City of Magnolia, Texas

Ordinance No. 2008-136

AMENDING IMPACT FEES FOR NEW CONSTRUCTION
&
ADOPTION OF A LAND USE ASSUMPTIONS MAP

AN ORDINANCE OF THE CITY OF MAGNOLIA, TEXAS, AMENDING THE CITY'S LAND USE ASSUMPTIONS, CAPITAL IMPROVEMENTS PLAN, AND IMPACT FEES FOR WATER AND WASTEWATER FACILITIES PURSUANT TO THE TEXAS LOCAL GOVERNMENT CODE ANNOTATED §395.001 ET. SEQ; DEFINING CERTAN TERMS; PROVIDING FOR THE ASSESSMENT AND COLLECTION OF SUCH IMPACT FEES; CONTAINING OTHER PROVISIONS RELATING TO THE SUBJECT; REPEALING CITY OF MAGNOLIA ORDINANCE NO. 329, PASSED AND APPROVED THE 14th DAY OF OCTOBER, 2003, AND ALL OTHER ORDINANCES OR PARTS OF ORDINANCES INCONSISTENT OR IN CONFLICT HEREWITH; AND PROVIDING FOR SEVERABILITY.

* * * * *

WHEREAS, the City Council of the City of Magnolia, Texas (the "City") adopted impact fees for new construction in 1998 and 2003; and has reviewed and evaluated its land use assumption, capital improvement plan, and impact fees for water and wastewater facilities in the time and manner required by law; and

WHEREAS, Section 395.052 of the Texas Local Government Code requires that the land use assumptions and capital improvement plan for which an impact fee is imposed shall be reviewed, evaluated, and updated at least every five years; and

WHEREAS, the City Council has employed qualified professionals to prepare updates to its land use assumption, capital improvements plan, and impact fees for water and wastewater facilities for the City, and each was considered by the City's advisory committee, and such assumptions, plan, and proposed fees were filed with the City, along with the advisory committee's comments on the proposed amendments to the land use assumptions, capital improvements plan, and impact fees required by law; and

WHEREAS, the City Council has completed an Impact Fee Analysis on which to base the recommended amendment of fees and has caused to be prepared a new Capital Improvements Plan and Land Use Assumptions Map; and

WHEREAS, the City of Magnolia has met all of the legal requirements and prerequisites for implementation of impact fees in accordance with Chapter 395 of the Texas Local Government Code; and

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

WHEREAS, the City Council now desires to approve and adopt such amendments to the land use assumptions, the capital improvement plan, and impact fees for water and wastewater facilities, all in accordance with said Chapter 395, Texas Local Government Code; now therefore,

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

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

Section 2. Title. This Ordinance shall be known and cited as the "City of Magnolia Water and Wastewater Impact Fee Ordinance."

Section 3. Purpose. This Ordinance is intended to impose and levy water and wastewater impact fees on new development, as established in this Ordinance, in order to finance public facilities, the demand for which is generated by new development in the designated service areas.

Section 4. Authorization. The City is authorized to enact this Ordinance in accordance with Chapter 395, Texas Local Government Code, which authorizes cities to enact or impose impact fees (capital recovery fees) on land within their corporate boundaries or extraterritorial jurisdictions, as charges or assessments imposed 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 such new development.

Section 5. Land Use Assumptions. The land use assumptions included in the "City of Magnolia Infrastructure Master Plan and Capital Recovery Fee Determination 2008 to 2018," prepared by O'Malley Engineers, L.L.P., same being attached hereto as Exhibit "A" and made a part hereof for all purposes, are hereby in all things approved and adopted.

Section 6. Capital Improvement. The capital improvements plan included in the "City of Magnolia Infrastructure Master Plan and Capital Recovery Fee Determination 2008 to 2018," prepared by O'Malley Engineers, L.L.P. attached hereto as Exhibit "A" and made a part hereto for all purposes, is hereby in all things approved and adopted.

Section 7. Impact Fees. The impact fees set forth in the "City of Magnolia Infrastructure Master Plan and Capital Recovery Fee Determination 2008 to 2018," prepared by O'Malley Engineers, L.L.P., attached hereto and made a part hereof for all purposes, are hereby levied against new non-exempt development on lands located within the corporate boundaries of the City and to the City's Extra-Territorial Jurisdiction. The impact fees to be assessed and collected are set out in Exhibit "B" attached hereto and made a part hereof for all purposes.

Section 8. Assessment of Impact Fees.

A. Assessment of impact fees for new development shall be made as follows:

1. For land which is unplatted at the time of application for a building permit or utility connection, or for a new development which has received final plat approval prior to or on June 20, 1987, and for which no replatting is required pursuant to the City's

subdivision regulations prior to development, assessment shall occur at the time application is made for the building permit or utility connection, whichever occurs first, and shall be the amount of the maximum impact fee per service unit as set forth in Exhibit B, Schedule 1 then in effect.

2. For new developments that have filed applications for approval pursuant to the City's subdivision regulations after the effective date of this Ordinance, or for which replatting results in an increase in the number of service units after such date, assessment shall be at the time of final plat approval, and shall be the amount of the maximum impact fee per service unit as set forth in Exhibit B, Schedule 1 then in effect.

B. Following initial assessment of impact fees for a new development pursuant to subsection A, the amount of the maximum impact fee per service unit for any such development may not be increased unless the owner proposed to change the approved development and increase the number of service units, in which case the impact fee shall be reassessed at the maximum impact fee per service unit as set forth in Exhibit B, Schedule 1 then in effect for such additional service units.

C. Following the lapse or expiration of approval of a new development, a new assessment shall be performed at the time a new application for such development is filed at the maximum impact fee per service unit as set forth in Exhibit B, Schedule 1 then in effect.

Section 9. Collection of Impact Fees.

A. For residential developments or other plats platted after the effective date of this Ordinance, the impact fees due shall be collected at the time the City issues a building permit. The impact fees to be paid and collected are listed in Exhibit B, Schedule 2. If the building permit for which an impact fee has been paid has expired, and a new application is thereafter filed, the impact fees due shall be computed using the impact fees listed in Exhibit B, Schedule 2 then in effect, and previous payments of the impact fees shall be credited against the new fees due.

B. For land on which new development occurs or is proposed to occur without platting, the political subdivision may assess the impact fees listed in Exhibit B, Schedule 1 then in effect at any time during the development and building process and may collect the impact fees listed in Exhibit B, Schedule 2 then in effect 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. If the building permit for which an impact fee has been paid has expired, and a new application is thereafter filed, the impact fees due shall be computed using the impact fees listed in Exhibit B, Schedule 2 then in effect, and previous payments of the impact fees shall be credited against the new fees due.

C. For land platted outside the corporate boundaries of the City and in its Extra-territorial jurisdiction, the impact fees listed in Exhibit B, Schedule 2 then in effect shall be collected at the time an application for an individual meter connection to the City's water or wastewater system is filed.

D. If the lot or tract was platted prior to June 20, 1987 the impact fee imposed by this section shall be collected in full at the time of issuance of the building permit for the service units or at the time the water meter is installed, whichever occurs first. The impact fees to be paid and collected are listed in Exhibit B, Schedule 2.

Section 10. Establishment of Accounts.

The City shall establish an account to which interest is allocated for each type of capital facility for which an impact fee is imposed pursuant to this Ordinance. Each impact fee collected within the service area shall be deposited in such account.

A. Interest earned on the account into which the impact fees are deposited shall be considered funds of the account and shall be used solely for the purposes authorized in Section 11 below.

B. The City shall establish adequate financial and accounting controls to ensure that impact fees disbursed from the account are utilized solely for the purpose authorized in Section 11. Disbursement of funds shall be authorized by the City at such times as are reasonably necessary to carry out the purposes and intent of this Ordinance.

C. The City shall maintain and keep financial records for impact fees, which shall show the source and disbursement of all fees collected in or expended within the service area. The records of the account into which impact fees are deposited shall be open for public inspection and copying during ordinary business hours.

Section 11. Use of Proceeds of Impact Fees Accounts. The impact fees collected pursuant to this Ordinance may be used to finance or to recoup the costs of any capital improvements or facility expansion indentified in the applicable capital improvements plan for the service area, including but not limited to the construction contract price, surveying and engineering fees, land acquisition costs (including land purchases, court awards and costs, attorney's fees, and expert witness fees). Impact fees may also be used to pay the principal sum and interest and other finance costs on bonds, notes, or other obligations issued by or on behalf of the City to finance such capital improvements or facility expansion. Impact fees also may be used to pay fees actually contracted to be paid to an independent qualified engineer or financial consultant for preparation of or updating the impact fee capital improvement plan.

Section 12. Refunds and Rebates.

A. Upon application, any impact fee, or portion thereof, collected pursuant to this Ordinance, which has not been expended within the service area within ten (10) years from the date of payment, shall be refunded to the record owner of the property for which the impact fee was paid or, if the impact fee was paid by another governmental entity, to such governmental entity, together with 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. An impact fee shall be considered expended on a first in, first out basis.

B. Upon application, any impact fee collected pursuant to this Ordinance shall be refunded if:

1. Existing service is available and service is denied; or
2. Service was not available when the fee was collected and the City has failed to commence construction of facilities to provide service within two (2) years of fee payment; or
3. Service was not available when the fee was allocated and has not subsequently been made available within a reasonable period of time considering the type of capital improvement or facility expansion to be constructed, but in any event later than five (5) years from the date of fee payment.

Section 13. Administrative remedies. If the City does not perform a duty imposed by the Texas Local Government Code, ch. 395, any person who has paid an impact fee or an owner of land upon which an impact fee has been paid shall present a written request to the City Council stating the nature of any unperformed duty on the part of the City and request that it be performed within 60 days of the request.

A. Appeals. Appeals may be made as follows:

(1) The property owner or applicant for new development may appeal the following decisions to the City Council:

a. The applicability of an impact fee to the development;
b. The amount of the impact fee due;
c. The availability or the amount of an offset or credit;
d. The application of an offset or credit against an impact fee due; and
e. The amount of the refund due, if any.

B. The burden of proof shall be on the appellant to demonstrate that the amount of the fee or the amount of the offset or credit was not calculated according to the applicable fee schedule or the guidelines established for determining offsets and credits.

C. The appellant must file a notice of appeal with the city secretary within 30 days following the decision. If the notice of appeal is accompanied by a bond or other sufficient surety satisfactory to the city attorney in an amount equal to the original determination of the impact fee due, the development application or tap purchase may be processed while the appeal is pending.

Section 14. Updates to plan and revision of fees. The City shall review the land use assumptions and capital improvements plan for water and sewer facilities as required by law. The City Council shall accordingly then make a determination of whether changes to the land use assumptions, capital improvements plan or impact fees are needed and shall, in accordance with the procedures set forth in the Texas Local Government Code ch. 395 or any successor statute, either update the fees or make a determination that no update is necessary.

Section 15. Impact Fees. Impact fees established by this section are additional and supplemental to, and not in substitution of, any other requirements imposed by the City on the development of land or the issuance of building permits or the sale of water or wastewater taps or the issuance of certificates of occupancy.

Section 16. Waiver and Agreement Regarding Payment. Waiver of fees may be done in accordance with Chapter 395.016(g) of the Local Government Code. Agreement as to payment of impact fees may be done as provided by Chapter 395.018 of the Local Government Code.

Section 17. Repeal Clause. Ordinance No. 329 is hereby repealed and replaced by this Ordinance. All other ordinances inconsistent or in conflict herewith are, to the extent of such conflict, hereby repealed.

Section 18. Severability Clause. In the event any clause phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstances shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Magnolia, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

PASSED, APPROVED, AND ADOPTED this 13TH day of October, 2008.

Jimmy W. Thornton, Jr.
Mayor

Attest:

LuAnn D. Drake
City Secretary

City Seal

Exhibit B

Impact Fee Per Service Unit

$1,200.00 per each water service unit

$2,300.00 per each wastewater service unit

Total impact fee for water service is calculated as follows:

(water impact fee/service unit) X

No. of service units (determined from meter size multiplier in table below)

Total impact fee for wastewater service is calculated as follows:

(wastewater impact fee/service unit) X

No. of service units (determined from meter size multiplier in table below)

Service Unit/Equivalent Connection Equivalencies For Various Types And Sizes Of Water Meters

Meter Size	Meter Type	Continuous Duty Maximum Flow Rate (gpm)	Ratio To 5/8" Meter (Multiplier)
5/8"	Simple	10	1.0
5/8" x ¾"	Simple	10	1.0
¾"	Simple	15	1.5
1"	Simple	25	2.5
1½"	Simple	50	5.0
2"	Simple	80	8.0
2"	Compound	80	8.0
3"	Compound	160	16.0
3"	Turbine – Low Velocity	175	17.5
3"	Turbine – Vertical Shaft Type	220	22.0
3"	Turbine – In Line(High Vel.)Type	350	35.0
4"	Compound	250	25.0
4"	Turbine – Low Velocity	300	30.0
4"	Turbine – Vertical Shaft Type	420	42.0
4"	Turbine – In Line(High Vel.)Type	650	65.0

6"	Compound	500	50.0
6"	Turbine- Low Velocity	625	62.5
6"	Turbine – Vertical Shaft Type	865	86.5
6"	Turbine – In Line(High Vel.)Type	1,400	140.0
8"	Compound	800	80.0
8"	Turbine – Low Velocity	900	90.0
8"	Turbine – In Line(High Vel.)Type	2,400	240.0
10"	Compound	1,150	115.0
10"	Turbine – Low Velocity	1,450	145.0
10"	Turbine – In Line(High Vel.)Type	3,500	350.0
12"	Turbine – Low Velocity	2,150	215.0
12"	Turbine – In Line(High Vel.)Type	4,400	440.0

Source: AWWA Standards C700, C701, C702. Refer to current AWWA Standards for sizes or types of meters not listed here and for confirmation of flow rates.

INFRASTRUCTURE MASTER PLAN AND CAPITAL RECOVERY FEE DETERMINATION FOR

CITY OF MAGNOLIA

PERIOD OF 2008 TO 2018

Received & Filed
in the Office of

AUG 28 2008

City Secretary
City of Magnolia, Texas

OE JOB NO. 587.020-MJ

AUGUST 2008

STATE OF TEXAS
CRAIG KANKEL
58561
REGISTERED
PROFESSIONAL ENGINEER
8/27/08

Prepared by:

O'MALLEY ENGINEERS, L.L.P.
in conjunction with
RW BECK

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1.0 PLAN OBJECTIVES

The purpose of this study is to provide information and data to assist the City in updating the impact fee charged by the City to those desiring to connect to its water system and wastewater system. The last impact fee study was performed in 2003 by PBS&J and is titled "City of Magnolia Infrastructure Master Plan and Capital Recovery Fee Determination 2003 to 2008 by PBS&J."

The water system and wastewater system capital improvements described in this report are determined for a 10-year planning period – 2008 through 2018, which is the longest planning period allowed in "Local Government Code, Chapter 395, Financing Capital Improvements Required By New Development In Municipalities, Counties, And Certain Other Local Governments." The cost for these capital improvements in the 10-year planning period is used in determining the maximum impact fee calculation presented in this report.

The study components are:

- Population Projections and Land Use Assumptions – These projections and assumptions are the basis for the proposed capital improvements to the water system and wastewater system.

- Water System Improvement Plan – A capital improvement plan (CIP) for the water system and the basis for the City's water system impact fee.

- Wastewater System Improvement Plan – A capital improvement plan (CIP) for the wastewater system and the basis for the City's wastewater system impact fee.

- Computation of a Capital Recovery Fee (Impact Fee).

The planning area for this study and maximum impact fee determination is that area within the City limits and the City's extraterritorial jurisdiction (ETJ).

