UPDATE OF

TEN YEAR WATER AND WASTEWATER SYSTEM

FOR

CITY OF HEATH

UPDATE TO

LAND USE ASSUMPTIONS

CAPITAL IMPROVEMENTS PLAN

WATER AND SANITARY SEWER IMPACT FEES

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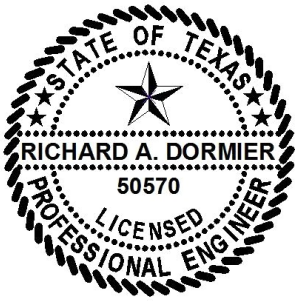

Richard A. Dormier, P.E.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RICHARD A. DORMIER, P.E. NO. 50570 ON FEBRUARY 18, 2020

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INTRODUCTION

In August 1989, Chapter 395 of the Texas Local Government Code, ***Financing Capital Improvements Required by New Development in Municipalities, Counties and Certain other Local Governments*** was codified. In 1990, in accordance with Chapter 395, the City of Heath developed the Land Use Assumptions, a Capital Improvements Plan, and an Impact Fee for water and wastewater improvements necessitated by and attributable to new development. After the prescribed public hearings, the City Council assessed a water impact fee of $2,000 for a 5/8-inch meter and $2,250 for a 1-inch meter per new (residential) service unit. In 1994, the City of Heath updated the impact fees and established new fees for water and for wastewater. The fees established at that time were $2,250 for a 5/8-inch meter, $2,500 for a 1-inch meter, and $5,000 for a wastewater connection. In 2001, the fees were modified to be $2,500 for a 5/8-inch water meter, $3,000 for a 1-inch water meter, and $5,000 for a wastewater connection. In April of 2006, the fees were modified to $3,900 for a 5/8-inch water meter, $9,700 for a 1-inch water meter, $2,100 for a wastewater connection with a 5/8-inch water meter connection, and $5,200 for a wastewater connection with a 1-inch water meter connection. In December 2006, the impact fee for a 1-inch water meter was changed to $5,350 and the corresponding wastewater connection was changed to $3,150. In 2016, the City determined that their minimum water meter size would be 3/4" instead of 5/8" as included in the original study. Currently, the City impact fees for a 3/4" water meter is $4,063 and sanitary sewer if $2,460.

Since the growth rate changes with time, it is important that the City periodically review the study assumptions and Capital Improvement Plan (CIP) to verify the plan is adequate to serve current needs. This review is required at a minimum of each five years to determine if growth rates or improvements necessary to serve the new growth included in the previous study are consistent with current needs. From this review, the City can then establish impact fees that are consistent with current growth projections. With the need to review current impact fees, the City of Heath selected a new Advisory Committee (the current Planning and Zoning

Commission with an ad hoc member in real estate) and began the process to update the Land Use Assumptions and Capital Improvements Plan (CIP). This report presents the Advisory Committee's findings and recommendations.

LAND USE ASSUMPTIONS AND SERVICE AREA

Freeman-Millican, Inc. (FMI) met with the Advisory Committee on April 2, 2019 to discuss the plan update. The Advisory Committee considered the following items:

- Service Area for the CIP
- Land Use Assumptions to use for the 10-year Planning Period
- Projected Growth Rate in the 10-year Planning Period
- Location of the Projected Growth

The Advisory Committee first determined that the service area should be the current city limits plus the extraterritorial jurisdiction (ETJ), shown in Figure No. 1. The current Land Use Assumptions in the Comprehensive Plan (plan), adopted in April of 2018 were approved as the guide for future growth and development for the 10-year planning period. The stated goal for development density in the plan is to maintain a residential gross density of one dwelling unit per developable acre.

The Advisory Committee then discussed where they thought development would occur during the planning period. It was determined that a majority of the development would occur south of Hubbard Drive and west of FM 740 in the area of Heath Golf & Yacht. Two other areas identified include completion of the Heath Crossing development and development along McDonald Road south of FM 550. The general location of the future growth is shown in Figure 2.

The Committee next considered projected growth rate for the next ten years. The Committee recommended a rate of 100 houses per year resulting in an anticipated 1,000 houses in the planning period. Projected permits and historic growth is presented in Figure 3.

FMI took the information from the first meeting and prepared exhibits showing the results of the recommendations. We met with the Advisory Committee again on August 16, 2019 review this information and take direction regarding the needs for the Capital Improvements Plan (CIP). to update the committee and review information from the first meeting. The Committee approved the information presented and FMI then finalized a CIP and costs to provide services for the new development anticipated in the next 10 years.

GROWTH PROJECTIONS

The City of Heath has grown significantly since 1980 when the population was 1,745. The population was estimated to be 2,400 in 1994 and in the year 2000 Census, the population for Heath was 4,149 persons. The 2010 census showed a population of 6,921 persons and the North Central Texas Council of Governments (NCTCOG) population projection for the City of Heath on January 1, 2019 was 8,530 persons.

Based on historic trends, the Advisory Committee selected a projected growth rate of 1,000 residential permits for the 10 year planning period. Figure No. 3, Historic and Projected Single Family Permits, shows the number of residential building permits projection using a maximum of 100 per year. With an anticipated 1,000 connections and an average household of 2.8 persons per house, the population would be expected to grow to approximately 11,600 persons by January of 2030. The 2018 Comprehensive Plan calls for an ultimate population of 21,000 with about 18,000 persons in the current water CCN area of the City.

The capital improvements needed to serve the projected growth over the next ten years were selected based on the growth occurring in the City at the rates shown above and in the areas established by the Advisory Committee.

CAPITAL IMPROVEMENTS PLAN

In order to provide water and wastewater services to the new development, analyses were made to determine whether current water and wastewater facilities have adequate capacities to serve the expected ten-year growth, and if not, what improvements are needed. The following discussion provides the information derived from these analyses and the conclusions reached concerning the needed capital improvements.

WATER SYSTEM

Water service for the City of Heath and its ETJ has historically been provided by RCH Water Supply Corporation (WSC), Forney Lake WSC, Highpoint WSC, Highpoint SUD, and the City of Heath. RCH WSC was purchased within the City Limits and ETJ and is now mostly served by the City water system. The City purchased 842 water connections from Forney Lake WSC in 2016 so that at this time the City provides water and sewer service to the City Limits. Highpoint SUD serves areas in the southernmost Heath ETJ.

The City of Heath purchases water from the City of Rockwall, Forney Lake WSC purchases water from North Texas Municipal Water District, and Highpoint WSC purchases water from the cities of Forney and Terrell. As of this date, Forney Lake WSC, and Highpoint WSC have pump stations, ground storage tanks and elevated tanks to maintain pressure for their system as does the City of Heath.

The City of Heath purchases water from the City of Rockwall. In 2003, the City of Heath began construction of a new 6,000 GPM Pump Station facility in Rockwall and constructed a 24-

inch water transmission line to the City, completing the project in 2004. The City of Heath also purchased 1,000,000 gallons of a 3,000,000 gallon ground storage tank being constructed by NTMWD for Rockwall. More recently, the City of Heath has purchased property from the City of Rockwall and constructed its' own 3 million gallon ground storage reservoir (GSR) to allow more water to be pumped to the City of Heath.

The City has completed numerous water line projects plus a 1,500,000 gallon and 500,0000 gallon elevated tank to serve the City.

PROJECTED WATER NEEDS

The City of Heath has an estimated current population of 8,800 of which, 5,468 persons are estimated to reside within the Heath CCN (3,589 connections). At the population growth projection of 1,000 dwelling units in the next ten years and 2.8 persons per dwelling unit, it is estimated that the population will be 11,600 in 2030. The overall system is designed to meet the maximum day average demand with the existing and new elevated tank storage used to meet peak hour and fire demand.

A review of historical water demand shows that the City has experienced the highest usage on record on August 10, 2016 in the amount of 3.86 million gallons for the day. In August 2016, city records show that the number of water connections was 2,292 which results in a maximum monthly usage value of 1,684 gallons per day per connection or approximately 1.18 gpm per connection.

In December 2019, the number of connections in the City was 3,589 and at the end of the planning period, the estimated number of connections will be 4,589. This results in a maximum day demand of 7.7 MGD based on the historic high demand in 2016.

