

MINUTES
CITY COUNCIL MEETING

JANUARY 9, 2017

CALL TO ORDER – Roll Call and Determination of a Quorum

The Parker City Council met in a special 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. Council members Scott Levine, Lee Pettie, Cleburne Raney, and Ed Standridge were present. Patrick Taylor was absent.

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., Fire Chief Mike Sheff, Assistant Fire Chief Mark Barnaby, Police Chief Richard Brooks and Police and Capital Improvement Advisory Committee (CIAC) Member Stephen L. Sallman

PLEDGE OF ALLEGIANCE

AMERICAN PLEDGE: Frank Waterhouse led the pledge.

TEXAS PLEDGE: Billy Barron 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.

None

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. DEPARTMENT REPORTS-ANIMAL CONTROL, BUILDING, COURT, POLICE AND WEBSITE
2. CONSIDERATION AND/OR ANY APPROPRIATE ACTION ON AUTHORIZING STAFF TO ADVERTISE FOR BIDS ON MOSS RIDGE DRAINAGE PROJECT. [FLANIGAN/BIRKHOFF]
3. CONSIDERATION AND/OR ANY APPROPRIATE ACTION ON AUTHORIZING STAFF TO ADVERTISE FOR BIDS ON SPRINGHILL ESTATES DRAINAGE PROJECT. [FLANIGAN/BIRKHOFF]

4. CONSIDERATION AND/OR ANY APPROPRIATE ACTION ON AUTHORIZING STAFF TO ADVERTISE FOR BIDS ON 2016-2017 ANNUAL ROAD MAINTENANCE PROJECT. [FLANIGAN/BIRKHOFF]

MOTION: Councilmember Standridge moved to approve the consent agenda, as stated. Councilmember Raney seconded with Councilmembers Levine, Pettie, Raney, and Standridge voting for the motion. Motion carried 4-0.

INDIVIDUAL CONSIDERATION ITEMS

5. CONSIDERATION AND/OR ANY APPROPRIATE ACTION ON ACCEPTING A DONATION IN THE AMOUNT OF \$3,000.00 FROM HIGHLAND CAPITAL MANAGEMENT THROUGH THE HIGHLAND DALLAS FOUNDATION ON BEHALF OF FRANK AND HOLLY WATERHOUSE FOR THE PARKER POLICE DEPARTMENT. [BROOKS]

Mayor Marshall expressed his gratitude on behalf of City Council, City Staff, and Parker residents to Frank and Holly Waterhouse for their generous donation in the amount of \$3,000.00 from Highland Capital Management through the Highland Dallas Foundation. He then recognized Chief Brooks, who also thanked the Waterhouses for their generosity and support.

Mayor Pro Tem Levine asked Chief Brooks to briefly describe his plans for the donation. Chief Brooks said the donation would provide Self-Aid/Buddy-Aid (SABA) medical equipment for the officers to carry on their person and to be carried on their emergency response ballistic plate carriers, as well as additional emergency response equipment for the plate carriers.

MOTION: Councilmember Pettie moved to accept the donation in the amount of \$3,000.00 from Highland Capital Management through the Highland Dallas Foundation on behalf of Frank and Holly Waterhouse for the Parker Police Department. Councilmember Raney seconded with Councilmembers Levine, Pettie, Raney, and Standridge voting for the motion. Motion carried 4-0.

6. PUBLIC HEARING FOR THE LAND USE ASSUMPTIONS AND WATER CAPITAL IMPROVEMENTS PLAN (CIP). [FLANIGAN/BIRKHOFF]

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 Capital Improvements Plan (CIP) for 2016-2026 Water Impact Fee and in accordance with Chapter 395 of the Texas Local Government Code a public hearing was necessary for the CIP Plan and associated fee adoption process. The reason for the public hearing was to discuss the Land Use Assumptions (LUA) and the CIP Plan and to give City Council, City Staff and residents an opportunity to make comments and ask questions. The Impact Fee was a financial mechanism used by municipalities to fund infrastructure required for future growth. As cities grow, those cities need more infrastructure to support service demands. The Impact fee consisted of two (2) components, the LUA and CIP plans. The LUA prepared by the

Capital Improvements Advisory Committee stated the current population was approximately 4,503 residents. In ten (10) years, the projected population would be 6,969. The LUA projected the build out population to be approximately 12,000. Currently, the population was approximately 38% of the build out and in ten (10) years the projected population would be at about 58% of build out. The City of Parker envisioned growing some 20% over the next ten (10) years. That was an overview of the LUA. Based on the LUA, the CIP or how much the City envisioned on growing correlated directly to how much infrastructure the City needed to support demand. City Council, City Staff, and residents understand how important adequate water and pressure was to meet or exceed the Texas Commission on Environmental Quality (TCEQ) state requirements. The CIP determined, 1) What the City needed to support growth; 2) How much infrastructure was required; 3) Where that infrastructure would be required; and 4) How much infrastructure would cost. Mr. Mata talked about the hydraulic water model created to monitor existing and future conditions. The data would be used to determine the utilized capacity and then compared to the Master Plan report and map to calculate the anticipated costs. The capital costs were generated from what was needed and required. The Impact Fee has two (2) phases, one was for City Council to adopt the LUA, based on the growth input, and adopt the CIP. Once adopted, the next phase was for the engineers to calculate the maximum Impact fee cost, which would be reviewed and adopted. (See Exhibit 1 – Water and Impact Fee Advisory Commission Recommendation Letter, dated Nov. 17, 2016; Land Use Assumptions (LUA) Report, dated Sept. 9, 2016; and Capital Improvements Plan (CIP) for 2016-2026 Water Impact Fee, dated Dec. 8, 2016.)

Mayor Marshall opened a public hearing at 7:15 p.m. to receive comments regarding the Land Use Assumptions and Water Capital Improvements Plan (CIP). He asked if anyone had comments and/or questions. No one came forward. Councilmember Raney stated the Capital Improvements Advisory Committee (CIAC) worked diligently to develop an accurate report. Mayor Marshall asked CIAC Member Stephen L. Sallman if he had any comments. Mr. Sallman said he had no additional comments. There being no additional comments Mayor Marshall declared the public hearing closed at 7:16 p.m.

He asked if City Council had comments and/or questions. There were none.

7. CONSIDERATION AND/OR ANY APPROPRIATE ACTION ON ADOPTING LAND USE ASSUMPTIONS AND WATER CAPITAL IMPROVEMENTS PLAN (CIP). [FLANIGAN/BIRKHOFF]

Mayor Marshall recognized City Administrator Flanigan. Mr. Flanigan said the next step would be for Birkhoff, Hendricks & Carter, L.L.P. to review the adopted assumptions and determine an Impact Fee. The engineers would compile a report of recommendations. The CIAC will meet a second time to review the report and make a recommendation to City Council. There will be another public hearing, considering the CIAC's recommendations to adopt or change the Water Impact Fee.

Mayor Pro Tem Levine clarified the LUA and CIP dates.

MOTION: Mayor Pro Tem Levine moved to adopt the Land Use Assumptions Report, dated September 9, 2016, as prepared by the Capital Improvements Advisory

Committee, and the Capital Improvements Plan for 2016-2026 Water Impact Fee, dated December 8, 2016, as prepared by Birkhoff, Hendricks & Carter, L.L.P. Profession Engineers, in the context of preliminary steps for the Water Impact Fee. Councilmember Pettie seconded with Councilmembers Levine, Pettie, Raney, and Standridge voting for the motion. Motion carried 4-0.

8. ADOPT ORDINANCE NO. 742 ON THE 65 YEARS OR OLDER EXEMPTION FROM \$30,000 TO \$50,000. [MARSHALL]

Mayor Marshall said this item was approved at our last meeting on December 6, 2016 and City Council asked City Attorney Shelby to create an ordinance and bring it back to this meeting for approval. The Mayor said he received a couple "Thank you" comments from citizens and only one negative comment.

MOTION: Councilmember Standridge moved to approve ORDINANCE No. 742, increasing the 65 years or older property tax exemption from \$30,000 to \$50,000. Councilmember Raney seconded with Councilmembers Pettie, Raney, and Standridge voting for the motion and Mayor Pro Tem Levine voting against the motion. Motion carried 3-1.

9. CONSIDERATION AND/OR ANY APPROPRIATE ACTION ON SCHEDULING ANNEXATION PUBLIC HEARING DATES FOR WHITESTONE ESTATES (FORMERLY DONIHOO FARMS). [FLANIGAN]

City Administrator Flanigan said Whitestone Estates (Formerly Donihoo Farms) has a development agreement and wanted to annex property into the City limits. At this time, City Council needed to schedule the required public hearings to annex three (3) separate tracts, which was part of the final plat. The Exhibit was a little confusing, but there would be a better, corrected copy for the public hearings. An annexation, by law, required two (2) public hearings. The dates suggested were February 7 and 21.