The CIP cost used in calculating the maximum impact fee is the estimated cost for the needed improvements for assumed growth in the 10-year planning period. However, for some improvements such as major trunk wastewater lines and major water transmission/distribution lines, the line size actually

proposed for construction may be larger based on a planning period longer than 10 years in order to avoid the need to replace the line after only 10 years of service.

Probable construction cost for the improvements include engineering design and contingencies (25%). Also included are estimated costs for right-of-way for cross-country wastewater trunk lines, land needed for a new well site and land needed for a new wastewater treatment plant site. The probable construction cost is based on current construction costs for similar projects.

2.0 POPULATION PROJECTIONS

Population projections by the Houston-Galveston Area Council (HGAC) and by the Texas Water Development Board (TWDB) were considered as sources of population projections for the study area. The population projections of each of these agencies is given in Table 2-1.

The City of Magnolia is in a growth corridor extending from Houston and The Woodlands area. Considerable growth has occurred along and in the area of FM 1488 and FM 1774 in recent years. Construction of a new subdivision with approximately 800 to 1,000 planned residential lots is currently underway in the northeast part of the City limits with commercial development to follow. Texas Department of Transportation's (TxDOT) planned route for SH 249 takes the highway just beyond the eastern and northern ETJ of the City.

The population projections of HGAC have a growth rate higher than that of the TCEQ. Due to the new development already occurring in the City and due to Magnolia's location in a growth area, the population projections of the HGAC are considered to be the most likely for the study area and are used as the basis for projected growth.

Table 2-1

Population Projections By TWDB And HGAC For City Limits Of Magnolia

	2000	2010	2020
TWDB	1,111[1]	1,350	1,496
HGAC	1,111[1]	2,535	4,701

[1]-2000 Census

It is assumed that the growth rate for the area within the ETJ outside the City limits will be consistent with the growth rate projected by HGAC for Montgomery County. Beginning with a population of 293,768 in 2000, the HGAC population projection for the County is 444,200 in 2010 and 595,200 in 2020.

The assumed population growth for the study area (City and ETJ) is given in Table 2-2 and is based on the HGAC population projections for the City and on the HGAC's County population growth projections for the ETJ area. An estimated 2000 ETJ population of 828 determined from the last impact fee study was used as a starting point.

Table 2-2

HGAC Population Projection For Study Area (City & ETJ)

	2000	2010	2020
Inside City Limits	1,111[1]	2,535	4,701
Outside City Limits	828[2]	1,889	3,512
TOTAL	1,939	4,424	8,213

[1]2000 Census
[2]Per 2003 impact fee study.

Table 2-3

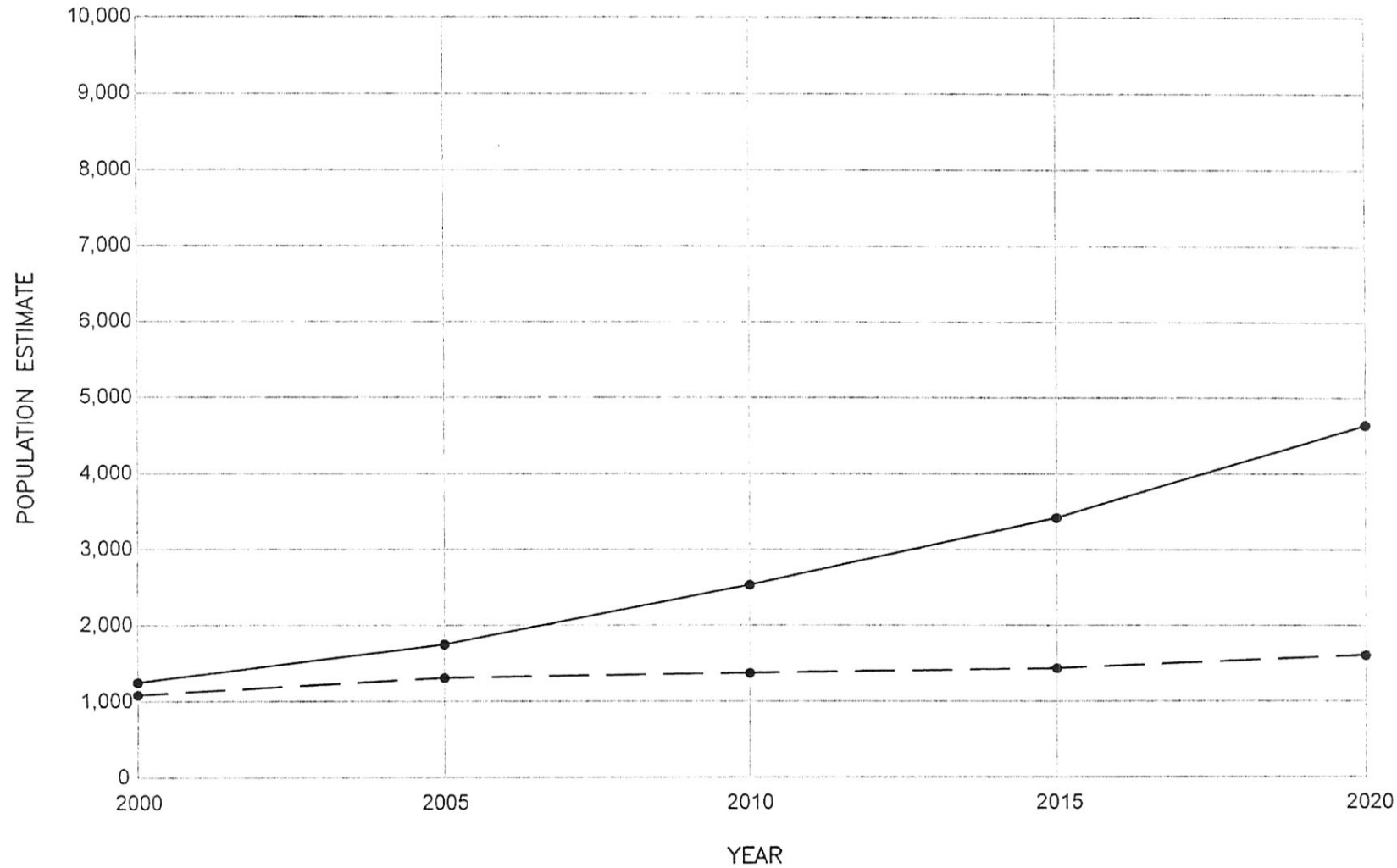
Population Distribution By Housing Type

Population Distribution By Housing Type		2008[1]	2018
Population		**3,752**	**7,266**
sfh		1,429	3,406
mfh		638	1,235
Large Lot		944	1,450
Mfg. Home		741	1,175
Housing Unit Needs:	2.96 persons per household average		
	2.12 persons per rented unit		
	2.70 persons per manufactured unit		
sfh		482	1,150
mfh		300	582
Large Lot		318	489
Manufactured Home		274	435
Acreage Needs for Given Density/Acre			
sfh (1.6 units/acre)		301	718
mfh (15 units/acre)		20	38
Large Lot (0.55 unit/acre)		578	889
Manufactured Home (4.5units/acre)		60	96
Total		959	1,741

* - Persons per household and unit density per the 2003 impact fee study.
[1]The percentage of population for each housing type is based on existing land use.

EXHIBIT 2–1

POPULATION PROJECTION FOR CITY OF MAGNOLIA (CITY LIMITS)

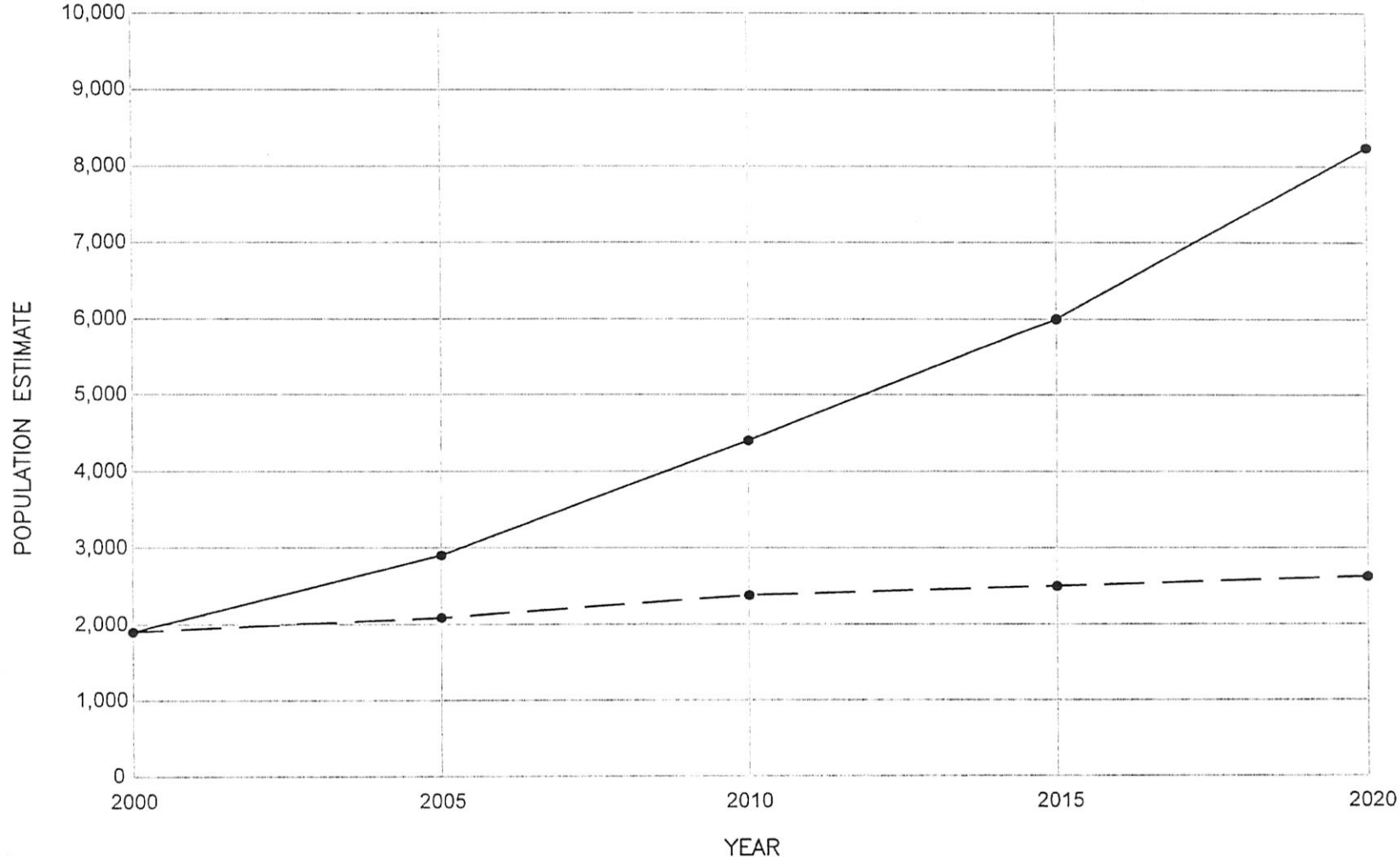


HGAC

TWDB (2006 REGIONAL WATER PLAN)

YEAR 2000 BASED ON CENSUS FIGURE.

EXHIBIT 2–2
POPULATION PROJECTION FOR CITY OF MAGNOLIA AND ETJ



HGAC GROWTH RATE

TWDB 2006 REGIONAL WATER PLAN GROWTH RATE

YEAR 2000 POPULATION BASED ON 2000 CENSUS FIGURE FOR CITY AND ESTIMATED POPULATION IN THE ETJ PER THE 2003 IMPACT FEE STUDY.

3.0 LAND USE ASSUMPTIONS

Land use in Magnolia as in many places is determined by economics. The City does not have zoning restrictions.

The potential for commercial development exists along FM 1774 and FM 1488, the two highways that run through the City. With SH 249 planned around the eastern and northern part of the City and capacity expansion planned for both FM 1774 and FM 1488, there is potential for commercial development associated with the new and upgraded highways as well as residential development. It is assumed that development will be relatively uniformly distributed throughout the City and ETJ during the planning period.

The City and ETJ consists of approximately 5,698 acres with approximately 2,090 acres being within the City limits. Table 3-1 and table 3-2 are estimates of acreages for the various types of assumed land uses in 2008 and 2018, respectively.

Exhibit 3-1 is a map showing assumed land use. Existing land use was determined by a visual ground survey of the area. The assumed land use exhibit was compiled solely for the purpose of this study and is not intended to be interpreted or used to restrict land use in the City and ETJ.

Table 3-1

Estimated Developed Acreage Distribution in 2008 in City & ETJ

2008 Estimated Land Use	Total Acreage	Percentage of Total Developed Land
Regular Residential Subdivision	301	20.3
Large Lot Residential Subdivision	578	39.1
Multi-Family Residential	20	1.4
Manufactured Home Residential	60	4.1
Commercial	290	19.6
Educational	167	11.3
Industrial	17	1.1
Park	46	3.1
Total Developed	1,479	100
Undeveloped & Streets	4,219	
Total	5,698	

Table 3-2

Estimated Developed Acreage In 2018 In City & ETJ

2018 Assumed Land Use	Total Acreage	Percentage of Total Developed Land
Regular Residential Subdivision	718	27.4
Large Lot Residential Subdivision	889	33.9
Multi-Family Residential	38	1.4
Manufactured Home Residential	96	3.7
Commercial	603	23.0
Educational	193	7.4
Industrial	17	0.6
Park	69	2.6
Total Developed	2,623	100
Undeveloped & Streets	3,075	
Total	5,698	

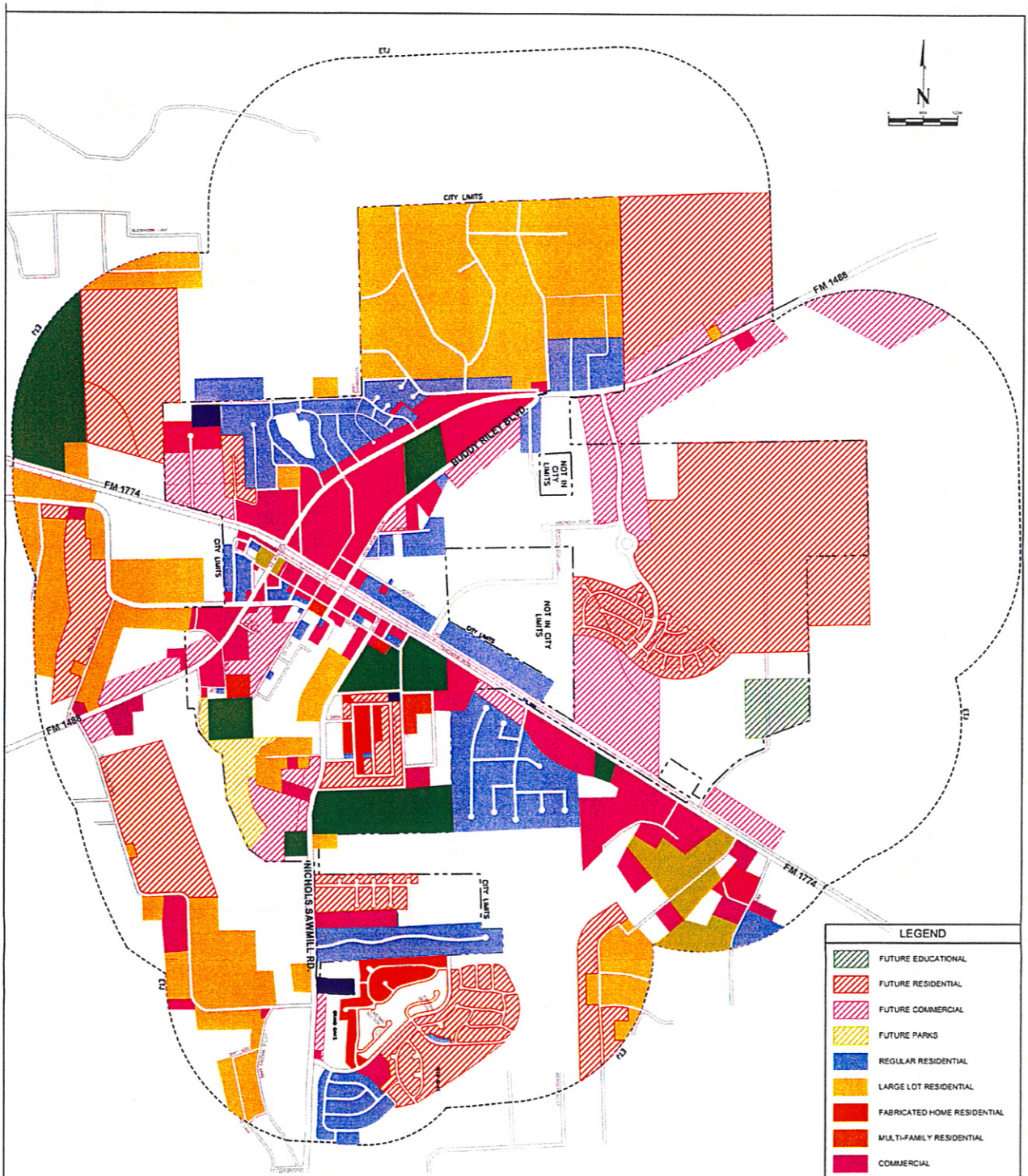


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EXHIBIT 3-1

CITY OF MAGNOLIA
ASSUMED LAND USE 2018

Scale: SEE BARSCALE
Project Number: 367.020 MJ
Drawn By: CMG Date: 05/09
Revised:
Sheet Number: 1 ....Of.... 1

4.0 WATER SYSTEM IMPROVEMENT PLAN

4.1 GENERAL

The City of Magnolia water system consists of three water wells for water supply, two ground storage tanks and two elevated storage tanks for storage and delivery pressure, six booster pumps, chlorination facilities for water disinfection, and distribution lines to transport the water to the customers. The plant facilities are located at a water plant on Elm Street and at a new water plant located on Kelly Road.

