WATER IMPACT FEE STUDY
2024 UPDATE

TRAVIS COUNTY WCID NO. 17

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1.0 EXECUTIVE SUMMARY

This Water Impact Fee Study (2024 Study) is an update to the 2022 Study. This 2024 Study incorporates Option 3 from the "Eck WTP Service Area Additional WTP Capacity Options" study, dated May 8, 2024 (Capacity Study). In addition, the growth trends and required service improvements have been updated to develop the revised impact fee for Travis County WCID No. 17 (District). Land use assumptions (LUAs) were developed to project the number of living unit equivalents (LUEs) in the Service Area and the rate at which they are projected to be added to the System. Historical water usage records were evaluated to project future service demands per LUE. The existing System was then evaluated to identify the improvements necessary to provide adequate service through the 10-year planning period and the cost of these improvements on a per LUE basis.

The current LUAs are based on the 2024 Update to the LUAs, dated May 9, 2024. The only difference being that a Capacity Bank has been assigned for each Pressure Plane that includes the number of LUEs of excess capacity that we feel will be utilized. This excess capacity is due to the revisions to the Capital Improvements Plan, incorporating the Capacity Study. It is projected that 6,844 LUEs will be added to the current 20,476 LUEs in the System, for a total of 27,320 LUEs at build-out of the District. This is an increase of approximately 7% over the projected 25,550 LUEs included in the 2022 Study, with the increase due to the assignment of the excess capacity created with the proposed improvements to each Pressure Plane.

The growth rate in the District has declined since 2005 as the area moves closer to build-out, with an average annual rate of growth of 1.5% over the previous 5-years. An average annual rate of growth of 2% was used for projections. At this rate it is projected that the District will reach build-out in 2040. The construction of the improvements to serve this growth will need to occur within the 10-year planning period, and therefore the Capital Improvements Plan includes all the improvements needed to meet the projected ultimate demands.

Review of the historical water usage records includes the addition of the 2023 calendar year to the data evaluated with the 2022 Study. A decrease in demand was seen from 2022 to 2023, but no changes to the District's design standards are recommended at this time. Continued evaluation is recommended due to the uncertainty of the effects that a prolonged drought may cause.

The only changes to the recommended improvements from the 2022 Study are those associated with the incorporation of Option 3 from the Capacity Study. The improvements and operational changes from the Capacity Study will increase the amount of excess water treatment capacity available from the Eck Ln Water Treatment Plant (EWTP), increase the excess capacity available in the Pressure Planes located in the EWTP service area, and resolve current operational issues with the Round Mountain GST and Pump Station. The biggest operational change is the division of PP-4 (Central Pressure Plane) into PP-4A and PP-4B and shifting PP-4A and PP-5 (Hudson Bend Pressure Plane) to be served by the Mansfield Water Treatment Plant. The following improvement projects have been added with this 2024 Study:

- PP-4B Elevated Storage Tank
- PP-4B Booster Pump Station
- PP-4 Control Valves
- Mansfield WTP Expansion to 14 MGD
- Lohmans Pump Station Expansion

The Round Mountain Pump Station Expansion, the Round Mountain Water Main, and the Mountain View Flow Control Valve projects were included in the 2022 Study but have been removed from the CIP with this 2024 Study.

The changes made to the CIP represent an increase in capital costs from the 2022 Study of approximately $28.6MM, the added costs of constructing the RR 620 Water Mains not in conjunction with TxDOT and the estimated easement acquisition costs is an increase of $9.2MM, a correction to the PP-6 Elevated Storage Tank cost estimate represents an increase of $3.5MM, and an additional $3.5MM due to inflation for a total increase of $44.8MM. The additional inflation is due to revising the date of need for several projects further into the future, due to slower than anticipated growth. These projects could be installed sooner than the date of need if desired. These increased project costs were largely offset by the increase in LUEs projected to be served. A bond issue is anticipated to fund the 6 highest priority projects. The associated finance and interest costs add an estimated $57.3MM.

The maximum IF is a calculation of the pro rata share of the proposed improvements as well as existing infrastructure with remaining capacity to serve future growth. Actual costs were used for the existing infrastructure and estimates made for the proposed improvements. Future value costs were estimated for the proposed improvements based on the anticipated date of construction for each improvement and an assumed annual inflation rate of 3%. The capacity in terms of LUEs is determined for the improvements and used to develop the estimated cost per LUE.

The District's current Impact Fee is $8,943 per LUE. The calculations utilizing the construction and non-construction costs for existing facilities with excess capacity and the estimated costs for improvements proposed in this updated 2024 Study yield a **maximum Impact Fee of $12,539 per LUE.** This represents an increase of $3,596 per LUE or 40%.

2.0 INTRODUCTION

Travis County WCID No. 17 (District) is a Water Control and Improvement District created by an order of the Commissioner's Court of Travis County, Texas, on December 8, 1958 and confirmed by the voters within the District on February 28, 1959. As a political subdivision of Travis County, the District is a retail non-profit public utility with the rights, powers, privileges and authority established by the general laws of the State of Texas, particularly Chapter 51 of the Texas Water Code. The District is subject to the continuing supervision of the Texas Commission on Environmental Quality (TCEQ) and federal agencies. The District is empowered, among other things, to purchase, construct, operate and maintain all works, improvements, facilities and plants necessary for the supply and distribution of water; the collection, treatment and disposal of wastewater; and the control and diversion of storm water. The District is located west of the City of Austin in Travis County, Texas, and encompasses approximately 16,000-acres. The Impact Fee Study Area is comprised of the Service Area and is bisected by Ranch Road (RR) 620 and extends from the intersection of RR 620 and Farm to Market Road (FM) 2222 in the north to approximately one mile from the intersection of RR 620 and FM 71 in the south, as shown on Figure 2.1. Approximately 9,400-acres within the District lie wholly within the extraterritorial jurisdiction of the City of Austin. The remaining acreage lies within the extraterritorial jurisdictions or the City limits of Lakeway and Bee Cave and unincorporated Travis County.

Water districts, and other political divisions across the state, may use impact fees (IFs) "to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to new development." (Texas Local Government Code Ann. §395.001(4)). In order to adopt an IF, the District must review current and proposed service and growth trends to ensure that adequate technical and financial planning is in place with which to develop the necessary service facilities and calculate the IF.

This report (2024 Study) is an update to a previous Impact Fee Study completed by the District in 2022 (2022 Study). Option 3 from the "Eck WTP Service Area Additional WTP Capacity Options" study (Capacity Study), dated May 8, 2024, is being incorporated into the Capital Improvement Plan (CIP) with this 2024 Study. This includes transferring a portion of the Eck Ln Water Treatment Plant's (WTP's) service area to the Mansfield WTP's service area and several capital improvements that will increase the amount of capacity in the Eck Ln WTP's service area for future growth and relieve operational issues in Pressure Plane (PP) 4. This 2024 Study also incorporates the 2024 Update to the Land Use Assumptions, dated May 9, 2024.

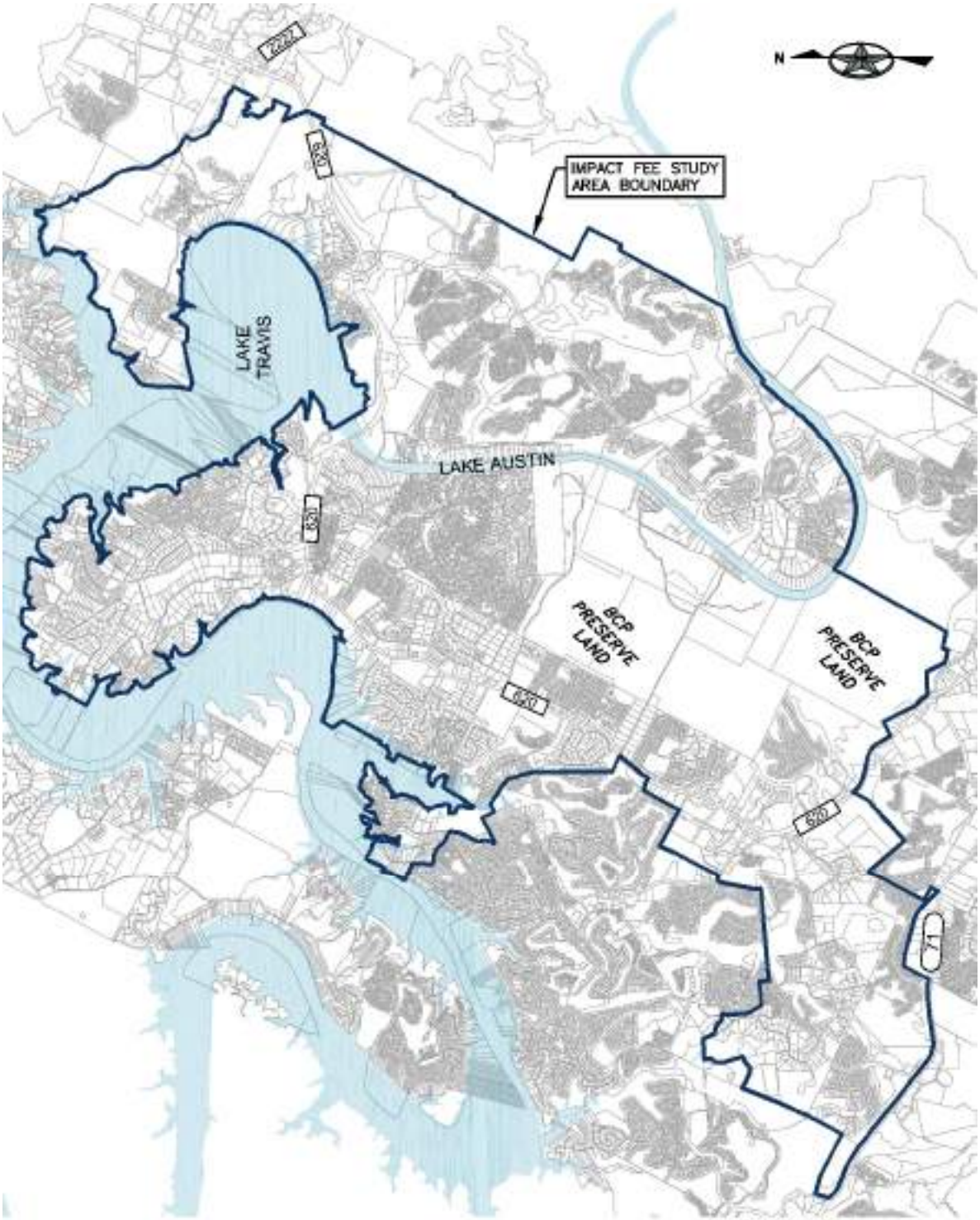


FIGURE 2.1
IMPACT FEE STUDY AREA

3.0 LAND USE ASSUMPTIONS AND GROWTH PROJECTIONS

This section describes the current and projected future land use patterns of the District's Service Area. Living Unit Equivalents (LUEs) are used to quantify water usage in the District, in lieu of population or number of connections.

