Control Number: 46336

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46336

City of Tomball

Application for Water and Sewer CCN

August 2016

PURSUANT TO PUC CHAPTER 24, SUBSTANTIVE RULES APPLICABLE TO WATER AND SEWER SERVICE PROVIDERS, SUBCHAPTER G: CERTIFICATES OF CONVENIENCE AND NECESSITY

Application to Obtain or Amend a Water or Sewer Certificate of Convenience and Necessity (CCN)

Docket Number: 46336

(this number will be assigned by the Public Utility Commission after your application is filed)

7 copies of the application, including the original, shall be filed with

Public Utility Commission of Texas
Attention: Filing Clerk
1701 N. Congress Avenue
P.O. Box 13326
Austin, Texas 78711-3326

If submitting digital map data, two copies of the portable electronic storage medium (such as CD or DVD) are required.

Table of Contents

Application to Obtain or Amend a Water or Sewer Certificate of Convenience and Necessity (CCN)

Purpose of Application

☒ **Obtain** ☒ **New Water CCN** ☒ **New Sewer CCN**

☐ **Amend** ☐ **Water CCN# (s)** _____

☐ **Amend** ☐ **Sewer CCN#(s)** _____

1. Applicant Information

Applicant

Utility name: City of Tomball

Certificate number:

Street address (City/ST/ZIP/Code): 401 Market Street Tomball, TX 77375

Mailing address(City/ST/ZIP/Code): 401 Market Street Tomball, TX 77375

Utility Phone Number and Fax: (281) 351-5484

Contact information

Please provide information about the person(s) to be contacted regarding this application. Indicate if this person is the owner, operator, engineer, attorney, accountant manager, or other title related to the applicant.

Name: David Esquivel	**Title:** Director of Public Works
Mailing address: 501 James Street Tomball, TX 77375	
Email: desquivel@tomballtx.gov	**Phone and Fax:** (281) 290-1415

List all counties in which service is proposed:

Harris County and Montgomery County

A. Check the appropriate box and provide information regarding the legal status of the applicant:

☐ Investor Owned Utility ☐ Individual ☐ Partnership

☐ Home or Property Owners Association ☐ For-profit Corporation

☐ Non-profit, member-owned, member-controlled cooperative corporation
(Water Code Chapter 67, Water Supply or Sewer Service Corporation)

☒ Municipality ☐ District ☐ Other - Please explain:

B. If the applicant is a For-Profit business or corporation, please include the following information:
   i. A copy of the corporation's "Certification of Account Status" from the Texas State Comptroller of Public Accounts.
   ii. The corporation's charter number as recorded with the Office of the Texas Secretary of State:_____
   iii. A listing of all stockholders and their respective percentages of ownership.
   iv. A copy of the company's organizational chart, if available.
   v. A list of all directors and disclose the tile of each individual.
   vi. A list of all affiliated organizations (if any) and explain the affiliate's business relationship with the applicant.

C. If the applicant is a Texas Water Code (TWC) Chapter 67 water supply or sewer service corporation please provide:
   i. A copy of the Articles of Incorporation and By-Laws.
   ii. The corporation's charter number as recorded with the Office of the Texas Secretary of State.
   iii. Identification of all board members including name, address, title, and telephone number.
   iv. A copy of the corporation's *Certificate of Account Status* from the Texas Comptroller of Public Accounts.

2. Location Information

A. Are there people already living in the proposed area? ☒ Yes ☐ No
If YES, are any currently receiving utility service? ☐ Yes ☐ No
If YES, from WHOM? City of Tomball

B. Demonstrate the Need for Service by providing the following:

Have you received any requests for service in the requested service area?

☒Yes ☐No

If YES, provide the following:

i. Describe the service area and circumstances driving the need for service in the requested area. Indicate the name(s) and address(es) of landowner(s), prospective landowner(s), tenant(s), or resident(s) that have requested service; and/or

ii. Describe the economic need(s) for service in the requested area (i.e. plat approvals, recent annexation(s) or annexation request(s), building permits, septic tank permits, hospitals, etc.); and/or

iii. Discuss in detail the environmental need(s) for service in the requested area (i.e. failing septic tanks in the requested area, fueling wells, etc.); and/or

iv. Provide copies of any written application(s) or request(s) for service in the requested area; and/or

v. Provide copies of any reports and/or market studies demonstrating existing or anticipated growth in the requested area.

vi. If none of these items exist or are available, please justify the need for service in the proposed area in writing. See Appendix A

Note: Failure to demonstrate a need for additional service in the proposed service area may result in the delay and /or possible denial of the application.

C. Is any portion of the proposed service area inside an incorporated city or district?

☒ Yes ☐ No

If YES, within the corporate limits of: City of Tomball

Provide a copy of any franchise, permit, or consent granted by the city or district. If not available please explain:

D. Is any portion of the proposed service area inside another utility's CCN area?

☐ Yes ☒ No

If YES, has the current CCN holder agreed to decertify the proposed area?

If NO, are you seeking dual or single certification of the area? Explain why decertification of the area is in the public interest:

3. Map Requirements

Attach the following hard copy maps with each copy of the application:

A. A location map delineating the proposed service area with enough detail to accurately locate the proposed area within the county.

B. A map showing only the proposed area by:
   i. metes and bounds survey certified by a licensed state or register professional land surveyor; or
   ii. projectable digital data with metadata (proposed areas should be in a single record and clearly labeled). Also, a data disk labeled with the applicant's name must be provided; or
   iii. following verifiable natural and man-made landmarks; or
   iv. a copy of recorded plat map with metes and bounds.

C. A written description of the proposed service area.

D. Provide separate and additional maps of the proposed area(s) to show the following:
   i. all facilities, illustrating separately facilities for production, transmission, and distribution of the applicant's service(s); and
   ii. any facilities, customers or area currently being served outside the applicant's certificated area(s).

Note: Failure to provide adequate mapping information may result in the delay or possible denial of your application.

Digital data submitted in a format other than ArcView shape file or Arc/Info E00 file may result in the delay or inability to review applicant's mapping information.

For information on obtaining a CCN base map or questions about sending digital map data, please visit the Water Utilities section of the PUC website for assistance.

See Appendix B

4. New System Information or Utilities Requesting a CCN for the First Time

A. Please provide the following information:
   i. a list of public drinking water supply system(s) or sewer system(s) within a 2 mile radius of the proposed system; See Appendix C
   ii. copies of written requests seeking to obtain service from each of the public drinking water systems or sewer systems listed in a. 1 above or documentation that it is not economically feasible to obtain service from each entity;
   iii. copies of written responses from each system or evidence that they did not reply; and
   iv. for sewer utilities, documentation showing that you have obtained or applied for a wastewater discharge permit.

B. Were your requests for service denied? ☐ Yes ☒ No See Appendix C

i. If yes, please provide documentation of the denial of service and go to c.

ii. If no, please provide a detailed analysis which justifies your reasons for not accepting service. A separate analysis must be prepared and submitted for each utility that granted your request for service.

C. Please summarize how the proposed utility system will be constructed and describe each projected construction phase, if any:

The City of Tomball currently owns and maintains a water and sewer system to serve existing residents in the proposed CCN. Water and sewer system projects needed to serve projected growth inside the proposed CCN are included in the City's Infrastructure Master Plan (Appendix D).

D. Date of plat approval, if required: _____
Approved by: N/A

E. Date Plans & Specifications submitted to the TCEQ for approval:
N/A Attach copy of approval letter, if available. If the letter is not available by the time your CCN application is submitted, please supplement your application with a copy of the letter once you receive it from the TCEQ.

F. Date construction is scheduled to commence: _____

G. Date service is scheduled to commence: _____

5. Existing System Information

A. Please provide the following information for each water and/or sewer system, attach additional sheets if necessary.

i. Water system(s): TCEQ Public Water System identification number(s):

1010026;	;	;
;	;	;
;	;	;
;	;	;

ii. Sewer system(s): TCEQ Discharge Permit number(s)

WQ	1	0	6	1	6	-	0	0	1	;	WQ	1	0	6	1	6	-	0	0	2
WQ						-				;	WQ						-			
WQ						-				;	WQ						-			

iii. Date of last TCEQ water and/or sewer system inspection(s): 12/7/2012

iv. Attach a copy of the most recent TCEQ water and/or sewer inspection report letter(s). See Appendix E

v. For each system deficiency listed in the TCEQ inspection report letter; attach a brief explanation listing the actions taken or being taken by the utility to correct the listed deficiencies, including the proposed completion dates.

B. Provide the following information about the utility's certified water and/or sewer operators

Name	Classes	License Number
See Appendix F		

- Attach additional sheet(s) if necessary –

C. Using the current number of customers, is any facility component in systems named in #5A above operating at 85% or greater of minimum standard capacity?