The existing water system has adequate capacity for the existing customers. The water system will require additional water supply (well capacity) and additional distribution line capacity for projected increased growth during the study period based on land use assumptions made in this study. New lines will be needed for future growth for areas that will develop in the future.

4.2 EXISTING WATER SYSTEM

4.2.1 Water Supply And Plant Facilities

Following is a listing of the current capacity of the water wells and plant facilities:

	Elm Street (Plant 1)	**Kelly Road (Plant 2)**
Wells	250 GPM	1,000 GPM
	320 GPM	
Ground Storage	200,000 Gal.	200,000 Gal.
Elevated Storage	100,000 Gal.	300,000 Gal.
Booster Pumps	2 – 500 GPM	3 – 1,000 GPM
	1 – 1,000 GPM	

4.2.2 Distribution System

The water distribution system consists of water lines ranging in size from 1½" to 16" with pipe materials consisting of iron, steel, and PVC. A computer model of the distribution system was established for hydraulic analysis of the system. Generally, only lines larger than 2" were included in the

model. The capacity of 2" and smaller lines is very small, and their capacity for fire flow is essentially negligible.

4.3 DESIGN CRITERIA

4.3.1 Historical Use

According to City records, the peak day usage for the past two years was 0.639 mgd in 2006. City records indicate the average daily residential usage per unit for the period beginning 9/07 was approximately 200 gpd. Average daily use (demand) for the system from 4/07 through 5/08 was 427,235 gallons according to records. Estimated water use for 2008 on a per acre basis for developed land is shown in Table 4-1.

Table 4-1

2008 Water Consumption Model

	Average Rate of Use (gpd/ac.)	Developed Area (acres)	Avg. Daily Consumption (gallons)
SF Residential	320	301	96,320
Large Lot Residential	110	578	63,580
Multi-Family Res.	3,000	20	60,000
Mfgr. Home Residential	900	60	54,000
Commercial & Industrial	260	290	75,400
Educational	400	167	66,800
Total			416,100
Actual Avg. Produced From Wells Per Available Records			427,235

4.3.2 State Design Criteria

The Texas Commission on Environmental Quality (TCEQ) regulates potable water systems and has rules for minimum capacity for system components and design criteria for new facilities for community water systems. These rules and regulations apply to the City of Magnolia's water system and are found in "TAC, Title 30, Part I, Chapter 290, Subchapter D, Rules and Regulations For Public Water Systems." Applicable criteria related to this study are:

- Connection – A single family residential unit or each commercial or industrial establishment to which drinking water is supplied from the system. As an example, the number of service connections in an apartment complex would be equal to the number of individual apartment units.

- Maximum Daily Demand – In the absence of verified historical data or in cases where a public water system has imposed mandatory water use restrictions within the past 36 months, maximum daily demand means 2.4 times the average daily demand of the system.

- Peak Hourly Demand – In the absence of verified historical data, peak hourly demand means 1.25 times the maximum daily demand (prorated to an hourly rate) if a public water supply meets the commission's minimum requirements for elevated storage capacity and 1.85 times the maximum daily demand (prorated to an hourly rate) if the system uses pressure tanks or fails to meet the commission's minimum elevated storage capacity requirements.

- Minimum Water System Capacity Requirements (§ 290.45) – For a system with more than 250 connections:

  Water Supply (Wells):

  2 or more wells with minimum total capacity of 0.6 gallons per minute per connection (gpm/conn.).

  Storage:

  Elevated Storage: 100 gallons per connection.

  Total Storage: 200 gallons per connection.

NOTE: Elevated storage is a TCEQ requirement for systems with 2,500 or more connections. Since the City provides fire protection, elevated storage is needed for this purpose.

Service (Booster) Pumps:

Two or more pumps that have a total capacity of 2.0 gpm per connection or that have a total capacity of at least 1,000 gpm and the ability to meet peak hourly demands with the largest pump out of service, whichever is less, at each pump station or pressure plane.

Emergency Power:

Not required for systems that meet the minimum elevated storage required. For systems that do not meet the minimum elevated storage requirement, sufficient emergency power must be provided to deliver a minimum of 0.35 gpm per connection to the distribution system in the event of the loss of normal power supply. Alternately, an emergency interconnection can be provided with another public water system that has emergency power and is able to supply at least 0.35 gpm for each connection in the combined system.

Minimum Distribution System Pressure:

Minimum 35 p.s.i. normal operations
Minimum 20 p.s.i. while fighting a fire.

4.4 EXISTING REQUIREMENTS

4.4.1 General

Estimated water demand based on demand per developed acre is shown in Table 4-1. TCEQ design criteria for public water systems is based on the number of connections served. In order to determine the number of connections on which to base design, large water meters are converted to "equivalent" connections by determining the ratio of the continuous duty maximum flow rate in gallons per minute for a water meter of a given size and type to that of a five-eighths inch size simple water meter using American Water Works Association C700-C712 standards. The water system serves the number of equivalent water connections shown in Table 4-2.

For the purpose of this report, a water system service unit, sometimes called an equivalent development unit (EDU) or equivalent connection, is defined as the continuous duty maximum flow rate in gallons per minute (gpm) that can be provided by a standard (simple) five-eighths inch water meter per AWWA standards. The number of service units for property served by larger size meters is determined by the relationship (ratio) of the continuous duty maximum flow rate in gallons per minute for a water meter of a given size and type compared to that of a five-eighths inch size simple water meter per AWWA standards. Service unit equivalencies for various types and sizes of water meters are given in Table 4-4.

Table 4-2

Equivalent Water Connections

Size & Type Meter	Number of Meters	Maximum Rate For Continuous Duty (gpm)	Ratio To 5/8" Simple Meter	Equivalent No. Of Connections
Inside City Limits				
5/8" Simple	612	10	1	612
¾" Simple	0	15	1.5	0
1" Simple	8	25	2.5	20
1 1/2" Simple	7	50	5	35
2" Simple or Compound	20	80	8	160
3" Compound	4	160	16	64
Subtotal				891
Outside City Limits & Inside ETJ				
5/8" Simple	146	10	1	146
1" Simple	1	15	1.5	1.5
10" Turbine (Hi-Vel.)	1	3,500	350	350
Subtotal				498
Outside ETJ				
5/8" Simple	117	10	1	117
Subtotal				117
Total Equivalent Connections				1,506

4.4.2 Adequacy of Existing System

The existing water supply, plant, and distribution system facilities were evaluated to determine if they meet the TCEQ minimum requirements for the existing number of connections being served. Following is a summary of the existing well and plant capacities and the minimums required by the TCEQ:

Facility	**Existing Capacity**	**TCEQ Min. Requirement**
Lower Pressure Plane (486 Equiv. Conn.)		
Wells(2)	570 gpm	292 gpm
Elevated Storage	100,000 gal.	48,600 gal.
Total Storage	300,000 gal.	97,200 gal.
Firm Service Pump Capacity	1,000 gpm	972 gpm
Hydropneumatic Tank	10,000 gal.	None Required
Emergency Power	*	None Required

*Capacity for one well and one service pump.

Upper Pressure Plane (1,020 Equiv. Conn.)		
Well(1)	1,000 gpm	612 gpm
Elevated Storage	300,000 gal.	102,000 gal.
Total Storage	500,000 gal.	204,000 gal.
Firm Service Pump Capacity	2,000 gpm	816 gpm
Emergency Power	*	None Required

*Capacity for the well and one service pump.

The adequacy of the existing distribution system to provide service to existing connections and for fire flows inside the City limits was evaluated with a computer model of the system. Hydraulic calculations performed by the computer model indicated the existing system is capable of maintaining the system pressure required by the TCEQ for normal service and for fire flows of at least 750 GPM to areas within the City limits with the notation that calculations indicate a fire flow of 650 GPM is available to the end of the distribution system in the far reaches of the northwest part of the City limits. Exhibits 4-1 through 4-5 show pressure contours in the distribution system.

The results of the analysis of the existing system indicate that it meets the requirements of the TCEQ regarding service to existing connections.

4.5 PROPOSED IMPROVEMENTS

4.5.1 Requirements

Estimated water use for 2018 on a per acre basis is given in Table 4-3. The demand per acre for new development is the same as shown in the 2003 impact fee study. Required system capacities are based on the minimum TCEQ requirements which are based on the number of connections served. There currently are 1,506 equivalent water connections. It is estimated based on population projections that there will be a total of 2,826 equivalent water connections in 2018 with 2,709 equivalent water connections being inside the study area.

Facility	Existing Capacity	TCEQ Min. Requirement
Lower Pressure Plane (933 Equiv. Conn.)		
Wells	570 gpm	560 gpm
Elevated Storage	100,000 gal.	93,300 gal.
Total Storage	300,000 gal.	186,600 gal.
Firm Booster Pump Capacity	1,000 gpm	1,000 gpm
Upper Pressure Plane (1,893 Equiv. Conn.)		
Well	1,000 gpm	1,136 gpm
Elevated Storage	300,000 gal.	189,300 gal.
Total Storage	500,000 gal.	378,600 gal.
Firm Booster Pump Capacity	2,000 gpm	1,515 gpm

Table 4-3

2018 Water Consumption Model

	Average Rate of Use (gpd/ac.)	Developed Area (acres)	Avg. Daily Consumption (gallons)
S.F. Residential	464	718	333,152
Large Lot Residential	152	889	135,128
Multi-Family Res.	3,386	38	128,668
Mfgr. Home Residential	1,109	96	106,464
Commercial & Ind.	661	620	409,820
Educational	436	193	84,148
TOTAL			1,197,380

4.5.2. Proposed Improvements

The evaluation of well, plant, and distribution system facilities indicate that in order to meet the requirements for the study period and area growth additional well capacity of at least 194 gpm will be required along with additional distribution lines. The proposed water system improvements are shown on Exhibit 4-6 and in Table 4-5. The new well is proposed to pump into the ground storage tank at Water Plant No. 2. The exact location of the new well will depend on the availability of land in the area of Water Plant No. 2.

4.5.3 Cost Estimates

The cost estimate for the 10-year water system capital improvements project (CIP) is given in Table 4-5. The cost estimate is based on current costs and includes an estimated cost for land, and an allowance for contingencies and engineering design (25%). It does not include legal or fiscal costs related to the CIP. The cost estimate is preliminary, and the final cost may vary.

In some instances, it is recommended to install a larger line than that shown to be needed to satisfy the requirements of growth projected for the 10-year study period. The 10-year study period is the time period allowed in determining the impact fee. Lines actually installed should be sized to allow for growth over a longer period of time. However, only the costs associated with system capacity required for the 10-year planning period are included in the maximum impact fee calculation.

Table 4-4

Service Unit/Equivalent Connection Equivalencies For Various Types And Sizes Of Water Meters

Meter Size	Meter Type	Continuous Duty Maximum Flow Rate (gpm)	Ratio To 5/8" Meter (Multiplier)
5/8"	Simple	10	1.0
5/8" x ¾"	Simple	10	1.0
¾"	Simple	15	1.5
1"	Simple	25	2.5
1½"	Simple	50	5.0
2"	Simple	80	8.0
2"	Compound	80	8.0
3"	Compound	160	16.0
3"	Turbine – Low Velocity	175	17.5
3"	Turbine – Vertical Shaft Type	220	22.0
3"	Turbine – In Line(High Vel.)Type	350	35.0
4"	Compound	250	25.0
4"	Turbine – Low Velocity	300	30.0
4"	Turbine – Vertical Shaft Type	420	42.0
4"	Turbine – In Line(High Vel.)Type	650	65.0
6"	Compound	500	50.0
6"	Turbine- Low Velocity	625	62.5
6"	Turbine – Vertical Shaft Type	865	86.5
6"	Turbine – In Line(High Vel.)Type	1,400	140.0
8"	Compound	800	80.0
8"	Turbine – Low Velocity	900	90.0
8"	Turbine – In Line(High Vel.)Type	2,400	240.0
10"	Compound	1,150	115.0
10"	Turbine – Low Velocity	1,450	145.0
10"	Turbine – In Line(High Vel.)Type	3,500	350.0
12"	Turbine – Low Velocity	2,150	215.0
12"	Turbine – In Line(High Vel.)Type	4,400	440.0

Source: AWWA Standards C700, C701, C702. Refer to current AWWA Standards for sizes or types of meters not listed here and for confirmation of flow rates.

Table 4-5

10-Year Water System Capital Improvements

Preliminary Cost Estimate

1.	Construct min. 200 GPM water well, related piping, electrical, land, and right-of-way	$812,000.00
2.	Construct 12" min. line from Kelly Road northeastward generally along FM 1488 to approx. ETJ	$755,000.00
3.	Construct 12" min. line from Industrial westward generally along FM 1774 to approx. ETJ	$281,000.00
4.	Construct 12" min. line from Industrial south and southwestward to FM 1488 and generally along FM 1488 southwestward to approx. ETJ	$562,000.00
5.	Construct 12" min. line generally along FM 1774 east from existing 12" to approx. ETJ	$559,500.00
6.	Construct 12" min. line from FM 1774 southward generally along Sugar Bend Road to approx. ETJ	$441,000.00
7.	Construct 8" min. line generally along Goodson Road from prop. 12" line westward to approx. ETJ & to prop. 12" line along FM 1774 west	$376,000.00
8.	Construct 8" min. line generally along Gayle Road from Goodson Road to FM 1488	$173,000.00
9.	Construct 8" min. line generally along Old Hockley Road from FM 1488 to Nichols Sawmill Road	$603,000.00
	TOTAL	$4,562,500.00

Table 4-6

Size Water Lines Recommended For Long Term Service When Different Than The Size Line Shown For The 10-Year Impact Fee Capital Improvement Plan

It is recommended that the size of some water lines shown in the 10-year capital improvements plan (for impact fee calculation purposes) be increased in size as follows in order to be sized for long term service.