WATER DISTRIBUTION SYSTEM ANALYSIS

A water system analysis was made assuming the growth, number of connections and location of growth for the next 10 years. The existing water projects included in the CIP are shown on Figure No. 4 and proposed improvements are shown on Figure No. 5. The pressure range is 40 psi to 100 psi at all locations. Texas Commission on Environmental Quality (TCEQ) Standards require that pressures be maintained at 35 psi or above at a peak day flow rate. Therefore, the proposed system will meet the TCEQ Standards.

CAPITAL IMPROVEMENTS PLAN AND COSTS

The City has constructed thirteen existing water projects as part of previous impact fee CIP studies. Eight of the projects were financed with Bonds sold in 2001 and Refunded in 2010. Three of the smaller projects were funded with impact fees and the other projects were funded with Bonds sold in 2007 and 2014. These projects are listed in Table 1 and shown on Figures 4 and 5.

Table 2 in Appendix A shows a list of proposed CIP projects needed to provide service in the next 10 year planning period. Several of the projects are shown to be constructed in participation with developers as oversizing, to allow the City to participate in increased line size at a cheaper overall rate. The project timing is dependent upon the timing of development in a particular area and so is somewhat dependent upon the schedule of development rather than the overall needs of the City. The projected cost of these projects includes interest at a rate of 3.5% for a 20 year period.

Tables 3 and 4 list the various projects, percent eligible for this CIP, and costs associated with the CIP. The total existing projects are $3,158,766 and proposed projects are $1,015,214 for a total CIP of $4,173,980.

WASTEWATER SYSTEM IMPROVEMENTS

At this time, all wastewater collected by the City is treated at the South Mesquite Regional Wastewater Treatment Plant via the Buffalo Creek Interceptor Sewer which was placed into service in 2005. Several major sanitary sewer collection and transmission projects have been completed in the past ten years and are included in the CIP for the next 10 year period. Based upon the projected population and the existing wastewater projects with remaining capacity, two new projects were identified for this 10-year planning period. These include a parallel interceptor and lift station improvements in Buffalo Creek which is supervised by North Texas Municipal Water District and upgrades to the Southside Lift Station. The improvements and costs were provided by NTMWD to parallel the existing system and upgrade the existing lift station.

The existing projects are listed in Appendix B in Table 5 along with the costs of the improvements eligible for this CIP at $2,121,663. Table 6 contains the proposed projects with costs of $5,759,020. Those total costs are $7,880,683. The locations of the projects are shown on Figures 6 and 7.

IMPACT FEES

The costs of the capital improvements eligible for this ten-year CIP have been shown previously. The calculation of the water and sanitary sewer impact fee is shown in Appendix C, Table 7. The following provides the maximum water and sanitary sewer impact fees based on this study:

Water *$2,087 for a 3/4-inch meter and $3,478 for a 1-inch meter*

Wastewater *$3,940 on a 3/4-inch water meter and $6,567 on a 1-inch water meter*

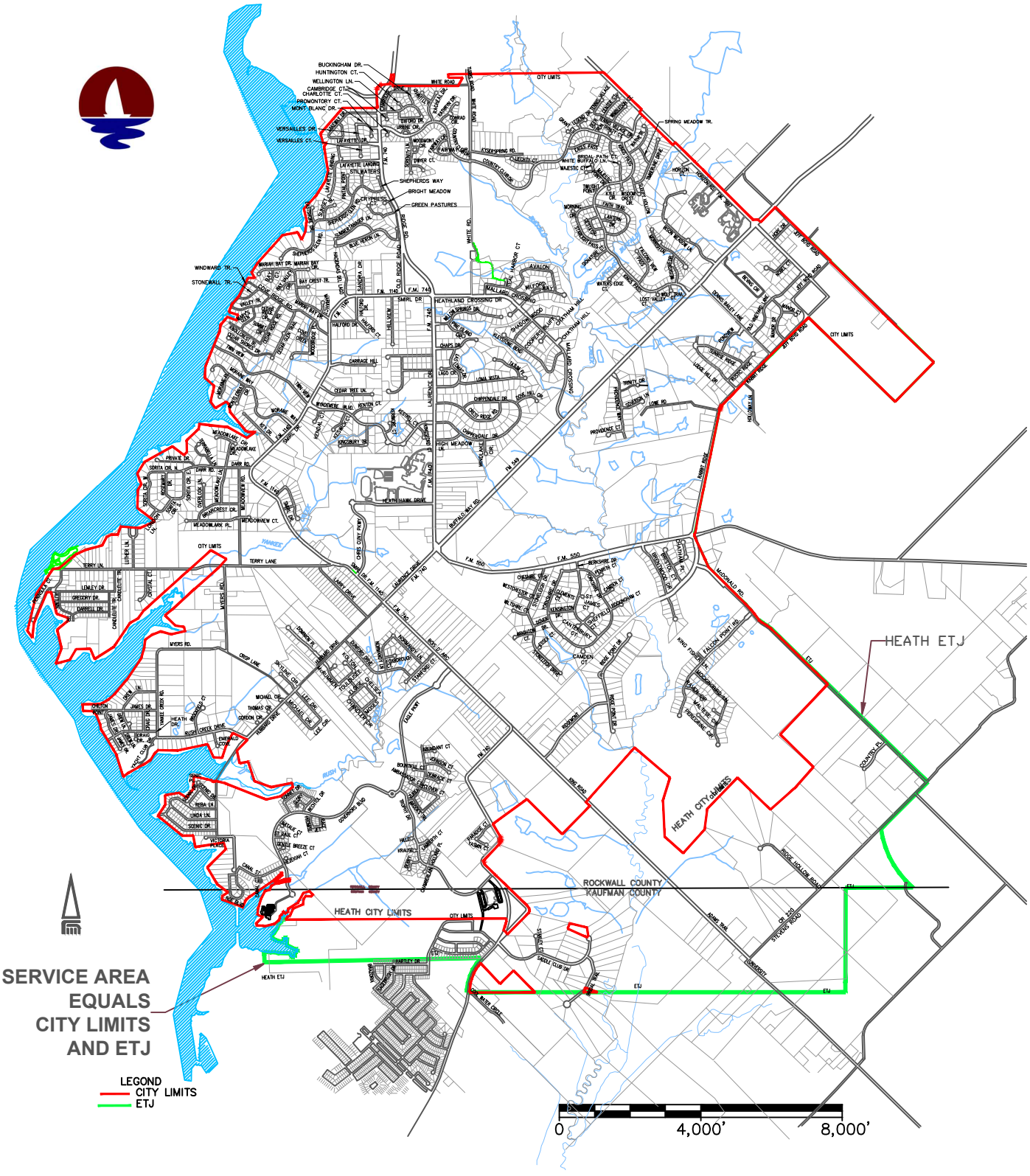
As previously stated, the current fees are as follows:

Water *$4,063 for a 3/4-inch meter and $5,350 for a 1-inch meter*

Wastewater *$2,460 for a 3/4-inch water meter and $3,150 for a 1-inch meter*

These fees represent 50% of the actual cost of the CIP, as required by State law, in lieu of a special rate study to determine if a higher percentage is justified. Table 8 is included in Appendix C showing the maximum impact fee for water meters larger than 3/4-inch. This table is based upon the ratio of the amount of flow allowed through each meter when compared to a 3/4-inch meter which has been the historic benchmark size of meter in Heath.