☐ Yes

☒ No

Attach a copy of the 85% rule compliance document filed with the TCEQ if the system is operating at 85% or greater of the TCEQ's minimum standard capacity requirements.

D. In the table below, the number of existing and/or proposed metered and non-metered connections (by size). The proposed number should reflect the information presented in the business plan or financial **documentation** and reflect the number of service requests identified in Question 2.b in the application.

TCEQ Water System			TCEQ Sewer System		
Connection	**Existing**	**Proposed**	**Connection**	**Existing**	**Proposed**
5/8" or 3/4" meter	3,011	3,334	**Residential**	2,388	2,646
1" meter or larger	741	823	**Commercial**	742	824
Non-Metered	0	0	**Industrial**	0	0

TCEQ Water System			TCEQ Sewer System		
Other:			Other:		
Total Water			Total Sewer		

E. If this application is for a water CCN only, please explain how sewer service is or will be provided:

N/A

F. If this application is for a sewer CCN only, please explain how water service is or will be provided:

N/A

G. Effect of Granting a Certificate Amendment.

Explain in detail the effect of granting of a certificate or an amendment, including, but not limited to regionalization, compliance and economic effects on the following:

i. the applicant,

ii. any retail public utility of the same kind already serving the proximate area; and

iii. any landowner(s) in the requested area.

H. Do you currently purchase or plan to purchase water or sewer treatment capacity from another source?

i. ☒ No, (skip the rest of this question and go to #6)

ii. Yes, Water

Purchased on a ☐ Regular ☐ Seasonal ☐ Emergency basis?

Water Source	% of Total Treatment
	0.00%

Water Source	% of Total Treatment
	0.00%
	0.00%

iii. ☐ Yes, Sewer treatment capacity
Purchased on a ☐ Regular ☐ Seasonal ☐ Emergency basis?

Sewer Source	% of Total Treatment
	0.00%
	0.00%
	0.00%

iv. Provide a signed and dated copy of the most current water or sewer treatment capacity purchase agreement or contract.

I. Ability to Provide Adequate Service.
Describe the ability of the applicant to provide adequate service, including meeting the standards of the commission, taking both of the following items into consideration:

i. the current and projected density; and

ii. the land use of the requested area.

J. Effect on the Land. Explain the effect on the land to be included in the certificated area.

The effect on the land will be safe water and sewer service. As development occurs in the certificated area, the City of Tomball will ensure high quality utility service be provided to the occupants.

6. Financial Information

A. For new water and/or sewer systems and for applicants with existing CCNs who are constructing a new stand-alone water and/or sewer system:

i. the applicant must provide an analysis of all necessary costs for constructing, operating, and maintaining the system, and the source of that capital (such as a financial statement for the developing entity) for which the CCN is requested for at least the first five years. In addition, if service has been offered by an existing retail water service provider as stated in #4.A., but the applicant has determined that the cost of service as finally offered renders the project not economically feasible, the applicant must provide a comparison analysis of all necessary costs for acquiring and continuing to receive service from the existing system for the same period.

ii. Attach projected profit and loss statements, cash flow worksheets, and balance sheets (projected five year financial plan worksheet is attached) for each of the first five years of operation. Income from rates

should correlate to the projected growth in connections, shown on the projected profit and loss statement.

iii. Attach a proposed rate schedule or tariff. Describe the procedure for determining the rates and fees and indicate the date of last change, if applicable. Attach copies of any cost of service studies or rate analysis worksheets.

B. For existing water and/or sewer systems:

i. Attach a profit and loss statement and current balance sheet for existing businesses (end of last fiscal year is acceptable). Describe sources and terms for borrowed capital such as loans, bonds, or notes (profit and loss and balance sheet worksheets are attached, if needed).

ii. Attach a proposed rate schedule or tariff.

See Appendix G

❖ **Note: An existing water and/or sewer system may be required to provide the information in 6.A.i. above during the technical review phase if necessary for staff to completely evaluate the application**

C. Identify any funds you are required to accumulate and restrict by lenders or capital providers.

D. In lieu of the information in #6.A. thru #6.C., you may provide information concerning loan approvals within the last three (3) years from lending institutions or agencies including the most recent financial audit of the applicant.

❖ **Note: Failure to provide adequate financial information may result in the delay or possible denial of your application.**

7. Notice Requirements

A. All proposed notice forms must be completed and submitted with the application. Do not mail or publish the notices until you receive written approval from the commission to do so. See Appendix H

B. The commission cannot grant a CCN until proper notice of the application has been given. Commission rules do not allow a waiver of notice requirements for CCN applicants.

C. It is the applicant's responsibility to ensure that proper notice is given to all entities that are required to receive notice.

D. Recommended notice forms for publication, neighboring cities and systems, landowners with 25 acres or more, and customers are included with this application for use in preparing proposed notices. (Notice forms are available in Spanish upon request.)

E. After reviewing and, if necessary, modifying the proposed notice, the commission will send the notice to the applicant after the application is accepted for filing along with instructions for publication and/or mailing. Please review the notice carefully before providing the notice.

F. Notice For Publication:

The applicant shall publish the notice in a newspaper with general circulation in the county(ies) where a CCN is being requested. The notice must be published once each week for two consecutive weeks beginning with the week after the notice is received from the commission. Proof of publication in the form of a publisher's affidavit shall be submitted to the commission within 30 days of the last publication date. The affidavit shall state with specificity each county in which the newspaper is of general circulation.

G. Notice To Neighboring Utilities:

i. List all neighboring retail public utilities and cities providing the same utility service within the following vicinities of the applicant's proposed certificate area.

ii. For applications for the issuance of a NEW CCN, the applicant must mail the notice with a copy of the proposed CCN map to all cities and neighboring retail public utilities providing the same utility service within five (5) miles of the requested service area.

iii. For applications for the AMENDMENT of a CCN, the applicant must mail the notice with a copy of the proposed CCN map to all cities and neighboring retail public utilities providing the same utility service within two (2) miles of the requested service area.

H. Notice to Customers:

Investor Owned Utilities (IOUs) that are currently providing service without a CCN must provide individual mailed notice to all current customers. The notice must contain the current rates, the date those rates were instituted and any other information required in the application.

I. The commission may require the applicant to deliver notice to other affected persons or agencies.

Do not publish or send copies of the proposed notices to anyone at the time you submit the application to the commission. Wait until you receive written authorization to do so. Authorization occurs after the commission has reviewed the notices for completeness, and your application has been accepted for filing. Once the application is accepted for filing, you will receive written authorization to provide notice. Please check the notices for accuracy before providing them to the public. It is the applicant's burden to ensure that correct and accurate notice is provided.

OATH

STATE OF Texas
COUNTY OF Harris

I, David Esquivel ,being duly sworn, file this application as Director of Public Works (indicate relationship to Applicant, that is, owner, member of partnership, title as officer of corporation, or other authorized representative of Applicant); that, in such capacity, I am qualified and authorized to file and verify such application, am personally familiar with the maps and financial information filed with this application, and have complied with all the requirements contained in this application; and, that all such statements made and matters set forth therein are true and correct. I further state that the application is made in good faith and that this application does not duplicate any filing presently before the Public Utility Commission of Texas.

I further represent that the application form has not been changed, altered or amended from its original form.
I further represent that the Applicant will provide continuous and adequate service to all customers and qualified applicants for service within its certificated service area.

David Esquivel
AFFIANT
(Utility's Authorized Representative)

If the Affiant to this form is any person other than the sole owner, partner, officer of the Applicant, or its attorney, a properly verified Power of Attorney must be enclosed.

SUBSCRIBED AND SWORN TO BEFORE ME, a Notary Public in and for the State of Texas,
This day 25 of August 20 16

SEAL

Meagan Mageo
NOTARY PUBLIC IN AND FOR THE
STATE OF TEXAS

MEAGAN MAGEO
Notary Public, State of Texas
My Commission Expires 04-19-2018
Notary ID # 12824497-0

Meagan Mageo
PRINT OR TYPE NAME OF NOTARY

MY COMMISSION EXPIRES 04/19/2018

APPENDIX A

Location Information

2. Location Information

B. Demonstrate the Need for Service.

The City of Tomball currently provides water and sewer service to customers in the proposed CCN. The proposed CCN will allow the City to continue serving existing customers and facilitate orderly growth and environmentally safe and consistent water and sewer services.

APPENDIX B

Map Requirements

3. Map Requirements

C. A written description of the proposed service area.

The proposed utility service areas will consist of the City limits and the extra-territorial jurisdiction (ETJ), excluding existing CCNs. Shown on Figures 1 and 2.