1. 16" min. line from Kelly Road northeast generally along FM 1488 to approx. ETJ (instead of 12" min. shown for impact fee 10-year study period).

2. 16" min. line from Industrial westward generally along FM 1774 to approx. ETJ (instead of 12" min. shown for the impact fee 10-year study period).

NOTE: The required size of all lines shown should be reviewed periodically and updated based on actual and projected development and growth.

Table 4-7

Preliminary Cost Estimate
For
Increased Cost For Size Water Lines Recommended For Long Term Service When Different Than The Size Line Shown For The 10-Year Impact Fee Capital Improvement Plan

NOTE: The purpose of these costs is to show the estimated additional cost to the costs shown for the 10-year impact fee capital improvements plan (for impact fee calculation) in order to install the recommended size line for long term service.

1.	Recommend 16" min. line from Kelly Road northeast generally along FM 1488 to approx. ETJ (12" min. for 10-year plan) - Additional Estimated Cost	$205,000.00
2.	Recommend 16" min. line from Industrial westward generally along FM 1774 to approx. ETJ (12" min. for 10-year plan) - Additional Estimated Cost	$78,000.00
	Total Estimated Additional Cost	$283,000.00

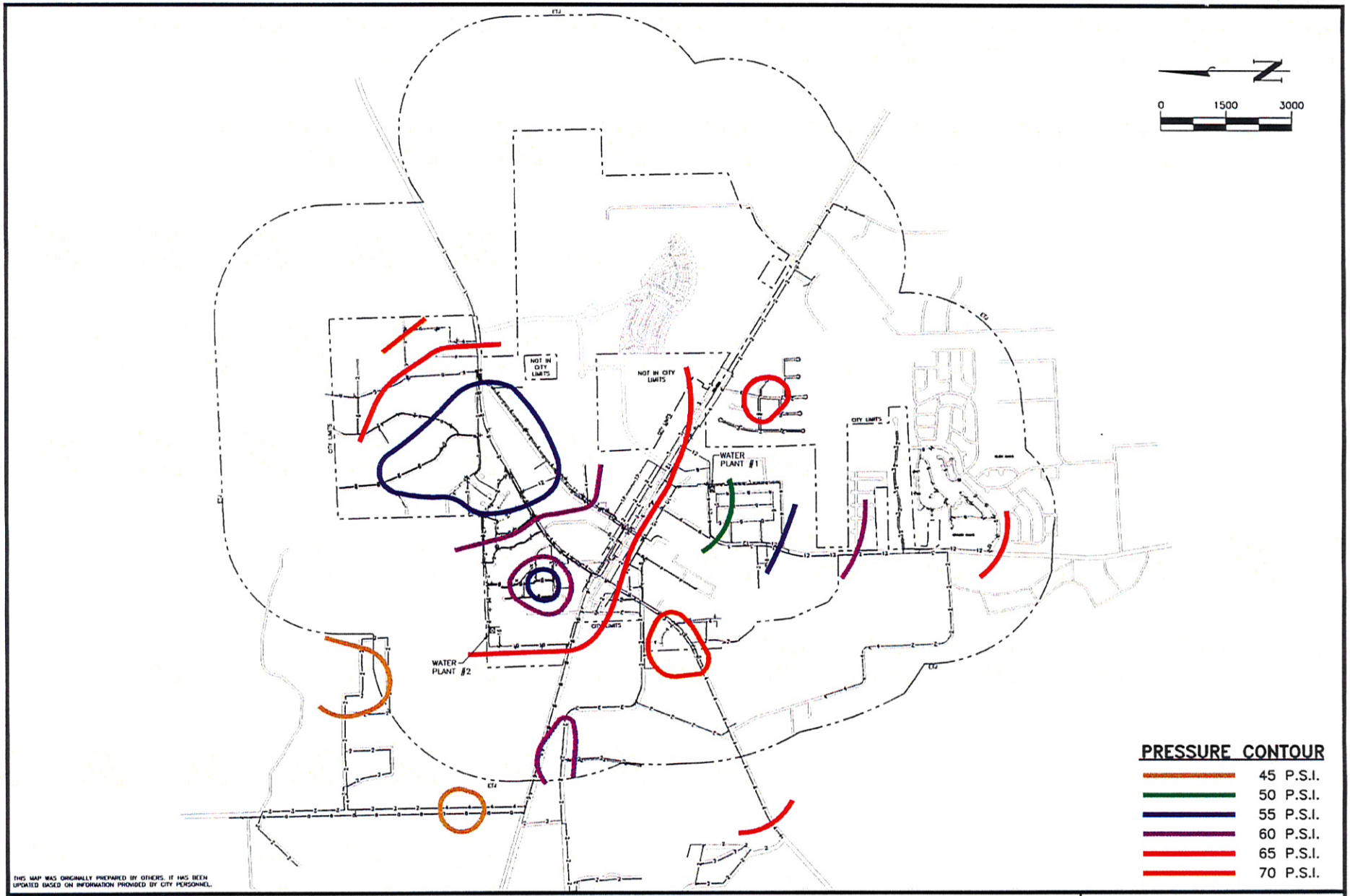

EXHIBIT 4-1
CITY OF MAGNOLIA
WATER MODEL - EXISTING SYSTEM
2008 PEAK HOUR DEMAND

Scale: SEE BAR SCALE	
Project Number: 587.020 MJ	
Drawn By: BAG	Date: 08/08
Revised:	
Sheet Number:	1 ....Of.... 1

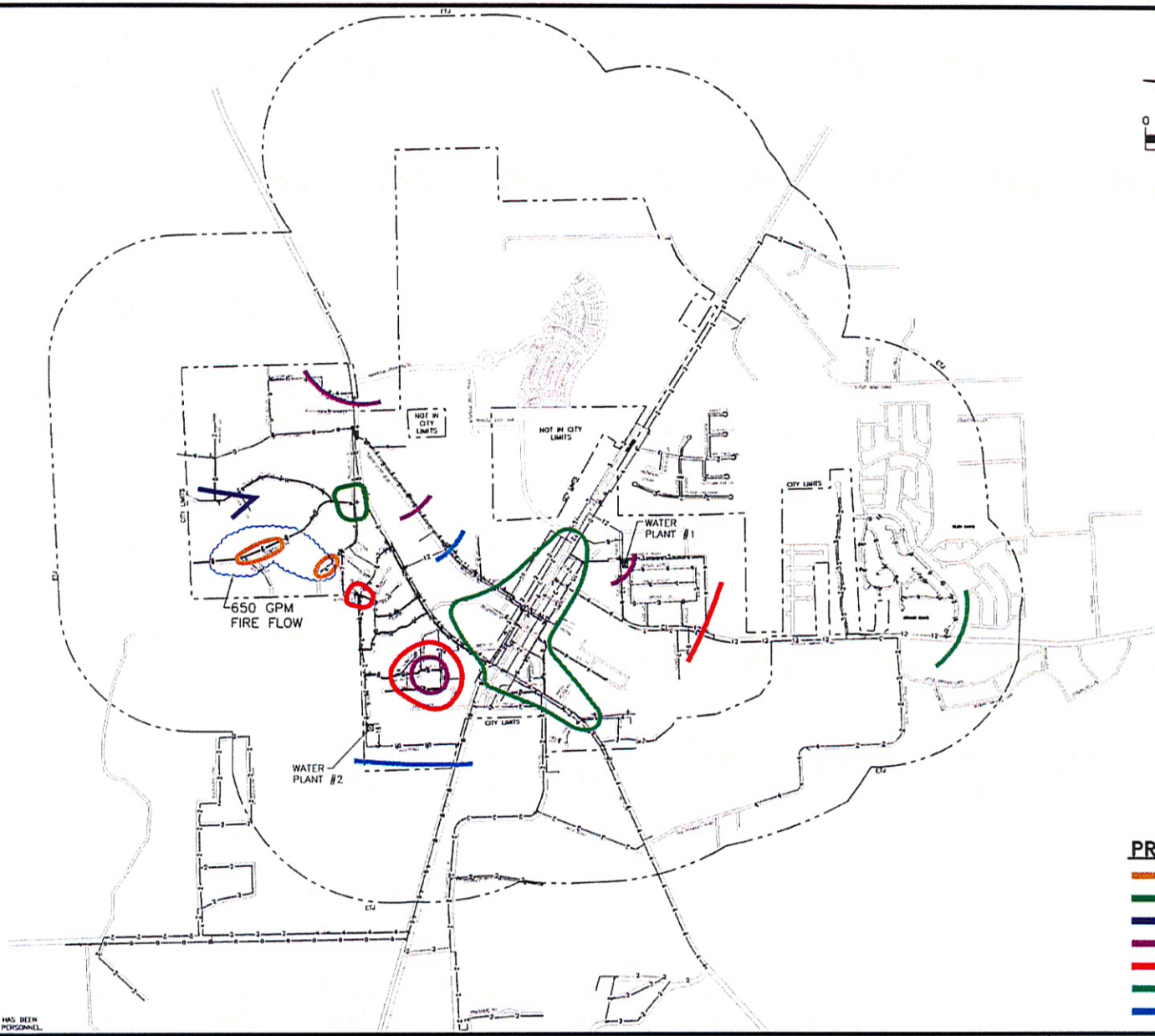

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EXHIBIT 4-2
CITY OF MAGNOLIA
WATER MODEL - EXISTING SYSTEM
2008 PEAK HOUR DEMAND & FIRE FLOW
750 GPM FIRE FLOW W/ 650 GPM TO AREA SHOWN

Scale: SEE BAR SCALE	
Project Number: 587.020 MJ	
Drawn By: BAG	Date: 08/08
Revised:	
Sheet Number:	1 ....Of.... 1

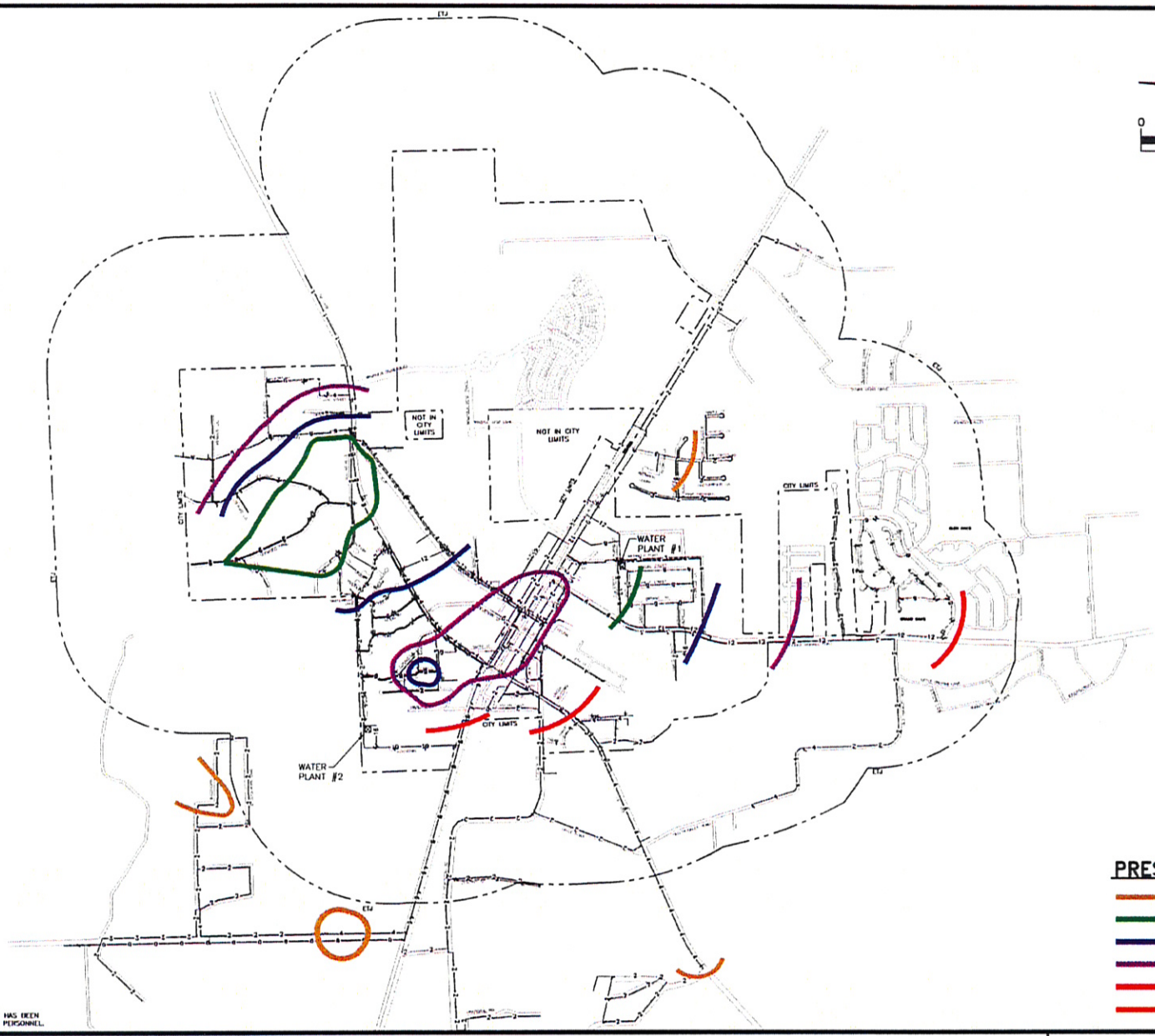

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EXHIBIT 4-3
CITY OF MAGNOLIA
WATER MODEL - EXISTING SYSTEM
2018 PEAK HOUR DEMAND

Scale: SEE BAR SCALE	
Project Number: 587.020 MJ	
Drawn By: BAG	Date: 08/08
Revised:	
Sheet Number:	1 ....Of.... 1

