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

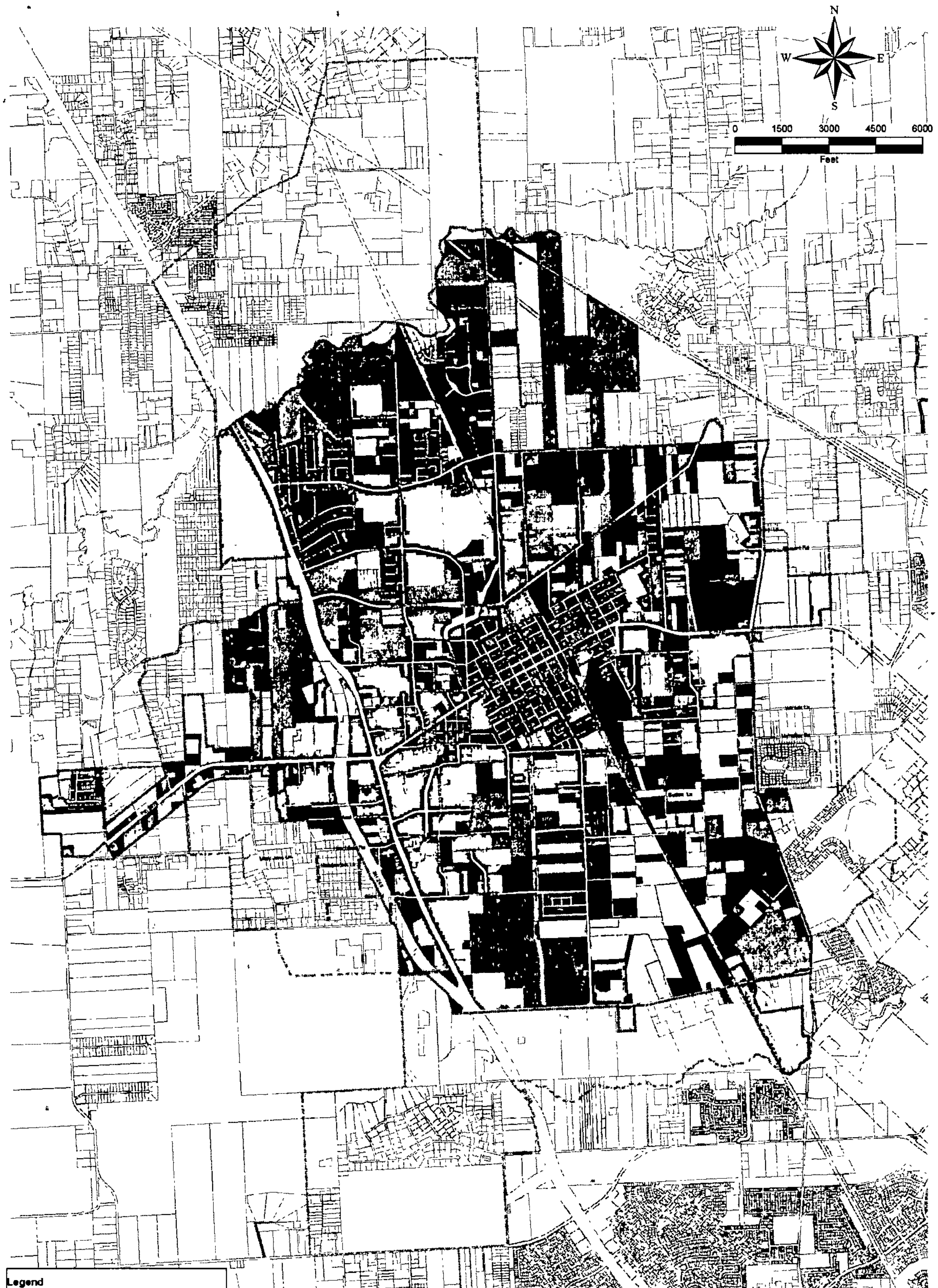
Categories defined by State Classification/Comprehensive Plan

	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.



Legend

- A Single Family Pesidential
- B Multifamily Residential
- C1 Vacant Lots and Land Tracts
- C2 Colonia Lots and Land Tracts
- C3 Res Vacant/Private Streets/Open Space/Retention
- D1 Native Pasture and Hay/Open Space
- D2 General Commercial Vacant
- E1 Rural Land, not qualified for Open Space and Improvements
- F1 Commercial
- F2 Industrial and Manufacturing
- J3 Utilities-Electric
- J4 Utilities-Telephone
- J5 Utilities-Railroad
- O1 Pesidential Inventory
- TMBR Timberland
- X Exempy Property

AS OF 03/12/2013

Tomball
Land Use by State Code

THE CITY OF TOMBALL TEXAS FOUNDED 1907

CLR, Inc.

Engineers • Surveyors • GIS
19530 FM-362, Waller, Texas 77484 Phone: (713) 462-0893

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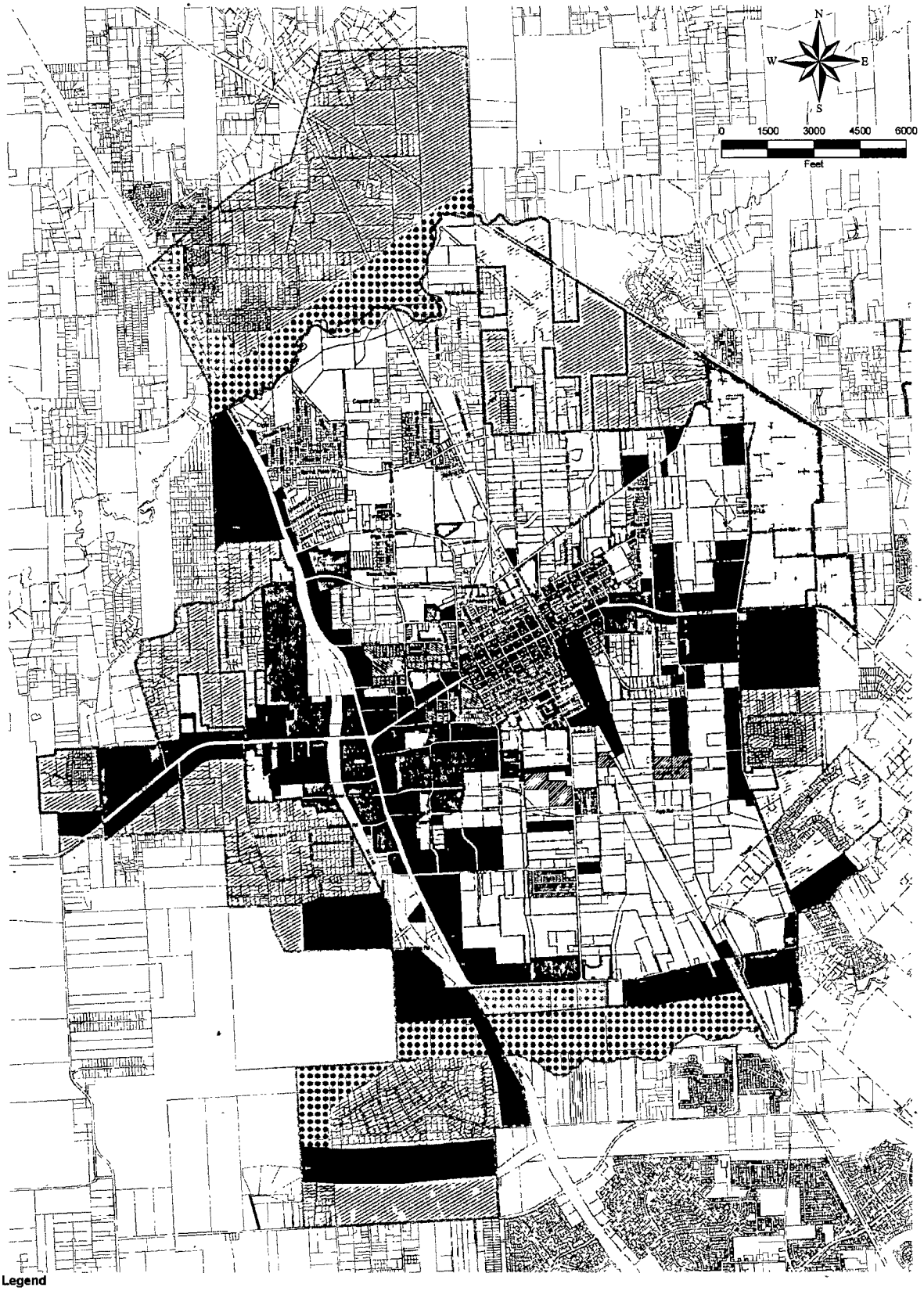


Legend

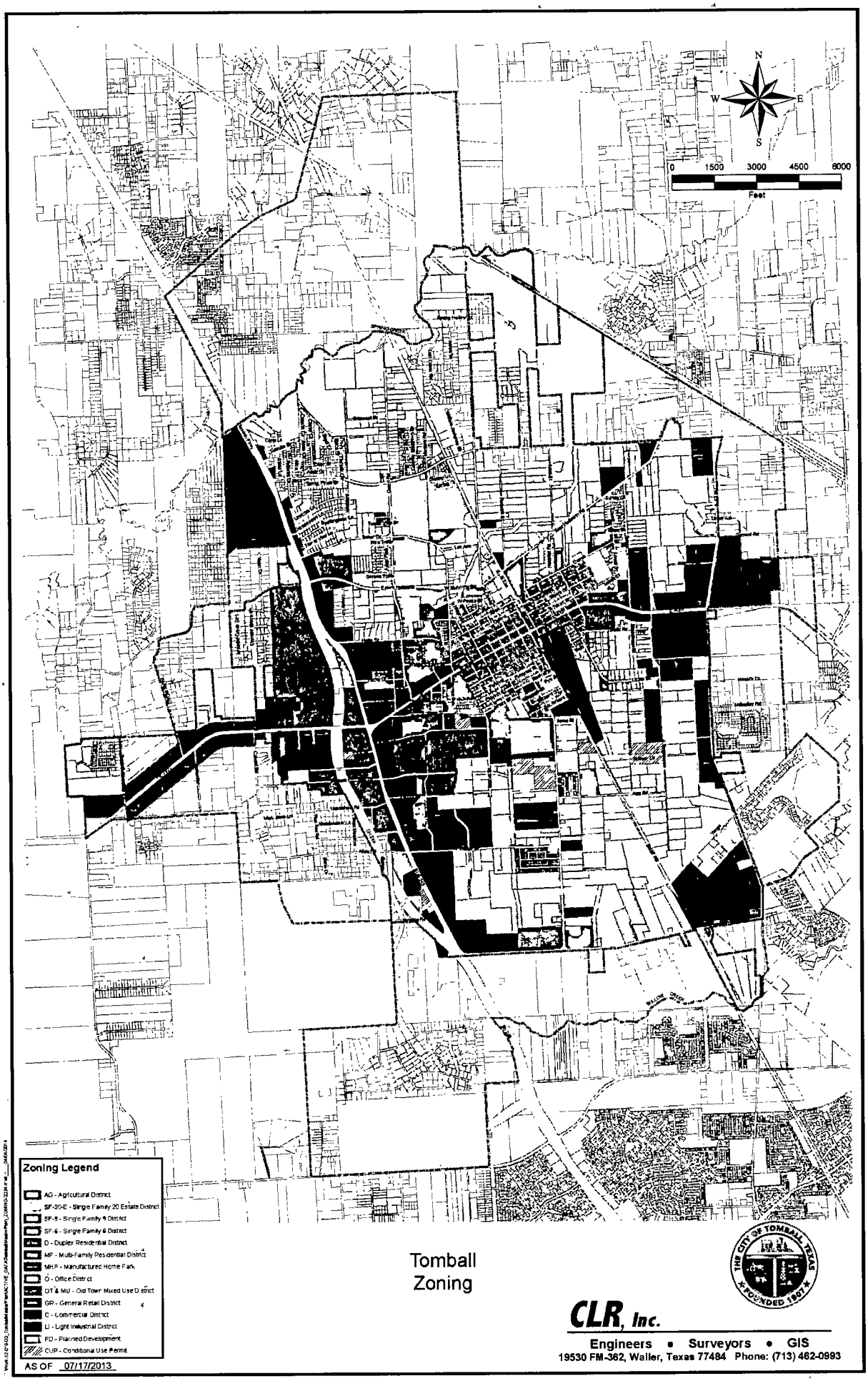
- AG Agricultural District
- SF-20E - Single Family 20 Estate District
- SF-9 - Single Family 9 District
- SF-6 - Single Family 6 District
- D - Duplex Residential District
- MF - Multi-Family Residential District
- O - Office District
- OT & MU - Old Town Mixed Use District
- GR - General Retail District
- C - Commercial District
- LI - Light Industrial District
- PD - Planned Development
- CUP - Conditional Use Permit
- MDR - Medium Density Residential
- RR - Rural Residential
- Employment
- Open Space

AS OF 01/08/2013

Tomball
Comprehensive Land Use Plan

THE CITY OF TOMBALL, TEXAS
FOUNDED 1907

CLR, Inc.
Engineers • Surveyors • GIS
19530 FM-362, Waller, Texas 77484 Phone: (713) 462-0993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Zoning Legend
AG - Agricultural District
SF-20-E - Single Family 20 Estate District
SF-9 - Single Family 9 District
SF-6 - Single Family 6 District
D - Duplex Residential District
MF - Multi-Family Residential District
MHP - Manufactured Home Park
O - Office District
OT & MU - Old Town Mixed Use District
GR - General Retail District
C - Commercial District
LI - Light Industrial District
PD - Planned Development
CUP - Conditional Use Permit
AS OF 07/17/2013
Tomball
Zoning
THE CITY OF TOMBALL, TEXAS
FOUNDED 1907
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Engineers • Surveyors • GIS
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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

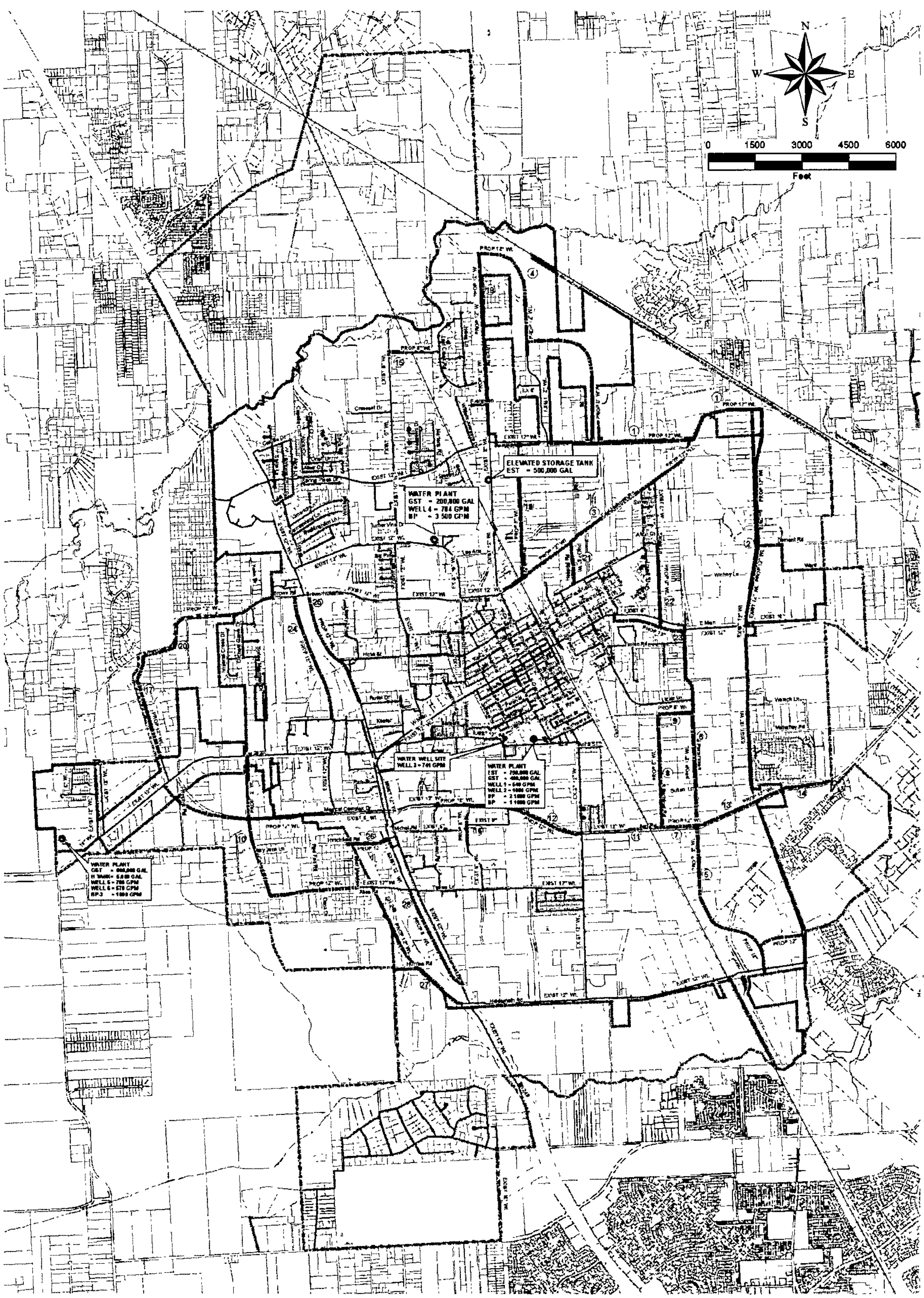
Based on the projected water demands of the study period, the City of Tomball will be required by TCEQ criteria to increase its well production by 216 gpm. For practical water well construction to also serve water demands beyond 2022, CLR recommends Standard Water Plant sizing to include a 1,000 gpm 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					



Tomball ETJ
Tomball City Limits
Water
Existing
Proposed

Tomball Master Plan
Water Distribution System

CLR, Inc.
Engineers • Surveyors • GIS
19530 FM-362, Waller, Texas 77487 Phone (713) 462-0993

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

Lift Stations

Presently the City operates 11 sanitary sewer lift stations, not including the 2 located within the wastewater treatment plant sites. Private lift stations also exist within the City and serve areas that are not currently served by public gravity sewers. Public lift station general locations and capacities are shown below. The capacities shown are firm capacities with one pump out of service.

Existing Lift Station Capacities

LS #	Lift Station Name	Firm Capacity[1] (gpm)	LUE Equiv[2] Capacity
-	North WWTP	4500	7645
-	South WWTP	4475	7603
1	Northstar	250	425
2	Sherwood	380	646
3	Hunterwood	175	297
4	Hufsmith	350	595
5	Tomball Hills	225	382
6	Persimmon	108	183
7	Jergens Park	36	61
8	Mattheson Park	125	212
9	FM 2920 & Park Rd	340	578
10	Hicks	50-150	
11	School	200-300	

(1) Lift station capacity with largest pump out-of-service

(2) Based on 211.9 gpd per LUE

Collection System

The City's collection system is comprised of approximately 80 miles of gravity sewers and force mains ranging in size from 4-inch to 36-inch diameter. City of Tomball topography requires some isolated collection systems to pump by Lift Station before continuing as gravity lines.

The Wastewater Treatment Plants and sanitary sewer collection system are shown in the **Tomball Master Plan Sanitary Sewer System Exhibit**.

Historical Wastewater Flows

City of Tomball historical data was used to develop existing and projected requirements. As a Texas Pollutant Discharge Elimination System permit holder the City submits water quality discharge-monitoring reports (DMRs) to the TCEQ.

The following table quantifies DMR reported flows for the previous five years.