3.1 Living Unit Equivalents

An LUE is defined as the water demand from an average sized single-family residence. Tables 3.1 and 3.2 summarize the District's current Service Rules and Policies for assigning LUEs to each development. Water meter sizes are assigned in accordance with the Unified Plumbing Code, based on the fixture unit count for each building.

Table 3.1
Single Family Residential & Commercial LUE Allocation

Water Meter Size	LUEs
5/8"	1
3/4"	1.5
1"	2.5
1 ½"	5
2"	8
3"	18
4"	30
6"	60
8"	90

Table 3.2
Multi-Family & Hotel/Motel Water LUE Allocation

Category	LUEs
Duplex	2 LUEs
Multi-Family: 6 – 24 Units/Acre	0.7 LUEs/Unit
Multi-Family: >24 Units/Acre	0.6 LUEs/Unit
Hotel or Motel	0.6 LUEs/Room

3.2 Land Use Assumptions

As discussed in more detail in the Capacity Study, PP-4 is proposed to be divided into PP-4A and PP-4B once improvements are in place to support the change. PP-4A will include the Mountain View EST and the area around it and will be serviced, along with PP-5, by the Mansfield Water Treatment Plant (MWTP). PP-4B will be the remainder of the current PP-4 and continue to be serviced by the Eck Lane Water Treatment Plant (EWTP). The proposed PP-4A and PP-4B boundaries are shown on Attachment 'D'.

It was noted in the 2022 Study that capacity is becoming scarcer and that the Land Use Assumptions (LUAs) will be used as a basis of how much capacity will be made available to each property. Dividing PP-4, having the MWTP service PP-4A and PP-5 and installing the proposed improvements included in this 2024 Study create additional excess capacity above that shown in the 2022 Study. This additional excess capacity can be used to account for developments requiring more LUEs than included in the LUAs and for redevelopment of existing properties. A "Capacity Bank" has been established for each Pressure Plane with the number of LUEs beyond the LUAs that we feel will be utilized. This Capacity Bank can be drawn on for properties requiring more capacity than assigned.

The current LUAs are based on the 2024 Update to the LUAs, dated May 9, 2024. The only difference being the Capacity Bank assigned for each Pressure Plane.

3.2.1 Methodology

The 2024 Update to the LUAs was an update of the 2022 LUAs. A more detailed description of this update is included in the May 9, 2024 letter report. It was prepared using updated meter and living unit equivalent (LUE) data provided by WCID No. 17, produced April 11, 2024, the number of LUEs assigned since the 2022 LUAs, and updates for developments where more current information was known. A Capacity Bank was added to each Pressure Plane with the number of LUEs of excess capacity assigned that we feel are likely to be utilized.

3.2.2 Results

The Land Use Assumptions Map, Attachment 'A', shows each of the evaluation areas, color-coded by their projected use. Attachment 'B' is an itemized listing of each area with the associated number of existing and projected number of LUEs. Below is a summary of the results. Note that this is shown with the proposed change to PP-4 and the switch of PP-4A and PP-5 being serviced by the EWTP. Current operational conditions are the MWTP serving Pressure Planes 1 – 3 and the EWTP serving Pressure Planes 4 – 8.

Table 3.3
Summary of Land Use Assumptions

Pressure Plane No.	Pressure Plane	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	2022 Study	2022 to 2024 Change
1	Comanche Trail Elev.	490.0	241.9	731.9	709.3	3%
2	Comanche Trail	892.5	140.5	1,033.0	1,191.0	-13%
3	Steiner Ranch	7,595.0	877.6	8,472.6	7,896.9	7%
4A	Central – A	759.5	320.1	1,079.6	999.5	8%
5	Hudson Bend	1,069.0	417.6	1,486.6	1,281.1	16%
Subtotal – Msfld WTP Service		**10,806.0**	**1,997.7**	**12,803.7**	**12,077.9**	**6%**
4B	Central – B	4,158.0	2,249.2	6,407.2	5,842.2	10%
6	Cardinal Hills	1,618.5	1,133.4	2,751.9	2,509.2	10%
7	High School	2,179.5	721.2	2,900.7	2,716.5	7%
8	Highway 71 Tank	1,713.5	743.1	2,456.6	2,404.6	2%
Subtotal – Eck WTP Service Area		**9,669.5**	**4,846.8**	**14,516.3**	**13,472.4**	**8%**
	TOTAL:	**20,475.5**	**6,844.5**	**27,320.0**	**25,550.3**	**7%**

As shown in Table 3.3 there were 20,476 current LUEs in the System as of April 11, 2024. It is projected that approximately 6,844 LUEs will be added to the System to give an ultimate total of 27,320 LUEs. The increase in Total Projected LUEs from the 2022 Study to this 2024 Study is due to the addition of the Capacity Bank.

3.2.3 Summary

These Land Use Assumptions project 6,844 LUEs will be added to the current 20,476 LUEs in the System, resulting in a projected total demand of 27,320 LUEs at build-out of the District. This is an increase of approximately 7% over the projected 25,550 LUEs included in the 2022 Study. This increase is due to the addition of a Capacity Bank that represents the number of LUEs of excess capacity in each Pressure Plane that we feel are likely to be utilized.

The District does not have zoning authority and therefore has limited control over the type or density of development that occurs. Several factors could affect these projections, most notably being if central wastewater service becomes available to portions of the District where it is currently unavailable.

It is intended that these Land Use Assumptions will be used as a limit to the number of LUEs that will be made available to each tract. We therefore recommend that these Land Use Assumptions be reviewed every 2-3 years. This will allow the District to reallocate any LUEs from tracts that use less than the amount assumed.

3.3 Growth Projections

The historical growth records of the District were analyzed to help project the rate of future growth. The data used here and in Section 4 includes the LUEs that were in service at that time and does not include properties / LUEs with a meter that are not currently active / receiving service. Figures 3.1 and 3.2 show the historical growth in the District over the past 20 years, with a consistently declining rate since 2005 as the District moves closer to build-out. The number of LUEs added in 2017, and corresponding percent growth, are artificially low by approximately 300 LUEs due to a change in ownership of a multi-family development in Steiner Ranch that resulted in the account being inactive at year's end. The average growth rate over the previous 5-years was 1.5%. An average annual growth rate of 2% is used for future projections.

Figure 3.1
Historical Year End Living Unit Equivalents (LUEs)

