

**MINUTES**  
**CITY COUNCIL MEETING**  
**APRIL 4, 2017**

**CALL TO ORDER – Roll Call and Determination of a Quorum**

The Parker City Council met in a regular meeting on the above date at Parker City Hall, 5700 E. Parker Road, Parker, Texas, 75002.

Mayor Z Marshall called the meeting to order at 7:00 p.m. Councilmembers Scott Levine (arrived at 7:10 p.m.), Lee Pettle, Cleburne Raney, Ed Standridge, and Patrick Taylor were present. Mayor Marshall noted Mayor Pro Tem Levine was on his way. He was stuck in traffic.

Staff Present: City Administrator Jeff Flanigan, Finance/H.R. Manager Johnna Boyd, City Secretary Patti Scott Grey, City Attorney Brandon Shelby, Engineer Andrew Mata, Jr., P.E., Police Chief Richard Brooks and Developer/Capital Improvement Advisory Committee (CIAC) Member Stephen "Steve" L. Sallman

**PLEDGE OF ALLEGIANCE**

AMERICAN PLEDGE: Billy Barron led the pledge.

TEXAS PLEDGE: Police Chief Richard Brooks led the pledge.

**PUBLIC COMMENTS** The City Council invites any person with business before the Council to speak. No formal action may be taken on these items at this meeting. Please keep comments to 3 minutes.

Billy Barron, 6707 Overbrook Drive, said he had two (2) issues. First, he supported adoption of the Water Impact Fee. Next, he voiced his concerns and discontent with Oncor Electric Delivery Company, stating in the three (3) years he has lived in Parker, Texas, he has had more power outages than he did the twenty (20) years he lived in Plano, Texas. Mr. Barron also said he did not feel Oncor was doing a good job of providing power to the City of Parker.

**CONSENT AGENDA** Routine Council business. Consent Agenda is approved by a single majority vote. Items may be removed for open discussion by a request from a Councilmember or member of staff.

1. APPROVAL OF MEETING MINUTES FOR MARCH 13, 2017. [SCOTT GREY]
2. CANCEL APRIL 18, 2017 REGULAR MEETING DUE TO PARKER WOMEN'S CLUB (PWC) CANDIDATES NIGHT FORUM AND SET SPECIAL MEETING FOR APRIL 17, 2017. [MARSHALL]

3. CONSIDERATION AND/OR ANY APPROPRIATE ACTION ON RESOLUTION NO. 533, THE CITY OF PARKER, TEXAS SUSPENDING THE APRIL 21, 2017, EFFECTIVE DATE OF ONCOR ELECTRIC DELIVERY COMPANY'S REQUESTED RATE CHANGE. [SHELBY]

MOTION: Councilmember Pettle moved to approve the consent agenda items as presented. Councilmember Taylor seconded with Councilmembers Pettle, Raney, Standridge, and Taylor voting for the motion. Motion carried 4-0.

Mayor Marshall addressed Mr. Barron's public comment regarding Oncor, because it was on tonight's consent agenda. The Mayor explained what City Council did tonight was suspend the potential rate increase request. Parker was joining a coalition of other cities, who were taking this same action, and those cities, as a consensus group, would deal with the Oncor rate increase issue, in a larger way rather than Parker functioning alone. City Council would try to get the best possible rate structure it could for the City of Parker in the most efficient and effective manner.

## INDIVIDUAL CONSIDERATION ITEMS

4. PUBLIC HEARING FOR CITIZEN INPUT REGARDING A SPECIAL USE PERMIT FOR AN ACCESSORY BUILDING AT 1708 DUBLIN ROAD FOR MARY TEMPLETON. [FLANIGAN/SHELBY]

Mayor Marshall said Ms. Templeton was unable to attend tonight's meeting. City Administrator Flanigan reviewed Mary Templeton's Special Use Permit (SUP), stating on March 23, 2017, the Planning and Zoning (P&Z) Commission recommended approval of the SUP for an accessory building or barn larger than 2,500 square feet, located at 1708 Dublin Road. The ordinance states anything over 2,500 square feet requires a SUP, granted by City Council. Ms. Templeton has acquired approximately 19 acres on which she will build a house for her daughter and son-in-law and a larger barn, approximately 6,500 square feet. The way the ordinance is written today, Ms. Templeton is allowed one (1) out building per acre, but the maximum size would be 2,500 square. Technically, she could build five (5) or six (6) barns, but it would be more convenient and look better for the City of Parker if she builds one (1) structure.

Mayor Marshall opened the public hearing at 7:07 p.m. to receive comments, regarding a special use permit for an accessory building at 1708 Dublin road for Mary Templeton. The Mayor asked if there were any comments or questions from the audience and then City Council. There being no additional comments or questions Mayor Marshall declared the public hearing closed at 7:08 p.m.

5. CONSIDERATION AND/OR ANY APPROPRIATE ACTION ON ORDINANCE NO. 745 APPROVING A SPECIAL USE PERMIT FOR AN ACCESSORY BUILDING AT 1708 DUBLIN ROAD FOR MARY TEMPLETON. [FLANIGAN/SHELBY]

MOTION: Councilmember Pettle moved to approve Ordinance No. 745, granting Mary Templeton a Special Use Permit (SUP) for an accessory building to be located at 1708 Dublin Road. Councilmember Taylor seconded.

Councilmember Standridge said he was for this item, but he asked if the accessory building or recording studio portion would be used for commercial use. City Administrator Flanigan said the recording studio would be built for Ms. Templeton's son-in-law and would be used for his private use only. Mr. Standridge said that is what everyone needed to know.

Councilmembers Pettle, Raney, Standridge, and Taylor voting for the motion. Motion carried 4-0.

## 6. PUBLIC HEARING FOR RESERVE AT SOUTHRIDGE ANNEXATION. [SHELBY]

The Engineer of Record Mark Harris stated his name, company name and address, Kimley-Horn Associates, 12750 Merit Drive, Suite #1000, Dallas, TX 75251, for the record. He said he was present on behalf of the applicant, Diyar Parker LP. As part of the preliminary plat approval, the owner agreed to annex the property prior to the final plat. Mr. Harris said he would be happy to respond to any questions.

Mayor Pro Tem Levine arrived at 7:10 p.m.

Mayor Marshall recapped stating this was the first public hearing for the Reserve at Southridge, which was 45.493 acres, had 31 residential lots, and was currently in the county or Parker's Extraterritorial Jurisdiction (ETJ). The applicant requested City Council consider annexation into the City of Parker, Texas. The Mayor then opened a public hearing at 7:11 p.m. to receive comments regarding the Reserve at Southridge annexation.

Cindy Meyer, 6618 Estados Drive, asked if the property requesting annexation was part of Southridge. If so, she asked how many phases this development contained and whether all the lots were one (1) acre lots. She was told the subdivision was totally separate, there were no other phases, and the property was approximately 45 acres with 31 residential lots. Ms. Meyer said she understood this property was not currently in the city limits; therefore, the City of Parker had little or no control over lot size. Nonetheless, the City of Parker was fully aware that Parker residents wanted two (2) acres lots and should not allow new development to continue decreasing lot size.

Mayor Pro Tem Levine asked Ms. Meyer briefly to clarify her remarks, regarding lot size, what she was asking City Council to do and what the City could do, considering the property was in the county. Ms. Meyer reiterated her earlier comment that the property was not in the city limits, it was in the ETJ, and City Council had little or no control over lot size.

There being no additional comments or questions Mayor Marshall declared the public hearing closed at 7:16 p.m. The next Reserve at Southridge annexation public hearing will be held on April 17, 2017.

## 7. PUBLIC HEARING FOR WATER IMPACT FEES. [FLANIGAN/BIRKHOFF]

City Administrator Flanigan reviewed the item briefly, stating on February 23, the Water Impact Fee Advisory Committee reviewed the 2016-2026 Water Impact Fee

Report that included the maximum water impact fee, prepared by Birkhoff, Hendricks & Carter, L.L.P., Professional Engineers and found the maximum water impact fee presented in the 2016-2026 Water Impact Fee Report was in general conformance with the requirements of Texas Local Government Code Chapter 395. The Water Impact Fee Advisory Committee offered no objections.

Mayor Marshall recognized Engineer Andrew Mata, Jr., P.E. of Birkhoff, Hendricks & Carter, L.L.P., 11910 Greenville Ave., Suite 600, Dallas, Texas. Mr. Mata briefly summarized the item, stating the Engineering Firm Birkhoff, Hendricks & Carter prepared the Water Impact Fee Report 2016-2026 in accordance with Chapter 395 of the Texas Local Government Code and a public hearing was necessary for the Water Impact Fee and associated fee adoption process. Mr. Mata reviewed pages 39, 40, and 41 of the Water Impact Fee Report 2016-2026 (See Exhibit 1 – Water Impact Fee Report 2016-2026, with additional requested city comparisons.), discussing the methods used to calculate maximum water impact fees, the maximum allowable water impact fee, comparisons with other cities, and the ability to change the fee if necessary.

Mayor Marshall opened a public hearing at 7:27 p.m. to receive comments regarding Water Impact Fees. He asked if anyone had comments and/or questions.

Aleen Tyrrell, 5602 Elisa Lane, voiced concern that the Water Impact Fee and any associated water lines would disturb her property and increase her water bill.

Cindy Meyer, 6618 Estados Drive, supported the Water Impact Fee, stating the fee should help current residents by not having to pay water infrastructure costs associated with new development.

Developer/Capital Improvement Advisory Committee (CIAC) Member Stephen "Steve" L. Sallman presented a chart he prepared, noting City Council could enact a fee less than the maximum to remain competitive with other cities that imposed water impact fees. (See Exhibit 2 – Steve Sallman's chart.)

Mayor Marshall read the Impact Fee Advisory Committee recommendation letter and noted the allowable maximum Water Impact Fee was fifty percent (50%) of the maximum impact and would affect new developments.

Mayor Pro Tem Levine remarked the fee should help existing residents, as they would not be paying infrastructure costs for new development.

No one else came forward. There being no additional comments Mayor Marshall declared the public hearing closed at 7:38 p.m.

**8. CONSIDERATION AND/OR ANY APPROPRIATE ACTION ON ORDINANCE NO. 746, ADOPTING THE WATER IMPACT FEE. [FLANIGAN/BIRKHOFF]**

Councilmember Pettle asked again if the water impact fee could be changed. Mayor Marshall said yes.

Councilmember Standridge voiced his concern that this may restrict builders.

Mr. Sallman said he did not have any data, but there may be some sticker shock associated with the fee.

**MOTION:** Councilmember Pettle moved to approve Ordinance No. 746, adopting the Water Impact Fee Report 2016-2026, dated February 2017, as recommended by the Water Impact Fee Advisory Committee, and prepared by Birkhoff, Hendricks & Carter, L.L.P. Profession Engineers, imposing the maximum allowable fee of \$3,938.95 for a Single Family Residential 1" meter and a fee of \$15,755.82 for Single Family Residential 2" meter. Councilmember Standridge seconded.

Mr. Mata reiterated the Water Impact Fee was half, or fifty percent (50%), of the cost of the necessary water infrastructure for new development.

Councilmembers Levine, Pettle, Raney, Standridge, and Taylor voting for the motion. Motion carried 5-0.

## ROUTINE ITEMS

### 9. FUTURE AGENDA ITEMS

Mayor Marshall asked if there were any items to be added to the future agenda. He noted the updates on tonight's agenda, the Projected 2017 Tax Rate Planning Calendar and 2017 May Early Voting and Election Day information and asked the City Secretary to email City Council for their summer vacation plans. The Mayor then said the next regularly scheduled special meeting would be Monday, April 17, 2017.

#### UPDATE(S):

- PROJECTED 2017 TAX RATE PLANNING CALENDAR
- 2017 MAY EARLY VOTING PERIOD AND ELECTION DAY INFORMATION

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Apr 23	Apr 24 Early Voting 8am to 5pm	Apr 25 Early Voting 8am to 5pm	Apr 26 Early Voting 8am to 5pm	Apr 27 Early Voting 8am to 7pm	Apr. 28 Early Voting 8am to 5pm	Apr. 29 Early Voting 8am to 5pm
Apr 30	May 1 Early Voting 7am to 7pm	May 2 Early Voting 7am to 7pm	May 3	May 4	May 5	May 6 Election Day 7am to 7pm

### 10. ADJOURN

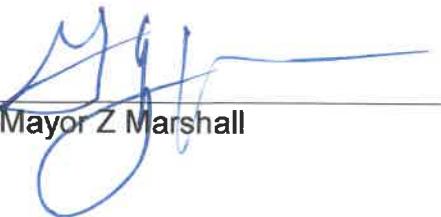
Mayor Marshall adjourned the meeting at 8:03 p.m.



ATTESTED:

  
Patti Scott Grey, City Secretary

APPROVED:

  
Mayor Z Marshall

Approved on the 6th day  
of June, 2017.



**City of Parker, Texas  
Impact Fee Advisory Committee  
5700 E. Parker Road  
Parker, Texas 75002**

**February 23, 2017**

**Re: Water Impact Fee  
Impact Fee Advisory Committee Recommendation**

**Honorable Mayor Z Marshall and the City of Parker City Council:**

The City of Parker Impact Fee Advisory Committee, established in accordance with Section 395.058 of the Texas Local Government Code, met on this date for the purpose of reviewing the 2016 Water Impact Fee.

The Impact Fee Advisory Committee reviewed the 2016-2026 Water Impact Fee Report that includes the maximum water impact fee, prepared by Birkhoff, Hendricks & Carter, L.L.P., Professional Engineers.

On behalf of the Advisory Committee, we find the maximum water impact fee presented in the 2016-2026 Water Impact Fee Report is in general conformance with the requirements of Texas Local Government Code Chapter 395. The Impact Fee Advisory Committee offers no objections.

**Sincerely**

A handwritten signature in black ink that appears to read 'Joe Lozano'.

