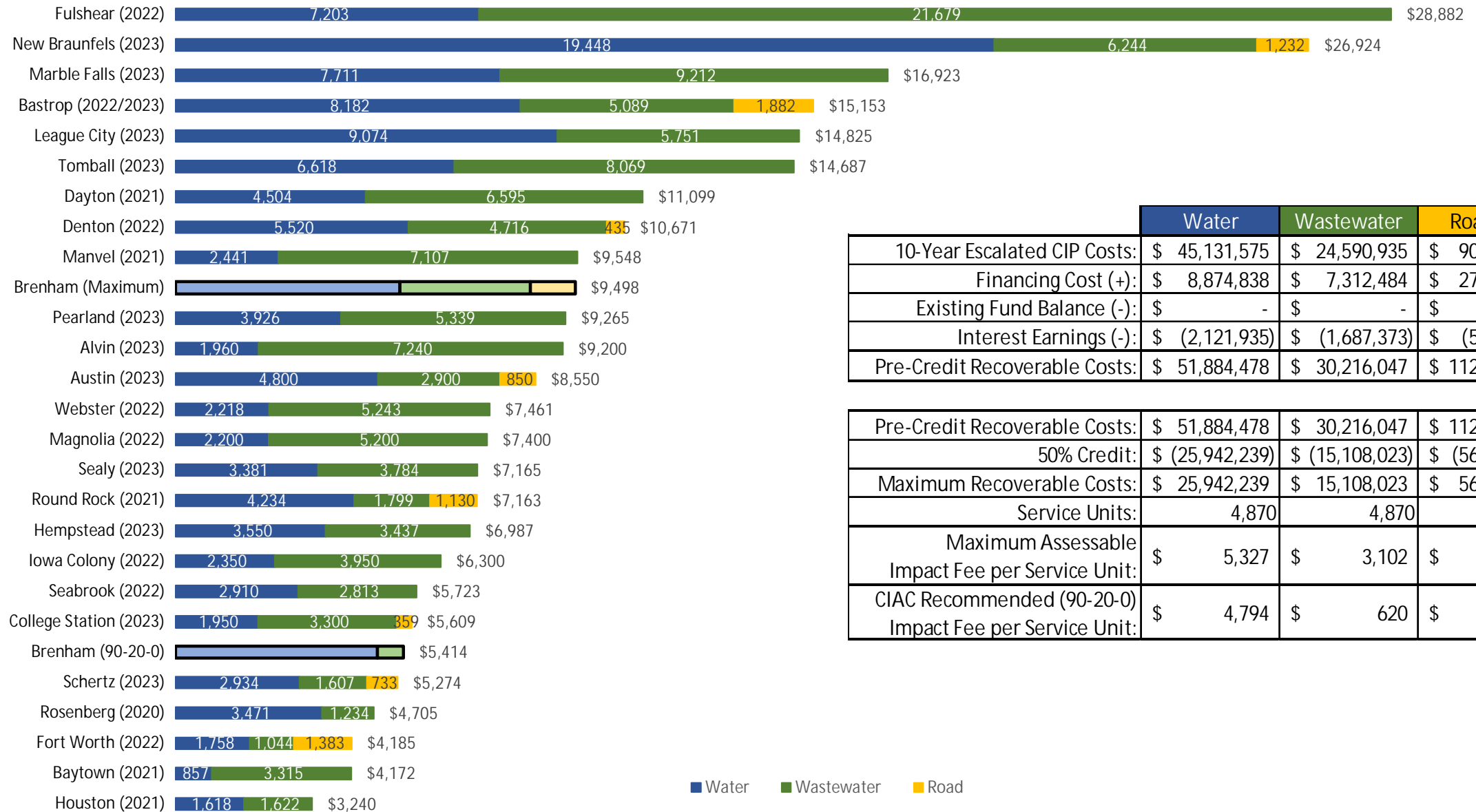
Chapter 395 Allows Credit to be Awarded to Developers Using Two Different Methods, Revenue Credit and 50 Percent Credit

- CIP costs, financing costs (5.0%), existing fund balances, and interest earnings (1.28%) are considered in calculating pre-credit recoverable costs
- Revenue credit method awards credit for portion of ad valorem taxes and utility service revenues generated by new service units
- 50 percent credit method assumes a credit equal to 50 percent of the total projected cost
- Maximum assessable impact fees are calculated by dividing maximum recoverable costs by the new service units added