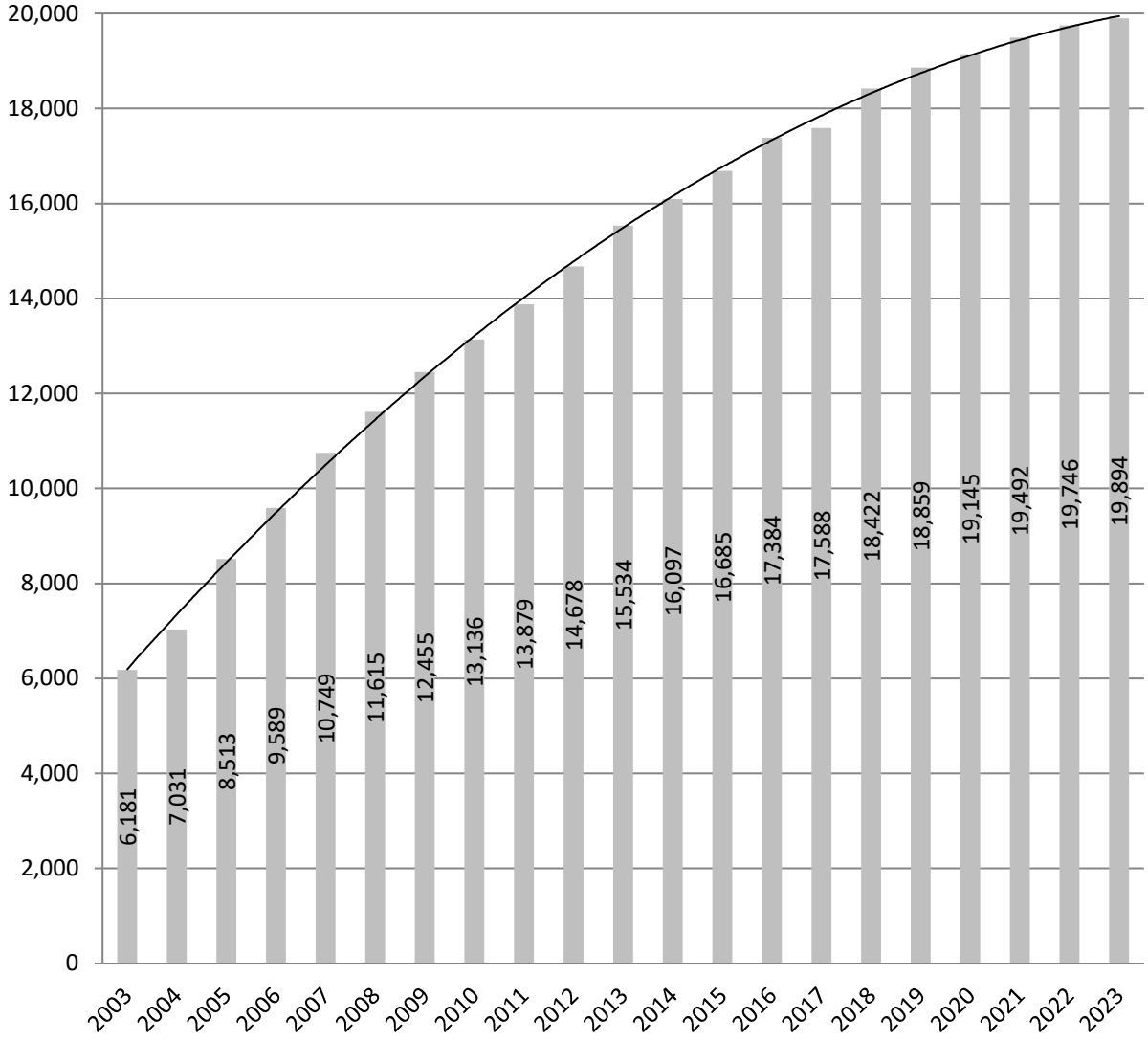


Figure 3.2
Historical Growth Rates

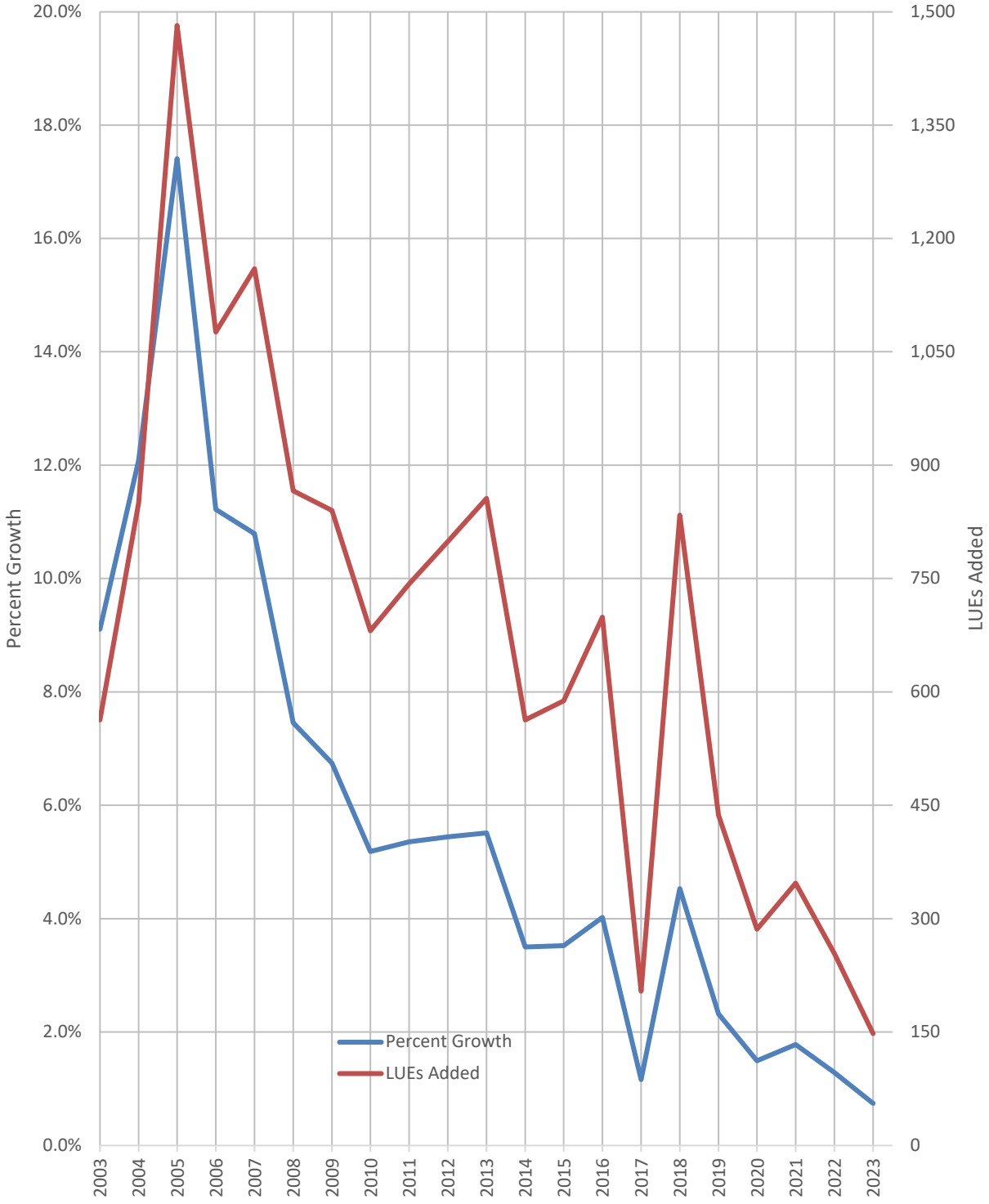


Figure 3.3
Projected Year End LUEs

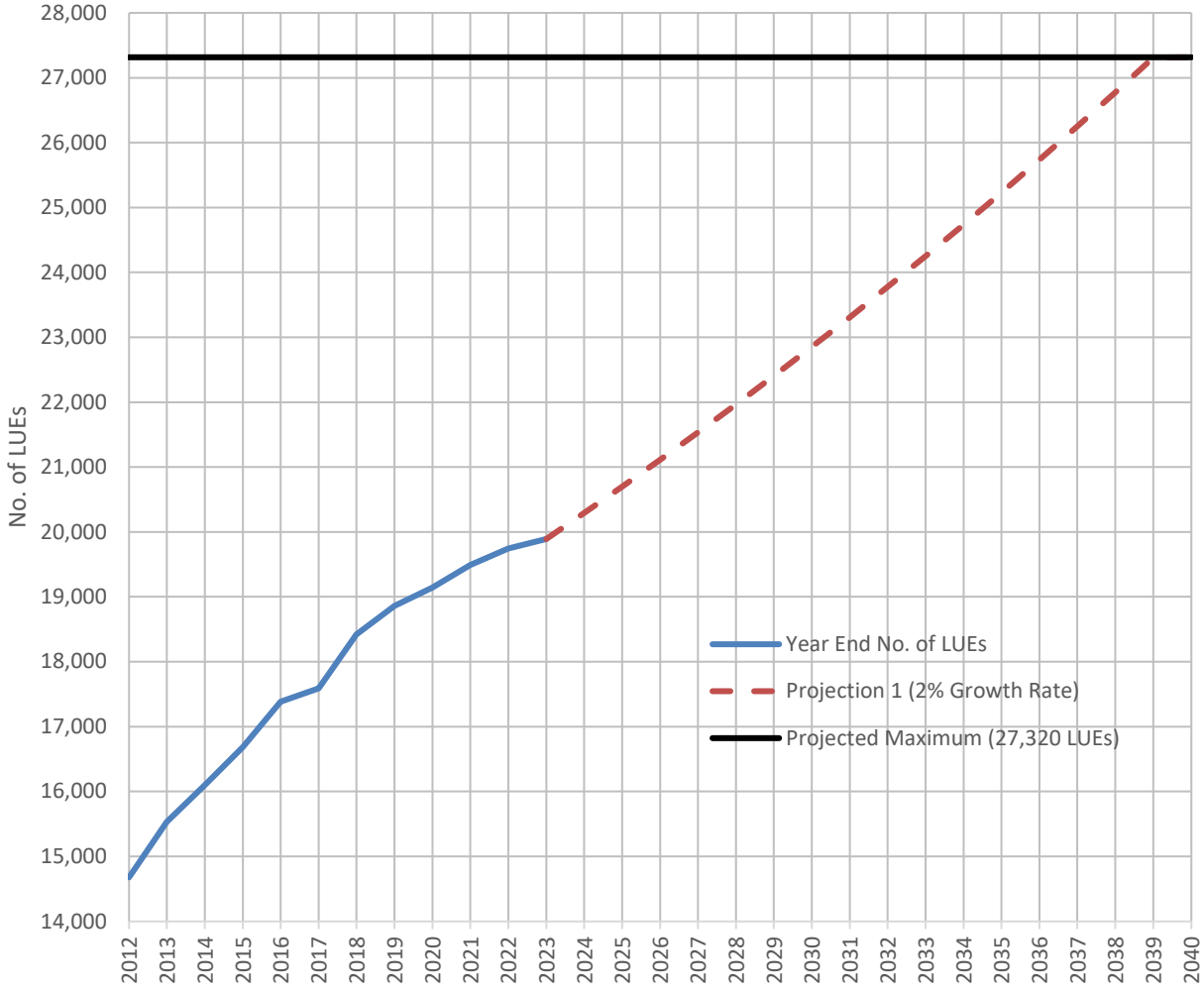


Figure 3.3 shows the projected year end number of LUEs in the District using an average annual growth rate of 2%, with predicted build-out reached in 2040. Since construction of improvements to serve build-out will need to be completed within 10-years the Capital Improvement Plan includes the improvements to meet the projected ultimate demands of the District.

Many different factors affect growth and development within an area. These include, but are not limited to, the local and regional economy, development restrictions, environmental constraints, the current housing inventory, and existing and proposed roadways. The District does not control any of these factors, and therefore projection is difficult. As also mentioned, if centralized wastewater service becomes available to the unserved portions of the District assumed densities in these areas could increase. It is therefore essential that projected water demand and system limitations be evaluated and updated on a routine basis. As such, it is recommended that the number of LUEs in each Pressure Plane and the growth rate be evaluated on an annual basis.

4.0 PROJECTED SERVICE DEMANDS AND SUPPLY

Service demands for the District are projected based on historic water usage records. These records offer valuable insight in evaluating the existing system as well as planning for future growth. As discussed in Section 3.3, the LUE data used is the number of LUEs that were in service at the time and not the number of LUEs that were in place (a property can have a meter but not currently be receiving service). Historic District water usage and quantification of projected service demands are discussed herein.

4.1 Historic Water Use

The District records water usage through meters that are located at each of the two (2) existing water treatment plants. Table 4.1 shows a compilation of the District's historic water usage over the previous 20-years (2004 – 2023). Figure 4.1 charts these values along with annual precipitation for the Austin area. The main items noted are (1) markedly reduced usage for the 9-year period from 2013 through 2021 following the previous drought, (2) an increase in usage for 2022 when extreme hot and dry weather was experienced, and (3) a decrease in usage from 2022 to 2023 despite continued dry weather.