Mayor Marshall noted adoption must be no more than 40 days after 1st public hearing and no less than 20 days after 2nd public hearing so Council must choose a date between the 13th and 19th of March to hold a called meeting to adopt the annexation ordinance. Mayor Marshall asked Mr. Sallman if there was rush on this item.

Whitestone Estates (Formerly Donihoo Farms) Representative/Manager Stephen L. Sallman, 4925 Greenville Avenue, Suite 1020, Dallas, Texas, said due to the statutory requirements, public hearings, and adoption, he would like to get the process started as soon as possible.

Mayor Marshall noted Exhibit B had Parker Bedell Farms, Ltd. listed on the plat and asked if that was correct. City Administrator Flanigan said no, that would be corrected on the next set of exhibits.

Again, City Council needed to set two (2) public hearing dates and if they use City Attorney Shelby's suggested dates of February 7 and 21, Council would also need to set a special meeting date the week of March 13-19, as required by the laws regarding the annexation process.

MOTION: Mayor Pro Tem Levine moved to set the Whitestone Estates (Formerly Donihoo Farms) annexation public hearing dates for February 7 and 21, 2017, and also set the special meeting date for March 13, 2017 for the proposed annexation adoption. Councilmember Raney seconded with Councilmembers Levine, Pettie, Raney, and Standridge voting for the motion. Motion carried 4-0.

ROUTINE ITEMS

10. UPDATES

- ACCEPTANCE OF POLICE AND FIRE DONATIONS FOR RECORD

As required by Resolution No. 2016-520, Mayor Marshall accepted Ralph and Kathryn White's \$200 donation to the Parker Fire and Police Departments. The Mayor, City Council, and staff thanked the Whites for their generous donation.

11. FUTURE AGENDA ITEMS

Mayor Marshall said he would not be available for a meeting next Tuesday, January 17, 2017. Mayor Pro Tem Levine would be in charge. After some discussion, City Council decided to cancel the January 17, 2017 City Council meeting. The next regularly scheduled meeting would be Tuesday, February 7, 2017.

The Mayor then asked if there were any items to be added to the future agenda. Councilmember Pettie asked that the Substance Abuse item be placed back on the future agenda items. Mayor Marshall asked that a stipend or compensation item for the Mayor and City Council be added. Councilmember Raney asked that Council discuss possibly canceling the March 21, 2017 City Council meeting. City Administrator Flanigan asked that an item to discuss architects for a Municipal Complex be added.

12. ADJOURN

Mayor Marshall adjourned the meeting at 7:35 p.m.

ATTESTED:


Patti Scott Grey, City Secretary



APPROVED:


Mayor Z Marshall

Approved on the 7th day
of February, 2017.

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

November 17, 2016

Re: Water and Impact Fee
Impact Fee Advisory Committee Recommendation

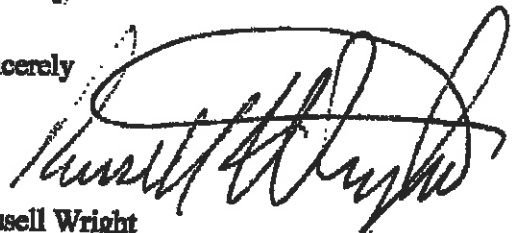
Honorable Mayor Z Marshall and the City of Parker City Council:

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 Water Impact Fee Land Use Assumptions prepared by the City of Parker Impact Fee Advisory Committee; and the 2016 Water Capital Improvement Plan prepared by Birkhoff, Hendricks & Carter, L.L.P. Professional Engineers.

On behalf of the Advisory Committee, we find the Impact Fee Land Use Plan to be consistent with the City's current Comprehensive Plan, and the Water Capital Improvement Plan to be consistent with the land use plan and in conformance with the requirements of Texas Local Government Code Chapter 395. The Impact Fee Advisory Committee offers no objections

Sincerely



Russell Wright
Chairman, Impact Fee Advisory Committee



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

September 9, 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
Jasmat 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	786	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 sample¹ 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

¹ 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 3rd order polynomial trend lines are added, along with their respective formulae.

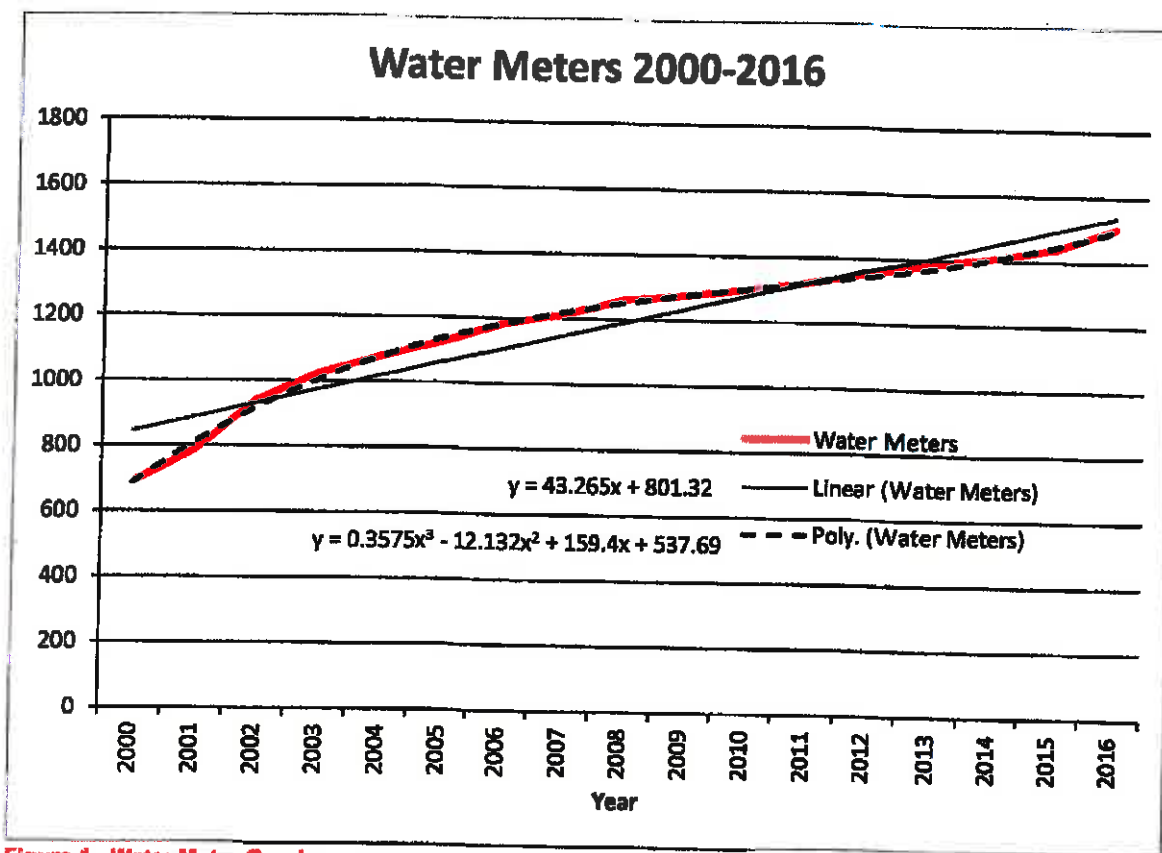


Figure 1 - Water Meter Graph

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.