	Water	Wastewater	Roadway
10-Year Escalated CIP Costs:	\$ 45,131,575	\$ 24,590,935	\$ 90,380,835
Financing Cost (+):	\$ 8,874,838	\$ 7,312,484	\$ 27,486,907
Existing Fund Balance (-):	\$ -	\$ -	\$ -
Interest Earnings (-):	\$ (2,121,935)	\$ (1,687,373)	\$ (5,761,522)
Pre-Credit Recoverable Costs:	\$ 51,884,478	\$ 30,216,047	\$ 112,106,220

Pre-Credit Recoverable Costs:	\$ 51,884,478	\$ 30,216,047	\$ 112,106,220
50% Credit:	\$ (25,942,239)	\$ (15,108,023)	\$ (56,053,110)
Maximum Recoverable Costs:	\$ 25,942,239	\$ 15,108,023	\$ 56,053,110
Service Units:	4,870	4,870	52,435
Maximum Assessable Impact Fee per Service Unit:	\$ 5,327	\$ 3,102	\$ 1,069

Impact Fee Marketability is Supported by Review of Impact Fees Recently Adopted by Neighboring Communities



	Water	Wastewater	Roadway
10-Year Escalated CIP Costs:	\$ 45,131,575	\$ 24,590,935	\$ 90,380,835
Financing Cost (+):	\$ 8,874,838	\$ 7,312,484	\$ 27,486,907
Existing Fund Balance (-):	\$ -	\$ -	\$ -
Interest Earnings (-):	\$ (2,121,935)	\$ (1,687,373)	\$ (5,761,522)
Pre-Credit Recoverable Costs:	\$ 51,884,478	\$ 30,216,047	\$ 112,106,220

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50% Credit:	\$ (25,942,239)	\$ (15,108,023)	\$ (56,053,110)
Maximum Recoverable Costs:	\$ 25,942,239	\$ 15,108,023	\$ 56,053,110
Service Units:	4,870	4,870	52,435
Maximum Assessable Impact Fee per Service Unit:	\$ 5,327	\$ 3,102	\$ 1,069
CIAC Recommended (90-20-0) Impact Fee per Service Unit:	\$ 4,794	\$ 620	\$ -

■ Water ■ Wastewater ■ Road

Water and Wastewater Impact Fees Determined for Varying Water Meter Types and Sizes Using AWWA Equivalency Tables

Meter Size (inch)	Meter Type	Continuous Duty Maximum Flow Rate (gpm)	Ratio to 1-Inch Meter	Impact Fees (Maximum Assessable)		Impact Fees (CIAC Recommendation)	
				Water	Wastewater	Water (90%)	Wastewater (20%)
1	Displacement Type	25	1	\$5,327	\$3,102	\$4,794	\$620
1.5	Displacement Type	50	2	\$10,654	\$6,204	\$9,589	\$1,241
2	Displacement Type	80	3.2	\$17,046	\$9,926	\$15,341	\$1,985
2	Compound	80	3.2	\$17,046	\$9,926	\$15,341	\$1,985
3	Compound	175	7	\$37,289	\$21,714	\$33,560	\$4,343
3	Turbine Vertical Shaft	220	8.8	\$46,878	\$27,298	\$42,190	\$5,460
3	Turbine High Velocity	350	14	\$74,578	\$43,428	\$67,120	\$8,686
4	Compound	300	12	\$63,924	\$37,224	\$57,532	\$7,445
4	Turbine Vertical Shaft	420	16.8	\$89,494	\$52,114	\$80,545	\$10,423
4	Turbine High Velocity	650	26	\$138,502	\$80,652	\$124,652	\$16,130
6	Compound	675	27	\$143,829	\$83,754	\$129,446	\$16,751
6	Turbine Vertical Shaft	865	34.6	\$184,314	\$107,329	\$165,883	\$21,466
6	Turbine High Velocity	1,400	56	\$298,312	\$173,712	\$268,481	\$34,742
8	Compound	900	36	\$191,772	\$111,672	\$172,595	\$22,334
8	Turbine High Velocity	2,400	96	\$511,392	\$297,792	\$460,253	\$59,558
10	Turbine High Velocity	3,500	140	\$745,780	\$434,280	\$671,202	\$86,856
12	Turbine High Velocity	4,400	176	\$937,552	\$545,952	\$843,797	\$109,190