Historical Wastewater Treatment Plant Flows

	2008	2009	2010	2011	2012
North Wastewater Treatment Plant					
Annual Flow (MG)	231.0	216.1	195.3	177 4	203.3
Average Daily Flow (MGD)	**0.633**	**0.592**	**0.535**	**0.486**	**0.557**
Plant Capacity (MGD)	1.500	1.500	1.500	1.500	1.500
% of Total Plant Capacity Used	42.2%	39.5%	35.7%	32.4%	37.1%
South Wastewater Treatment Plant					
Annual Flow (MG)	305 1	290.5	276.7	292.4	346.8
Average Daily Flow (MGD)	**0.836**	**0.796**	**0.758**	**0.801**	**0.950**
Plant Capacity (MGD)	1.500	1.500	1.500	1.500	1.500
% of Total Plant Capacity Used	55.7%	53 1%	50 5%	53.4%	63.3%
Total Average Daily Flow (MGD)	**1.469**	**1.388**	**1.293**	**1.287**	**1.507**
LUE	6472	6515	6540	6593	6654
Average Daily Flow per LUE (gpd)	227 0	213.0	197.7	195.2	226.5
Total Water Demand					
Annual Water Demand (MG)	774.19	790.40	709.13	922.72	823.20
Average Daily Demand (MGD)	2.121	2.165	1.943	2.528	2.255
% of Wastewater Treated vs Water Pumped	69.3%	64.1%	66.6%	50.9%	66.8%

For the purposes of this report, one Equivalent Single Family Connection (ESFC) equals one Living Unit Equivalent (LUE). For Years 2008 to 2012 the average daily flow per ESFC was 211.9 gpd of wastewater treatment.

Wastewater flow was assumed to follow the 5-Year average water production percentages for five categories as 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 TCEQ maintains minimum standards for public wastewater treatment and collections systems. The criteria are contained in Chapter 317 of the TCEQ regulations titled "Design Criteria for Sewerage Systems". The following minimum standards were utilized to determine adequacy of the existing system and to size necessary improvements.

- Estimation of wet weather flows as 400 percent of average day flow rates (collection system).
- The layout of collection lines are placed to provide flexibility toward future land use changes and economic considerations.
- Maximum sewer capacities were calculated for pipes flowing full at not less than 2 feet per second using standard grades on Manning's formula with an assumed "n" factor of 0.013.
- In order to avoid under-designs, which can occur without long range planning, trunk lines sizes were based upon consideration of the size of an area and an allowance for full development. The interim improvements for the study period consider future growth and provide a base system for the ultimate improvements.
  - Lift Station design to follow TCEQ Chapter 317 - Design Criteria for Sewerage Systems § 317.3. Lift Stations
  - STP design to follow TCEQ Chapter 317 - Design Criteria for Sewerage Systems § 317.4. Wastewater Treatment Facilities
- STP Design flow is defined as the wet weather maximum 30-day average flow. Peak flow is defined as the highest two hour flow expected to be encountered under any operational conditions, including times of high rainfall (generally the two-year, 24-hour storm is assumed - 4.85-inch for City of Tomball) and prolonged periods of wet weather. For new systems, the peak flow to average annual flow ratio is normally in the range between three and five to one, although other peaking factors may be warranted.
- Per TCEQ criteria an STP at 75% of flow capacity requires the design of a plant expansion, and an STP at 90% of flow capacity requires construction to commence on the expansion design.

Adequacy of Existing Wastewater System

Based on the available City of Tomball 2012 data for existing Wastewater System conditions (6,654 conn at 1.507 MGD ADF), both Wastewater Treatment Plants, all Lift Stations, and Sanitary Sewer Collection facilities meet or exceed TCEQ minimum requirements.

Projected Improvements

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

Wastewater flow was projected to FY 2022, based on this report's earlier projection of the City of Tomball's annualized growth rate of approximately 1.7%, as shown in the following table. Wastewater Collection Average Daily Flow (ADF) is projected at 1.787 MGD for 7,874 connections for end of FY 2022. Wastewater flow projections based on historical flow per LUE is shown below.

Projected Wastewater Treatment Plant Flows

	Projected Averages											Increase
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2012-2022
Total Average Daily Flow (MGD)	**1.507**	**1.536**	**1.562**	**1.589**	**1.616**	**1.643**	**1.671**	**1.700**	**1.728**	**1.758**	**1.787**	**0.280**
Case 1: Future LUEs reflect historical LUEs												
LUE	6654	6767	6882	6999	7118	7239	7362	7487	7614	7743	7874	1220
Average Daily Flow per LUE (gpd)	**226.5**	227.0	227.0	227.0	227.0	227.0	227.0	227.0	227.0	227.0	227.0	
North Wastewater Treatment Plant												
Annual Flow (MG)	203.3	207.2	210.8	214.3	218.0	221.7	225.5	229.3	233.2	237.1	241.1	37.8
Average Daily Flow (MGD)	**0.557**	**0.57**	**0.58**	**0.59**	**0.60**	**0.61**	**0.62**	**0.63**	**0.64**	**0.65**	**0.66**	0.10
Plant Capacity (MGD)	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	_
% of Total Plant Capacity Used	37.1%	37.9%	38.5%	39.1%	39.8%	40.5%	41.2%	41.9%	42.6%	43.3%	44.0%	6.9%
South Wastewater Treatment Plant												
Annual Flow (MG)	346.8	353.5	359.5	365.6	371.8	378.1	384.6	391.1	397.7	404.5	411.3	64.6
Average Daily Flow (MGD)	**0.950**	**0.97**	**0.98**	**1.00**	**1.02**	**1.04**	**1.05**	**1.07**	**1.09**	**1.11**	**1.13**	0.18
Plant Capacity (MGD)	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	_
% of Total Plant Capacity Used	63.3%	64.6%	65.7%	66.8%	67.9%	69.1%	70.2%	71.4%	72.6%	73.9%	75.1%	11.8%

However, the wastewater plants are normally designed for more flow per connection, as higher use is possible from future connections. Higher use is also possible from existing connections, without additional development (for example, higher occupancies in residences and hotels or changes in use of non-residential properties). The table that follows shows flow projections based on 300 gpd/LUE for existing and new development.

Projected Wastewater Treatment Plant Flows

	Projected Averages											Increase
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2012-2022
Total Average Daily Flow (MGD)	**1.507**	**2.030**	**2.065**	**2.100**	**2.135**	**2.172**	**2.209**	**2.246**	**2.284**	**2.323**	**2.362**	**0.855**
Case 2: Future LUEs at 300 gpd												
LUE	6654	6767	6882	6999	7118	7239	7362	7487	7614	7743	7874	1220
Average Daily Flow per LUE (gpd)	**226.5**	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	
North Wastewater Treatment Plant												
Annual Flow (MG)	203.3	273.9	278.5	283.3	288.1	293.0	298.0	303.0	308.2	313.4	318.7	115.4
Average Daily Flow (MGD)	**0.557**	**0.75**	**0.76**	**0.78**	**0.79**	**0.80**	**0.82**	**0.83**	**0.84**	**0.86**	**0.87**	0.32
Plant Capacity (MGD)	1.500	1.500	1.500	1.500	1 500	1.500	1.500	1.500	1.500	1.500	1.500	-
% of Total Plant Capacity Used	37 1%	50.0%	50.9%	51.7%	52.6%	53.5%	54.4%	55.3%	56.3%	57.2%	58.2%	21.1%
South Wastewater Treatment Plant												
Annual Flow (MG)	346.8	467 2	475.1	483.2	491 4	499.7	508.2	516.9	525.6	534.5	543.6	196.8
Average Daily Flow (MGD)	**0.950**	**1.28**	**1.30**	**1.32**	**1.35**	**1.37**	**1.39**	**1.42**	**1.44**	**1.46**	**1.49**	0.54
Plant Capacity (MGD)	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	-
% of Total Plant Capacity Used	63.3%	85.3%	86.8%	88.3%	89.8%	91.3%	92.8%	94.4%	96.0%	97.6%	99.3%	36.0%

When both existing Wastewater Treatment Plants are evaluated against TCEQ minimum requirements for both 2022 Projected Wastewater System conditions (7,874 connections at 1.787 MGD and 2.362 MGD), facilities meet or exceed TCEQ minimum requirements.

The South Wastewater Treatment Plant is expected to exceed 75% of flow capacity (1.125 MGD) during the ten year period, requiring the design of a plant expansion in accordance with TCEQ regulations. The TCEQ requires that facilities begin engineering and financial plans once flows reach 75% of a facility and require construction to begin once flows reach 90%.

For this reason, included in the Master Infrastructure Plan is a 0.5 MGD expansion. With contingencies, engineering, and surveying, the total Wastewater Treatment Plant expansion cost estimate amounts to $4.20M. Since the expected new development from 2012 to 2022 is not expected to use this capacity, this cost is not included in the maximum impact fee calculation.

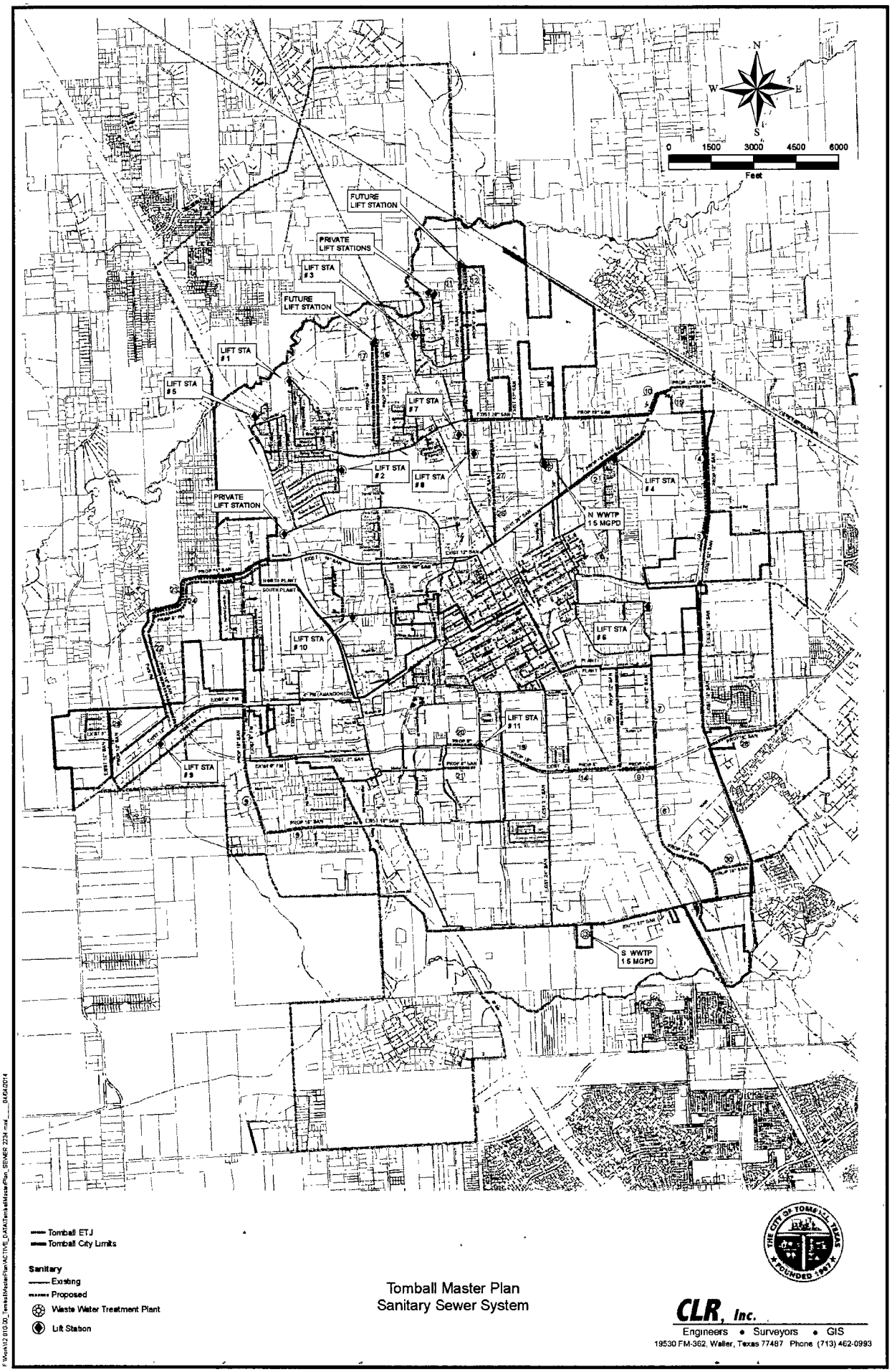
Projected development may also overload existing lift stations. Individual lift station demand vs capacity will have to be monitored to determine when pump or wet well upgrades are needed or required. Three new lift stations are included in the Capital Improvement Plan (CIP) cost estimate table for wastewater collection lines.

To meet projected needs, the City will require additional sanitary sewer collection lines to serve developing areas. The following table provides a summary of the projected wastewater collection system demands, for end of FY 2022 with estimated loads distributed utilizing land use and density projections. The 15.7 mile total of additions represents a 19.7% increase in the wastewater collection network. Estimated future wastewater collection system costs in 2013 dollars, amount to $13.5M.

Sanitary Sewer Unit Cost Data used to calculate the 10-year Wastewater Collection 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 acquisition costs.

Future Wastewater Collection System Projects, 2012 to 2022

Project No.	Description	Priority (1)	Quantity	Units	Unit Cost (2)	Total Cost
1	18-inch Gravity Sanitary Sewer along Zion Road from Neal Street to Cabotway Road	1	2,600	LF	$222.00	$577,200.00
2	18-inch Gravity Sanitary Sewer along E. Hufsmith Road from existing 36-inch line to Zion Road	2	3,900	LF	$222.00	$865,800.00
3	12-inch Gravity Sanitary Sewer along F M. 2978 from north of F.M. 2920 to Dement Road	2	1,400	LF	$142.00	$198,800.00
4	12-inch Gravity Sanitary Sewer along F.M. 2978 north of Dement Road	2	3,600	LF	$142.00	$511,200.00
5	8-inch Gravity Sanitary Sewer along Liberty Lane from Hicks	2	2,000	LF	$92.00	$184,000.00
6	18-inch Gravity Sanitary Sewer along S. Persimmon Street from Agg Road to Holderrieth Road	3	5,600	LF	$222.00	$1,243,200.00
7	12-inch Gravity Sanitary Sewer along S. Persimmon Street north of Agg Road	3	3,600	LF	$142 00	$511,200.00
8	12-inch Gravity Sanitary Sewer along S. Pitchford Road and Agg Road to S. Persimmon Street	3	4,700	LF	$142.00	$667,400.00
9	18-inch Gravity Sanitary Sewer along Calvert Road and Alice Road from F M. 2920 to SH 249	3	8,100	LF	$222.00	$1,798,200.00
10	15-inch Gravity Sanitary Sewer along Zion Road and E. Hufsmith Road from Cabotway Road to Stanolind Rd	3	2,600	LF	$182.00	$473,200.00
11	8-inch Gravity Sanitary Sewer along Ulrich Road	3	3,500	LF	$92.00	$322,000.00
12	6-inch Force Main along Ulrich Road	3	3,600	LF	$62.00	$223,200.00
13	Lift Station at the end of Ulrich Road (Design Flow = 375 gpm)	3	1	LS	$400,000.00	$400,000.00
14	8-inch Gravity Sanitary Sewer along Agg Road east of Mulberry Street	3	1,300	LF	$92.00	$119,600.00
15	12-inch Gravity Sanitary Sewer along E. Hufsmith Road from Stanolind Road across F.M. 2978	4	1,600	LF	$142.00	$227,200.00
16	10-inch Gravity Sanitary Sewer along Quinn Road	4	4,000	LF	$112.00	$448,000.00
17	6-inch Force Main along Quinn Road	4	4,200	LF	$62.00	$260,400.00
18	Lift Station at the end of Quinn Road (Design Flow = 430 gpm)	4	1	LS	$400,000 00	$400,000.00
19	10-inch Gravity Sanitary Sewer along the Future Medical Complex Drive west of Cherry Street	4	1,800	LF	$112 00	$201,600.00
20	8-inch Gravity Sanitary Sewer along the Future Medical Complex Drive west of School Street	4	1,100	LF	$92.00	$101,200.00
21	8-inch Gravity Sanitary Sewer along the Future Michel Road extension east of Commercial Park Drive	4	1,200	LF	$92.00	$110,400.00
22	18-inch Gravity Sanitary Sewer along Park Road from FM 2920 to Brown Road	4	4,500	LF	$222.00	$999,000 00
23	15-inch Gravity Sanitary Sewer along Brown Road from Park Road to Orchard Grove Drive	4	5,200	LF	$182.00	$946,400.00
24	8-inch Force Main along Brown Road from Orchard Drive to Park Road	4	5,200	LF	$72.00	$374,400.00
25	Lift Station at Brown Road and Orchard Grove Drive (Design Flow = 1,000 gpm)	4	1	LS	$550,000.00	$550,000 00
26	8-inch Gravity Sanitary Sewer along Rudolph Road north of E. Hufsmith Road	4	1,200	LF	$92.00	$110,400.00
27	8-inch Gravity Sanitary Sewer along Rudolph Road south of Zion Road	5	2,400	LF	$92.00	$220,800.00
28	10-inch Gravity Sanitary Sewer along the Future Med Complex east of Hufsmith-Kohrville Road	5	2,200	LF	$112.00	$246,400.00
29	8-inch Tomball Cemetery Rd north of FM 2920	6	1,000	LF	$92.00	$92,000.00
30	10-inch Gravity Sanitary Sewer along Spell Road from S Persimmon to FM 2978	6	1,000	LF	$112.00	$112,000.00
	(1) Priority Rating of 1 is highest priority and 5 is lowest priority		83,100		Construction Total	$13,495,200.00
	(2) Unit Price for Gravity Sanitary Sewer Includes Manholes					



Tomball Master Plan
Sanitary Sewer System

CLR, Inc.
Engineers • Surveyors • GIS
19530 FM-362, Waller, Texas 77487 Phone (713) 462-0993

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7.0 Drainage System

Introduction

The City of Tomball lies predominantly within the Spring Creek (J100-00-00) and Willow Creek (M100-00-00) watersheds in northwest Harris County. Rainfall runoff within the City and ETJ may travel overland, or be collected by drainage networks, and routed to natural or manmade (engineered) local drainage channels. The collector networks are typically roadside ditches, with culverts passing stormwater flows beneath paved areas, but also include curb and gutter applications draining to buried storm sewers.

Willow Creek serves a majority of the City of Tomball (4,333 acres) and its ETJ (3,873 acres), generally south of FM 2920 and west of SH 249, while Spring Creek drains the remaining area (3,337 acres and 1,642 acres respectively), with the exception of a small area in the far southern ETJ which drains to Cypress Creek. The Federal Emergency Management Agency (FEMA) Effective Flood Insurance Rate Map (FIRM) panels reflect significant 1% 100-year floodplains for both Willow Creek and Spring Creek. The City of Tomball has also mapped the Willow Creek floodplain beyond the FIRM map continuing north of FM2920 in the report titled "Willow Creek Tributary M124-00-00 Preliminary Engineering Report for Extension Improvements" (DRAFT), Lockwood, Andrews & Newnam, Inc., September, 2013. Both creeks are natural unimproved channels, and based on a review of the 2013-2014 Harris County Flood Control District (HCFCD) Capital Improvement Program, which covers planning through 2018, HCFCD has no current plans to improve either creek.