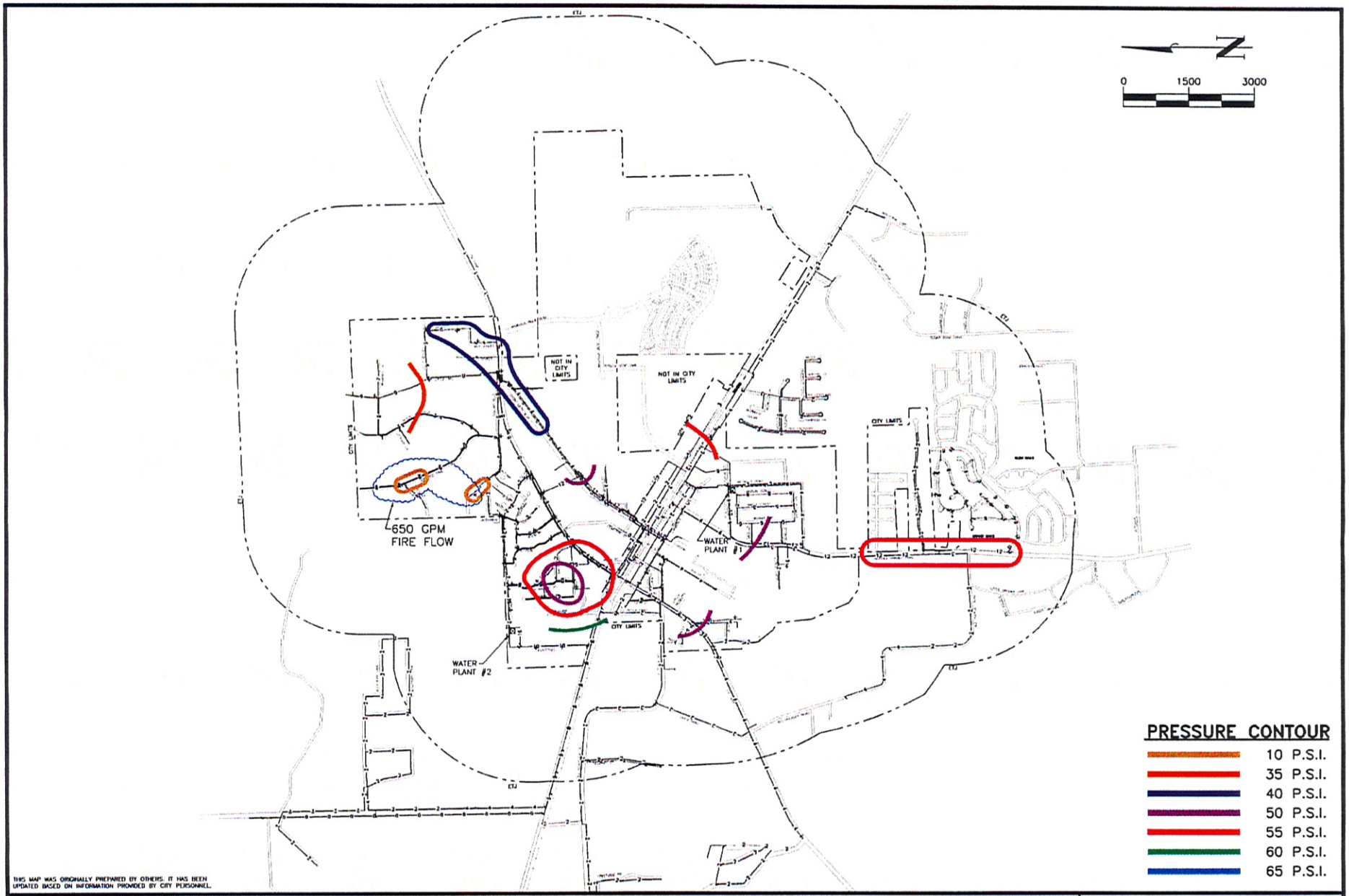

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EXHIBIT 4-4
CITY OF MAGNOLIA
WATER MODEL - EXISTING SYSTEM
2018 PEAK HOUR DEMAND & FIRE FLOW
750 GPM FIRE FLOW W/ 650 GPM TO AREA SHOWN

Scale: SEE BAR SCALE	
Project Number: 587.020 MJ	
Drawn By: BAG	Date: 08/08
Revised:	
Sheet Number: 1 ....Of.... 1	

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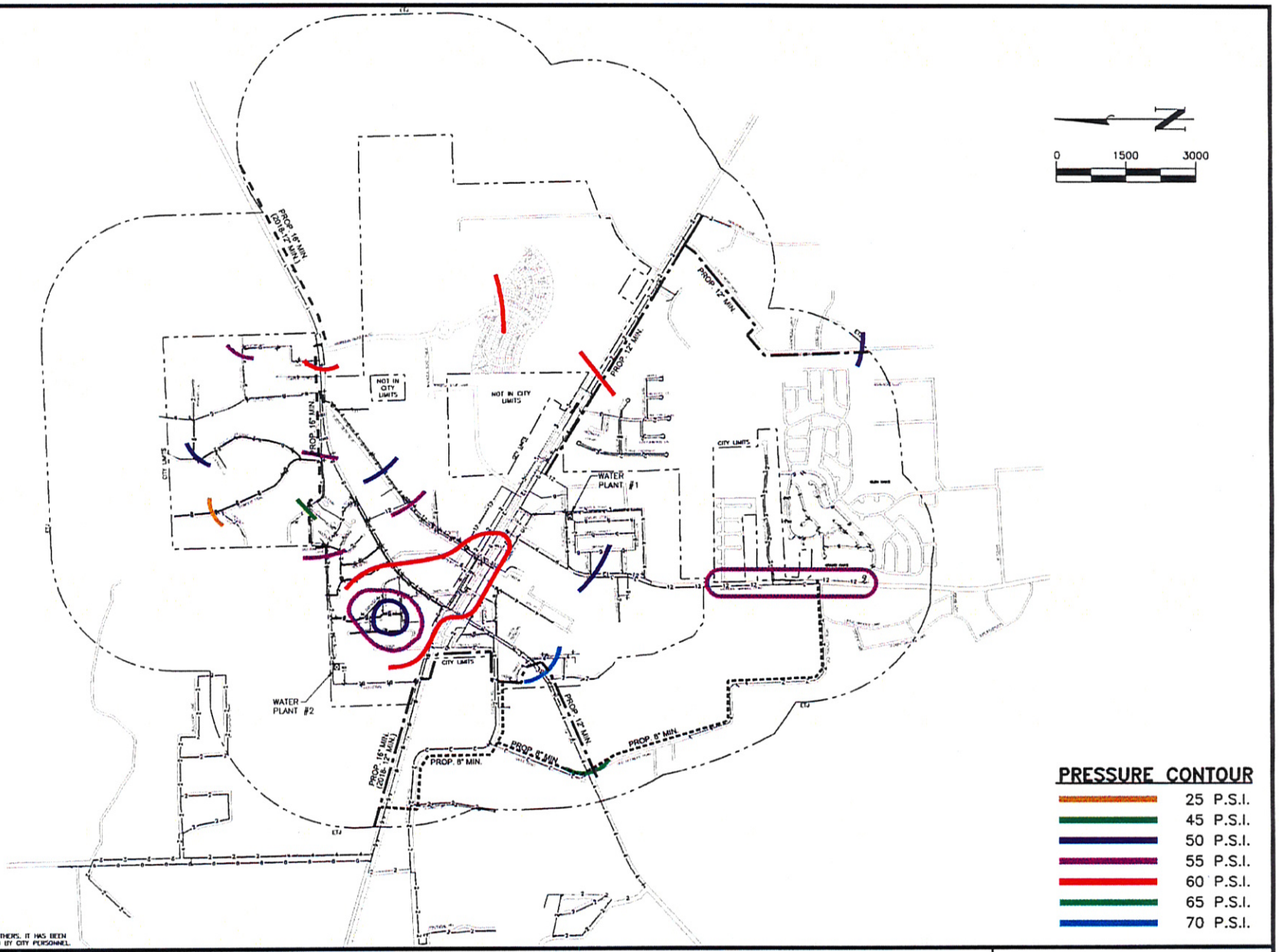

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EXHIBIT 4-5
CITY OF MAGNOLIA
WATER MODEL - PROPOSED IMPROVEMENTS
2018 PEAK HOUR DEMAND & 750 GPM FIRE FLOW

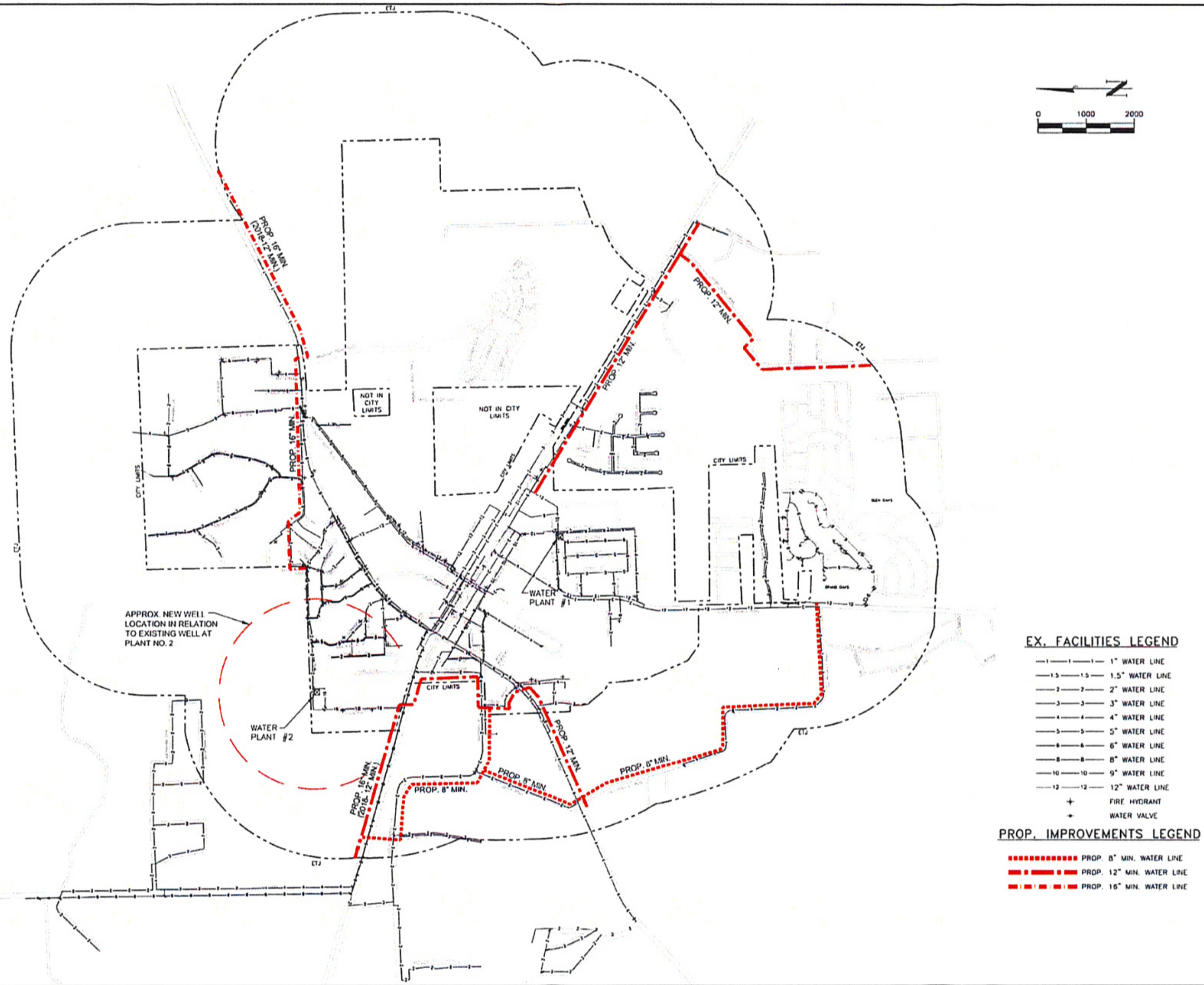
Scale: SEE BAR SCALE	
Project Number: 587.020 MJ	
Drawn By: BAG	Date: 08/08
Revised:	
Sheet Number:	1 ....Of.... 1

EXHIBIT 4-6
CITY OF MAGNOLIA
WATER SYSTEM
PROPOSED IMPROVEMENTS

O'Malley Engineers
203 S. Jackson
Brenham, Texas 77833
(979) 836-7937
Fax (979) 836-7936

Sheet Title: WATER SYSTEM

Sheet Number: 1 ....of.... 1



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5.0 WASTEWATER SYSTEM IMPROVEMENT PLAN

5.1 GENERAL

The City's wastewater system provides service to developed areas within the City limits and to some areas outside the City limits. Treatment of wastewater from Grand Oaks Subdivision, from Magnolia High School located near the intersection of FM 1488 and FM 149, and from Magnolia West High School located on FM 1774 is provided.

The wastewater system consists of one treatment plant located on Nichols Sawmill Road at the south end of the current city limits, gravity collection lines, and lift stations as described in this report.

5.2 EXISTING WASTEWATER SYSTEM

5.2.1 Wastewater Treatment Plant

The wastewater system has one treatment plant permitted for 0.65 million gallons per day (mgd). The plant was expanded in recent years from 0.3 mgd to 0.65 mgd. The size of the existing wastewater treatment plant site has limitations for future expansion.

5.2.2 Wastewater Collection System

5.2.2.1 Lift Stations

The wastewater collection system has fourteen main lift stations, not including the treatment plant lift station, plus it has several small individual lift stations providing service to individual tracts to which a gravity collection line has not been installed. Wastewater is also received from Magnolia High School located at FM 1488 and FM 149 and from Magnolia West High School located on FM 1774 through a force main from a lift station at each of these two high schools. The main lift stations and the capacity of each are shown in Table 5-1. The existing lift stations have adequate capacity for existing demand.

5.2.2.2 Collection Lines

The gravity collection lines range in size from 6" to 12". The system also has force mains that carry wastewater from the lift stations to gravity lines. In addition to force mains from the City owned

and operated lift stations, the City also owns and maintains the force main from Magnolia High School located near the intersection of FM 1488 and FM 149.

5.3 DESIGN CRITERIA

The TCEQ Design criteria for wastewater systems, "Chapter 317: Design Criteria For Sewerage Systems" applies for the Magnolia wastewater system. Peak (wet weather) flows of 400 percent of average day flows are used for determining peak facility capacities. Capacity of gravity lines are based on pipes flowing full at a grade producing a velocity of not less than 2 fps using Manning's formula with an "n" value of 0.013.

City records indicate average residential demand is approximately 70 gallons per person per day. TCEQ design criteria provides for a demand of 100 gallons per person per day, and estimated demand for 2018 was developed based on this demand for future growth.

5.4 EXISTING REQUIREMENTS

5.4.1 General

Wastewater demand is based on existing land use and criteria given in Section 5.3. Table 5-2 shows estimated wastewater demand for 2008.

For the purpose of this report, a wastewater system service unit, sometimes called an equivalent development unit (EDU) or equivalent connection, is defined as the wastewater flow rate generated when water service is provided by a standard (simple) five-eighths inch water meter per AWWA standards. The number of wastewater service units for property provided water service by larger size meters is determined by the relationship (ratio) of the continuous duty maximum flow rate in gallons per minute for a water meter of a given size and type compared to that of a five-eighths inch size simple water meter per AWWA standards. Service unit equivalencies for various types and sizes of water meters are given in Table 4-4. As examples: Water service provided to a property through a five-eighths inch simple water meter is equal to one water system service unit, and the resulting wastewater flow (contribution) from water received through the five-eighths inch simple water meter is equal to one wastewater service unit. Water service provided to a property through a two inch compound water meter is equal to eight water system service units, and the resulting wastewater flow (contribution) from water received through the

two inch compound meter is equal to eight wastewater service units. Typically, wastewater service will not be provided to a property unless water service is provided to that property, however, should that non-typical type of service be desired, the impact fee for providing only wastewater service will have to be negotiated on an individual basis.

5.4.2 Adequacy of Existing System

5.4.2.1 Treatment

The existing treatment plant has a permitted capacity of 0.65 million gallons per day (mgd). The daily average flow is approximately 0.243 mgd as recorded for the month of February 2008. The existing plant has capacity for existing demand.

5.4.2.2 Collection

There have been no known overflows of collection lines or lift stations due to inadequate capacity, therefore the existing collection system has been adequate for existing demand. There have been reported overflows in the past due to blockage in a line or power outage at a lift station. The City has attempted to control stormwater inflow and groundwater infiltration into the collection lines by smoke testing lines and by making repairs where a problem was detected. It is recommended that the City maintain an active program to minimize the entrance of stormwater and groundwater into the system in order to minimize flows at the treatment plant to ensure that the permitted flow at the treatment plant is not exceeded.

5.5 PROPOSED IMPROVEMENTS

5.5.1 Requirements

Wastewater requirements for 2018 were determined from land use assumptions and density projections for the study period. The estimated wastewater demands are shown in Table 5-3. The wastewater system currently provides service to 1,404 equivalent connections. It is estimated based on population projections that there will be 2,612 equivalent wastewater connections in 2018 with 2,496 equivalent wastewater connections being inside the study area.

As development and growth occur in the study area, the existing wastewater system will require expansion to provide wastewater collection and treatment.