**Joe Lozano  
Vice Chairman, Impact Fee  
Advisory Committee**



# WATER IMPACT FEE REPORT

## 2016 - 2026



*Submitted To The City Of*



*Submitted By*



**BIRKHOFF, HENDRICKS & CARTER, L.L.P.**  
**SPECIALIZING IN CIVIL ENGINEERING FOR**  
**MUNICIPALITIES AND GOVERNMENTAL AGENCIES**



*February 2017*

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ANDREW MATA, JR., P.E.  
JOSEPH T GRAJEWSKI, III, P.E.  
DEREK B CHANEY, P.E.  
CRAIG M KERKHOFF, P.E.

February 16, 2017

Mr. Jeff Flanigan  
City Administrator  
City of Parker  
5700 East Parker Road  
Parker, Texas 75002

Re: Water Impact Fee Study  
2016 - 2026

Dear Mr. Flanigan:

This report presents the results of the City of Parker's Water Impact Fee Study for the planning years 2016 through 2026. This report includes the updated land use assumptions (prepared by the City's Capital Improvements Advisory Committee), the impact fee Capital Improvements Plan, and the Maximum Impact Fees by meter size for new water accounts. The maximum allowable fee per service unit (for a 1-inch water meter), adjusted to fifty percent (50%) of the calculated maximum are:

Maximum Allowable Water Impact Fee per Service Unit ..... \$ 3,938.95

We have enjoyed working with the City on this important study and are available to discuss the findings and conclusions of this updated impact fee further at your convenience. We look forward to our continued working relationship with you and the City of Parker.

Sincerely,



Andrew Mata Jr., P.E.

**CITY OF PARKER, TEXAS  
WATER IMPACT FEE STUDY  
2016 TO 2026**

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- Existing Water Lines Utilized Capacity Tables
- Existing Facilities Utilized Capacity Tables
- Proposed Water Lines Utilized Capacity Tables
- Proposed Water Facilities Utilized Capacity Tables

**CITY OF PARKER, TEXAS  
WATER IMPACT FEE STUDY  
2016 to 2026**

**A. INTRODUCTION**

Chapter 395, of the Local Government Code is an act that provides guidelines for financing capital improvements required by new development in municipalities, counties, and certain other local governments. Under Chapter 395, political subdivisions receive authorization to enact or impose impact fees on land that is located within their political subdivision's corporate boundaries or extraterritorial jurisdictions. No governmental entity or political subdivision can enact or impose an impact fee unless they receive specific authorization by state law or by Chapter 395.

An “Impact Fee” is a charge or assessment imposed by a political subdivision for new development within its service area in order to generate revenue for funding or recouping the costs of capital improvements necessitated by and attributable to the new development.<sup>1</sup> The City of Parker’s current water Certificate of Convenient and Necessity (CCN) is CCN No. 10207. The Water Service Area extends to the Extra Territorial Jurisdiction (ETJ) and includes some area located within the City of Wylie. However, the portion of the area located in the City of Wylie was determined by the City’s Impact Fee Advisory Committee to be built out and no additional infrastructure would be needed to support additional growth. The first step in determining an impact fee is preparation of land use and growth assumptions for the service area for the next ten years. That step has been completed and provided by the City’s Impact Fee Advisory Committee in the Land Use Assumptions Report, dated August 29, 2016. Next, a Capital Improvements Plan must be created to describe the water distribution system infrastructure that will be necessary to serve the anticipated land uses and growth. The following section describes the Water Impact Fee.

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<sup>1</sup> P. 831, Texas Local Government Code, West’s Texas Statutes and Codes, 1998 Edition.

## B. WATER IMPACT FEES

The following items can be included in the water impact fee calculation:

- 1) The portion of the cost of the new infrastructure that is to be paid by the City, including engineering, property acquisition and construction cost.
- 2) Existing excess capacity in lines and facilities that will serve future growth and which were paid for in whole or part by the City and part by the Developer.
- 3) Interest and other finance charges on bonds issued by the City to cover its portion of the cost.

These items are summed and the utilized capacity is calculated over the impact fee period. The maximum allowable impact fee per service unit may not exceed fifty percent of the calculated maximum amount of the total utilized capital improvement cost divided by the total number of new standard service units. This maximum allowable impact fee recovers a portion of the City's costs for the construct of facilities to serve the new developments and support new growth. However, the City may recover the maximum fee by crediting the portion of utility service revenue generated by new service units during the 10-year program period.

Chapter 395 requires that an update of the land use assumptions, capital improvements plan, and impact fees be performed every five years, unless it is determined by the political subdivision after a review that such an update is not necessary.

This section of the report constitutes the City's 2016 water portion of the Capital Improvements Plan, and the maximum allowable impact fees. As required by state law, the study period is a ten-year period with 2016 as the base year. The engineering analysis of the water system is based on established land use in the year 2016, projected land use patterns through the year 2026, and on proposed infrastructure.

The engineering analysis portion of the City of Parker's 2016 Impact Fee determines utilized capacity cost of the water distribution system master plan between the years 2016 and 2026.

## C. GLOSSARY

1. Advisory Committee means the capital improvements advisory committee established by the City for purposes of reviewing and making recommendations to the City Council on adoption and amendment of the City's impact fee program.
2. Area-related facility means a capital improvement or facility expansion which is designated in the impact fee capital improvements plan and which is not a site-related facility. Area-related facility may include a capital improvement which is located off-site, or within or on the perimeter of the development site.
3. Assessment means the determination of the amount of the maximum impact fee per service unit which can be imposed on new development.
4. Capital improvement means a water facility, wastewater facility or roadway with a life expectancy of three or more years, to be owned and operated by or on behalf of the City.
5. City means the City of Parker, Texas.
6. Credit means the amount of the reduction of an impact fee due, determined under this ordinance or pursuant to administrative guidelines that is equal to the value of area-related facilities provided by a property owner pursuant to the City's subdivision or zoning regulations or requirements, for the same type of facility.
7. Facility expansion means either a water facility expansion, sewer facility expansion or roadway expansion.
8. Final plat approval means the point at which the applicant has complied with all conditions of approval in accordance with the City's subdivision regulations, and the plat has been approved for filing with Collin County.
9. Impact fee means either a fee for water facilities, wastewater facilities or roadway facilities, imposed on new development by the City pursuant to Chapter 395 of the Texas Local Government Code in order to generate revenue to fund or recoup the costs of capital improvements or facility expansion necessitated by and attributable to such new development. Impact fees do not include the dedication of rights-of-way or easements for

such facilities, or the construction of such improvements, imposed pursuant to the City's zoning or subdivision regulations.

10. Impact fee capital improvements plan means either a water capital improvements plan, wastewater capital improvements plan or roadway capital improvements plan, adopted or revised pursuant to the impact fee regulations.
11. Land use assumptions means the projections of population and growth, and associated changes in land uses, densities and intensities over at least a ten-year period, as adopted by the City and as may be amended from time to time, upon which the capital improvements plans are based.
12. Land use equivalency table means a table converting the demands for capital improvements generated by various land uses to numbers of service units, as may be amended from time to time.
13. New development means the subdivision of land; the construction, reconstruction, redevelopment, conversion, structural alteration, relocation, or enlargement of any structure; or any use or extension of the use of land; any of which increases the number of service units.
14. Plat has the meaning given the term in the City's subdivision regulations. Plat includes replat.
15. Platting has the meaning given the term in the City's subdivision regulations. Platting includes replatting.
16. Property owner has the meaning given the term in the City's subdivision regulations. Property owner includes the developer for a new development.
17. Recouplement means the imposition of an impact fee to reimburse the City for capital improvements which the City had previously oversized to serve new development.
18. Roadway facility means any freeway, expressway, principal or minor arterial or collector roadways designated in the City's adopted Thoroughfare Plan, as may be amended from time to time. It can include any roadway designated as a numbered highway on the official

Federal or Texas highway system. It includes but is not limited to the establishment of curbs, gutters, sidewalks, drainage appurtenances, street lights and right-of-ways.

19. Roadway capital improvements plan means the adopted plan, as may be amended from time to time, which identifies the roadway facilities or roadway expansions and their costs for each road service area, which are necessitated by and which are attributable to new development, for a period not to exceed 10 years.
20. Roadway facility expansion means the expansion of the capacity of an existing roadway in the City to serve new development. It does not include the repair, maintenance, modernization, or expansion of an existing roadway to better serve existing development.
21. Service area means either a water service area or wastewater benefit area within the City, within which impact fees for capital improvements or facility expansion will be collected for new development occurring within such area, and within which fees so collected will be expended for those types of improvements or expansions identified in the type of capital improvements plan applicable to the service area. For roadways, it means a roadway service area within the city limits.
22. Service unit means the applicable standard units of measure shown on the land use equivalency table in the Impact Fees Capital Improvements Plan which can be converted to water meter equivalents, for water or for wastewater facilities, which serves as the standardized measure of consumption, use or generation attributable to the new unit of development. For roadway facilities, the service unit is converted vehicle miles.
23. Site-related facility means an improvement or facility which is for the primary use or benefit of a new development, and/or which is for the primary purpose of safe and adequate provision of water, wastewater or roadway facilities to serve the new development, and which is not included in the impact fees capital improvements plan and for which the property owner is solely responsible under subdivision or other applicable development regulations.
24. Utility connection means installation of a water meter for connecting a new development to the City's water system, or connection to the City's wastewater system.
25. Wastewater facility means a wastewater interceptor or main, lift station or other facility included within and comprising an integral component of the City's collection system for

wastewater. Wastewater facility includes land, easements or structure associated with such facilities. Wastewater facility excludes site-related facilities.

26. Wastewater facility expansion means the expansion of the capacity of any existing wastewater improvement for the purpose of serving new development, but does not include the repair, maintenance, modernization, or expansion of an existing sewer facility to serve existing development.
27. Wastewater capital improvements plan means the adopted plan, as may be amended from time to time, which identifies the wastewater facilities or wastewater expansions and their associated costs which are necessitated by and which are attributable to new development, for a period not to exceed 10 years.
28. Water facility means a water interceptor or main, pump station, storage tank or other facility included within and comprising an integral component of the City's water storage or distribution system. Water facility includes land, easements or structures associated with such facilities. Water facility excludes site-related facilities.
29. Water facility expansion means the expansion of the capacity of any existing water facility for the purpose of serving new development, but does not include the repair, maintenance, modernization, or expansion of an existing water improvement to serve existing development.
30. Water improvements plan means the adopted plan, as may be amended from time to time, which identifies the water facilities or water expansions and their associated costs which are necessitated by and which are attributable to new development, for a period not to exceed 10 years.
31. Water meter means a device for measuring the flow of water to a development, whether for domestic or for irrigation purposes.

#### **D. LAND USE ASSUMPTIONS SUMMARY**

Under Chapter 395, of the Local Government Code, “Land Use Assumptions” includes a description of service area and projected changes in land uses, densities, intensities, and population in the service area for a minimum of a 10-year period. In order to impose an impact fee, the City must adopt an order, ordinance, or resolution that establishes a public hearing date to consider the land use assumptions within the designated service area. After the public hearing on the land use assumptions, the City makes a determination of adoption or rejection of the ordinance, order or resolution approving the land use assumptions that will be utilized to develop the Capital Improvement Plan.

The Land Use Assumptions used in this impact fee process were prepared by the City of Parker’s Impact Fee Advisory Committee, and are presented in the following document, titled “Land Use Assumptions Report of the Capital Improvements Advisory Committee of the City of Parker”.



# Land Use Assumptions Report of the Capital Improvements Advisory Committee of the City of Parker

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Revision C - August 29, 2016

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## Executive Summary

The Capital Improvements Advisory Committee (the "Committee") was appointed by the City of Parker City Council to review the subjects identified below and render an opinion on the land use assumptions necessary for the City to create and adopt lawful impact fees for the City of Parker public water system. The Committee has reviewed the Comprehensive Plan, the land use data, the current development within Parker, the current zoning within Parker, and the existing water plans for future growth and development. The Committee's report on the Land Use Assumptions required by Texas Local Government Code with relation to the Committee's work on impact fee research is contained within.

Members of this Committee include regular members of the Planning and Zoning Commission, experienced developers within the City of Parker, its ETJ, and key City personnel.

Table 1 - Capital Improvements Advisory Committee Members

Name	Role
Russell Wright	P&Z Chairman
Joe Lozano	P&Z Vice-Chairman
Cleburne Raney	P&Z Member
Jaemat Sutaria	P&Z Member
Wei Wei Jeang	P&Z Member
JR Douglas	P&Z Alternate, Developer
Steve Sallman	Developer/ETJ Owner
Jim Shepherd	City Attorney
Jeff Flanigan	City Administrator
Patti Scott Grey	City Secretary

## Analysis of Existing Conditions

Each member of the Committee is personally familiar with the existing development within the City of Parker. The areas of the City of Parker that are not yet developed were presented by the City Administrator and the relevant maps and data were reviewed. This data review included the population (Exhibit 1), existing zoning (Exhibit 2), and the Comprehensive Plan (Exhibit 3), current Development Map (Exhibit 4), and the Water Master Plan Map (Exhibit 5) for the City as it relates to the undeveloped areas of Parker and its ETJ.

## Determination of Service Area

The City Council's charge to the Committee was to render an opinion on the land use assumptions necessary for the City to create and adopt lawful impact fees for the City of Parker public water system. The Committee reviewed the requirements to exclude the provisions and related costs to current development and concentrated on the capital improvements necessary to serve future development based on the existing conditions noted above, and the anticipated use of the comprehensive plan and related development plans of the City, all as required by the Texas Local Government Code. The service area for a water impact fee would be the entire City and its ETJ with respect to new development in any portion of this area.

There is a portion of the City's water service area (CCN, Certificate of Convenience and Necessity) that lies within the City of Wylie. This was discussed as whether it should be included in the impact fee Service Area. The City Administrator noted that the water infrastructure in that area is already built out to specifications that would not necessitate additional infrastructure capital improvements. Therefore, it was concluded by the committee to not include this area within the Service Area.

Additionally, The City has a Special Activities area of approximately 188 acres (Southfork Ranch) which, at some point in the future, could be developed and subsequently subdivided. While there are no specific plans at the time of this writing, it is important to include this area for any future plans.