FIGURES



SCALE: 1"=4000'

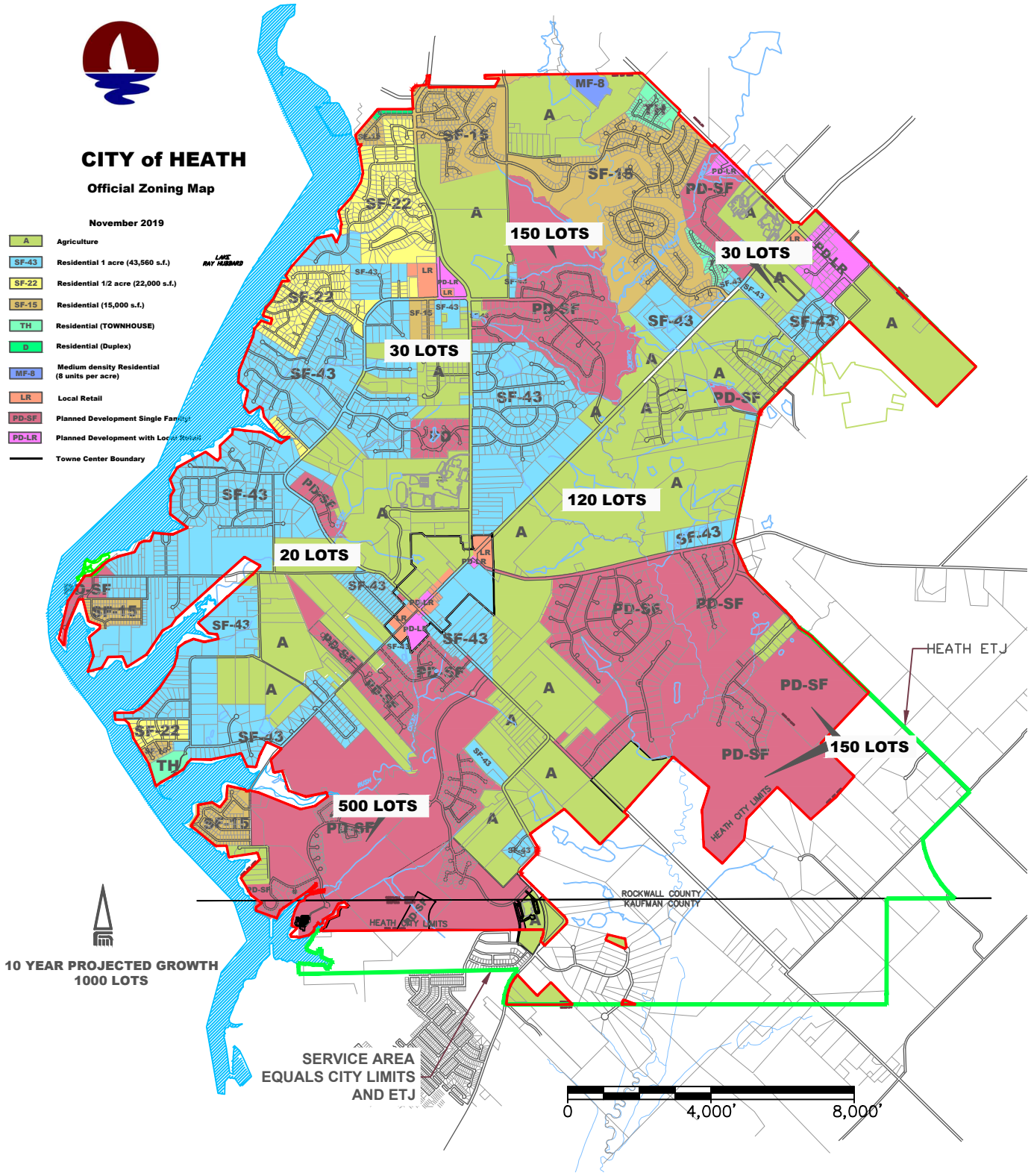
DATE: NOVEMBER 2019

FIGURE 1

CITY OF HEATH
WATER AND SANITARY SEWER IMPACT FEE STUDY

SERVICE AREA

FREEMAN-MILLICAN, INC.
ENGINEERS - ARCHITECTS - PLANNERS
12225 GREENVILLE AVE., SUITE 121 DALLAS, TEXAS 75243 PH: 214.503.0555 TX. REG FIRM NO. 2827



SCALE: 1"=4000'

DATE: NOVEMBER 2019

FIGURE 2

CITY OF HEATH
WATER AND SANITARY SEWER IMPACT FEE STUDY

TEN YEAR PROJECTED GROWTH LOCATIONS

FREEMAN-MILLICAN, INC.
ENGINEERS - ARCHITECTS - PLANNERS
12225 GREENVILLE AVE., SUITE 121 DALLAS, TEXAS 75243 PH: 214.503.0555 TX. REG FIRM NO. 2827

HISTORIC AND PROJECTED SINGLE FAMILY PERMITS

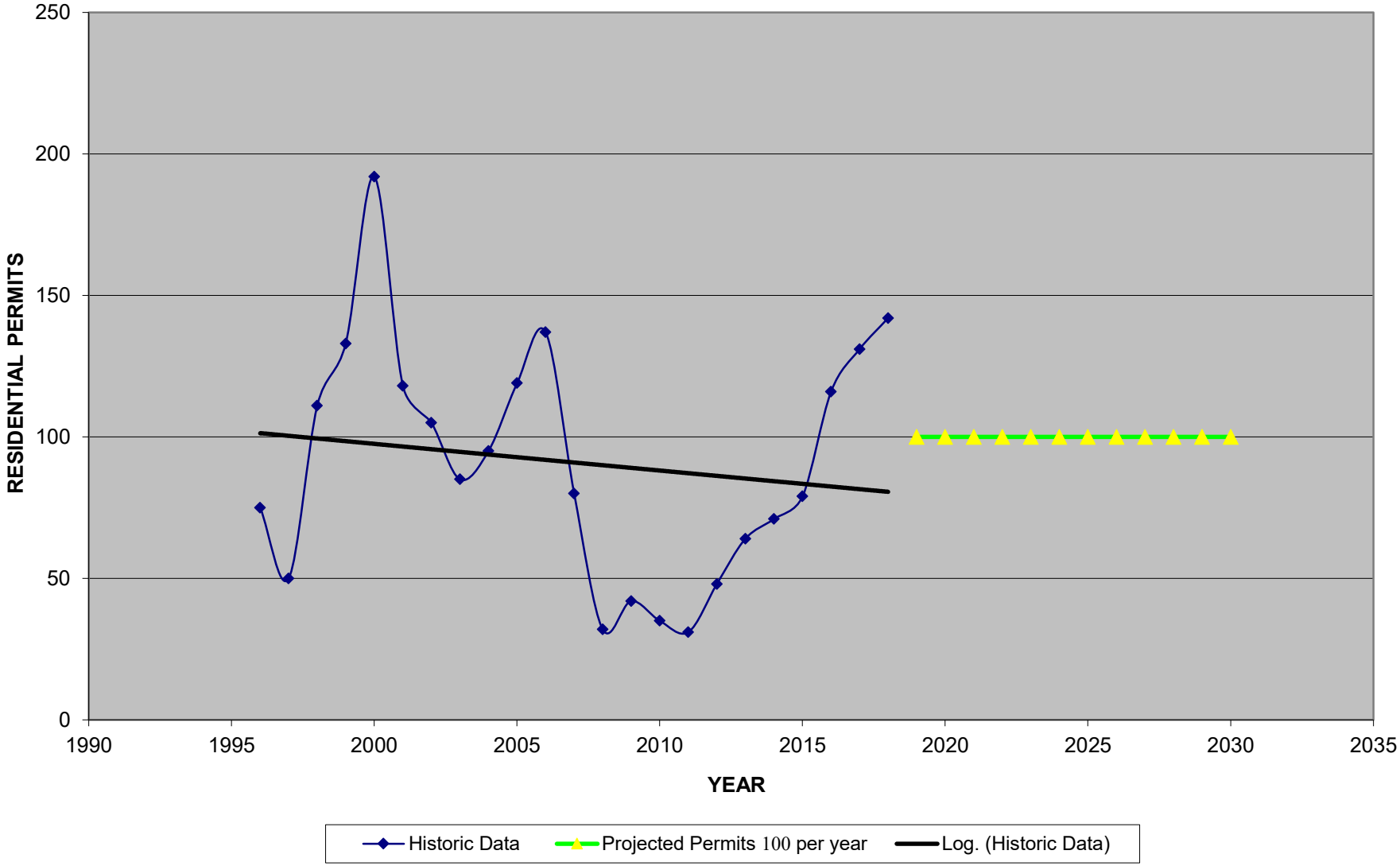
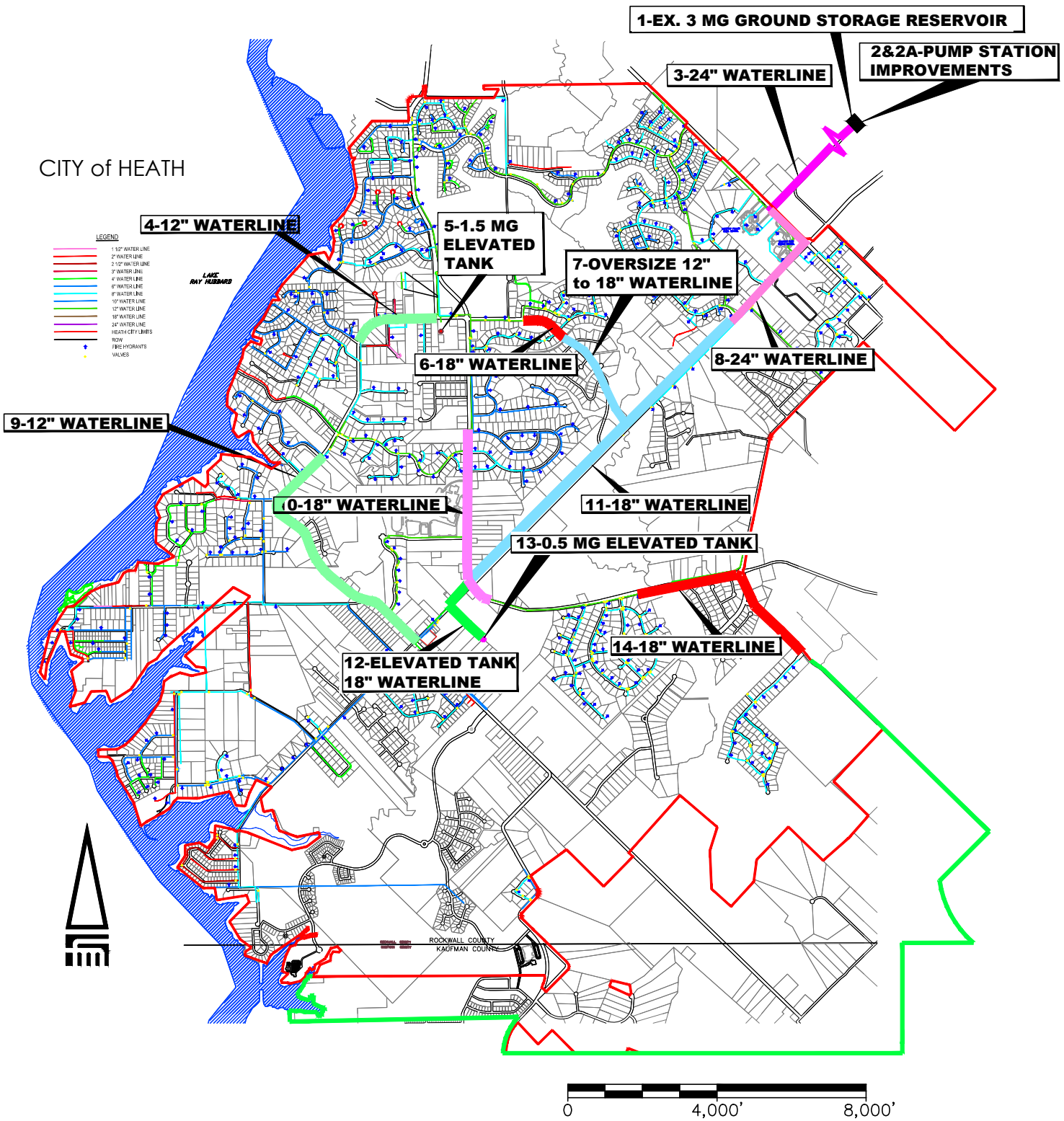