The proposed utility service area is located approximately 0 miles from downtown Tomball, Texas, and is generally bounded on the north by Hardin Store Road; on the east by Stuebner-Airline Road; on the south by Boudreaux Road; and on the west by Lutheran Church Road.

The proposed utility service areas span two counties, Harris and Montgomery. The proposed water service area is approximately 12,100 acres and the proposed sewer service area is approximately 12,800 acres.

OVERSIZED MAP(s)

TO VIEW OVERSIZED MAP
PLEASE CONTACT
PUC CENTRAL RECORDS
At 512.936.7185

APPENDIX C

Information on Utility Requesting CCN for the First Time

4. Utilities Requesting a CCN for the First Time

A. Please provide the following information:

i. a list of public drinking water system(s) or sewer system(s) within a 2 mile radius of the proposed system;

List of Water Utility Systems within 2 Mile Radius of Proposed CCN

Utility Name	Water CCN Number
CITY OF TOMBALL	-
ALBURY MANOR UTILITY COMPANY	11507
INLINE DEVELOPMENT CORPORATION	12946
AQUA TEXAS INC	13203
HOE WSC	12756
QUADVEST LP	11612
H-M-W SUD	10342
PINEHURST DECKER PRAIRIE WSC	11768
CHAMPS WATER COMPANY INC	10972
JOHNSTON WATER UTILITY LLC	12788
LINCOLN SQUARE WATER SYSTEM	12938
NORTHWEST WATER SYSTEMS INC	10336
PINEWOOD COMMUNITY LP	13158
QUADVEST INC	11612
CYPRESS GARDENS HOMES	12999
MONARCH UTILITIES I LP	12983

List of Sewer Utility Systems within 2 Mile Radius of Proposed CCN

Utility Name	Sewer CCN Number
CITY OF TOMBALL	-
INLINE DEVELOPMENT CORPORATION	20879
QUADVEST LP	20952
AQUA TEXAS INC	21065
H-M-W SUD	20734
CHAMPS WATER COMPANY INC	20385
PINEWOOD COMMUNITY LP	21030
SOUTH CENTRAL WATER COMPANY	20964
MONARCH UTILITIES I L P	20899
TWAN DEVELOPMENT LLC	21069

ii. copies of written requests seeking to obtain service from each of the public drinking water systems or sewer systems listed in a. 1 above or documentation that it is not economically feasible to obtain service from each entity;

The City of Tomball currently provides water and sewer service to customers in the proposed CCN. The City of Tomball requests to maintain water and sewer service.

iii. copies of written responses from each system or evidence that they did not reply; and

Not applicable.

iv. for sewer utilities, documentation showing that you have obtained or applied for a wastewater discharge permit.

The City of Tomball currently maintains the following TCEQ discharge permits: WQ10616-001 and WQ10616-002.

B. Were you requests for service denied?

No. The City of Tomball currently provides water and sewer service to customers in the proposed CCN. The City of Tomball requests to maintain water and sewer service.

APPENDIX D

City of Tomball

Infrastructure Master Plan

ORDINANCE NO. 2014-12

AN ORDINANCE OF THE CITY OF TOMBALL, TEXAS, ADOPTING THE CITY'S LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN; CONTAINING OTHER PROVISIONS RELATING TO THE SUBJECT; AND PROVIDING FOR SEVERABILITY.

* * * * *

WHEREAS, the City Council of the City of Tomball, Texas (the "City") has reviewed and evaluated its land use assumptions and capital improvements plan in the time and manner required by law; and

WHEREAS, the City Council has employed qualified professionals to prepare its land use assumptions and capital improvements plan for the City, and each was considered by the City's advisory committee, and such assumptions and plan were filed with the City, along with the advisory committee's comments; and

WHEREAS, the City Council has called, given notice of, and conducted a public hearing on such assumptions and plan in the time and manner required by law; and

WHEREAS, the City Council now desires to adopt such land use assumptions and capital improvement plan in accordance with said Chapter 395, Texas Local Government Code; now, therefore,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF TOMBALL, TEXAS:

Section 1. Findings. The facts and matters set forth in the preamble of this Ordinance are hereby found to be true and correct.

Section 2. Land Use Assumptions and Capital Improvements Plan. The land use assumptions and capital improvements plan included in the "Infrastructure Master Plan &

Capital Recovery Fee Determination 2012 to 2022," prepared by CLR, Inc., Gunda Corporation, and Rydan & Associates LLC same being attached hereto as Exhibit "A" and made a part hereof for all purposes, are hereby in all things approved and adopted.

Section 5. Severability Clause. In the event any clause phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstances shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Tomball, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

Section 6. This Ordinance shall become effective fourteen days after the final reading and adoption of this Ordinance when the caption hereof is caused to be published once in the official newspaper of the City, by the City Secretary, as required by law. The City Secretary is directed to publish the caption of this Ordinance in the City's official newspaper within 14 days after the passage of the ordinance.

FIRST READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE 19TH DAY OF MAY 2014.

COUNCILMAN HUDGENS	AYE
COUNCILMAN STOLL	AYE
COUNCILMAN DEGGES	AYE
COUNCILMAN TOWNSEND	AYE
COUNCILMAN KLEIN QUINN	AYE

SECOND READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE 2ND DAY OF JUNE 2014.

COUNCILMAN HUDGENS	AYE
COUNCILMAN STOLL	AYE
COUNCILMAN DEGGES	AYE
COUNCILMAN TOWNSEND	AYE
COUNCILMAN KLEIN QUINN	AYE

Gretchen Fagan
Gretchen Fagan, Mayor

ATTEST:

Doris Speer
Doris Speer, City Secretary

CITY OF TOMBALL

INFRASTRUCTURE MASTER PLAN
&
CAPITAL RECOVERY FEE DETERMINATION
2012 TO 2022

Prepared By

CLR, Inc.
Engineering * Surveying * GIS
19530 F.M. 362 Waller, Texas 77484

GUNDA CORPORATION
Engineers, Planners & Managers

RYDAN & ASSOCIATES LLC
ENGINEERING & FLOODPLAIN MANAGEMENT
HAZARD MITIGATION & GRANT ADMINISTRATION

CLR, Inc.

*Engineering * Surveying * GIS*

TBPE Firm Registration No.: 275
19530 F.M. 362
Waller, Texas 77484
Office 713-462-0993

Report Editor

Water System
Wastewater System
Parks, Trails, & Sidewalks
Capital Recovery Fee Calculations

Kyle A. Bertrand, PE — Date
TX PE No. 84575

GUNDA CORPORATION
Engineers, Planners & Managers

TBPE Firm Registration No.: F-3531
6161 Savoy, Suite 550
Houston, Texas 77036
Office 713-541-3530

Traffic & Transportation

Lokesh Vijayagopal, P.E., PTOE — Date
TX PE No. 108937

RYDAN & ASSOCIATES LLC

ENGINEERING & FLOODPLAIN MANAGEMENT
HAZARD MITIGATION & GRANT ADMINISTRATION
TBPE Firm Registration No.: 12901
12514 Bent Pine Drive
Cypress, Texas 77429
Office 281-970-8085

Population Projections
Land Use Projections
Drainage System

John A. Laser, PE, CFM — Date
TX PE No. 86970

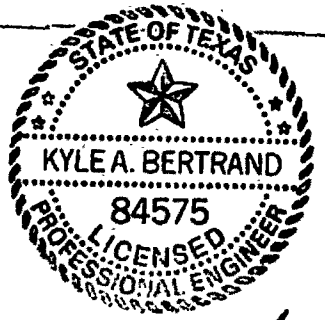
CLR, INC.