### Growth Projections

Based on the review of the factors set forth in the sections above, *Analysis of Existing Conditions and Determination of Service Area*, the Committee projected the 10 year growth patterns as they relate to water system capital improvements are as set forth in Table 6 - Land Use Assumptions (Exhibit A). The Committee's findings are based on the following discussions and calculations.

### Density Calculations

The Committee agrees with the Comprehensive Plan of Parker with regard to the future development of Parker and its ETJ. Consequently, for those areas zoned SF-Single Family, the Committee has projected single family residential units on lots of two acres, with three residents per household. For those areas projected to be zoned SFT-Single Family Transitional, the Committee anticipates 1 acre minimum lots, with a 1.5 acre average size of lots in the subdivision. The population estimate for SFT is also three residents per unit. Additional zoning categories such as Special Activities, Agricultural, Manufactured Housing and non-conforming uses, were all considered in the analysis.

The raw data in Table 2 was used as the basis of the analysis. The Meters column indicates the number of water meters the City was billing in that year. The Estimated Residents (Est. Residents) is based on the assumption of three residents per household, as indicated above. The % Change is expressed as the delta (change in number of meters) from the prior year divided by the number of meters in the prior year, e.g.  $98/688=14.2\%$ .

**Table 2 - Historical Water Meters (i.e. Service Units) for 2000 - Jan 2016**

Year	Meters	Est. Residents	Delta	% Change	Std. Dev.
2000	688	2064	688.0		
2001	788	2358	98.0	14.2%	5.1%
2002	938	2814	152.0	19.3%	4.6%
2003	1022	3066	84.0	9.0%	2.1%
2004	1075	3225	53.0	5.2%	1.4%
2005	1121	3363	46.0	4.3%	
2006	1180	3540	59.0	5.3%	
2007	1210	3630	30.0	2.5%	
2008	1258	3774	48.0	4.0%	
2009	1273	3819	15.0	1.2%	
2010	1295	3885	22.0	1.7%	
2011	1320	3960	25.0	1.9%	
2012	1351	4053	31.0	2.3%	
2013	1385	4155	34.0	2.5%	
2014	1404	4212	19.0	1.4%	
2015	1435	4305	31.0	2.2%	
2016	1501	4503	66.0	4.6%	

Referring to the standard deviation of a sample<sup>1</sup> Table 2, we can see the standard deviation for years 2001 and 2002 are significantly greater than several of the later years, so it was concluded that this extreme rate of growth for the City of Parker will likely not repeat itself. However, the Committee concluded the economic factors of many companies moving into the surrounding areas will likely increase

<sup>1</sup> Excel function STDEV.S is used to calculate the standard deviation of a sample.

the growth rate for the next several years, which might indicate above average growth for four to five years (5-6%), followed by slower growth (2-3%). In its final estimation, the committee agreed that 5% growth for the next five years (2017-2021) followed by 3% growth for the following five years (2022-2026) was a reasonable compromise.

When the absolute number of water meters is graphed over the years for which data exists, a curve as shown in Figure 1 develops. For comparison purposes, linear and 3<sup>rd</sup> order polynomial trend lines are added, along with their respective formulae.

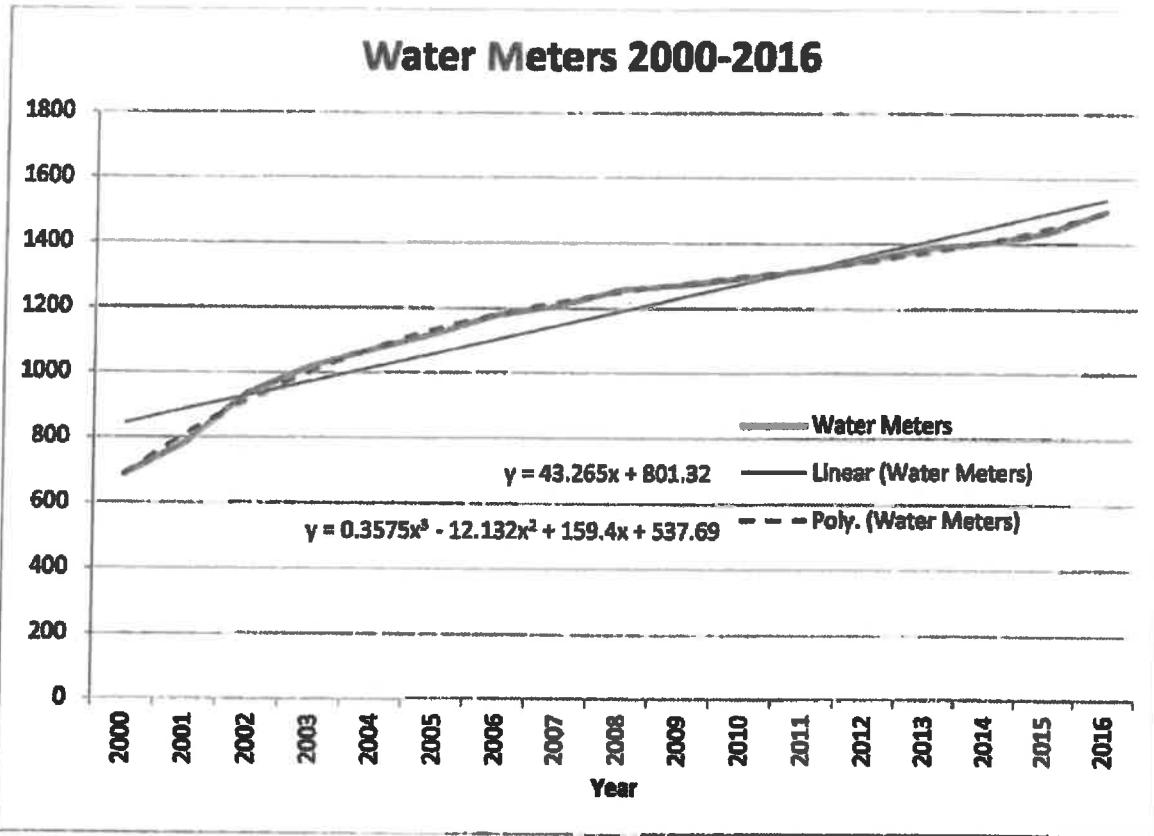


Figure 1 - Water Meter Graph

Figure 2 shows a graphical representation of the tabular data in Table 2. Since there was no detailed recording of service unit numbers prior to the year 2000, it is difficult to determine if the upward trend of the graph is representative of the years prior to 2000. However, as stated earlier, this could represent the beginning of an upward "growth spurt" for the City and this upward trend has been considered in the analysis of the overall growth projections.

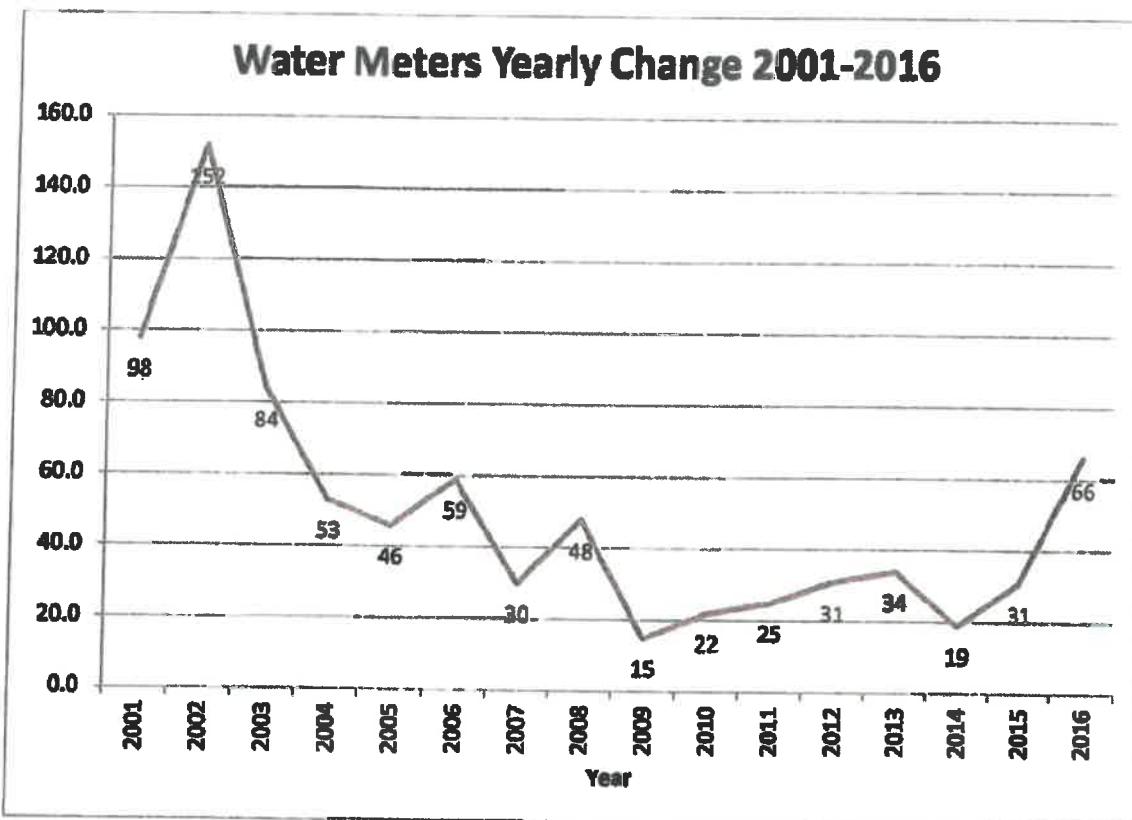


Figure 2 - Water Meters Delta from Prior Year

For selected time periods, average year on year growth rates can be established. Several time periods were used (refer to Table 3) to show the difference in growth rate when some of the outlying data is included or excluded.

Table 3 - Selected Year on Year Growth Rates

Period	# Periods	Avg. YoY Growth Rate
2001-2016	16	5.1%
2003-2016	14	3.4%
2001-2011	10	6.2%
2003-2013	10	3.6%

### Build Out

Table 4 shows the analysis of the estimated number of lots, which correspond directly to service units in the City, for areas covered by zoning or development agreements and all undeveloped land. The estimated lots for those areas already approved are actual numbers. For the undeveloped areas a factor of 0.9<sup>2</sup> is used to allow for those areas dedicated for roads, rights-of-way and other unusable areas.

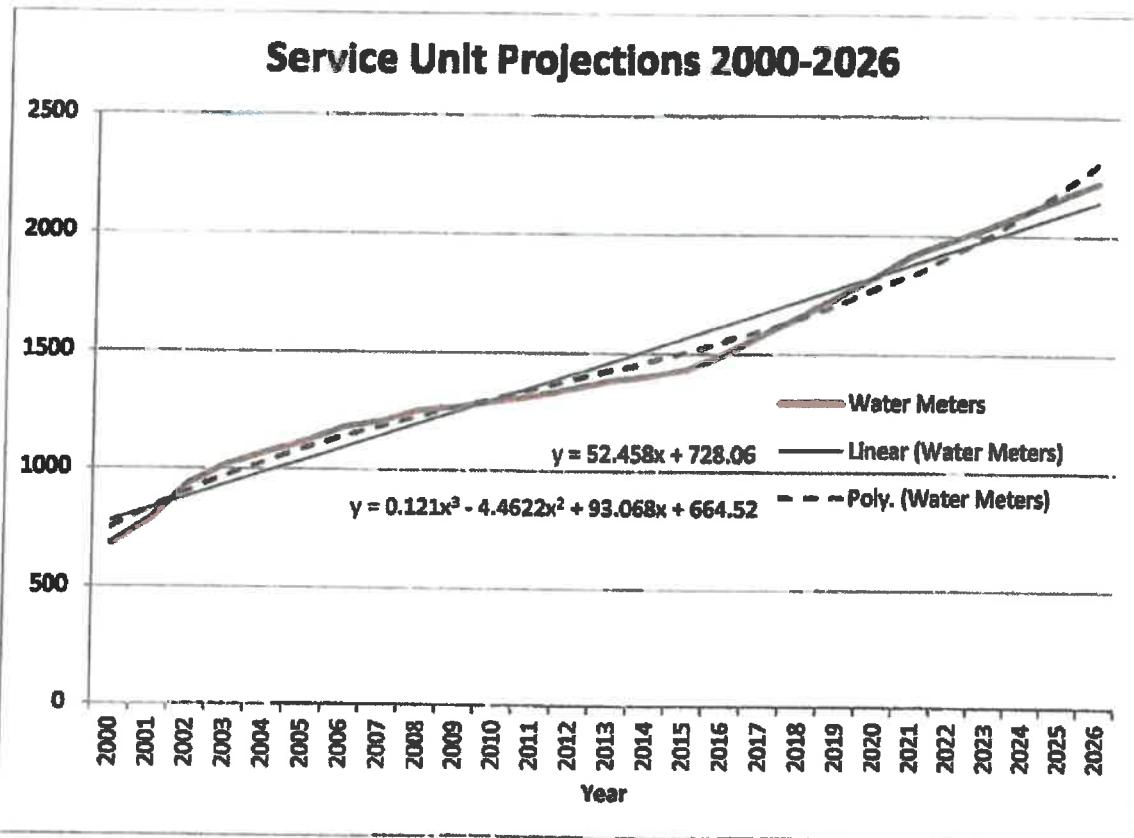
<sup>2</sup> Formula used: Number of acres \* Lots/Acre \* 0.9

**Table 4 - Future Service Area Impact**

Future Service Area	Acres	Lots/Acre	Est. Lots/Service Units	Est. Residents
<b>Approved by Zoning or Development Agreement</b>	<b>1500</b>	<b>0.646</b>	<b>969</b>	<b>2907</b>
<b>Undeveloped in ETJ</b>	<b>720</b>	<b>1</b>	<b>648</b>	<b>1944</b>
<b>Undeveloped Zoned SF</b>	<b>500</b>	<b>0.5</b>	<b>225</b>	<b>675</b>
<b>Undeveloped Zoned SFT</b>	<b>400</b>	<b>0.67</b>	<b>241</b>	<b>724</b>
<b>Current Special Activities Area<sup>3</sup></b>	<b>188</b>	<b>2</b>		
<b>Totals</b>	<b>3120</b>	<b>NA</b>	<b>2083</b>	<b>6250</b>

Add plus existing homes.