A large portion of the land area within the City and ETJ is either undeveloped or lightly developed. Future development in the City will be regulated to prevent structural flooding during extreme rainfall events up to and exceeding the 1% 100-year storm. Floodplain and drainage regulations in Harris and Montgomery counties also provide protection from structural flooding for new development in the City's ETJ.

Floodplain Regulation

Regulation of development activity within the City of Tomball and ETJ is shared with HCFCD, and Harris and Montgomery county engineering. HCFCD is authorized by the State of Texas to regulate activity that may impact the waters of rivers and streams and their tributaries within Harris County, this includes both Spring Creek and Willow Creek. Regardless of the permitting authority, the requirements of the jurisdiction must meet the minimum standards expressed in National Flood Insurance Program (NFIP) Title 44, Code of Federal Regulations (CFR), Section 60.3.

Development within the City of Tomball is governed by Chapter 38, "Flood Damage Prevention", of the City of Tomball Code of Ordinances which was last updated in October, 2010. Chapter 38 includes all of the minimum standards mandated by the NFIP (44 CFR § 60.3) plus a number of higher standards such as requiring that the first floor elevation of new or substantially-improved buildings be elevated to at least 1.5 feet above the base flood elevation (1% 100-year BFE). Harris County also requires 1.5 feet of freeboard above the 1% 100-year BFE for the first floor of new and substantially-improved buildings, and other provisions of the regulations exceed federal minimum standards as well. The Montgomery County floodplain court order requires one foot of freeboard for development within the regulatory floodplain.

In 2011 the City contracted for development of maps that would identify high-risk flood-prone areas within Tomball that were delineated within the regulatory floodplain on FEMA FIRM panels. 1% 100-year and 0.2% 500-year flood-prone area maps were developed for all areas within the City limits and most of the ETJ that are not included in the FEMA regulatory floodplain. In May, 2013, City Council adopted these maps by resolution (2013-19) extending Chapter 38 to apply to areas delineated on these maps within the City limits. Development within the ETJ is not affected by this resolution; however, if any portion of the ETJ in Harris County or Montgomery County is annexed by the City, then Chapter 38 would govern future development in those areas.

The FEMA floodplain data for Harris County used in this report is from the Flood Insurance Study (FIS) and DFIRM effective June 18, 2007. Floodplain data for Montgomery County is from the preliminary FIS and PDFIRM dated September 20, 2008, and is not effective as of this writing.

Drainage Regulation

In August, 2012, City Council adopted Ordinance No. 2011-17 which amended Chapter 38 to include Article IV, Drainage Design. Article IV states that the local drainage regulations will be expressed in the "City of Tomball Minimum Standards for Stormwater Drainage System Design" manual (Standards). Prior to amending Chapter 38 to include Article IV., the City informally utilized the drainage criteria issued by Harris County for guiding local development. The drainage policies of Harris County ("Regulations of Harris County, Texas, for the Approval and Acceptance of Infrastructure", amended May 1, 2011) still apply to development in the Tomball ETJ that lies within that county. The drainage policies of Montgomery County apply to the ETJ within that county.

The City of Tomball Standards provide protection from structural flooding for new development by mandating that the minimum first floor elevation of a proposed structure be the highest of:

- Eighteen inches (18") above the 1% probability recurrence interval (100-year) flood event; or,
- One foot (1') above the elevation of the center of the road or nearest sanitary or storm sewer manhole, whichever is higher; or,
- One foot (1') above the calculated ponding depth (as discussed in the Standards).

The Standards also provide protection for mobility in the design and construction of roadways that may be designated for emergency evacuation and emergency services. In general, the Standards specify the use of a 50% 2-year storm event for the design of storm sewers and roadside ditch collection systems while requiring that the water surface elevation during a 1% 100-year event not threaten structural flooding. The design of open channel stormwater conveyance is provided by the "HCFCD Policy Criteria and Procedure Manual" (current edition dated December 2010).

The Standards provide the requirements for on-site stormwater detention whenever new development may result in an increase in runoff from the site. Exceptions to these requirements are noted for specific instances including the availability of regional detention volume. Where regional detention volume is available, the City may assess an impact fee based on the acreage being developed in lieu of requiring on-site detention. In addition, a developer may be responsible for the cost of conveying the increased runoff to the conveying channel and/or funding improvements to the

conveying channel in order to accommodate the proposed increased flow volume. Currently, the availability and maximum amount of stormwater detention fee that may be assessed for new development is established by City Ordinance No. 2009-12.

Design Criteria

The City of Tomball Engineering and Planning Department established Minimum Standards for Stormwater Drainage Design effective September 6, 2011.

- *A 2-year rainfall design storm event is used for sizing storm sewers in newly developed areas. Existing storm drainage is evaluated using a 2-year design storm with proposed design based on resultant hydraulic gradient. Design of roadside ditches also utilizes a minimum 2-year rainfall.*
- *Design frequency for overland flow considers extreme storm events (1% 100-year storm) from the development to the primary outlet.*
- *Design and construction standards for open channel and outfalls into channels shall conform to those in the HCFCD Criteria Manual.*
- *Stormwater detention volume for redevelopment areas is calculated on the basis of the amount of area of the redeveloped impervious cover or the detention factor for the entire site, determined by the basin the project is located in.*
- *Stormwater detention volume serving the City, but within the ETJ in Harris County, fall under HCFCD Criteria.*

Watersheds

The City and its ETJ within Harris County are primarily drained by tributary channels to either Spring Creek or Willow Creek watersheds, with the exception of a small area of the southern ETJ which drains to Cypress Creek, see **Tomball Master Plan Drainage Systems Exhibit**. The area within the City and ETJ in Harris County to the north of FM 2920 and east of SH 249 primarily drains to Spring Creek through **J131-00-00** (Boggs Gulley) or J100E (served by J132-00-00 & J133-00-00). The remaining area primarily drains to Willow Creek to the south.

The five main tributaries providing drainage for the City to Willow Creek are:

- **M116-00-00** serves an area of the eastern City and ETJ and eventually makes outfall to Willow Creek in unincorporated Harris County east of the Tomball ETJ.
- **M118-00-00** is being developed to serve an area in southeastern Tomball that was previously drained by M116-00-00.
- **M121-00-00** is being extended and improved to serve a large area in the southern portion of the City.
- **M125-00-00** serves an area adjacent to SH 249 primarily in the southwestern part of the City.
- **M124-00-00** serves a large area in the western portion of the City and ETJ and extends well north of FM 2920.

The characteristics of each of the watershed sub-basins that drain through these channels will be discussed in detail later in this chapter.

The ETJ within Montgomery County drains to Spring Creek through several intermittent streams and through the Decker Branch to Mill Creek. Drainage in the Montgomery County ETJ is not explored in detail in this IMP except in reference to sub-basin J100E

Drainage Sub-Basins

In this document, the term "watershed" is reserved for the area drained by a main channel such as Spring Creek or Willow Creek, while the term "sub-basin" is used to refer to the tributary areas that aggregate to form the larger watershed. The term "catchment" may also be used interchangeably to refer to the same drainage area as "sub-basin".

This section of the Tomball IMP provides drainage and related information for seven primary sub-basins serving the Tomball ETJ in Montgomery County including:

Spring Creek Watershed: J131 and J100E

Willow Creek Watershed: M116, M118, M121, M125, and M124

Several other sub-basins provide drainage for areas of Tomball and the ETJ, but are not discussed in detail since their role is minor, and are described as follows:

M100F2 serves an area within the City limits that lies along both sides of the southern portion of SH 249 which drains by roadside ditches to Willow Creek and an area within the ETJ south of Holderrieth Road and east of SH 249 that is largely within the regulatory floodplain and drains to the creek through overland flow.

An area of the ETJ south of Holderrieth Road and west of SH249 is situated in the M100F1 and M100E sub-basins. M123-00-00 drains a portion of M100F1, but the 1999 Willow Creek study did not disclose any recommended improvements for this channel or for the sub-basin. None of the area within these two sub-basins includes territory within the City limits.

Areas of the ETJ east of the City are located within sub-basins M112A and M112B-C. The channel serving these two basins, M112-00-00 lies within unincorporated Harris County beyond the Tomball ETJ.

The far northern portion of the ETJ in Montgomery County is located in sub-basin J403E. This area is only sparsely developed and large portion is within the FEMA preliminary 1% 100-year floodplain of the Decker Branch to Mill Creek and Mill Creek.

M116

The IMP drainage area identified as M116 comprises an area of approximately 1575 acres located in the eastern portion of the City of Tomball (466 acres) and ETJ (559 acres). M116 is bounded generally by Main Street (FM 2920) along the north and east, a drainage divide with M100G along the south, and Hufsmith-Kohrville Road (FM 2978), and the Burlington Northern and Santa Fe Railroad tracks jumping to FM 2978 to the

west (see Exhibit). M116 is formed from a portion of TSARP catchment M116A_C by removal of the IMP drainage area identified as M118 and by minor modifications to the northeastern boundary.

The M116 drainage area is served by HCFCD channel M116-00-00 which outfalls to Willow Creek beyond the ETJ. M116-00-00 is primarily located in the county and ETJ, and HCFCD has not identified project funding for improvements within the current five-year CIP.

A visual inspection of the 2012 aerial photography reveals much of the M116 service area to be undeveloped.

New development resulting in stormwater runoff impacts will require on-site detention as impact fees are not available for this area.

M118

The IMP drainage area identified as M118 consists of an area of approximately 732 acres located in the southeastern portion of the City of Tomball (679 acres) and ETJ (53 acres). M118 is bound by the Burlington Northern and Santa Fe Railroad tracks along the western perimeter, the projection of Mahaffey Rd to the north, along Hufsmith-Kohrville Road on the east, and Willow Creek to the south (see Exhibit). M118 is formed from the southwestern portion of TSARP catchment M116A_C and a northwestern portion of TSARP catchment M100G.

M118-00-00 Channel and stormwater detention improvements are currently under development in the area south of Holderrieth Road and north of Willow Creek.

A visual inspection of the 2012 aerial photography reveals much of the M118 service area to be rural and undeveloped.

Payment of a drainage impact fee in lieu of on-site detention is available for new development in M118 at a maximum rate of $6,023.90 per acre.

M121

M121 encompasses an area of approximately 1,790 acres south of the City of Tomball (1,511 acres) and ETJ (279 acres). Its boundary extends from Main Street (FM 2920) south along the Burlington Northern and Santa Fe Railroad tracks to the east, then along Willow Creek and Holderrieth Road to the south, and eventually along a varied boundary intersecting Main near Vernon Avenue (see Exhibit). For management and analysis purposes, M121 was divided into three sub-basins: M121 East (538 acres), M121 West (993 acres), and M121 Detention (259 acres), with South Cherry Street providing a boundary between M121 East and West, and Holderrieth Street separating the detention area. M121 East and West lie mainly within the City limits while the detention area is primarily within the ETJ.

M121 is formed exclusively from TSARP catchment M100F2 with a portion of that original basin along SH 249 and Willow Creek remaining as M100F2. The M121 drainage area is served by HCFCD channel M121-00-00 which outfalls to Willow Creek.

A visual inspection of the 2012 aerial photography reveals much of the M121 East service area to be rural and undeveloped and there is little development within the boundaries of the detention area. The northern-most portion of M121 West service area includes the section of Old Town south of West Main, while the area to the south of Medical Complex Drive is largely rural and undeveloped.

M121 West detention volume is in place to serve this area, however basin and channel construction are expected to be completed by the end of CY 2015. *Payment of a drainage impact fee in lieu of on-site detention is available for new development in M121 West at a maximum rate of $4,985.14 per acre.*

M121 East channel and storm water detention improvements are under development in the area south of Holderrieth Road and north of Willow Creek, however final engineering design is on hold. *Payment of a drainage impact fee in lieu of on-site detention is available for new development in M121 East at a maximum rate of $6,828.71 per acre.*

M124

M124 comprises an area of approximately 2,930 acres extending from just south of the Lone Star College – Tomball campus on the north to an outfall to Willow Creek along the southwestern boundary of the City of Tomball (1,129 acres) and ETJ (924 acres). The basin includes drainage areas to the east and west of SH 249 and the SH 249 Expressway and is bounded primarily by J131 and M125 to the east and M100E, M100J and J100E along the west and north (see Exhibit).

M124 is formed primarily from TSARP catchments M124_A and M124B_C; and also includes areas previously included in M100J and J131. The drainage area is served by HCFCD channel M124-00-00 which outfalls to Willow Creek to the west of SH 249. The basin is the largest of the Tomball area basins draining to Willow Creek and includes a substantial area in the ETJ and unincorporated Harris County.

A visual inspection of the 2012 aerial photography reveals much of M124 to be undeveloped or lightly developed with dense commercial development in the vicinity of the SH 249/West Main Street interchange and the SH 249 Expressway and FM 2920 interchange.

New development resulting in stormwater runoff impacts will require on-site detention. Currently no impact fee has been adopted by the City of Tomball for this basin. However, this report includes a calculation for consideration.

M125

M125 is composed of an area of approximately 675 acres extending south from Hicks Street with meandering boundaries to Willow Creek along the southern boundary of the City of Tomball (496 acres) and ETJ (160 acres). This basin includes drainage areas to the east and west of SH 249 and the SH 249 Expressway and is bounded primarily by M121 West and M100F2 along the east and M124 along the west (see Exhibit).

M125 is formed from portions of TSARP catchments M100F1 and M100F2. The drainage area is served by HCFCD channel M125-00-00, a manmade channel, which outfalls to Willow Creek west of SH 249.

A visual inspection of the 2012 aerial photography reveals much of the M125 service area east of the Expressway to be developed while the area to the west is lightly developed or serving as stormwater detention.

Payment of a drainage impact fee for channel improvements is currently assessed for new development in M125 at a maximum rate of $574.40 per acre.

J131

J131 encompasses an area of approximately 3,156 acres including a major portion of Old Town north of Main Street in the City of Tomball (2297acres) and ETJ (472 acres). The basin is bound by the Spring Creek floodplain in the northeast, and roughly along Hufsmith-Kohrville Road (FM 2978) to the east, Main Street (FM 2920) to the south, and shares basin boundaries with M125 and M124 to the west, and along the drainage divide with J100E to the west (see Exhibit).

J131 is primarily formed from TSARP catchment J131 (with an area of the TSARP basin to the west of Quinn Road transferred to M124). The drainage area is served by HCFCD channel J131-00-00 (Boggs Gully) which outfalls to Spring Creek west of FM 2978. HCFCD tributaries that outfall to J131-00-00 include J131-01-00 in the eastern portion of the basin; J131-03-00, manmade channel serving an older developed portion of the City east of the BNSF RR tracks; and, J131-04-00 and J231-00-00, manmade channels that provide relief to smaller, more sparsely developed areas of the central and western basin.

A visual inspection of the 2012 aerial photography reveals that J131 encompasses most of Old Town, north of FM2920, and other densely developed commercial and residential areas near the downtown area, more sparsely developed commercial and residential areas apart from the downtown area, and large areas of undeveloped property, particularly in the far north and eastern regions of the basin.

Proposed improvements for J131-00-00 (Boggs Gully) have been completed. No other drainage channel improvement projects are being pursued at this time. New development resulting in stormwater runoff impacts will require on-site detention as impact fees are not available for this area.

The "Draft Tomball Downtown Specific Plan" (DSP), August, 2011, recommends storm sewer improvements and sub-regional detention for the downtown area of J131 in order to alleviate existing flooding concerns and reduce the potential for increased flooding related to expected redevelopment. According to the DSP, the area to be served by the proposed Project 4 ("North Storm Sewer Trunk Line") and Project 5 ("Detention Pond and Outfall Structure") extends from Main Street to roughly Epps Street to the north and from around Magnolia Street to the west to Elm Street to the east. A separate proposed storm sewer trunk line improvement project (Project 3) would provide drainage relief for an area west of Magnolia Street and connect to an existing storm sewer trunk line that discharges to Boggs Gully. The estimated cost for Projects 4 and 5, which must both be completed to provide relief, is estimated to be approximately $2.2 million; while the estimated cost for Project 3 is $0.3 million.

J100E

J100E is composed of approximately 6,572 acres along Spring Creek from the northern-most point in the City of Tomball to well west of the City limits (1,040 acres) and ETJ (1,170 acres). The basin includes a major portion of the ETJ in Montgomery County extending east from SH 249.

Within the City of Tomball, the basin shares boundaries with basins J131 and M124, and includes the Lone Star College – Tomball campus (see Exhibit). The IMP boundaries of this basin are consistent with the TSARP catchment boundaries.

A visual inspection of the 2012 aerial photography shows a good deal of residential development in the Tomball portion of the J100E basin with commercial development along SH 249. Heavily vegetated areas along both banks of Spring Creek remain undeveloped and are proximate to the 1% 100-year floodplain of the channel.

HCFCD is responsible for management of Spring Creek and increased drainage outfall volumes to the channel are not permitted by the District.

Proposed improvements for J132-00-00 & J133-00-00 have been completed. No other drainage channel improvement projects are being pursued at this time. New development resulting in stormwater runoff impacts will require on-site detention as impact fees are not available for this area.

Adequacy of Existing System

Drainage System

The majority of the existing storm sewer system meets the regulatory requirements of the City of Tomball. However, several properties located within the Old Town/mixed use area have recorded NFIP flood claims. Evaluation of flood risk in these areas should be assessed to determine the extent infrastructure meets current performance standards.

Channel System (Conveyance)

The adequacy of the existing storm water drainage channel system by sub-basin is as follows:

M116, M118, & M125

The M116, M118, & M125 drainage areas do not require channel conveyance improvements for existing development.

M121

The M121 drainage area will require channel conveyance improvements for existing development.

Downtown flooding south of FM 2920 is expected to be relieved when channel M121-01 connecting to the Hardin Street drainage ditch is completed. Localized flooding, particularly in older developed areas such downtown, may be related to inadequate drainage network infrastructure, poor maintenance of infrastructure, or structures being at risk of inundation during an extreme event due to a lack of elevation above adjacent natural ground. There are several structures located in the older developed area of M121 West that have flood claims filed under the NFIP. Uninsured structures may have also flooded, but the NFIP would have no record of such occurrences.

Since basin-wide drainage studies typically do not focus on the adequacy of localized collector networks, an evaluation of such networks is advised where there is a history of flooding.

M124

The M124 drainage area will require channel conveyance improvements for existing development.

This area, which is in the ETJ, includes several structures having experienced NFIP repetitive flood losses along with many structures deemed to be at risk of flooding by HCFCD. Most of these properties are beyond the limits of the 1% 100-year regulatory floodplain.

The western extents of M124 along and south of FM 2920 is also populated with large numbers of at-risk structures and several repetitive loss properties located within the City limits, ETJ, and unincorporated Harris County.

J131

The J131 drainage area will require channel conveyance improvements for existing development.

There are over 600 structures within J131 determined to be at risk of flooding by HCFCD. Of that number, almost 500 are located within the City limits of Tomball. Within the City, these properties tend to be clustered in three areas:

- A residential neighborhood located south of East Hufsmith Road and west of Snook Lane;
- A mixed use area east of the BNSF RR tracks, south of East Hufsmith Road, north of East Main Street and west of the J131-03-00 channel, and including a cluster of structures just to the east of North Willow Street; and,
- The Old Town/mixed use area bounded by Hufsmith Road on the north, the BNSF RR tracks to the east, West Main to the south, and the J131-00-00 drainage alignment to the west, with an additional cluster located between the alignment and Quinn Road.

In addition, there are several properties located within the Old Town/mixed use area that have recorded NFIP flood claims. Information from the Infrastructure GIS database, along with the expertise of Engineering Division staff, should be utilized to assess the flood risk in these areas to determine if the infrastructure meets current performance standards.

