

---

**LAND USE ASSUMPTIONS & CAPITAL IMPROVEMENTS PLAN**

**for**

**WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY  
2021 IMPACT FEE STUDY**

---

July 2021



Prepared for:

West Travis County Public Utility Agency  
13215 Bee Cave Parkway  
Bldg B, Suite 110  
Bee Cave, Texas 78738

This document is being released under the Authority of George Murfee, PE No. 39166. It is intended for agency review and approval, subject to change at the direction of the WTCPUA Board of Directors and staff.

*George W. Murfee*  
7-19-21

Prepared by:

Murfee Engineering Company, Inc.  
1101 Capital of Texas Highway, South  
Building D, Suite 110  
Austin, Texas 78746

**TABLE OF CONTENTS**

INTRODUCTION .....1

BACKGROUND .....1

    Water .....1

    Wastewater.....2

LAND USE ASSUMPTIONS.....4

SYSTEM PLANNING CRITERIA .....8

    Unit Usage .....8

    System Criteria .....8

CAPITAL IMPROVEMENTS PLAN .....9

**LIST OF TABLES**

Table 1: Summary of Existing Water LUEs.....2

Table 2: Existing and Projected Water LUE Summary 2021-2031.....3

Table 3: Existing and Projected Water LUE Count by Pressure Plane .....5

Table 4: Water Land Use Growth Assumption Summary Tabulation.....5

Table 5: Existing Wastewater LUEs.....6

Table 6: Wastewater Land Use Assumption Tabulation; by Development.....7

Table 7: Wastewater Land Use Assumption Tabulation; by Year .....7

Table 8: Water System Unit Usage Comparison .....8

**APPENDICES**

Appendix A-1: Existing Water CIP Exhibit

Appendix A-2: Proposed Water CIP Exhibit

Appendix B-1: Existing Wastewater CIP Exhibit

Appendix B-2: Proposed Wastewater CIP Exhibit

Appendix C: Water LUA Summary Figures

Appendix D: Wastewater LUA Summary Figure

Appendix E: CIP Tables

    E-1 Total Capital Allocated to Growth

    E-2 Growth Allocation Existing Projects - Water

    E-3 Growth Allocation Proposed Projects Approved in 2018 CIP - Water

    E-4 Growth Allocation Proposed 2021 CIP Projects - Water

    E-5 Growth Allocation Existing Projects-Wastewater

    E-6 Growth Allocation Proposed Projects Approved in 2018 CIP - Wastewater

    E-7 Growth Allocation Proposed 2021 CIP Projects - Wastewater

## **INTRODUCTION**

The purpose of this report is to develop the Land Use Assumptions (LUA) and Capital Improvements Plan (CIP) in support of the West Travis County Public Utility Agency 2021 Impact Fee Study for the 2021-2031 planning period. The process and methodology used will be described and the results summarized in tabular and graphical form for use in the impact fee calculations prepared by Nelisa Heddin Consulting, LLC. This report is prepared in accordance with the applicable provisions of Chapter 395 of the Local Government Code: *Financing Capital Improvements Required by New Development in Municipalities, Counties, and Certain Other Local Governments*.

## **BACKGROUND**

### ***Water***

The West Travis County Public Utility Agency (WTCPUA) regional water system currently serves approximately 22,129 Living Unit Equivalents (LUEs) in western Travis and northern Hays Counties. Raw water is diverted from Lake Austin under Firm Water Contracts with the Lower Colorado River Authority at intake structures and is delivered to both raw water customers as well as to the Uplands Water Treatment Plant located on Bee Cave Road at its intersection with Bee Cave Parkway. Potable water service is provided to retail and wholesale customers throughout the WTCPUA service area by the Uplands Water Treatment Plant. The distribution system is generally divided into the SH71 and US290 Systems, with the demarcation being the Southwest Parkway Pump Station and the facilities that supply it with water for pumping into the US290 System. This demarcation also includes future facilities that will supply the 290 system with water from Hamilton Pool Road south toward Fitzhugh road. Table 1 provides a summary of existing LUEs by system.

**Table 1: Summary of Existing Water LUEs**

<b>System</b>	<b>Total Existing Water LUEs</b>
SH71	11,460
US290	10,668
<b>TOTAL</b>	<b>22,129</b>

The division of the system into two main service areas is an operational and planning tool that also leads to separate impact fee calculation for each system. As such, the two-system planning and service strategy is carried through the Land Use Assumptions and Capital Improvements Plan to the calculation of impact fees. Table 2 show the existing and the projected water LUEs and Table 3 shows the existing and projected water LUEs by pressure plane. Table 4 depicts the water LUE growth assumptions by year. Appendix A-1: *Water CIP Exhibit* shows the WTCPUA water system, general division between the SH71 and US290 Systems, major system components, and existing CIP facilities. Appendix A-2: *Proposed CIP* depicts the proposed additional CIP facilities to serve the new growth for the next 10 years.

### **Wastewater**

The WTCPUA regional wastewater system currently serves approximately 4,873 LUEs in a 4,800± acre service area generally within the extraterritorial jurisdiction (ETJ) of the City of Bee Cave. The wastewater collection system includes 22 lift stations and approximately 60 miles of pipe, which deliver raw wastewater for treatment to two wastewater treatment plants. Treated effluent is stored in two effluent holding ponds and is used for irrigation under a Texas Land Application Permit (TLAP) as well as an Authorization for Reclaimed Water (210 Authorization). Appendix B-1: *Wastewater CIP Exhibit* shows the wastewater collection system, service area boundary, major system components, and existing CIP facilities. Appendix B-2: *Proposed Wastewater CIP* shows the proposed CIP addition to provide services for full buildout which is expected in the next ten years.



**Table 2: Existing and Projected Water LUE Summary 2021-2031**

Murfee Engineering Company, Inc. Texas Registered Firm No. F-353						Date:	7/15/2021
WTCPUA - Existing and Projected Water LUE Summary 2021-2031							
RETAIL CUSTOMERS							
System	Pressure Plane	Description	Demography Planning Unit	2021 Connections	2021 Existing LUEs*	2021-2031 Projected Growth	Buildout Total (2036)
US 290	1240	Bear Creek Oaks, Echo Bluff, Hills of Texas	39	270	296	34	355
		Friendship Ranch, Whispering Oaks, Wildwood, Parten	40	142	207	0	207
		Fox Run, Barsana	46.1	6	20	0	20
		S. of FM1826 Barsana to Bear Creek Pass	47.1	11	14	3	18
		Bear Creek Estates	47.3	24	26	0	26
		NW of Circle Dr.	116	3	8	0	8
		US290 South of Circle Dr., Tanglewood W., Hillside	117	194	222	0	222
		Rimrock Tr., Spring Valley, Ledgestone Terrace, Derecho	118	228	278	40	347
		Appaloosa Run, Zyle Rd.	119	139	149	0	149
		Overlook at Lewis Mountain	120	2	2	0	2
	Infill (Nutty Brown)	120	0	0	87	150	
	Skyridge	120	0	0	58	100	
	1340 N	Heritage Country, Big Country	18.3	105	119	14	143
		Heritage Oaks, Ledge Stone, Oak Run West, Polo Club	20.2	504	673	0	673
		Meadow Creek Ranch, Dripping Springs Ranch II	35.2	4	18	1	20
		Retail West of Belterra	37.1	1	1	0	1
		Signal Hill	38	81	100	39	167
		Green Hills	44	23	33	0	33
		N. of Fitzhugh to the County Line	113	16	25	1	26
	1340 S	Infill	n/a	0	0	289	500
Oak Run, S. of Fitzhugh to Blackstone		114	17	35	22	73	
Highpointe		41	1026	1209	0	1209	
1340 (1300)	E. of Sawyer Highpointe to Darden Hill	42	83	133	0	133	
	Woodland Estates	43.2	4	11	27	58	
	Infill	n/a	0	0	289	500	
	Onion Creek Ranch, Creek of Driftwood	43.1	76	84	0	84	
1420 (290)	Darden Hill (1 MGD)	42	0	0	668	1157	
	Rim Rock	45	622	815	0	815	
	Rutherford West	122	158	200	0	200	
	Sunset Canyon	19.3	365	411	0	411	
	Key Ranch, Saratoga Hills	20.1	155	222	0	222	
US 290 System Retail Subtotal	Hays Country Acres & Creek	33.2	8	36	0	36	
	Sunset Canyon S.	35.1	146	161	0	161	
	Infill	35.1	0	0	29	50	
	SW of Sawyer Ranch and US290 to Sunset Canyon	36	228	294	17	323	
				<b>4,641</b>	<b>5,798</b>	<b>1,617</b>	<b>8,599</b>
HWY 71	1080 (BCR)	Irrigation near Senna Hills	102	2	4	0	4
		Seven Oaks	103	267	515	0	515
		N. Crystal Creek Dr.	104	3	18	0	18
		S. Crystal Creek Drive	106	2	2	0	2
		Angelwyde	107	1	11	6	20
	1080 (CoBC)	Spanish Oaks, Shops at the Galleria	3H.1	576	1007	1007	2408
		Barton Creek Preserve	3H.2	3	3	0	3
		Uplands, HEB	4A.1	205	383	43	442
		The Preserve at Barton Creek	4A.2	46	56	0	56
		Lake Pointe	5A	1086	1213	68	1307
		Backyard	8F	0	0	294	409
		Terraces	8F	0	0	163	227
	1280 (HPR)	Hill Country Galleria & Surrounding	5C	70	315	0	315
		Destiny Hills	3D.3	4	6	6	14
		Bee Cave West, Travis County	3D.5	96	184	69	280
		W. of Crumley HPR to county line, Rocky Creek	3E.1	402	590	24	623
	1280 (CoBC)	Shield Ranch (Now inside conservancy)	3F	1	2	0	2
		Homestead, Meadowfox, LTYA	3G.1	182	227	0	227
		Lake Travis Middle School	3K.1	1	50	0	50
		Cielo Apartments	5B	1	1	76	107
Falconhead		8A	568	711	80	822	
1280 (71)	Ladera, Morningside, Skaggs	8F	393	825	245	1165	
	West Cypress Hill	3A	0	0	643	895	
	Kozmetsky	3B.1 / 3B.2	0	0	431	600	
1420 (HPR)	Lake Travis Independent School District	2C.1	0	0	72	100	
	N. of Hamilton Pool Madrone Ranch to Creeks Edge	3D.2	259	442	210	734	
	Hatchett/Provence (TC MUD 22)	3D.2	216	216	1165	1837	
				<b>4,384</b>	<b>6,779</b>	<b>4,601</b>	<b>13,182</b>
				<b>9,025</b>	<b>12,577</b>	<b>6,218</b>	<b>21,781</b>
* - Calculation of LUEs is based on meter size.							
WHOLESALE CUSTOMERS							
System	Pressure Plane	Customer	Demography Planning Unit	Jan 2020-Dec 2020 Average Usage (gpd)	2021 Standardized Water LUEs <sup>1</sup>	2021-2031 Projected Growth	Buildout Total LUEs
US290	1240 (1160)	Reunion Ranch WCID <sup>2</sup>	47.2	293,010	651	-73	524
		Hays 1	37.1	487,201	1,083	68	1,200
	1340 N	Hays 2	37.1	484,400	1,076	40	1,146
		City of Dripping Springs	n/a	55,298	123	2,084	3,733
	1420 (290)	City of Dripping Springs	n/a	55,298	123	2,084	3,733
		City of Dripping Springs - Headwaters	19.2	133,555	297	637	1,400
				<b>2,191,586</b>	<b>4,870</b>	<b>8,793</b>	<b>20,102</b>
HWY 71	1080 (BCR)	Barton Creek West WSC <sup>2</sup>	108	314,146	698	-195	427
		Crystal Mountain	105	53,265	118	0	118
		Eanes ISD	n/a	11,094	25	24	58
	1280 (71)	Senna Hills	102	217,432	483	1	485
		Lazy Nine MUD 1A (Sweetwater)	3K.1	517,530	1,150	898	2,400
		TC MUD 12 (Rough Hollow)	2C.2	599,858	1,333	569	2,125
1420 (HPR)	TC MUD 18 (Bella Colinas/Masonwood)	3D.4	196,893	438	133	623	
	Deer Creek <sup>3</sup>	n/a	196,649	437	-91	310	
				<b>2,106,866</b>	<b>4,682</b>	<b>1,340</b>	<b>6,546</b>
				<b>4,298,452</b>	<b>9,552</b>	<b>10,133</b>	<b>26,648</b>
1 - Using 450 gpd/LUE							
2 - 2020 Wholesale contract annual average consumption exceeds agreement amount							
3 - Contract states 310 built out LUEs, max 400 gpm consumption							
					<b>US 290 System Total</b>	<b>10,668</b>	<b>28,701</b>
					<b>HWY 71 System Total</b>	<b>5,941</b>	<b>19,728</b>
					<b>GRAND TOTAL</b>	<b>22,129</b>	<b>48,429</b>