The current number of residents and population within Parker and its anticipated growth patterns over the next 10 years are as set forth in Table 6 - Land Use Assumptions (Exhibit A). The projections shown in Table 6 provide Parker's ultimate build-out growth projections, including existing development within Parker, anticipated future development on currently undeveloped land within Parker, and development in the extra-territorial jurisdiction (ETJ).

**Figure 3 - Service Unit Projection Graph**

<sup>3</sup> Southfork Ranch is a Special Activities area that is included in the table but not included in calculations.

**Table 5 - Actual and Estimated Service Units**

Year	Meters	Linear equation	Poly equation
2000	688	845	685
2001	786	888	811
2002	938	931	916
2003	1022	974	1004
2004	1075	1018	1076
2005	1121	1061	1135
2006	1180	1104	1182
2007	1210	1147	1219
2008	1258	1191	1250
2009	1273	1234	1276
2010	1295	1277	1299
2011	1320	1320	1321
2012	1351	1364	1345
2013	1385	1407	1372
2014	1404	1450	1406
2015	1435	1493	1447
2016	1501	1537	1498
2017	1581	1580	1561
2018	1660	1623	1639
2019	1743	1666	1733
2020	1830	1710	1848
2021	1922	1753	1979
2022	1979	1796	2136
2023	2039	1839	2317
2024	2100	1883	2526
2025	2163	1926	2764
2026	2228	1969	3034

**Table 6 - Land Use Assumptions (Exhibit A)**

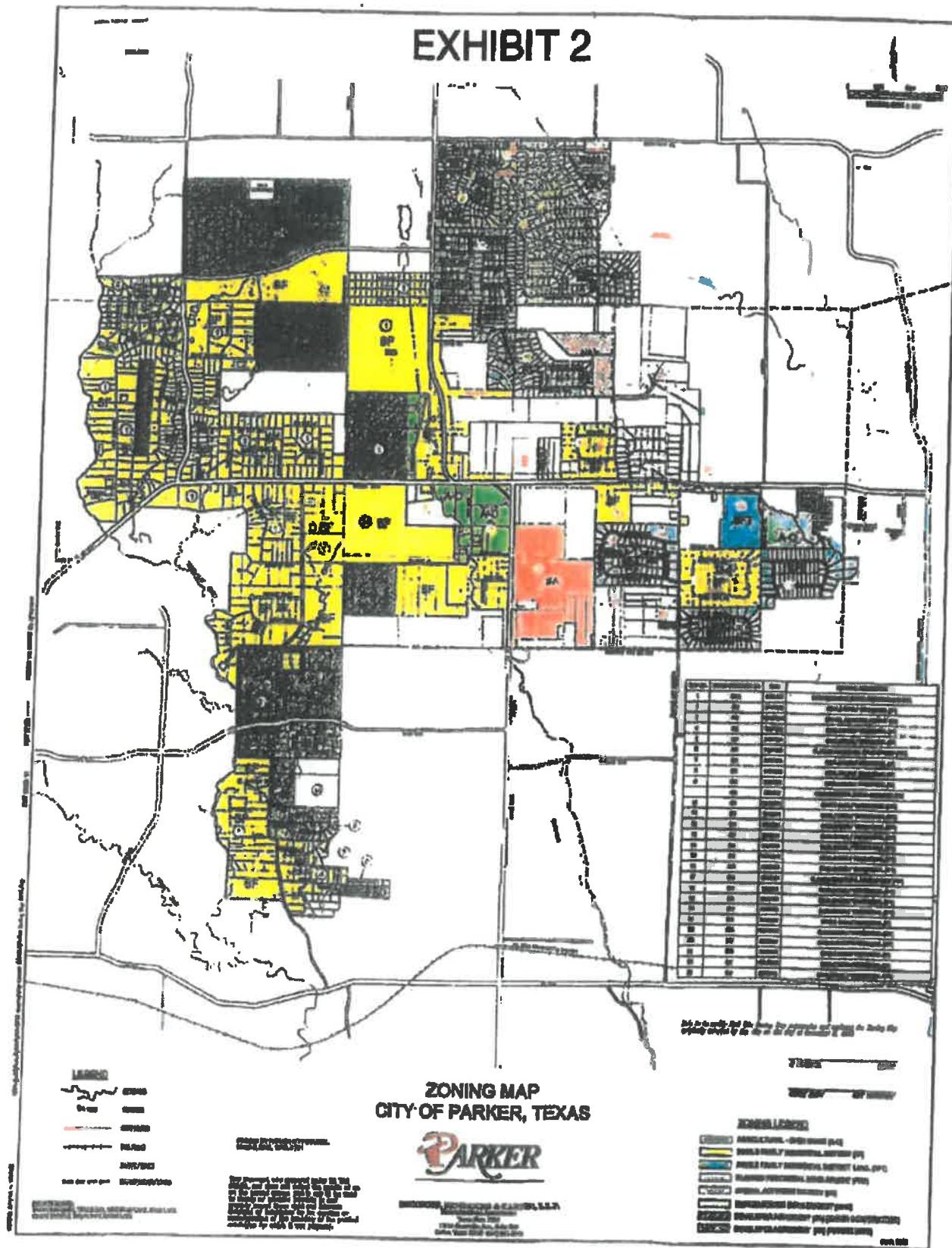
	2016 (Current)	2021	2026	Buildout
Homes	1,501	1,922	2,228	4,000 <sup>4</sup>
Mfg'dHousing	75 <sup>5</sup>	75	75	75
Commercial	0	10	20	20
Public	0	0	0	0
Totals	1,576	2,007	2,323	4,095
Population	4,503	6,021	6,969	12,000

<sup>4</sup> Buildout based on total population of 12,000<sup>5</sup> 75 manufactured houses, 75 houses in CCN (not in City) is a wash

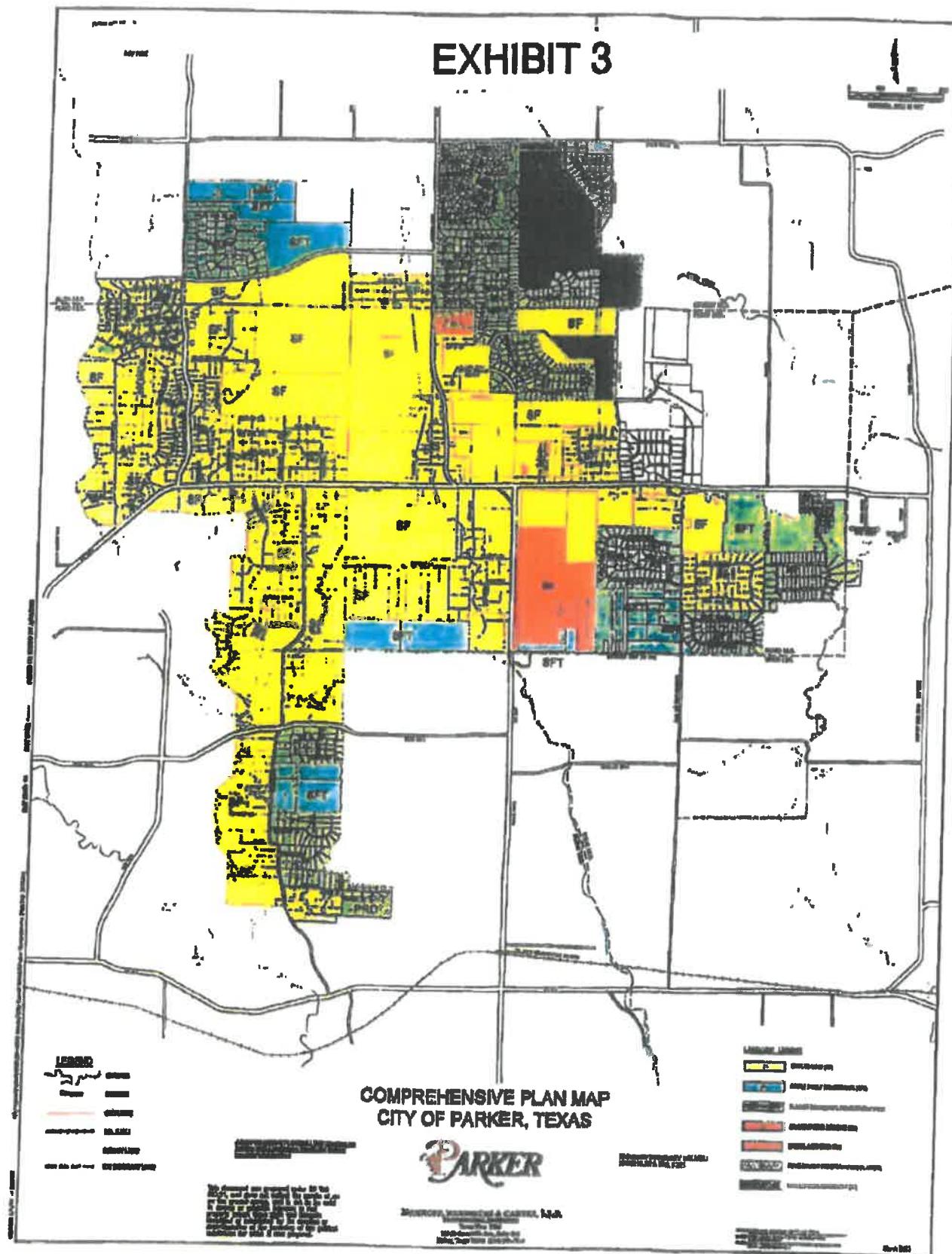
# EXHIBIT 1

Year	January Water Meters	x 3 per household
2000	589	2064
2001	786	2358
2002	938	2814
2003	1022	3066
2004	1075	3225
2005	1121	3363
2006	1180	3540
2007	1210	3630
2008	1258	3774
2009	1273	3819
2010	1295	3885
2011	1320	3940
2012	1351	4053
2013	1385	4155
2014	1404	4212
2015	1435	4305
2016	1501	4503