Figure 4.1
Historic Water Use

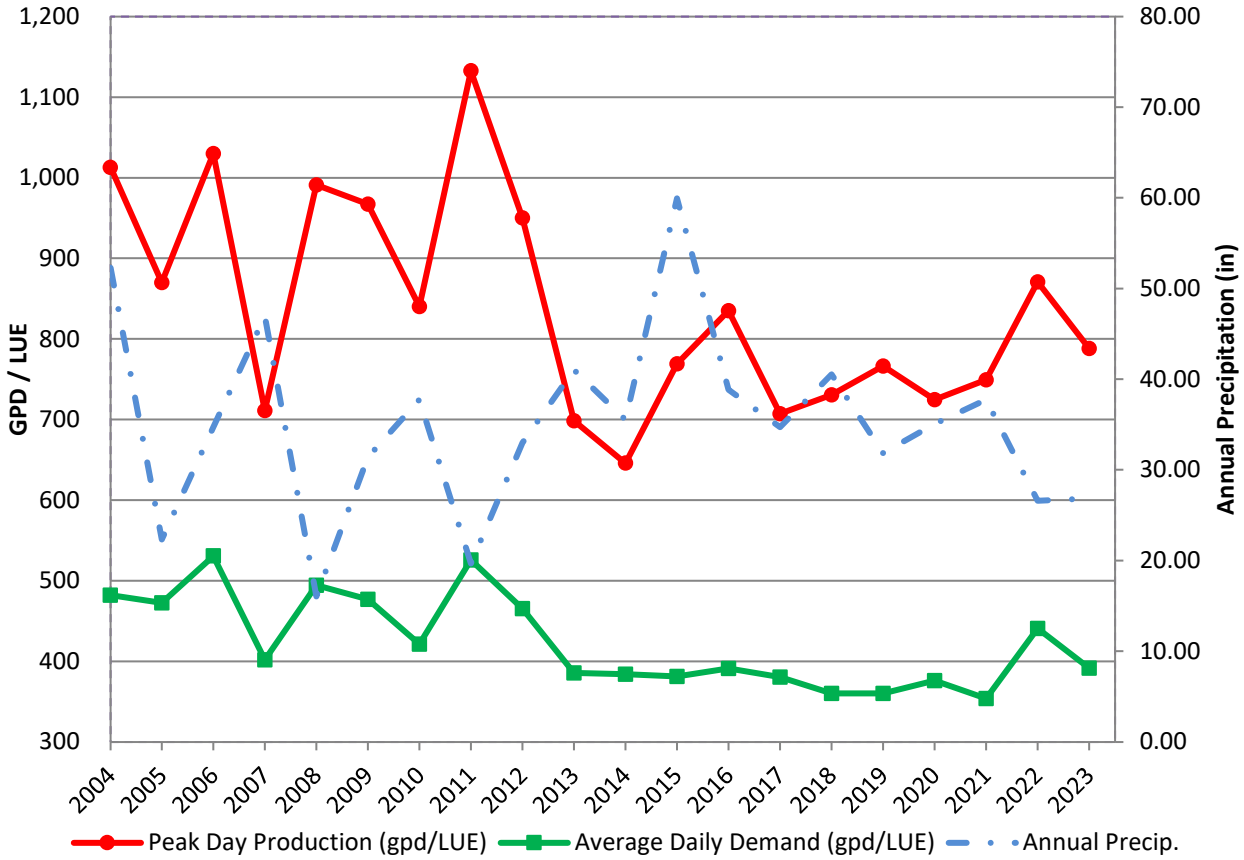


Table 4.1
Historic Water Use

Year	Year End No. of LUEs	Average LUEs	No. of LUEs Added	Raw Water Pumped (Ac-ft)	Raw Water Pumped (K gal)	Raw Water Pumped (gpd/LUE)	Peak Day Production (gpd)	Peak Day Production (gpd/LUE)
2004	7,031	6,606	850	3,566.1	1,162,000	481.9	6,690,000	1,012.7
2005	8,513	7,772	1,482	4,114.7	1,340,768	472.6	6,760,000	869.8
2006	9,589	9,051	1,076	5,380.3	1,753,175	530.7	9,322,000	1,029.9
2007	10,749	10,169	1,160	4,576.1	1,491,127	401.7	7,230,000	711.0
2008	11,615	11,182	866	6,193.5	2,018,161	494.5	11,080,000	990.9
2009	12,455	12,035	840	6,428.2	2,094,626	476.8	11,639,000	967.1
2010	13,136	12,796	681	6,040.0	1,968,139	421.4	10,750,000	840.1
2011	13,879	13,508	743	7,953.0	2,591,495	525.6	15,300,000	1,132.7
2012	14,678	14,279	799	7,444.9	2,425,930	465.5	13,565,000	950.0
2013	15,534	15,133	856	6,532.6	2,128,659	385.4	10,567,000	698.3
2014	16,097	15,723	563	6,761.6	2,203,270	383.9	10,227,000	646.0
2015	16,685	16,346	588	6,983.0	2,275,420	381.4	12,575,000	768.9
2016 [(a)]	17,384	17,084	699	7,486.5	2,439,479	391.2	14,341,000	835.0
2017	17,588	17,691	204	7,536.2	2,455,682	380.3	12,425,000	707.1
2018	18,422	18,168	834	7,330.9	2,388,774	360.2	13,342,000	730.6
2019	18,859	18,741	437	7,564.3	2,464,841	360.3	14,374,000	766.2
2020	19,145	19,122	286	8,051.2	2,623,473	375.9	13,862,000	724.7
2021 [(b)]	19,492	19,341	347	7,665.4	2,497,774	353.8	14,407,000	749.1
2022	19,746	19,658	254	9,705.8	3,162,645	440.8	17,175,000	870.7
2023	19,894	19,872	148	8,711.1	2,838,505	391.3	15,549,000	788.3
Previous 20 Years (2004 - 2023):								
		Average:	**686**			**423.8**		**839.5**
		Minimum:	**148**			**353.8**		**646.0**
		Maximum:	**1,482**			**530.7**		**1,132.7**
Previous 10 Years (2014 - 2023):								
		Average:	**436**			**381.9**		**758.7**
		Minimum:	**148**			**353.8**		**646.0**
		Maximum:	**834**			**440.8**		**870.7**
Previous 5 Years (2019 - 2023):								
		Average:	**294**			**384.4**		**779.8**
		Minimum:	**148**			**353.8**		**724.7**
		Maximum:	**437**			**440.8**		**870.7**

Notes: a. 2016: Peak Day Production of 16.726 MGD occurred in July due to initial performance tests being conducted at MWTP.
b. 2021: Peak Day Production from February (Winter Storm Uri). 2nd Highest occurred in Sept: 12.122 MGD, 624.1 gpd/LUE.

The pattern of decreased usage that began after the previous drought and continued through 2021 was discontinued with a marked increase in 2022. The demands in 2023 have decreased from 2022 by about 10%, even with continued dry conditions, but not quite back to the values observed in the 9-years between 2013 and 2021. It does not appear this period of dry conditions is over yet, but it is noted that to date the spikes in usage are not to the levels seen prior to 2013. Continued evaluation is necessary, but while the System will continue to experience years of increased usage during hot and/or dry periods it currently appears that these extreme years (such as 2022) are trending lower than in previous periods.

The usage pattern is affected by District conservation policies. As noted, weather plays a large role but conservation policies, such as restricting irrigation, are also a large contributor. The District's Design Standards were reduced with the 2022 Study with the assumption that conservation policies, that are at least as strict as current policies, will remain in place. The continued evaluation of the usage patterns is recommended due to the uncertainty of the effects that a prolonged drought may cause.

4.2 Design Standards

Design standards are established to ensure that the water system can provide adequate service, including the volume and quality of water produced and the ability to maintain a minimum system pressure. The TCEQ sets minimum requirements for water systems in TCEQ Chapter 290, Subchapter D: Rules and Regulations for Public Water Systems. The District establishes its Design Standards based on historical water usage and then compares its Design Standards to ensure they meet or exceed the requirements set forth by TCEQ. The following is a summary of the TCEQ minimum requirements (from Section 290.45(b)(2) unless noted otherwise) and the Design Standards used by the District.

4.2.1 TCEQ Design Standards

Table 4.4
TCEQ Design Standards Summary

Criteria	Minimum Standard
Water Treatment Plant	
Treatment Capacity:	0.6 gpm / connection, and ability to meet max daily demand.
Raw Water Pumps:	0.6 gpm / connection, and ability to meet max daily demand.
Covered Clearwell:	5% of daily water treatment plant capacity.
Storage	
Total Storage:	200 gallons / connection
Elevated Storage:	100 gallons / connection
Pressure Tank:	20 gallons / connection (if elevated storage not used)
Pumping (Each Pump Station or Pressure Plane)	
If < 200 gallons / connection of elevated storage is provided:	2 or more pumps with a total capacity of 2.0 gpm / connection, or that have a total capacity of at least 1,000 gpm and the ability to meet peak hourly demands with the largest pump out of service, whichever is less.
If ≥ 200 gallons / connection of elevated storage is provided:	2 or more pumps with a minimum capacity of 0.6 gpm / connection.
Distribution	
Peak Hourly Flow:	• 1.25 x max daily demand if elev. storage met (Section 290.38(60)) • 1.5 gpm / connection (Section 290.44(d))

4.2.2 Travis County WCID No. 17 Design Standards

The District uses historical water usage records to establish its Design Standards to ensure that adequate service is provided. In all cases, the District's Design Standards meet or exceed the minimum criteria established by TCEQ. To ensure the System remains capable of providing adequate service it is recommended that Design Demand Values and corresponding Design Standards be evaluated on an annual basis.

- Average Day Demand
  Historically the Average Day Demand value has been established by averaging the values recorded over the previous 10-years, which results in a value of 382 gpd/LUE for the evaluation period of 2014 - 2023. This matches the 10-year average for the previous evaluation period of 2013 – 2024. No change is recommended to the Design Value and, as with the 2022 Study, a 10% safety factor to obtain a design value of 425 gpd/LUE. This safety factor has been added to account for years such as 2022 and the uncertainty of how long this increase will continue.
- Peak Day Demand
  The Peak Day Demand design value was again calculated by averaging the maximum value recorded over the previous 5-years and the previous 10-years, then adding a 10% safety factor. This equates to 958 gpd/LUE, the same as with the 2022 Study. Therefore, no change to the design value has been made.
- Storage
  The Storage design standards are based on the Average Day Demand and Peak Day Demand design values. The Storage design standards have not been revised since neither Demand design value has changed.
- Pumping
  The Pumping design standards are based on the Peak Day Demand design value. Since the Peak Day Demand design value has not been revised, the Pumping design values remain unchanged.