## LAND USE ASSUMPTIONS

The Living Unit Equivalent is utilized as the service unit to determine the ultimate system's demand. For this analysis one Service Unit is defined as one LUE. Table 4 shows the ten year growth for the water service area. The land use assumptions include existing customers, wholesale and retail commitments, assumptions on infill and projects that are known to be in the development pipeline. Notably in the 290 System an additional 10,000+ LUEs are in the planning stages and 5000+ LUEs have been committed to by the PUA for service in the Dripping Springs area, US290 corridor, RR 1826 corridor, and Fitzhugh Lane. In addition to these corridors, growth along Nutty Brown Road is also occurring, including a future HEB in the design and planning phase. Within the SH 71 System Bee Cave Road is essentially built-out, while the City of Bee Cave has 1600± LUEs in the development pipeline with infill of 760 LUEs expected in the SH71, and Bee Cave Parkway area. Hamilton Pool Road has commitments for service from the PUA for Belvedere, Provence and Deer Creek. A minor amount of infill is expected along Hamilton Pool Road. Of note: Table 2 identifies three wholesale customers that are exceeding their contracted amounts based on an average day usage, it is unknown if this trend is expected to continue.

**Table 3: Existing and Projected Water LUE Count by Pressure Plane**

Existing and Projected Water LUE Count by Pressure Plane				
System	Pressure Plane	2021 Existing LUEs*	2021-2031 Projected Growth	Buildout Total (2036)
<b>US 290</b>	1240	1,871	148	2,128
	1340 N	3,285	2,557	7,715
	1340 S	1,353	316	1,900
	1340 (1300)	1,099	668	2,256
	1420 (290)	3,060	6,721	14,703
<b>HWY 71</b>	1080 (BCR)	1,874	-163	1,647
	1080 (CoBC)	2,976	1,574	5,167
	1280 (HPR)	782	99	919
	1280 (CoBC)	1,814	401	2,371
	1280 (71)	2,921	2,747	6,743
	1420 (HPR)	1,095	1,283	2,881

\*Calculation of LUE based on meter size

**Table 4: Water Land Use Growth Assumption Summary Tabulation**

Impact Fee Planning Period Year	TOTAL LUEs		
	US290	SH71	TOTAL
<b>May-21</b>	10,668	11,460	22,129
<b>Oct-21</b>	10,678	11,493	22,171
<b>Oct-22</b>	11,398	12,148	23,546
<b>Oct-23</b>	12,189	12,788	24,977
<b>Oct-24</b>	13,052	13,414	26,466
<b>Oct-25</b>	13,985	14,027	28,012
<b>Oct-26</b>	14,989	14,625	29,614
<b>Oct-27</b>	16,065	15,208	31,273
<b>Oct-28</b>	17,212	15,778	32,990
<b>Oct-29</b>	18,430	16,333	34,763
<b>Oct-30</b>	19,719	16,874	36,593
<b>Oct-31</b>	21,079	17,401	38,480

Appendix C: *Water LUE Summary Figures* provide a graphical representation of the water LUA.

Tables 5-7 provide a similar summary tabulation for wastewater to that described and provided for water. Since not all water customers in the Bee Caves/ Hwy 71 system receive wastewater service, the growth and total connections will differ.

**Table 5: Existing Wastewater LUEs**

Murfee Engineering Company, Inc. Texas Registered Firm No. F-353			6/29/2021	
<b>WTCPUA - April 2021 SH71 System WW LUE Summary</b>				
<b>RETAIL CUSTOMERS</b>				
<b>Rate District</b>	<b>Read Route &amp; Description</b>	<b>Connections</b>	<b>Exist WW LUEs*</b>	
SH 71	311 Seven Oaks	10	47	
	312 Uplands	7	105	
	313 Seven Oaks	1	5	
	314 Falconhead	444	527	
	315 Spanish Oaks & Hwy 71	402	596	
	316 Lake Pointe 1	262	272	
	317 Lake Pointe 2	218	233	
	318 Shops at the Galleria	87	404	
	319 Lake Pointe 3	207	212	
	320 Lake Pointe 4	252	269	
	321 620 & 71	600	1167	
<b>TOTAL</b>		<b>2,490</b>	<b>3,835</b>	
* - Calculation of LUEs is based on meter size. Meters with zero consumption were not counted.				
<b>WHOLESALE CUSTOMERS</b>				
<b>Customer</b>	<b>January-December 2020 Average Usage (gpd)</b>	<b>January-December 2020 Peak Month Usage (gpd)</b>	<b>Exist WW LUEs</b>	
Masonwood	99,723	164,433	535	
WCID 17**	87,104	131,567	484	
<b>TOTAL</b>		<b>186,827</b>	<b>296,000</b>	<b>1,019</b>
** - Calculation of Wholesale LUEs is based on 180 gpd/LUE				
<b>GRAND TOTAL</b>			<b>4,854</b>	

**Table 6: Wastewater Land Use Assumption Tabulation; by Development**

Upcoming Development	GROWTH from 2021-2031				TOTAL LUEs
	Retail		Wholesale	Total	
	Residential	Commercial			
Backyard	0	409	0	409	4,854
Ladera Ridge	0	19	0	19	5,263
Masonwood	0	0	88	88	5,509
Terraces	227	0	0	227	6,497
West Village	450	450	0	900	5,490
Infill/Buildout*	0	760	0	760	6,409
<b>Subtotal</b>	<b>677</b>	<b>1,638</b>	<b>88</b>	<b>2,403</b>	<b>7,257</b>
<b>TOTAL</b>	<b>2,315</b>				

\*Infill/Buildout assumed to be commercial

**Table 7: Wastewater Land Use Assumption Tabulation; by Year**

Impact Fee Planning Period Year	GROWTH				TOTAL LUEs
	Retail		Wholesale	Total	
	Residential	Commercial			
2021	71	132	8	211	4,854
2022	96	151	8	255	5,065
2023	124	151	8	283	5,320
2024	60	151	8	219	5,603
2025	66	151	8	224	5,822
2026	65	151	8	224	6,046
2027	70	151	8	228	6,270
2028	47	151	8	206	6,498
2029	35	151	8	193	6,704
2030	24	151	8	183	6,897
2031	18	151	8	177	7,080
<b>Subtotal</b>	<b>676</b>	<b>1,638</b>	<b>88</b>	<b>2,403</b>	<b>7,257</b>
<b>TOTAL</b>	<b>2,315</b>				

A graphical representation of the wastewater LUA is presented in Appendix D: *Wastewater LUA Summary Figure*.