FIGURE 3

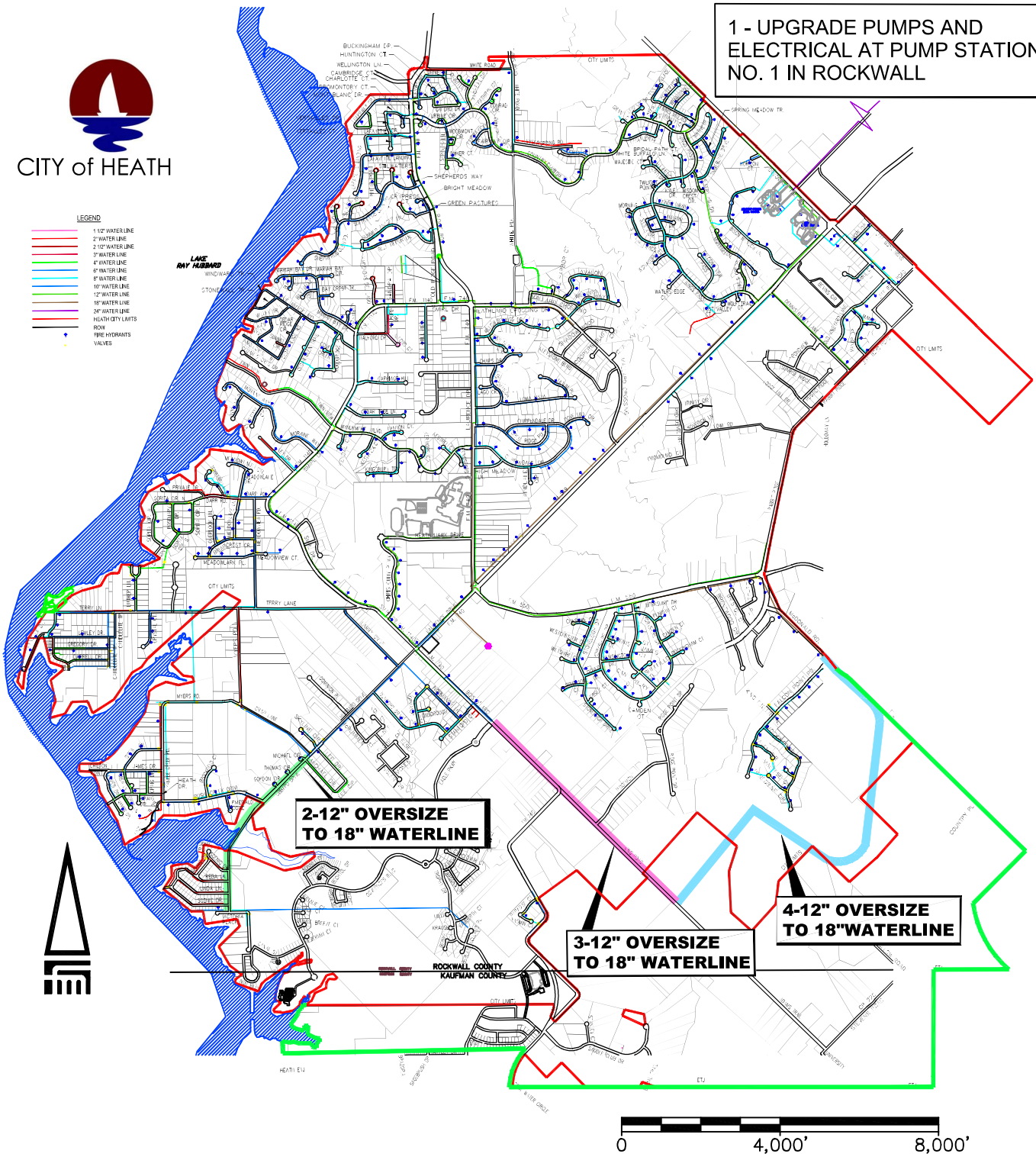


SCALE: 1" = 4,000' JOB#: 19014 DATE: NOVEMBER 2019 FIGURE: 4

CITY OF HEATH
WATER AND SANITARY SEWER IMPACT FEE STUDY

EXISTING WATER PROJECTS IN CIP

FREEMAN-MILLICAN, INC.
ENGINEERS - ARCHITECTS - PLANNERS
12225 GREENVILLE AVE., SUITE 121 DALLAS, TEXAS 75243 PH: 214.503.0555 TX. REG FIRM NO. 2827