J100E

The J100E drainage area does not require channel conveyance improvements for existing development.

Detention System

The City of Tomball currently provides offsite detention capacity for sub-basins M118, M121 & M125 suitable for future land use development.

Projected Improvements

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, & J131. Projected drainage system improvements identified for end of FY 2022, with acreage distributed utilizing land use and density projections include:

M118

A preliminary engineering report (PER) for construction of M118-00-00 and the associated detention facility was issued in November, 2009. The detention basin south of Holderrieth Road is partially excavated, and the channel is partially completed south of Holderrieth Road. The Tomball Economic Development Corporation (TEDC) is expected to fund a portion of channel construction which is to be completed by the end of 2014. The expected completion date for remaining channel improvements is unknown. The improvements are being constructed to provide drainage for existing and future development in this area while eliminating the need for on-site stormwater detention.

M121

A PER was published in November 2009 that recommended channel improvements allowing for full development in the M121 basin. A major portion (volume) of M500 (M121 Detention - 258.38 acres) has been excavated by private parties under contract with HCFCD who owns and administers this facility. The proposed improvements are being constructed to alleviate localized flooding and to provide drainage infrastructure for new development in this area while eliminating the need for on-site stormwater detention.

M125

The FY 2012-2015 CIP status report, dated November 2011, states that an inter-local agreement was signed by the City and HCFCD in February 2008 for M125-00-00 channel improvements between Barbara Street and Willow Creek. The detention basin serves drainage from existing development. The City of Tomball will be responsible for funding expansion of the detention pond to provide storage volume for new development. On-site detention is required for new development. The proposed channel and detention improvements to serve existing development have been achieved and drainage regulations are adequate to assure that increased runoff from future development is managed appropriately.

M124

A feasibility study for extension improvements to M124-00-00 was prepared September 2013. According to the report, the preferred plan for improvements would include a channel designed to accommodate flows from the 1% 100-year event and detention storage to "mitigate increased conveyance from the proposed channel improvements and the loss of floodplain in the overbanks of the proposed channel." The cost of the project was estimated to be $48.2 million. Planning and execution of the project would require coordination with Harris County and HCFCD. The FY 2013-2017 CIP status report states that the proposed project has been divided into two phases: M124 North (from FM 2920 to SH 249) and M124 South (from FM 2920 southward). Also, a southern drainage area to be served by a future channel to M124-00-00, flowing east to west and just south of Hirschfield Farms should be considered in future planning for improvements to the M124-00-00 channel.

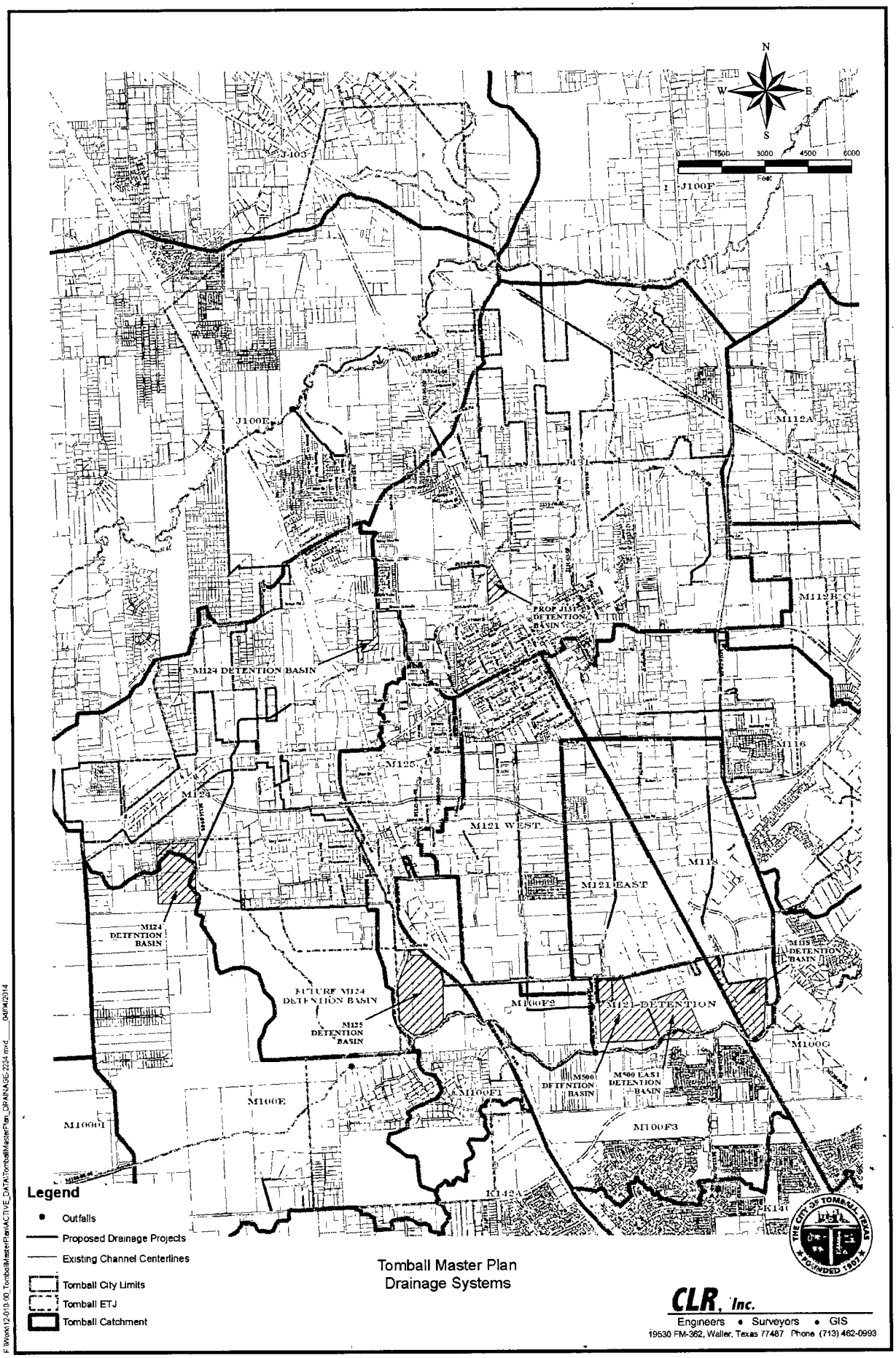
Summary

Estimated channel drainage system project costs for projected growth to 2022 amounts to $46.95M. Estimated detention improvements costs for projected growth to 2022 amounts to $42.17M. Drainage Unit Cost Data used to calculate the 10-year Drainage Channel & Detention System CIP costs can be found in APPENDIX C.

Future Drainage System Projects, 2012 to 2022

HCFCD Channel No.	Total Basin Area Served (Acres)	Construction Project	Estimated Length (Ft)	Estimated Volume (Acre-Ft)	Unit Cost	Estimated Channel Improvement Costs[1]	Estimated Detention Improvement Costs[1]
J131[2]	3,156	Detention & Conveyence	3,750		N/A[4]	$2,216,433	
J132[2]	250	Channel	1,250		$ 591.05	$738,811	
J133[2]	500	Channel	2,500		$ 591.05	$1,477,622	
M116[2]	1,575	Channel	4,750		$ 591.05	$2,807,482	
M116[2]	1,575	Detention		300	$ 27,616.87		$8,285,060
M118	732	N of EDC Project	4,100		$ 591.05	$2,423,300	
M118	732	EDC Project	2,300		$ 591.05	$1,359,412	
M118	732	S of Holderrieth + Detention	1,200	226	$ 591.05	$709,259	$1,790,741
M121 East	629	Channel	3,750		$ 591.05	$2,216,433	
M121 East	629	Detention		157	$ 27,616.87		$4,335,848
M121 West	1,161	Channel	2,450		$ 591.05	$1,448,070	
M121 West	1,161	Channel	4,750		$ 591.05	$2,807,482	
M121 West	1,161	Detention		215	$ 27,616 87		$5,937,626
M124[2]	2,930	Channel	4,000		$ 591.05	$2,364,196	
M124[2,3]	2,930	Channel	10,400			$26,377,589	
M124[2,3]	2,930	Detention		642			$21,818,344
		Totals	45,200	1,540		$46,946,090	$42,167,620

(1) Limited to Proposed Facilities estimates, including engineering & contingencies w hen no improvements exist
(2) The current CIP does not include channel or detention construction w ithin the next ten years.
(3) From 2013 LAN Estimate of Probable Costs; Includes Pipeline Adjustments and Land Acquisition
(4) Projects and costs identified in the Dow ntow n Specific Plan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M500 EAST DETENTION BASIN
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M100F3
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K141
Legend
Outfalls
Proposed Drainage Projects
Existing Channel Centerlines
Tomball City Limits
Tomball ETJ
Tomball Catchment
Tomball Master Plan
Drainage Systems
CLR, Inc.
Engineers • Surveyors • GIS
19530 FM-362, Waller, Texas 77487 Phone (713) 462-0993
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8.0 Traffic and Transportation

Introduction

The City of Tomball is located 28 miles northwest of downtown Houston in Harris County. The City and its ETJ are situated along three major highway corridors, SH 249, FM 2978, and FM 2920. SH 249 runs north and south on the western side of Tomball, connecting southward into Houston and northward into Montgomery County and eventually Navasota via other roadways. FM 2978 runs north-south from the FM 2920 (E. Main Street) and continues north toward Lake Conroe. FM 2920 (Waller-Tomball Road) travels east and west through the center of the City, extending westward to US 290 at Waller and eastward at IH 45 near Spring, Texas.

The roadway classifications for existing and proposed roadways in this report are based on the 2009 City of Tomball Major Thoroughfare Plan (MTP). The 2009 City of Tomball MTP was an update to the 2007 MTP, where a modified classification hierarchy system was established and clearly defined.

Regional arterials in or near Tomball's city limits and ETJ include Holderrieth Road, Brown Road, Hufsmith Road, and Hufsmith-Kohrville Road.

The roadway system is the City's primary form of transportation; however, the City, along with Houston-Galveston Area Council, has developed a bicycle and pedestrian trails network. Tomball is not in the METRO service area; although the surrounding portion of unincorporated Harris County is in the service area. The nearest bus service is approximately five miles to the south, where the #86 bus terminates at Hewlett Packard's office campus at State Highway 249 and Louetta Road.

Description of Major and Minor Existing Routes

The 2009 City of Tomball Major Thoroughfare Plan defines roadways through a hierarchy classification system of Collector, Minor Arterial, Major Arterial, and State Highway/Farm-to-Market Road. This classification system is based on right-of-way width, number of lanes, divided vs. undivided, pavement width, and median width.

Ulrich Road begins three miles north of Zion road as a two-lane minor arterial that runs north-south until Hufsmith Road, where it becomes Cherry Street.

Cherry Street begins at Hufsmith Road as Ulrich Road and continues south to Holderrieth Road, where it ends. Cherry is a two-lane minor arterial that runs north-south through the center of Tomball.

FM 2920 (Main Street) is a four-lane state highway/farm-to-market road. It begins west of Tomball near the City of Waller and becomes Main Street, which continues through downtown Tomball then east toward IH-45, where it terminates. This east-west roadway runs through the middle of the City of Tomball.

Holderrieth Road is a two-lane major arterial roadway that runs east-west on the southern edge of the City of Tomball. It begins at State Highway 249 and ends at Hufsmith-Kohrville Road.

Hufsmith Road is a southwest-northeast, undivided, two-lane major arterial roadway. It begins at Baker Drive and continues northeast to FM 2978, where Hufsmith Road ends and Hufsmith-Kueukendahl Road begins.

Brown Road is an east-west, undivided, two-lane major arterial roadway. The road begins at Lutheran Cemetery Road, which is west of Tomball, and currently ends at Baker Drive where it becomes Hufsmith Road to the east.

Hufsmith-Kohrville Road/FM 2978 is a north-south facility that spurs off of SH 249 in northern Harris County and forms the east city limit boundary of Tomball, then extends north into Montgomery County. North of Tomball city limits, FM 2978 becomes a five lane road at Stanolind Road/Bogs Road until E. Main Street, where it becomes a four lane road. Additionally, FM 2978 will be widened from 2 to 4 lanes from south of Dry Creek to Conroe-Hufsmith Rd. with construction expected to begin in 2013.

South Persimmon Street is a north-south two-lane minor arterial facility which begins at FM 2920 and continues south 1.5 miles where it terminates and becomes a gravel road.

State Highway 249, commonly referred to as Tomball Parkway, is a north-south state highway that traverses the City of Tomball. Its northernmost terminus is at the intersection of FM 1774 and FM 149 in Pinehurst. It extends approximately 27 miles south, crosses Beltway 8, and terminates in northern Houston at Interstate Highway 45. Its major intersections are FM 2920, Spring-Cypress Road, Louetta Road, and FM 1960.

Zion Road is a two-lane minor arterial that extends from SH 249 to Hufsmith Road. It is an east-west roadway that runs across the northern area of Tomball.

Description of Major Proposed Routes

Grand Parkway (State Highway 99) is a proposed 180+ mile scenic highway encircling the Greater Houston Region. At completion, it will traverse seven counties and provide easier access for suburban communities. Currently, 28.3 miles of the highway, Segment D from US 59 near Sugar Land to IH 10 near Katy (19.5 miles) and part of Segment I-2 from IH 10 to FM 1405 (8.8 miles), have been constructed as toll free roads. Segment D has been open to the public since 1994 and Segment I-2 since 2008. Segment F-1 is a proposed 12.0 mile, four-lane, controlled access toll road with intermittent frontage roads from US 290-Northwest Freeway to SH 249-Tomball Parkway with construction beginning in 2013. Segment F-2 is a proposed 12.1 mile, four-lane, controlled access toll road with intermittent frontage roads from SH 249-Tomball Parkway to IH 45-North Freeway, also beginning construction in 2013. Both segments have the potential to greatly affect Tomball, as this portion of the highway will travel east to west roughly in the vicinity of Boudreaux Road, just to the south of Tomball's ETJ. The opening of this facility, currently scheduled for 2015, will greatly affect traffic patterns in the region and serve as an additional east-west arterial.

State Highway 249 is an existing four lane roadway that runs along the western side of the City of Tomball. It is proposed to be developed into a six lane tollway from Brown Road to Harris County Line. The expansion is currently under construction and will be completed in 2015.

FM 2978/Hufsmith-Kohrville Road is an existing four-lane roadway that runs along the eastern side of the City of Tomball. This road is proposed to be widened to four lanes from South of Dry Creek to Conroe-Hufsmith Road and from FM 2920 to the future Grand Parkway (SH 99).

Medical Complex Drive is a four-lane boulevard that will serve potential commercial and industrial facilities, as well as the existing Tomball Regional Hospital. Medical Complex Drive currently extends eastward half a mile from SH 249 (Tomball Parkway). The City can benefit greatly from an additional east-west route. Currently, Main Street (FM 2920) serves as the primary route when traveling east or west through the City. This through traffic on the corridor mixes with traffic trying to access shopping and other Main Street attractions. The extension of Medical Complex Drive will allow the roadway to serve as an east-west arterial in the City of Tomball, shown in Exhibit 8-1. The proposed extension of Medical Complex Drive is a four lane roadway and extend southeast from FM 2920 at Triechel Road and connect with the existing segment of Medical Complex Drive. East of the existing roadway, it will continue southeast to join the existing Agg Road. Past Agg Road, Medical Complex Drive will continue northeast and run north of Tomball Country Club and south of the Willow Creek Estates subdivision. The road will then align with the existing Mahaffey Road and continue east to connect to FM 2920. East of the existing roadway, Medical Complex Drive is currently under design and is scheduled to be completed by April 2015, between Lawndale and South Cherry Street.

Other area roadways are in various stages of project development and can be found in Table 8-1. A map of Regional Transportation Plan (RTP) and Transportation Improvement Plan (TIP) projects can be seen in Exhibit 8-2.

Connections to Houston ETJ

Texas state law allocates ETJ based on a city's population. Tomball, with a 2010 Census population of 10,753, falls in the "5,000 to 24,999" category, and is thus entitled to a 1-mile ETJ. The ETJ will increase to 2 miles when the population reaches 25,000, and 3 ½ miles at 50,000. Tomball's actual ETJ is smaller than the allotted 1 mile in places, as it is surrounded on three sides by the ETJ of the City of Houston, who is entitled to a 5-mile ETJ, based on a population of 100,000 or more. Houston and Tomball have agreed to several ETJ exchanges to the east and west of Tomball.

Holderrieth Road, where it exits Tomball's ETJ and enters Houston's, is shown as a major thoroughfare (100 foot ROW) "to be acquired" in the City of Houston Major Thoroughfare and Freeway Plan. The connection would continue westward, parallel to FM 2920, until it merges with FM 2920 between Bauer and Backer Roads, approximately 10 miles west of Tomball. East of Tomball, Holderrieth is proposed to turn southward and connect to the existing Champions Forest Drive.

Hufsmith-Kuykendahl Road is shown as a major collector (minimum 70 foot ROW) with sufficient width from where it exits Tomball's eastern edge, to the road's current terminus at Kuykendahl Road.

Boudreaux Road, which is entirely in Houston's ETJ, is shown as a major thoroughfare. Other than the state facilities of FM 2920 and proposed Grand Parkway (SH 99), no other east-west roadways are shown in the vicinity of Tomball.

Triechel Road (extending eastward from FM 2920 near Telge Road) is shown as a major thoroughfare "to be widened". It ends at the Tomball city limits. This corridor was originally planned to connect to Tomball's Medical Complex Drive. It is located south of Medical Complex but north of Alice Road (the western extension of Theis Lane).

Hufsmith Road is a southwest-northeast, undivided, two-lane major arterial roadway that connects Tomball to the City of Houston's ETJ on the northeast side of the City. It extends out of the Tomball City limits into the City of Houston ETJ for only a quarter of a mile before the road becomes Hufsmith Kuykendahl Road.

Brown Road is an east-west, undivided, two-lane major arterial roadway which connects the City of Tomball to the City of Houston's ETJ on the west side of the City. Brown Road extends 1.5 miles outside of the Tomball City Limits and into the City of Houston ETJ before its ending point at Lutheran Cemetery Road.