## SYSTEM PLANNING CRITERIA

In order to step forward to a Capital Improvements Plan from the Land Use Assumptions it is necessary to define the units used in the projections. Therefore the projections are defined in terms of water and wastewater system usage as well as the criteria used to establish the capacities of regional facilities. The capacity of the system's existing and proposed CIP infrastructure are sized to serve the projected growth.

### *Unit Usage*

Based on the operational history of the system under the WTCPUA, which now spans approximately nine years, unit usage in gallons per day per living unit equivalent (gpd/LUE) has been developed for both the water and wastewater systems. Table 8 presents a comparison of the unit usage used in the 2012 Impact Fee Study (IFS) and the revised unit usage used in this report. As can be seen below peak day water usage has dropped to 864 gpd/LUE (the state minimum requirement) from 1,090 gpd/LUE. Similarly the wastewater demand average has decreased to 180 gpd/LUE from 205 gpd/LUE.

**Table 8: Water System Unit Usage Comparison**

System	2012 IFS Unit Usage (gpd/LUE)	2021 IFS Unit Usage (gpd/LUE)	Description
Water	450	450	Annual average
	1,090	864	Peak day
Wastewater	205	180	30-day average

### *System Criteria*

The primary criteria used to establish the capacity of the existing facilities and allocate for growth in CIP projects are pipe velocities, pumping capacity, and system storage. Transmission main capacity

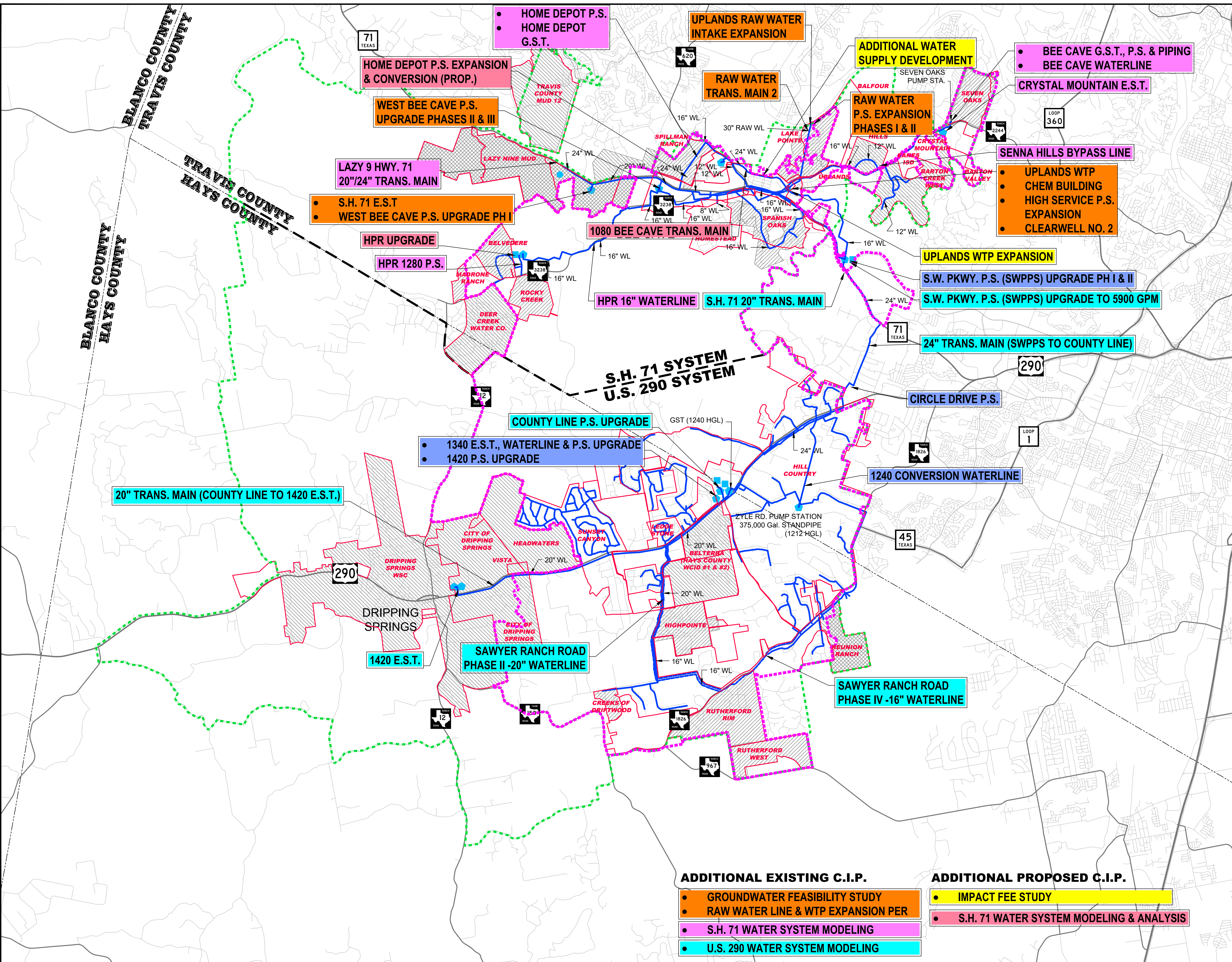
is evaluated using peak day unit usage and a 5 feet per second (fps) limitation on velocity. Pumping capacity is evaluated using the Firm Capacity (the capacity of a pump station when the largest pump is out of service), which is the methodology required by the Texas Commission on Environmental Quality (TCEQ). A water distribution system model is used to evaluate the system dynamically and assist in sizing the facilities to provide minimum service level benchmarks. Once facilities are evaluated using the water distribution system model, the facilities' service areas are delineated and the preliminary capacity is evaluated in terms of the TCEQ minimum water system capacity requirements described in TAC §290.45. For the WTCPUA water system, the pumping requirements are 2.0 gpm/connection in service sub-areas where 200 gallons/connection of ground and elevated storage are not provided and 0.6 gpm/connection in sub-areas that meet the 200 gallons/connection threshold. Total storage is evaluated using dynamic peak day analyses in the water distribution system model as well as the TCEQ minimum criteria of 200 gallons/connection total storage, 100 gallons/connection elevated storage, 20 gallons/connection hydropneumatic system storage, and a clearwell storage capacity of 5% of the water plant's production capacity.

## **CAPITAL IMPROVEMENTS PLAN**

Using the above-described LUAs and the unit usage and system planning criteria, a Capital Improvements Plan was developed that identifies the projects required to meet the forecasted demands as well as estimated dates that the projects will be needed and forecasted project costs. Appendix E contains tables for water and wastewater project capacity assessments and allocations for existing projects as well as those for the proposed projects. The existing and proposed projects together define the CIP for the purposes of the impact fee calculations.

APPENDIX A-1:  
Existing Water CIP Exhibit



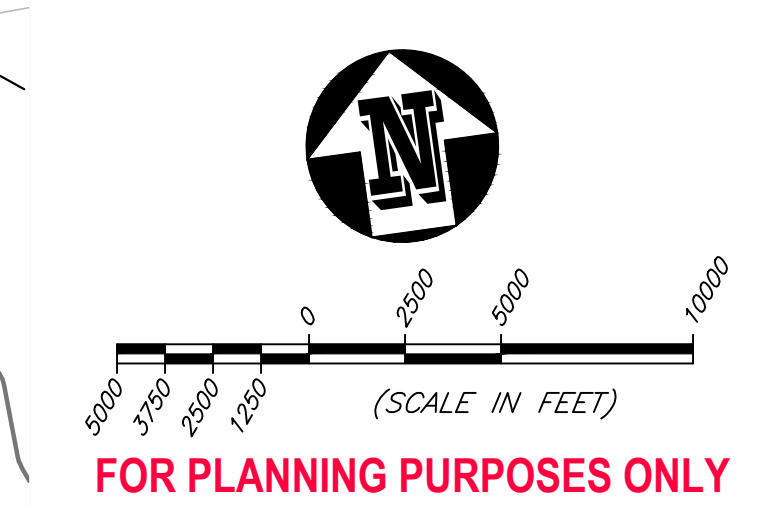


- HOME DEPOT P.S.
- HOME DEPOT G.S.T.
- UPLANDS RAW WATER INTAKE EXPANSION
- ADDITIONAL WATER SUPPLY DEVELOPMENT
- BEE CAVE G.S.T., P.S. & PIPING
- BEE CAVE WATERLINE
- CRYSTAL MOUNTAIN E.S.T.
- HOME DEPOT P.S. EXPANSION & CONVERSION (PROP.)
- WEST BEE CAVE P.S. UPGRADE PHASES II & III
- LAZY 9 HWY. 71 20"/24" TRANS. MAIN
- S.H. 71 E.S.T.
- WEST BEE CAVE P.S. UPGRADE PH I
- HPR UPGRADE
- HPR 1280 P.S.
- 1080 BEE CAVE TRANS. MAIN
- HPR 16" WATERLINE
- S.H. 71 20" TRANS. MAIN
- UPLANDS WTP EXPANSION
- S.W. PKWY. P.S. (SWPPS) UPGRADE PH I & II
- S.W. PKWY. P.S. (SWPPS) UPGRADE TO 5900 GPM
- 24" TRANS. MAIN (SWPPS TO COUNTY LINE)
- SEVEN OAKS PUMP STA.
- RAW WATER TRANS. MAIN 2
- RAW WATER P.S. EXPANSION PHASES I & II
- SENNA HILLS BYPASS LINE
- UPLANDS WTP
- CHEM BUILDING
- HIGH SERVICE P.S. EXPANSION
- CLEARWELL NO. 2