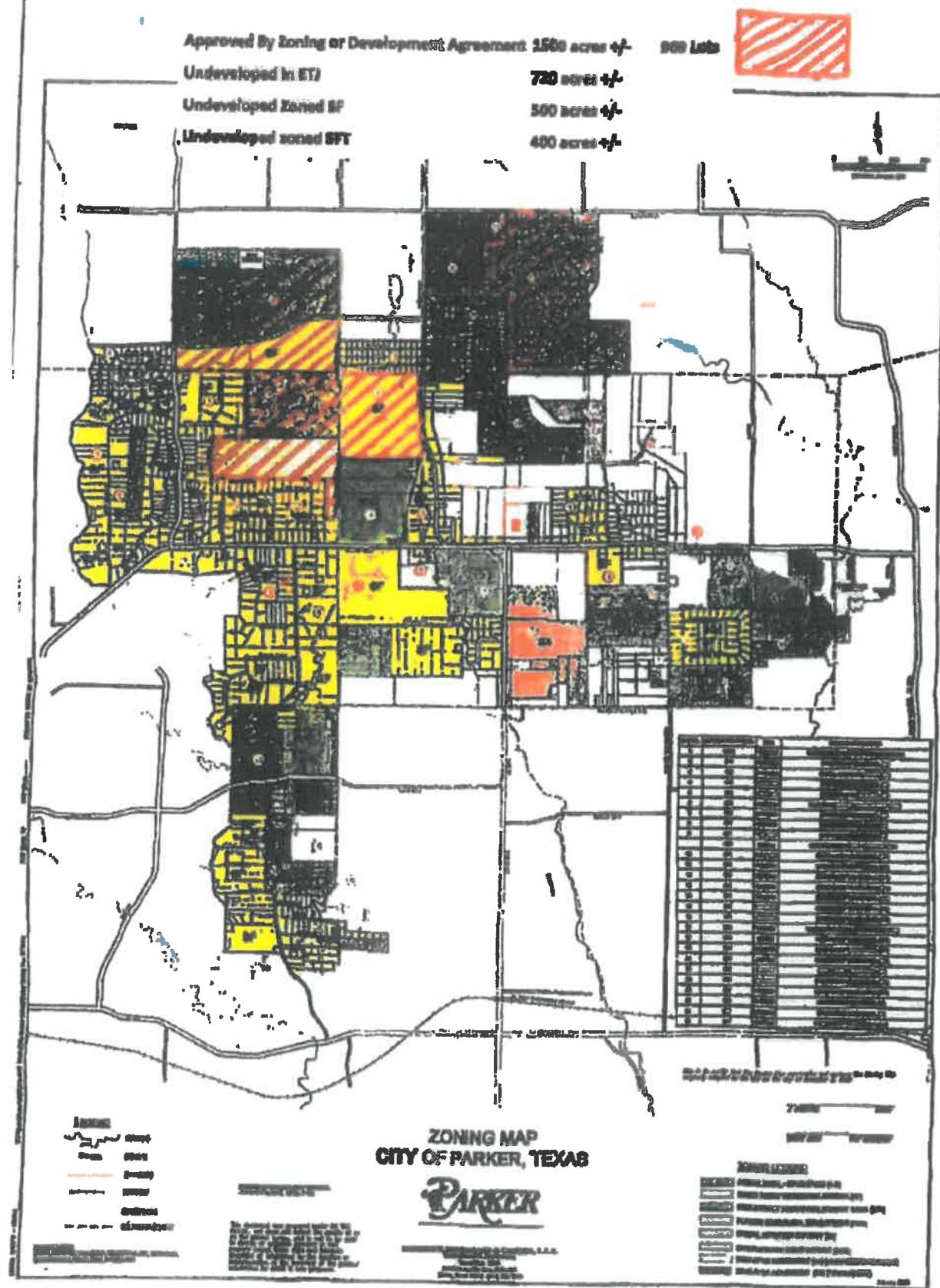
## EXHIBIT 2



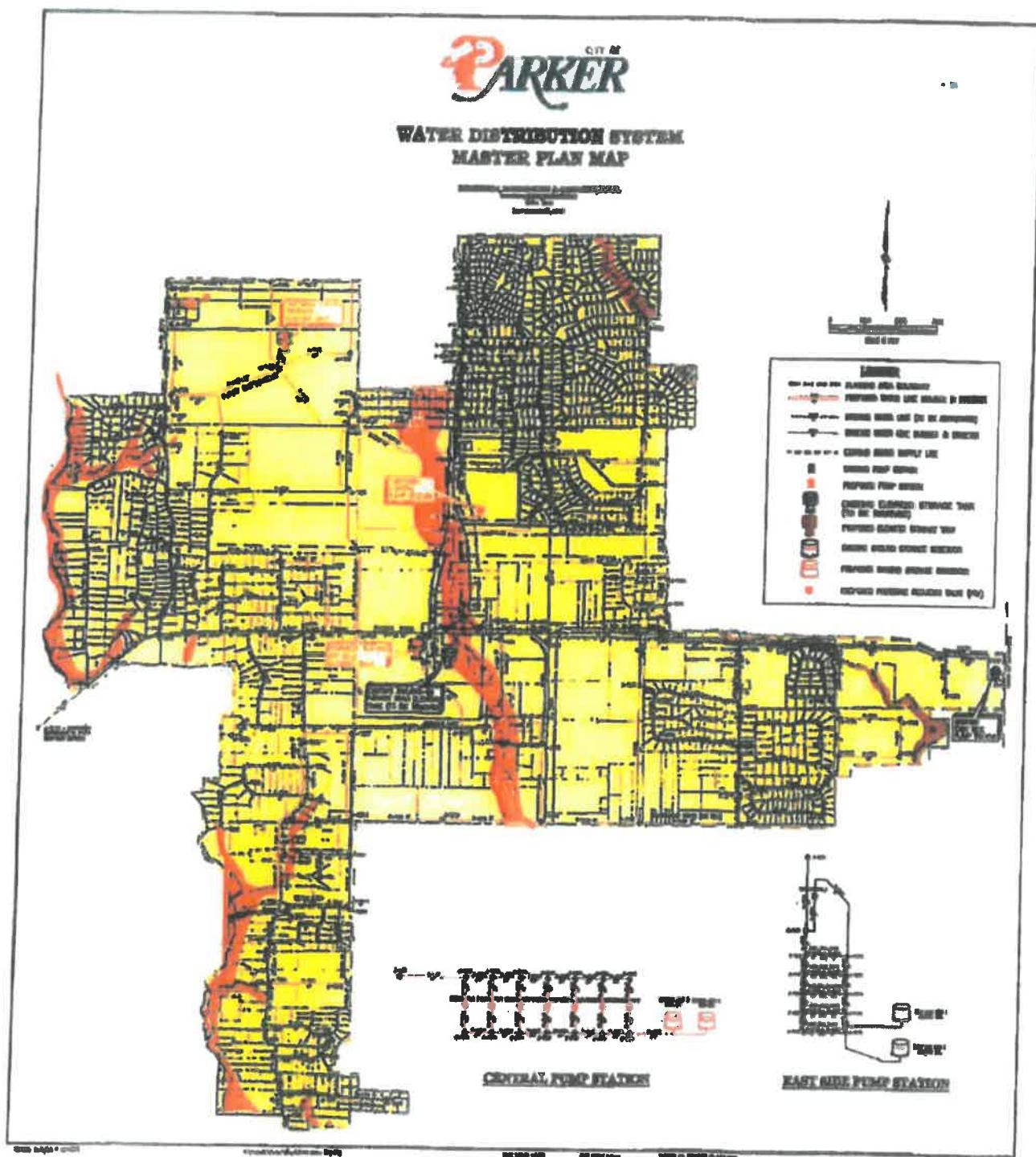
## EXHIBIT 3



## EXHIBIT 4



## EXHIBIT 5



## **E. DEFINITION OF A WATER SERVICE UNIT**

Chapter 395 of the Local Government Code requires that impact fees be based on a defined service unit. A “service unit” means a standardized measure of consumption, use generation, or discharge attributable to an individual unit of development calculated in accordance with generally accepted engineering or planning standards. The City of Parker has previously defined a water service unit to be a 1-inch water meter and has referred to these service units as Single Family Living Unit Equivalents (SFLUE). The service unit is based on the continuous duty capacity of a 1-inch water meter. This is the typical meter used for a single family detached dwelling within the City, and therefore is considered to be equivalent to one “living unit”. Other meter sizes can be compared to the 1-inch meter through a ratio of water flows as published by the American Water Works Association and shown in Table No. 1 below. This same ratio is then used to determine the proportional water and sewer impact fee amount for each water meter size.

**TABLE NO. 1**  
**LIVING UNIT EQUIVALENCIES**  
**FOR VARIOUS TYPES AND SIZES OF WATER METERS**

<b>Meter Type</b>	<b>Meter Size</b>	<b>Continuous Duty Maximum Rate <sup>(a)</sup></b>	<b>Living Unit Per Meter Size</b>
Simple	1"	25	1.0
Simple	2"	80	3.2
Compound	2"	80	3.2
Turbine	2"	100	4.0

<sup>(a)</sup> Source: AWWA Standard C700 - C702

**F. CALCULATION OF WATER LIVING UNIT EQUIVALENTS 2016-2026**

The City of Parker provided the existing water meter count by size category as of August 2016. In total, there are 1,501 water meters serving the existing population of 4,503 residents and businesses in the Water Service Area. Table No. 2 shows the number of existing meters, the living unit equivalent factor, and the total number of living unit equivalents (LUE's) for water accounts. As shown in Table No. 2, the new LUE's during the impact fee period total 1,129.

**TABLE NO. 2**  
**WATER LIVING UNIT EQUIVALENTS BY METER SIZE**

Meter Size	2016			2026				New Living Units During Impact Fee Period
	Number of Water Meters	Living Unit Equivalent Ratio for 1" Used	Total Number of Living Units	Future Meter Size	Number of Water Meters	Living Unit Equivalent Ratio for 1" Used	Total Number of Living Units	
5/8" x 3/4"	500	1.0	500	1"	742	1.0	742	242
1"	725	1.0	725	1"	1,076	1.0	1,076	351
2"	276	4.0	1,104	2"	410	4.0	1,640	536
<b>Totals</b>	<b>1,501</b>		<b>2,329</b>		<b>2,228</b>		<b>3,458</b>	<b>1,129</b>

## **G. WATER DISTRIBUTION SYSTEM**

Computer models for the years 2016 and 2026 were prepared based on the City's Water Distribution System Master Plan. The models were developed from residential population projections as provided in the Land Use Assumptions Report, prepared by the City of Parker's Impact Fee Advisory Committee. The land areas follow closely to the construction of major facilities in the system as outlined in the Water Distribution Report. These facilities include major distribution lines, pressure reducing valves, pump stations, and ground storage reservoirs.

All computer models were run for a 72-hour Extended Period Simulation to insure proper sizing of the facilities to meet peak demand periods.

### **G.1 Existing Pump Stations, Ground Storage Reservoirs & Elevated Storage Tanks**

The existing water distribution system includes the facilities as shown in Table No. 3 and Table No. 4 below.

**TABLE NO. 3**  
**WATER DISTRIBUTION SYSTEM**  
**EXISTING PUMP STATIONS & GROUND STORAGE**

Pump Station	Number Of Pumps	Rated Capacity (MG)	Number of Ground Storage Reservoirs	Total Ground Storage Available (MG)
East Side Pump Station	4	3.60	2	0.5
<b>Total:</b>	<b>4</b>	<b>3.60</b>	<b>2</b>	<b>0.5</b>

**TABLE NO. 4**  
**WATER DISTRIBUTION SYSTEM**  
**EXISTING ELEVATED STORAGE**

Pump Station	Capacity (MG)
City Hall Elevated Storage Tank	1.0
<b>Total:</b>	<b>1.0</b>

The pump stations and ground storage facilities were analyzed on the maximum daily demand, while elevated storage acts dynamically and therefore was analyzed utilizing the difference between the Maximum Hourly Demand and the Maximum Daily Demand.

## **G.2 Distribution Lines**

The distribution lines consist of all lines within the service area planning boundary supplying water to customers in the City of Parker. Lines vary in size from 3/4-inch service lines to 18-inch transmission lines. Unless a smaller diameter water line is expected to be constructed by the City of Parker, only those proposed water lines 8-inches in diameter or larger were considered in the Impact Fee calculations. The cost of water lines includes construction cost, appurtenances (water valves, fire hydrants, taps, etc.), utility relocations, purchase of easements and engineering costs. Financing cost is included for each project assuming a bond rate of 5% over a 20-year term.

Unit cost for water lines 12-inches in diameter or larger, which are anticipated to be constructed by private development, include the City's oversize cost participation only. City initiated water lines include the full cost of the proposed facility. Developer initiated water line projects which are 8-inches or less in diameter are not included in this Impact Fee analysis, unless otherwise shown on the CIP map. The cost for these size lines are the responsibility of the developer.

## **H. CAPITAL IMPROVEMENT PLAN**

### **H.1 Executive Summary**

The City of Parker owns and operates their water distribution system comprised of a pumping station, ground storage facilities, elevated storage facility and pipeline infrastructure. This system is being improved and expanded to meet the needs of the water demands imposed by the current residents and future residents of Parker, Texas. A schedule for future improvements and investments in the water distribution system is known as the Capital Improvements Plan. Chapter 395 of the Texas Local Government Code requires the political subdivision create its Capital Improvement Plan to impose impact fees. The Capital Improvement Plan and its costs are required for the calculation of the water impact fee. Birkhoff, Hendricks, and Carter, with assistance of City staff, created the Capital Improvements Plan. Only projects from the Capital Improvement Plan that are required to provide capacity to serve growth during the impact fee (2016-2026) period can be included in the impact fee calculation.

### **H.2 Introduction**

In accordance with Chapter 395 of the Texas Local Government Code, the City of Parker has retained Birkhoff, Hendricks & Carter, L.L.P. to establish the Capital Improvement Plan in conjunction with the Water Impact Fee Study. This section establishes the engineering basis for the capital projects and costs which are included in the water impact fee calculations.

The Capital Improvements Plan consists of the necessary water distribution system improvements to support the projected water demands placed on the distribution system due to future growth. The growth projections were obtained from the Land Use Assumptions Report for the Water Impact Fee prepared by the City of Parker Impact Fee Advisory Committee, dated August 29, 2016.

## H.3 Facility Capacity Requirements

### H.3.1 General

This section of the report discusses the capacity of those facilities that are required to be included in the Impact Fee Capital Improvements Plan and are also eligible in the calculation of the impact fee. The capacities evaluated are the existing available capacities and the increased capacities due to projected growth. These increased capacities serve the growth projected during the impact fee period.

### H.3.2 Water Usage

The water distribution system must be improved in accordance with this Capital Improvement Plan in order to support the water demands imposed on the system by the projected growth the City is envisioning within the next 10-year period. The City's existing 2016 residential population is approximately 4,503 residents. In year 2026 the City projects the residential population to grow to approximately 6,969 residents. The City of Parker updated the Water Distribution System Master Plan in February 2016. The Master Plan reports that based on information provided by the City, the residential per capita water usage rate for maximum daily demand is 571 gallons per capita per day (gpcd). Table No. 5 illustrates the water demand rates used to calculate the water demands for the projected population.

**TABLE NO. 5**  
**2016 DESIGN WATER DEMAND RATES**

Land Use	Maximum Daily Demand Rate	Maximum Hourly Demand Rate
Residential	571 g.p.c.d.	1,091 g.p.c.d.
Commercial	1,500 g.p.a.d.	1,950 g.p.a.d.

*g.p.c.d. – gallons per capita per day  
g.p.a.d. – gallons per acre per day  
residential peaking factor 1.91*

Table No. 6 summarizes the calculated water demands for year 2016 and 2026, within the City's planning area.

**TABLE NO. 6**  
**WATER DEMANDS**

<b>Water Demand Capacities</b>	<b>Maximum Daily Demand (MGD)</b>	<b>Maximum Hourly Demand (MGD)</b>
2016 Water Demands	3.334	5.521
2026 Water Demands	4.742	8.209
<b>Additional Capacity Required:</b>	<b>1.408</b>	<b>2.688</b>

### H.3.3 Water Supply

The City currently receives treated water supply from the North Texas Municipal Water District (NTMWD) at the East Side Pump Station delivery point located at the southwest corner of the Parker Road and F.M. 1378 intersection. The East Side Pump Station delivery point has capacity to receive up to 3.50 MGD supply rate. It does not have enough capacity to support the additional supply required for the growth within the next ten year period. This site also does not have sufficient area for expansions. Based on the growth projections and the calculated water demands, a second delivery point for water supply will be needed to meet the new water demands. This new delivery point will be the Central Pump Station delivery point. The locations of the existing and proposed delivery points are shown on the Capital Improvement Plan Map included in this report. Table No. 7 summarizes the maximum day supply capacity requirements at each delivery point within the next ten year impact fee period.

**TABLE NO. 7**  
**WATER SUPPLY**

<b>Water Supply Capacities</b>	<b>East Side Supply (MGD)</b>	<b>Central Supply (MGD)</b>
2016 NTMWD Supply	3.50	0.00
2026 NTMWD Supply	3.50	1.75
<b>Additional Supply Capacity Required:</b>	<b>0.00</b>	<b>1.75</b>

#### H.3.4 Water Distribution System

The City's existing water distribution system can support the water demands applied to the system from the existing residential population. As the City grows within the next ten-year period, additional water distribution system facilities will need to be constructed to support water demand created from new growth. In addition to facilities, the water distribution system will require additional water lines.

The design of the proposed water distribution system is based on three separate demand conditions. The first condition is based on the maximum daily demand. This demand is the rate at which water is supplied and the rate which pump stations must be sized to deliver water to the system. The second condition is the maximum hourly demand rate on the day of maximum demand. Maximum hourly demand rate is used to size distribution lines and to determine the volume of elevated storage. The third condition used is the minimum hourly demand rate on the day of maximum demand. This rate is used to analyze the refill rates of elevated storage tanks. These three demand conditions were modeled over a three-day period with an Extended Period Simulation (EPS) in the hydraulic water model utilizing the H2O NET water model software.