Table 8-1 Other Future Roadway Projects – Tomball Vicinity

County	Sponsor	Street	From Limit	To Limit	Project Description	Fiscal Year	Project Status
Harris	Harris County	Cypress Rosehill Rd	Juergen Rd	Lake Cypress Hill Rd	4 Lane Asphalt Section W/ Bridge	2013	TIP
Montgomery	TxDOT Houston	FM 2978	S Of Dry Creek	Conroe Hufsmith Rd	Widen From 2 To 4 Lanes	2013	TIP
Harris	TxDOT Houston	SH 249	Willow Creek	1.5 mi. N Of Spring Cypress Rd	Construct 6 Lane Toll Road With Grade Separations	2015	TIP
Harris	TxDOT Houston	SH 249	Brown Rd	Willow Creek	Construct 6-Lane Toll Road With Bridges	2015	TIP
Harris	TxDOT Houston	SH 249	Montgomery C/L	Brown Rd	Reconstruct 6-Lane Toll Road With Grade Separations	2015	TIP
Montgomery	TxDOT Houston	SH 249	FM 1774/FM 149 In Pinehurst	Spring Creek/Harris C/L	Construct 6-Lane Toll Road With Grade Separations	2015	TIP
Harris	TxDOT Houston	SH 99	At SH 249		Construct 4 Direct Connectors (Toll)	2015	TIP
Multiple	TxDOT Houston	SH 99	US 290	US 59 N	Design And Construct 4-Lane Toll Road	2013	TIP
Montgomery	Montgomery County	Gosling Rd	Panther Creek Pines	Spring Creek	Widen 2 To 4 Lane; Construct 1/2 Bridge at Spring Creek	2023	RTP
Harris	Harris County	Gosling Rd	Montgomery C/L	FM 2920	Widen To 4-Lanes Undivided	2023	RTP
Harris	Harris County	Hufsmith-Kohrville Rd	FM 2920	SH 99	Widen To 4-Lane Undivided Asphalt	2023	RTP
Harris	Harris County	Louetta Rd	Steubner Airline Rd	T.C. Jester Blvd	Widen 5 Lane to 7-Lane	2023	RTP
Harris	Harris County	Louetta Rd	T. C. Jester	Kuykendahl Rd	Widen 5 Lane to 7-Lane	2023	RTP
Montgomery	Montgomery County	Nichols Sawmill Rd	S. of Butera Rd	FM 2920 In Harris Co	Construct New 2-Lane Road	2018	RTP
Harris	TxDOT Houston	SH 99	At SH 249		Construct 4 Direct Connectors (Toll)	2030	RTP
Montgomery	Montgomery County	Stagecoach Rd	Walnut Creek Rd	SH 249	Widen From 2 To 4-Lanes	2030	RTP
Harris	Harris County	Stuebner Airline Rd	Spring Cypress Rd	Louetta Rd	Widen To 6 Lane Concrete Blvd W/ S	2023	RTP

Existing and Proposed Capacity of Streets

An analysis of existing and projected roadway capacity was done for major roadways near the City of Tomball. The population growth factor which Houston-Galveston Area Council (H-GAC) used to develop the volume projections for 2017 & 2035 was much higher than that received from CLR, Inc. The volumes projections for 2017 & 2035 obtained from H-GAC were used to analyze existing roadway configuration capacity. Lane Levels of Service (LOS), found in Table 8-2, are based on the City of Houston's Major Thoroughfare and Freeway Plan 2012 Policy Statement. These Levels of Service were used to determine if existing capacity will be enough for future years. LOS A being ideal traffic conditions with free flow of vehicles, and LOS F being grid-lock of traffic and unacceptable conditions. Based on the results, by 2035 there are two segments of roadway that will be LOS F, and should therefore be widened, seen in Table 8-3.

Hufsmith-Kuykendahl Road from Stuebner-Airline Road to Kuykendahl Road exists as a two-lane roadway. By 2035, the volumes on this roadway indicate that this segment will be operating at LOS F. In order to bring the roadway LOS to LOS C, this segment of the road should be widened to four lanes.

FM 2920 (Main Street) from Telge Road to SH 249 exists as a four-lane roadway. Based on volume projections, by 2035 the roadway will be operating at LOS F. To bring the roadway LOS to an acceptable LOS D, this segment should be widened to six lanes. .

Table 8-2: Roadway Level of Service

Level of Service (LOS)	Vehicle Trips per Day
A	0-199
B	200-349
C	350-499
D	500-649
E	650-799
F	800 or more

Table 8-3: Roadway Capacity Level of Service								
	Street	Segment	Classification	Existing Lanes	2035 Proposed Lanes	2017 Roadway LOS	2035 No-Build Roadway LOS	2035 Proposed Roadway LOS
1	Zion	SH 249 to Ulrich	Minor Arterial	2	2	A	B	B
2	Zion	Ulrich to Hufsmith	Minor Arterial	2	2	A	B	B
3	Hufsmith-Kuykendahl	FM 2978 to Stuebner-Airline	Major Arterial	2	2	B	D	D
4	Hufsmith-Kuykendahl	Stuebner-Airline to Kuykendahl	Major Arterial	2	4	D	F	C
5	FM 2978/ Hufsmith-Kohrville	Hufsmith-Kuykendahl to Main	State Highway	4	4	A	D	D
6	FM 2978/ Hufsmith-Kohrville	Holderrieth to SH 99	Major Arterial	2	4	A	C	C
7	Medical Complex Drive	FM 2920 to SH 249	Major Arterial	2	2	A	C	C
8	Medical Complex Drive	SH 249 to Hufsmith-Kohrville	Major Arterial	4	4	B	D	D
9	Medical Complex Drive	Hufsmith-Kohrville to FM 2920	Major Arterial	4	4	A	D	D
10	Ulrich	North of Hufsmith Rd	Minor Arterial	2	2	A	A	A
11	N Cherry	Hufsmith to Main	Minor Arterial	2	2	A	B	B
12	S. Cherry	Main to Holderrieth	Minor Arterial	2	2	A	C	C
13	Holderrieth	Telge to SH 249	Major Arterial	2	2	A	C	C
14	Holderrieth	SH 249 to Hufsmith-Kohrville	Major Arterial	2	2	A	A	A
15	Main St (FM 2920)	Telge to SH 249	Major Arterial	4	6	E	F	D
16	Main St (FM 2920)	SH 249 to Hufsmith-Kohrville	State Highway	4	4	A	C	C
17	Main St (FM 2920)	Hufsmith-Kohrville to Stuebner-Airline	State Highway	4	4	A	A	A
18	Main St (FM 2920)	Stuebner-Airline to Hufsmith	State Highway	4	4	A	A	A
19	Hufsmith	N. Cherry to Hospital	Minor Arterial	2	2	B	C	C
20	Hufsmith	Hospital to Zion	Minor Arterial	2	2	B	C	C
21	Hufsmith	Zion to Hufsmith-Kohrville	Minor Arterial	2	2	C	D	D

Updates to the 2009 City of Tomball Major Thoroughfare Plan

Local Streets was added to the existing roadway classification hierarchy system. Local Streets is defined as an undivided, two-lane roadway with 50'-60' right-of-way serving primarily residential areas.

Medical Complex Drive will be extended along the existing Mahaffey Road. This extension will provide a complete east-west arterial that will connect to FM 2920 in the east.

Tomball Parkway was updated to be consistent with the H-GAC Transportation Improvement Project (TIP) to construct a six-lane toll road from Brown Road to Harris County Line.

Hufsmith-Kohrville Road will be extended as a four-lane roadway south of Holderrieth Road and will connect to Tomball Parkway south of Tomball.

Grand Parkway will be constructed south of Tomball as a four-lane toll road in the future, providing improved access to surrounding areas.

The Hike and Bike Trail, which connects parks, schools, and other land uses, as shown on the Tomball Parks and Recreation Exhibit.

The City of Tomball Major Thoroughfare Plan with updates can be seen in Exhibit 8-3.

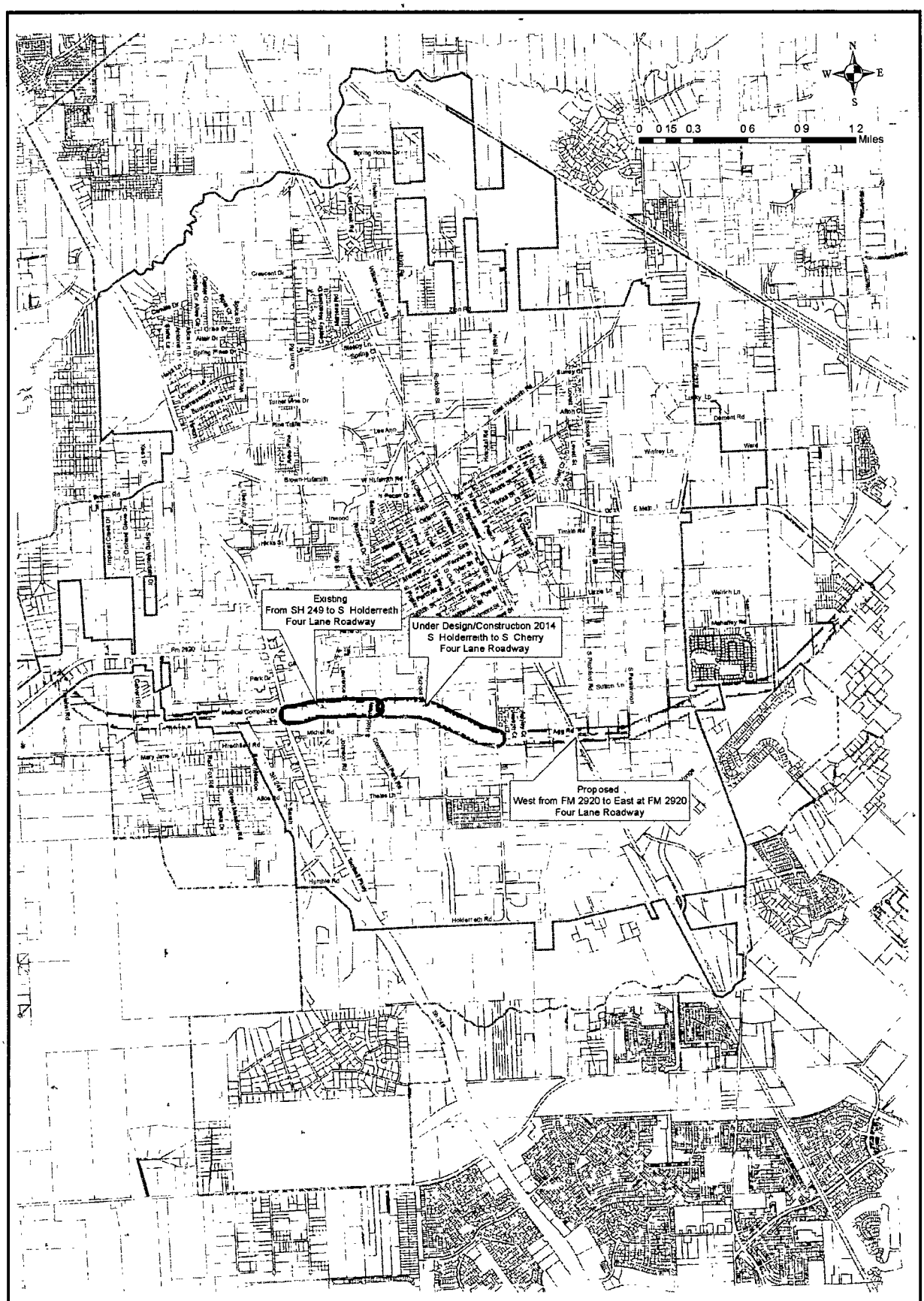


Exhibit 8-1:
Tomball Infrastructure Master Plan
Medical Complex Drive

GUNDA CORPORATION
Engineers, Planners & Managers

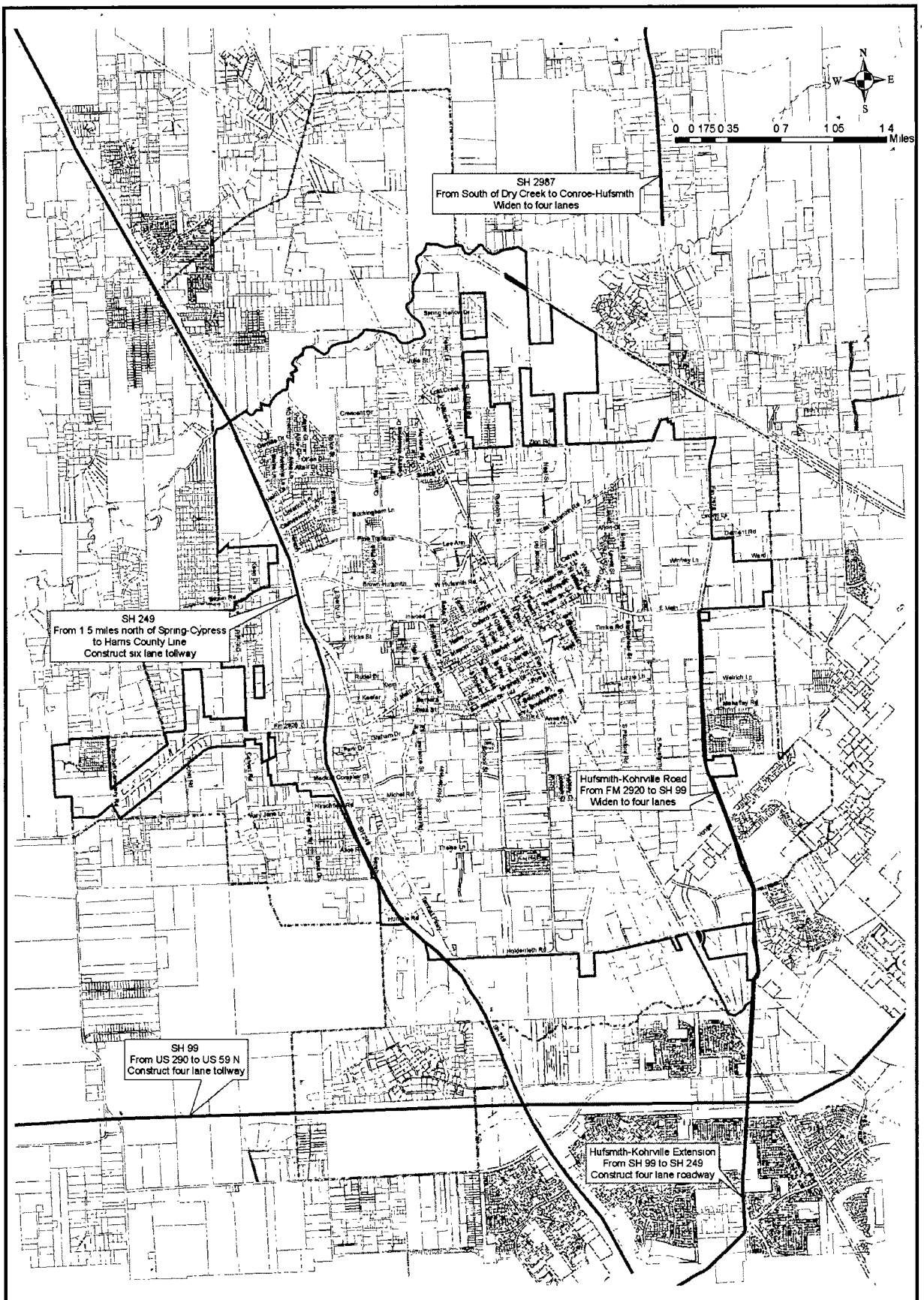
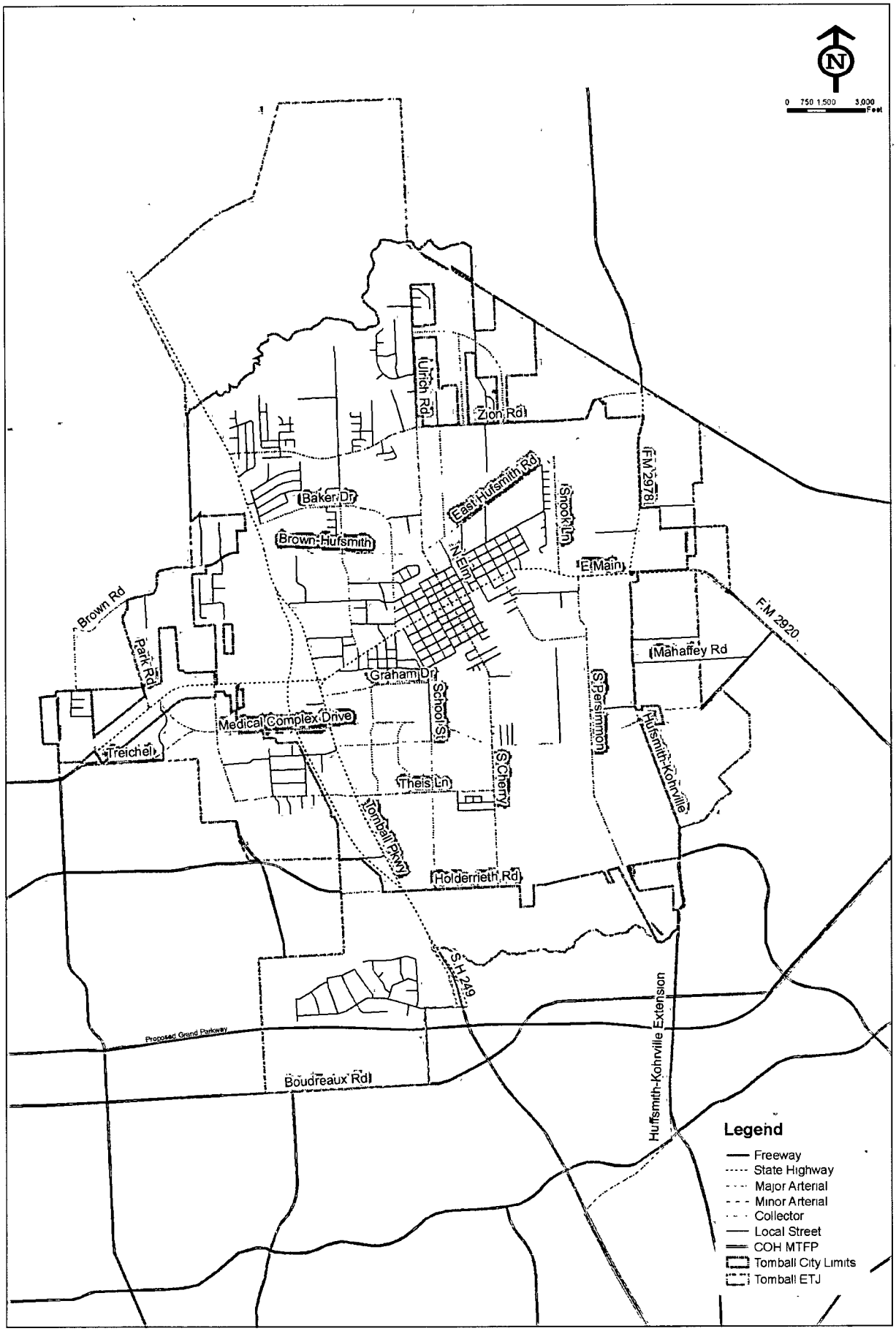


Exhibit 8-2.
Tomball Infrastructure Master Plan
Transportation Improvement Program (TIP)
and Regional Transportation Plan (RTP) Future Projects

GUNDA CORPORATION
Engineers, Planners & Managers

City of Tomball Major Thoroughfare Plan



9.0 Parks, Trails, & Sidewalks

In 1995, the City developed its first park master plan, which included a list of existing parks and a plan for acquiring and developing new park land. Currently, the City owns approximately 43.5 acres of developed park land. There are also three Harris County park facilities either within the City or nearby that are available for Tomball residents. There are no regulations for park space, but the National Recreation and Park Association (NRPA) prior to 1997 did promote the goal of 10 acres of local park land per 1,000 residents, an attainable goal for the City of Tomball. The NRPA subsequently encouraged guidelines using need analysis to determine a recommended level of service for park elements.

Existing Parks

As seen in the **Parks and Recreation Exhibit**, there are six developed parks within the City's ETJ including one Harris County park. There are also two Harris County parks within 4 miles of the City. All of these parks are in good condition.

Parks within the City

Juergens Park is a 10 acre facility located at 1331 Ulrich Road. The park includes a large, lighted pavilion with covered picnic tables, a basketball court, sand volleyball court, barbeque and picnic facilities, restrooms, water fountains, 3 playgrounds, a lighted ½ mile asphalt walking trail, and a parking area. Overall, the park is in good condition, but vandalism has been a recurring problem.

Jerry Mattheson Park is a 9.8 acre facility located across from Juergens Park at 1240 Ulrich Road. The park includes four fenced & lighted tennis courts, a peewee baseball field, a large playground, a municipal swimming pool with a shower and restroom facilities, and a parking area. The park is in excellent condition.