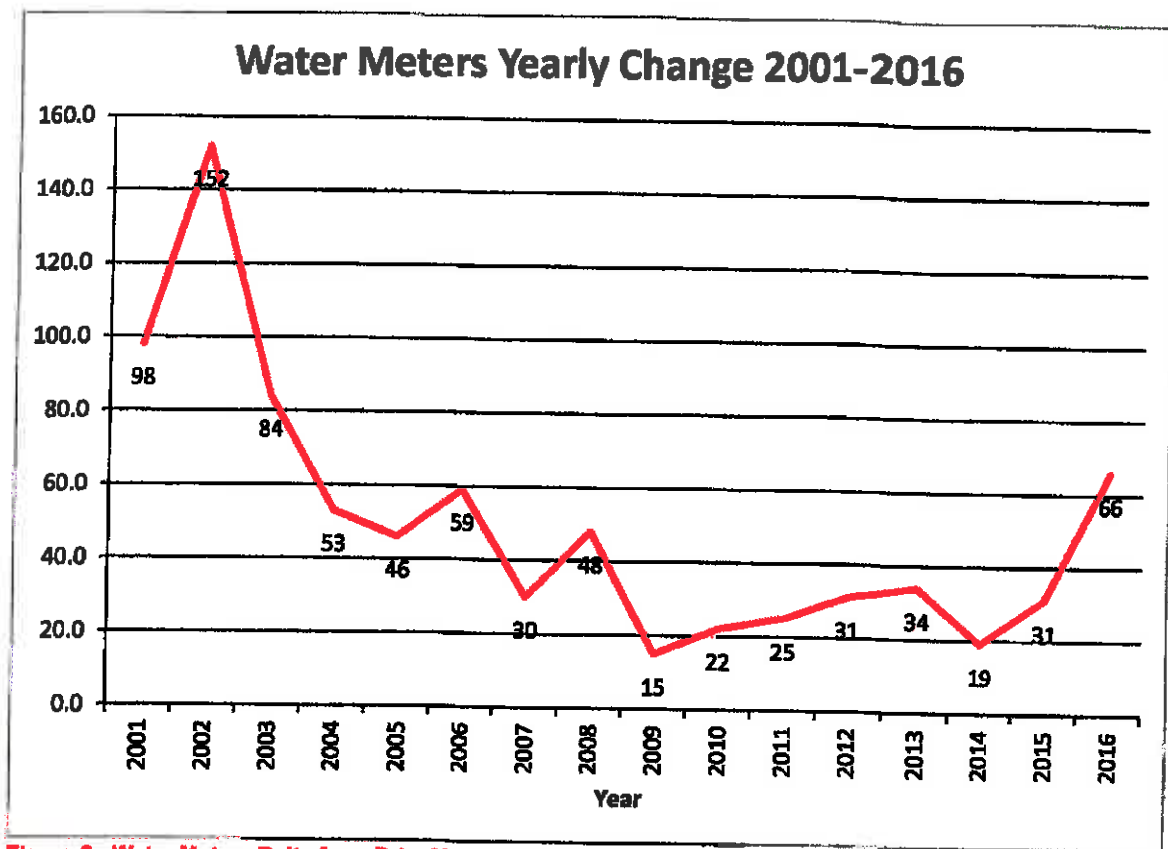


Figure 2 - Water Meters Delta from Prior Year

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 0.9² is used to allow for those areas dedicated for roads, rights-of-way and other unusable areas.

² 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
Approved by Zoning or Development Agreement	1500	0.848	969	2907
Undeveloped In ETJ	720	1	648	1944
Undeveloped Zoned SF	500	0.5	225	675
Undeveloped Zoned SFT	400	0.67	241	724
Current Special Activities Area ³	188	2		
Totals	3120	NA	2083	6250

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).

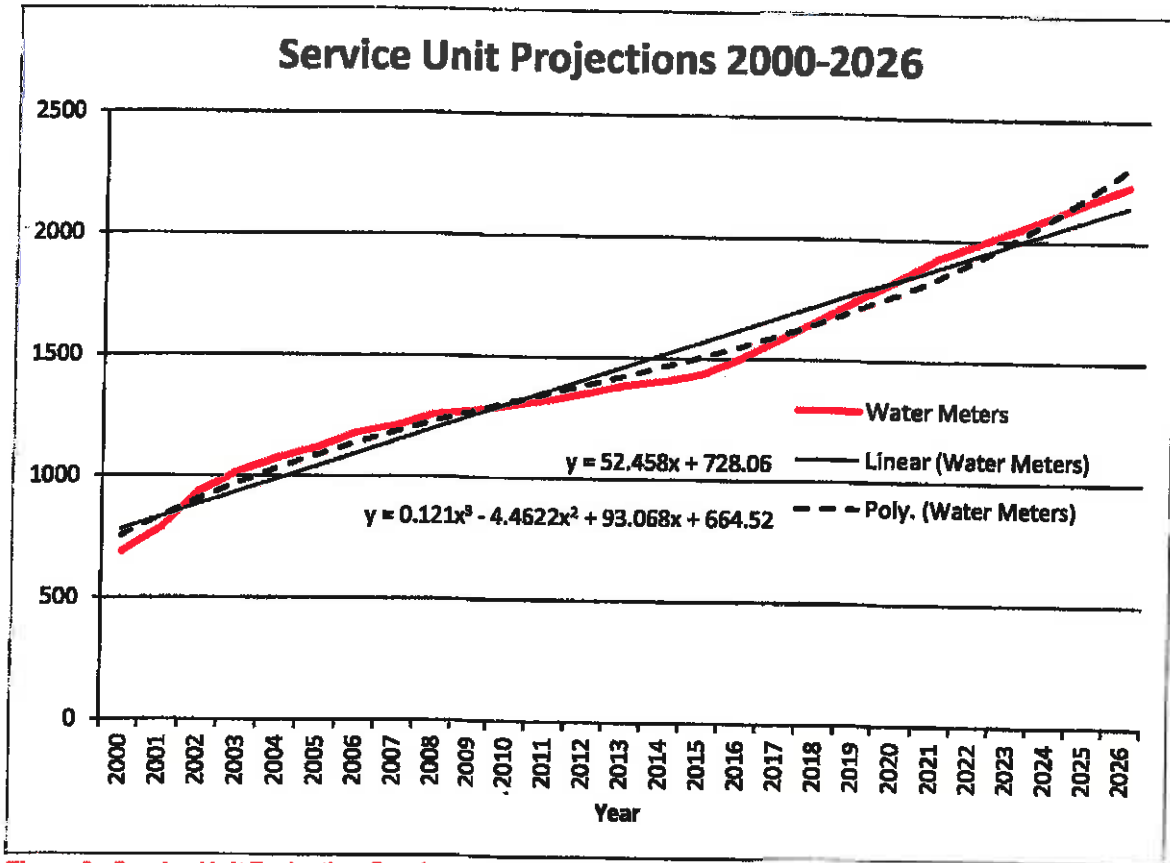


Figure 3 - Service Unit Projection Graph

³ 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	1846
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	1,822	2,228	4,000 ⁴
Mfg'd Housing	75 ⁵	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

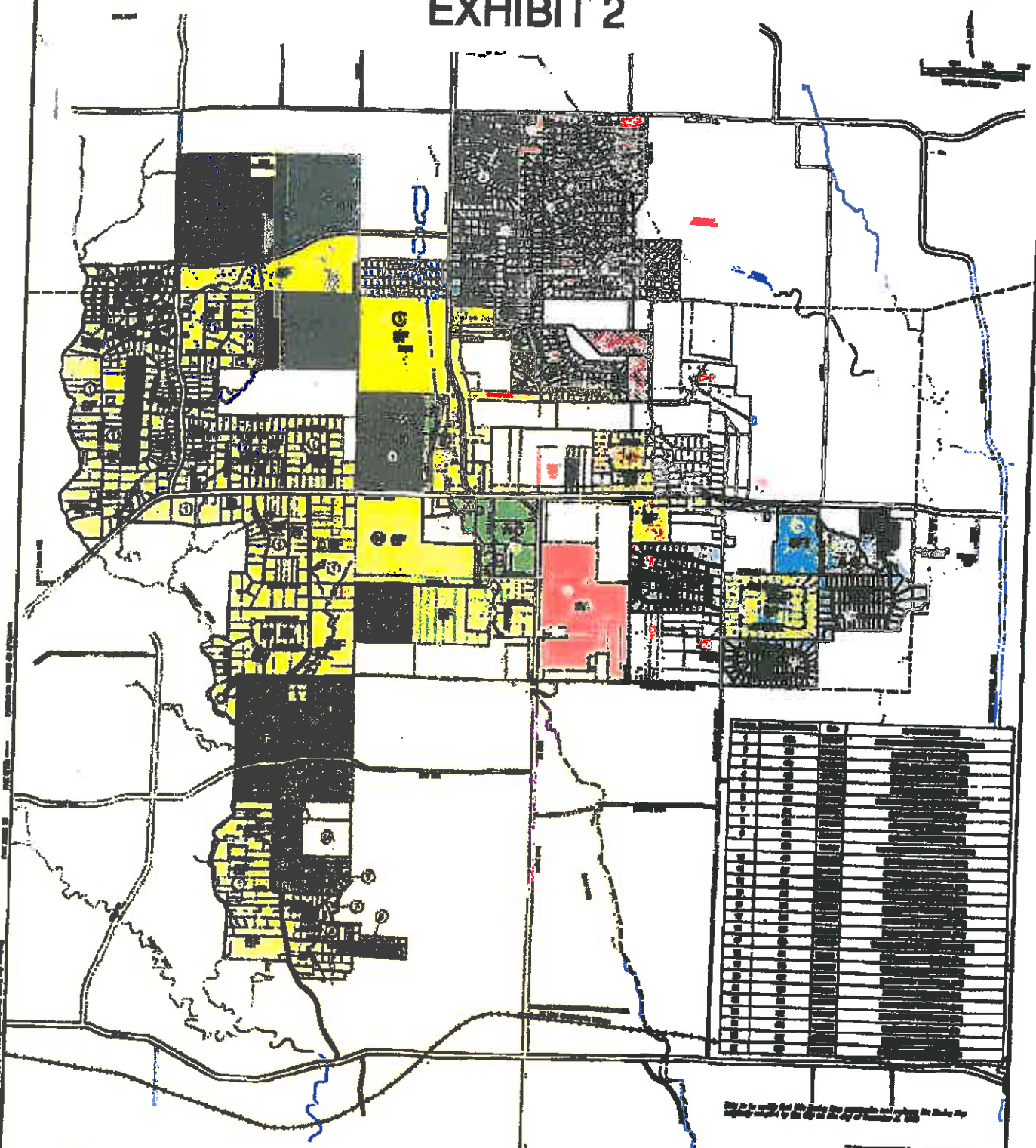
⁴ Buildout based on total population of 12,000