The existing and proposed distribution lines along with facilities are shown on the Capital Improvement Plan Map presented in this section of the Impact Fee Report. The 72-hour EPS model was utilized with the use of a diurnal curve obtained from the 2016 Master Plan Update model for the 2016 and 2026 hydraulic models. Table No. 8 summarizes the maximum hourly demands that the proposed distribution system will need to support.

**TABLE NO. 8**  
**WATER LINE DEMANDS**

<b>Waterline Capacities</b>	<b>Maximum Hourly Demand (MGD)</b>
2016 Waterline Demands	5.521
2026 Waterline Demands	8.209
<b>Addition Waterline Capacity Required:</b>	<b>2.688</b>

#### H.3.5 High Service Pump Stations

The City currently meets its pumping system demand requirements with the existing East Side Pump Station. This pump station has a firm pumping capacity of 3.60 MGD with the largest pump on standby to meet the Texas Commission on Environmental Quality (TCEQ) regulations. In order to meet the projected maximum daily demands, a second pump station with an initial firm capacity of 1.75 MGD will be required to be in service by year 2020 to meet the additional maximum daily demands. Table No. 9 summarizes the pump station capacities.

**TABLE NO. 9**  
**PUMP STATIONS**

<b>Pump Station Capacities</b>	<b>East Side Pump Station (MGD)</b>	<b>Central Pump Station (MGD)</b>
2016 Pumping Capacity	3.50	0.00
2026 Pumping Capacity	0.00	1.75
<b>Additional Pumping Capacity Required:</b>	<b>0.00</b>	<b>1.75</b>

#### H.3.6 Ground Storage Reservoirs

Ground Storage within the system is necessary to provide a dependable supply and during periods of interruption in supply. The volume of ground storage was designed for a 6-hour drawdown for the maximum demand pumping. The East Side Pump Station currently has a 200,000-gallon and a 300,000-gallon ground storage reservoir. These two existing reservoirs serve the East Side delivery point and pump station.

The new delivery point will require additional ground storage to meet TCEQ regulations and to provide a dependable supply to the Central Pump Station. Table No. 10 illustrates the ground storage capacity requirements. The ground storage reservoir at the Central Pump Station will need to be constructed congruently with the proposed pump station.

**TABLE NO. 10**  
**GROUND STORAGE RESERVOIR REQUIREMENTS**

<b>Ground Storage Capacities</b>	<b>Ground Storage Added (MG)</b>	<b>Ground Storage Available (MG)</b>
2016 Ground Storage Capacity	0.00	0.50
2026 Ground Storage Capacity	0.75	0.75
<b>Reservoir Capacity Required:</b>	<b>0.75</b>	<b>1.25</b>

#### H.3.7 Elevated Storage Tanks

Elevated storage within the system is required by TCEQ to maintain system pressure. In the Parker system, elevated storage is sized to meet the maximum hourly demands working in conjunction with the pump stations, while maintaining system pressures.

The City currently has one 1.0-MG elevated storage tank located on Parker Road, adjacent to City Hall, with a high water level at 800-ft above mean sea level (MSL). Table No. 11 summarizes the elevated storage requirements to meet maximum hourly demand rates within the 10-year study period.

**TABLE NO. 11**  
**ELEVATED STORAGE TANK REQUIREMENTS**

<b>Elevated Storage Capacities</b>	<b>Elevated Storage Added (MG)</b>	<b>Elevated Storage Available (MG)</b>
2016 Elevated Storage Capacities	0.00	1.00
2026 Elevated Storage Capacities	0.00	1.00
<b>Elevated Storage Capacity Required:</b>	<b>0.00</b>	<b>1.00</b>

#### H.4 Facilities – Utilized Capacity

Utilized capacity for the water distribution system was calculated based on the size of water line required for each model year (2016, 2026 and build-out). Master planning of the water distribution system is based on the 72-hour extended period simulation (EPS). The pump stations' capacities are generally based on the maximum daily system demand while transmission and distribution facilities are sized based on either the maximum hourly demand or the minimum hourly demand, whichever demand is greater for a particular water line. Often times, the capacity of a water line is determined by the flows generated by the minimum hourly demand. The minimum hourly flows are usually higher in those lines which are used to refill elevated storage. Table No. 12 below shows the unit flows used for analysis of each element of the distribution system.

**TABLE NO. 12**  
**WATER DISTRIBUTION SYSTEM ANALYSIS**  
**BASIS OF DEMAND CALCULATION**

Type of Facilities	Demand Type	Impact Fee Per Capita Use
Pumping	Maximum Day	571 gallons/day
Distribution System	Maximum Hour	1091 gallons/day
Ground Storage	Maximum Day x 6/24 Hours	
Elevated Storage	Maximum Hour - Maximum Day x 6/24 Hours	

For each line segment in the water distribution model, the build-out flow rate in any given line was compared to the flow rate in the same line for the 2016 and the 2026 models. The utilized capacity was then calculated for each year based on the build-out being 100% capacity. The utilized capacity during the Impact Fee period is the difference between the year 2016 percent utilized and the year 2026 percent utilized. The utilized capacity for each water distribution facility, both existing and proposed, is presented in detail in the Impact Fee Capacity Calculation Tables. Table No. 14 on page 27 summarizes the project cost and utilized cost over the impact fee period of 2016 - 2026 for each element of the Water Distribution System.

#### H.4.1 General

This section of the report discusses the water distribution system utilized facilities that are eligible to be included in the Impact Fee Capital Improvements Plan and are also eligible in the calculation of the impact fee. The Capital Improvements Plan makes improvements the water distribution system in order to meet and support the additional water demands created by the projected growth during the 10-year impact fee period. Only the infrastructure and facility projects identified in the Capital Improvements Plan can be eligible for impact fee funding.

#### H.4.2 Water Supply

The City will continue to receive water supply from the North Texas Municipal Water District. The new delivery point will be the Central Pump Station delivery point. For the year 2016, the utilized capacity is 0% since it is not constructed yet. For the year 2026, the utilized capacity was calculated by dividing the 2026 maximum daily demand by the buildout maximum daily demand, then subtracting the utilized capacities (2026-2016). Its utilized capacity during the 10-year period is approximately 62.0%.

2016 Utilized Capacity = 0.0%

2026 Utilized Capacity = 2026 Max Daily Demand / Buildout Max Daily Demand

$$\begin{aligned} 2026 \text{ Utilized Capacity} &= 4.742 \text{ MGD} / 7.645 \text{ MGD} \times 100\% \\ &= 62.0\% \end{aligned}$$

Utilized Capacity during Capital Recovery Fee (CRF) Period = 62.0% - 0.0% = 62.0%

#### H.4.3 Water Distribution System

The utilized capacity of the water distribution system water lines is associated with waterlines that are 8-inches in diameter or larger. The water distribution system was modeled in the hydraulic modeling software for the existing year 2016 water model, the 10-year 2026 water model, and the buildout water model. The utilized capacity for the new waterlines was obtained by comparing the maximum hourly flows in the new pipes, between the three water models. For the year 2016, the utilized capacity

of the new pipes was 0.0% since they are not serviced yet. For the year 2026, the utilized capacity was calculated by dividing the year 2026 pipe flow with the buildup pipe flow, both obtained from the hydraulic water model pipe line flows. The following are the proposed distribution lines that are shown on the Capital Improvement Plan Map in report.

- 1) **Dillehay Drive 18-Inch Water Line:** This waterline project consists of approximately 2,490 linear feet of 18-inch waterline beginning at the new Central Pump station, bearing south along Dillehay Drive and terminating at Parker Road by connecting to an existing 12-inch waterline. **Its utilized capacity during CRF period was calculated to be 100%.**

**Dillehay Drive 18-Inch Water Line:** This waterline project consists of approximately 1,635 linear feet of 18-inch waterline beginning at the new Central Pump station, bearing north along Dillehay Drive and terminating just north of Curtis Road by connecting to the existing 16-inch waterline. **Its utilized capacity during the CFR period was calculated to be 71.0%.**

- 2) **Chaparral Elevated Storage Tank Waterline:** This waterline project consists of approximately 385 linear feet of 16-inch waterline from the new elevated tank to connect to the existing 16-inch waterline. **Its utilized capacity during the CFR period was calculated to be 62.0%.**
- 3) **Bois-D-Arc Lane 8-inch Waterline:** This waterline project consists of approximately 1,670 linear feet of 8-inch waterline required along Bois-O-Arc Road for the new pressure reducing valve vault to be in place and operational within the next 10 years. **Its utilized capacity during the CFR period was calculated to be 62.0% utilized by the year 2026.**

#### H.4.4 High Service Pump Stations

The new Central Pump Station will have an initial firm pumping capacity of 1.75 MGD to meet the additional water demands within the next ten-year period. For the year 2016, the utilized capacity is 0.0% since it is not constructed yet. For the year 2026 the utilized capacity was calculated by dividing the 2026 maximum daily

demand by the buildout maximum daily demand, then subtracting the utilized capacities (2026-2016). Its utilized capacity during the 10-year period is approximately 62.0%.

2016 Utilized Capacity = 0.0%

2026 Utilized Capacity = 2026 Max Daily Demand / Buildout Max Daily Demand

$$\begin{aligned} 2026 \text{ Utilized Capacity} &= 4.742 \text{ MGD} / 7.645 \text{ MGD} \times 100\% \\ &= 62.0\% \end{aligned}$$

Utilized Capacity during Capital Recovery Fee (CRF) Period = 62.0% - 0.0% = 62.0%

#### H.4.5 Ground Storage Reservoirs

The new Central delivery point and pump station will required additional ground storage to meet TCEQ regulations and to provide a dependable supply for the Central Pump Station. The utilized capacity for the Central Ground Storage Reservoir was calculated the same as for the pump station utilized capacity above which is based on the maximum daily demands and calculating the differences between the 10-year period, then subtracting the utilized capacities (2026-2016). Its utilized capacity during the 10-year period is approximately 62.0%.

2016 Utilized Capacity = 0.0%

2026 Utilized Capacity = 2026 Max Daily Demand / Buildout Max Daily Demand

$$\begin{aligned} 2026 \text{ Utilized Capacity} &= 4.742 \text{ MGD} / 7.645 \text{ MGD} \times 100\% \\ &= 62.0\% \end{aligned}$$

Utilized Capacity during Capital Recovery Fee (CRF) Period = 62.0% - 0.0% = 62.0%

#### H.4.6 Elevated Storage Tanks

The existing 1.0 MG Elevated Tank has the capacity to support maximum hourly demands imposed by the projected growth within the next ten years. The utilized capacity for the elevated tank was calculated based on the maximum hourly demands and finding the differences between the 10-year periods. For the year (2016 and

2026) the utilized capacity of the elevated storage tank was calculated by subtracting the max hour demand from the max day demand and dividing the difference by 4 (4 is a constant rate 4-MGD/1-MG) to convert from rate to volume. The 2026 required volume was then divided by the buildout volume required to obtain the utilized capacity. Its utilized capacity during the 10-year period is approximately 32.0%.

$$\begin{aligned}2016 \text{ Utilized Capacity} &= (2016 \text{ Max Hour Demand} - \text{Max Day Demand}) / 4 \\&= (5.521 \text{ MGD} - 3.334 \text{ MGD}) / 4 \\&= 2.190 \text{ MGD} / 4 \\&= 0.55 \text{ MG}\end{aligned}$$

$$\begin{aligned}2016 \text{ Utilized Capacity} &= 2016 \text{ Required Volume} / \text{Available Volume} \\&= 0.55 \text{ MG} / 1.0 \text{ MG} \times 100\% \\&= 55\%\end{aligned}$$

$$2026 \text{ Utilized Capacity} = (2026 \text{ Max Hour Demand} - \text{Max Day Demand}) / 4$$

$$\begin{aligned}2026 \text{ Utilized Capacity} &= (8.209 \text{ MGD} - 4.742 \text{ MGD}) / 4 \\&= 3.467 / 4 \\&= 0.87 \text{ MG}\end{aligned}$$

$$2026 \text{ Utilized Capacity} = 2026 \text{ Required Volume} / \text{Available Volume}$$

$$\begin{aligned}2026 \text{ Utilized Capacity} &= 0.87 \text{ MG} / 1.0 \text{ MG} \times 100\% \\&= 87\%\end{aligned}$$

Utilized Capacity during Capital Recovery Fee (CRF) Period = 32%

#### **H.4.7 Capital Improvement Plan Map**

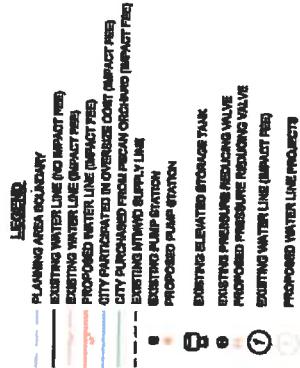
The Capital Improvements required within the 10-year period to support the City's projected growth are shown in Figure No. 1 on the following page.

#### **H.5 Capital Improvement Plan Map**

See Attached Map.



**WATER DISTRIBUTION SYSTEM  
2016-2026 WATER IMPACT FEE  
CAPITAL IMPROVEMENT PLAN  
AND RECOVERY WATERLINE MAP**



BURKHOPF, HEDRICKS & CANTER, L.L.P.  
PROFESSIONAL ENGINEERS  
BIRMINGHAM, MI  
FEBRUARY, 2017



## H.6 Capital Improvement Plan Schedule

The following table No. 13 illustrates the projected Capital Improvement Plan schedule. This schedule correlated to the projected growth in the Land Use Assumptions report. The City will need to evaluate the yearly growth projections to determine if the schedule below needs to be revised accordingly to development growth.