Martin Luther King, Jr. Park is a 0.7 acre facility located at Timkin Road and South Chesnut Street. This park includes a restrooms, a covered and lighted basketball court, a playground, and two picnic tables with barbeque grills. The park is in excellent condition.

The Wayne Stovall Memorial Sports Complex is located on a 19 acre tract on the corner of West Hufsmith Road and North Cherry Street. The facility is owned by the City and leased to the Tomball Sports Association for operations and maintenance. The site includes eight baseball fields, two concession stands, a League office, a small playground, and large parking areas.

The Theis Attaway Nature Center is a 4 acre nature preserve located at 13509 Theis Lane between SH 249 and Commercial Park Drive. The park includes a nature pond with a pier, a grassy amphitheater, a bird/wildlife observation blind, 6-ft wide ¼ mile asphalt walking trail, benches, tables, restrooms, and a parking area.

Parks within the ETJ

Samuel Matthews Park is a 6-acre Harris County Precinct 4 facility located within the City's ETJ at 1728 Hufsmith Road near Stanolind Road. The park includes a covered and lighted basketball court, one open basketball court, one volleyball court, a playground, a lighted baseball field, picnic tables, restrooms, a 1/3 mile walking tail, a community building, restrooms, and parking area. The park is in very good condition.

Additional Harris County Parks outside the ETJ

The Harris County Park System consists of four precincts including 22,500 acres of park facilities available for Tomball residents. Examples of these local park lands are Spring Creek Park and Roy Campbell Burroughs Park.

Spring Creek Park is a 114 acre facility located west of the City at 15012 Brown Road just outside the ETJ. The park includes RV/camper hookups, tent camping sites, a pavilion with picnic tables, a separate small barbeque pavilion, volleyball court, covered basketball court, two lighted tennis courts, baseball backstop, restroom facilities, camping/picnic areas, multiple playgrounds, and nature trails.

Roy Campbell Burroughs Park is a 320 acre facility located northeast of the City at 9738 Hufsmith Road about 3 miles from the ETJ. The park includes nine soccer fields, four baseball fields, two volleyball courts, 3 restroom facilities, over 8 miles of nature trails, dog park, a small fishing lake, picnic tables, multiple playground areas, and a large barbeque pavilion.

Existing Park Lands to be Developed

The City currently owns four additional sites totaling 64.9 acres which may be used for park land.

Martin Park is a 3 acre wooded site located on East Hufsmith Road at Peach Street. The site is located next to an assisted living facility that has an agreement with a regional non-profit group to develop a 1 acre park on the site in exchange for the use of the remainder of the property. The park development may include walking trails, benches, picnic tables, playground equipment, and native plantings and landscaping.

Tomball City Park is a 9.9 acre wooded site west of Rudolph Road. HCFCD Unit #J131-00-00 divides the tract into two sections, and the 5 acre Cortez Tract separates Tomball City Park from Jerry Mattheson Park. The City's 1995 park plan suggested the park include two large covered pavilions, picnic facilities, one softball field, restrooms, parking area, and walking trails with a wooden foot bridge crossing the drainage channel.

The City landfill is a 19 acre site between Neal Street and Rudolph Street that can be made available for possible park development. Harris County Flood District and the City jointly own a 75 acre site south of Holderrieth Road at Cherry Street for a storm water detention pond. When the construction of the pond is completed, the site will have approximately 35 acres available for possible park development.

Possibilities of development for both tracts include splash pads, skateboard, skating, or rollerblade facilities, baseball fields, soccer fields, walking trails, restrooms, picnic areas, playgrounds, and parking areas.

Proposed Parks

The Cortez Tract is a 5 acre site located on Ulrich Road between Jerry Mattheson Park and the future Tomball City Park. The acquisition of this tract will connect the two parks and complete the master park plan for Jerry Mattheson Park.

Tomball Outlots are small parcels between Ulrich Road, East Hufsmith Road, and the railroad without any road frontage. The City owns most of the parcels and is currently negotiating to acquire the rest of the parcels in order to designate the land for public use.

Pedestrian Sidewalks

The 1995 Park Plan proposed an interconnected system of pedestrian sidewalks that would connect existing parks as well as neighborhoods, schools, the community college, medical center, and other parts of the City. Existing pedestrian trails and sidewalks can also be seen in the **Parks and Recreation Exhibit**. The pedestrian trails are planned to be constructed in open areas and drainage easements where possible, and they will utilize approximately 1 mile of existing sidewalks along Baker Drive and Quinn Road. When complete, the project will consist of approximately 9.4 miles of trails throughout the City.

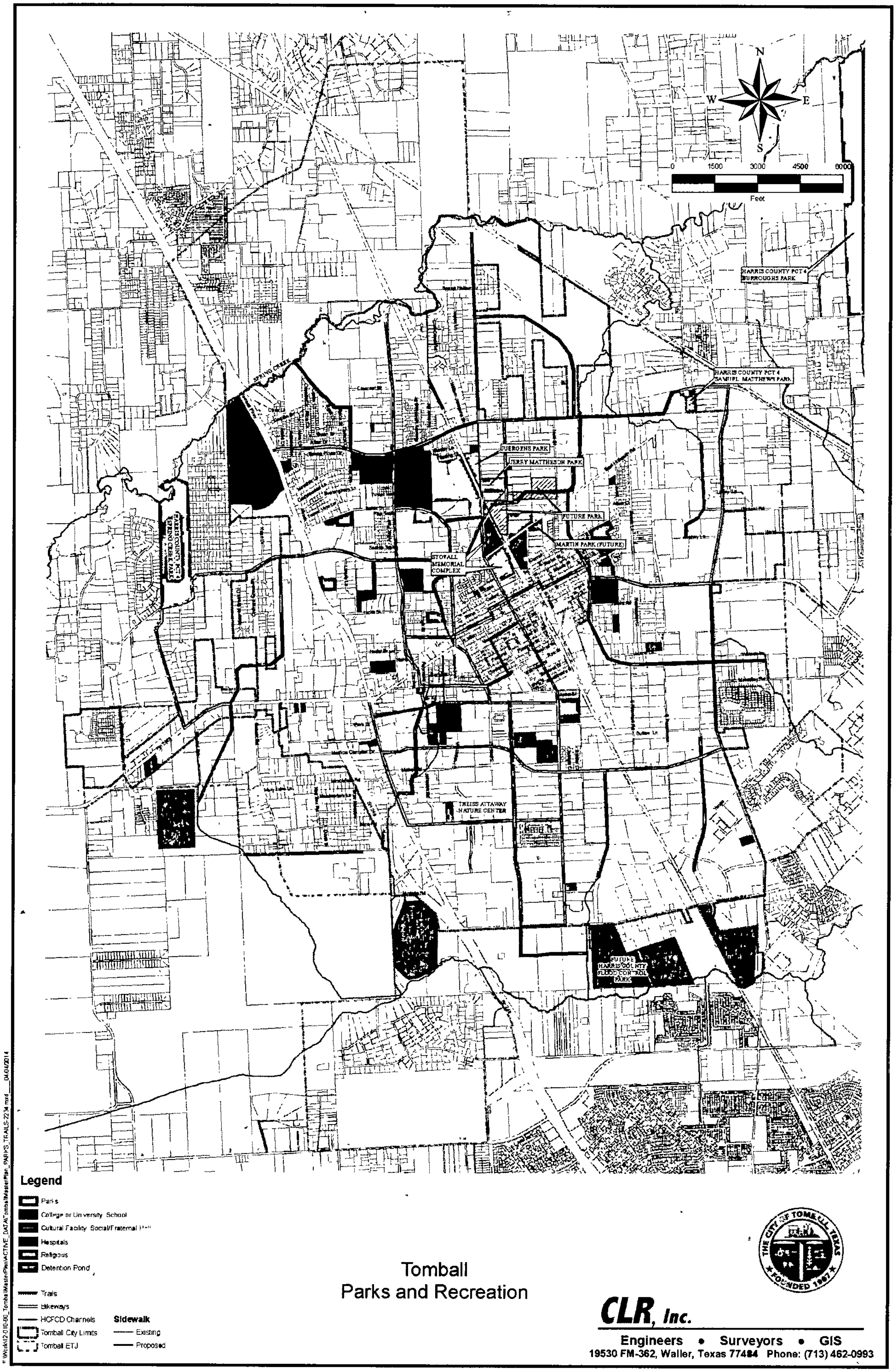
Bicycle Trails

Houston-Galveston Area Council (H-GAC), the Metropolitan Planning Organization (MPO) for Tomball, has developed a bicycle trails plan which identifies share use paths/trails for bicyclist to take that will connect residential, retail, and recreational areas of the City. The plan, which is incorporated in the **Parks and Recreation Exhibit**, is currently in the proposal stage. The sponsors for the bicycle trail plan are Harris County, TxDOT, and The Woodlands Development Corporation.

Summary

The City of Tomball currently maintains about 43.5 acres of park space available to residents within the City limits. This relates to approximately 3.91 acres per 1,000 residents based on the 2012 estimated population of 11,121 residents. Including the existing Harris County park system of approximately 22,500 acres of park space available to 4,092,459 residents within the county, approximately 5.50 acres per 1,000 residents, local public park land is at 9.41 acres per 1,000 residents.

For the 2022 population projection of 13,156, existing park space will proportion to approximately 3.31 acres per 1,000 residents, bringing local public park land to about 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. If the City of Tomball continues to acquire and develop the parks discussed previously, a goal of 10 acres of local park land per 1,000 residents is attainable.


N
S
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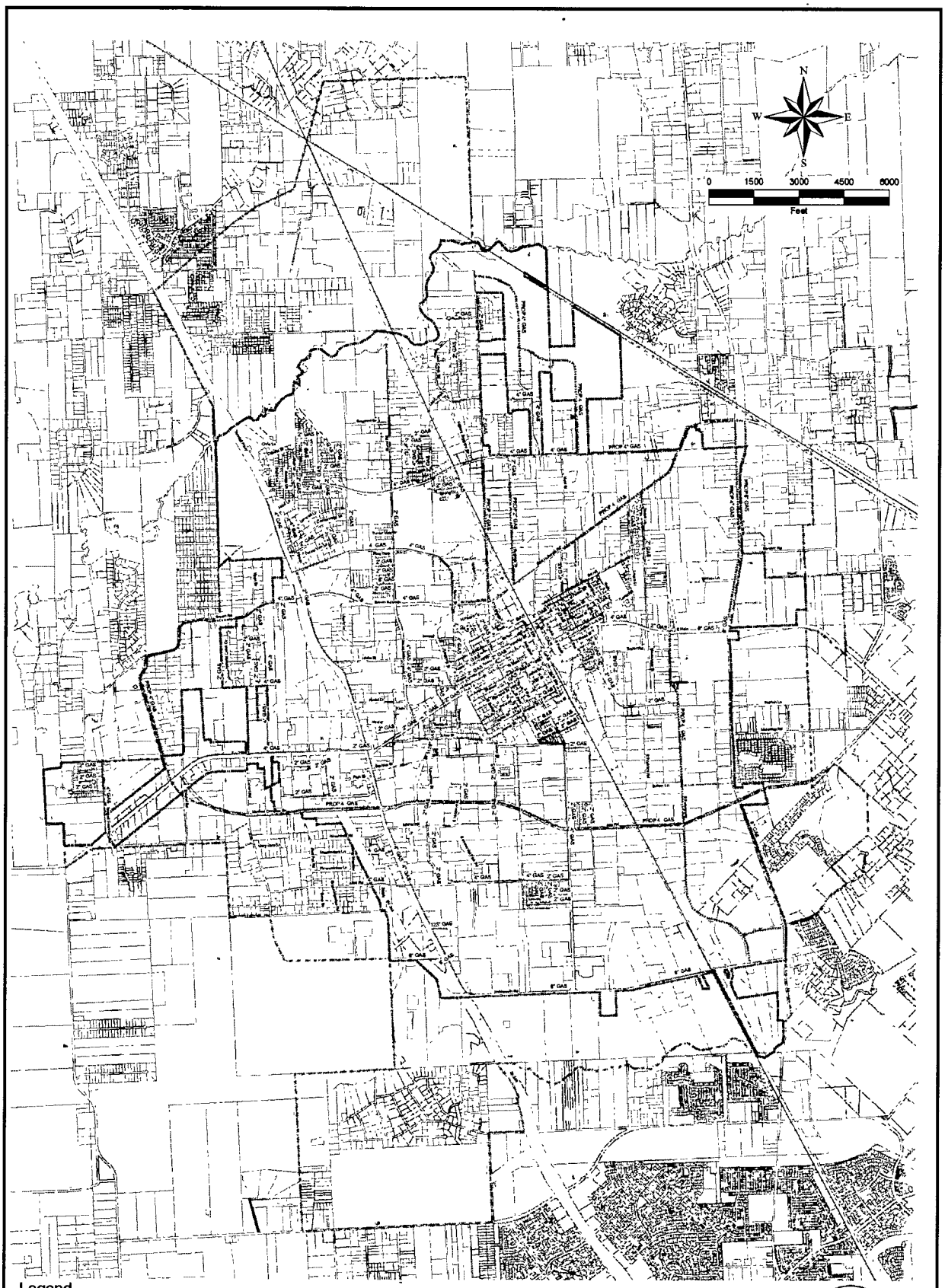
Feet
HARRIS COUNTY PCT 4 BURROUGHS PARK
HARRIS COUNTY PCT 4 SAMUEL MATTHEWS PARK
SPRING CREEK
JUERGENS PARK
JERRY MATTHESON PARK
FUTURE PARK
MARTIN PARK (FUTURE)
STOVALL MEMORIAL COMPLEX
THEISS ATTAWAY NATURE CENTER
FUTURE HARRIS COUNTY FLOOD CONTROL PARK
Legend
Parks
College or University School
Cultural Facility Social/Fraternal
Hospitals
Religious
Detention Pond
Trails
Bikeways
HCFCD Channels
Tomball City Limits
Tomball ETJ
Sidewalk
Existing
Proposed
Tomball
Parks and Recreation
CLR, Inc.
Engineers • Surveyors • GIS
19530 FM-362, Waller, Texas 77484 Phone: (713) 462-0993

10.0 Natural Gas Distribution

The City of Tomball is the retail natural gas provider within the corporate boundaries of the City. Currently the City maintains and operates approximately 55.8 miles of distribution line ranging in size from 2 to 6 inch diameter. The system is currently supplied through two separate contracts with private wholesale providers.

Historically the City natural gas infrastructure system has not been included in this report. However, a decision was made to include basic information for the system in this report to help consolidate all City maintained and operated infrastructure systems. Typically the City will assess natural gas needs for an area and construct necessary improvements with and parallel to City water lines.

The City is currently in the process of evaluating the system to identify deficiencies such as under sized lines and/or in need of line looping. The **Tomball Master Plan Gas Distribution System** exhibit included in this report represents the existing lines in the system.



Tomball Master Plan
Gas Distribution System

CLR, Inc.
Engineers • Surveyors • GIS
19530 FM-362, Waller, Texas 77487 Phone (713) 462-0993

11.0 Capital Improvement Plan & Maximum Capital Recovery Fee Determination

Capital Improvement Plan (CIP)

This section contains a discussion of the technical basis used in the calculation of Tomball's maximum impact fees as set forth in Local Government Code, Title 12, Planning and Development, Chapter 395, et seq, Financing Capital Improvements Required by New Development in Municipalities, Counties, and Certain Other Local Governments (Included in Appendix A for reference). Tomball Code, Part II, Chapter 82, Utilities, Article IV, Water and Wastewater Capital Recovery Fees, adopted by Ordinance No. 90-01 and amended by Ordinance 93-11, 96-20, 99-21, 2003-02, and 2009-12 implements Local Government Code §395.

In accordance with Chapter 395, a Capital Improvement Plan must be developed by qualified professional and contain the following:

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.
2. An analysis of the total capacity, the level of current usage, and commitments for usage of capacity of the existing capital improvements.
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.
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.
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.

Chapter 395 stipulates updates to the CIP are to be completed within 5 years of the previous impact fee adoption. This document represents an update to the 2007 CIP, which impact fee was adopted May 18, 2009. The Impact Fee CIP process calculates the maximum allowable fees, also in conformance to Chapter 395.

Existing Capital Improvements

Existing capital improvements were identified earlier in this report. Costs to upgrade to regulatory standards are summarized below.

- Water - Existing Water Treatment Plants and Water Distribution facilities meet or exceed TCEQ minimum requirements; no upgrade costs associated with existing needs.
- Wastewater - Existing Wastewater Treatment Plants, Lift Stations, and Sanitary Sewer Collection facilities meet or exceed TCEQ minimum requirements; no upgrade costs associated with existing needs.
- Drainage – Several properties located within the Old Town/mixed use area have recorded NFIP flood claims. Evaluation of flood risk in these areas should be assessed to determine the extent infrastructure meets current performance standards. All existing City and ETJ drainage channel 1% 100-yr design flows are in bank per HCFCD requirements. Existing stormwater detention facilities exceed regulatory requirements of the City of Tomball and HCFCD. No costs within this CIP are associated to upgrading existing facilities.

Existing Capacity & Usage

An analysis of the total capacities, the levels of current usage, and commitments for usage of the capacities of the existing capital improvements have been identified in the Infrastructure Master Plan earlier sections. These values are summarized in the tables below:

Water Supply & Distribution

2012 Existing Water Production was compared to TCEQ Minimum Capacity Requirements as follows:

	Existing Capacity	Required Capacity	Level of Usage
Wells	5,293 gpm	3,992 gpm	75.4%
Firm Booster Pump Capacity	8,800 gpm	4,656 gpm	52.9%
Total Storage	2,350,000 gal	1,330,800 gal	56.6%
Elevated Storage	1,250,000 gal	665,400 gal	53.2%
Nominal Operating Pressure	55 psi	35 psi	Sufficient

Note: Pressure range is from 50 to 60 psi within the City of Tomball.

Analysis of City of Tomball 2012 data for existing Water System conditions yielded 6,654 connections at 2.26 MGD ADD.

Wastewater Collection & Treatment

2012 Existing Wastewater Collection was compared to actual capacity as follows:

North Wastewater Treatment Plant		South Wastewater Treatment Plant	
Annual Flow (MG)	203 3	Annual Flow (MG)	346.8
Average Daily Flow (MGD)	**0.557**	Average Daily Flow (MGD)	**0.950**
Plant Capacity (MGD)	1.500	Plant Capacity (MGD)	1.500
% of Total Plant Capacity Usage	37.1%	% of Total Plant Capacity Usage	63.3%

Analysis of City of Tomball 2012 data for existing Wastewater System conditions yielded 6,654 connections at 1.507 MGD ADF.

Drainage & Detention

Existing Land Use estimated for 2012, distributed by characteristic category, includes 1,578.5 acres in developed residential land, 1,200.8 acres in developed commercial land and 3.5 acres of Industrial land use. Existing City of Tomball storm sewer system capacities and levels of current usage are undetermined. Evaluation of flood risk areas is required for shortfall capacity requirements, and undeveloped or partially developed areas cannot be assessed to determine the extent that infrastructure does meet current performance standards.

Existing stormwater drainage channels 100yr design conveyance capacities are not sufficient for existing development.

Existing stormwater detention facilities are not sufficient and/or do not exist for existing development.

Land Use Assumptions

In accordance with State code 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.

(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.

Further, according to Sec. 395.042, 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.

"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.