Engineering * Surveying * GIS

TBPE Firm Registration No.: 275
19530 F.M. 362
Waller, Texas 77484
Office 713-462-0993

Report Editor

Water System
Wastewater System
Parks, Trails, & Sidewalks
Capital Recovery Fee Calculations

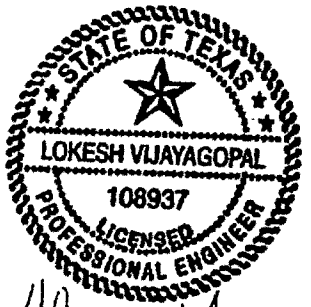


Kyle A. Bertrand, PE — Date 4/10/14
TX PE No. 84575

GUNDA CORPORATION
Engineers, Planners & Managers

TBPE Firm Registration No.: F-3531
6161 Savoy, Suite 550
Houston, Texas 77036
Office 713-541-3530

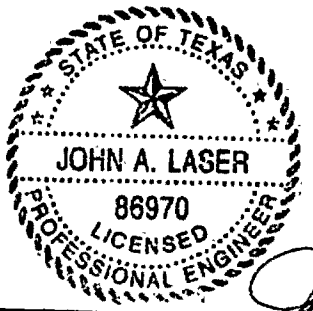
Traffic & Transportation



Lokesh Vijayagopal, P.E., PTOE — Date 4/8/2014
TX PE No. 108937

RYDAN & ASSOCIATES LLC
ENGINEERING & FLOODPLAIN MANAGEMENT
HAZARD MITIGATION & GRANT ADMINISTRATION
TBPE Firm Registration No.: 12901
12514 Bent Pine Drive
Cypress, Texas 77429
Office 281-970-8085

Population Projections
Land Use Projections
Drainage System



John A. Laser, PE, CFM — Date 4/10/14
TX PE No. 86970

INFRASTRUCTURE MASTER PLAN
&
CAPITAL RECOVERY FEE DETERMINATION
2012 TO 2022

Table of Contents

1.0 Executive Summary

The City of Tomball Infrastructure Master Plan & Capital Recovery Fee Determination for 2012 to 2022 is an update to the Infrastructure Master Plan & Impact Fee Determination for 2007 to 2012 as required by Texas Local Government Code. The City of Tomball retained CLR, Inc. to update this capital improvements plan using generally accepted engineering and planning practices to meet State requirements, review and evaluate its current land use assumptions, and update its capital improvements plan.

Infrastructure improvements necessary to accommodate projected growth/development within the City of Tomball jurisdiction were identified based on population and land use projections. Improvements were identified for the City's Potable Water System, Wastewater System, Drainage System, Traffic & Transportation Network, Parks, Trails & Sidewalks, and its Natural Gas Distribution System.

The 2012 estimated population of the City of Tomball is 11,121, plus an additional 3,241 in the extra-territorial jurisdiction (ETJ), for a total estimated population of 14,362. The 2022 population forecast for the City of Tomball is 13,156, plus an additional 3,834 in the extra-territorial jurisdiction (ETJ), for a total estimated population of 16,990. Population from 2012 to 2022 is projected to increase 18.3%, at an annualized growth rate of 1.695%.

The City of Tomball is approximately 12 square miles (7,670 acres) in area with an additional 8.6 square miles (5,515 acres) included in Tomball's ETJ. Projected 2022 increases in developed acreage were calculated to be 440 acres (27.9% increase) in residential land, and 227 acres (18.9% increase) in commercial land.

City of Tomball 2012 Potable Water System currently is estimated at 6,654 connections, with Average Daily Demand (ADD) usage of 2.26 MGD. Water Production ADD is projected at 2.67 MGD with 7,950 connections for end of FY 2022, based on current 5-Year average water production of 335.9 gpd per Living Unit Equivalent (LUE). This report projects a 1,000 gpm production Water Plant, at a probable cost of $3.83M, and an increase in the water distribution network, amounting to probable cost of $12.31M, will be necessary to meet future demands.

City of Tomball 2012 Wastewater System currently is estimated at 6,654 connections, with Average Daily Flow (ADF) usage of 1.507 MGD. Wastewater Collection ADF is projected at 1.684 MGD for 7,950 connections for end of FY 2022, based on current 5-Year average wastewater collection of 211.9 gpd per LUE. This report projects four lift stations and an increase in the wastewater collection network, amounting to a probable cost of $14.45M, will be necessary to meet future demands. TCEQ criteria may require the design of a 0.35 MGD expansion to the south wastewater treatment plant, for probable cost of $0.53M in design costs, but projected flow capacity will not require construction to commence.

Projected increases in development acreage is within all watershed sub-basins, however for 10-year constructability, sub-basins selected for improvements are limited to M118, M121, M124, & M125. Estimated channel drainage system project costs for projected growth to 2022 amounts to $46.76 M. Estimated detention improvements costs for projected growth to 2022 amounts to $44.36 M.

An analysis of existing and projected roadway capacity was done for major roadways near the City of Tomball utilizing the Houston-Galveston Area Council (H-GAC) population growth factor to develop volume projections for 2017 & 2035. Based on volume projections, by 2017 FM 2920 (Main Street) from Telge Road to SH 249 (a two-lane roadway) will be operating at Level of Service (LOS) E, and by 2035 the roadway will be operating at LOS F. To bring the roadway to an acceptable LOS D, this segment should be widened to six lanes. Volume projections also predict that the volumes on Hufsmith-Kuykendahl Road (a two-lane roadway) from Stuebner-Airline Road to Kuykendahl Road, will be operating at LOS F by 2035. To bring the roadway to LOS C, this segment of the road should be widened to four lanes. LOS A being ideal traffic conditions with free flow of vehicles, and LOS F being grid-lock of traffic and unacceptable conditions.

For the 2022 population projection of 13,156, existing park space will proportion to approximately 8.81 acres per 1,000 residents. Approximately 15.7 acres of City of Tomball park development will be necessary to meet 10 acres per 1,000 residents by the end of 2022.

Historically, the City's natural gas distribution has not been included in this report. However, basic information has been included in this update to better centralize all infrastructure owned and operated by the City and provide reference for future planning.

This Capital Improvement Plan was developed in accordance with Texas Local Government Code §395, describing existing capital improvements and their total capacities, identifying necessary capital improvements or facility expansions and their costs, establishing a service unit for each category of capital improvements, projecting service units and demand necessitated by new development based on approved land use assumptions projected over a period of 10 years. From this Capital Improvement Plan a Maximum Capital Recovery Fee Determination was made for each service unit category.

The Maximum Impact Fees calculated are as follows:

Facility	Service Unit	Effective Date	Current Fee	Maximum Fee Calculated By This Report
Water Production	LUE	06/01/2012	$ 1,329.12	$ 3,319.37
Wastewater Collection	LUE	06/01/2012	$ 1,653.23	$ 2,322.57
Drainage System (by sub-basin)				
M118	Per Acre	06/01/2009	$ 6,023.90	$ 5,757.81
M121E	Per Acre	06/01/2009	$ 6,828.71	$ 7,886.69
M121W	Per Acre	06/01/2009	$ 4,985.14	$ 6,692.00
M124	Per Acre	N/A	$ -	$13,041.36
M125	Per Acre	06/01/2009	$ 574.40	$ 436.88

2.0 Plan Objective

The objective of this report is to identify infrastructure improvements necessary to accommodate projected growth/development within the City of Tomball jurisdiction. The focus of the studies conducted and recommendation provided are for a period of 10 years beginning 2012 and ending 2022. The studies and resulting recommendations utilize population and development projections, updated herein, City of Tomball Zoning Ordinance and Comprehensive Plan, and existing infrastructure records provided by the City of Tomball.

Probable costs associated with the improvements identified will be calculated and include costs of construction, land acquisition (when appropriate), engineering design, surveying, and other necessary consultant services. Of the improvements identified, the costs of those necessitated by new development and/or significant redevelopment will be utilized to calculate maximum capital recovery fees in accordance with Local Government Code, Title 12, Planning and Development, Chapter 395, Financing Capital Improvements Required by New Development in Municipalities, Counties and Certain Other Local Governments. The Capital Recovery Fees determined will establish maximum fees that can be adopted by the City if desired.

Population projects, land use, and drainage infrastructure data contained in this report are summaries from a Master Drainage Plan (MDP) prepared for the City of Tomball under separate contract. Only data required for the final recommendations and conclusions of this report have been included.

Basic steps used to identify necessary infrastructure improvements included:

- Estimation of current (2012) land use and distribution of population.
- Estimation of future (2022) land use and distribution of population.
- Review of Existing (2012) Infrastructure with respect to projected growth/development
- Determination of infrastructure improvements necessary to serve 2022 conditions.
- Calculation of Probable Costs associated with identified infrastructure improvements.
- Determination of maximum capital recovery fees.

3.0 Population Projections

History and Previous Projections

Several reports produced for the City of Tomball have included population projections for the City and the ETJ:

1. The 2002 Infrastructure Master Plan (IMP) by PBS&J;
2. The 2007 Infrastructure Master Plan by LAN; and,
3. The 2009 Tomball Comprehensive Plan.

All three of these documents utilized population projections developed by the Houston-Galveston Area Council (H-GAC) and the Texas Water Development Board (TWDB). The 2002 IMP refers to the 2000 Census population of 9,089 for the City of Tomball, but uses H-GAC and TWDB population projections that are based on the 1990 Census when the population was reported to be 6,370. Since this information is dated, population projections from the 2002 IMP will not be discussed further.