- C.I.P. PROJECTS LEGEND**
- SYSTEM WIDE
- PROPOSED
  - EXISTING
- S.H. 71 SYSTEM
- PROPOSED
  - EXISTING
- U.S. 290 SYSTEM
- PROPOSED
  - EXISTING

- LEGEND**
- WEST TRAVIS COUNTY P.U.A. WATER SYSTEM BOUNDARY
  - WEST TRAVIS COUNTY P.U.A. PRELIMINARY RETAIL PLANNING AREA
  - EXISTING FACILITIES AND FACILITIES PROPOSED IN C.I.P. PLANS
  - EXIST. WHOLESALE CUSTOMERS
  - REIMBURSEMENT OBLIGATIONS
  - EXIST. WHOLESALE CUSTOMERS WITH REIMBURSEMENT OBLIGATIONS

- ADDITIONAL EXISTING C.I.P.**
- GROUNDWATER FEASIBILITY STUDY
  - RAW WATER LINE & WTP EXPANSION PER
  - S.H. 71 WATER SYSTEM MODELING
  - U.S. 290 WATER SYSTEM MODELING
- ADDITIONAL PROPOSED C.I.P.**
- IMPACT FEE STUDY
  - S.H. 71 WATER SYSTEM MODELING & ANALYSIS



**MEC**  
Murfee Engineering Company

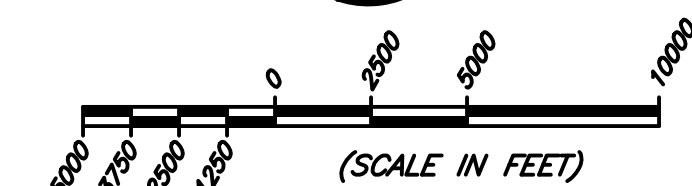
WEST TRAVIS COUNTY P.U.A.  
EXISTING WATER C.I.P. EXHIBIT 2021

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204  
Texas Registered Engineering Firm F-353  
FILELAYOUT: W:\WTP\UAFacilitiesImpact Fee Studies\2021 Impact Fee Study\2021\20210804\20210804.dwg



APPENDIX A-2:  
Proposed Water CIP Exhibit





**C.I.P. PROJECTS LEGEND**

PROPOSED

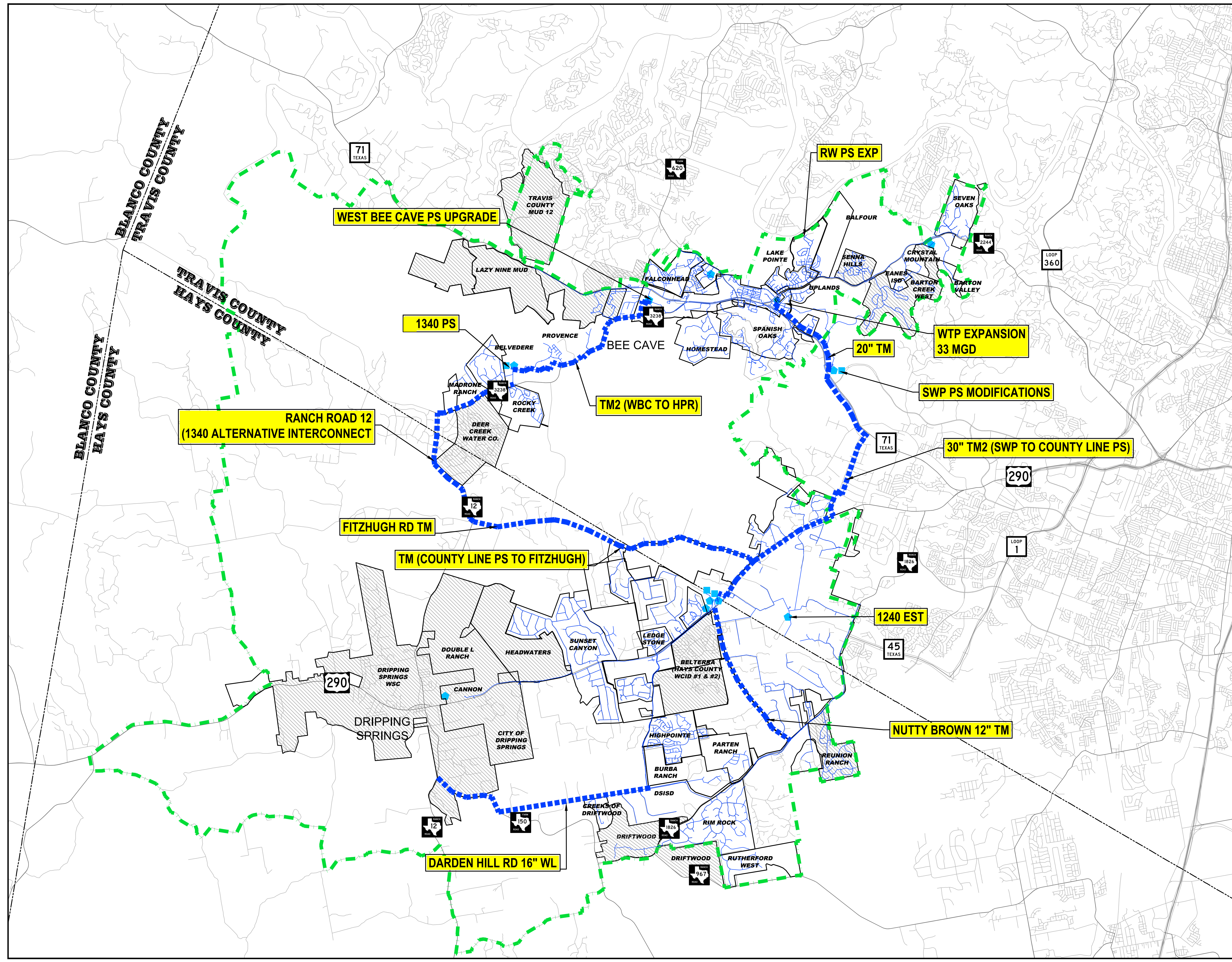
**LEGEND**

WTCPWA WATER SYSTEM BOUNDARY

EXISTING CIP FACILITIES

REGIONAL BOUNDARIES

EXISTING WHOLESALE CUSTOMERS



**RANCH ROAD 12  
(1340 ALTERNATIVE INTERCONNECT)**

**WEST BEE CAVE PS UPGRADE**

**1340 PS**

**TM2 (WBC TO HPR)**

**RW PS EXP**

**SWP PS MODIFICATIONS**

**30" TM2 (SWP TO COUNTY LINE PS)**

**FITZHUGH RD TM**

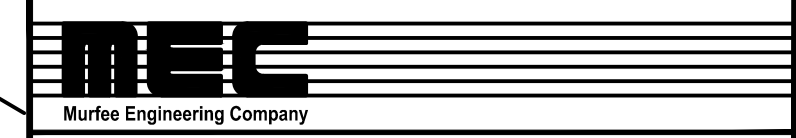
**TM (COUNTY LINE PS TO FITZHUGH)**

**1240 EST**

**NUTTY BROWN 12" TM**

**DARDEN HILL RD 16" WL**

FOR PLANNING PURPOSES ONLY



**WEST TRAVIS COUNTY P.U.A.  
PROPOSED WATER C.I.P. EXHIBIT 2021**

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204  
Texas Registered Engineering Firm F-353  
DATE: 7/14/2021 DRAWN: ENG



APPENDIX B-1:  
Existing Wastewater CIP



LIFT STATION CHART					
NUMBER	DESCRIPTION	SPECIFICATIONS	NUMBER	DESCRIPTION	SPECIFICATIONS
1	LAKE POINT LS #1 PH4A	150 GPM	16	FALCON HEAD LS #1	59 GPM
2	LAKE POINT LS #2 SEC 5	110 GPM	17	FALCON HEAD LS #2	575 GPM
3	LAKE POINT LS #3 SEC 7	68 GPM	18	CCNG CENTRAL LS LOS ROBLES	220 GPM
4	LAKE POINT LS #4 SEC 9	125 GPM	19	SPANISH OAKS LS #2	
5	LAKE POINT LS #5 SEC 3 PH2	140 GPM	20	SPANISH OAKS LS #4	
6	LAKE POINT LS #6 PH2	325 GPM	21	SUMMIT 56 L.S.	175 GPM
7	LAKE POINT PH4B LS #7	70 GPM	22	MASONWOOD L.S.	
8	LAKE POINT LS #8 HEB PLAZA	125 GPM	O-1	BEE CAVE ELEMENTARY SCHOOLS (WCID 17)	
9	LAKE POINT LS #9 PH1	800 GPM	O-2	FALCON HEAD WEST MAIN LS	500 GPM
10	LAKE POINT LS #10	78 GPM	O-3	FALCON HEAD WEST LS A	25 GPM
11	LAKE POINT LS #11 BEE CAVE PLAZA	65 GPM	O-4	FALCON HEAD WEST LS B	150 GPM
12	LAKE POINT LS #12 SEC 6	50 GPM	O-5	FALCON HEAD WEST LS C	50 GPM
14	CCNG REGIONAL LS	1770 GPM	O-6	FALCON HEAD WEST LS D	25 GPM
15	CCNG EAST LS		O-7	LTHS 1	

EXIST. SPILLMAN IRRIGATION PUMP STATIONS

R.M. 620 W.W.L.