5.5.2 Proposed Improvements

5.5.2.1 Treatment Plants

The existing treatment plant will reach its permitted capacity toward the end of the 10-year study period according to demand projections for 2018, and a new treatment plant is proposed as a part of the CIP. It is anticipated that it will become economically feasible to construct a new treatment plant in the Mill Creek watershed on the northeastern side of Magnolia toward the end of the 10-year study period. The area on the northern and eastern side of Magnolia is expected to see significant growth due to development enhanced by the planned SH 249 route and improvements to FM 1488.

An approximate location for a new treatment plant is shown on Exhibit 5-1. The final location will depend on availability of land and other factors. The City should consider acquiring land needed for a new treatment plant as soon as possible.

5.5.2.2 Collection System

As development occurs in the study area (City and ETJ) where wastewater service is not currently provided, it will become necessary to extend the collection system to serve a larger area. Proposed major trunk lines and associated lift stations and force mains are shown on Exhibit 5-1. Smaller collection lines needed from the proposed trunk lines to individual areas of development are not included in this study. The City should consider acquiring the needed easements for the proposed new lines.

5.5.3 Cost Estimates

The cost estimate for the 10-year wastewater system capital improvements project (CIP) is given in Table 5-4 and is based on current costs. The cost estimate includes an estimated cost for land, and an allowance for contingencies and engineering design (25%). It does not include legal or fiscal costs related to the CIP. The cost estimate is preliminary, and the final cost may vary.

In most instances, it is recommended to install a larger trunk line than that shown to be needed to satisfy the requirements of growth of the 10-year study period. The 10-year study period is the time period allowed in determining the impact fee. Lines actually installed should be sized to allow for growth over a longer period of time. However, only the costs associated with system capacity required for the 10-year planning period are included in the maximum impact fee calculation.

Table 5-1

Magnolia Lift Stations

Name	Firm Capacity* (gpm)
No. 1: Melton	50
No. 2: Lee Road	90
No. 3: Roy Street	70
No. 4: Little Bough	70
No. 5: Windward	175
No. 6: Lookout Lake	70
No. 7: Kelly Road	45
No. 8: New Kelly Road	150
No. 9: Edwards	45
No. 10: Jeter Road	45
No. 11: Cloyd Street Apartments	80
No. 12: Hanks Road	70
No. 13: 16835 FM 1488	45
No. 14: FM 1774 W.	190
Sewer Plant	75

*Lift station capacity with largest pump out of service.
Capacities were determined from in-field calibration tests performed by TNG.

Table 5-2

2008 Wastewater Demand (City Limits, Grand Oaks, & High Schools)

Land Use	Demand (gpd/acre)	Area (Acres)	Average Day Flow (mgd)	Peak Flow (Wet Weather)(mgd)
S.F. Residential	241	221	0.053	0.213
Large Lot Res.	83	317	0.026	0.105
Multi-Family Res.	2,250	12	0.027	0.108
Mfgr. Home Res.	675	53	0.035	0.143
Comm. & Ind.	260	184	0.047	0.191
Educational Inside City	357	103	0.036	0.147
High Schools Outside C.L.			0.028	0.112
TOTAL			0.252	1.019

Table 5-3

2018 Wastewater Demand

Land Use	Demand (gpd/ac)	Area (acres)	Average Day Flow (mgd)	Peak Flow (Wet Weather)(mgd)
S.F. Residential	401	718	0.288	1.152
Large Lot Res.	134	889	0.119	0.476
Multi-Family Res.	2,886	38	0.110	0.439
Mfgr. Home Res.	916	96	0.088	0.352
Comm. & Ind.	650	620	0.403	1.612
Educational	377	193	0.073	0.291
FM 149 H.S.			0.020	0.080
TOTALS			1.101	4.402

Table 5-4

10-Year Wastewater System Capital Improvements
Preliminary Cost Estimate

1.	Construct 0.75 mgd wastewater treatment plant, including lift station at plant	$8,090,000.00
2.	Construct 8" min. gravity line from Kelly Rd. northward to a new lift station approx. at ETJ line, including lift station & 6" min. force main	$1,115,000.00
3.	Construct 12" min. gravity line generally along Arnold Branch (watershed) from FM 1774 to FM 1488	$416,000.00
4.	Construct min. 15" gravity line generally along Arnold Branch from FM 1488 to existing treatment plant	$769,000.00
5.	Construct min. 8" gravity line generally along Sulphur Branch from a location north of FM 1774 southward to FM 1774	$137,000.00
6.	Construct min. 10" gravity line generally along Sulphur Branch from FM 1774 to approx. ETJ line, including lift station and 10" min. force main	$1,424,000.00
7.	Construct 18" min. gravity line from FM 1488 generally along a Tributary of Mill Creek to proposed wastewater treatment plant	$655,250.00
8.	Construct 12" min. gravity line from Nichols Sawmill Road eastward & northward to Melton St.	$250,000.00
	TOTAL	$12,856,250.00

Table 5-5

Size Wastewater Lines Recommended For Long Term Service When Different Than The Size Line Shown For The 10-Year Impact Fee Capital Improvement Plan

It is recommended that the size of wastewater lines shown in the 10-year capital improvements plan (for impact fee calculation purposes) be increased in size as follows in order to be sized for long term service.

1. 15" min. gravity line from Kelly Road northward to a new lift station approx. at ETJ (Force main size to be determined during design of lift station.)

2. 15" min. gravity line generally along Arnold Branch from FM 1774 to FM 1488.

3. 18" min. gravity line generally along Arnold Branch from FM 1488 to existing treatment plant.

4. 12" min. gravity line generally along Sulphur Branch from a location north of FM 1774 southward to FM 1774.

5. 18" min. gravity line generally along Sulphur Branch from FM 1774 to a new lift station approx. at ETJ (force main size to be determined during design of lift station).

6. 24" min. gravity line from FM 1488 generally along a tributary of Mill Creek to proposed wastewater treatment plant.

NOTE: The required size of all lines should be reviewed periodically and updated based on actual and projected development and growth.

Table 5-6

Preliminary Cost Estimate
For
Increased Cost For Size Wastewater Lines Recommended For Long Term Service When Different Than The Size Line Shown For The 10-Year Impact Fee Capital Improvement Plan

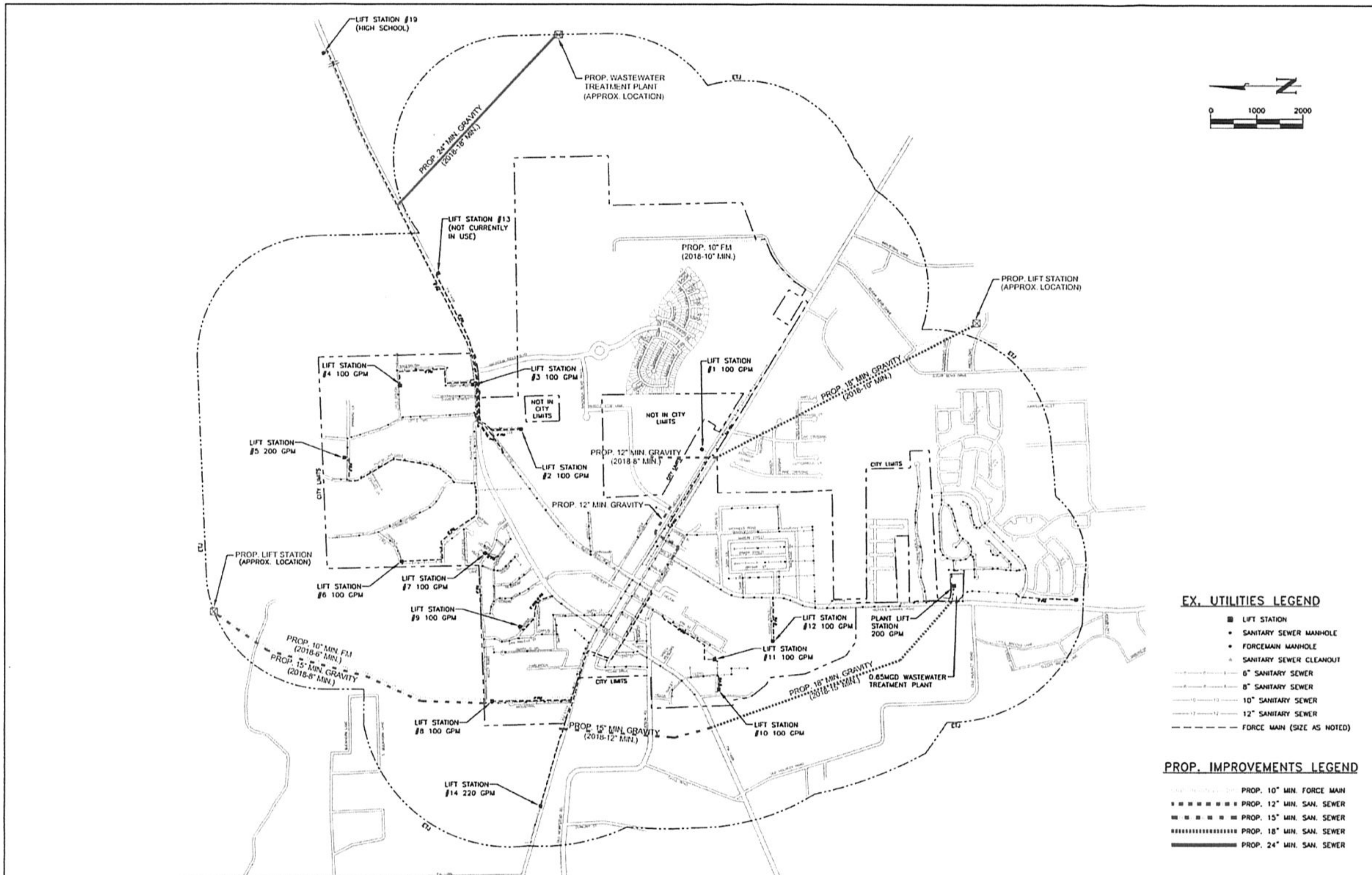
NOTE: The purpose of these costs is to show the estimated additional cost to the costs shown for the 10-year impact fee capital improvements plan (for impact fee calculation) in order to install the recommended size line for long term service.

1.	Recommended 15" min. gravity line from Kelly Road northward to a new lift station approx. at ETJ (8" min. for 10-year plan) – Additional Estimated Cost	$218,000.00
2.	Recommended 15" min. gravity line generally along Arnold Branch from FM 1774 to FM 1488 (12" for 10-year plan) – Additional Estimated Cost	$80,000.00
3.	Recommended 18" min. gravity line generally along Arnold Branch from FM 1488 to existing treatment plant (15" for 10-year plan) – Additional Estimated Cost	$134,000.00
4.	Recommended 12" min. gravity line generally along Sulphur Branch from a location north of FM 1774 southward to FM 1774 (8" for 10-year plan) – Additional Estimated Cost	$20,000.00
5.	Recommended 18" min. gravity line generally along Sulphur Branch from FM 1774 to a new lift station approx. at ETJ (10" for 10-year plan) – Additional Estimated Cost	$228,000.00
6.	Recommended 24" min. gravity line from FM 1488 generally along a tributary of Mill Creek to proposed wastewater treatment plant (18" for 10-year plan) – Additional Estimated Cost	$112,000.00
	TOTAL ADDITIONAL ESTIMATED COST	$792,000.00

EXHIBIT 5-1

CITY OF MAGNOLIA
SANITARY SEWER SYSTEM
PROPOSED IMPROVEMENTS

O'Malley Engineers
203 S. Jackson
Brenham, Texas 77833
(979) 836-7937
Fax (979) 836-7936



THIS MAP WAS ORIGINALLY PREPARED BY OTHERS. IT HAS BEEN UPDATED BASED ON INFORMATION PROVIDED BY CITY PERSONNEL.

MAP UPDATED 01/06/05

NO.	REVISION	BY	DATE

Field Book: NA
Date: 08/08
Project Number: 587.020 MJ
Design By: NA
Drawn By: JAJ

VERIFY SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Sheet Title: SANITARY SEWER SYSTEM

Sheet Number: 1 ....of.... 1

6.0 MAXIMUM ASSESSABLE IMPACT FEE DETERMINATION

6.1 Methodology

The impact fee determination methodology employed by R.W. Beck is developed through a cash-flow, financial based model, which recognizes the requirements of Chapter 395 of the Texas Local Government Code *Financing Capital Improvements Required by New Development in Municipalities, Counties, and Certain Other Local Governments* (i.e. impact fee statute), as well as the recognition of cash and/or debt financing, interest earnings, fund balances, and applicable credits to the impact fee calculation. In developing the components of the financial model several assumptions must be made, including:

- Financing
    - Method of financing (i.e. debt or non-debt financing)
    - The level of financing (e.g. 100% debt / 0% non-debt)
    - Cost of financing
    - Debt repayment structure
- Timing and Level of Expenditures and Revenues
- Interest Earnings
- Annual Service Unit Growth
- Applicable Impact Fee Credits

While it is R.W. Beck's opinion that the assumptions employed in the maximum assessable impact fee determination provide a reasonable basis for forecasting, we must emphasize that these assumptions may not necessarily reflect actual future conditions. To address this, Chapter 395 requires the monitoring of impact fees through the Impact Fee Advisory Committee, and allows for the option to update or revise impact fees to reflect the actual implementation of the impact fee program.

Once the cost of capacity added that is attributable to growth is determined, it must then be decided how the cost will be financed, debt and/or non-debt. Based on discussions with City staff, it is assumed that the City will debt finance 100% of the growth-related capital improvements. For debt financing, the cost of debt is based on conversations with the City's Financial Advisor regarding estimates of debt costs for bonds issued with 20-year terms assuming a debt issue in the current year. The cost of debt was then forecasted using an actuarial model based on historical Treasury yields and the current spread between Treasury yields and municipal bond yields. Debt service payments for each future

debt issue are assumed to remain constant over the issue's term. It was assumed that the City would issue equivalent amounts of debt in Years 1, 4, and 7 during the impact fee 10-year forecast period. Chapter 395 allows for the inclusion of the professional services costs to update the impact fees in the impact fee determination. The cost to update the impact fees was allocated equally between water and wastewater. It was assumed that the cost to update the impact fees would not be debt financed.

Since the financial model recognizes both the inflow and outflow of funds, when the proceeds from the debt issues are spent on capital improvements they must be incorporated into the impact fee determination. Currently, the exact timing and annual level of capital expenditures over the 10-year forecast is indeterminate; therefore, it is assumed that the proceeds from each debt issue will be spent in equal amounts over a 3-year period using a mid-point convention for the first year of capital expenditure.

Because debt is issued over 20-year terms and impact fees developed herein are to be charged over a 10-year period, sufficient fund balance must be generated to meet the future debt service obligations. Because of the generation of the fund balance, excess monies will be available for interest earnings. Chapter 395 states that interest earnings are funds of the impact fee account and are to be held to the same restrictions as impact fee revenues. Therefore, in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the costs recoverable through impact fees. It should be noted that Chapter 395 does not require the upfront recognition of interest earnings in the impact fee determination; however, in an effort to acknowledge the time value of the impact fee payers' monies, interest earnings are credited against impact fee capital improvement costs. Interest is assumed to be earned at an annual rate of 2.32% based on the City's annual return on money market funds as of 6/20/08.

Some of the capital improvement projects included in the 2008 Impact Fee Update were also incorporated in the "City of Magnolia Infrastructure Master Plan and Capital Recovery Fee Determination 2003 to 2008 by PBS&J" (2003 Impact Fee Study). Impact fees have been collected based on the 2003 Impact Fee Study; however, there are some of these impact fees that are waiting to be spent. To avoid a possible double charge for the same project, the impact fee revenues collected but yet to be expended (i.e. Fund Balance) are credited against the Recoverable Impact Fee CIP Costs.

As with the timing and level of the capital expenditures over the 10-year forecast, the timing and annual level of service unit growth (i.e. equivalent connections) over the 10-year program period is

indeterminate at the present time. As such, it is assumed that annual service unit growth will be consistent over the 10-year forecast.