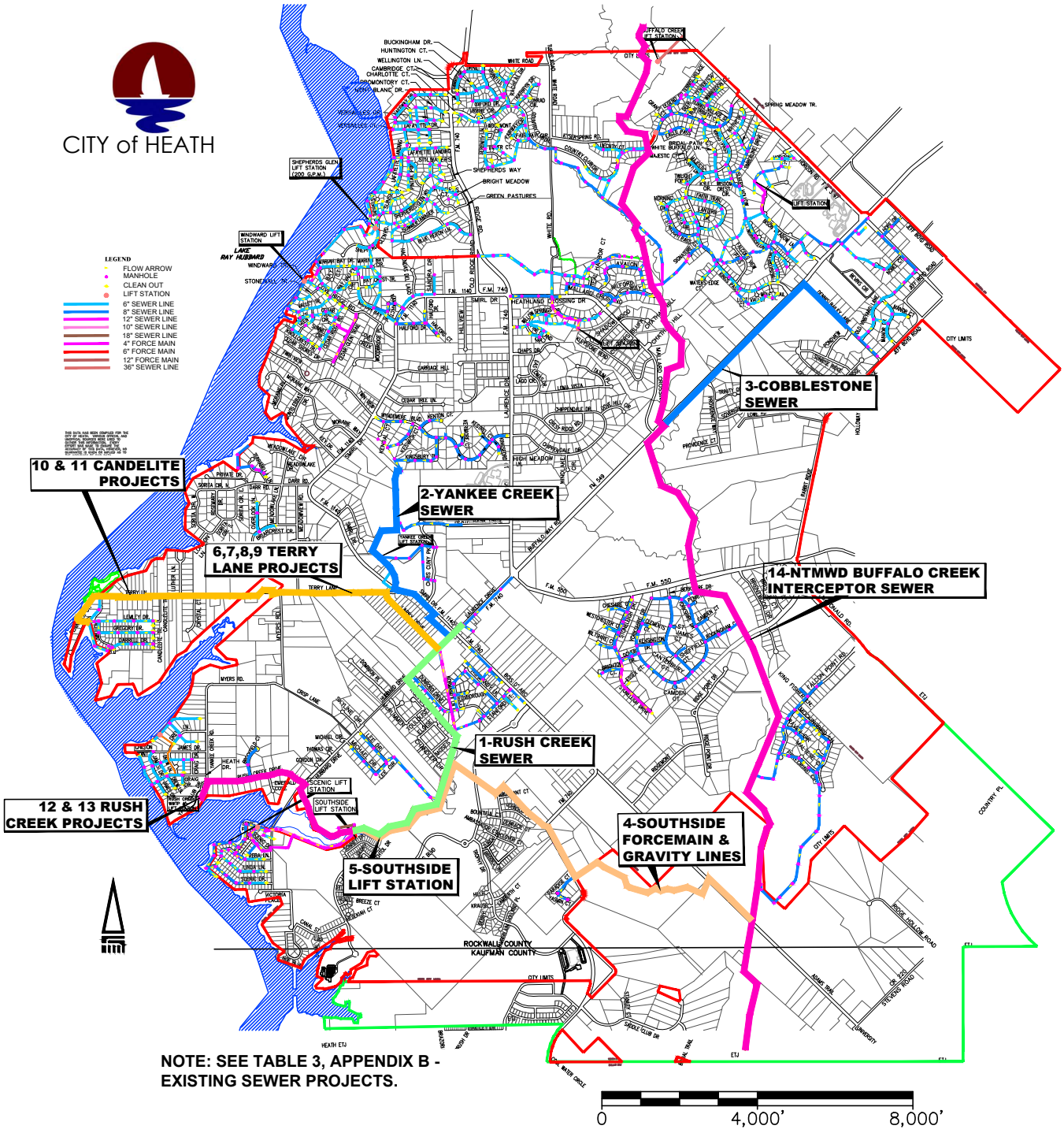
SCALE: 1" = 4,000' JOB#: 19014 DATE: NOVEMBER 2019 FIGURE: 5

CITY OF HEATH
WATER AND SANITARY SEWER IMPACT FEE STUDY

PROPOSED WATER PROJECTS IN CIP

FREEMAN-MILLICAN, INC.
ENGINEERS - ARCHITECTS - PLANNERS
12225 GREENVILLE AVE., SUITE 121 DALLAS, TEXAS 75243 PH: 214.503.0555 TX. REG FIRM NO. 2827

CITY of HEATH



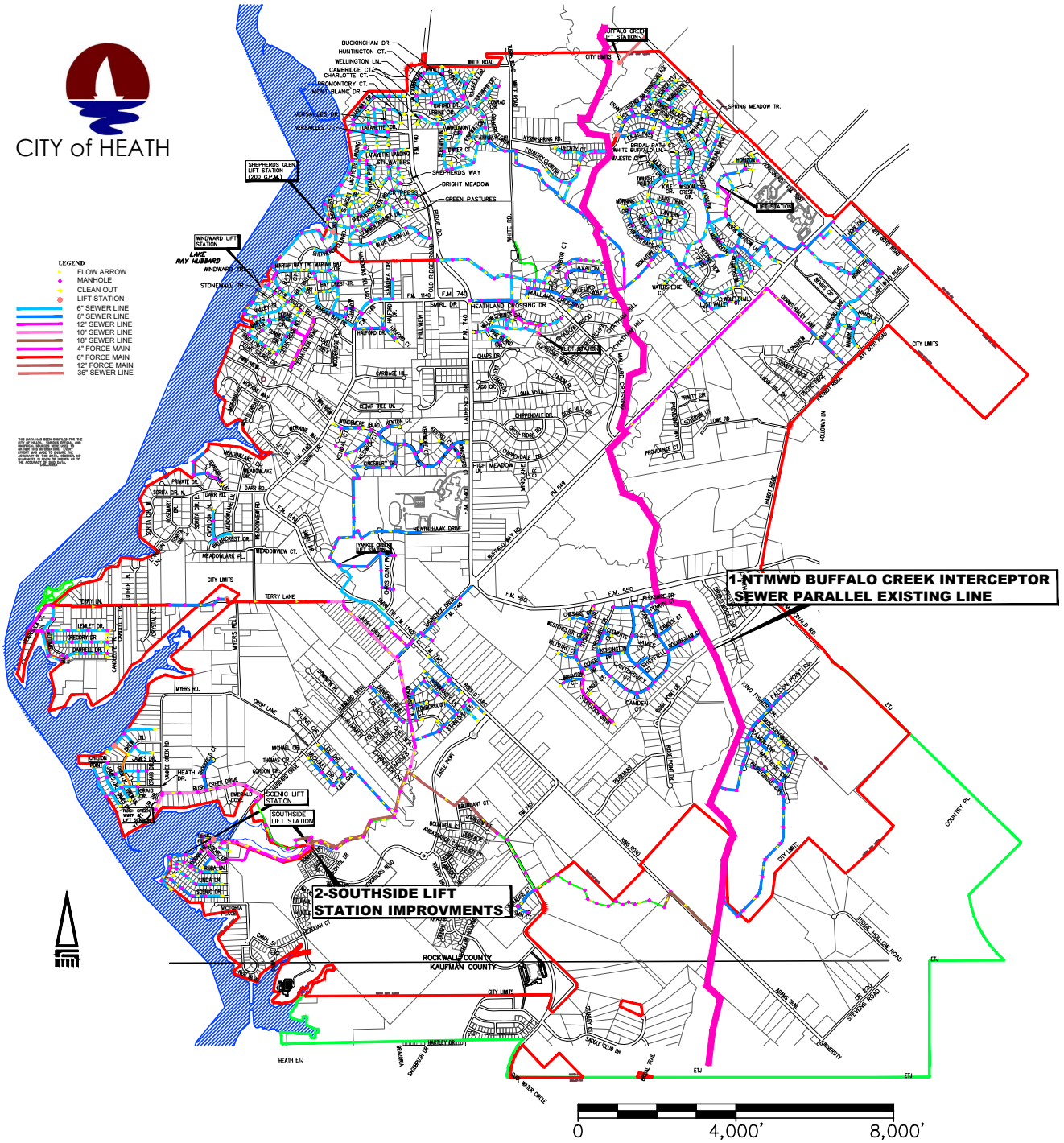
NOTE: SEE TABLE 3, APPENDIX B - EXISTING SEWER PROJECTS.