W.W.T.P. EXPANSION  
500,000 gpd

100 AC-FT EFFLUENT POND & LIFT STATION

BOHL'S W.W.T.P.  
325,000 gpd

EFFLUENT DISPOSAL DEVELOPMENT

LAKEPOINT W.W.T.P.  
675,000 gpd

77AC-FT EFFLUENT POND

SPILLMAN EFFLUENT IRRIGATION SYSTEM

EFFLUENT DISPOSAL DEVELOPMENT

BOHLS SERVICE AREA EXPANSION LIFT STATION & FM

BOHLS WWTP REGIONAL LIFT STATION & FORCE MAIN

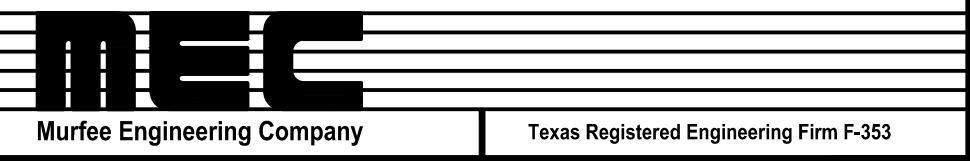
LITTLE BARTON CREEK INTERCEPTOR

CCNG LIFT STATION

- LEGEND:**
- EFFLUENT FORCE MAIN
  - WASTEWATER FORCE MAIN (L.S. & GRINDERS)
  - WASTEWATER GRAVITY LINE
  - PROPOSED GRAVITY COLLECTION LINE
  - PROPOSED FORCE MAIN
  - ▲ EXISTING P.U.A. LIFT STATION
  - ▲ PROPOSED P.U.A. LIFT STATION
  - ▼ EXISTING LIFT STATION OWNED/OPERATED BY OTHERS
  - EFFLUENT IRRIGATION AREAS
  - CITY OF BEE CAVE CITY LIMITS
  - CITY OF BEE CAVE E.T.J.
  - SEPTIC OR NO SERVICE NEEDED
  - CONSERVATION OR PARK
  - WATERSHED BOUNDARY
  - SERVICE AREA BOUNDARY

- LEGEND**
- EXISTING FACILITIES
  - PROPOSED FACILITIES

PRELIMINARY DRAWING FOR PLANNING PURPOSES ONLY



WEST TRAVIS COUNTY P.U.A.  
EXISTING W.W. C.I.P. EXHIBIT 2021

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746, (512) 327-9204			
JOB NO.	11-021.10	SCALE:	AS NOTED
DESIGNED BY:	GWM	DATE:	6/21/2021
DRAWN BY:	RWH/RC	DATE:	6/21/2021



APPENDIX B-2:  
Proposed Wastewater CIP



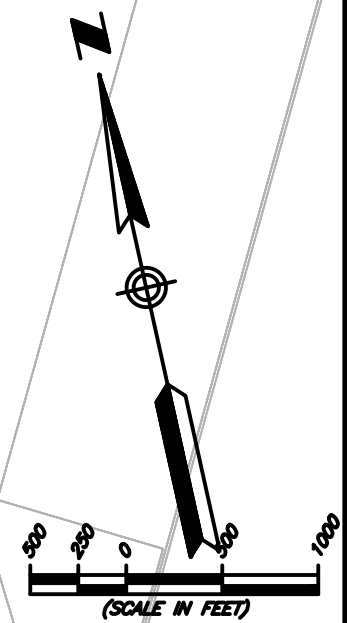
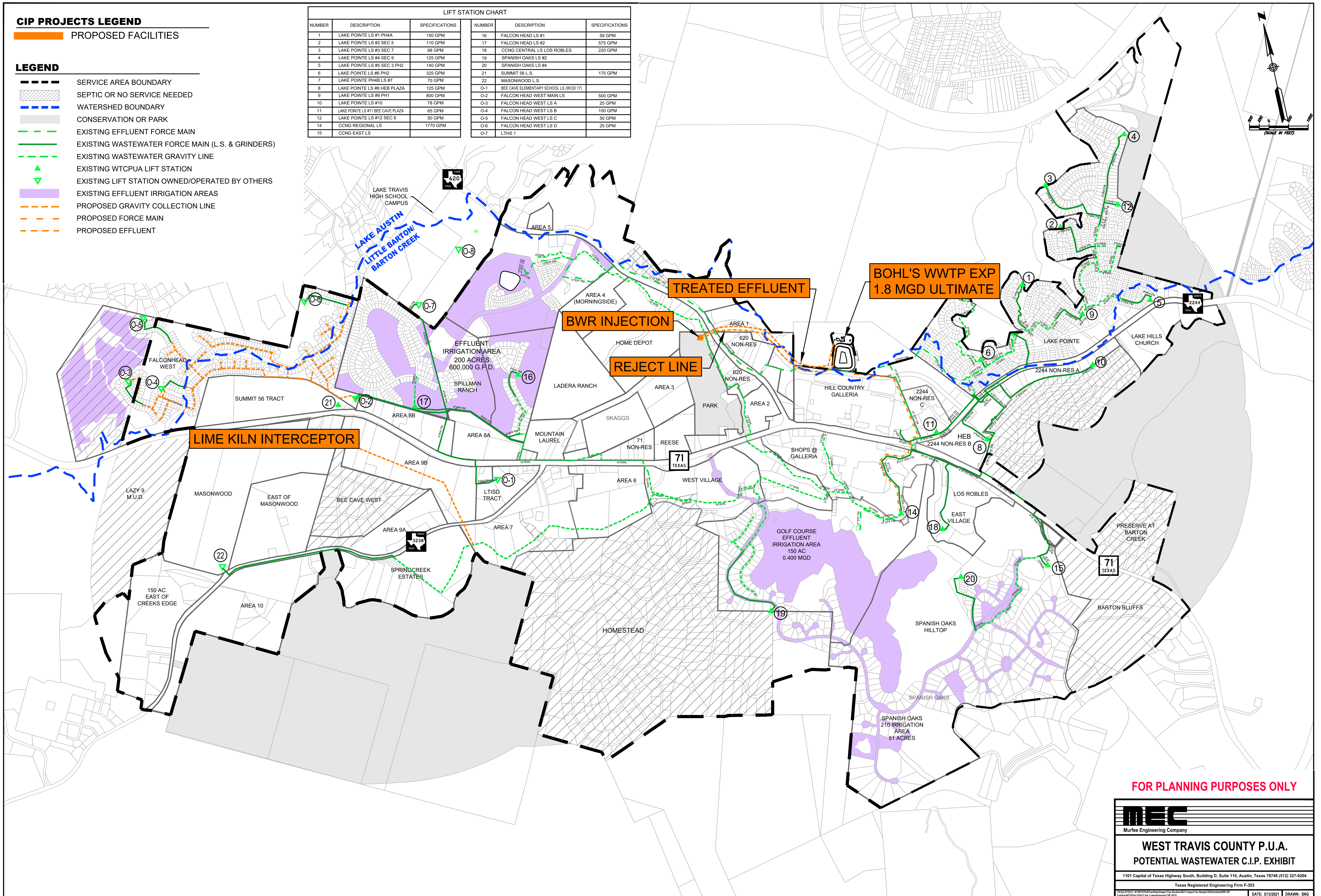
**CIP PROJECTS LEGEND**

PROPOSED FACILITIES

**LEGEND**

- SERVICE AREA BOUNDARY
- SEPTIC OR NO SERVICE NEEDED
- WATERSHED BOUNDARY
- CONSERVATION OR PARK
- EXISTING EFFLUENT FORCE MAIN
- EXISTING WASTEWATER FORCE MAIN (L.S. & GRINDERS)
- EXISTING WASTEWATER GRAVITY LINE
- ▲ EXISTING WTCPUA LIFT STATION
- ▼ EXISTING LIFT STATION OWNED/OPERATED BY OTHERS
- EXISTING EFFLUENT IRRIGATION AREAS
- PROPOSED GRAVITY COLLECTION LINE
- PROPOSED FORCE MAIN
- PROPOSED EFFLUENT

LIFT STATION CHART					
NUMBER	DESCRIPTION	SPECIFICATIONS	NUMBER	DESCRIPTION	SPECIFICATIONS
1	LAKE POINTE LS #1 PH4A	150 GPM	16	FALCON HEAD LS #1	59 GPM
2	LAKE POINTE LS #2 SEC 5	110 GPM	17	FALCON HEAD LS #2	575 GPM
3	LAKE POINTE LS #3 SEC 7	88 GPM	18	CCNG CENTRAL LS LOS ROBLES	220 GPM
4	LAKE POINTE LS #4 SEC 9	125 GPM	19	SPANISH OAKS LS #2	
5	LAKE POINTE LS #5 SEC 3 PH2	140 GPM	20	SPANISH OAKS LS #4	
6	LAKE POINTE LS #6 PH2	325 GPM	21	SUMMIT 56 L.S.	175 GPM
7	LAKE POINTE PH4B LS #7	70 GPM	22	MASONWOOD L.S.	
8	LAKE POINTE LS #8 HEB PLAZA	125 GPM	O-1	BEE CAVE ELEMENTARY SCHOOLS LS (WCD 17)	
9	LAKE POINTE LS #9 PH1	800 GPM	O-2	FALCON HEAD WEST MAIN LS	500 GPM
10	LAKE POINTE LS #10	78 GPM	O-3	FALCON HEAD WEST LS A	25 GPM
11	LAKE POINTE LS #11 BEE CAVE PLAZA	65 GPM	O-4	FALCON HEAD WEST LS B	150 GPM
12	LAKE POINTE LS #12 SEC 6	50 GPM	O-5	FALCON HEAD WEST LS C	50 GPM
14	CCNG REGIONAL LS	1770 GPM	O-6	FALCON HEAD WEST LS D	25 GPM
15	CCNG EAST LS		O-7	LTHS 1	



FOR PLANNING PURPOSES ONLY

**MEC**  
Murfee Engineering Company

**WEST TRAVIS COUNTY P.U.A.**  
**POTENTIAL WASTEWATER C.I.P. EXHIBIT**

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204  
Texas Registered Engineering Firm F-353