⁵ 75 manufactured houses, 75 houses in CCN (not in City) is a wash

EXHIBIT 1

Year	January Water Meters	x 3 per household
2000	688	2064
2001	766	2298
2002	938	2814
2003	1022	3066
2004	1073	3225
2005	1121	3363
2006	1180	3540
2007	1210	3630
2008	1258	3774
2009	1273	3819
2010	1295	3885
2011	1320	3960
2012	1351	4053
2013	1385	4155
2014	1404	4212
2015	1435	4305
2016	1501	4503

EXHIBIT 2



- LEGEND**
- Boundary
 - Street
 - Water
 - Railroad
 - Airway
 - Other

NOTES

1. The City of Parker, Texas, is a city of the State of Texas, and is a political subdivision of the State of Texas.

2. The City of Parker, Texas, is a city of the State of Texas, and is a political subdivision of the State of Texas.

3. The City of Parker, Texas, is a city of the State of Texas, and is a political subdivision of the State of Texas.

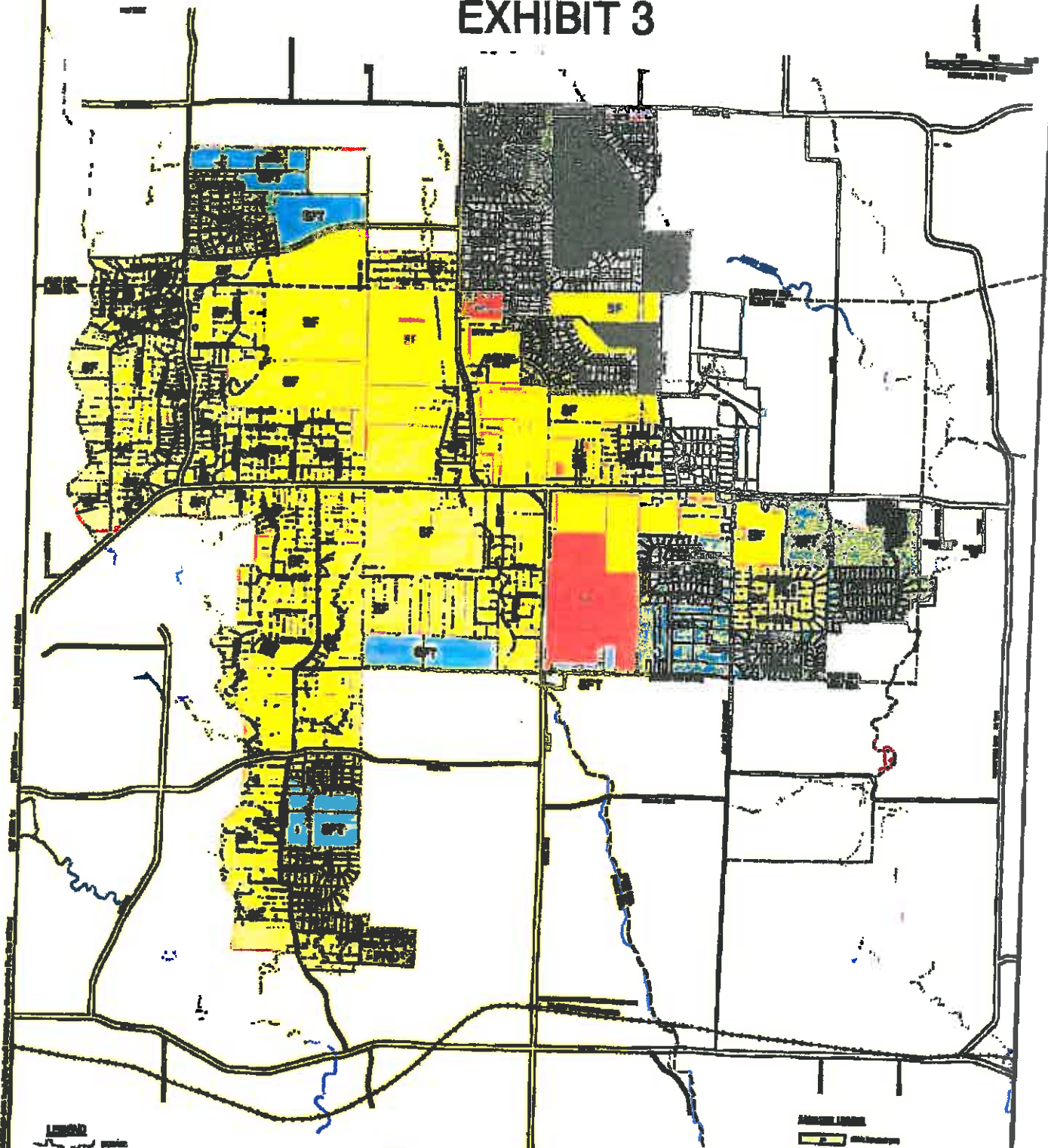
ZONING MAP CITY OF PARKER, TEXAS



APPROVED: _____
DATE: _____

- ZONING MAP**
- Residential
 - Commercial
 - Industrial
 - Other

EXHIBIT 3



- Legend for map features:
- Thick black line: Major Road
- Thin black line: Minor Road
- Red line: Water
- Blue line: Sewer
- Dashed line: Boundary

COMPREHENSIVE PLAN MAP CITY OF PARKER, TEXAS



- Legend for land use zones:
- Yellow: Residential
- Blue: Water
- Red: Commercial
- Grey: Industrial
- Green: Agriculture
- White: Unimproved

THE CITY OF PARKER, TEXAS, HAS ADOPTED THIS MAP AS A COMPREHENSIVE PLAN MAP FOR THE CITY OF PARKER, TEXAS.

PREPARED BY: [Name]
[Address]
[City, State, Zip]

DATE: [Date]