Chapter 395 requires a plan for awarding either a credit for the portion of ad valorem tax and/or utility service revenues generated by new service units during the program period that are used for payment of improvements that are included in the impact fee capital improvements plan, or a credit equal to 50% of the total cost of implementing the impact fee capital improvements plan. The City has elected to provide a credit equal to 50% of the total cost of implementing the impact fee capital improvements plan.

The following summarizes the financial model's determination of the maximum assessable impact fee per equivalent connection for water and wastewater.

Table 6-1
Maximum Assessable Impact Fee

	Water	Wastewater
Recoverable Impact Fee CIP Costs (after 50% credit)	$2,296,213	$6,443,088
Financing Costs	1,640,529	4,622,696
Existing Fund Balance	(87,465)	(131,197)
Interest Earnings	(726,996)	(2,037,710)
Maximum Recoverable Cost for Impact Fee	$3,122,281	$8,896,877
Equivalent Connections	1,320	1,092
Maximum Assessable Impact Fee (per Equiv. Conn.)	**$2,365**	**$8,147**

The following illustrates the Maximum Assessable Impact Fee per Meter Size and Type based on the meter equivalencies in Table 4-4.

Table 6-2
Maximum Assessable Impact Fee per Meter Size and Type

Meter Size	Meter Type	Water Impact Fee	Wastewater Impact Fee	Combined Impact Fee
5/8"	Simple	$2,365	$8,147	$10,512
5/8" x 3/4"	Simple	2,365	8,147	10,512
3/4"	Simple	3,548	12,221	15,768
1"	Simple	5,913	20,368	26,280
1 ½"	Simple	11,825	40,735	52,560
2"	Simple	18,920	65,176	84,096
2"	Compound	18,920	65,176	84,096
3"	Compound	37,840	130,352	168,192
3"	Turbine – Low Velocity	41,388	142,573	183,960
3"	Turbine – Vertical Shaft Type	52,030	179,234	231,264
3"	Turbine – In Line (High Vel.) Type	82,775	285,145	367,920
4"	Compound	59,125	203,675	262,800
4"	Turbine – Low Velocity	70,950	244,410	315,360
4"	Turbine – Vertical Shaft Type	99,330	342,174	441,504
4"	Turbine – In Line (High Vel.) Type	153,725	529,555	683,280
6"	Compound	118,250	407,350	525,600
6"	Turbine – Low Velocity	147,813	509,188	657,000
6"	Turbine – Vertical Shaft Type	204,573	704,716	909,288
6"	Turbine – In Line (High Vel.) Type	331,100	1,140,580	1,471,680
8"	Compound	189,200	651,760	840,960
8"	Turbine – Low Velocity	212,850	733,230	946,080
8"	Turbine – In Line (High Vel.) Type	567,600	1,955,280	2,522,880
10"	Compound	271,975	936,905	1,208,880
10"	Turbine – Low Velocity	342,925	1,181,315	1,524,240
10"	Turbine – In Line (High Vel.)	827,750	2,851,450	3,679,200
12"	Turbine – Low Velocity	508,475	1,751,605	2,260,080
12"	Turbine – In Line (High Vel.) Type	1,040,600	3,584,680	4,625,280

6.2 Impact Fee Administration

The following provides a brief overview of some of the requirements associated with administering impact fees:

- Impact fees can only be used to fund capital improvement projects identified in the Impact Fee Capital Improvements Plan from which they were adopted (§ 395.013 of the Texas Local Government Code)
- Impact fees may not be used to fund (see § 395.013 of the Texas Local Government Code for additional detail on items not payable with impact fees):
  - Operations and maintenance costs
  - Capital improvements associated with correcting exiting system deficiencies
  - Administrative and operational costs of the City
  - Debt service associated with non-impact fee capital improvements
- Impact fees are typically assessed at the time of final plat recordation and collected at the time a building permit is issued (for exceptions, please see § 395.16 of the Texas Local Government Code)
- Impact fees are to be held in separate interest-bearing accounts for each impact fee category (i.e. water and wastewater) (§ 395.024 of the Texas Local Government Code)
- Interest earnings are held to the same use restrictions as impact fee revenue (§ 395.024 of the Texas Local Government Code)
- Refunds (§ 395.025 of the Texas Local Government Code):
  - If water and/or wastewater service is not available at the time of impact fee collection, the City may collect the impact fees but must commence construction on capital improvements to provide the service within 2 years and complete improvements within 5 years of impact fee payment. If these requirements are not met, the owner of the property may request a refund plus interest.
  - The property owner of a property on which an impact has been paid may request a refund plus interest if water and/or wastewater service is available but is denied service
  - Impact fees plus interest are to be refunded to the property owner at time of refund if the impact fees for said property are not spent within 10 years of collection

- An Impact Fee Advisory Committee (Advisory Committee) is to be appointed by the City Council. On behalf of the City Council, the Advisory Committee is to advise, review, and monitor land use assumptions, impact fee capital improvement projects, and impact fee performance. The Advisory Committee is to file semiannual reports to the City Council. (see § 395.058 of the Texas Local Government Code for additional details on the Advisory Committee's required activities)
- An annual compliance certification is to be filed with the State's Attorney General no later than the last day of the City's fiscal year. (§ 395.082 of the Texas Local Government Code)

EXHIBIT 6-1

SUMMARY OF WATER IMPACT FEE DETERMINATION

Recoverable Impact Fee CIP Costs (after 50% credit)	$	2,296,213	Page 1 of Exhibit 6-1 - Water
Financing Costs		1,640,529	See Detail Below
Existing Fund Balance		(87,465)	Page 1 of Exhibit 6-1 - Water
Interest Earnings		(726,996)	Page 4 of Exhibit 6-1 - Water
Maximum Recoverable Cost for Impact Fee	**$**	**3,122,281**	Sum of Above
Equivalent Connections		1,320	Section 4.5.1 of Report
Maximum Assessable Impact Fee	**$**	**2,365**	Max. Recoverable Cost Divided by Equiv. Conn.

Recoverable Impact Fee CIP Costs (after 50% credit):

Represents the portion of capital improvement costs that is eligible for funding through impact fees after adjusting for the 50% credit (Page 1 of Exhibit 6-1 - Water). In 2001, the Impact Fee Statute was amended to include either a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund impact fee eligible projects for which the new service units were charged an impact fee or a credit equal to 50% of the total cost of implementing the impact fee capital improvements plan. The City has elected to use the 50% credit.

Financing Costs:

Represents the interest costs associated with debt financing the impact fee capital improvement costs. It is assumed all of the impact fee capital improvement costs will be funded through new debt issues and the cost to update the impact fee will be funded through non-debt sources. The cost of debt is based on conversations with the City's Financial Advisor regarding estimates of debt costs for a bond issued in the current year with a 20-year term. Cost of debt is then forecasted using an actuarial model based on historical Treasury yields and the current spread between Treasury yields and municipal bond yields.

New Annual Debt Service	$	3,921,779	(Page 2 of Exhibit 6-1 - Water)
Project Cost Funded Through New Debt		(2,281,250)	(Page 1 of Exhibit 6-1 - Water)
Financing Costs	$	1,640,529	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended. Some projects that are included in the 2008 Impact Fee Update were also included in the 2003 Impact Fee Study. To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Exhibit 6-1 - Water.

Interest Earnings:

Represents the interest earned on cash flows. Assumes a 2.32% annual interest rate based on the City's current annual return as of 6/20/08. The Impact Fee Statute states that interest earnings are funds of the impact fee account and are held to the same restrictions as impact fee revenues. Therefore, in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 4 of Exhibit 6-1 - Water.

Maximum Recoverable Cost for Impact Fee:

Represents the sum of Recoverable Impact Fee CIP Costs (after 50% credit) and Financing Costs less Existing Fund Balance and Interest Earnings.

Equivalent Connections:

Represents the growth in equivalent water connections over the ten-year timeframe (i.e. service units). A service unit is a standardized measure of use attributable to an individual unit of development calculated in accordance with generally accepted engineering standards. Reference is Section 4.5.1 of Report.

Maximum Assessable Impact Fee:

Represents Maximum Recoverable Cost for Impact Fee divided by Equivalent Connections. This is the maximum impact fee that can be assessed by the City.

City of Magnolia 2008 Water Impact Fee Determination

Exhibit 6-1 - Impact Fee Calculation Assumptions

I. General Assumptions

Annual Interest Rate on Deposits[1]	2.32%
Annual Service Unit Growth[2]	132
Existing Fund Balance[3]	$ 87,465

		50% Credit[4]	Net Cost
Non-debt Funded Cost[5]	$ 29,925	$ 14,963	$ 14,963
Project Cost Funded Through New Debt[6]	4,562,500	2,281,250	2,281,250
Total Recoverable Project Cost	$ 4,592,425	$ 2,296,213	$ 2,296,213

II. New Debt Issues Assumptions

Year	Principal[7]	Interest[8]	Term
1	$ 760,417	5.25%	20
2	-	5.21%	20
3	-	5.36%	20
4	760,417	5.63%	20
5	-	5.93%	20
6	-	6.33%	20
7	760,417	6.58%	20
8	-	6.75%	20
9	-	6.81%	20
10	-	6.80%	20
Total	$ 2,281,250		

III. Capital Expenditure Assumptions

Year	Annual Capital Expenditures[9]
1	$ 141,699
2	253,472
3	253,472
4	253,472
5	253,472
6	253,472
7	253,472
8	253,472
9	253,472
10	126,736
Total	$ 2,296,213

(1) City's current annual return as of 6/20/08
(2) Section 4.5.1 of the Report
(3) Per City account balance as of FYE 2007; allocated based on existing water and wastewater impact fees
(4) Per statute City applying 50% credit
(5) Represents cost to update impact fees; allocated equally between water and wastewater; assumes 0% of impact fee capital improvement project costs funded through sources other than debt
(6) Assumes 100% of impact fee capital improvement project costs funded through new debt issues; reference Table 4-5
(7) Assumes new debt issued in equal annual amounts in Years 1, 4, and 7
(8) Estimated interest cost
(9) Assumes new debt proceeds expended over a 3-year timeframe using a mid-point convention for the first year of each debt issue; cost of update reflected in Year 1

City of Magnolia 2008 Water Impact Fee Determination

Exhibit 6-1 - Debt Service and Expense Summary

I. New Debt Service Detail

Year	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7	Series 8	Series 9	Series 10	Total Annual New Debt Service
1	$ 62,318	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 62,318
2	62,318	-	-	-	-	-	-	-	-	-	62,318
3	62,318	-	-	-	-	-	-	-	-	-	62,318
4	62,318	-	-	64,319	-	-	-	-	-	-	126,637
5	62,318	-	-	64,319	-	-	-	-	-	-	126,637
6	62,318	-	-	64,319	-	-	-	-	-	-	126,637
7	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
8	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
9	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
10	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
11	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
12	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
13	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
14	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
15	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
16	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
17	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
18	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
19	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
20	62,318	-	-	64,319	-	-	69,452	-	-	-	196,089
21	-	-	-	64,319	-	-	69,452	-	-	-	133,771
22	-	-	-	64,319	-	-	69,452	-	-	-	133,771
23	-	-	-	64,319	-	-	69,452	-	-	-	133,771
24	-	-	-	-	-	-	69,452	-	-	-	69,452
25	-	-	-	-	-	-	69,452	-	-	-	69,452
26	-	-	-	-	-	-	69,452	-	-	-	69,452
27	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-
	$ 1,246,358	$ -	$ -	$ 1,286,384	$ -	$ -	$ 1,389,037	$ -	$ -	$ -	$ 3,921,779

II. Summary of Annual Expenses

Year	New Annual Debt Service[1]	Annual Capital Expenditures[2]	Annual Bond Proceeds[2]	Existing Annual Debt Service[3]	Total Expense
1	$ 62,318	$ 141,699	$ (760,417)	NA	$ (556,400)
2	62,318	253,472	-	NA	315,790
3	62,318	253,472	-	NA	315,790
4	126,637	253,472	(760,417)	NA	(380,307)
5	126,637	253,472	-	NA	380,109
6	126,637	253,472	-	NA	380,109
7	196,089	253,472	(760,417)	NA	(310,855)
8	196,089	253,472	-	NA	449,561
9	196,089	253,472	-	NA	449,561
10	196,089	126,736	-	NA	322,825
11	196,089	-	NA	NA	196,089
12	196,089	-	NA	NA	196,089
13	196,089	-	NA	NA	196,089
14	196,089	-	NA	NA	196,089
15	196,089	-	NA	NA	196,089
16	196,089	-	NA	NA	196,089
17	196,089	-	NA	NA	196,089
18	196,089	-	NA	NA	196,089
19	196,089	-	NA	NA	196,089
20	196,089	-	NA	NA	196,089
21	133,771	-	NA	NA	133,771
22	133,771	-	NA	NA	133,771
23	133,771	-	NA	NA	133,771
24	69,452	-	NA	NA	69,452
25	69,452	-	NA	NA	69,452
26	69,452	-	NA	NA	69,452
27	-	-	NA	NA	-
28	-	-	NA	NA	-
29	-	-	NA	NA	-
	$ 3,921,779	$ 2,296,213	$ (2,281,250)	$ -	$ 3,936,742

(1) Exhibit 6-1 - Water, page 2 Section I

(2) Exhibit 6-1 - Water, page 1

(3) No eligible impact fee project costs currently funded through existing debt

City of Magnolia 2008 Water Impact Fee Determination

Exhibit 6-1 - Impact Fee Calculation

Year	Number of Years to End of Period	Future Value Escalation Interest Rate Factor	Future Value Escalation Recovery Fee Factor	Annual Service Units Actual	Annual Service Units Escalated	Annual Expense Actual	Annual Expense Escalated
1	29	1.9227	1.0000	132	254	$ (556,400)	$ (1,069,771)
2	28	1.8791	1.0000	132	248	315,790	593,392
3	27	1.8365	1.0000	132	242	315,790	579,937
4	26	1.7948	1.0000	132	237	(380,307)	(682,585)
5	25	1.7541	1.0000	132	232	380,109	666,761
6	24	1.7144	1.0000	132	226	380,109	651,643
7	23	1.6755	1.0000	132	221	(310,855)	(520,834)
8	22	1.6375	1.0000	132	216	449,561	736,154
9	21	1.6004	1.0000	132	211	449,561	719,463
10	20	1.5641	1.0000	132	206	322,825	504,924
11	19	1.5286	1.0000	-	-	196,089	299,745
12	18	1.4940	1.0000	-	-	196,089	292,948
13	17	1.4601	1.0000	-	-	196,089	286,306
14	16	1.4270	1.0000	-	-	196,089	279,814
15	15	1.3946	1.0000	-	-	196,089	273,470
16	14	1.3630	1.0000	-	-	196,089	267,269
17	13	1.3321	1.0000	-	-	196,089	261,209
18	12	1.3019	1.0000	-	-	196,089	255,286
19	11	1.2724	1.0000	-	-	196,089	249,498
20	10	1.2435	1.0000	-	-	196,089	243,841
21	9	1.2153	1.0000	-	-	133,771	162,576
22	8	1.1878	1.0000	-	-	133,771	158,889
23	7	1.1608	1.0000	-	-	133,771	155,287
24	6	1.1345	1.0000	-	-	69,452	78,794
25	5	1.1088	1.0000	-	-	69,452	77,008
26	4	1.0837	1.0000	-	-	69,452	75,262
27	3	1.0591	1.0000	-	-	-	-
28	2	1.0351	1.0000	-	-	-	-
29	1	1.0116	1.0000	-	-	-	-
					2,294		5,596,286

Total Escalated Expense for Entire Period	$	5,596,286
Less Future Value of Initial Fund Balance		170,094
Net Escalated Expense for Entire Period	$	5,426,192
Total Escalated Service Units		2,294
Maximum Assessable Impact Fee	**$**	**2,365**