Table 4.5
Travis County WCID No. 17 Design Demand Values

	Design Value	Previous Value	Percent Change	Basis
Average Day Demand	**425 gpd/LUE**	425 gpd/LUE	0%	Average of previous 10-years plus 10%
Peak Day Demand	**958 gpd/LUE (0.665 gpm/LUE)**	958 gpd/LUE (0.665 gpm/LUE)	0%	Average of maximum value seen over previous 5-years and previous 10-years, plus 10%.
Peak Hour Demand	**1.5 gpm/LUE + Fire Flow**	1.5 gpm/LUE + Fire Flow	0%	TCEQ Section 290.44(d)

Table 4.6
Travis County WCID No. 17 Design Standards

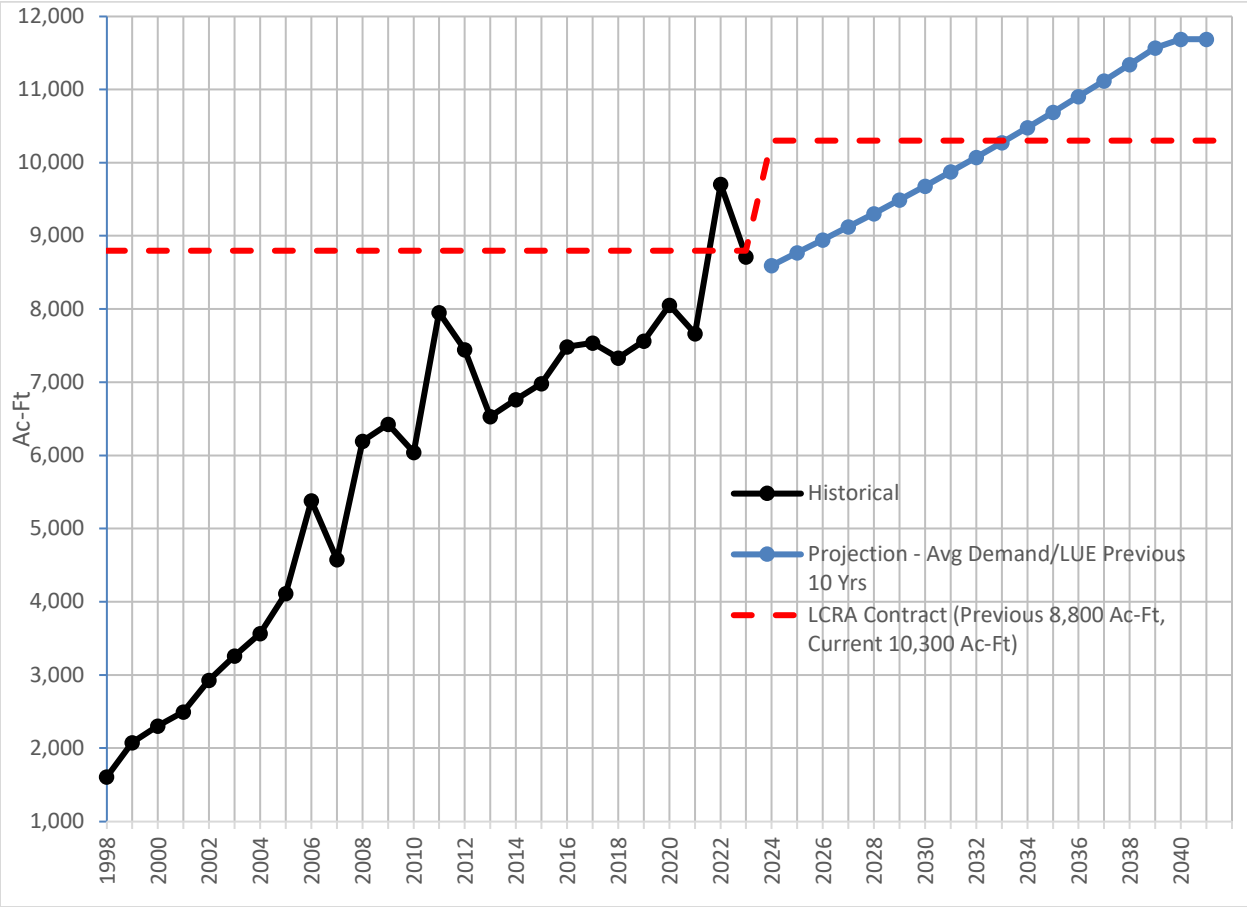
Criteria	TCEQ Minimum Standard	WCID 17 Minimum Standard	WCID 17 Basis
Water Treatment Plant Capacity	0.6 gpm / conn.	**0.665 gpm / LUE**	Peak Day Demand
Storage			
Total Storage	200 gal / conn.	**425 gal / LUE**	Avg. Day Demand
Clearwell (WTP)	48 gal / LUE (5% of Pk Day)	**96 gal / LUE**	10% of Peak Day Demand
Elevated Storage	100 gal / conn.	**192 gal / LUE**	20% of Peak Day Demand
Pumping			
Raw Water Pumps	0.6 gpm / conn.	**0.665 gpm / LUE**	Peak Day Demand
High Service Pumps	0.6 gpm / conn.	**0.80 gpm / LUE**	1.2 x Peak Day Demand
Booster/Transfer Pumps	0.6 gpm / conn.	**0.665 gpm / LUE**	Peak Day Demand

4.3 Raw Water Source

The District obtains surface water from Lake Travis pursuant to a contract with the LCRA, which authorizes a withdrawal of up to 10,300 acre-feet per year, or an average of 9.195 million gallons per day (MGD). The contract with LCRA for 8,800 acre-feet per year was executed in 1985, and was renewed May 23, 2001, for a contract period of 50 years. The contract was then amended on April 18, 2024, to increase the authorization to 10,300 acre-feet per year.

Figure 4.2 – Raw Water Use shows the historical raw water usage since 1998 and a projection of future use through projected build-out. The projection assumes an average daily demand of 381.9 gpd/LUE, equal to the average seen over the previous 10-years (2014 – 2023). It is projected that the District will use an average of 11,688 ac-ft/yr when the System reaches anticipated build-out of 27,320 LUEs.

Figure 4.2
Raw Water Usage



5.0 EXISTING FACILITIES

Service is provided by two (2) water treatment plants (WTPs) that distribute water through eight (8) Pressure Planes (PPs). A schematic of the System is shown on Attachment 'C', a map of the Pressure Planes on Attachment 'D', and an inventory of the water storage tanks on Attachment 'F'. The Eck Lane WTP serves the area of the District west of Mansfield Dam (PPs 4 – 8). The Mansfield WTP serves the area of the District east of Mansfield Dam (PPs 1 – 3). Both WTPs have the ability to transfer water to the other's service area.

Two (2) improvement projects included in the 2018 Study are currently in construction. Expansion of the Mansfield WTP from its previous 6 million gallons per day (MGD) capacity to its current capacity of 12 MGD is substantially complete, with punch list items remaining. The contract for the Quinlan Park Road (QPR) Water Main is also under construction and is approximately 88% complete. Both projects are included in this Existing Facilities Section for the purposes of System evaluation but because costs are not final each is listed under proposed in the Water Capital Improvements Inventory and Cost used to calculate the Impact Fee. The cost included for the Mansfield WTP Expansion is the current Contract with no additional contingency, due to it being at 99% complete. The cost included for the QPR Water Main is the current Contract plus 3% contingency due to the late stage of the project.

5.1 Water Treatment Facilities

Both the Eck Lane WTP (EWTP) and Mansfield WTP (MWTP) utilize micro-filtration membranes for treatment, and both WTPs capture the backwash from the primary membranes and treat the backwash through a separate set of micro-filtration membranes. This process contributes to the high treatment efficiencies of over 98% seen at both WTPs.

5.1.1 Eck Lane WTP

The EWTP is located at 3812 Eck Lane and has been expanded to its ultimate capacity of 16 MGD. It was constructed through a number of improvement projects. In 2001 the plant was converted from a conventional filtration plant to the current micro-filtration membrane plant. It was expanded to 8.0 MGD in 2003, a backwash recovery membrane system was added in 2004, expanded to 12.0 MGD in 2007, and then expanded to its current capacity of 16.0 MGD in 2010.

Raw water is pumped from Lake Travis to a raw water storage tank, by way of a floating barge constructed in 2004 that contains eight (8) 1,600 gpm vertical turbine pumps and has a firm pumping capacity of 11,200 gpm. Firm pumping capacity is defined as the pumping capacity with the largest pump out of service. Raw water is then pumped from the raw water storage tank through basket strainers and then through the primary micro-filtration membrane units. The primary treatment process consists of two (2) parallel 8 MGD treatment trains, Plants 'A' and 'B'. Backwash water from the membranes in Plant 'A' and 'B' is collected and pumped through a separate back-wash recovery micro-filtration membrane unit, Plant 'C'. Filtrate from Plants 'A', 'B', and 'C' is disinfected with chloramines. Potable water from Plant 'A' is stored in Clearwell No. 3 and pumped into Service Level 4 by four (4) 2,100 gpm vertical turbine pumps. Potable water from Plants 'B' and 'C' is stored in Clearwells No. 1 and 2 and pumped into Pressure Plane

4 by five (5) 2,100 gpm centrifugal pumps. A maximum of six (6) 2,100 gpm pumps are able to operate at the same time, giving a combined firm pumping capacity of both sets of High Service Pumps of 12,600 gpm or 18.14 MGD.

Backwash from the backwash recovery unit is dosed with hydrated lime and sodium hydroxide (caustic) and routed through the backwash clarifier, where the thickened solids are removed and hauled to one of the wastewater treatment plants. The supernatant from the clarifier is routed back through the backwash recovery membranes.

5.1.2 Mansfield WTP

The MWTP is located at 4506 Ranch Road 620 North and has a current capacity of 12 MGD. Construction of the initial 6 MGD WTP was completed and placed on-line in 2016. Completion of final punch list items for the 12 MGD expansion is anticipated to be complete by fall 2024.

Raw water is drawn from Lake Travis through a fixed intake, with three (3) intake locations at elevations 555, 600, and 645. Screens are installed on the top two (2) intake locations and the bottom intake currently has a blind flange with the ability to install a screen if the Lake level dictates. Raw water flows by gravity through the intake and horizontal intake pipe to a vertical wet well on shore. Six (6) 1,840 gpm vertical turbine pumps are installed on top of the wet well, with a firm pumping capacity of 9,200 gpm. Raw water is dosed with polyaluminum chloride or similar coagulant prior to entering the six (6) flocculation basins. Flocculated water is then pumped through basket strainers and then through the primary micro-filtration membrane units. Backwash water from the membranes is collected, dosed with a coagulant, and routed to a plate settler. Supernatant from the plate settler is pumped through the backwash recovery membranes. Filtrate from both the primary and backwash recovery membranes is disinfected with chloramines. Potable water is then stored in two (2) existing clearwells. Potable water is pumped from the clearwell(s) into PP-3 by six (6) 2,550 gpm high service pumps with a firm pumping capacity of 12,750 gpm. Backwash from the backwash recovery membranes and settled water from the plate settler is collected and either pumped to the Steiner Ranch wastewater collection system or used on-site for irrigation.