EXHIBIT 4

Approved By Easing or Development Agreement 1500 acres +/- 200 Lots

Undeveloped in EIS 720 acres +/-

Undeveloped Zoned SF 100 acres +/-

Undeveloped zoned HT 400 acres +/-

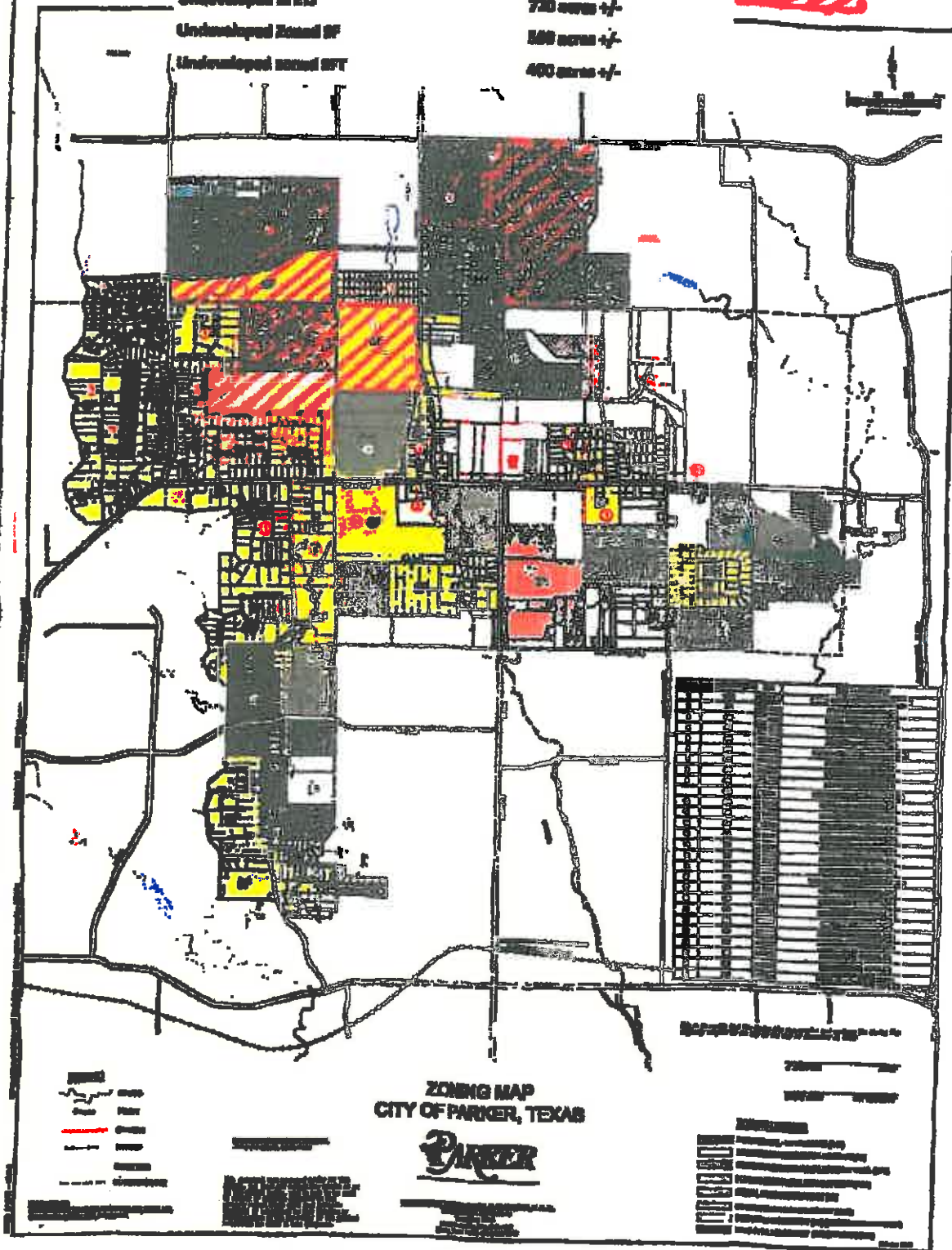
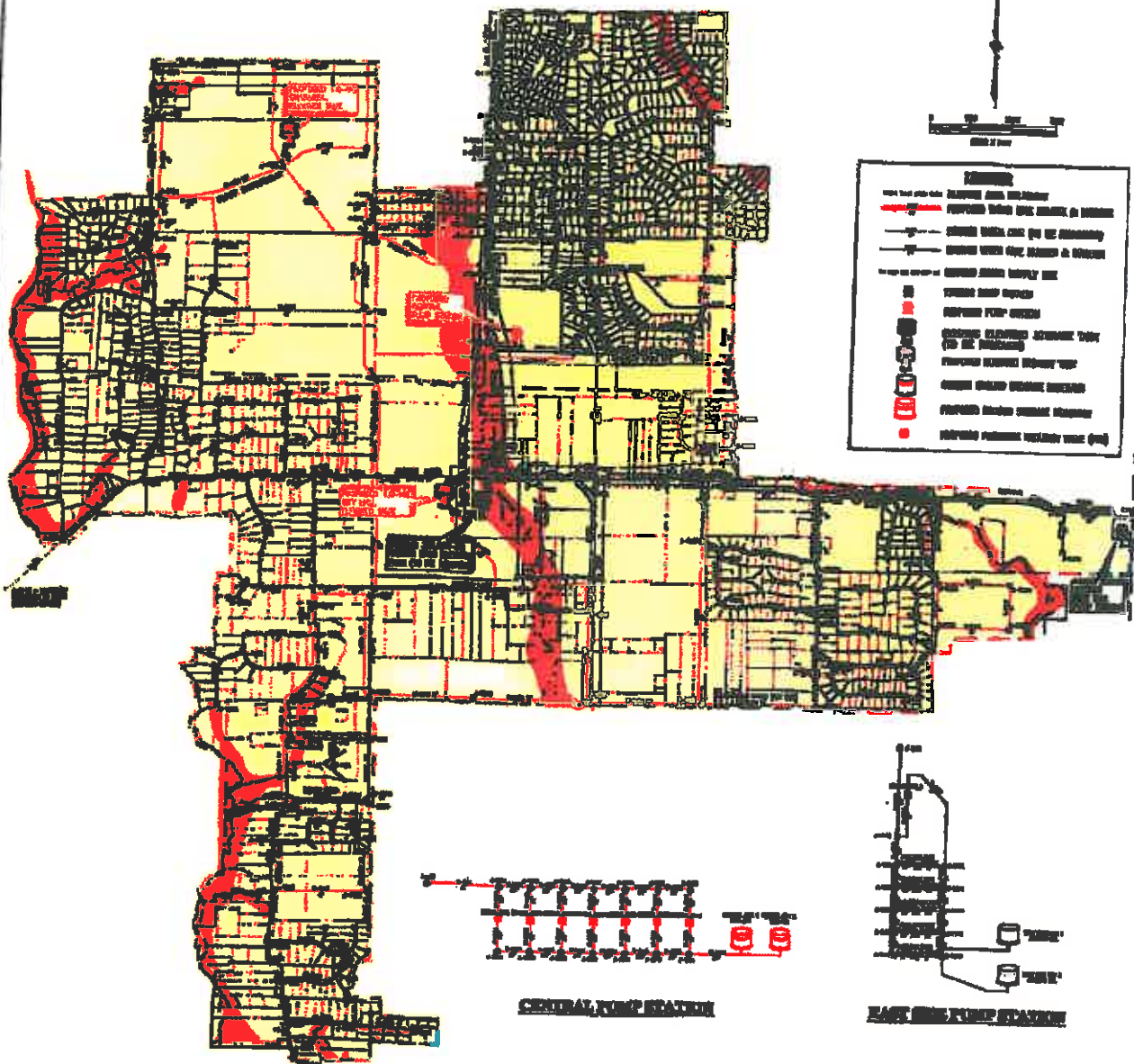


EXHIBIT 5



WATER DISTRIBUTION SYSTEM MASTER PLAN MAP

APPROVED FOR THE CITY OF PARKER
JULY 1, 2010



11/2/2016

**CITY OF PARKER, TEXAS
2016 IMPACT FEE
WATER DISTRIBUTION SYSTEM
10-YEAR CAPITAL IMPROVEMENT PLAN**

Bittorf, Hamblett & Carter L.L.P.

PROPOSED WATER LINES

Project No. ⁽¹⁾	Project	Size	Opinion of Project Cost ⁽²⁾	Debt Service ⁽³⁾	Total Project Cost
1	Dillchay Drive 16-inch Water Line	16"	\$ 577,500	\$ 197,657	\$ 775,157
2	Chaparral Elevated Storage Tank 16-inch Water Line	16"	\$ 46,200	\$ 24,235	\$ 70,435
3	Melrose Road 8-inch Water Line	8"	\$ 215,000	\$ 112,875	\$ 327,875
4	Bols-D-Are Lane 8-inch Water Line	8"	\$ 167,000	\$ 87,875	\$ 254,875
Subtotal: Proposed Water Lines			\$ 1,005,700	\$ 422,662	\$ 1,428,362

SUPPLY, PUMPING, STORAGE FACILITIES AND FACILITY IMPROVEMENTS

Project No. ⁽¹⁾	Project	Capacity	Opinion of Project Cost ⁽²⁾	Debt Service ⁽³⁾	Total Project Cost
5	Central Pump Station - 1.75 MGD P.S.	1.75 MGD	\$ 3,150,000	\$ 1,633,750	\$ 4,803,750
6	Central Pump Station - 0.75 MGD G.S.R.	0.75 MG	\$ 2,700,000	\$ 135,000	\$ 2,835,000
7	NIMWD Delivery Point No. 2	5 MGD	\$ 2,100,000	\$ 135,000	\$ 2,235,000
8	Chaparral 1-MG Elevated Storage Tank	1 MGD	\$ 4,800,000	\$ 1,102,500	\$ 5,902,500
9	Bols-D-Are Lane 8-inch Pressure Reducing Valve	—	\$ 240,000	\$ 2,520,000	\$ 2,760,000
Subtotal, Supply, Pumping and Storage Facilities			\$ 12,990,000	\$ 5,046,250	\$ 18,036,250

PLANNING EXPENSES

Project No.	Project	Opinion of Cost (1)(b)	Debt Service ⁽³⁾	Total Project Cost
	Water System Master Plan	\$ 32,000	\$ -	\$ 32,000
	Water Impact Fee	\$ 20,000	\$ -	\$ 20,000
Subtotal, Planning Expenses:		\$ 52,000	\$ -	\$ 52,000
Water Distribution System CIP Grand Totals:		\$ 14,847,700	\$ 5,968,712	\$ 20,816,412