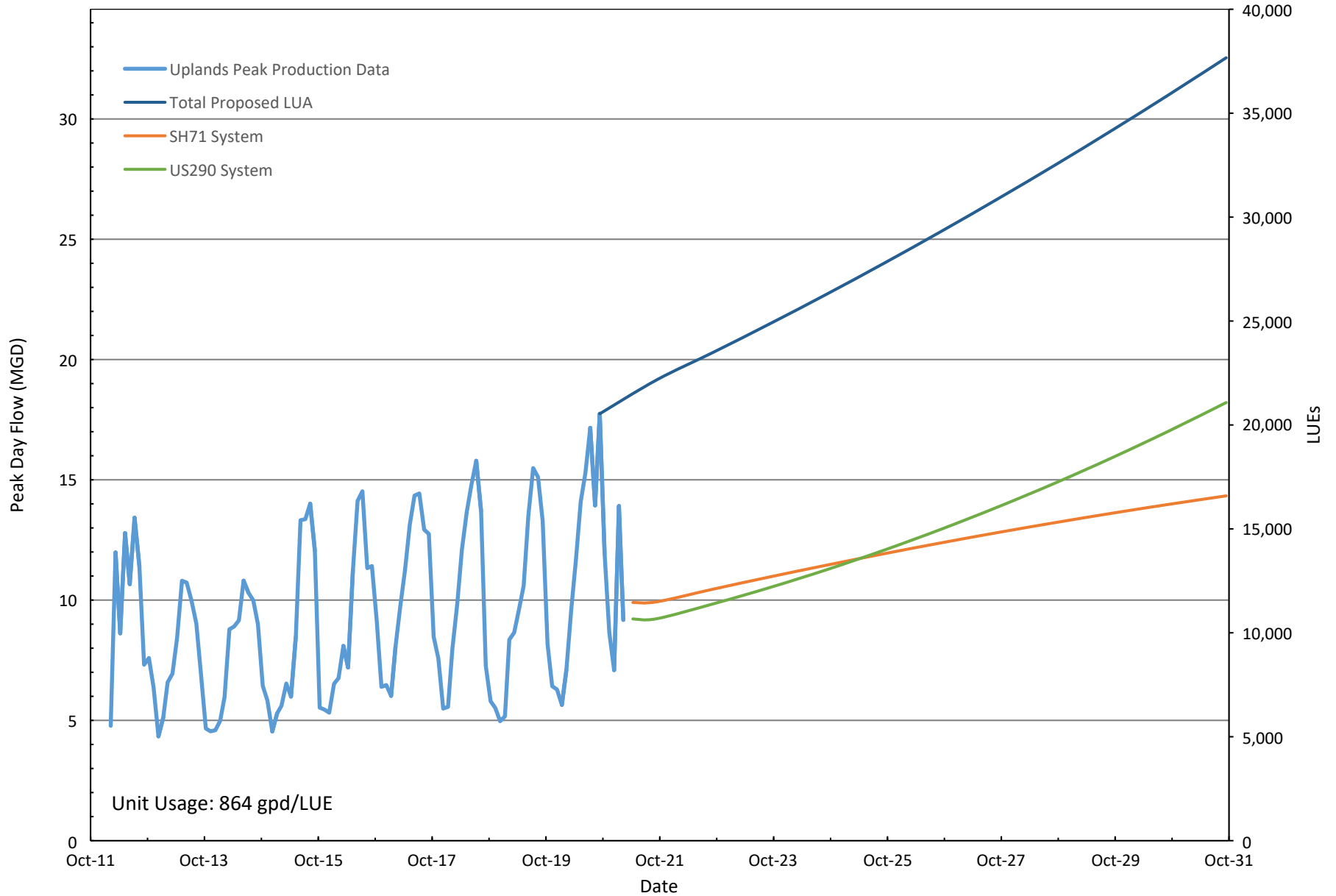
DATE: 5/13/2021 DRAWN: SNG



APPENDIX C:  
Water LUEs Summary Figures

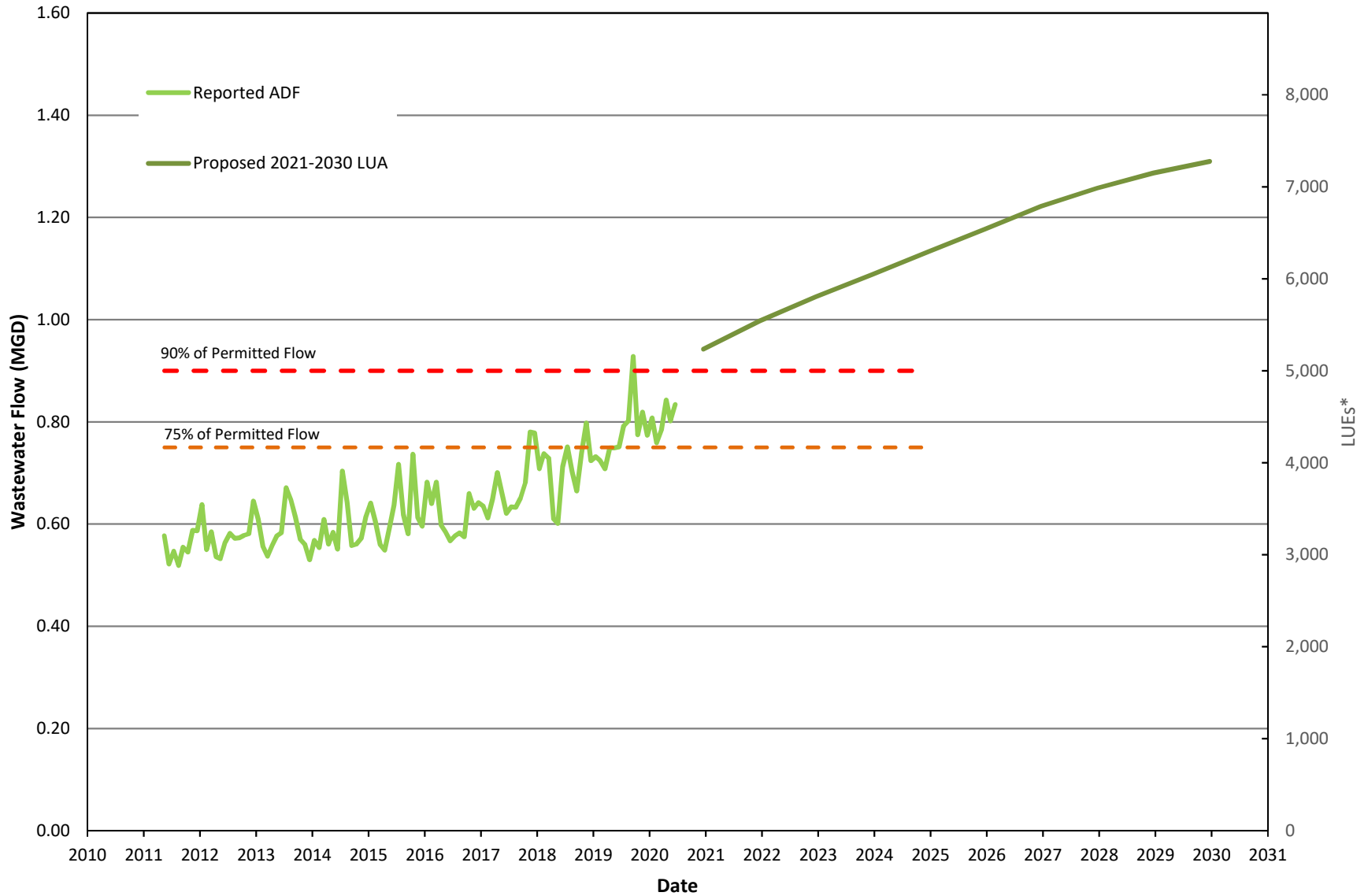


### WTCPUA - Water LUA Summary 2021



APPENDIX D:  
Wastewater LUA Summary Figure

### WTCPUA - Wastewater LUA Summary 2021



\*Note: LUE= 180 gpd/LUE

APPENDIX E:

CIP Tables

E-1 Total Capital Allocated to Growth

E-2 Growth Allocation Existing Projects - Water

E-3 Growth Allocation Proposed Projects Approved in 2018 CIP - Water

E-4 Growth Allocation Proposed 2021 CIP Projects - Water

E-5 Growth Allocation Existing Projects-Wastewater

E-6 Growth Allocation Proposed Projects Approved in 2018 CIP - Wastewater

E-7 Growth Allocation Proposed 2021 CIP Projects - Wastewater

## E-1 Total Capital Allocated to Growth

Table E-1 Total Capital Allocated to Growth

**WATER**

Proposed 2021 CIP Projects

System	LUEs	Total Capital Allocated to Growth			Total	Unit Cost	Combined*
		Existing	2018 CIP	2021 CIP			
System-Wide	16,351	\$ 12,320,104	\$ 9,890,000	\$ 13,422,350	\$ 35,632,455	\$ 2,179.22	
US290	10,410	\$ 6,594,408	\$ 10,403,933	\$ 29,087,916	\$ 46,086,257	\$ 4,426.95	\$ 6,606.16
SH71	5,941	\$ 4,632,533	\$ 3,991,000	\$ 403,069	\$ 9,026,602	\$ 1,519.46	\$ 3,698.68

\* - unadjusted maximum allowable

**WASTEWATER**

2021 Impact Fee Study

System	LUEs	Total Capital Allocated to Growth			Total	Unit Cost
		Existing	2018 CIP	2021 CIP		
System-Wide	2,403	\$ 8,186,790	\$ 8,467,500	\$ 2,182,800.00	\$ 18,837,090	\$ 7,838.99