SCALE: 1" = 4,000' JOB#: 19014 DATE: NOVEMBER 2019 FIGURE: 6

CITY OF HEATH
WATER AND SANITARY SEWER IMPACT FEE STUDY

EXISTING WASTEWATER PROJECTS IN CIP

FREEMAN-MILLICAN, INC.
ENGINEERS - ARCHITECTS - PLANNERS
12225 GREENVILLE AVE., SUITE 121 DALLAS, TEXAS 75243 PH: 214.503.0555 TX. REG FIRM NO. 2827



SCALE: 1" = 4,000' JOB#: 19014 DATE: NOVEMBER 2019 FIGURE: 7

CITY OF HEATH
WATER AND SANITARY SEWER IMPACT FEE STUDY

PROPOSED WASTEWATER PROJECTS IN CIP

FREEMAN-MILLICAN, INC.
ENGINEERS - ARCHITECTS - PLANNERS
12225 GREENVILLE AVE., SUITE 121 DALLAS, TEXAS 75243 PH: 214.503.0555 TX. REG FIRM NO. 2827

APPENDIX A

TABLE 1
BACKUP DATA FOR PROJECT COSTS
EXISTING WATER PROJECTS
CITY OF HEATH WATER AND SEWER IMPACT FEES
DECEMBER 2019

PROJECT NO.	EXISTING FACILITY	FUNDING SOURCE	ENGINEERING AND SURVEYING, $	CONSTRUCTION COST, $	PROJECT COST (PRINCIPLE), $	PRINCIPLE [(1)], $	PRINCIPLE AND INTEREST, $
1	3 MG GROUND STORAGE TANK IN ROCKWALL	CIP BONDS	250,000	3,500,000	3,750,000		5,048,000
2A	PUMP STATION	2010 REFUNDING (AVG 3.95%)	99,757	1,366,533	1,466,290	1,043,969	1,451,565
2	PUMP STATION IMPROVEMENTS	CIP BONDS	112,000	1,200,000	1,312,000		1,757,060
3	24" TRANSMISSION LINE	2010 REFUNDING (AVG 3.95%)	159,022	1,692,722	1,851,744	1,318,405	1,833,149
4 & 9	12" WATER LINE IN FM 1140	2010 REFUNDING (AVG 3.95%)	45,361	486,208	531,569	378,466	526,231
5	1.5 MG ELEVATED TANK	CIP BONDS	260,000	2,582,000	2,842,000		3,826,000
6&7	WATERLINE OVERSIZE 12" to 18"	IMPACT FEES	3,600	36,000	39,600	39,600	39,600
8	24" WATERLINE FM 550/FM 3097	IMPACT FEES	76,235	923,765	1,000,000		1,000,000
10	18" WATER LINE IN FM 550 AND FM 740	2010 REFUNDING (AVG 3.95%)	21,950	182,619	204,569	145,649	202,515
11	FM 549 18" WATER LINE	2010 REFUNDING (AVG 3.95%)	39,526	494,082	533,608	379,918	528,249
12	ELEVATED TANK WATER LINE	2010 REFUNDING (AVG 3.95%)	30,300	225,000	255,300	181,768	252,736
13	0.5 MG ELEVATED TANK	2010 REFUNDING (AVG 3.95%)	61,353	885,000	946,353	673,784	936,850
14	FM 550 to McDONALD RD 18" WATER LINE	2007 BONDS (AVG 4.34%)	39,260	615,082	654,342	654,342	809,273
	TOTAL EXISTING COSTS ELIGIBLE FOR CIP						**$18,211,229**

(1) See 2011 Impact Fee Study for refunding informaiton on projects prior to 2011 (2010 refunding).

TABLE 2
ESTIMATED PROBABLE CONSTRUCTION COSTS
PROPOSED WATER SYSTEM IMPROVEMENTS
2020 TO 2030 CIP

ITEM	AMOUNT	UNIT	UNIT COST	TOTAL	CONSTRUCTION COST, $	INTEREST, $ [1]	PRINCIPLE AND INTEREST, $	COMMENTS
PROJECT 1 - SECURE SITE AND CONSTRUCT NEW 3 MG GSR AND PUMP STATION IN CITY LIMITS								
PHASE 1 OF PUMP STATION NUMBER 2	1	LS	$3,100,000	$3,100,000				
3 MG GSR	2	LS	$2,250,000	$4,500,000				
24" WATER LINES CONNECTING SYSTEM	9,300	LF	$250	$2,325,000				
SUBTOTAL				$9,925,000				
CONTINGENCY, ENGINEERING, & SURVEYING				$2,779,000				ONE 3 MG GSR MAY BE CONSTRUCTED AT EITHER PS 1 OR
SUBTOTAL				**$12,704,000**	**$12,704,000**	**$4,319,360**	**$17,023,360**	PS 2 AND THE OTHER AT PS 2 FOR THIS PLANNING PERIOD.
PROJECT 2 - OVERSIZE 12' TO 18" WATER LINE ALONG HUBBARD DRIVE								
OVERSIZE 18" WATER LINE	8,000	L.F.	$60.00	$480,000				
SUBTOTAL				$480,000				
CONTINGENCY, ENGINEERING, & SURVEYING				$134,400				
SUBTOTAL				**$614,400**	**$614,400**	**$208,896**	**$823,296**	TO BE COMPLETED AS DEVELOPMENT OCCURS
PROJECT 3 - OVERSIZE 12' TO 18" WATER LINE SOUTH FROM EXISTING ELEVATED TANK ALONG KING'S ROAD								
OVERSIZE 18" WATER LINE	9,150	L.F.	$60.00	$549,000				
SUBTOTAL				$549,000				
CONTINGENCY, ENGINEERING, & SURVEYING				$153,720				
SUBTOTAL				**$702,720**	**$702,720**	**$238,925**	**$941,645**	TO BE COMPLETED AS DEVELOPMENT OCCURS
PROJECT 4 - OVERSIZE 12' TO 18" WATER LINE SOUTH FROM FM 550 LOOPED TO KING'S ROAD								
OVERSIZE 18" WATER LINE	11,000	L.F.	$60.00	$660,000				
SUBTOTAL				$660,000				
CONTINGENCY, ENGINEERING, & SURVEYING				$184,800				
SUBTOTAL				**$844,800**	**$844,800**	**$287,232**	**$1,132,032**	TO BE COMPLETED AS DEVELOPMENT OCCURS
TOTAL CIP PRINCIPLE					**$14,865,920**			
TOTAL CIP PRINCIPLE AND INTEREST							**$19,920,333**	
COST OF ISSUING BONDS					**379,081**	**$204,704**	**$583,785**	
2025 IMPACT FEE UPDATE - 2025 & 2030					**40,000**	**0.00**	**$40,000**	
TOTAL PROBABLE COST							**$20,544,117**	

[1] INTEREST (3.5% AND 20 YEARS)

APPENDIX B

TABLE 3
EXISTING WATER PROJECTS
2020 TO 2030 CIP

PROJECT NO.	EXISTING FACILITY	PROJECT COST (INCLUDES PRINCIPLE AND INTEREST), $	TOTAL CONNECTIONS SERVED BY PROJECT	NUMBER OF CONNECTIONS, DECEMBER 2019 [1]	REMAINING CAPACITY, DECEMBER 2019, CONNECTIONS	CONNECTIONS IN 10 YEAR PERIOD (JANUARY 2020 TO 2030)	% COSTS ELIGIBLE	$ IN CIP
1	3 MG GROUND STORAGE RESERVOIR (GSR) IN ROCKWALL	5,048,000	4,800	3,589	1,211	1,000	20.83%	$1,051,667
2A	ROCKWALL PUMP STATION 1 (Phase 1)	1,451,565	4,300	3,589	711	1,000	16.53%	$240,015
2	ROCKWALL PUMP STATION 1 IMPROVEMENTS (Phase 2 in 201	1,757,060	7,000	3,589	3,411	1,000	14.29%	$251,009
3	24" TRANSMISSION LINE	1,833,149	5,100	3,589	1,511	1,000	19.61%	$359,441
4 & 9	12" WATER LINE IN FM 1140	526,231	4,300	3,589	711	1,000	16.53%	$87,012
5	1.5 MG ELEVATED TANK	3,826,000	7,000	3,589	3,411	1,000	14.29%	$546,571
6&7	HEATH CROSSING WATERLINE OVERSIZE 12" to 18"	39,600	7,000	3,589	3,411	1,000	14.29%	$5,657
8	24" WATERLINE FM 550/FM 3097	1,000,000	5,100	3,589	1,511	1,000	19.61%	$196,078
10	18" WATER LINE IN FM 550 AND FM 740	202,515	4,300	3,589	711	1,000	16.53%	$33,486
11	FM 549 18" WATER LINE	528,249	7,000	3,589	3,411	1,000	14.29%	$75,464
12	ELEVATED TANK WATER LINE	252,736	4,300	3,589	711	1,000	16.53%	$41,790
13	500,000 GAL ELEVATED TANK	936,850	4,300	3,589	711	1,000	16.53%	$154,907
14	FM 550 to McDONALD RD 18" WATER LINE	809,273	7,000	3,589	3,411	1,000	14.29%	$115,610
	TOTAL EXISTING COSTS ELIGIBLE FOR CIP	**$18,211,228**						**$1,051,667**