Description of Service Area

The current corporate boundaries of the City of Tomball encompass approximately 12 square miles (7,670 acres) in area with an additional 8.6 square miles (5,515 acres) included in Tomball's ETJ. In accordance with State code, service area definitions for the infrastructure master plan have been divided into three categories as follows:

1. Potable water and wastewater facilities – service area is defined as the area within the current corporate boundaries and the extraterritorial jurisdiction (ETJ) of the City of Tomball.
2. Roadway facilities – service area is defined as the area within the current corporate boundaries of the City of Tomball not to exceed six miles.
3. Drainage facilities – for storm water, drainage, and flood control facilities the service area is defined as the area within the current corporate boundaries and the ETJ of the City of Tomball. Individual drainage service areas for seven basins with the current corporate boundaries and the extraterritorial jurisdiction have been defined earlier in this report and include Basins M116, M118, M121, M124, M125, J131, & J100E (which includes J132 & J133). These areas represent the areas actually served by their respective improvements.

10-year Service Area Land Use Projections

Land use and population projections were prepared earlier in this report as part of the Infrastructure Master Plan and are summarized below.

- Land Use changes projected for 2022, distributed by characteristic categories, include an increase in developed residential land use calculated to be 440 acres, in developed commercial land use of 227 acres.
- The Population Density within the current corporate boundaries of the City of Tomball is expected to increase from 1.45 capita per acre to 1.72 capita per acre for 2022. The Population Density within the current ETJ boundaries is expected to increase from 0.59 capita per acre to 0.70 capita per acre for 2022.
- Intensities of land use projections from 2012 to 2022 are an effective percentage increase in developed residential land use of 27.9% and in developed commercial land use of 18.9%.
- 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 approximately 1.7%.

Capital Improvements Due to New Development

Capital improvements including facility expansions, necessitated and attributable to new development, were identified earlier in this report and are summarized below. The improvements identified conform to the approved land use assumptions described earlier in this report.

Water Supply & Distribution

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.

Projected water distribution system improvements were identified earlier in this report 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.

Wastewater Collection & Treatment

The City of Tomball is not expected to be required by new development to design a wastewater treatment plant expansion. However, TCEQ regulations are expected to cause the design, and possibly the construction, of an expansion at the South Wastewater Treatment Plant. With contingencies, engineering and surveying, the total Wastewater Treatment Plant expansion cost estimate amounts to $4.2M.

Projected development may overload existing lift stations. Individual lift station demand vs capacity will have to be monitored to determine time of needed pump or wet well upgrades. Three new lift stations are included in the CIP collection line estimate.

To meet projected needs, the City will require additional sanitary sewer collection lines to serve developing areas for end of FY 2022, with loads distributed utilizing land use and density projections. The 15.7 mile of additional lines represents a 19.7% increase in the wastewater collection network. Estimated future wastewater collection system costs in 2013 dollars, amounts to $13.5M.

Drainage & Detention

Using the 2022 assumptions of the Capital Improvement Plan, specifically projected land use and density projections, increased demand was projected within four (4) impact fee basins (out of seven total basins). Projected drainage system improvements were identified earlier in this report. Based on the 2022 projected demand, an increased length of 6.24 miles of drainage channel will be required for conveyance, amounting to an estimated cost of $39.71M. Based on the same projected demand, estimated detention improvements amount to $33.88M.

Total Costs of Capital Improvements and facility expansions necessitated and attributable to new development, are adjusted by calculated credits, then divided by projected service units, to calculate the impact fee per service unit.

Service Units and Conversion Table

State code requires establishment of a standard unit of measure for consumption, use, generation, or discharge attributable to an individual unit of development.

For utilities, the City of Tomball, Article IV,. Sections 82-134 establishes living unit equivalents (LUE) as a basis for establishing equivalency for the various customer classifications relative to water and wastewater demands. Each single family home is served by a ¾-inch meter and this classification is considered one LUE. The following table shows LUE equivalences for various meter sizes and types. Conversion table applies equally to all land uses, with City ordinance provisions for exceptions based on professional engineering reports and/or staff recommendations.

LUE Equivalencies for Various Types and Sizes of Water Meters

Meter Type	Meter Size	Continuous Duty Maximum Rate (gpm)	Living Unit Equivalent (LUE)
Simple	3/4"	15	1.0
Simple	1"	25	2.5
Simple	1-1/2"	50	5.0
Compound	2"	80	8.0
Turbine	2"	100	10 0
Compound	3"	160	16.0
Turbine	3"	240	24.0
Compound	4"	250	25.0
Turbine	4"	420	42 0
Compound	6"	500	50 0
Turbine	6"	920	92.0
Compound	8"	800	80 0
Turbine	8"	1600	160.0
Compound	10"	1150	115.0
Turbine	10"	2500	250.0
Turbine	12"	3300	330.0

LUE is determined on the basis of the American Water Works Association (AWWA) standards C700-09, C701-12, and C702-10 recommended maximum rate for continuous duty flow of the meter, purchased at the sale of tap based on the Uniform Plumbing Code meter size and type.

LUE has also been used as the "service unit" for calculation of applicable potable water and wastewater fees presented in this report.

For Fiscal Years 2008 to 2012 the historical average daily demand per LUE required 335.9 gpd of water production. This report uses 370 gpd/LUE for annual variations in demand.

For Calendar Years 2008 to 2012 the historical maximum average annual daily flow per LUE was 227.0 gpd of wastewater treatment. This report recognizes that wastewater facilities are normally design at 300 gpd/LUE.

Calculation of impact fees associated with drainage improvements are based on actual acreage served by each basin as the "service unit".

Projected Service Units

Projected service unit increases for Water Production, Wastewater Collection, and Drainage & Detention were calculated earlier in this report. Water Production and Wastewater Collection are both projected for 7,874 connections by end of FY 2022, an increase of 1,195 in service units. Additional drainage areas projected for end of FY 2022 include 440 acres of residential land and 227 acres of commercial land, for a total 667 acres of projected development within the City Limits.

Projected Demands to Satisfy New Development

Projected service demands for Water Production, Wastewater Collection, and Drainage & Detention were calculated earlier in this report.

Water Production Average Daily Demand (ADD) is projected at 2,913,380 gpd for 7,874 connections for end of FY 2022.

Wastewater Collection Average Daily Flow (ADF) is projected at 2.362 MGD for 7,874 connections for end of FY 2022.

Future facilities will satisfy the drainage and detention storage requirements of the 2022 projected 667 acres of new development within the four basins.

Plan for Awarding Capital Improvement Plan Credits

As allowed by Chapter 395, City of Tomball Infrastructure Master Plan & Capital Recovery Fee Determination for 2012 to 2022 Credits will be calculated as a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan. Credit calculation is included under Maximum Capital Recovery Fee Determination.

Maximum Capital Recovery Fee Determination

The City of Tomball may enact or impose impact fees on land within the service area defined previously and by complying with other requirements defined in Texas Local Government Code Chapter 395. Items payable by fee for constructing capital improvements or facility expansions, established in the capital improvement plan only, include and are limited to:

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
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.

Other eligible costs provided by Chapter 395.012 include Cost of Indebtedness:

"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."

Applicable Capital Improvement Plan Costs

1. Capital Improvements Construction Costs for projected development was calculated per LUE for water and wastewater, and per acre for drainage. Existing costs include the City's currently outstanding bonds for Capital Improvement Plan (CIP) projects (See APPENDIX D).

Facility	Service Unit	CIP costs
Water Production	LUE	$ 4,394.20
Wastewater Collection	LUE	$ 3,074.64
Drainage System (by sub-basin)		
M118	Per Acre	$ 7,622.23
M121East	Per Acre	$ 10,440.45
M121West	Per Acre	$ 8,858.92
M124	Per Acre	$ 17,264.24
M125	Per Acre	$ 873.76

2. Surveying and engineering fees are included in the above estimates.
3. Land acquisition costs, including land purchases, court awards and costs, attorney's fees, and expert witness fees are not included in this report.
4. Total consultant fees actually paid for updating the capital improvements plan - $151,000. Fees were allocated equally to the three cost calculations (i.e., water, wastewater, and drainage) included above.

Cost of Indebtedness

Per Chapter 395.012 Impact fees of this CIP are to be used for the payment of principal and interest on bonds, notes, or other obligations issued by or on behalf of the City of Tomball to finance the capital improvements or facility expansions identified in this capital improvements plan. No bond funds will be expended for facilities that are not identified in this capital improvements plan. Projected Cost of Implementing the CIP, including indebtedness, thus may be included in determining the amount of impact fees.

Interest charges and other finance costs were estimated and added to the Capital Improvement Plan Costs as shown in APPENDIX D.

Credits

Capital Improvement Plan Credits were calculated as follows:

A credit equal to 50 percent of the total projected cost of implementing the capital improvements plan was calculated and subtracted from the total costs.

See APPENDIX D Capital Improvement Plan Debt Service Credit and Maximum Impact Fees for calculation.

Maximum Impact Fees

The impact fee per service unit may not exceed the amount determined by subtracting the amount in Capital Improvement Plan Credits *Section 395.014(a)(7)* from the costs of the capital improvements described by Capital Improvements Due to New Development *Section 395.014(a)(3)* and dividing that amount by the total number of projected service units described by Projected Service Units *Section 395.014(a)(5).*

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.

The Maximum Impact Fees were calculated per LUE for water and wastewater, and per acre for drainage as follows (See APPENDIX D Capital Improvement Plan Debt Service Credit and Maximum Impact Fees for calculation):

Facility	Service Unit	Effective Date	Current Fee	Maximum Fee Per 2007 Report	Maximum Fee Calculated By This Report
Water Production	LUE	06/01/2012	$ 1,329.12	$ 2,000.54	$ 3,319.37
Wastewater Collection	LUE	06/01/2012	$ 1,653.23	$ 4,523.54	$ 2,322.57
Drainage System (by sub-basin)					
M118	Per Acre	06/01/2009	$ 6,023.00	$ 6,023.90	$ 5,757.81
M121E	Per Acre	06/01/2009	$ 6,828.71	$ 6,828.71	$ 7,886.69
M121W	Per Acre	06/01/2009	$ 4,985.14	$ 4,985.14	$ 6,692.00
M124	Per Acre	-	$ -	N/A	$13,041.36
M125	Per Acre	06/01/2009	$ 574.40	$ 574.40	$ 436.88

Maximum Impact Fee for Various Types and Sizes of Water Meters is also included in APPENDIX D.

Disposition of Previous Impact Fees

Fees previously collected under the City of Tomball impact fee program as of October 30, 2013 are listed in APPENDIX D.

APPENDIX A

TEXAS LOCAL GOVERNMENT CODE CHAPTER 395

The following requirements, extracted from the Texas Local Government Code Chapter 395, were utilized for preparation of this report

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 or 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, 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.

SUBCHAPTER C. PROCEDURES FOR ADOPTION OF IMPACT FEE

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, Sec. 5, eff. June 17, 2011.

Acts 2011, 82nd Leg., R.S., Ch. 1163, Sec. 100, eff. September 1, 2011.

APPENDIX B

References

"City of Tomball Infrastructure Master Plan and Capital Recovery Fee Determination 2002 to 2012", PBS&J, Houston, Texas, May 2002.

"City of Tomball Infrastructure Master Plan and Impact Fee Determination 2007 to 2017", LAN, Houston, Texas, October 2008.

"Tomball Comprehensive Plan - Vision 2030", adopted by Ordinance No. 2009-33, December 7, 2009.

"2035 Regional Growth Forecast", Houston-Galveston Area Council

2010 U.S. Census Report SF-1, City of Tomball, Texas, U.S. Census Bureau and the Texas State Data Center, 2011.

"Subcounty Total Resident Population Estimates (Vintage 2012): April 1, 2010 to July 1, 2012", U.S. Census Bureau, released via Internet on May 23, 2013.

"Local Grand Parkway construction upcoming...", Community Impact Newspaper, Northwest Houston Edition, Volume 4, Issue 5, January 24 – February 20, 2013.

"Expansion of 249 moving plans for Aggie Expressway along", www.yourhoustonnews.com, by Lindsey Vaculin, posted December 19, 2012.

"Work to begin on Hwy. 249 tollway...", Community Impact Newspaper, Northwest Houston Edition, Volume 4, Issue 9, May 16 – June 19, 2013.

APPENDIX C

Unit Cost Data

Water System Unit Cost Data

8-inch Water Line		Unit	Unit Price
8-inch Water Line		LF	$ 35.00
Fire Hydrant(1)		LF	$ 6.86
Trench Safety		LF	$ 1.00
Subtotal			$ 43.00
Augering & Roadway Repairs	20%	LF	$ 8.60
Easement Acquisition	15%	LF	$ 6.45
Pipeline Relocation	30%	LF	$ 12.90
Contingencies	15%	LF	$ 6.45
Engineering & Surveying	25%	LF	$ 10.75
Total 8-inch Water Line per LF			$ 88.00

12-Inch Water Line		Unit	Unit Price
12-inch Water Line		LF	$ 54.00
Fire Hydrant(1)		LF	$ 6.86
Trench Safety		LF	$ 1.00
Subtotal			$ 62.00
Augering & Roadway Repairs	20%	LF	$ 12.40
Easement Acquisition	15%	LF	$ 9.30
Pipeline Relocation	30%	LF	$ 18.60
Contingencies	15%	LF	$ 9.30
Engineering & Surveying	25%	LF	$ 15.50
Total 12-inch Water Line per LF			$ 127.00

(1) Assumes Fire Hydrants are spaced every 350 feet

Miscellaneous Items Used in Water Lines above			
Fire Hydrant Assembly		EA	$ 2,400.00

Water Well Plant Estimate	Qty		Unit Cost Est	Total Cost
Well	1000	gpm	$ 1,420.00	$1,420,000.00
GST	400000	gal	$ 2.50	$1,000,000.00
Boosters	1800	gpm	$ 37.00	$ 66,600.00
Maintenance Bldg	1	LS	$ 216,000.00	$ 216,000.00
HPT	10000	gal	$ 4.15	$ 41,500.00
Emer. Gen 275kW	300	kW	$ 300.00	$ 90,000.00
				$2,834,100.00
Contingencies	15%			$ 283,410.00
Engineering & Surveying	25%			$ 708,525.00
				$3,826,035.00

Sanitary Sewer Unit Cost Data

Item		Unit	Unit Price
8-inch Gravity Sanitary Sewer			
8-inch Gravity Sanitary Sewer (all depths)		LF	$ 40.00
Sanitary Sewer Manhole(1)		LF	$ 5.00
Trench Safety		LF	$ 1.00
Subtotal			$ 46.00
Augering & Roadway Repairs	15%	LF	$ 6.90
Easement Acquisition	15%	LF	$ 6.90
Pipeline Relocation	30%	LF	$ 13.80
Contingencies	15%	LF	$ 6.90
Engineering & Surveying	25%	LF	$ 11.50
Indirect Cost Subtotal	100%		$ 46.00
8-inch Gravity Sanitary Sewer Total			**$ 92.00**
10-Inch Gravity Sanitary Sewer			
10-inch Gravity Sanitary Sewer (all depths)		LF	$ 50.00
Sanitary Sewer Manhole(1)		LF	$ 5.00
Trench Safety		LF	$ 1.00
Subtoal			$ 56.00
Indirect Cost Subtotal (2)		LF	$ 56.00
10-Inch Gravity Sanitary Sewer Total			**$ 112.00**
12-Inch Gravity Sanitary Sewer			
12-inch Gravity Sanitary Sewer (all depths)		LF	$ 65.00
Sanitary Sewer Manhole(1)		LF	$ 5.00
Trench Safety		LF	$ 1.00
Subtotal			$ 71.00
Indirect Cost Subtotal (2)		LF	$ 71.00
12-Inch Gravity Sanitary Sewer Total			**$ 142.00**
15-Inch Gravity Sanitary Sewer			
15-inch Gravity Sanitary Sewer (all depths)		LF	$ 85.00
Sanitary Sewer Manhole(1)		LF	$ 5.00
Trench Safety		LF	$ 1.00
Subtotal			$ 91.00
Indirect Cost Subtotal (2)		LF	$ 91.00
15-Inch Gravity Sanitary Sewer Total			**$ 182.00**
18-Inch Gravity Sanitary Sewer			
18-inch Gravity Sanitary Sewer (all depths)		LF	$ 105.00
Sanitary Sewer Manhole(1)		LF	$ 5.00
Trench Safety		LF	$ 1.00
Subtotal			$ 111.00
Indirect Cost Subtotal (2)		LF	$ 111.00
18-Inch Gravity Sanitary Sewer Total			**$ 222.00**

Sanitary Sewer Unit Cost Data (Cont.)

21-Inch Gravity Sanitary Sewer			
21-inch Gravity Sanitary Sewer (all depths)	LF	$	120 00
Sanitary Sewer Manhole(1)	LF	$	5 00
Trench Safety	LF	$	1.00
Subtotal		$	126 00
Indirect Cost Subtotal (2)	LF	$	126 00
21-Inch Gravity Sanitary Sewer Total		**$**	**252.00**
4-Inch Force Main			
4-Inch Force Main	LF	$	25 00
Trench Safety	LF	$	1.00
Subtotal		$	26 00
Indirect Cost Subtotal (2)	LF	$	26 00
4-Inch Force Main Total		**$**	**52.00**
6-Inch Force Main			
6-Inch Force Main	LF	$	30 00
Trench Safety	LF	$	1.00
Subtotal		$	31 00
Indirect Cost Subtotal (2)	LF	$	31 00
6-Inch Force Main Total		**$**	**62.00**
8-Inch Force Main			
8-Inch Force Main	LF	$	35 00
Trench Safety	LF	$	1 00
Subtotal		$	36 00
Indirect Cost Subtotal (2)	LF	$	36 00
8-Inch Force Main Total		**$**	**72.00**
Miscellaneous Items Used in Sanitary Sewer Lines Above			
Sanitary Sewer Manhole	EA	$	2,000 00
Lift Station (300-500 gpm)			
Lift Station (300-500 gpm) including contengencies	EA	$	320,000 00
Engineering & Testing	EA	$	80,000 00
Total		**$**	**400,000.00**
Lift Station (1,000-1,500 gpm)			
Lift Station (1,000-1,500 gpm) including contengencies	EA	$	440,000 00
Engineering & Testing	EA	$	110,000.00
Total		**$**	**550,000.00**
Lift Station (1,500-2,000 gpm)			
Lift Station (1,500-2,000 gpm) including contengencies	EA	$	820,000 00
Engineering & Testing	EA	$	205,000.00
Total		**$**	**1,025,000.00**
Wastewater Treatment Plant Capacity			
Wastewater Treatment Plant Capacity incl contg	gpd	$	6 00
Contingencies	gpd	$	0 90
Engineering & Testing	gpd	$	1.50
Total per gpd		**$**	**8.40**

(1) Manhole spaced every 400 foot

(2) Indirect cost percentages are the same for all sizes of sanitary sewer lines and force mains The percentages are shown in the cost data for an 8 inch sanitary sewer line

Drainage Unit Cost Calculation

Item		Unit	Unit Price
Drainage Ditch			
Drainage Channel Excavation (10' bottom, 12' depth, 4:1 SS)*		LF	$ 257.78
Backslope Swale & Interceptor**		LF	$ 56.00
Sod (160' ROW)		LF	$ 53.33
Misc (Clearing, SWPPP, Etc)	15%	LF	$ 55.07
Subtotal			$ 422.18
Contingencies	15%	LF	$ 63.33
Engineering & Surveying	25%	LF	$ 105.54
Indirect Cost Subtotal	40%		$ 168.87
Drainage Ditch Total			**$ 591.05**

* Excavation Haul Off Assumed
** 250 ft spacing

Detention Unit Cost Calculation

Item		Unit	Unit Price
Detention Facility			
Detention Excavation (12' depth, 4:1 SS)*		Acre-Ft	$16,130.00
Backslope Swale & Interceptor**		Acre-Ft	$ 583.33
Sod		Acre-Ft	$ 440.00
Misc (Clearing, SWPPP, Etc)	15%	Acre-Ft	$ 2,573.00
Subtotal			$19,726.33
Contingencies	15%	Acre-Ft	$ 2,958.95
Engineering & Surveying	25%	Acre-Ft	$ 4,931.58
Indirect Cost Subtotal	40%		$ 7,890.53
Detention Facility Total			**$27,616.87**

* Excavation Haul Off Assumed
** 250 ft spacing

Unit Cost Data

Item	Unit	Unit Price
Mobilization		4%
SWPPP		2.5%
Excavation - Haul Off	CY	$ 10.00
Backslope Swale	Ea	$ 6,000.00
Backslope Interceptor	LF	$ 4.00
Sod	SY	$ 3.00
Sod	Acre	$ 4,840.00
Clearing & Grubbing	Acre	$ 5,000.00

APPENDIX D Maximum Capital Recovery Fee Determination Spreadsheets

Water System Capital Improvements Construction Costs per LUE, 2012 to 2022

Total Connections in City Only, 2012 =	**6,679**	**LUE**
Total Projected Connections in City & ETJ, 2022 =	**7,874**	**LUE**
Total Projected Additional Connections =	**1,195**	**LUE**

Component	Outstanding Capital Cost	LUE Capacity	Cost Basis per LUE	New LUE's Served from 2012 to 2022	Cost Distribution 2012 to 2022	Total Capital Cost per LUE 2012 to 2022
Facilities constructed with 2007 CIP[1]						
Distribution Lines	$535,900	7,874	$68.06	1,195	$81,331	
Water Wells	$4,491,570	1,667	$2,694.94	979	$2,638,348	
Proposed Facilities with 2012 CIP						
Water Well	$1,420,000	1,667	$852.00	216	$184,032	
Ground Storage Tanks	$1,000,000	2,000	$500.00	216	$108,000	
Booster Pumps	$66,600	1,667	$39.96	216	$8,631	
Facility (Bldg, H-Tank & Generator)	$347,500	1,667	$208.50	216	$45,036	
WP Engineering, Surveying & Contingencies	$991,935	1,667	$595.16	216	$128,555	
Distribution Lines	$13,223,100	7,874	$1,679.34	1,195	$2,006,808	
Water (1/3 2012-2022 CIP Preparation Fees)					$50,333	
Total				**1,195**	**$5,251,075**	**$4,394.20**

(1) Existing facility costs are from Tomball staff.