**TABLE NO. 13**  
**CAPITAL IMPROVEMENTS PLAN SCHEDULE**

Facility	Start Design	Start Construction	In Service
Central Pump Station	Mid 2017	Mid 2018	2020
Water Supply and Distribution Lines	Early 2017	Mid 2018	2020
Central 0.75 MG Ground Storage No. 1	Mid 2017	Mid 2018	2020
NTMWD Metered Station	Mid 2017	Mid 2028	2020

## H.7 Capital Improvement Plan Cost

In order to meet the demands of the anticipated growth over the next 10-years, as provided in the Land Use Assumption Report, certain water distribution system improvements are required. These recommended improvements form the basis for the Water Distribution System Impact Fee Calculation and totals \$6,542,700. Adding the cost of financing brings the total 10-year Water Distribution System Capital Improvement cost to \$10,468,611. Table No. 15 represents a summary of the existing and proposed facilities capital costs within the planning period.

The existing facilities that were determined to be impact fee eligible due to available capacity that can be utilized to support growth were included in the impact fee calculations. The actual cost of construction for these facilities were used in the calculations when known. Existing eligible infrastructure without available project costs were estimated based on average unit cost.

The average unit cost for the proposed capital improvement projects and the existing facilities was derived from a limited survey of projects, which bid recently, plus an estimated cost for engineering, easements and debt service. The cost and the utilized capacity of the proposed water lines, pump stations, ground storage reservoirs elevated storage tanks and existing facility proposed improvements during the impact fee period are included in Table No. 14.

**TABLE No. 14**  
**CITY OF PARKER, TEXAS**  
**2016 IMPACT FEE**  
**WATER DISTRIBUTION SYSTEM**  
**10-YEAR CAPITAL IMPROVEMENT PLAN**

**PROPOSED WATER LINES**

Project No. <sup>(1)</sup>	Project	Size	Opinion of Project Cost <sup>(2)</sup>	Debt Service <sup>(3)</sup>	Total Project Cost
1	Dillehay Drive 18-Inch Water Line	18"	\$ 577,500	\$ 349,302	\$ 926,802
2	Chaparral Elevated Storage Tank 16-Inch Water Line	16"	\$ 46,200	\$ 27,944	\$ 74,144
3	Bois-D-Arc Lane 8-Inch Water Line	8"	\$ 167,000	\$ 101,010	\$ 268,010
<b>Subtotal: Proposed Water Lines</b>			<b>\$ 790,700</b>	<b>\$ 478,256</b>	<b>\$ 1,268,956</b>

**SUPPLY, PUMPING, STORAGE FACILITIES AND FACILITY IMPROVEMENTS**

Project No. <sup>(4)</sup>	Project	Capacity	Opinion of Project Cost <sup>(5)</sup>	Debt Service <sup>(3)</sup>	Total Project Cost
4	0	1.75 MGD	\$ 3,150,000	\$ 1,905,283	\$ 5,055,283
5	0	0.75 MG	\$ 990,000	\$ 598,803	\$ 1,588,803
6	0	5 MGD	\$ 1,320,000	\$ 798,404	\$ 2,118,404
7	0	----	\$ 240,000	\$ 145,164	\$ 385,164
<b>Subtotal, Supply, Pumping and Storage Facilities:</b>			<b>\$ 5,700,000</b>	<b>\$ 3,447,655</b>	<b>\$ 9,147,655</b>

**PLANNING EXPENSES**

Project No.	Project	Opinion of Cost (1)(b)	Debt Service <sup>(3)</sup>	Total Project Cost
	Water System Master Plan	\$ 32,000	\$ -	\$ 32,000
	Water Impact Fee	\$ 20,000	\$ -	\$ 20,000
<b>Subtotal, Planning Expenses:</b>		<b>\$ 52,000</b>	<b>\$ -</b>	<b>\$ 52,000</b>
<b>Water Distribution System CIP Grand Total:</b>		<b>\$ 6,542,700</b>	<b>\$ 3,925,911</b>	<b>\$ 10,468,611</b>

**Notes:**

- (1) Opinion of Project Cost includes:
  - a) Engineer's Opinion of Construction Cost
  - b) Professional Services Fees (Survey, Engineering, Testing, Legal)
  - c) Cost of Basement or Land Acquisitions
- (2) Debt Service based on 20-year simple interest bonds at 5%
- (3) \* - Developer Initiated Construction of 8-inch Waterline, City Participation in Oversize Cost
- (4) \* - City Initiated Construction

## H.8 Utilized Capacity Costs

**TABLE NO. 15**  
**SUMMARY OF ELIGIBLE CAPITAL COST & UTILIZED CAPACITY COST**

Water System	Total Capital Cost (\$)	Total 20-Year Project Cost (\$)	Utilized Capacity During Fee Period (\$)
Existing Water Lines	\$ 2,259,443	\$ 3,580,694	\$ 635,007
Existing Water Facilities	\$ 3,494,971	\$ 5,511,919	\$ 1,503,201
<b>Existing Water System Subtotal:</b>	<b>\$ 5,754,413</b>	<b>\$ 9,092,613</b>	<b>\$ 2,138,208</b>
Proposed Water Lines	\$ 790,700	\$ 1,268,956	\$ 1,032,405
Proposed Water Facilities	\$ 5,700,000	\$ 9,147,655	\$ 5,671,546
Master Plan & Impact Fee Expenses	\$ 52,000	\$ 52,000	\$ 52,000
<b>Proposed Water System Subtotal:</b>	<b>\$ 6,542,700</b>	<b>\$ 10,468,611</b>	<b>\$ 6,755,951</b>
<b>TOTAL:</b>	<b>\$ 12,297,113</b>	<b>\$ 19,561,224</b>	<b>\$ 8,894,160</b>

## I. CALCULATION OF MAXIMUM WATER IMPACT FEES

The maximum impact fees for the water distribution system is calculated by dividing the cost of the capital improvements or facility expansions necessitated and attributable to new development in the service area within the 10-year period by the number of living units anticipated to be added to the City within the 10-year period as shown on Table No. 16. The calculations are shown below.

**TABLE NO. 16**  
**MAXIMUM ALLOWABLE WATER IMPACT FEE**

Maximum Water Impact Fee =  $\frac{\text{Eligible Existing Utilized Cost} + \text{Eligible Proposed Utilized Cost}}{\text{Number of New Living Unit Equivalent over the Next 10 Years}}$

$$= \frac{\$2,138,208 + \$6,755,951}{1,129} = \frac{\$8,894,160}{1,129}$$

Maximum Impact Fee =  $\$7,877.91$

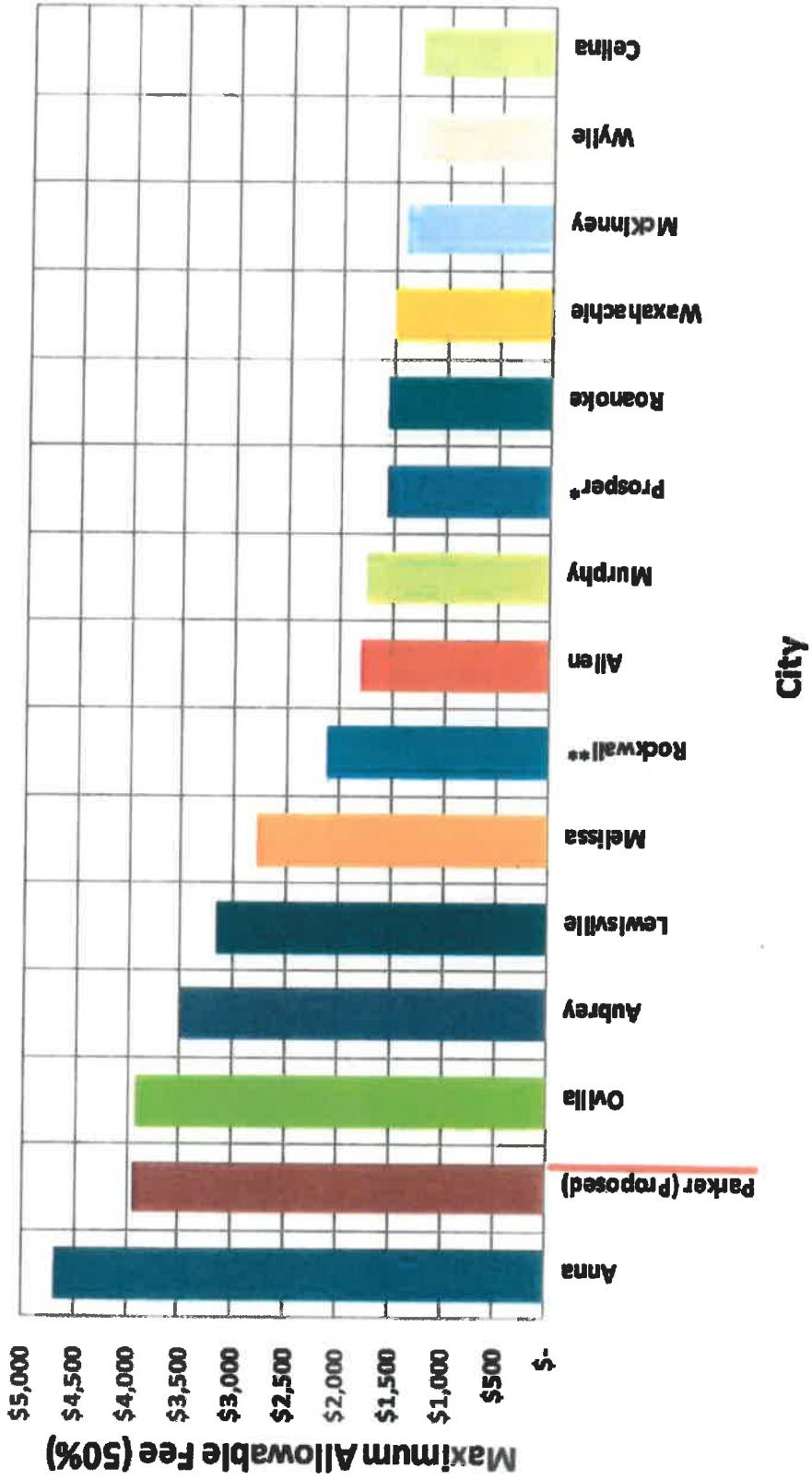
Allowable Maximum Water Impact Fee: (Max Impact Fee x 50%)\* =  $\$3,938.95$

\* Maximum allowable impact fee is 50% of the maximum calculated impact fee per Chapter 395 LGC

Figure No. 2 is a comparison graph of maximum water impact fees calculated for cities in North Central Texas compared to the City of Parker.

Based on the Maximum Impact Fee Calculation for Water, Table No. 17 calculates the maximum impact fee for the various sizes of water meters.

## Water Impact Fee Comparison



\*Impact fee based on 5/8" meter.

\*\*Impact fee based on 1" meter.

FIGURE NO. 2

**TABLE NO. 17**  
**ALLOWABLE MAXIMUM FEE PER LIVING UNIT EQUIVALENT**  
**AND**  
**PER METER SIZE AND TYPE**

50% Max. Water Impact fee /LUE				\$	3,938.95
Typical Land Use	Meter Type	Meter Size	LUE	Maximum Water Impact Fee	
				\$	15,755.82
Single Family Residential	Simple	1"	1	\$	3,938.95
Single Family Residential	Simple	2"	4	\$	15,755.82

***APPENDIX***  
***WATER IMPACT FEE UTILIZED***  
***CAPACITY TABLES***

TABLE NO. 18  
CITY OF PARKER, TEXAS  
2016 WATER SYSTEM IMPACT FEE STUDY  
EXISTING WATER LINES

Pipe Number	Length (Ft.)	Diameter (Inches)	Date of Construct.	Avg. Unit Cost (\$/Ft.)	Construction Cst (\$)	20 Year Debt Service Utilizing Simple Interest	Total 20 Year Project Cost (\$)	(% Utilized Capacity		(\$ Utilized Capacity	
								2016	2026	2016	2026
<b>1 - Parker Road 12 &amp; 18-Inch Water Line (East Side P.S. to F.M. 2551)</b>											
P-1078	358	12	0	\$61.79	\$22,119	\$13,379	\$35,498	100%	100%	\$35,498	\$35,498
P-1084	2,615	12	0	\$61.79	\$161,569	\$97,726	\$259,295	100%	100%	\$259,295	\$259,295
P-1271	7,903	18	0	\$61.79	\$388,292	\$295,344	\$783,636	100%	100%	\$783,636	\$783,636
P-1289	2,072	18	0	\$61.79	\$128,020	\$77,433	\$205,453	100%	100%	\$205,453	\$205,453
<b>Subtotal:</b>	<b>12,948</b>				<b>\$800,000</b>	<b>\$483,881</b>	<b>\$1,283,881</b>			<b>\$1,283,882</b>	<b>\$1,283,882</b>
P-1035	3,315	8	0	\$77.08	\$255,515	\$154,549	\$410,063	57%	100%	\$233,736	\$410,063
<b>Subtotal:</b>	<b>3,315</b>				<b>\$255,515</b>	<b>\$154,549</b>	<b>\$410,063</b>			<b>\$233,736</b>	<b>\$410,063</b>
<b>2 - F.M. 2551 8-Inch Water Line</b>											
P-1068	1,989	12	0	\$30.00	\$59,670	\$36,092	\$95,762	100%	100%	\$95,762	\$95,762
P-1069	585	12	0	\$30.00	\$17,550	\$10,615	\$28,165	100%	100%	\$28,165	\$28,165
P-1070	1,008	12	0	\$30.00	\$30,240	\$18,291	\$48,531	100%	100%	\$48,531	\$48,531
P-1071	560	12	0	\$30.00	\$16,800	\$10,162	\$26,962	100%	100%	\$26,962	\$26,962
P-1072	645	12	0	\$30.00	\$19,350	\$11,704	\$31,054	100%	100%	\$31,054	\$31,054
P-1073	1,009	12	0	\$30.00	\$30,270	\$18,369	\$48,579	100%	100%	\$48,579	\$48,579
P-1074	944	12	0	\$30.00	\$28,320	\$17,129	\$45,444	96%	98%	\$43,631	\$44,540
P-1075	812	12	0	\$30.00	\$24,360	\$14,734	\$39,094	100%	100%	\$39,094	\$39,094
P-1076	953	12	0	\$30.00	\$28,590	\$17,293	\$45,883	100%	100%	\$45,883	\$45,883
P-1077	596	12	0	\$30.00	\$17,880	\$10,815	\$28,695	100%	100%	\$28,695	\$28,695
P-1178	1,927	12	0	\$30.00	\$57,810	\$34,266	\$92,771	95%	100%	\$88,138	\$92,776
<b>Subtotal:</b>	<b>11,028</b>				<b>\$330,840</b>	<b>\$208,109</b>	<b>\$530,949</b>			<b>\$524,494</b>	<b>\$530,041</b>
<b>4 - Chapparral Elevated Storage Tank 16-Inch Water Line</b>											
P-1260	2,956	16	0	\$33.83	\$100,000	\$60,485	\$160,485	6%	71%	65%	\$9,629
<b>Subtotal:</b>	<b>2,956</b>				<b>\$100,000</b>	<b>\$60,485</b>	<b>\$160,485</b>			<b>\$9,629</b>	<b>\$113,944</b>
<b>5 - Muddy Creek 12-Inch Water Line</b>											
P-1169	2,780	12	0	\$30.00	\$83,400	\$50,445	\$133,845	100%	100%	0%	\$133,845
P-1170	3,035	12	0	\$30.00	\$91,050	\$55,072	\$146,122	34%	100%	66%	\$49,681
P-1171	1,890	12	0	\$30.00	\$56,700	\$34,295	\$90,995	37%	100%	63%	\$33,668
P-1176	325	12	0	\$30.00	\$9,750	\$5,997	\$15,647	67%	88%	21%	\$10,484
P-1280	1,770	12	0	\$30.00	\$47,100	\$28,489	\$75,589	0%	91%	91%	\$0
P-1317	3,350	12	0	\$30.00	\$100,500	\$60,788	\$161,281	64%	90%	26%	\$103,224
P-1319	320	12	0	\$30.00	\$9,500	\$5,807	\$15,407	60%	100%	41%	\$9,244
P-1321	990	12	0	\$30.00	\$29,700	\$17,964	\$47,661	61%	75%	14%	\$29,075
<b>Subtotal:</b>	<b>14,260</b>				<b>\$427,800</b>	<b>\$258,756</b>	<b>\$686,556</b>			<b>\$369,221</b>	<b>\$649,432</b>
											<b>\$280,610</b>