Both the 2007 IMP and the Comprehensive Plan include population projections developed by H-GAC using the 2000 Census population of 9,089 as a basis. Projections developed by the TWDB, also using the 2000 data, were included for reference in the 2007 IMP. The methodologies employed by these agencies to develop these projections will not be reviewed, but it should be noted that neither agency utilizes methods that incorporate variables particular to the City in estimating future growth. Populations for the county or region are estimated at a gross level and allocated to smaller jurisdictions on a percentage basis. The projections for the City appear in the following table. The figures for 1990 and 2000 are reported by the U.S. Census Bureau.

Year	H-GAC 2035	TWDB 2006
1990	6,370	6,370
2000	9,089	9,089
2010	12,238	12,059
2020	15,281	15,429
2030	19,541	18,150

The authors of the 2007 IMP developed estimates of the City and ETJ population employing land use density assumptions from the 2002 IMP and population density statistics from the 2000 Census to derive estimates for 2007 and 2017. The combined population estimates for these two data points was used in this report to produce comparable statistics for the years of interest noted in the following section.

2010 Census & Current Projection

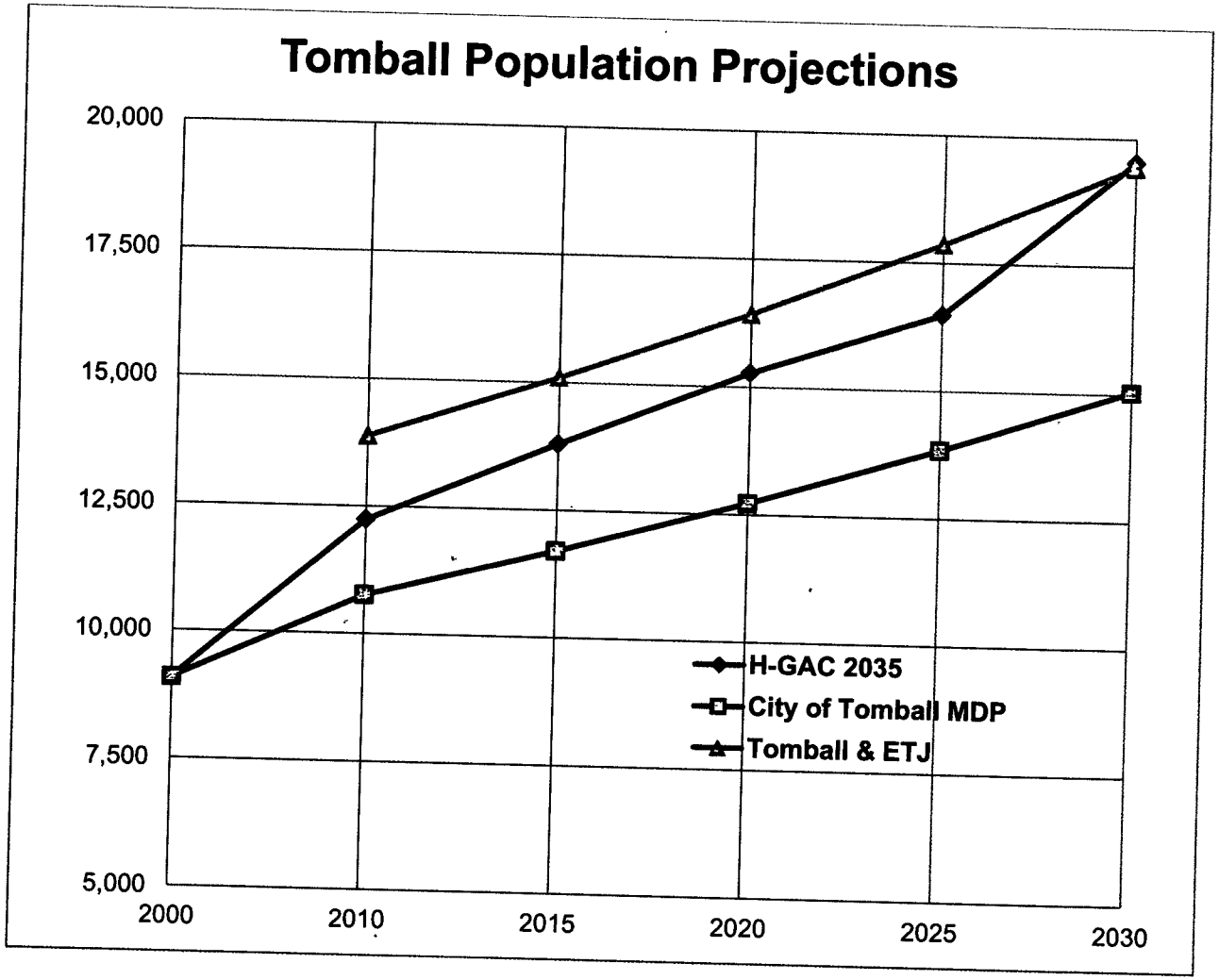
The U.S. Census Bureau has reported a 2010 population of 10,753 for the City of Tomball. This figure represents an absolute growth of 1,664 persons at a compounded annual growth rate of approximately 1.7% from the 2000 Census population of 9,089. The Census count represents a point-in-time estimate of the actual population which is unknown and may vary on a daily, weekly or monthly basis within the reporting year.

The following table presents the reported 2000 and 2010 US Census population for the City and projections developed for this IMP using the annualized growth rate of approximately 1.7% from 2000 to 2010. An estimate of the population for the Tomball extra-territorial jurisdiction (ETJ) based on 2010 Census Block data was provided by the Greater Houston Partnership in association with the Tomball Economic Development Corporation. The estimate of 3,241 for 2012 was discounted by the annualized growth rate of 1.7% to derive a 2010 population estimate of 3,134.

Year	Within City Limits	Tomball ETJ	Combined
2000	9,089	n/a	n/a
2010	10,753	3,134	13,887
2012	11,121	3,241	14,362
2015	11,696	3,409	15,105
2020	12,721	3,708	16,429
2022	13,156	3,834	16,990
2025	13,836	4,033	17,869
2030	15,049	4,386	19,435

To appreciate the differences in the projections for the 20-year time horizon (2010-2030), it should be noted that the annualized growth rate for the City of Tomball from 1990 to 2000 was 3.6% or approximately twice the growth rate for the latest 10-year period. The comparison of past and present population projections is not intended to imply that any particular forecasting methodology is superior to another since all forecasting of population is basically a best-guess formulated primarily on past history. A chart comparing population projections for the City of Tomball from the

H-GAC 2035 forecast with the projections developed for this IMP appears at the top of the next page. The combined projection for the City and ETJ developed for this report is also included in the graph.



Two major highway projects scheduled to begin construction in 2013 could likely impact population growth trends in the Tomball area. First, construction on both Segments F1 and F2 of the Grand Parkway is planned for the summer of 2013 with completion of both segments anticipated by the end of 2015. Segment F1 will connect State Highway 249 with U.S. Highway 290 while Segment F2 will extend from SH 249 to IH 45. The

planned intersection of the Grand Parkway with SH 249 is positioned near the current intersection of SH 249 with Boudreax Road. The second project involves upgrading SH 249 to a six-lane toll road from north of Spring-Cypress to FM 2920. Eventually, this project will include a second phase to extend the toll road, to be named the "Tomball Tollway", to FM 1774 in Montgomery County. Long-term, the Texas Department of Transportation plans to extend the project to SH 6 at Navasota.

On May 23, 2012, while text of this report was being drafted, the U.S. Census Bureau released estimates of 2012 population for states, cities and various other political subdivisions. The Bureau estimated a 2012 population of 10,964 for the City of Tomball. The Bureau's estimated growth in population from 2010 to 2012 is less than 60% of that projected for use in this report, resulting in an annualized growth rate of approximately 1%.

4.0 Land Use Projections

General

The City of Tomball is approximately 12 square miles (7,670 acres) in area with an additional 8.6 square miles (5,515 acres) included in Tomball's ETJ. Of the area within the ETJ, approximately 6.1 square miles (3,936 acres) is located in Harris County while 2.5 square miles (1,579 acres) lies within Montgomery County.

Land use within the City of Tomball and ETJ has been defined and described in several recent documents including the 2007 Infrastructure Master Plan, the 2009 Comprehensive Plan, and the Tomball Zoning Ordinance (2008-01). *See **Tomball Zoning & Tomball Comprehensive Land Use Plan Exhibits.*** The Zoning Ordinance and Comprehensive Plan provide the basis for guiding future land use, and the difference between these two documents should be clarified.