Wastewater System Capital Improvements Construction Costs per LUE, 2012 to 2022

Total Connections in City Only, 2012 =	**6,679**	**LUE**
Total Projected Connections in City & ETJ, 2022 =	**7,874**	**LUE**
Total Projected Additional Connections =	**1,195**	**LUE**

Component	Outstanding Bond Principal	Outstanding Capital Cost	LUE Capacity	Cost Basis per LUE	New LUE's Served from 2012 to 2022	Cost Distribution 2012 to 2022	Total Capital Cost per LUE 2012 to 2022
Facilities constructed with 1996 & 1999 CIP (1)							
South Wastewater Treatment Plant	$2,465,000		3,333	$739.50	753	$556,733	
Facilities constructed with 2002 CIP(1)							
Trunklines		$4,263,701	7,874	$541.49	1,195	$647,082	
Facilities constructed with 2007 CIP(1)							
Trunk Lines 2007 CIP		$888,503	7,874	$112.84	1,195	$134,844	
Proposed Facilities with 2012CIP							
Lift Stations 2012 CIP		$1,350,000	6,804	$198.41	1,195	$237,098	
Trunk Lines 2012 CIP		$13,495,200	7,874	$1,713.89	1,195	$2,048,103	
Water (1/3 2012-2022 CIP Preparation Fees)						$50,333	
Total					**1,195**	**$3,674,193**	**$3,074.64**

(1) Existing Facility costs from Tomball staff. Costs shown are outstanding bond amounts.
(2) Buildout to WWTP's maximum capacities.

Drainage System Capital Improvements Construction Costs per Acre, 2012 to 2022

HCFCD Channel No.	Construction Project	Estimated Improvement Costs	Collected Funds[1]	2012 Assessable Improvement Costs[2]	Total Basin Area Served (Acres)	Existing City of Tomball 2012 Development[3]	Estimated Floodway Acreage	Areas outside City and ETJ	Net Acreage to Bear Fee	1/3 2012-2022 CIP Fees per Usage Acre[5]	Capital Cost Basis per Acre	Total Cost Basis per Acre
J131[4]	Detention & Conveyence	$0	$0	$0	3,156	57	18	387	3,156		$0 00	
J132[4]	Channel	$0	$0	$0	250	57	4	0	250	$ -	$0 00	
J133[4]	Channel	$0	$0	$0	500	57	9	0	500	$ -	$0 00	
M116[4]	Channel	$0	$0	$0	1,575	57	0	550	1,575		$0 00	
M118	N of EDC Project	$2,423,300										
M118	EDC Project	$1,359,412										
M118	S of Holderneth + Detention	$1,790,741										
		$5,573,454	$0	$5,573,454	732	57	51	0	732	$ 8 22	$7,614 01	$ 7,622 23
M121 East	Channel	$2,216,433										
M121 East	Detention	$4,335,848										
		$6,552,281	($9,591)	$6,561,872	629	170	27	0	629	$ 8 22	$10,432 23	$ 10,440 45
M121 West	Channel	$1,448,070										
M121 West	Channel	$2,807,482										
M121 West	Detention	$5,937,626										
		$10,193,178	($82,485)	$10,275,664	1,161	225	49	0	1,161	$ 8 22	$8,850 70	$ 8,858 92
M124[4]	Channel	$2,364,196		$2,364,196								
M124	Channel	$26,377,589		$26,377,589								
M124	Detention	$21,818,344		$21,818,344								
		$50,560,129	$0	$50,560,129	2,930	373	100	877	2,930	$ 8 22	$17,256 02	$ 17,264 24
M125	Detention	$543,805	($40,431)	$584,237	675	373	14	19	675	$ 8 22	$865 54	$ 873 76

(1) Existing Facility costs from Tomball staff based on outstanding bond amounts, plus Proposed Facilities estimates, including engineering & contingencies
(2) Limited to Proposed Facility construction estimates, including engineering & contingencies when no improvements exist
(3) Existing Areas previously assessed impact fees
(4) The current CIP does not include channel or detention construction within the next ten years due to funding constraints
(5) (1/3 2012-2022 CIP) Fee Dispensed by acreage for M118, M121, & M125

Projected Cost of Implementing the CIP

Component	Capital Cost per LUE 2012 to 2022	Estimated Bond Soft Costs per LUE [1]	Estimated Total Bond Amount per LUE	Interest per LUE [2]	Total Debt Service per LUE
Water	$4,394 20	$351 54	$4,745.74	$1,893.00	$6,638.74
Wastewater	$3,074 64	$245.97	$3,320.61	$1,324.54	$4,645.15

Drainage Service Area	Capital Cost per Acre 2012 to 2022	Estimated Bond Soft Costs	Estimated Bond Amount per Acre [1]	Interest per Acre [2]	Total Debt Service per Acre
J131	$0.00	$0.00	$0.00	$0.00	$0 00
J132	$0.00	$0.00	$0.00	$0.00	$0.00
J133	$0.00	$0.00	$0.00	$0 00	$0.00
M116	$0.00	$0.00	$0.00	$0.00	$0.00
M118	$7,622.23	$609.78	$8,232.01	$3,283.61	$11,515.62
M121E	$10,440.45	$835.24	$11,275.69	$4,497.69	$15,773.37
M121W	$8,858.92	$708.71	$9,567.63	$3,816.37	$13,384.01
M124	$17,264.24	$1,381.14	$18,645.38	$7,437.34	$26,082.71
M125	$873.76	$0.00	$0.00	$0.00	$873.76

(1) Assumes a bond soft costs of 8.0%
(2) Assumes an interest rate of 3.5% and 40 semi-annual payments

Capital Improvement Plan Debt Service Credit and Maximum Impact Fees

Component	Total Debt Service per LUE	Debt Service Credit per LUE (1)	Maximum Impact Fee per LUE
Water	$6,638.74	$3,319.37	$3,319.37
Wastewater	$4,645.15	$2,322.57	$2,322.57

Drainage Service Area	Total Debt Service per Acre	Debt Service Credit per Acre (1)	Maximum Impact Fee per Acre
J131	$0.00	$0.00	$0.00
J132	$0.00	$0.00	$0.00
J133	$0.00	$0.00	$0.00
M116	$0.00	$0.00	$0.00
M118	$11,515.62	$5,757.81	$5,757.81
M121E	$15,773.37	$7,886.69	$7,886.69
M121W	$13,384.01	$6,692.00	$6,692.00
M124	$26,082.71	$13,041.36	$13,041.36
M125	$873.76	$436.88	$436.88

(1) Credit equal to 50% of the total projected cost of implementing the CIP.

Maximum Impact Fee for Various Types and Sizes of Water Meters

Meter Type	Meter Size	Living Unit Equivalent (LUE)	Water Impact Fee by Meter Size	Wastewater Impact Fee by Meter Size	Total Impact Fee by Meter Size
Simple	3/4"	1.0	$ 3,319.37	$ 2,322.57	$ 5,641.94
Simple	1"	2.5	$ 8,298.42	$ 5,806.43	$ 14,104.86
Simple	1-1/2"	5.0	$ 16,596.85	$ 11,612.87	$ 28,209.71
Compound	2"	8.0	$ 26,554.96	$ 18,580.58	$ 45,135.54
Turbine	2"	10.0	$ 33,193.70	$ 23,225.73	$ 56,419.43
Compound	3"	16.0	$ 53,109.92	$ 37,161.17	$ 90,271.09
Turbine	3"	24.0	$ 79,664.88	$ 55,741.75	$ 135,406.63
Compound	4"	25.0	$ 82,984.25	$ 58,064.33	$ 141,048.57
Turbine	4"	42.0	$ 139,413.53	$ 97,548.07	$ 236,961.60
Compound	6"	50.0	$ 165,968.49	$ 116,128.65	$ 282,097.14
Turbine	6"	92.0	$ 305,382.02	$ 213,676.72	$ 519,058.74
Compound	8"	80.0	$ 265,549.58	$ 185,805.84	$ 451,355.43
Turbine	8"	160.0	$ 531,099.17	$ 371,611.68	$ 902,710.85
Compound	10"	115.0	$ 381,727.53	$ 267,095.90	$ 648,823.42
Turbine	10"	250.0	$ 829,842.45	$ 580,643.25	$ 1,410,485.70
Turbine	12"	330.0	$ 1,095,392.04	$ 766,449.09	$ 1,861,841.13

LUE is determined on the basis of the American Water Works Association (AWWA) standards C700-09, C701-12, and C702-10 recommended maximum rate for continuous duty flow of the meter, purchased at the sale of tap based on the Uniform Plumbing Code meter size and type.

Disposition of Collected Impact Fees

Water Impact Fees Collected and Interest Earnings as of 12/31/12	$2,460,861			
Water System Improvements, completed from 1996 CIP	**Amount**	**Wells**	**EST**	**Water lines**
1. 12" water main along Zion Road from Ulrich to Neal St.	$97,200			$97,200
2. 12" water main along SH 249 from Brown to Baker	$50,000			$50,000
3. 12" water main along S. Cherry from Agg to Theis	$210,600			$210,600
4. 12" water main along Theis from S. Cherry to SH 249	$194,499			$194,499
5. 2000 gpm water well	$600,000	$600,000		
Total	**$1,152,299**	**$600,000**	**$0**	**$552,299**
Water System Improvements, completed from 1999 CIP				
1. 12" water main along FM 2920 from Lowes to Calvert	$54,810			$54,810
2. 750,000 gallon elevated storage tank	$1,200,000		$1,200,000	
3. 6" parallel water main on Graham and Holderreith	$124,981			$124,981
Total	**$1,379,791**	**$0**	**$1,200,000**	**$179,791**
Total Water System Improvements from 1996 and 1999 CIP	**$2,532,090**	**$600,000**	**$1,200,000**	**$732,090**
Water System Improvements, completed from 2002 CIP	**Amount**	**Wells**	**EST**	**Water lines**
1. 12" Water main on SH 249 from Theis to Holderreith	$172,800			$172,800
2. 12" Water main on Holderreith from School St ext. to SH 249	$86,400			$86,400
3. 12" Water main on Holderreith from School St ext. to Cherry	$103,680			$103,680
4. 12" Water main on Holderreith from S. Cherry to Huffsmith-Korhville	$311,040			$311,040
5. 12" Water main along S. Cherry from Theis to Holderreith	$164,160			$164,160
6. 12" Water main along Brown Rd to E. Hufsmith Extension	$216,000			$216,000
7. 8" Water main along Johnson Rd from Michel to shopping center	$37,260			$37,260
8. 12" Water main along Hufsmith-Kohrville from FM 2920 to Holderreith	$492,480			$492,480
9. Install 1200 gpm pump at Baker St. well	$270,000	$270,000		
10. 12" Water main along Alice Rd from SH 249 to SH 249 Bypass	$86,400			$86,400
11. 12" Water mian along FM 2920 from Persimmon to ETJ	$181,440			$181,440
12. 8" Water main on Willow St from Carrell to Texas	$34,155			$34,155
Total	**$2,155,815**	**$270,000**	**$0**	**$1,885,815**
Water System Improvements, completed from 2007 CIP	**Amount**	**Wells**	**EST**	**Water lines**
1. 8-Inch Water Line along the Future Michel Road extension from Commercial Park Drive to	$796			$796

School Street				
2. 12-inch Water Line along Quinn Road from Baker Drive to Inwood Street	$195,978			$195,978
3. 12-inch Water Line along Future Brown-Hufsmith Road from SH 249 to Quinn Road	$407,486			$407,486
4. 12-inch Water Line along Tomball Cemetery Road North of 2920 (Private Funding)	$0			
5. 12-inch Water Line along Future Brown-Hufsmith Road from Quinn Road to Baker Drive	$126,058			$126,058
6. Water Line Extension on Mechanic Street	$20,878			$20,878
7. Water Wells 5 and 6/Plant	$4,491,570	$4,491,570		
Total	**$5,242,766**	**$4,491,570**	**$0**	**$751,196**
Not 50% Funded by Impact fee as of 12/13/2012	$5,045,993	$4,491,570	$0	$554,422
Less Impact Fee Balance	-$18,522	0		-$18,522
Remaining to be paid by Impact fees	**$5,027,471**	**$4,491,570**		**$535,900**
Wastewater Impact Fees Collected and Interest Earnings as of 12/31/12	$2,600,215			
Balance as of 3/31/2008	$83,046			
Wastewater System Improvements, completed from 1996 CIP	**Amount**	**N. WWTP**	**S. WWTP**	**Trunklines**
1. 10" gravity sewer along SH 249 from McCoy's to FM 2920	$103,200			$103,200
2. 10" gravity sewer along Hooper from Bypass to SH 249	$50,000			$50,000
3. 10" gravity sewer along Hirschfield from SH 249 to Bypass	$40,000			$40,000
4. 1.5 MGD Wastewater Treatment Plant	$6,117,000		$6,117,000	
Total	**$6,310,200**	**$0**	**$6,117,000**	**$193,200**
Wastewater System Improvements, completed from 1999 CIP				
1. 10" gravity line along FM 2920: Kroger to City Limit	$14,144			$14,144
2. 12" gravity line along FM 2920: City Limit to Calvert	$151,948			$151,948
3. 10" gravity line along Hirschfield: SH 249 and bypass	$56,253			$56,253
4. Temporaty Lift Station at Calvert FM 2920	$80,000			$80,000
5. 6" force main along FM 2920 from temporary Lift Station to gravity sewer at Sh 249	$39,387			$39,387
6. 18" gravity trunk along Cherry from McPhail to Agg Road	$127,374			$127,374
7. 21" gravity trunk along Cherry from Agg to Theis	$120,745			$120,745
8. 24" gravity trunk along Cherry from Theis to Holderreith	$305,597			$305,597
9. 27" gravity trunk along Cherry from Holderreith to WWTP	$158,165			$158,165
10. 18" gravity line along Theis from LS to Cherry	$83,278			$83,278
11. Abandon Theis Lift Station	$360			$360
Total	**$1,137,251**	**$0**	**$0**	**$1,137,251**
Total Wastewater System Imp from 1996 and 1999 CIP	$7,447,451	$0	$6,117,000	$1,330,451

Wastewater System Improvements, completed from 2002 CIP	Amount	N. WWTP	S. WWTP	Trunklines
1. (8) 12" gravity line along W. Hufsmith from Quin Ext to SH 249	$164,160			$164,160
2. (10) 18" gravity line along FM 2920 from Calvert to Park St	$228,960			$228,960
3. (11) 6" force main from Temp Lift Station at Park/FM 2920 to Calvert	$73,440			$73,440
4. (12) 12" gravity line along FM 2920 from Park Rd to Tomball Cem. Rd	$145,935			$145,935
5. (14) Temp Lift Station at FM 2920 and Park Rd	$107,933			$107,933
6. (16) 10" gravity line on SH 249 from Hirschfield Rd to Alice Rd	$64,800			$64,800
7. (17) 21" gravity line on SH 249 from Alice Rd to Holderreith Rd	$528,255			$528,255
8. (18) 18" gravity line on Alice Rd from SH 249 Bypass to SH 249	$128,790			$128,790
9. (19) 30" gravity line on Holderreith Ext west of SH 249	$79,488			$79,488
10. (20) 30" gravity line on Holderreith from SH 249 and S. WWTP	$864,000			$864,000
11. (25) 8" gravity line along Johnson	$40,500			$40,500
12. (28) Abandon Cherry St Lift Station	$13,500			$13,500
13. (29) 27" gravity line on Holderreith from S. WWTP Trunk Line to BNRR	$577,800			$577,800
14. (30) 27" gravity line on Holderrieth from BNRR to Hufsmith-Kohrville Rd	$288,900			$288,900
15. (31) 24" gravity line on Hufsmith-Kohrville Rd from Holderreith to Sutton Ln	$790,560			$790,560
16. (32) 18" gravity line on Hufsnith-Kohrville Rd from Sutton Ln to FM 2920	$357,750			$357,750
Total	**$4,454,771**	**$0**	**$0**	**$4,454,771**
Not 50% Funded by Impact fee as of 12/13/2012	$4,290,611			$4,290,611
Less Impact Fee Balance	-$26,910			-$26,910
Remaining to be paid by Impact fees	**$4,263,701**			**$4,263,701**

Wastewater System Improvements, completed from 2007 CIP				
1. 10-inch Gravity Sanitary Sewer along Future Brown-Hufsmith Road from SH 249 to Quinn Road	$329,227			$329,227
2. 12-inch Gravity Sanitary Sewer along Tomball Cementery Road (Private Funding)	$0			$0
3. 8-inch Gravity Sanitary Sewer along Future Brown-Hufsmith Road from Quinn Road to Baker Drive	$88,565			$88,565
4. 8" gravity line on Mechanic Street	$4,378			$4,378
5. Tomball Hills Lift Station	$466,333			$466,333
Total	**$888,503**	**$0**	**$0**	**$888,503**

APPENDIX A

TEXAS LOCAL GOVERNMENT CODE CHAPTER 395

The following requirements, extracted from the Texas Local Government Code Chapter 395, were utilized for preparation of this report

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 or 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, 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.

SUBCHAPTER C. PROCEDURES FOR ADOPTION OF IMPACT FEE

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.