5.2 Pressure Planes

Topography of the District's Service Area necessitates the establishment of different water service levels (pressure planes) to facilitate customer service within the desired range of minimum and maximum water pressures. Table 5.1 summarizes the eight (8) Pressure Planes with the associated design ground elevation each serves. There are areas within some of these Service Levels that are higher than the design maximum ground elevation that are served by booster pumps and areas that are lower than the minimum where a pressure reducing valve (PRV) is utilized.

Table 5.1
Water Service Levels

Pressure Plane No.	Description	Overflow Elevation (ft)	Maximum Ground Elevation (ft) [(a)]	Minimum Ground Elevation (ft) [(b)]
1	Comanche Trail Elevated Pressure Plane	1210	1115	1025
2	Comanche Trail Pressure Plane	1130	1035	945
3	Steiner Ranch Pressure Plane	981	886	796
4	Central Pressure Plane	1040	945	855
5	Hudson Bend Pressure Plane	970	875	785
6	Big Bills Pressure Plane	1130	1035	945
7	High School Pressure Plane	1202	1107	1017
8	Highway 71 Tank Pressure Plane	1300	1205	1115

(a) Based on 35 psi (80') minimum static pressure with the storage tank 15' below overflow.

(b) Based on 80 psi (185') maximum static pressure

5.2.1 PP-1 – Comanche Trail Elevated Pressure Plane

PP- 1, the "Comanche Trail Elevated Pressure Plane," serves the area in the northeastern most part of the District, as shown on Attachment 'D'. This Pressure Plane has an overflow elevation of 1210 feet mean sea level (MSL). Elevated storage for PP-1 is provided by the 200,000-gallon Comanche Trail Elevated Pedesphere, with additional ground storage provided by the 1,000,000-gallon Comanche Trail Tank No. 1 and the 75,000-gallon Comanche Trail Tank No. 2. Water is pumped from Comanche Trail Tanks No. 1 and No. 2 to the elevated pedesphere tank by the Comanche Trail Pump Station, with two (2) 1,250 gpm centrifugal pumps that provide a firm pumping capacity of 1,250 gpm.

5.2.2 PP-2 – Comanche Trail Pressure Plane

PP-2, the "Comanche Trail Pressure Plane," serves the area south of PP-1 and north of PP-3, as shown on Attachment 'D'. This Pressure Plane has an overflow elevation of 1130 feet MSL. Storage for PP- 2 is provided by the 1,000,000-gallon Comanche Trail Tank No. 1 and the 75,000-gallon Comanche Trail Tank No. 2. Water is pumped from the Steiner Ranch Tanks No. 1 and 2 to the Comanche Trail Tanks No. 1 and 2 by the Steiner Ranch Pump Station. This pump station consists of three (3) 1,500 gpm vertical turbine pumps, with a firm pumping capacity of 3,000 gpm.

5.2.3 PP-3 – Steiner Ranch Pressure Plane

PP-3, the "Steiner Ranch Pressure Plane," serves the area east of Lake Austin and west of PP-2, as shown on Attachment 'D'. This Pressure Plane has an overflow elevation of 981 feet MSL. Storage for PP-3 is provided by the 500,000-gallon Steiner Ranch Tank No. 1, the 1,500,000-gallon Steiner Ranch Tank No. 2, and a portion of the 1,000,000-gallon Mountain View Elevated Tank. PP-3 is the base pressure plane for the District's System east of Mansfield Dam, receiving all flow from the Mansfield WTP and any supplementing flow from PP-4. Water is conveyed from PP-3 to PP-1 and then to PP-2. Water may be supplemented from PP-3 through two (2) methods. The first is through the 'Cloudy Ridge Valve', located on the Ranch Road 620 24-inch transmission main west of Mansfield Dam. This automatic flow control valve allows water to flow from PP-4 to the Mansfield WTP clear well, where it is then pumped into PP-3 by the Mansfield WTP high service pumps. The second method is through the 'Murfin Control Valve', located on a 12-inch transmission main on Murfin Road. This automatic flow control valve allows water to flow from PP-4 directly into PP-3.

The 2018 Study identified a need to increase transmission capacity on QPR, beginning where the 16" water line from the existing storage tanks enters QPR, to the south, ending at River Ridge Elementary. The QPR Water Main project is under construction and is anticipated to be complete in 2024.

It is anticipated that regular supplementation from PP-4 will no longer be needed upon completion of the QPR Water Main. At this point the Mountain View Elevated Tank will no longer provide storage to PP-3.

5.2.4 PP-4 – Central Pressure Plane

PP-4, the "Central Pressure Plane," serves the area west of Lake Austin and east of PP-5, as shown on Attachment 'D'. This Pressure Plane has an overflow elevation of 1040 feet MSL. Storage for PP-4 is provided by three (3) storage tanks, the 1,000,000-gallon Mountain View Elevated Tank, the 1,200,000-gallon Big Daves Tank, and the 360,000-gallon Round Mountain Tank. The 300,000-gallon McCormick Mountain Tank previously served PP-4 but has been removed from service.

PP-4 is the base pressure plane for the District's system west of Mansfield Dam and receives all of the flow from the existing Eck Lane WTP. Water is transported through the Eck Lane WTP high service pumps to the existing water storage tanks. Water is then transported to the downstream Pressure Planes via the Ranch Road 620 water transmission mains. A pump station is located at the Big Daves Tank, containing three (3) 2,000 gpm vertical turbine pumps with a firm pumping capacity of 4,000 gpm. This Big Daves Pump Station pumps water from Big Daves Tank to the Round Mountain Tank, instead of filling the Round Mountain Tank from either the high service pumps or through gravity flow from Big Daves Tank. Big Daves Pump Station in effect divides the Central Pressure Plane, with the Eck Lane WTP high service pumps serving up to Big

Daves Tank and the Big Daves Pump Station serving from Big Daves Tank to Round Mountain Tank. The system capacity evaluations in subsequent Sections were performed both for the entire pressure plane and for both portions individually to reflect this.

5.2.5 PP-5 – Hudson Bend Pressure Plane

PP-5, the "Hudson Bend Pressure Plane," serves the northern portion of the Hudson Bend peninsula, as shown on Attachment 'D'. This Pressure Plane has an overflow elevation of 970 feet MSL. Elevated storage is provided by the 300,000-gallon Hudson Bend Tank and ground storage provided by the 1,000,000-gallon Mountain View Tank and other storage tanks in PP-4. Water gravity flows from PP-4 to the Hudson Bend Tank, and therefore no booster pumps are needed.

5.2.6 PP-6 – Cardinal Hills Pressure Plane

PP-6, the "Cardinal Hills Pressure Plane," serves the area southwest of PP-4 and northeast of PP-7, as shown on Attachment 'D'. This Pressure Plane has an overflow elevation of 1130 feet MSL. Storage for PP-6 is provided by the 1,000,000-gallon Cardinal Hills Tank. The existing Round Mountain Pump Station is located adjacent to the existing Round Mountain Tank and pumps water from the Round Mountain Tank to the Cardinal Hills Tank. This pump station consists of three (3) 1,250 gpm vertical turbine pumps and one (1) 3,500 gpm vertical turbine pump, with a firm pumping capacity of 3,750 gpm.

5.2.7 PP-7 – High School Pressure Plane

PP-7, the "High School Pressure Plane," serves an area in the southwestern portion of the District, southwest of PP-6, as shown on Attachment 'D'. This Pressure Plane has an overflow elevation of 1202 feet MSL. Ground storage for PP-7 is provided by the 100,000-gallon Lohmans Tank No. 1 and the 150,000-gallon Lohmans Tank No. 2. Elevated storage is provided by the 300,000-gallon High School Tank No. 1 and the 1,000,000-gallon High School Tank No. 2. Water flows by gravity from the existing Cardinal Hills Tank, PP-6, to the two (2) existing Lohmans tanks. Water is then pumped by the Lohmans Crossing Pump Station from the Lohmans tanks to the two (2) existing High School tanks. The Lohmans Crossing Pump Station was expanded in 2021 and now consists of four (4) 1,200 gpm centrifugal pumps, with a firm pumping capacity of 3,600 gpm.

5.2.8 PP-8 – Highway 71 Tank Pressure Plane

PP-8, the "Highway 71 Tank Pressure Plane," serves the area in the southwestern most portion of the District, as shown on Attachment 'D'. This Pressure Plane has an overflow elevation of 1300 feet MSL. Ground storage is provided by the 1,000,000-gallon High School Tank No. 2. Water is pumped from this tank by two (2) 1,800 gpm vertical turbine pumps, with a firm pumping capacity of 1,800 gpm, to the 500,000-gallon Highway 71 Elevated Tank.

6.0 SYSTEM EVALUATION

As noted in Section 1.0 – Introduction, Option 3 from the Capacity Study is being incorporated into the CIP with this 2024 Study. The associated set of improvements and operational changes will increase the amount of excess water treatment capacity available from the EWTP, increase the excess capacity available in the Pressure Planes located in the EWTP service area, and resolve current operational issues with the Round Mountain GST and Pump Station. The biggest operational change is the division of PP-4 (Central Pressure Plane) into PP-4A and PP-4B, and shifting PP-4A and PP-5 (Hudson Bend Pressure Plane) to be served by the MWTP. This means that the Mountain View EST will provide service to PP-4A, but not to PP-4B (remainder of current PP-4). The improvements included are discussed further in Section 7.0 – Proposed Improvements. The System Evaluation has been performed based on the proposed division of PP-4.

The system was evaluated using the Design Standards established in Section 4 – "Projected Service Demands and Supply" and a water model of the System. The water model includes the pump stations, storage tanks, and transmission mains, but not any of the smaller distribution lines. Results of the water model are included with the Capacity Study.

The Design Standards for water treatment plant capacity, storage, and pumping capacity were used to evaluate the system under the current condition of 20,476 LUEs and the projected ultimate condition of 27,320 LUEs. This evaluation was done for the overall system, the MWTP system (Pressure Planes 1-3, 4A, and 5), the EWTP system (Pressure Planes 4B, and 6-8), and each individual Pressure Plane. This analysis is included as Attachment 'E'. Any items at or above 95% capacity are shown in red on the Water System Evaluation Summary.