According to the City of Tomball Website:

> *"The purpose of a Comprehensive Plan is to anticipate growth and to guide that growth in a manner that provides Tomball with a balance of land uses that promote economic growth and improve quality of life."*
>
> *"The Comprehensive Plan is not a zoning ordinance and it does not affect existing zoning regulations. Instead, it provides the foundation for making changes or developing new regulations that implement identified goals, objectives, and actions."*
>
> *The Zoning Ordinance provides the legal framework for regulating development within the City. Again, with reference to the City's Website:*
>
> *"Zoning is a system of land use regulation that controls the development of land in the corporate City limits. It is a legal mechanism by which the City of Tomball is able to regulate land uses so as to protect the public health, safety, and/or general welfare. Land is mapped into different zones with the primary purpose of promoting compatible land uses and to separate incompatible uses."*

In addition, while the Comprehensive Plan provides guidance for development within the City limits and ETJ, the Zoning Ordinance only applies within the City. While the City has regulatory authority over certain development activities in the ETJ, those activities that do not fall within the purview of the City are subject to regulation by Harris and Montgomery counties, and by the requirements of utility districts, utility providers, and homeowner associations.

Existing Land Use

At any point in time, the existing land use in Tomball and the ETJ may be established by visual inspection and/or by inspection of the tax records maintained by Harris and Montgomery counties. Visual inspection of each parcel within Tomball and the ETJ was not feasible, even using aerial photographs, due to the large number of parcels within this area. Tax records of both the Harris County Appraisal District (HCAD) and the Montgomery County Appraisal District (MCAD) were used for production of this report. Not all areas are included in the tax records. In particular, public roads and right-of-way (ROW) are excluded, and other areas owned by public entities, such as drainage basins and channels, may be

excluded as well. However, with the exception of one large tract along the eastern portion of the ETJ in Montgomery County, almost all of the area within Tomball and the ETJ is included in the tax records exclusive of the ROW areas.

Both the HCAD and MCAD records identify land use on a parcel basis using the "Texas Property Tax Assistance Property Classification Guide". The Guide classifies properties by 21 broad categories. The HCAD and MCAD records used the following broad categories for classifying real property:

- Single Family Residential (A)
- Multi-Family Residential (B)
- Vacant Lots and Tracts (C)
- Agricultural and Timber (D)
- Farm and Ranch Improvements (E)
- Commercial and Industrial (F)
- Utilities (J)
- Residential Inventory (O)
- Exempt Property (X)

Most of these categories have sub-divisions which allow further insight into type of property use on a parcel basis. In addition to the Guide classification system, HCAD also identifies parcels by use of its own classifications. This information is accessible in the GIS database developed for this report in the event that further analysis is desired. Also see **Tomball Land Use by State Code Exhibit**.

To develop statistics for the existing 2012 land use, 4,493 properties from the City Tomball's Zoning records and from HCAD analyzed by state classification. An additional 2,028 parcels in the ETJ were examined. Agricultural land, undeveloped areas, and areas not included in the tax and zoning records are reflected in the "Other" category in this table. Land use is a dynamic process and the information represents a snapshot in time. In addition, the state tax classification may not accurately represent actual land use in all cases.

The following table displays 2012 existing land use for the City of Tomball and its ETJ.

2012 Land Use, Estimated

Within City Limits	Area (Acres)	Parcels Developed	Land Use Density (Acres/Parcel)	Population	Population Density (Persons/Acre)	Population Density (Persons/Parcel)
Residential, Developed	1,578.5	2,442	0.65	11,121	7.05	4.55
Commercial, Developed	1,200.8	547	2.20	n/a	n/a	n/a
Industrial, Developed	3.5	1	3.47	n/a	n/a	n/a
Other	4,887.6	21	n/a	n/a	n/a	n/a
Total City	7,670.4	3,011	n/a	11,121	1.45	n/a

Within ETJ	Area (Acres)	Parcels Developed	Land Use Density (Acres/Parcel)	Population	Population Density (Persons/Acre)	Population Density (Persons/Parcel)
Residential, Developed	1,643.2	1,070	1.54	3,241	1.97	3.03
Commercial, Developed	427.1	84	5.08	n/a	n/a	n/a
Industrial, Developed	8.8	1	8.75	n/a	n/a	n/a
Other	3,436.3	10	n/a	n/a	n/a	n/a
Total ETJ	5,515.4	1,165	n/a	3,241	0.59	n/a

Categories defined by State Classification

Total City & ETJ	13,186			14,362		

Projected Land Use

Regardless of the existing usage, currently developed property was projected for future years under the same classification as the existing use. For undeveloped property, the Zoning description provided guidance for parcels within the City limits and the Comprehensive Plan served as guidance in the ETJ when determining future land use. The methodology employed for projecting residential development is complex and is included as an appendix to this report. The methodology used to project non-residential development is described in the following narrative. GIS software was employed to execute the analysis. Non-residential land use was forecast for 2022 and 2030, although data for intermittent years may be estimated without a great deal of additional effort using the GIS files.

Methodology for Non-residential Future Land Development

Properties currently used for residential purposes or projected for residential development were removed from consideration for non-residential development. Of 4,493 parcels in the City Zoning database, 2,844 were designated for residential use through 2030 leaving 1,649 properties for existing or potential non-residential development. Of the 1,649 non-residential properties, 568 had some type of structure listed in the tax records, leaving 1,081 properties determined to be undeveloped. Of the 2,028 properties in the ETJ, 1,450 were designated for residential use through 2030 leaving 578 properties for existing or potential non-residential development. Of those 578 properties, 95 were listed as having a structure on site, leaving 483 properties as undeveloped.

Step 1: The acreage associated with existing developed commercial and exempt properties was determined for the area within the City limits and the ETJ. This total area was increased by a factor of 1.7%, compounded annually, which is the same growth factor employed for projecting population growth. The resulting projected growth in non-residential development from 2012 to 2022 was determined to be 302.8 acres. The projected acreage increase in non-residential development was divided between the City (75%) and ETJ (25%).

Step 2: The 2012 undeveloped non-residential acreage was used as the basis for assigning growth for 2022. Within the City limits, the following zoning descriptions associated with the undeveloped parcels provided the categories for growth: General Retail, Commercial, Office, and Old Town/Mixed Use. Within the ETJ, the following Comprehensive Plan land use descriptions served as categories for growth: Commercial, Employment/Office, and Mixed Use. The relative percentage of undeveloped acreage in each category to the total undeveloped acreage was used to allocate the projected growth acreage to those categories. Allocations for the City and ETJ were conducted separately.

Step 3: The GIS database of non-residential properties was utilized to select undeveloped parcels that were associated with the categories listed in Step 2. Priority was given to selecting undeveloped properties along existing or expected major transportation categories: SH 249 and SH 249 Expressway, Hufsmith-Kohrville Road (FM 2978), East and West Main Street (FM 2920), Holderrieth Road, Hufsmith, Zion, and Cherry Street.

Step 4: The same process was employed for projecting land use by parcel for 2030. The effective percentage increase in developed non-residential land use from 2012 to 2030 was calculated to be 583 acres (35.4%) with or 303 acres (18.4%) projected as being developed by 2022 and an additional 280 acres being developed by 2030.

The following table displays the results of land use projections for the City of Tomball and its ETJ for 2022. 2022 Projected Land Use was apportioned to characteristic categories for residential, commercial, and industrial land use by acreage, and actual acreage and effective percentage increases were calculated. Increases were projected at 440 acres and 27.9% for developed residential land, and 227 acres and 18.9% for developed commercial land.

2022 Land Use, Projected

Within City Limits	Area (Acres)	Parcels Developed	Land Use Density (Acres/Parcel)	Population	Population Density (Persons/Acre)	Population Density (Persons/Parcel)
Residential, Developed	2,018.1	2,558	0.79	13,156	6.52	5.14
Commercial, Developed	1,427.63	648	2.20	n/a	n/a	n/a
Industrial, Developed	3.5	1	3.47	n/a	n/a	n/a
Other	4,221.2	20	n/a	n/a	n/a	n/a
Total City	7,670.4	3,227	n/a	13,156	1.72	n/a

Categories defined by State Classification/Zoning

Within ETJ	Area (Acres)	Parcels Developed	Land Use Density (Acres/Parcel)	Population	Population Density (Persons/Acre)	Population Density (Persons/Parcel)
Residential, Developed	1,691.8	1,267	1.34	3,834	2.27	3.03
Commercial, Developed	503.1	106	4.75	n/a	n/a	n/a
Industrial, Developed	8.8	1	8.75	n/a	n/a	n/a
Other	3,311.8	10	n/a	n/a	n/a	n/a
Total ETJ	5,515.4	1,384	n/a	3,834	0.70	n/a

Categories defined by State Classification/Comprehensive Plan

	13,186			16,990		

Comments on Methodologies

The methodologies employed to allocate projected population growth and land use to individual parcels within the City limits and ETJ creates a hypothetical version of the future. Although the selection of individual parcels follows certain rules, any number of undeveloped parcels could be eligible for selection, and a different scenario could easily result from selecting one parcel rather than another. In that sense, the process is somewhat arbitrary. Since the analyses were developed using GIS tools, and the output files are being provided to the City as products of this project, alternative scenarios may be developed with relative ease.