[1] The total number includes growth since the last update plus acquisition of 842 connections from Forney Lake WSC IN 2018

NOTE: BASED ON CURRENT COMPREHENSIVE PLAN AND HEATH CCN, IT IS ESTIMATED THAT THERE WILL ULTIMATELY BE 7,000 EQUIVALENT 3/4" WATER METER CONNECTIONS IN THE CITY.

TABLE 4
PROPOSED WATER PROJECTS
2020 TO 2030 CIP

PROJECT NO.	PROPOSED FACILITY	PROJECT COST (INCLUDES PRINCIPLE AND INTEREST), $ [1]	TOTAL CONNECTIONS SERVED BY PROJECT	NUMBER OF CONNECTIONS, DECEMBER 2019	CAPACITY, DECEMBER 2019 CONNECTIONS [2]	CONNECTIONS IN 10 YEAR PERIOD (2020 TO 2030)	% COSTS ELIGIBLE	$ IN CIP
1	PUMP STATION NO. 2 WITH 2-3 MG GSR	17,023,360	3,411	0	3,411	1,000	29.32%	$4,990,724
2	8000 LF 18" WATER LINE (OVERSIZE 12" TO 18")	823,296	1,922	3,589	0	1,000	0.00%	$0
3	9,150 LF 18" WATER LINE (OVERSIZE 12" TO 18")	941,645	1,922	3,589	0	1,000	0.00%	$0
4	11,000 LF 18" WATER LINE (OVERSIZE 12" TO 18")	1,132,032	1,922	3,589	0	1,000	0.00%	$0
5	2025 & 2030 IMPACT FEE UPDATE	40,000	1,000	1,000	NA	1,000	100.00%	$40,000
	COST TO ISSUE BONDS	379,081	7,000	3,589	3,411	1,000	14.29%	$117,614
	TOTAL CIP	**$20,339,414**			**TOTAL COSTS ELIGIBLE FOR CIP**			**$5,148,338**

[1] AN INTEREST RATE OF 3.5% AND 20 YEAR TERM WERE USED TO CALCULATE INTEREST COSTS FOR PROPOSED PROJECTS.

[2] PROJECTS 2, 3, AND 4 ARE CIP PROJECTS THAT WILL BE CONSTRUCTED AS DEVELOPMENT OCCURS AND ARE COVERED BY PREVIOUS IMPACT FEES COLLECTED.

TABLE 5
EXISTING SANITARY SEWER PROJECTS
2020 TO 2030 CIP

PROJECT NO.	EXISTING FACILITY	PROJECT COST, $ [1]	TOTAL CONNECTIONS SERVED BY PROJECT	NUMBER OF CONNECTIONS IN SYSTEM, DECEMBER 2019	REMAINING CONNECTIONS JANUARY 1, 2020	CONNECTIONS IN 10 YEAR PERIOD (JANUARY 2020 TO 2030)	% COSTS ELIGIBLE [2]	$ IN CIP
1	RUSH CREEK SEWER	597,166	2,742	2,562	180	1,000	6.56%	$39,201
2	YANKEE CREEK SEWER	184,140	280	2,562	0	1,000	0.00%	$0
3	COBBLESTONE SEWER	436,976	271	2,562	0	1,000	0.00%	$0
4	SOUTHSIDE L.S. FORCEMAIN AND GRAVITY	833,669	2,600	2,562	38	1,000	1.46%	$12,184
5	SOUTHSIDE LIFT STATION	475,508	600	2,562	0	1,000	0.00%	$0
6	TERRY LANE LIFT STATION	192,460	395	2,562	0	1,000	0.00%	$0
7	TERRY LANE FORCEMAIN	165,798	700	2,562	0	1,000	0.00%	$0
8	TERRY LANE 12" GRAVITY LINE	265,047	700	2,562	0	1,000	0.00%	$0
9	TERRY LANE 8" GRAVITY LINE	91,829	800	2,562	0	1,000	0.00%	$0
10	CANDLELITE LIFT STATION	217,842	300	2,562	0	1,000	0.00%	$0
11	CANDLELITE LIFT STATION FORCEMAIN	194,632	300	2,562	0	1,000	0.00%	$0
12	RUSH CREEK 12" GRAVITY LINE	117,743	700	2,562	0	1,000	0.00%	$0
13	RUSH CREEK 15" AND 18" GRAVITY LINE	500,800	1,950	2,562	0	1,000	51.28%	$256,821
14	BUFFALO CREEK INTERCEPTOR SYSTEM	25,569,735	14,100	2,562	11,538	1,000	7.09%	$1,813,456
	TOTAL EXISTING COSTS ELIGIBLE FOR CIP	**$29,843,346**						**$2,121,663**

[1] ALL EXISTING PROJECTS CONSTRUCTED BY HEATH WERE PAID FOR WITH IMPACT FEES EXCEPT FOR PROJECT 14 WHICH WAS CONSTRUCTED BY NTMWD AND INCLUDES INTEREST.

[2] IF THE REMAINING CONNECTIONS ON JANUARY 1, 2020 ARE LESS THAN THE TOTAL NUMBER ANTICIPATED TO OCCUR IN THE TEN YEAR PERIOD, THEN THE PERCENTAGE ELIGIBLE IS THE REMAINING CONNECTIONS DIVIDED BY THE TOTAL SERVED BY THE FACILITY. IF THE NUMBER REMAINING IS GREATER THAN THE ANTICIPATED TEN YEAR GROWTH, THEN THE PERCENTAGE IS THE TEN YEAR GROWTH DIVIDED BY THE DESIGN CAPACITY.

TABLE 6
PROPOSED WASTEWATER PROJECTS
CIP 2020 TO 2030

PROJECT NO.	PROPOSED FACILITY	PROJECT COST (INCLUDES PRINCIPLE AND INTEREST), $ [1]	INTEREST, $	TOTAL COST, $	TOTAL CONNECTIONS SERVED BY PROJECT	NUMBER OF CONNECTIONS, DECEMBER 2019	REMAINING CAPACITY, DECEMBER 2019 CONNECTIONS	CONNECTIONS IN 10 YEAR PERIOD (2020 TO 2030)	% COSTS ELIGIBLE	$ IN CIP
1	BUFFALO CREEK INTERCEPTOR SYSTEM (PH 2) [2]	67,777,000	23,044,180	90,821,180	NA [3]	NA [3]	NA [3]	1,000	6.28%	$5,704,405
2	SOUTHSIDE LIFT STATION	1,000,000	340,000	1,340,000	2600	2,562	38	1,000	1.46%	$14,615
3	UPDATE IMPACT FEE STUDY 2025 AND 2029	40,000	0	40,000	1,000	0	NA	1,000	100.00%	$40,000
	TOTAL CIP	**$68,817,000**	**$23,384,180**	**$92,201,180**			**TOTAL COSTS ELIGIBLE FOR CIP**			**$5,759,020**

[1] AN INTEREST RATE OF 3.5% AND 20 YEAR TERM WERE USED TO CALCULATE INTEREST COSTS FOR PROPOSED PROJECTS.