\* - unadjusted maximum allowable

## E-2 Growth Allocation Existing Projects - Water

Table E-2 Growth Allocation Existing Projects - Water

WTCPUA Capital Improvements Program - Water									
Existing CIP Projects									
Project	Project Cost	Capacity (MGD or LUEs)	Current Capacity Used (MGD or LUEs)	Capacity Used 2021-2031 (MGD or LUEs)	Allocation for Current Capacity	Allocation for 2021-2031	Cost Allocation - Current	Cost Allocation - Growth	
<b>System-wide</b>									
Uplands WTP Chem Building*	\$ 2,141,458	20	17.9	2.1	90%	11%	\$ 1,916,605	\$ 224,853	
Uplands WTP*	\$ 40,549,183	20	17.9	2.1	90%	11%	\$ 36,291,519	\$ 4,257,664	
Uplands Raw Water Intake Expansion*	\$ 416,305	20	17.9	2.1	90%	11%	\$ 372,593	\$ 43,712	
High Service Pump Station 8MGD-14MGD*	\$ 4,034,066	20	17.9	2.1	90%	11%	\$ 3,610,489	\$ 423,577	
Uplands Clearwell No. 2*	\$ 997,229	20	17.9	2.1	90%	11%	\$ 892,519.96	\$ 104,709	
Groundwater Feasibility Study	\$ 40,000	N/A	N/A	N/A	84%	16%	\$ 33,600	\$ 6,400	
Raw Water Line & (Uplands) WTP Expansion PER	\$ 173,726	N/A	N/A	N/A	28%	72%	\$ 48,643.28	\$ 125,083	
Raw Water Pump Station Expansion (Phase I) (3MGD)	\$ 1,592,603	3	0.4	2.6	13%	87%	\$ 212,347.07	\$ 1,380,256	
Raw Water Transmission Main No. 2	\$ 6,287,320	16.5	1.4	16	8%	92%	\$ 533,469.58	\$ 5,753,850	
Subtotal	\$ 56,231,890						\$ 43,911,786	\$ 12,320,104	
<b>SH71 System</b>									
Lazy 9 SW 71 (20") Transmission Main*	\$ 3,090,461	20	17.9	2.1	90%	11%	\$ 2,765,963	\$ 324,498	
71 System Modeling	\$ 49,578	N/A	N/A	N/A	84%	16%	\$ 41,645.52	\$ 7,932	
SH71 EST (1.0 Mgal)	\$ 2,169,142	3000	1350	1650	45%	55%	\$ 976,114	\$ 1,193,028	
Misc. Improvements for 1280 Pressure Plane	\$ 177,037	3000	1350	1650	45%	55%	\$ 79,667	\$ 97,370	
West Bee Cave PS Upgrade (Phase I) (Add pump 4)	\$ 157,711	750	650	100	87%	13%	\$ 136,683	\$ 21,028	
West Bee Cave PS Upgrade (Phase II) (GST No2) <sup>1</sup>	\$ 1,411,886	5000	50	4950	1%	99%	\$ 14,119	\$ 1,397,767	
Transmission Main from Uplands Plant to Bee Cave Pump Station (1080-16)*	\$ 1,556,779	20	17.9	2.1	90%	11%	\$ 1,393,317	\$ 163,462	
Crystal Mountain EST*	\$ 1,917,518	20	17.9	2.1	90%	11%	\$ 1,716,179	\$ 201,339	
Senna Hills Bypass Line*	\$ 559,677	20	17.9	2.1	90%	11%	\$ 500,911	\$ 58,766	
HPR 1280 Pump Station Water	\$ 330,552	20	17.9	2.1	90%	11%	\$ 295,844	\$ 34,708	
HPR Water Line*	\$ 6,624,510	20	17.9	2.1	90%	11%	\$ 5,928,936	\$ 695,574	
Home Depot Pump Station*	\$ 392,792	20	17.9	2.1	90%	11%	\$ 351,549	\$ 41,243	
Home Depot Ground Storage Tank*	\$ 147,043	20	17.9	2.1	90%	11%	\$ 131,603	\$ 15,440	
Bee Cave Ground Storage Tank, Pump Station & Piping (off Cuernevaca)*	\$ 699,851	20	17.9	2.1	90%	11%	\$ 626,367	\$ 73,484	
Bee Cave Waterline to Cuernevaca*	\$ 990,492	20	17.9	2.1	90%	11%	\$ 886,490	\$ 104,002	
HPR Conversion and Upgrade to 1,500 gpm	\$ 214,321	375	20	355	5%	95%	\$ 11,430	\$ 202,891	
Subtotal	\$ 20,489,350						\$ 15,856,817	\$ 4,632,533	
<b>US290 System</b>									
County Line Pump Station Upgrade*	\$ 1,684,429	20	17.9	2.1	90%	11%	\$ 1,507,564	\$ 176,865	
290 Pipeline*									
24" SWPPS to County Line	\$ 12,841,593	20	17.9	2.1	90%	11%	\$ 11,493,226	\$ 1,348,367	
20" County Line to 1420 EST	\$ 3,411,212	20	17.9	2.1	90%	11%	\$ 3,053,035	\$ 358,177	
SH71 20" Transmission Main*	\$ 3,630,945	20	17.9	2.1	90%	11%	\$ 3,249,696	\$ 381,249	
20" Main Uplands to SWPPS Easements*	\$ 506,714	20	17.9	2.1	90%	11%	\$ 453,509	\$ 53,205	
1420 EST*	\$ 2,197,353	20	17.9	2.1	90%	11%	\$ 1,966,631	\$ 230,722	
Sawyer Ranch Road Ph 1 20"*	\$ 1,183,948	20	17.9	2.1	90%	11%	\$ 1,059,633	\$ 124,315	
Sawyer Ranch Road Ph 1 (Darden Hill)*	\$ 1,293,619	20	17.9	2.1	90%	11%	\$ 1,157,789	\$ 135,830	
SWPPS Upgrade to 5,900 gpm & GST1*	\$ 243,213	20	17.9	2.1	90%	11%	\$ 217,676	\$ 25,537	
SWPPS Upgrade Phase 1 GST	\$ 1,960,902	20	17.9	2.1	90%	11%	\$ 1,755,007	\$ 205,895	
1826 Phase IV 16" Water Line*	\$ 1,055,040	20	17.9	2.1	90%	11%	\$ 944,261	\$ 110,779	
US290 System Modeling	\$ 79,955	N/A	N/A	N/A	84%	16%	\$ 67,162	\$ 12,793	
1340 EST	\$ 2,399,334	3000	1000	2000	33%	67%	\$ 799,778	\$ 1,599,556	
1340 Transmission	\$ 2,746,676	3000	1000	2000	33%	67%	\$ 915,559	\$ 1,831,117	
Subtotal	\$ 35,234,933						\$ 28,640,525	\$ 6,594,408	
<b>TOTALS</b>	\$ 111,956,173						\$ 88,409,128	\$ 23,547,045	

\*Denotes Projects Constructed by the LCRA, Purchased by WTCPUA

1. WBPS PH II & PH III projects separated. Phase II completed in 2020, consisting of a 0.5MG tank at 1LUE/100 gallons of capacity. Phase III Currently Under construction.



## E-3 Growth Allocation Proposed Projects Approved in 2018 CIP - Water

Table E-3 Growth Allocation Proposed Projects Approved in 2018 CIP - Water

<b>WTCPUA Capital Improvements Program - Water</b>						
<b>Proposed 2018 CIP Projects</b>						
<b>Project</b>	<b>Planning Horizon Project Costs</b>	<b>Year Scheduled</b>	<b>Capacity (increase)</b>	<b>Capacity Allocation - Growth</b>	<b>Cost Allocation - Growth</b>	
<b>System-wide</b>						
<b>2018 CIP Projects</b>						
System Hydraulic Modelling	\$ 125,000	2022	n/a	100%	\$	125,000
Raw Water Pump Station Expansion (Phase II)	\$ 2,700,000	2029	7 MGD	15%	\$	405,000
Uplands WTP Expansion	\$ 17,000,000	2024	5 <sup>7</sup>	50%	\$	8,500,000
Additional Water Supply Development	\$ 1,000,000	2026	n/a <sup>8</sup>	86%	\$	860,000
Subtotal	<b>\$ 20,825,000</b>				<b>\$</b>	<b>9,890,000</b>
<b>SH71 System</b>						
<b>2018 CIP Projects</b>						
West Bee Cave PS Upgrade (Phases III) <sup>1</sup>	\$ 222,000	2022	2,500 LUEs	1100 LUEs	\$	98,000
Home Depot Pump Station Expansion & Conversion <sup>2</sup>		2021			\$	-
1080 Bee Cave Transmission Main <sup>3</sup>	\$ 5,900,000	2022	5229 LUEs	3450 LUEs	\$	3,893,000.00
Subtotal	<b>\$ 6,122,000</b>				<b>\$</b>	<b>3,991,000</b>
<b>US290 System</b>						
<b>2018 CIP Projects</b>						
1240 Conversion Water Line	\$ 1,400,000	2023	2700	2250	\$	1,167,000
RM1826 Phase V 16" <sup>4</sup>		2033			\$	-
Heritage Oaks Loop Line <sup>4</sup>		2033			\$	-
1420 Pump Station Upgrade <sup>5</sup>	\$ 670,000	2022	1500	1100	\$	491,333
1340 TM (Sawyer Ranch Road Ext)	\$ 1,200,000	2022	4500	1500	\$	400,000
1340 Pump Station	\$ 1,920,000	2021	2250	2000	\$	1,689,600
SWPPS Upgrade GST2 Phase 2 <sup>6</sup>	\$ 1,760,000	2022	9500	5750	\$	1,056,000
Circle Drive Pump Station	\$ 5,600,000	2024	3000	3000	\$	5,600,000
Subtotal	<b>\$ 12,550,000</b>				<b>\$</b>	<b>10,403,933</b>
<b>TOTALS</b>	<b>\$ 39,497,000</b>				<b>\$</b>	<b>24,284,933</b>

1. 500,000 GST & 4500 GPM Ultimate Capacity Pump Station Upgrade, under construction 2021
2. Existing Pump Modifications completed by Operations Staff, CIP Project Placed on indefinite hold; capacity increase replaced by 1080 TM & WBCPS Upgrade
3. Additional Cost from 2018 IFA, due to constraints in alignment, construction cost increase.
4. Projects unnecessary in 10-year projected LUA growth phase; proposed capacity to be replaced by Nutty Brown and Fitzhugh TMs
5. Two 900 GPM Pumps Under Construction June 2021
6. GST 2: Second of two 950,000 Gal GST tanks Under Construction, one 750,000 GST Tank Demolished, Increase 1.15 MG (2018 IFA Project Capacity Increase 0.75MG)
7. PER currently underway to increase capacity in the next expansion, considering technology alternatives for site constraints
8. Long term future capacity needs for surface water or groundwater supplies beyond the raw water intake and pipeline facilities ultimate capacity.