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 Easement or Land Acquisition
- (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

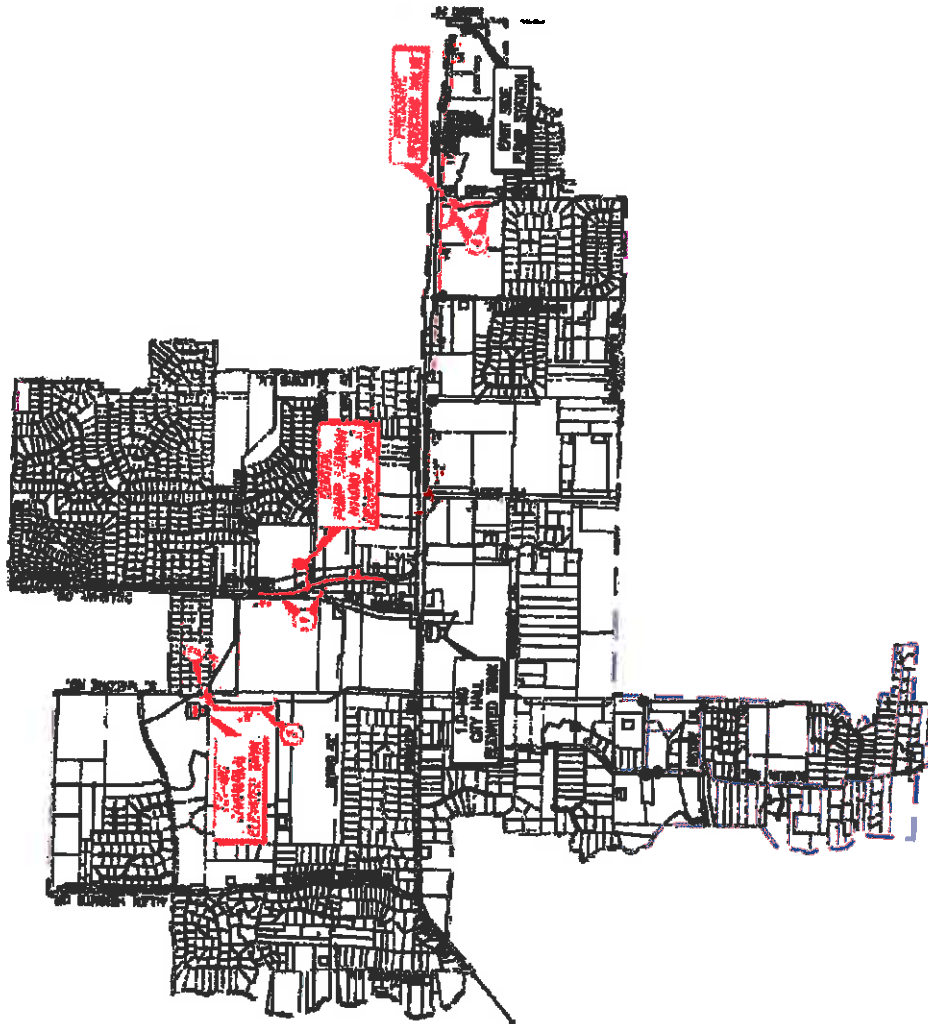


**WATER DISTRIBUTION SYSTEM
2016-2026 WATER IMPACT FEE
CAPITAL IMPROVEMENT PLAN
AND RECOVERY WATERLINE MAP**

- LEARNING**
- PLANNING AND MONITORING**
Developing a plan for the project
Monitoring progress and adjusting the plan as needed
- IMPLEMENTATION**
Carrying out the plan
Collecting data and monitoring progress
- EVALUATION**
Assessing the results of the project
Reflecting on the process and outcomes
- CONCLUSION**
Summarizing the findings of the project
Drawing conclusions and making recommendations



RESEARCH, INVESTIGATION & DEVELOPMENT
MANUFACTURING
SALES & MARKETING



1997

Submitted To The City Of



Capital Improvements Plan for 2016-2026 Water Impact Fee

Submitted By

BIRKHOFF, HENDRICKS & CARTER, L.L.P.
PROFESSIONAL ENGINEERS
DALLAS, TEXAS
TBPE Firm 526

December 2016

Andrew Mata, Jr.
12/01/2016



CITY OF PARKER, TEXAS

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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.

A. 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 document establishes the engineering basis for the capital projects and costs which will be 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 distributions system from the 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.

B. FACILITY CAPACITY REQUIREMENTS

C.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.

C.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. 1 illustrates the water demand rates used to calculate the water demands for the projected population.

TABLE NO. 1
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. 2 summarizes the calculated water demands for year 2016 and 2026, within the City's planning area.

TABLE NO. 2
WATER DEMANDS

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

C.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 point are shown on the Capital Improvement Plan Map included in this report. Table No. 3 summarizes the maximum day supply capacity requirements at each delivery point within the next ten year impact fee period.

TABLE NO. 3

WATER SUPPLY

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

C.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 rate at which water is supplied and the rate which pump stations shall 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 the elevated storage tank. 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 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. 4 summarizes the maximum hourly demands that the proposed distribution system will need to support.

TABLE NO. 4
WATERLINE DEMANDS

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

C.5 HIGH SERVICE PUMP STATION

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. 5 summarizes the pump station capacities.

TABLE NO. 5**PUMP STATION**

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

C.6 GROUND STORAGE RESERVOIR

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. 6 illustrates the ground storage capacity requirements. The ground storage reservoir at the Central Pump Station will need to be constructed, as the pump station is constructed.

TABLE NO. 6**GROUND STORAGE RESERVOIR REQUIREMENTS**

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

C.7 ELEVATED STORAGE

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 MSL. Table No. 7 summarizes the elevated storage requirements to meet maximum hourly demand rates within the 10-year period.

**TABLE NO. 7
ELEVATED STORAGE TANK REQUIREMENTS**

Elevated Storage Capacities	Elevated Storage Added (MG)	Elevated Storage Available (MG)
2016 Elevated Storage Capacities	0.00	1.00
2026 Elevated Storage Capacities	0.00	1.00
Elevated Storage Capacity Required:	0.00	1.00

C. UTILIZED FACILITY CAPACITIES

D.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.

D.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

2026 Utilized Capacity = 4.742 MGD / 7.645 MGD x 100%
= 62.0%

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

D.3. WATER DISTRIBUTION SYSTEM

The utilized capacity of the water distribution system water lines is associated with waterlines that are 8-inches or more in diameter. The water distribution system was modeled in the hydraulic water model 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 buildout 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. Church Lane 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 63.0%.

Church Lane 18-Inch Water Line: This waterline project consists of approximately 1,365 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 84.0%.

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 63.0%.

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 100.0% utilized by the year 2026.

D.4. HIGH SERVICE PUMP STATION

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
2026 Utilized Capacity = 4.742 MGD / 7.645 MGD x 100%
= 62.0%

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

D.5. GROUND STORAGE RESERVOIR

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
2026 Utilized Capacity = 4.742 MGD / 7.645 MGD x 100%
= 62.0%

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

D.6. ELEVATED STORAGE TANK

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 43.5%.

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

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

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

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

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












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

$$\text{Utilized Capacity during Capital Recovery Fee (CRF) Period} = 32\%$$

D. CAPITAL IMPROVEMENTS PLAN MAP

The following map illustrates the Capital Improvements required within the 10-year period to support the City's projected growth.