Roadway Impact Fees Determined Using Land Use Categories and Sizes

Land Use Category	Development Unit (DU)	Vehicle Miles	Impact Fee Per DU
RESIDENTIAL			
Assisted Living	Beds	1.19	\$1,274
Mobile Home Park	Dwelling Unit	2.88	\$3,078
Multifamily (Low-Rise)	Dwelling Unit	2.53	\$2,707
Multifamily (Mid-Rise)	Dwelling Unit	1.94	\$2,070
Senior Adult Housing-Attached	Dwelling Unit	1.24	\$1,327
Senior Adult Housing-Detached	Dwelling Unit	1.49	\$1,592
Single-Family (Detached)	Dwelling Unit	4.67	\$4,989
INDUSTRIAL			
General Light Industrial-Default	1,000 SF GFA	3.88	\$4,152
Industrial Park	1,000 SF GFA	2.03	\$2,172
Manufacturing	1,000 SF GFA	4.42	\$4,727
Mini-Warehouse	1,000 SF GFA	0.90	\$958
Utility	1,000 SF GFA	12.91	\$13,797
Warehousing	1,000 SF GFA	1.08	\$1,150
LODGING			
Hotel	Room	2.93	\$3,131
Motel/Other Lodging Facilities	Room	1.79	\$1,911
OFFICE			
Corporate Headquarters Building	1,000 SF GFA	7.80	\$8,338
General Office Building-Default	1,000 SF GFA	8.63	\$9,221
Government Office Building	1,000 SF GFA	10.26	\$10,968
Medical-Dental Office Building	1,000 SF GFA	23.58	\$25,207
Single Tenant Office Building	1,000 SF GFA	10.56	\$11,289
United States Post Office	1,000 SF GFA	67.26	\$71,901
RECREATIONAL			
Multiplex Movie Theater	1,000 SF GFA	37.02	\$39,574
Recreational Community Center	1,000 SF GFA	15.00	\$16,035

Land Use Category	DU	Vehicle Miles	Impact Fee Per DU
INSTITUTIONAL			
Church	1,000 SF GFA	2.28	\$2,433
Day Care Center	1,000 SF GFA	28.93	\$30,921
Elementary School	Students	0.74	\$794
Fire and Rescue Station (Private)	1,000 SF GFA	2.88	\$3,079
High School	Students	0.65	\$695
Junior/Community College	Students	0.51	\$546
Library	1,000 SF GFA	48.96	\$52,338
Middle School/High School	Students	0.70	\$745
Private School (K-8)	Students	1.21	\$1,291
Private School (K-12)	Students	0.79	\$844
MEDICAL			
Animal-Veterinary Clinic	1,000 SF GFA	14.75	\$15,770
Clinic	1,000 SF GFA	22.03	\$23,549
Hospital	1,000 SF GFA	5.13	\$5,488
Nursing Home	Beds	0.84	\$893
DINING			
Coffee/Donut Shop with Drive-Thru	1,000 SF GFA	38.83	\$41,514
Coffee/Donut Shop w/o Drive-Thru	1,000 SF GFA	32.16	\$34,380
Drinking Place	1,000 SF GFA	28.29	\$30,238
Fast Food with Drive-Thru	1,000 SF GFA	49.35	\$52,752
Fast Food w/o Drive-Thru	1,000 SF GFA	44.10	\$47,146
Fine Dining Restaurant	1,000 SF GFA	14.50	\$15,502
High Turnover Restaurant (Sit Down)	1,000 SF GFA	17.13	\$18,308
SERVICES			
Bank (Walk-In)	1,000 SF GFA	20.20	\$21,590.01
Bank (Drive-In)	Drive-in Lanes	48.83	\$52,196.61
Hair Salon	1,000 SF GFA	2.82	\$3,010.97