In addition, the HCAD and MCAD records that serve as the basis for categorizing and selecting properties are not without faults when used for the purposed described in the preceding narrative. The primary use of these records is taxation and not to serve as a database for land use analysis. However, these records were considered the best available data for the purpose of developing this IMP.

OVERSIZED MAP(s)

TO VIEW OVERSIZED MAP
PLEASE CONTACT
PUC CENTRAL RECORDS
At 512.936.7185

5.0 Potable Water System

The City of Tomball's water system consists of two primary components, water supply and water distribution. Currently, potable water is supplied by groundwater pumped from 2 aquifers by 6 wells at 4 production facilities operated by the City of Tomball. Facilities include 5 storage tanks and ancillary metering and disinfection (chlorine) equipment. Water well pump submergence was reported to be between 52 and 160 feet of depth.[1]

Water is distributed through approximately 99 miles of transmission and distribution lines ranging from 1.5-inch to 16-inch diameter, with system pressure maintained by elevated storage and booster pumps. Existing transmission and distribution line pipe materials consist of iron, steel, and PVC (polyvinylchloride) with the oldest lines originating in the late 1950's. The Water Distribution System Plant locations are shown in the **Tomball Master Plan Water Distribution System Exhibit.**

Existing Water System

The following table summarizes the existing water production and storage facilities:

Water Plant	Well Number (U.S.G.S. #)	Well Capacity (Estimated 2012) (gpm)	Aquifer	Ground Storage (gallons)	Elevated Storage (gallons)	Booster Pumps (No./gpm)
Pine Street	1 (Onsite) (LJ-60-60-10G)	548	Chicot	400,000	750,000	2 – 1,600 1 – 1,000
	2 (Onsite) (LJ-60-60-11G)	1,856	Evangeline	N/A	N/A	N/A
	3 (Offsite) School Street (LJ-60-60-111)	741	Chicot	N/A	N/A	N/A
Baker Street	4 (Onsite) (LJ-60-59-324) (See Note 1)	784	Evangeline	200,000 (See Note 2)	N/A	1 – 600 2 – 500
Ulrich Road	See Note 3	N/A	N/A	N/A	500,000	N/A
F.M. 2920	5 (Onsite) (LJ-60-60-T5)	786	Evangeline	500,000	N/A	3 – 1000
	6 (Onsite)	578	Chicot			
Totals		5,293		1,100,000	1,250,000	8,800

Notes:

1. The Baker Street well has continued to experience a high concentration of hydrogen sulfite gas and therefore it does not contribute to the City's supply.
2. The storage tank at the Baker Street plant is constructed as an elevated tank. However, the tank bowl is below the operating pressure plane and therefore operates as a ground storage tank.
3. Elevated tank functions as primary control for the pressure pumping operates for both the Pine and Baker plants.

Historical Water Use

City of Tomball historical data was used to develop existing and projected requirements. The City tracks meter count and monthly water consumption in five categories; single family residential, multifamily (combined), commercial, public municipal, and flushed/emergency. The following table quantifies annual water metered and pumped for the previous five fiscal years.

CITY OF TOMBALL
Annual Water Metered and Water Pumped
(in thousands of gallons)

FISCAL YEAR	RESIDENTIAL METERED	COMMERCIAL METERED	MULTI-FAMILY METERED	FLUSHED PUMPED & EMERGENCY	PUBLIC MUNICIPAL	TOTAL METERED & FLUSHED	TOTAL PUMPED	PERCENT METERED / PUMPED	# ACTIVE MTRS	AVERAGE EQUIV CONN'S	LUE GPD/CONN
2008 FY	271983	308332	64981	12000	8752	666048	774190	86.03%	3326	6472	327.7
2009 FY	290763	323787	65522	12024	8152	700248	790399	88.59%	3369	6515	332.4
2010 FY	240544	292952	75357	12000	6058	626911	709131	88.41%	3394	6540	297.1
2011 FY	364966	329679	97205	14000	8865	814715	922723	88.29%	3447	6593	383.5
2012 FY	279463	297707	82524	12000	6068	677762	823204	82.33%	3508	6654	339.0

For the purposes of this report, one Equivalent Single Family Connection (ESFC) equals one Living Unit Equivalent (LUE). For Fiscal Years 2008 to 2012 the average daily demand per ESFC required 335.9 gpd of water production. 5-Year average water production percentages for five categories follows: single family residential 41.4%, multifamily 11.0%, commercial 44.7%, public municipal 1.1%, and flushed/emergency 1.8%.

State Design Criteria

The Texas Commission on Environmental Quality (TCEQ) criteria specified in TAC, Title 30, part I, Chapter 290, Subchapter D, Rules and Regulations for Public Water Systems, 9/13/00, provides minimum acceptable design and construction practices to ensure public facilities are properly sized to produce and distribute safe potable water. This criterion includes:

- Connection – Defined as, a single residential unit or each commercial or industrial establishment to which drinking water is supplied from the system.
- Maximum Daily Demand – 2.4 times average daily demand
- Peak Hourly Demand – 1.25 times maximum daily demand (prorated to an hourly rate)
- Minimum Water System Capacity Requirements:

  Wells (2 or more) – total capacity of 0.6 gallons per minute (gpm) per connection

Booster Pumps (the lesser of)

Two or more pumps with total capacity of 2 gpm per connection, or

Minimum of 1,000 gpm with capacity to meet peak hourly demands with the largest pump out of service

Storage – Total capacity of 200 gallons per connection, including elevated storage of 100 gallons per connection.

Nominal Operating Pressure = 35 psi throughout system/20 psi minimum during firefighting event

Adequacy of Existing System

Existing City of Tomball water production facilities were evaluated based on TCEQ criteria as follows:

2012 Existing System vs. TCEQ Minimum Requirements

	Existing Capacity	Required Capacity	Meets Minimum
With Baker Plant			
Wells	5,293 gpm	3,992 gpm	Yes
Firm Booster Pump Capacity	8,800 gpm	4,656 gpm	Yes
Total Storage	2,350,000 gal	1,330,800 gal	Yes
Elevated Storage	1,250,000 gal	665,400 gal	Yes
Nominal Operating Pressure	55 psi	35 psi	Yes
Without Baker Plant			
Wells	4,509 gpm	3,992 gpm	Yes
Firm Booster Pump Capacity	7,200 gpm	4,656 gpm	Yes
Total Storage	2,150,000 gal	1,330,800 gal	Yes
Elevated Storage	1,250,000 gal	665,400 gal	Yes
Nominal Operating Pressure	55 psi	35 psi	Yes

Based on the available City of Tomball 2012 data for existing Water System conditions (6,654 conn at 2.26 MGD ADD), all components meet or exceed TCEQ minimum requirements both with and without operation of the Baker Street Plant facilities. The existing distribution system (lines 6" and larger) will be modeled to establish nominal operating pressure nodes.

Projected Improvements

To determine recommended water system improvements, CLR analyzed historical data, TCEQ criteria, and projected water demand through 2022. The recommended improvements include facilities in both the current City corporate boundary and in the ETJ necessary to serve the projected development.

Based on this report's earlier projection of City of Tomball annualized growth rate of approximately 1.7%, water demand was projected at the same rate to FY 2022 as shown in the following table. Water Production Average Daily Demand (ADD) is projected at 2,913,380 gpd for 7,874 connections for end of FY 2022.

CITY OF TOMBALL

Projected Water Production Requirements (Gallons)

	PROJECTED[1]			
FISCAL YEAR	**ANNUAL PUMPED**	**ADD PUMPED**	**AVG EQUIV CONN'S[2]**	**LUE GPD/CONN[3]**
2013	913,883,350	2,503,790	6767	370.0
2014	929,414,100	2,546,340	6882	370.0
2015	945,214,950	2,589,630	6999	370.0
2016	961,285,900	2,633,660	7118	370.0
2017	977,626,950	2,678,430	7239	370.0
2018	994,238,100	2,723,940	7362	370.0
2019	1,011,119,350	2,770,190	7487	370.0
2020	1,028,270,700	2,817,180	7614	370.0
2021	1,045,692,150	2,864,910	7743	370.0
2022	1,063,383,700	2,913,380	7874	370.0

[1] Projections based on 1.7% growth rate; see Population projection section 3.0.

[2] Average of Connections Projected for Given Fiscal Year.

[3] 335.9 GPD Historical 5-YR Average + 10% Factor of Safety = 370 GPD for planning.