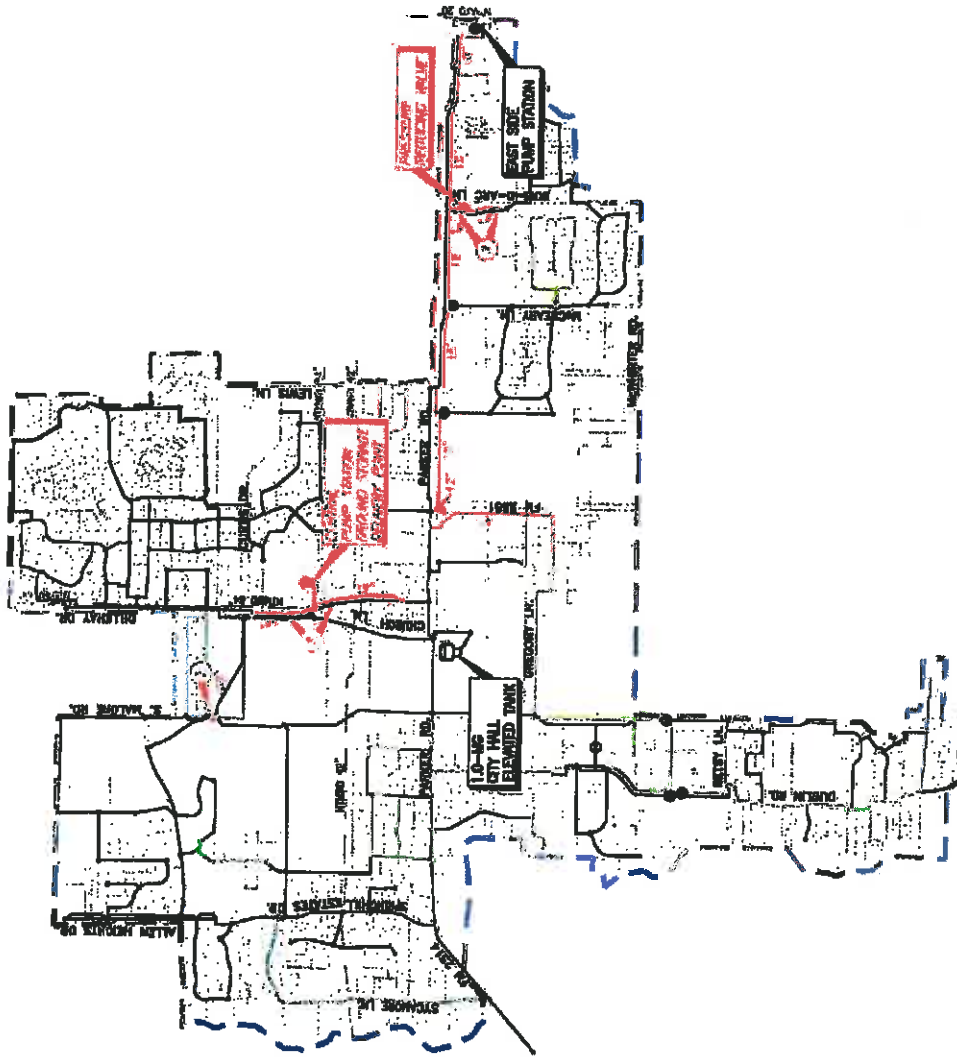
**WATER DISTRIBUTION SYSTEM
2016-2026 WATER IMPACT FEE
CAPITAL IMPROVEMENT PLAN
AND RECOVERY WATERLINE MAP**

- | Legend | |
|---|---|
|  | PLANNING AREA BOUNDARY |
|  | EXISTING WATER LINE (NO IMPACT FEE) |
|  | EXISTING WATER LINE (IMPACT FEE) |
|  | PROPOSED WATER LINE (IMPACT FEE) |
|  | CITY PARTICIPATED IN EXISTING COST (IMPACT FEE) |
|  | EXISTING WASTEWATER FLOW LINE |
|  | EXISTING PUMP STATION |
|  | PROPOSED PUMP STATION |
|  | EXISTING ELUVATED STORAGE TANK |
|  | EXISTING PRESSURE REDUCING VALVE |
|  | PROPOSED PRESSURE REDUCING VALVE |



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NOTES



THESE ARE THE NAMES OF THE
SIX MEN WHO WERE
KILLED IN THE
MURDER OF MARTIN LUTHER KING, JR.

Letter to Ann, 1861-1862, 1863-1864, 1865-1866, 1867-1868, 1869-1870, 1871-1872, 1873-1874, 1875-1876, 1877-1878, 1879-1880, 1881-1882, 1883-1884, 1885-1886, 1887-1888, 1889-1890, 1891-1892, 1893-1894, 1895-1896, 1897-1898, 1899-1900, 1901-1902, 1903-1904, 1905-1906, 1907-1908, 1909-1910, 1911-1912, 1913-1914, 1915-1916, 1917-1918, 1919-1920, 1921-1922, 1923-1924, 1925-1926, 1927-1928, 1929-1930, 1931-1932, 1933-1934, 1935-1936, 1937-1938, 1939-1940, 1941-1942, 1943-1944, 1945-1946, 1947-1948, 1949-1950, 1951-1952, 1953-1954, 1955-1956, 1957-1958, 1959-1960, 1961-1962, 1963-1964, 1965-1966, 1967-1968, 1969-1970, 1971-1972, 1973-1974, 1975-1976, 1977-1978, 1979-1980, 1981-1982, 1983-1984, 1985-1986, 1987-1988, 1989-1990, 1991-1992, 1993-1994, 1995-1996, 1997-1998, 1999-2000, 2001-2002, 2003-2004, 2005-2006, 2007-2008, 2009-2010, 2011-2012, 2013-2014, 2015-2016, 2017-2018, 2019-2020, 2021-2022, 2023-2024, 2025-2026, 2027-2028, 2029-2030, 2031-2032, 2033-2034, 2035-2036, 2037-2038, 2039-2040, 2041-2042, 2043-2044, 2045-2046, 2047-2048, 2049-2050, 2051-2052, 2053-2054, 2055-2056, 2057-2058, 2059-2060, 2061-2062, 2063-2064, 2065-2066, 2067-2068, 2069-2070, 2071-2072, 2073-2074, 2075-2076, 2077-2078, 2079-2080, 2081-2082, 2083-2084, 2085-2086, 2087-2088, 2089-2090, 2091-2092, 2093-2094, 2095-2096, 2097-2098, 2099-2100, 2101-2102, 2103-2104, 2105-2106, 2107-2108, 2109-2110, 2111-2112, 2113-2114, 2115-2116, 2117-2118, 2119-2120, 2121-2122, 2123-2124, 2125-2126, 2127-2128, 2129-2130, 2131-2132, 2133-2134, 2135-2136, 2137-2138, 2139-2140, 2141-2142, 2143-2144, 2145-2146, 2147-2148, 2149-2150, 2151-2152, 2153-2154, 2155-2156, 2157-2158, 2159-2160, 2161-2162, 2163-2164, 2165-2166, 2167-2168, 2169-2170, 2171-2172, 2173-2174, 2175-2176, 2177-2178, 2179-2180, 2181-2182, 2183-2184, 2185-2186, 2187-2188, 2189-2190, 2191-2192, 2193-2194, 2195-2196, 2197-2198, 2199-2200, 2201-2202, 2203-2204, 2205-2206, 2207-2208, 2209-2210, 2211-2212, 2213-2214, 2215-2216, 2217-2218, 2219-2220, 2221-2222, 2223-2224, 2225-2226, 2227-2228, 2229-2230, 2231-2232, 2233-2234, 2235-2236, 2237-2238, 2239-2240, 2241-2242, 2243-2244, 2245-2246, 2247-2248, 2249-2250, 2251-2252, 2253-2254, 2255-2256, 2257-2258, 2259-2260, 2261-2262, 2263-2264, 2265-2266, 2267-2268, 2269-2270, 2271-2272, 2273-2274, 2275-2276, 2277-2278, 2279-2280, 2281-2282, 2283-2284, 2285-2286, 2287-2288, 2289-2290, 2291-2292, 2293-2294, 2295-2296, 2297-2298, 2299-2300, 2301-2302, 2303-2304, 2305-2306, 2307-2308, 2309-2310, 2311-2312, 2313-2314, 2315-2316, 2317-2318, 2319-2320, 2321-2322, 2323-2324, 2325-2326, 2327-2328, 2329-2330, 2331-2332, 2333-2334, 2335-2336, 2337-2338, 2339-2340, 2341-2342, 2343-2344, 2345-2346, 2347-2348, 2349-2350, 2351-2352, 2353-2354, 2355-2356, 2357-2358, 2359-2360, 2361-2362, 2363-2364, 2365-2366, 2367-2368, 2369-2370, 2371-2372, 2373-2374, 2375-2376, 2377-2378, 2379-2380, 2381-2382, 2383-2384, 2385-2386, 2387-2388, 2389-2390, 2391-2392, 2393-2394, 2395-2396, 2397-2398, 2399-2400, 2401-2402, 2403-2404, 2405-2406, 2407-2408, 2409-2410, 2411-2412, 2413-2414, 2415-2416, 2417-2418, 2419-2420, 2421-2422, 2423-2424, 2425-2426, 2427-2428, 2429-2430, 2431-2432, 2433-2434, 2435-2436, 2437-2438, 2439-2440, 2441-2442, 2443-2444, 2445-2446, 2447-2448, 2449-2450, 2451-2452, 2453-2454, 2455-2456, 2457-2458, 2459-2460, 2461-2462, 2463-2464, 2465-2466, 2467-2468, 2469-2470, 2471-2472, 2473-2474, 2475-2476, 2477-2478, 2479-2480, 2481-2482, 2483-2484, 2485-2486, 2487-2488, 2489-2490, 2491-2492, 2493-2494, 2495-2496, 2497-2498, 2499-2500, 2501-2502, 2503-2504, 2505-2506, 2507-2508, 2509-2510, 2511-2512, 2513-2514, 2515-2516, 2517-2518, 2519-2520, 2521-2522, 2523-2524, 2525-2526, 2527-2528, 2529-2530, 2531-2532, 2533-2534, 2535-2536, 2537-2538, 2539-2540, 2541-2542, 2543-2544, 2545-2546, 2547-2548, 2549-2550, 2551-2552, 2553-2554, 2555-2556, 2557-2558, 2559-2560, 2561-2562, 2563-2564, 2565-2566, 2567-2568, 2569-2570, 2571-2572, 2573-2574, 2575-2576, 2577-2578, 2579-2580, 2581-2582, 2583-2584, 2585-2586, 2587-2588, 2589-2590, 2591-2592, 2593-2594, 2595-2596, 2597-2598, 2599-2600, 2601-2602, 2603-260

E. CAPITAL IMPROVEMENTS PLAN COSTS

The following table lists the Capital Improvements and this total projects costs.