City of Magnolia 2008 Water Impact Fee Determination

Exhibit 6-1 - Revenue Test

Year	Impact Fee	Service Units	Impact Fee Revenue	Annual Expenses	Sub-Total	Accumulated Interest	Estimated Fund Balance
Initial							$ 87,465
1	$ 2,365	132	$ 312,228	$ (556,400)	$ 868,628	$ 12,105	968,198
2	2,365	132	312,228	315,790	(3,562)	22,421	987,057
3	2,365	132	312,228	315,790	(3,562)	22,858	1,006,354
4	2,365	132	312,228	(380,307)	692,535	31,381	1,730,270
5	2,365	132	312,228	380,109	(67,881)	39,355	1,701,743
6	2,365	132	312,228	380,109	(67,881)	38,693	1,672,555
7	2,365	132	312,228	(310,855)	623,084	46,031	2,341,670
8	2,365	132	312,228	449,561	(137,333)	52,734	2,257,070
9	2,365	132	312,228	449,561	(137,333)	50,771	2,170,508
10	2,365	132	312,228	322,825	(10,597)	50,233	2,210,144
11	-	-	-	196,089	(196,089)	49,001	2,063,056
12	-	-	-	196,089	(196,089)	45,588	1,912,555
13	-	-	-	196,089	(196,089)	42,097	1,758,563
14	-	-	-	196,089	(196,089)	38,524	1,600,998
15	-	-	-	196,089	(196,089)	34,869	1,439,778
16	-	-	-	196,089	(196,089)	31,128	1,274,817
17	-	-	-	196,089	(196,089)	27,301	1,106,029
18	-	-	-	196,089	(196,089)	23,385	933,325
19	-	-	-	196,089	(196,089)	19,379	756,615
20	-	-	-	196,089	(196,089)	15,279	575,805
21	-	-	-	133,771	(133,771)	11,807	453,841
22	-	-	-	133,771	(133,771)	8,977	329,047
23	-	-	-	133,771	(133,771)	6,082	201,358
24	-	-	-	69,452	(69,452)	3,866	135,772
25	-	-	-	69,452	(69,452)	2,344	68,664
26	-	-	-	69,452	(69,452)	787	(0)
27	-	-	-	-	-	(0)	(0)
28	-	-	-	-	-	(0)	(0)
29	-	-	-	-	-	(0)	(0)
			3,122,281	3,936,742		726,996	

EXHIBIT 6-2

SUMMARY OF WASTEWATER IMPACT FEE DETERMINATION

Recoverable Impact Fee CIP Costs (after 50% credit)	$	6,443,088	Page 1 of Exhibit 6-2 - Wastewater
Financing Costs		4,622,696	See Detail Below
Existing Fund Balance		(131,197)	Page 1 of Exhibit 6-2 - Wastewater
Interest Earnings		(2,037,710)	Page 4 of Exhibit 6-2 - Wastewater
Maximum Recoverable Cost for Impact Fee	**$**	**8,896,877**	Sum of Above
Equivalent Connections		1,092	Section 5.5.1 of the Report
Maximum Assessable Impact Fee	**$**	**8,147**	Max. Recoverable Cost Divided by Equiv. Conn.

Recoverable Impact Fee CIP Costs (after 50% credit):

Represents the portion of capital improvement costs that is eligible for funding through impact fees after adjusting for the 50% credit (Page 1 of Exhibit 6-2 - Wastewater). In 2001, the Impact Fee Statute was amended to include either a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund impact fee eligible projects for which the new service units were charged an impact fee or a credit equal to 50% of the total cost of implementing the impact fee capital improvements plan. The City has elected to use the 50% credit.

Financing Costs:

Represents the interest costs associated with debt financing the impact fee capital improvement costs. It is assumed all of the impact fee capital improvement costs will be funded through new debt issues and the cost to update the impact fee will be funded through non-debt sources. The cost of debt is based on conversations with the City's Financial Advisor regarding estimates of debt costs for a bond issued in the current year with a 20-year term. Cost of debt is then forecasted using an actuarial model based on historical Treasury yields and the current spread between Treasury yields and municipal bond yields.

New Annual Debt Service	$	11,050,821	(Page 2 of Exhibit 6-2 - Wastewater)
Project Cost Funded Through New Debt		(6,428,125)	(Page 1 of Exhibit 6-2 - Wastewater)
Financing Costs	$	4,622,696	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended. Some projects that are included in the 2008 Impact Fee Update were also included in the 2003 Impact Fee Study. To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Exhibit 6-2 - Wastewater.

Interest Earnings:

Represents the interest earned on cash flows. Assumes a 2.32% annual interest rate based on the City's current annual return as of 6/20/08. The Impact Fee Statute states that interest earnings are funds of the impact fee account and are held to the same restrictions as impact fee revenues. Therefore, in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 4 of Exhibit 6-2 - Wastewater.

Maximum Recoverable Cost for Impact Fee:

Represents the sum of Recoverable Impact Fee CIP Costs (after 50% credit) and Financing Costs less Existing Fund Balance and Interest Earnings.

Equivalent Connections:

Represents the growth in equivalent wastewater connections over the ten-year timeframe (i.e. service units). A service unit is a standardized measure of use attributable to an individual unit of development calculated in accordance with generally accepted engineering standards. Reference is Section 5.5.1 of the Report.

Maximum Assessable Impact Fee:

Represents Maximum Recoverable Cost for Impact Fee divided by Equivalent Connections. This is the maximum impact fee that can be assessed by the City.

City of Magnolia 2008 Wastewater Impact Fee Determination

Exhibit 6-2 - Impact Fee Calculation Assumptions

I. General Assumptions

Annual Interest Rate on Deposits[1]	2.32%
Annual Service Unit Growth[2]	109
Existing Fund Balance[3]	$ 131,197

		50% Credit[4]	Net Cost
Non-debt Funded Cost[5]	$ 29,925	$ 14,963	$ 14,963
Project Cost Funded Through New Debt[6]	12,856,250	6,428,125	6,428,125
Total Recoverable Project Cost	$ 12,886,175	$ 6,443,088	$ 6,443,088

II. New Debt Issues Assumptions

Year	Principal[7]	Interest[8]	Term
1	$ 2,142,708	5.25%	20
2	-	5.21%	20
3	-	5.36%	20
4	2,142,708	5.63%	20
5	-	5.93%	20
6	-	6.33%	20
7	2,142,708	6.58%	20
8	-	6.75%	20
9	-	6.81%	20
10	-	6.80%	20
Total	$ 6,428,125		

III. Capital Expenditure Assumptions

Year	Annual Capital Expenditures[9]
1	$ 372,081
2	714,236
3	714,236
4	714,236
5	714,236
6	714,236
7	714,236
8	714,236
9	714,236
10	357,118
Total	$ 6,443,088

(1) City's current annual return as of 6/20/08
(2) Section 5.5.1 of the Report
(3) Per City account balance as of FYE 2007; allocated based on existing water and wastewater impact fees
(4) Per statute City applying 50% credit
(5) Represents cost to update impact fees; allocated equally between water and wastewater; assumes 0% of impact fee capital improvement project costs funded through sources other than debt
(6) Assumes 100% of impact fee capital improvement project costs funded through new debt issues; reference Table 5-4
(7) Assumes new debt issued in equal annual amounts in Years 1, 4, and 7
(8) Estimated interest cost
(9) Assumes new debt proceeds expended over a 3-year timeframe using a mid-point convention for the first year of each debt issue; cost of update reflected in Year 1

City of Magnolia 2008 Wastewater Impact Fee Determination

Exhibit 6-2 - Debt Service and Expense Summary

I. New Debt Service Detail

Year	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7	Series 8	Series 9	Series 10	Total Annual New Debt Service
1	$ 175,600	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 175,600
2	175,600	-	-	-	-	-	-	-	-	-	175,600
3	175,600	-	-	-	-	-	-	-	-	-	175,600
4	175,600	-	-	181,239	-	-	-	-	-	-	356,839
5	175,600	-	-	181,239	-	-	-	-	-	-	356,839
6	175,600	-	-	181,239	-	-	-	-	-	-	356,839
7	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
8	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
9	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
10	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
11	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
12	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
13	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
14	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
15	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
16	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
17	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
18	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
19	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
20	175,600	-	-	181,239	-	-	195,702	-	-	-	552,541
21	-	-	-	181,239	-	-	195,702	-	-	-	376,941
22	-	-	-	181,239	-	-	195,702	-	-	-	376,941
23	-	-	-	181,239	-	-	195,702	-	-	-	376,941
24	-	-	-	-	-	-	195,702	-	-	-	195,702
25	-	-	-	-	-	-	195,702	-	-	-	195,702
26	-	-	-	-	-	-	195,702	-	-	-	195,702
27	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-
	$ 3,511,997	$ -	$ -	$ 3,624,784	$ -	$ -	$ 3,914,040	$ -	$ -	$ -	$ 11,050,821

II. Summary of Annual Expenses

Year	New Annual Debt Service[1]	Annual Capital Expenditures[2]	Annual Bond Proceeds[2]	Existing Annual Debt Service[3]	Total Expense
1	$ 175,600	$ 372,081	$ (2,142,708)	NA	$ (1,595,028)
2	175,600	714,236	-	NA	889,836
3	175,600	714,236	-	NA	889,836
4	356,839	714,236	(2,142,708)	NA	(1,071,633)
5	356,839	714,236	-	NA	1,071,075
6	356,839	714,236	-	NA	1,071,075
7	552,541	714,236	(2,142,708)	NA	(875,931)
8	552,541	714,236	-	NA	1,266,777
9	552,541	714,236	-	NA	1,266,777
10	552,541	357,118	-	NA	909,659
11	552,541	-	NA	NA	552,541
12	552,541	-	NA	NA	552,541
13	552,541	-	NA	NA	552,541
14	552,541	-	NA	NA	552,541
15	552,541	-	NA	NA	552,541
16	552,541	-	NA	NA	552,541
17	552,541	-	NA	NA	552,541
18	552,541	-	NA	NA	552,541
19	552,541	-	NA	NA	552,541
20	552,541	-	NA	NA	552,541
21	376,941	-	NA	NA	376,941
22	376,941	-	NA	NA	376,941
23	376,941	-	NA	NA	376,941
24	195,702	-	NA	NA	195,702
25	195,702	-	NA	NA	195,702
26	195,702	-	NA	NA	195,702
27	-	-	NA	NA	-
28	-	-	NA	NA	-
29	-	-	NA	NA	-
	$ 11,050,821	$ 6,443,088	$ (6,428,125)	$ -	$ 11,065,784

(1) Exhibit 6-2 - Wastewater, page 2 Section I

(2) Exhibit 6-2 - Wastewater, page 1

(3) No eligible impact fee project costs currently funded through existing debt

City of Magnolia 2008 Wastewater Impact Fee Determination

Exhibit 6-2 - Impact Fee Calculation

Year	Number of Years to End of Period	Future Value Escalation Interest Rate Factor	Future Value Escalation Recovery Fee Factor	Annual Service Units Actual	Annual Service Units Escalated	Annual Expense Actual	Annual Expense Escalated
1	29	1.9227	1.0000	109	210	$ (1,595,028)	$ (3,066,705)
2	28	1.8791	1.0000	109	205	889,836	1,672,065
3	27	1.8365	1.0000	109	201	889,836	1,634,153
4	26	1.7948	1.0000	109	196	(1,071,633)	(1,923,394)
5	25	1.7541	1.0000	109	192	1,071,075	1,878,804
6	24	1.7144	1.0000	109	187	1,071,075	1,836,204
7	23	1.6755	1.0000	109	183	(875,931)	(1,467,609)
8	22	1.6375	1.0000	109	179	1,266,777	2,074,341
9	21	1.6004	1.0000	109	175	1,266,777	2,027,308
10	20	1.5641	1.0000	109	171	909,659	1,422,779
11	19	1.5286	1.0000	-	-	552,541	844,623
12	18	1.4940	1.0000	-	-	552,541	825,472
13	17	1.4601	1.0000	-	-	552,541	806,755
14	16	1.4270	1.0000	-	-	552,541	788,463
15	15	1.3946	1.0000	-	-	552,541	770,585
16	14	1.3630	1.0000	-	-	552,541	753,113
17	13	1.3321	1.0000	-	-	552,541	736,037
18	12	1.3019	1.0000	-	-	552,541	719,348
19	11	1.2724	1.0000	-	-	552,541	703,038
20	10	1.2435	1.0000	-	-	552,541	687,097
21	9	1.2153	1.0000	-	-	376,941	458,107
22	8	1.1878	1.0000	-	-	376,941	447,720
23	7	1.1608	1.0000	-	-	376,941	437,568
24	6	1.1345	1.0000	-	-	195,702	222,027
25	5	1.1088	1.0000	-	-	195,702	216,993
26	4	1.0837	1.0000	-	-	195,702	212,073
27	3	1.0591	1.0000	-	-	-	-
28	2	1.0351	1.0000	-	-	-	-
29	1	1.0116	1.0000	-	-	-	-
					1,898		15,716,967

Total Escalated Expense for Entire Period	$	15,716,967
Less Future Value of Initial Fund Balance		255,141
Net Escalated Expense for Entire Period	$	15,461,826
Total Escalated Service Units		1,898
Maximum Assessable Impact Fee	**$**	**8,147**

City of Magnolia 2008 Wastewater Impact Fee Determination

Exhibit 6-2 - Revenue Test

Year	Impact Fee	Service Units	Impact Fee Revenue	Annual Expenses	Sub-Total	Accumulated Interest	Estimated Fund Balance
Initial							$ 131,197
1	$ 8,147	109	$ 889,688	$ (1,595,028)	$ 2,484,716	$ 31,866	2,647,779
2	8,147	109	889,688	889,836	(148)	61,427	2,709,058
3	8,147	109	889,688	889,836	(148)	62,848	2,771,758
4	8,147	109	889,688	(1,071,633)	1,961,321	87,056	4,820,135
5	8,147	109	889,688	1,071,075	(181,388)	109,723	4,748,470
6	8,147	109	889,688	1,071,075	(181,388)	108,060	4,675,143
7	8,147	109	889,688	(875,931)	1,765,619	128,945	6,569,707
8	8,147	109	889,688	1,266,777	(377,090)	148,043	6,340,660
9	8,147	109	889,688	1,266,777	(377,090)	142,729	6,106,300
10	8,147	109	889,688	909,659	(19,971)	141,434	6,227,763
11	-	-	-	552,541	(552,541)	138,075	5,813,296
12	-	-	-	552,541	(552,541)	128,459	5,389,214
13	-	-	-	552,541	(552,541)	118,620	4,955,293
14	-	-	-	552,541	(552,541)	108,553	4,511,306
15	-	-	-	552,541	(552,541)	98,253	4,057,017
16	-	-	-	552,541	(552,541)	87,713	3,592,190
17	-	-	-	552,541	(552,541)	76,929	3,116,578
18	-	-	-	552,541	(552,541)	65,895	2,629,932
19	-	-	-	552,541	(552,541)	54,605	2,131,996
20	-	-	-	552,541	(552,541)	43,053	1,622,508
21	-	-	-	376,941	(376,941)	33,270	1,278,836
22	-	-	-	376,941	(376,941)	25,296	927,191
23	-	-	-	376,941	(376,941)	17,138	567,388
24	-	-	-	195,702	(195,702)	10,893	382,580
25	-	-	-	195,702	(195,702)	6,606	193,483
26	-	-	-	195,702	(195,702)	2,219	(0)
27	-	-	-	-	-	(0)	(0)
28	-	-	-	-	-	(0)	(0)
29	-	-	-	-	-	(0)	(0)
			8,896,877	11,065,784		2,037,710	