Once PP-4 is split, the service of PP-4A and PP-5 will be switched from the EWTP to the MWTP. PP-4A consists of the area surrounding the existing Mountain View EST and switching its service to the MWTP means that the Mountain View EST will not provide storage to PP-4B. It also means that water from the MWTP will flow through PP-4A and the Mountain View EST to PP-5. Because of this, once the switch is made the storage capacity of the Mountain View EST will be re-allocated. The allocated storage capacity of the existing Mountain View EST is currently at 50% each to PP-3 and PP-4. After the split is made, the allocated capacity will be 67% to PP-4A, 23% to PP-5, and 10% to PP-3.

The evaluation identified several items in the system that will require improvement in order for the District to continue to provide adequate service through projected build-out of the Service Area and one (1) improvement needed to meet the approved Emergency Preparedness Plan, as follows:

1. PP-4 (Proposed PP-4B) Transmission Capacity – Included in 2018 Study
2. PP-4B Storage Capacity
3. PP-4A and PP-4B Functionality
4. PP-6 Booster Pump Capacity - Included in 2022 Study but revised with 2024 Study
5. PP-6 Elevated Storage Capacity – Included in 2022 Study
6. PP-6 Lohmans Spur Area Transmission Capacity – Included in 2018 Study

7. PP-7 Booster Pump Capacity
8. MWTP Treatment Capacity
9. MWTP WTP Back-Up Power – Included in 2022 Study

The division of PP-4 and switching PP-4A with the associated Mountain View EST to the MWTP service area creates the need for additional storage in PP-4B. Two (2) control valves are necessary when the division of PP-4 is made to assist with functionality. The capacity of the Lohmans Pump Station, feeding PP-7 and PP-8, will need to be increased to meet an increase in the anticipated demand. Shifting PP-4A and PP-5 to the MWTP service area will increase the demand in this service area beyond the current 12 MGD capacity and drive the need for expansion.

6.1 Pressure Plane 4 (Proposed PP-4B): Transmission Capacity

The portion of Pressure Plane 4 (Central Pressure Plane) transmission system along RR 620 from Eck Lane to the Round Mountain Tank is currently near capacity and is projected to be deficient to serve the ultimate demands. This RR 620 transmission main is comprised of an approximate 2-mile long 24" line from Eck Lane to the Big Daves Water Storage Tank where it continues for approximately 1-mile as a 16" line to the Round Mountain Water Storage Tank.

This main serves a large portion of the Service Area and the flow rates needed to be transmitted through it create substantial head loss, which creates issues moving water from one storage tank to the next. Water from the Eck Lane WTP is currently pumped by the High Service Pumps to the Mountain View EST and the Big Daves Storage Tank. The evaluation assumed the McCormick Mountain Storage Tank is not in service. Water does not flow sufficiently by gravity at the flow rates required to the Round Mountain Storage Tank and so the Big Daves Pump Station pumps water from the Big Daves Storage Tank to this storage tank. Evaluation has identified three (3) areas of needed improvement along the RR 620 Transmission Main.

1. *Segment 1: Big Daves Storage Tank to the Round Mountain Storage Tank and Proposed PP-4 EST (Segment 1):*

The Big Daves Pump Station was previously installed to overcome the head loss in the 16" portion of the RR 620 transmission main by pumping from the Big Daves Water Storage Tank to the Round Mountain Storage Tank removing the need for the water to move by gravity. This pump station effectively divides the Pressure Plane in two and its pumping capacity needs to adequately serve the cumulative demand of the District located to the south of it. The Big Daves Pump Station is currently at capacity based on the Design Standards evaluation and will be insufficient to meet the projected ultimate demands. Operations and the water model confirm that all three (3) pumps are required during peak demand periods. The 2018 Study evaluated adding capacity by either expanding the capacity of the Big Daves Pump Station or installing a larger transmission main. It was determined that the larger transmission main is the best option.

A 30” water line will need to be installed to replace the existing 16” line from the Round Mountain Storage Tank site, north along RR 620 until it ends across from the Big Daves Storage Tank. This would eliminate the need for the Big Daves Pump Station, allowing it to be removed from service. It is projected this water main will be needed when the combined service demand in Pressure Planes 4B, 6, 7, and 8 reaches 11,500 LUEs, which is projected to occur the summer of 2028. This projection is based on the following assumptions and criteria:

- Assumes that all three (3) Big Daves pumps continue to operate (with no installed spare) until the new 30” water main is complete.
- Assumes that the regular supplementation from the Murfin Road Water Line is stopped. If supplementation is not stopped a larger water line and additional water storage would be needed.
- The point of need for these improvements is based on a threshold of allowing all 3 pumps to operate a maximum of 6 hours per day or a maximum of 8 starts per day, whichever occurs first. This threshold is an estimate of when this pump will begin to be taxed and is based on a 25% utilization of run time and starts per hour. The point at which this occurs is an estimate based on equal distribution of a 2% annual growth in demand. Due to the nature of these estimates, it is recommended that installation of these improvements occur as soon as reasonably practicable.

2. *Segment 2: Eck Lane to Big Daves Storage Tank (Segment 2):*

This segment consists of an existing 24” water line and is projected to continue to provide adequate service until the combined service demand in Pressure Planes 4B, 6, 7, and 8 reaches 11,623 LUEs. This is based on the velocity not exceeding 6 fps in the existing 24” ductile iron line. Segment 2 should be replaced with a 36” water line from Eck Lane to General Williamson Drive and a 30” water line from General Williamson to the end of Segment 1 across from the Big Daves Storage Tank, which will maintain peak velocities within an acceptable range, maintain capacities of the High Service Pumps, increase system functionality, lower electrical costs, and lower surge (water hammer) pressures.

6.2 Pressure Plane 4B Storage Capacity

When PP-4 is divided and PP-4A and the Mountain View EST are shifted to the MWTP service area, it will create a need for additional storage capacity for PP-4B. A new 1.85 million gallon (MG) PP-4B Elevated Storage Tank (EST) is proposed to address this deficiency. This new EST is needed before PP-4 is divided or when the demand of the existing PP-4 reaches 7,217 LUEs.

6.3 Pressure Plane 4A and 4B Functionality

As discussed further in the Capacity Study, 2 control valves will be needed to allow the division of PP-4 and to support the MWTP serving PP-4A. The first is an isolation valve on the RR 620 existing 24” water main between Eck Ln and Hudson Bend Rd., to allow PP-4 to be divided. A flow control valve is needed on the existing 24” water main just north of where the MWTP

discharge line connects to it, to allow flow to be controlled into PP-3. Without this flow control valve flow will always go to PP-3 unless the Mountain View EST is full and will also subject PP-3 to the higher pressure of PP-4A at all times (instead of only when the Steiner Ranch GSTs need to be filled). These improvements are needed when PP-4 is divided. In addition, a new gate valve is needed on the existing 24" RR 620 Water Main between Eck Ln and Hudson Bend Rd. to allow the pressure plane to be divided.

6.4 Pressure Plane 6 Booster Pump Capacity

Evaluation of the firm pumping capacity using the Design Standards show that this pump station is currently at 98% capacity and is projected to be insufficient under projected ultimate demands. The water model confirms the need for additional pumping capacity to maintain adequate levels in the Cardinal Hills Storage Tank during projected ultimate peak day demands. The existing Round Mountain Pump Station has a firm capacity of 3,750 gpm.

It is recommended to construct a new booster pump station (BP-4A) with a capacity of 7,500 gpm to meet ultimate anticipated demands in Pressure Planes 6-8. Locating BP-4A and PP-4B EST at the recommended site, or another site in close proximity to the Round Mountain GST, will allow this pump station to take suction from either storage tank and for either tank to be removed from service during the low demand period of the year. It is anticipated this additional capacity will be needed when the combined service demand in Pressure Planes 6-8 reaches 6,041 LUEs.

6.5 Pressure Plane 6 Elevated Storage Capacity

Pressure Plane 6 is projected to have insufficient elevated storage capacity under the projected ultimate demand of 2,752 LUEs. A new PP-6 EST is proposed to address this insufficiency. As part of the Lohmans Defined Area UDCA a site has been identified and will be provided for this EST. It is anticipated that a 0.25 MG EST will provide adequate storage and allow the existing Cardinal Hills Storage Tank to be removed from service during the lower demand portion of the year. It is anticipated this capacity will be needed when the demand in PP-6 reaches 2,207 LUEs, although earlier construction would allow the Cardinal Hills Storage Tank to be removed from service sooner and likely result in lower costs.

6.6 Pressure Plane 6 Lohmans Spur Area Transmission Capacity

As initially identified in the 2018 Study, an additional 12" water line from the main on RR 620 to the existing fill line for the two (2) existing storage tanks is needed. This proposed water main would parallel the existing 12" water line presently used to fill the two (2) existing Lohmans Storage Tanks. Present evaluation has confirmed the need for this additional water main to maintain velocities within an acceptable range. If this water line is not installed the hydraulics in the system will still allow the Lohmans Storage Tanks to be filled at 3,600 gpm but will result in line velocities of approximately 8.5 fps. Under existing conditions, it is estimated the line velocities are approximately 6.5 fps. Installing the proposed 12" water line will result in line

velocities of approximately 5.3 fps at a fill rate of 4,000 gpm. Operating at high line velocities results in higher surge / water hammer pressures and typically results in more frequent issues, including line breaks. We have established a recommended threshold of 7.5 fps, which corresponds with a combined service demand in Pressure Planes 7 and 8 of 4,350 LUEs. This could be pushed further out if desired or warranted by conditions such as having the line installed along with TxDOT road improvements.

6.7 Pressure Plane 7 Booster Pump Capacity

The Lohmans Pump Station, feeding Pressure Plane 7, has a firm pumping capacity of 3,600 gpm. The anticipated demand in Pressure Planes 7 and 8 have increased since the 2018 Study and it is now anticipated that a firm capacity of 4,000 gpm will be needed to serve ultimate demands. It is anticipated that this additional capacity will be needed when the combined demand from PP-7 and PP-8 reaches 5,142 LUEs.

6.8 Mansfield WTP Capacity

Shifting Pressure Planes 4A and 5 to the MWTP service area will create the need to expand the capacity of this facility from its current capacity of 12 MGD to 14 MGD to meet ultimate peak day demands. It is anticipated that this additional capacity will be needed when the combined demand from Pressure Planes 1, 2, 3, 4A, and 5 reach 11,899 LUEs.

6.9 Mansfield WTP: Back-Up Power

A diesel-powered generator is proposed to be installed at the Mansfield WTP in accordance with the District's Emergency Preparedness Plan filed with TCEQ and to meet the State's requirements. The generator will have the capacity to support a minimum treatment capacity of 8 MGD at the Mansfield WTP in order to meet the projected average winter water usage at full build-out of the District.