**CITY OF PARKER, TEXAS
2016 IMPACT FEE
WATER DISTRIBUTION SYSTEM
10-YEAR CAPITAL IMPROVEMENT PLAN**

PROPOSED WATER LINES

Project No. ^(a)	Project	Size	Opinion of Project Cost ⁽¹⁾	Debt Service ⁽²⁾	Total Project Cost
1	Dillehay Drive 18-Inch Water Line	18"	\$ 577,500	\$ 197,657	\$ 775,157
2	Chaparral Elevated Storage Tank 16-Inch Water Line	16"	\$ 46,200	\$ 24,255	\$ 70,455
3	Bois-D-Arc Lane 8-Inch Water Line	8"	\$ 167,000	\$ 87,675	\$ 254,675
Subtotal: Proposed Water Lines			\$ 790,700	\$ 309,587	\$ 1,100,287

SUPPLY, PUMPING, STORAGE FACILITIES AND FACILITY IMPROVEMENTS

Project No. ^(a)	Project	Capacity	Opinion of Project Cost ⁽¹⁾	Debt Service ⁽²⁾	Total Project Cost
4	Central Pump Station - 1.75 MGD P.S.	1.75 MGD	\$ 3,150,000	\$ 1,633,750	\$ 4,803,750
5	Central Pump Station - 0.75 MG G.S.R.	0.75 MG	\$ 990,000	\$ 49,500	\$ 1,039,500
6	NTMWD Delivery Point No. 2	5 MGD	\$ 1,320,000	\$ 693,000	\$ 2,013,000
7	Bois-D-Arc Lane 8-Inch Pressure Reducing Valve	—	\$ 240,000	\$ 126,000	\$ 366,000
Subtotal, Supply, Pumping and Storage Facilities:			\$ 5,700,000	\$ 2,522,250	\$ 8,222,250

PLANNING EXPENSES

Project No.	Project	Opinion of Cost (1)(b)	Debt Service ⁽²⁾	Total Project Cost
	Water System Master Plan	\$ 32,000	\$ -	\$ 32,000
	Water Impact Fee	\$ 20,000	\$ -	\$ 20,000
Subtotal, Planning Expenses:		\$ 52,000	\$ -	\$ 52,000
Water Distribution System CIP Grand Total:		\$ 6,542,700	\$ 2,831,837	\$ 9,374,537

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 Easement 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

F. CAPITAL IMPROVEMENT PLAN SCHEDULE

The following table No. 8 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. 8
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

G. **INDEX**

Parker Demand Rates

LAND USE	Residential		Non-Residential		Peaking Factor
	Max Day Per Capita g.p.c.d.	Max Hour Per Capita g.p.c.d.	Max Day Per Acre g.p.a.d.	Max Hour Per Acre g.p.a.d.	
Single Family Residential (1.0 AC.)	571	1,090			1.91
Single Family Residential (1.5 AC.)	571	1,090			1.91
Single Family Residential (2.0 AC.)	571	1,090			1.91
Single Family Residential (>2.0 AC.)	1,500	1,500			1.00
Manufactured Housing					
Commercial		0	1,500	1,950	
Public/Special Activities		0	1,500	1,950	
ROW					

Min Hour GDF

0.3

City of Parker - Existing 2016 Demands

LAND USE	Residential			Non-Residential			Total Demand	
	Population	Max Day Demand (MGD)	Max Hour Demand (MGD)	Area (Ac)	Max Day Demand (MGD)	Max Hour Demand (MGD)	Max Day Demand (MGD)	Max Hour Demand (MGD)
Single Family Residential (1.0 AC.)	2,130	1.216	2.322				1.216	2.322
Single Family Residential (1.5 AC.)	699	0.399	0.762				0.399	0.762
Single Family Residential (2.0 AC.)	1,200	0.685	1.308				0.685	1.308
Single Family Residential (>2.0 AC.)	474	0.711	0.711				0.711	0.711
Manufactured Housing				0.00	0.000	0.000	0.000	0.000
Commercial				13.53	0.020	0.026	0.020	0.026
Public/Special Activities				201.16	0.302	0.392	0.302	0.392
ROW								
Totals	4,503	3.01	5.10	214.69	0.32	0.42	3.334	5.521

Parker Demand Rates

LAND USE	Residential		Non-Residential		Peaking Factor
	Max Day Per Capita g.p.c.d.	Max Hour Per Capita g.p.c.d.	Max Day Per Acre g.p.a.d.	Max Hour Per Acre g.p.a.d.	
Single Family Residential (1.0 AC.)	571	1,090			1.91
Single Family Residential (1.5 AC.)	571	1,090			1.91
Single Family Residential (2.0 AC.)	571	1,090			1.91
Single Family Residential (>2.0 AC.)	1,500	1,500			1.00
Manufactured Housing					
Commercial		0	1,500	1,950	
Public/Special Activities		0	1,500	1,950	
ROW					

Min Hour GDP

0.3

City of Parker - 2026 Demands

LAND USE	Residential			Non-Residential			Total Demand	
	Population	Max Day Demand (MGD)	Max Hour Demand (MGD)	Area (Ac)	Max Day Demand (MGD)	Max Hour Demand (MGD)	Max Day Demand (MGD)	Max Hour Demand (MGD)
Single Family Residential (1.0 AC.)	4,596	2.624	5.010				2.624	5.010
Single Family Residential (1.5 AC.)	699	0.399	0.762				0.399	0.762
Single Family Residential (2.0 AC.)	1,200	0.685	1.308				0.685	1.308
Single Family Residential (>2.0 AC.)	474	0.711	0.711				0.711	0.711
Manufactured Housing				0.00	0.000	0.000	0.000	0.000
Commercial				13.53	0.020	0.026	0.020	0.026
Public/Special Activities				201.16	0.302	0.392	0.302	0.392
ROW								
Totals	6,969	4.42	7.79	214.69	0.32	0.42	4.742	8.209

Parker Demand Rates

LAND USE	Residential		Non-Residential		Peaking Factor
	Max Day Per Capita g.p.c.d.	Max Hour Per Capita g.p.c.d.	Max Day Per Acre g.p.a.d.	Max Hour Per Acre g.p.a.d.	
Single Family Residential (1.0 AC.)	571	1,090			1.91
Single Family Residential (1.5 AC.)	571	1,090			1.91
Single Family Residential (2.0 AC.)	571	1,090			1.91
Single Family Residential (>2.0 AC.)	1,500	1,500			1.00
Manufactured Housing					
Commercial		0	1,500	1,950	
Public/Special Activities		0	1,500	1,950	
ROW					

Min Hour GDF

0.3

City of Parker - Buildout Demands

LAND USE	Residential			Non-Residential			Total Demand	
	Population	Max Day Demand (MGD)	Max Hour Demand (MGD)	Area (Ac)	Max Day Demand (MGD)	Max Hour Demand (MGD)	Max Day Demand (MGD)	Max Hour Demand (MGD)
Single Family Residential (1.0 AC.)	7,254	4.142	7.907				4.142	7.907
Single Family Residential (1.5 AC.)	1,626	0.928	1.772				0.928	1.772
Single Family Residential (2.0 AC.)	2,631	1.502	2.868				1.502	2.868
Single Family Residential (>2.0 AC.)	492	0.738	0.738				0.738	0.738
Manufactured Housing				0.00	0.000	0.000	0.000	0.000
Commercial				21.53	0.032	0.042	0.032	0.042
Public/Special Activities				201.16	0.302	0.392	0.302	0.392
ROW								
Totals	12,003	7.31	13.28	222.69	0.33	0.43	7.645	13.719



Capital Improvements Plan for 2016-2026 Water Impact Fee

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