## E-4 Growth Allocation Proposed 2021 CIP Projects - Water

Table E-4 Growth Allocation Proposed 2021 CIP Projects - Water

<b>WTCPUA Capital Improvements Program - Water</b>						
<b>Proposed 2021 CIP Projects</b>						
<b>Project</b>	<b>Planning Horizon Project Costs</b>	<b>Year Scheduled</b>	<b>Capacity (increase)</b>	<b>Capacity Allocation - Growth</b>	<b>Cost Allocation - Growth</b>	
<b>System-wide</b>						
<b>2021 CIP Projects</b>						
Impact Fee Update	\$ 92,500	2026	n/a	100%	\$ 92,500	
Uplands WTP Expansion to 33MGD (8 MGD <sup>1</sup> )	\$ 10,000,000	2026	8 MGD	93%	\$ 9,300,000	
TM No. 2 (Upsize )	\$ 1,396,000	2027	3100 LUEs	2100 LUEs	\$ 945,677	
Ranch Road 12 16" TM (HPR to Fitzhugh)	\$ 5,621,000	2027	5200 LUEs	2100 LUEs	\$ 2,270,019	
1340 PS (HPR)	\$ 2,016,000	2027	5200 LUEs	2100 LUEs	\$ 814,154	
	subtotal				<b>\$ 19,125,500</b>	
<b>SH71 System</b>						
<b>2021 CIP Projects</b>						
West Bee Cave PS Upgrade (Electrical & Pumping)	\$ 336,000	2025	4200LUEs	700 LUEs	\$ 56,000	
TM No. 2 (West Bee Cave to HPR)	\$ 825,792	2027	3100 LUEs	700 LUEs	\$ 111,000	
HPR GST2	\$ 1,686,209	2022	5000 LUEs	700 LUEs	\$ 236,069	
	subtotal				<b>\$ 2,848,001</b>	
<b>US290 System</b>						
<b>2021 CIP Projects</b>						
Nutty Brown 12" TM	\$ 3,158,000	2026	2900 LUEs	1000 LUEs	\$ 1,088,966	
30" Parallel TM 2 (SWPPS to County Line)	\$ 19,354,000	2025	12000 LUEs	8810 LUEs	\$ 14,209,062	
SWP PS Modifications	\$ 1,500,000	2025	12000 LUEs	8810 LUEs	\$ 1,101,250	
1240 EST	\$ 2,095,000	2027	2250 LUEs	2250LUEs	\$ 2,095,000	
Hwy 71 Parallel 20" TM (Uplands to SWPWPS)	\$ 4,150,000	2030	8150 LUEs	5700 LUEs	\$ 2,902,000	
Darden Hill RD 16" WL	\$ 5,956,400	2028	5200 LUEs	1800 LUEs	\$ 2,061,831	
Fitzhugh Road 16" TM (CLPS to Crumley)	\$ 6,498,000	2029	5200 LUEs	3800 LUEs	\$ 4,748,538	
Fitzhugh Road 16" TM (Crumley to RR12)	\$ 2,083,000	2030	5200 LUEs	2200 LUEs	\$ 881,269	
	subtotal				<b>\$ 44,794,400</b>	
	<b>TOTALS</b>				<b>\$ 66,767,901</b>	
					<b>\$ 42,913,335</b>	

1.) Building, site improvements, electrical, & controls incorporated into 2024 expansion, reduced capital cost estimated

## E-5 Growth Allocation Existing Projects-Wastewater

Table E-5 Growth Allocation Existing Projects - Wastewater

<b>WTCPUA Capital Improvements Program - Wastewater</b>									
<b>Existing CIP Projects</b>									
<b>Project</b>	<b>Project Cost</b>	<b>Capacity (MGD)</b>	<b>Current Capacity Used (MGD)</b>	<b>Capacity Used 2021-2031 (MGD)</b>	<b>Allocation for Current Capacity</b>	<b>Allocation for 2021-2031</b>	<b>Cost Allocation - Current</b>	<b>Cost Allocation - Growth</b>	
Lake Pointe WWTP*	\$ 15,317,630	0.675	0.590	0.085	87%	13%	\$ 13,388,743	\$ 1,928,887	
Bee Cave Regional System*	\$ 8,499,620	1.0	0.800	0.200	80%	20%	\$ 6,799,696	\$ 1,699,924	
Spillman Effluent Irrigation System*	\$ 530,458	1.0	0.800	0.200	80%	20%	\$ 424,366	\$ 106,092	
CCNG Lift Station*	\$ 141,970	1.0	0.800	0.200	80%	20%	\$ 113,576	\$ 28,394	
RM 620 WW Line*	\$ 1,262,030	1.0	0.800	0.200	80%	20%	\$ 1,009,624	\$ 252,406	
SH71 WW Line*	\$ 998,809	1.0	0.800	0.200	80%	20%	\$ 799,047	\$ 199,762	
Bohls Effluent Pond and Lift Station	\$ 3,816,591	0.325	0.290	0.035	89%	11%	\$ 3,405,574	\$ 411,017	
Bohls WWTP	\$ 5,570,796	0.325	0.290	0.035	89%	11%	\$ 4,970,864	\$ 599,932	
Bohls WWTP Regional Lift Station/FM	\$ 2,101,571	0.325	0.290	0.035	89%	11%	\$ 1,875,248	\$ 226,323	
Little Barton Creek Interceptor*	\$ 2,851,077	0.267	0.038	0.229	14%	86%	\$ 403,021	\$ 2,448,056	
Master Planning & Permitting	\$ 310,867	N/A	N/A	N/A	8%	92%	\$ 24,869	\$ 285,998	
<b>TOTALS</b>	<b>\$ 41,401,419</b>						<b>\$ 33,214,629</b>	<b>\$ 8,186,790</b>	

\*Denotes Projects Constructed by the LCRA, Purchased by WTCPUA

## E-6 Growth Allocation Proposed Projects Approved in 2018 CIP - Wastewater

Table E-6 Growth Allocation Proposed Projects Approved in 2018 CIP - Wastewater

<b>WTCPUA Capital Improvements Program - Wastewater</b>						
<b>Proposed 2018 CIP Projects</b>						
<b>Project</b>	<b>Planning Horizon Project Costs</b>	<b>Year Scheduled</b>	<b>Capacity (increase)</b>	<b>Capacity Allocation - Growth</b>	<b>Cost Allocation - Growth</b>	
<b>2018 CIP Projects</b>						
Future WWTP Expansion. <sup>1</sup>	\$ 6,325,000	2022	0.5 MGD	50%	\$ 3,162,500	
Effluent Disposal Development <sup>1</sup>	\$ 5,900,000	2028	0.375 MGD	80%	\$ 4,720,000	
Bohls Service Area Expansion Lift Station & Force Main	\$ 780,000	2024	500 LUEs	75%	\$ 585,000	
<b>TOTALS</b>	<b>\$ 13,005,000</b>				<b>\$ 8,467,500</b>	

1. Increase in cost due to facility location space constraints, and BWR Phase 1 site relocation. Complete list of CIP Project expansions at Bohl's site, and potential Lake Pointe plant decommissioning, not listed due to no foreseeable allocation to growth.



## E-7 Growth Allocation Proposed 2021 CIP Projects - Wastewater

Murfee Engineering Company, Inc.  
 Texas Registered Firm No. F-353  
 1101 Capital of Texas Hwy., S., Bldg. D  
 Austin, Texas 78746

Table E-7 Growth Allocation Proposed 2021 CIP Projects - Wastewater

<b>WTCPUA Capital Improvements Program - Wastewater</b>					
<b>Proposed 2021 CIP Projects</b>					
<b>Project</b>	<b>Planning Horizon Project Costs</b>	<b>Year Scheduled</b>	<b>Capacity (increase)</b>	<b>Capacity Allocation - Growth</b>	<b>Cost Allocation - Growth</b>
<b>2021 CIP Projects</b>					
Impact Fee Study	\$ 27,500	2026	n/a	100%	\$ 27,500
BWR & Effluent Disposal Injection Well	\$ 517,500	2022	0.375 MGD	80%	\$ 414,000
BWR Phase 1 Supply/Reject FMs	\$ 1,460,500	2022	0.5 MGD	60%	\$ 876,300
Lime Kiln Interceptor	\$ 1,730,000	2026	1800 LUEs	50%	\$ 865,000
<b>TOTALS</b>	<b>\$ 3,735,500</b>				<b>\$ 2,182,800</b>