TABLE NO. 18  
**CITY OF PARKER, TEXAS**  
**2016 WATER SYSTEM IMPACT FEE STUDY**  
**EXISTING WATER LINES**

Pipe Number	Length (Ft.)	Diameter (Inches)	Date of Const.	Avg. Unit Cost (\$/Ft.)	Construction Cost (\$)	20 Year Debt Service Utilizing Simple Interest	Total 20 Year Project Cost (\$)	(% Utilized Capacity		(\$ Utilized Capacity	
								2016	2026	2016	2026
<b>6 - 2009 12-Inch Water Line Phase-2</b>											
P-1181	2,419	12	2009	\$50.43	\$121,996	\$73,789	\$195,785	54%	70%	\$105,724	\$137,050
P-1234	2,940	12		\$50.43	\$148,271	\$89,682	\$237,953	71%	75%	\$168,947	\$178,465
<b>Subtotal:</b>	<b>5,359</b>				<b>\$270,267</b>	<b>\$163,471</b>	<b>\$433,738</b>			<b>\$274,671</b>	<b>\$315,515</b>
<b>7 - Church Road Waterline</b>											
P-1080	3,124	12	2002	\$15.72	\$49,113	\$0	\$49,113	58%	100%	42%	\$28,485
P-1220	1,648	12		\$15.72	\$25,908	\$0	\$25,908	71%	97%	26%	\$18,395
<b>Subtotal:</b>	<b>4,772</b>				<b>\$75,021</b>	<b>\$0</b>	<b>\$75,021</b>				<b>\$46,880</b>
<b>Total:</b>	<b>54,638</b>				<b>\$2,259,443</b>	<b>\$1,321,251</b>	<b>\$3,580,694</b>				<b>\$2,742,513</b>
											<b>\$3,377,521</b>
											<b>\$635,007</b>

TABLE NO. 19  
 CITY OF PARKER, TEXAS  
 2016 WATER DISTRIBUTION IMPACT FEE STUDY  
 EXISTING WATER SUPPLY, PUMPING AND STORAGE FACILITIES

Pump Station Improvements	Year Const.	Capacity	Units	Construction Cost (\$)	Pump Station Cost (\$)			Capacity Utilized (%)			Capacity Utilized (\$)		
					Engineering, Testing and Property Acquisition	Debt Service Interest Rate %	20 Year Debt Service Utilizing Simple Interest	Total 20 Yr. Project Cost (\$)	2016	2026	In The CRF Period	2016	2026
<b>Existing Pump Stations, Ground Storage, and Elevated Storage Facilities</b>													
Facilities & Water Lines Purchase From Pecan Orchard	1988	—	—	\$196,000	\$0	Special	\$21,560	\$217,560	100%	100%	0%	\$217,560	\$217,560
West Side Pump Station Improvements	2003	3.60	MGD	\$396,760	\$79,340	5%	\$287,934	\$763,974	93%	100%	7%	\$710,495	\$763,974
City Hall Elevated Storage Tank	2011	1.0	MG	\$2,152,442	\$470,488	5%	\$1,707,455	\$4,330,185	55%	87%	32%	\$2,491,712	\$3,941,435
<b>Existing Facilities Total:</b>				<b>\$2,945,142</b>	<b>\$549,828</b>		<b>\$2,016,948</b>	<b>\$5,511,919</b>				<b>\$3,419,767</b>	<b>\$4,922,969</b>
													<b>\$1,503,201</b>

TABLE NO. 20  
**CITY OF PARKER, TEXAS**  
**2016 WATER SYSTEM IMPACT FEE STUDY**  
**PROPOSED WATER LINES**

\* \* Average Unit costs are based in 2016 dollars unless otherwise indicated and includes 20% for engineering andensen

Pipe Number	Length (Ft.)	Diameter (inches)	Avg. Unit Cost (\$/Ft.)	Construction Cost (\$)	20 Year Debt Service @ 5% Simple Interest		Total 20 Year Project Cost (\$)	% Utilized Capacity	2016 During Fee Period	2026 During Fee Period	2026 Utilized Capacity
					2016	2026					
<b>1 - Dillehay Drive 18-Inch Water Line</b>											
2 P-1252	2,490	18"	\$140.00	\$348,600	\$210,851	\$559,451	0.0%	100.0%	\$0	\$559,451	\$559,451
2 P-1253	1,635	18"	\$140.00	\$228,900	\$136,451	\$367,351	0.0%	71.0%	\$0	\$260,819	\$260,819
<b>Subtotal:</b>	<b>4,125</b>			<b>\$577,500</b>	<b>\$349,302</b>	<b>\$926,802</b>			<b>\$0</b>	<b>\$820,270</b>	<b>\$820,270</b>
<b>2 - Chapparral Elevated Storage Tank 16-Inch Water Line</b>											
15 water line begins at the proposed Central Pump Station and bears north and south. The northern segment terminates near Kara Lane approximately 1,500 feet south of Chapparral while the southern segment continues to just south of Jerry Lane approximately 2,000 feet north of Parker Road.											
2 P-1191	385	16"	\$120.00	\$46,200	\$27,944	\$74,144	0.0%	62.0%	\$0	\$45,969	\$45,969
<b>Subtotal:</b>	<b>385</b>			<b>\$46,200</b>	<b>\$27,944</b>	<b>\$74,144</b>			<b>\$0</b>	<b>\$45,969</b>	<b>\$45,969</b>
<b>3 - Bois-D-Arc Lane 8-Inch Water Line</b>											
The water line begins at a point for connection to the existing 16-inch Parker Road Water Line and continues northward to the existing 8-inch water line south of Bois-D-Arc Lane.											
2 P-1157	1,670	8"	\$100.00	\$167,000	\$101,010	\$268,010	0.0%	62.0%	\$0	\$166,166	\$166,166
<b>Subtotal:</b>	<b>1,670</b>			<b>\$167,000</b>	<b>\$101,010</b>	<b>\$268,010</b>			<b>\$0</b>	<b>\$166,166</b>	<b>\$166,166</b>
<b>CIP Total:</b>	<b>6,180</b>			<b>\$790,700</b>	<b>\$478,256</b>	<b>\$1,268,956</b>			<b>\$0</b>	<b>\$1,032,405</b>	<b>\$1,032,405</b>
1 - City Participate in Cost Overage											
2 - City Initiated & Funded											

TABLE NO. 21  
CITY OF PARKER, TEXAS  
2016 WATER DISTRIBUTION IMPACT FEE STUDY  
PROPOSED WATER FACILITIES

Facility Improvements	Year Cost	Projected Capacity	Units	Capital Cost (\$)	Engineering, Testing and Property Acquisition 20%	Water Facilities Cost (\$)	Capacity Utilized (MGD)			Capacity Utilized (%)		
							20 Year Data Service Utilizing 5% Simple Interest (\$)	Total 20 Yr. Project Cost (\$)	In The CRF Period 2016	In The CRF Period 2026	In The CRF Period 2016	In The CRF Period 2026
<b>Proposed Pump Stations, Ground Storage, and Elevated Structures</b>												
3. Central Pump Station - 1.75 MGD PS	1.75	MGD	\$2,625,000	\$525,000	\$1,150,000	\$1,903,233	\$5,055,283	0.0	0.6	0.6	0.0%	
4. Central Pump Station - 0.75 MGD SS	0.75	MG	\$825,000	\$165,000	\$90,000	\$1,588,803	\$1,588,803	0.0	0.6	0.6	0.0%	
10. NTMWD Delivery Point No 2	5.0	MGD	\$1,100,000	\$120,000	\$1,320,000	\$798,404	\$7,118,404	0.0	0.6	0.6	0.0%	
11. Basis-DeAnza Lane Pressure Reducing Valve	—	—	\$200,000	\$40,000	\$240,000	\$143,164	\$305,164	0.0	0.6	0.6	0.0%	
<b>Proposed Facility Total:</b>				<b>\$4,750,000</b>	<b>\$950,000</b>	<b>\$5,700,000</b>	<b>\$3,447,655</b>	<b>\$9,147,655</b>				



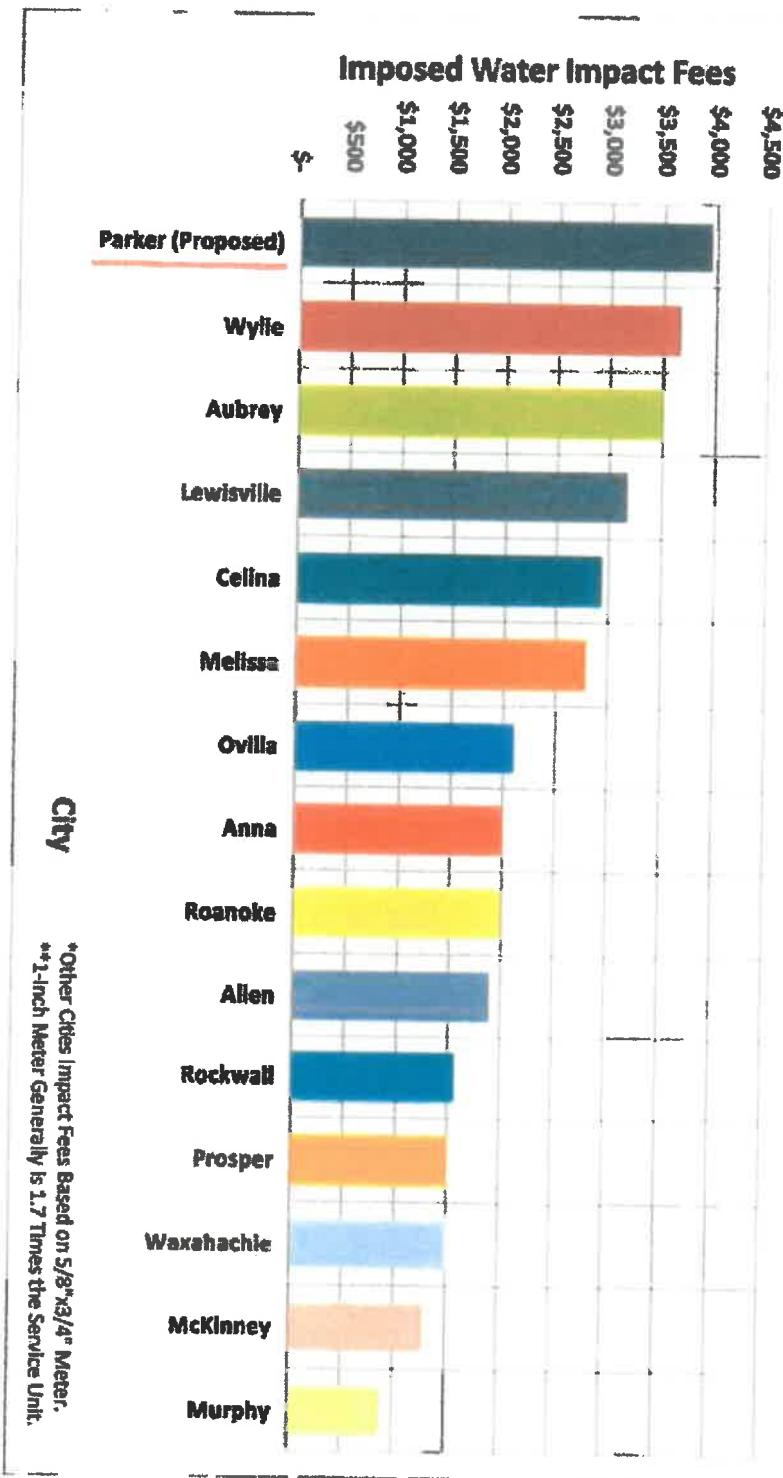
**2016 - 2026  
WATER IMPACT FEE STUDY**

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## Water Impact Fee Comparison



**Exhibit 2**