The following table provides a summary of the projected water supply system demands, for end of FY 2022 loads, when evaluated against TCEQ minimum requirements (without operation of the Baker Street Plant facilities).

2022 Projected System vs. 2012 TCEQ Minimum Requirements

(Without Baker Plant)

	Existing Capacity	Required Capacity	Meets Minimum
Wells	4,509 gpm	4,725 gpm	No
Firm Booster Pump Capacity	7,200 gpm	5,511 gpm	Yes
Total Storage	2,150,000 gal	1,574,800 gal	Yes
Elevated Storage	1,250,000 gal	787,400 gal	Yes
Nominal Operating Pressure	55 psi	35 psi	Yes

Based on the projected water demands of the study period, the City of Tomball will be required by TCEQ criteria to increase its well production by 216 gpm. For practical water well construction to also serve water demands beyond 2022, CLR recommends Standard Water Plant sizing to include a 1,000 gpm Well, a 400,000 gal GST, 3 - 600 gpm total booster pumps, a maintenance building and emergency generator. With contingencies, engineering and surveying, the total Water Plant cost estimate amounts to $3.83M.

To meet projected needs, the City will require additional distribution lines to serve developing areas and for replacement of substandard lines, less than 8-inch, with minimum 8-inch diameter lines. The following table provides a summary of the projected water distribution system demands, for end of FY 2022 with loads distributed utilizing land use and density projections. The 20.8 mile total of additions represents a 21% increase in the water distribution network. Estimated future Water Distribution costs in 2013 dollars, amounts to $13.22M.

Water Line Unit Cost Data used to calculate the 10-year Water Distribution System CIP costs can be found in APPENDIX C. Costs do not include allowances for private crossings (RR or pipeline), legal or fiscal costs, or right of way/easement acquisition costs.

Future Water Distribution System Projects, 2012 to 2022

Project No.	Description	Priority (1)	Quantity	Units	Unit Cost	Total Cost
1	12-inch Water Line along Zion Road and E. Hufsmith Road from Neal Street east to F.M. 2978 E. ROW	1	6,700	LF	$ 127.00	$ 850,900.00
2	12-inch Water Line along FM 2978 from North of FM 2920 north to E. Hufsmith Road (East & West)	1	12,600	LF	$ 127.00	$ 1,600,200.00
3	12-inch Water Line along E. Hufsmith Road from Ulrich Road to Zion Road (includes Railroad Crossing)	1	8,300	LF	$ 127.00	$ 1,054,100.00
4	12-inch Water Line through new development between Ulrich Road and Zion Road	2	4,400	LF	$ 127.00	$ 558,800.00
5	12-inch Water Line along S. Persimmon Street from Agg Road to Holderrieth Road	2	5,700	LF	$ 127.00	$ 723,900.00
6	12-inch Water Line along S. Persimmon Street fromFM 2920 to Agg Road	2	4,500	LF	$ 127.00	$ 571,500.00
7	12-inch Water Line along Agg Road from S. Pitchford Road to S. Persimmon Street	2	1,200	LF	$ 127.00	$ 152,400.00
8	8-inch Water Line along S. Pitchford Road	2	3,600	LF	$ 88.00	$ 316,800.00
9	8-inch Water Line between S. Pitchford Road and S. Persimmon Street south of channel south of Lizzie Lane	2	1,200	LF	$ 88.00	$ 105,600.00
10	12-inch Water Line along Calvert Road and Alice Road from FM 2920 to High Meadows Rd	2	7,700	LF	$ 127.00	$ 977,900.00
11	12-Inch Water Line along Agg Road from Mulberry Street to S. Pitchford Road (includes Railroad Crossing)	2	1,900	LF	$ 127.00	$ 241,300.00
12	12-Inch Water Line along the Future Medical Complex Drive from S. Holderrieth to S. Cherry Street	2	3,900	LF	$ 127.00	$ 495,300.00
13	12-Inch Water Line along the Future Agg Rd from S. Persimmon Street to Hufsmith-Kohrville Road	2	2,100	LF	$ 127.00	$ 266,700.00
14	12-Inch Water Line along the Future Agg Rd east of Hufsmith-Kohrville Road to ETJ	3	2,600	LF	$ 127.00	$ 330,200.00
15	8-inch Water Line between Quinn Road and Julia Street of Hunterwood (includes Railroad Crossing)	3	1,500	LF	$ 88.00	$ 132,000.00
16	8-inch Water Line along Future Commercial Park Drive between Medical Complex Drive and Theis Lane	4	1,100	LF	$ 88.00	$ 96,800.00
17	12-Inch Water Line along Park Road from FM 2920 to Brown Road	4	3,900	LF	$ 127.00	$ 495,300.00
18	12-Inch Water Line along Ulrich Road north of Zion to replace existing 6-inch Water Line	4	4,500	LF	$ 127.00	$ 571,500.00
19	8-inch Water Line along Rudolph Road	4	3,700	LF	$ 88.00	$ 325,600.00
20	12-Inch Water Line along Brown Road from Park Road to Orchard Grove Drive	4	4,300	LF	$ 127.00	$ 546,100.00
21	8-Inch Water Line along Hospital Road between E. Hufsmith Road and E. Carrell Street	5	1,400	LF	$ 88.00	$ 123,200.00
22	8-Inch Water Line along Snook Lane from FM 2920 south ROW north to the Cedar Post Street backlot WL	5	2,800	LF	$ 88.00	$ 246,400.00
23	12-Inch Water Line along FM 2920 from N. Willow to S. Persimmon	5	2,400	LF	$ 127.00	$ 304,800.00
24	12-Inch Water Line along SH 249 Bypass west ROW from Brown Road south to Lowe's	5	4,100	LF	$ 127.00	$ 520,700.00
25	12-Inch Water Line along Business SH 249 east ROW from Brown Road south to Rudel Drive	5	4,000	LF	$ 127.00	$ 508,000.00
26	12-Inch Water Line along Hirschfield Road from SH 249 Bypass W. ROW east to Business SH 249	5	1,600	LF	$ 127.00	$ 203,200.00
27	12-Inch Water Line along SH 249 Bypass west ROW from Alice Road south to Holderrieth Road	5	4,900	LF	$ 127.00	$ 622,300.00
28	8-Inch Water Line along Business SH 249 west ROW from Theis Lane south to Holderrieth Road	5	3,200	LF	$ 88.00	$ 281,600.00
	Totals		**109,800**	**LF**		**$ 13,223,100.00**
	(1) Priority Rating of 1 is highest priority and 5 is lowest priority					

OVERSIZED MAP(s)

TO VIEW OVERSIZED MAP
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PUC CENTRAL RECORDS
At 512.936.7185

6.0 Wastewater System

The City of Tomball's wastewater system consists of two primary components, wastewater collection and wastewater treatment.

Currently, wastewater water is treated at 2 facilities, both operated by the City of Tomball. The north wastewater treatment plant is located at Neal Road south of Zion, and discharges into J231-00-00 then to Boggs Gully and eventually to Spring Creek. The south wastewater treatment plant is located at Holderrieth Road near S. Cherry and discharges into M121-00-00 then to Willow Creek.

Wastewater is collected through approximately 80 miles of sanitary sewer lines including 6-inch to 36-inch diameter gravity sanitary sewer, and 4-inch to 12-inch pressure force mains in two networks. The dividing line between the collections systems for the North and South Wastewater Plants generally follows SH249 Business South from Spring Creek, turns East remaining near Medical Complex Drive until it turns North on FM 2978 until Zion Road. Existing collection line pipe materials consist of clay, steel, and PVC (polyvinylchloride) with the oldest lines originating in the late 1950's.

Existing Wastewater System

Wastewater Treatment Plants

The north facility was completed in 1974 as a 0.75 MGD Sewage Treatment Plant (STP), and subsequently expanded in the late 80's to 1.5 MGD. This facility operates as a complete mix plant with four mixing basins and two clarifiers. The north service area presently serves approximately 4,270 acres and 2,459 connections.

The south facility was placed in service in 1999 as a 1.5 MGD STP. This facility operates as an extended aeration-oxidation facility, with one aeration channel, two clarifiers, and associated units. Facilities include ancillary metering and disinfection (chlorine) equipment. The south service area presently serves approximately 3,400 acres and 4,194 connections.

The following table summarizes the existing wastewater treatment facilities:

Wastewater Plant	Permit/Discharge Number	Plant Capacity (MGD)	Discharge	Lift Station (gpm)
Neal Road	TX 0022361/ 001-A	1.5	Spring Creek	4,500
Holderrieth Road	TX 0117595/ 001-A	1.5	Willow Creek	4,475