[2] PROJECT 1 IS DESIGNED, CONSTRUCTED, AND FINANCED BY NTMWD. FACILITIES PARALLEL EXISTING PIPELINE AND EXPANDS LIFT STATION TO DOUBLE EXISTING FLOW. COST INFORMATION PROVIDED BY NTMWD FROM SOUTH MESQUITE SYSTEMS CAPACITY ASSESSMENT PHASE III REPORT DATED 2019.

[3] SEE CALCULATION IN TABLE 6A

TABLE 6A
NTMWD BUFFALO CREEK INTERCEPTOR CIP
2020 TO 2030

Project Description [1]	Probable Project Cost, $	Interest, $ [2]	Total Probable Cost, $	Capacity, MGD	Equivalent Single Family Homes With a Peaking Factor of 1	Equivalent Single Family Homes With a Peaking Factor of 6.8 [3][4]	Number of Single Family Homes in Project	Cost per House, $	Houses in 10 Year CIP	$ IN CIP
Buffalo Creek Interceptor Ph 1, Rockwall to FM 740	22,100,000	7,514,000	29,614,000	40	330	2,247	17,804	1,663	1,000	1,663,359
Buffalo Creek Interceptor Ph 2, FM 740 to Lift Station	17,000,000	5,780,000	22,780,000	44	330	2,247	19,584	1,163	1,000	1,163,188
Upgrade Buffalo Creek Interceptor Lift Station	28,677,209	9,750,251	38,427,460	30	330	2,247	13,353	2,878	1,000	2,877,858
			90,821,460					5,704		5,704,405

[1] PROJECT 1 IS DESIGNED, CONSTRUCTED, AND FINANCED BY NTMWD. PHASE 2 FACILITIES PARALLEL EXISTING PIPELINE AND EXPANDS LIFT STATION TO DOUBLE EXISTING FLOW. COST INFORMATION PROVIDED BY NTMWD FROM SOUTH MESQUITE SYSTEMS CAPACITY ASSESSMENT PHASE III REPORT 2019.

[2] AN INTEREST RATE OF 3.5% AND 20 YEAR TERM WERE USED TO CALCULATE INTEREST COSTS FOR PROPOSED PROJECTS.

[3] FIGURE 5.0.3, SOUTH MESQUITE SYSTEMS CAPACITY ASSESSMENT PHASE III REPORT FOR NTMWD

[4] A SINGLE FAMILY HOME WASTEWATER FLOW WAS ESTIMATED AS FOLLOWS: (2.8 PPH)(118 GPCD)(6.8 peaking factor) = 2,247 peak day flow per house

APPENDIX C

TABLE 7
SUMMARY OF IMPACT FEE
2020 TO 2030 CIP
CITY OF HEATH

IMPROVEMENTS	[1] ELIGIBLE PROJECT TOTAL COST, $	ONE-HALF ELIGIBLE PROJECT COST, $	ONE-HALF ELIGIBLE COST/CONNECTION (1000 CONNECTIONS)	ELIGIBLE IMPACT FEE, $
EXISTING WATER SYSTEM IMPROVEMENTS				
3 MG GROUND STORAGE RESERVOIR (GSR) IN ROCKWALL	$1,051,667	$525,834	$526	
PUMP STATION (Phase 1)	$240,015	$120,008	$120	
PUMP STATION IMPROVEMENTS (Phase 2 2018)	$251,009	$125,505	$126	
24" TRANSMISSION LINE	$359,441	$179,721	$180	
12" WATER LINE IN FM 1140	$87,012	$43,506	$44	
1.5 MG ELEVATED TANK	$546,571	$273,286	$273	
HEATH CROSSING WATERLINE OVERSIZE 12" to 18"	$5,657	$2,829	$3	
24" WATERLINE FM 550/FM 3097	$196,078	$98,039	$98	
18" WATER LINE IN FM 550 AND FM 740	$33,486	$16,743	$17	
FM 549 18" WATER LINE	$75,464	$37,732	$38	
ELEVATED TANK WATER LINE	$41,790	$20,895	$21	
500,000 GAL ELEVATED TANK	$154,907	$77,454	$77	
FM 550 to McDONALD RD 18" WATER LINE	$115,610	$57,805	$58	
PROPOSED WATER SYSTEM IMPROVEMENTS				
UPGRADE PUMPS AND ELECTRICAL AT PS 1	$857,600	$428,800	$429	
8000 LF 18" WATER LINE (OVERSIZE 12" TO 18")	$0	$0	$0	
9,150 LF 18" WATER LINE (OVERSIZE 12" TO 18")	$0	$0	$0	
11,000 LF 18" WATER LINE (OVERSIZE 12" TO 18")	$0	$0	$0	
2025 & 2030 IMPACT FEE UPDATE	$40,000	$20,000	$20	
COST TO ISSUE BONDS	$117,614	$58,807	$59	
ELIGIBLE WATER IMPACT FEE FOR 3/4" METER	**$4,173,921**	**$2,086,961**	**$2,087**	**$2,087**
WASTEWATER SYSTEM IMPROVEMENTS				
RUSH CREEK SEWER	$39,201	$19,601	$20	
YANKEE CREEK SEWER	$0	$0	$0	
COBBLESTONE SEWER	$0	$0	$0	
SOUTHSIDE LIFT STATION FORCEMAIN AND GRAVITY SEWER	$12,184	$6,092	$6	
SOUTHSIDE LIFT STATION	$0	$0	$0	
TERRY LANE LIFT STATION	$0	$0	$0	
TERRY LANE FORCEMAIN	$0	$0	$0	
TERRY LANE 12" GRAVITY SEWER	$0	$0	$0	
TERRY LANE 8" GRAVITY SEWER	$0	$0	$0	
CANDLELITE LIFT STATION	$0	$0	$0	
CANDLELITE LIFT STATION FORCEMAIN	$0	$0	$0	
RUSH CREEK 12" GRAVITY SEWER	$0	$0	$0	
RUSH CREEK 15" AND 18" GRAVITY LINE	$256,821	$128,411	$128	
BUFFALO CREEK INTERCEPTOR SYSTEM	$1,813,456	$906,728	$907	
PROPOSED WASTEWATER PROJECTS				
BUFFALO CREEK INTERCEPTOR SYSTEM PHASE 2	$5,704,405	$2,852,203	$2,852	
SOUTHSIDE LIFT STATION UPGRADES	$14,615	$7,308	$7	
UPDATE IMPACT FEE STUDY 2025 AND 2030	$40,000	$20,000	$20	
ELIGIBLE SANITARY SEWER IMPACT FEE	**$7,880,682**	**$3,940,341**	**$3,940**	**$3,940**

[1] INCLUDES DESIGN, CONSTRUCTION, ISSUANCE OF BONDS AND INTEREST

TABLE 8
WATER AND SEWER IMPACT FEE
BASED ON WATER METER SIZE
CITY OF HEATH, TEXAS

METER TYPE	METER SIZE	CONTINUOUS DUTY MAXIMUM RATE, GPM [1]	RATIO TO 3/4" METER	WATER IMPACT FEE, $	SANITARY SEWER IMPACT FEE, $
SIMPLE	3/4"	15	1.00	2,087	3,940
SIMPLE	1"	25	1.67	3,478	6,567
SIMPLE	1-1/2"	50	3.33	6,957	13,133
SIMPLE	2"	80	5.33	11,131	21,013
COMPOUND	2"	80	5.33	11,131	21,013
TURBINE	2"	100	6.67	13,913	26,267
COMPOUND	3"	160	10.67	22,261	42,027
TURBINE	3"	240	16.00	33,392	63,040
COMPOUND	4"	250	16.67	34,783	65,667
TURBINE	4"	420	28.00	58,436	110,320
COMPOUND	6"	500	33.33	69,567	131,333
TURBINE	6"	920	61.33	128,003	241,653
COMPOUND	8"	800	53.33	111,307	210,133
TURBINE	8"	1,600	106.67	222,613	420,267
COMPOUND	10"	2,300	153.33	320,007	604,133
TURBINE	10"	2,500	166.67	347,833	656,667
TURBINE	12"	3,300	220.00	459,140	866,800

[1] SOURCE: AWWA STANDARDS