Land Use Category	DU	Vehicle Miles	Impact Fee Per DU
AUTOMOBILE			
Automated Car Wash	1,000 SF GFA	23.64	\$25,274
Automobile Care Center	1,000 SF GFA	5.61	\$5,997
Automobile Parts/Service Center	1,000 SF GFA	3.72	\$3,972
Automobile Parts Sales	1,000 SF GFA	7.75	\$8,285
Automobile Sales (New)	1,000 SF GFA	5.04	\$5,384
Automobile Sales (Used)	1,000 SF GFA	7.80	\$8,343
Convenience Store/Gas Station	Fuel Positions	22.49	\$24,043
Gasoline/Service Station	Fuel Positions	16.60	\$17,743
Quick Lubrication Vehicle Shop	1,000 SF GFA	15.69	\$16,775
Self-Service Car Wash	Wash Stalls	9.22	\$9,861
Tire Store	1,000 SF GFA	7.80	\$8,343
OTHER RETAIL			
Building Materials and Lumber Store	1,000 SF GFA	3.75	\$4,005
Department Store	1,000 SF GFA	3.79	\$4,049
Discount Store	1,000 SF GFA	7.67	\$8,203
Free-Standing Discount Store	1,000 SF GFA	10.79	\$11,534
Furniture Store	1,000 SF GFA	0.68	\$725
Hardware/Paint Store	1,000 SF GFA	6.12	\$6,542
Home Improvement Superstore	1,000 SF GFA	3.69	\$3,940
Liquor Store	1,000 SF GFA	30.90	\$33,033
Nursery (Garden Center)	1,000 SF GFA	13.48	\$14,411
Drugstore w/ Drive-Thru	1,000 SF GFA	14.51	\$15,507
Drugstore w/o Drive-Thru	1,000 SF GFA	11.10	\$11,865
Shopping Center-Default	1,000 SF GFA	6.70	\$7,161
Sporting Goods Superstore	1,000 SF GFA	4.16	\$4,444
Supermarket	1,000 SF GFA	18.88	\$20,178
Tractor Supply Store	1,000 SF GFA	2.53	\$2,699

Hypothetical Developments Assist in Right-Setting Impact Fees (Residential Developments)

- Single Family Residential
 - Maximum = \$5,327 (water) + \$3,102 (wastewater) + \$4,989 (roadway) = \$13,418 total
 - CIAC (90-20-0) = \$4,794 (water) + \$620 (wastewater) + \$0 (roadway) = \$5,414 total
- Multi-Family Residential (200 units, mid-rise, 4-inch master water meter)
 - Maximum = \$63,924 (water) + \$37,224 (wastewater) + \$414,000 (roadway) = \$515,148 total
 - CIAC (90-20-0) = \$57,532 (water) + \$7,445 (wastewater) + \$0 (roadway) = \$64,977 total

Hypothetical Developments Assist in Right-Setting Impact Fees (Non-Residential Developments)

- Fast Food Restaurant with Drive-Thru (5,000 SF, 2-inch water meter)
 - Maximum = \$17,046 (water) + \$9,926 (wastewater) + \$263,760 (roadway) = \$290,732 total
 - CIAC (90-20-0) = \$15,341 (water) + \$1,985 (wastewater) + \$0 (roadway) = \$17,326 total
- Sporting Goods Superstore (60,000 SF, 1.5-inch water meter)
 - Maximum = \$10,654 (water) + \$6,204 (wastewater) + \$266,640 (roadway) = \$283,498 total
 - CIAC (90-20-0) = \$9,589 (water) + \$1,241 (wastewater) + \$0 (roadway) = \$10,830 total

Next Steps

Action	Date	Completed
CIAC Meeting No. 1 – Draft Land Use Assumptions	July 24, 2023	✓
CIAC Meeting No. 2A – Land Use Assumptions and Draft Roadway CIPs	September 12, 2023	✓
CIAC Meeting No. 2B – Draft Water and Wastewater CIPs	October 24, 2023	✓
City Council – Public Hearing for Approval of Land Use Assumptions and CIPs	December 7, 2023	✓
CIAC Meeting No. 3 – Draft Impact Fees	December 19, 2023	✓
Developer’s Workshop with City Staff and CIAC	January 11, 2024	✓
CIAC Meeting No. 4 – Formal Recommendation to City Council	January 23, 2024	✓
City Council – Public Hearing for Approval of Impact Fees	February 1, 2024	✓
City Council – Adopt Impact Fee Ordinance (First Reading)	February 15, 2024	

Questions?



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