6.10 Items of Note

6.10.1 Pressure Plane 4: Big Daves Pump Station

This Pump Station currently serves as a dividing point in the PP-4 (proposed PP-4B), pumping from the Big Daves Storage Tank south to the Round Mountain Storage Tank. Evaluation using the Design Standards show that this pump station is currently at capacity and is projected to be at over 150% of its capacity under projected ultimate conditions. As discussed in Section 6.1, expansion of the existing water transmission capacity along RR 620 through PP-4 (proposed PP-4B) is recommended. Once complete, the Big Daves Pump Station can be removed from service and its capacity issue will be resolved.

6.10.2 Pressure Plane 7: High School Pressure Plane Storage Capacity

Evaluation of the storage capacity shows elevated storage will be at 81% under projected ultimate conditions, but this includes the use of both the High School Storage Tank No. 1 and No. 2. Storage Tank No. 1 is currently off-line due to inadequate cycling and the associated difficulty in maintaining a chlorine residual. Utilizing only Storage Tank No. 2 it is projected that under ultimate conditions elevated storage capacity will reach 94%. The water model confirms that Storage Tank No. 2 will be at capacity, with the water surface elevation falling 20' or 50%, during projected ultimate peak day demands.

7.0 PROPOSED IMPROVEMENTS

Option 3 from the Capacity Study is being incorporated into the Capital Improvement Plan with this 2024 Study. The improvements identified in the Capacity Study as well as improvements described in Section 6 to address other System needs are included. These improvements will allow the District to continue to provide adequate water service to the Service Area for the 10-year planning period, when all proposed improvements will need to be in place to meet the needs of projected build-out of the Service Area.

PP-4 is proposed to be divided into PP-4A and PP-4B once improvements are in place to support the change. This division along with the proposed improvements will increase the amount of capacity in the Eck Ln WTP's service area for future growth and relieve operational issues in PP-4 (proposed PP-4B). Proposed PP-4A is shown in Figure 7.1 along with the existing valve that would need to be closed and a new proposed valve (included with the PP-4 Control Valves project) that is needed to make this division. The following need to be installed before making this division:

Required for PP-4 Division:

- PP-4B Elevated Storage Tank
- RR 620 Water Main Segment 1
- PP-4 Control Valves
- Required If Demand Exceeds Milestone:
    - RR 620 Water Main Segment 2 – If PPs 4B, 6-8 are at or above 11,623 LUEs.
    - Mansfield WTP Expansion to 14 MGD – If PPs 1-4A and 5 are at or above 11,899 LUEs.

Other System changes, in addition to the improvements listed, include:

- McCormick Mountain Tank: Remain off-line.
- Big Daves Pump Station: Abandon after RR 620 Water Main Segment 1 is installed.
- Big Daves Storage Tank: Can be abandoned after PP-4B EST is installed.

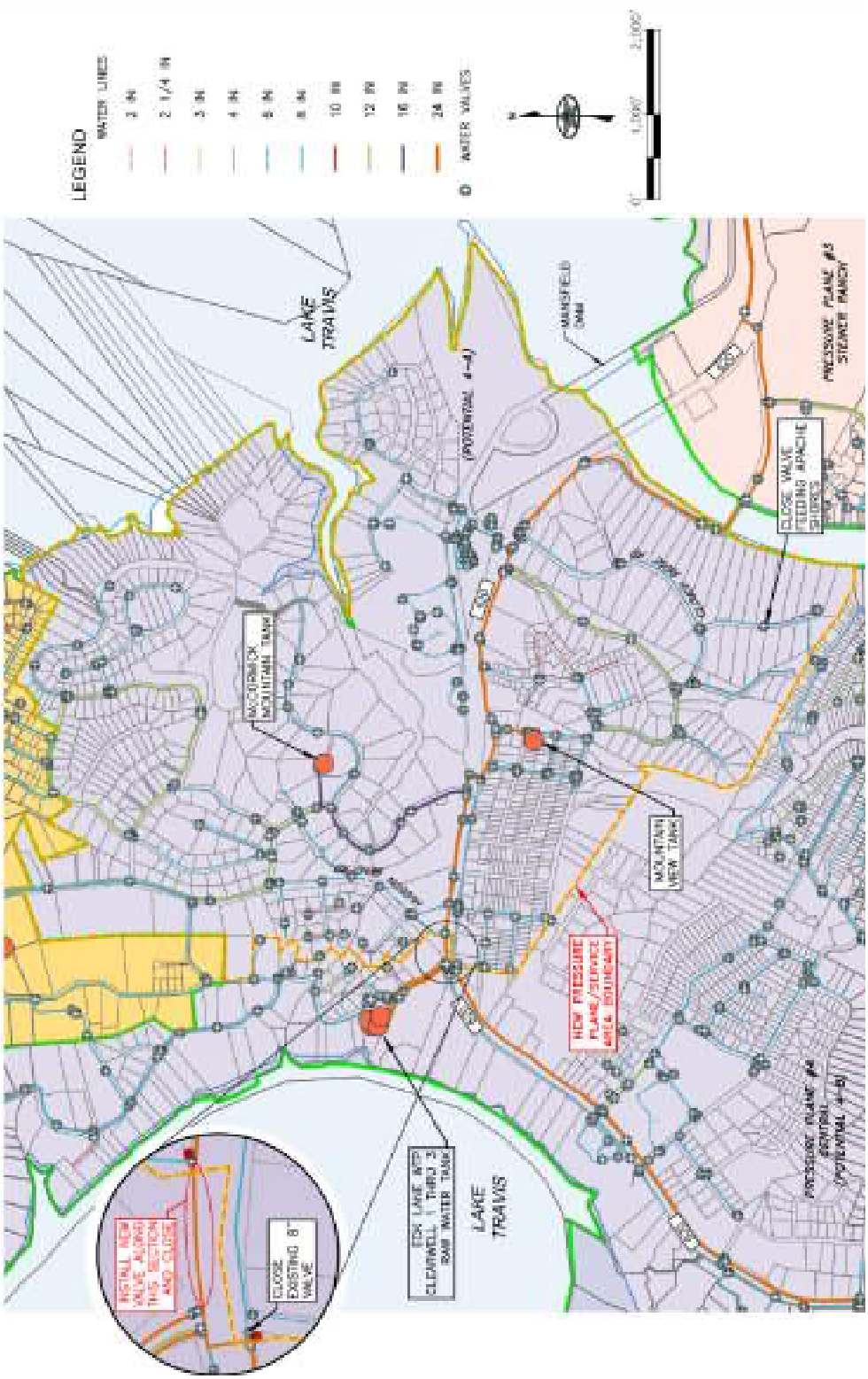


Figure 7.1
Pressure Plane 4-A

7.1 RR 620 Water Main Segments 1 & 2

RR 620 Water Main Segment 1 consists of installing approximately 5,900 linear feet (lf) of 30" water line to replace the existing 16" water line along RR 620 starting from where the two (2) existing 24" water lines from Big Daves Tank intersect RR 620 to the Round Mountain Tank site and replacing the tank fill valve assemblies at the Round Mountain Tank site. Installation of Segment 1 will eliminate the need for the Big Daves Pump Station and allow it to be abandoned or removed. The estimated cost to purchase a spare Big Daves Pump Station pump is included in this project cost, due to all 3 pumps being required to run during peak demand periods and not having an installed spare.

Segment 2 consists of approximately 11,000 lf of 30" and 36" water line to replace the existing 24" water line along RR 620 from the end of Segment 1, across from the Big Daves Tank, to Eck Lane. The section from the end of Segment 1 to General Williamson Dr. is proposed to be a 30" water line and a 36" water line for the remainder to Eck Ln. The velocity in the existing 24" water line at the projected ultimate peak flow would exceed 9 fps, higher than the recommended maximum of 6 fps. Increasing the size of this water line will provide for a projected peak velocity of approximately 5 fps. This will allow the capacity of the High Service Pumps to be maintained, and lower water hammer (surge) pressures and electrical costs. Segments 1 and 2 are shown on Figures 7.2 through 7.5.

Segment 1 is needed as soon as practical to relieve the Big Daves Pump Station that is currently at capacity, with the need to operate all 3 installed pumps to meet peak demands. It is projected that the combined service demand of Pressure Planes 4B, 6, 7, and 8 will exceed the capacity of all 3 Big Daves Pumps when this service area reaches 11,499 LUEs, which is projected to occur in February 2030. It is recommended that this water main be installed as soon as practical, so a date of need of May 2028 is listed for planning. It is projected Segment 2 will be needed when the combined service demand in Service Levels 4B, 6, 7, and 8 reaches 11,273 LUEs, which is projected to occur the summer of 2029.

Below are estimated schedules for each Segment to achieve completion by their projected date of need. An earlier start date for Segment 1 is desirable, because all three (3) pumps will need to operate at Big Daves Pump Station. It appears that construction of these mains will need to proceed prior to TxDOT beginning the RR 620 roadway improvements. Therefore, we have included easement acquisition in the schedule and improvements such as erosion controls and restoration that would be avoided if installed in conjunction with the road improvements.

Segment 1:

- Easement Acquisition (12 Months): February 2025 – February 2026
- Design (6 Months): August 2025 – February 2026
- Approvals (8 Months): February 2026 – October 2026
- Bidding & Contracts (3 Months): October 2026 – January 2027
- Construction (16 Months): January 2027 – May 2028

Segment 2:

- Design (6 Months): September 2026 – March 2027
- Approvals (8 Months): March 2027 – November 2027
- Bidding & Contracts (3 Months): November 2027 – February 2028
- Construction (18 Months): February 2028 – August 2029

Segment 1 & 2 Combined:

- Easement Acquisition (12 Months): February 2025 – February 2026
- Design (8 Months): November 2025 – July 2026
- Approvals (8 Months): July 2026 – March 2027
- Bidding & Contracts (3 Months): March 2027 – June 2027
- Construction (26 Months): June 2027 – August 2029

A portion of the water mains proposed with the 620 Water Main project will replace and relocate existing water mains that are in conflict with the proposed TxDOT road improvements project. The cost associated with relocating the existing mains will be funded from the utility line relocation fund that the District is collecting. The estimated present value of these relocations is $2,344,000 for Segment 1 and $4,359,000 for Segment 2. The estimated project costs listed below and used in this Study include deducting these amounts.

Table 7.1
RR 620 Water Main– Estimated Project Costs

Project	Estimated Project Cost
RR 620 Water Main Segment 1	$11,942,000
RR 620 Water Main Segment 2	$19,613,000
Total	**$31,555,000**

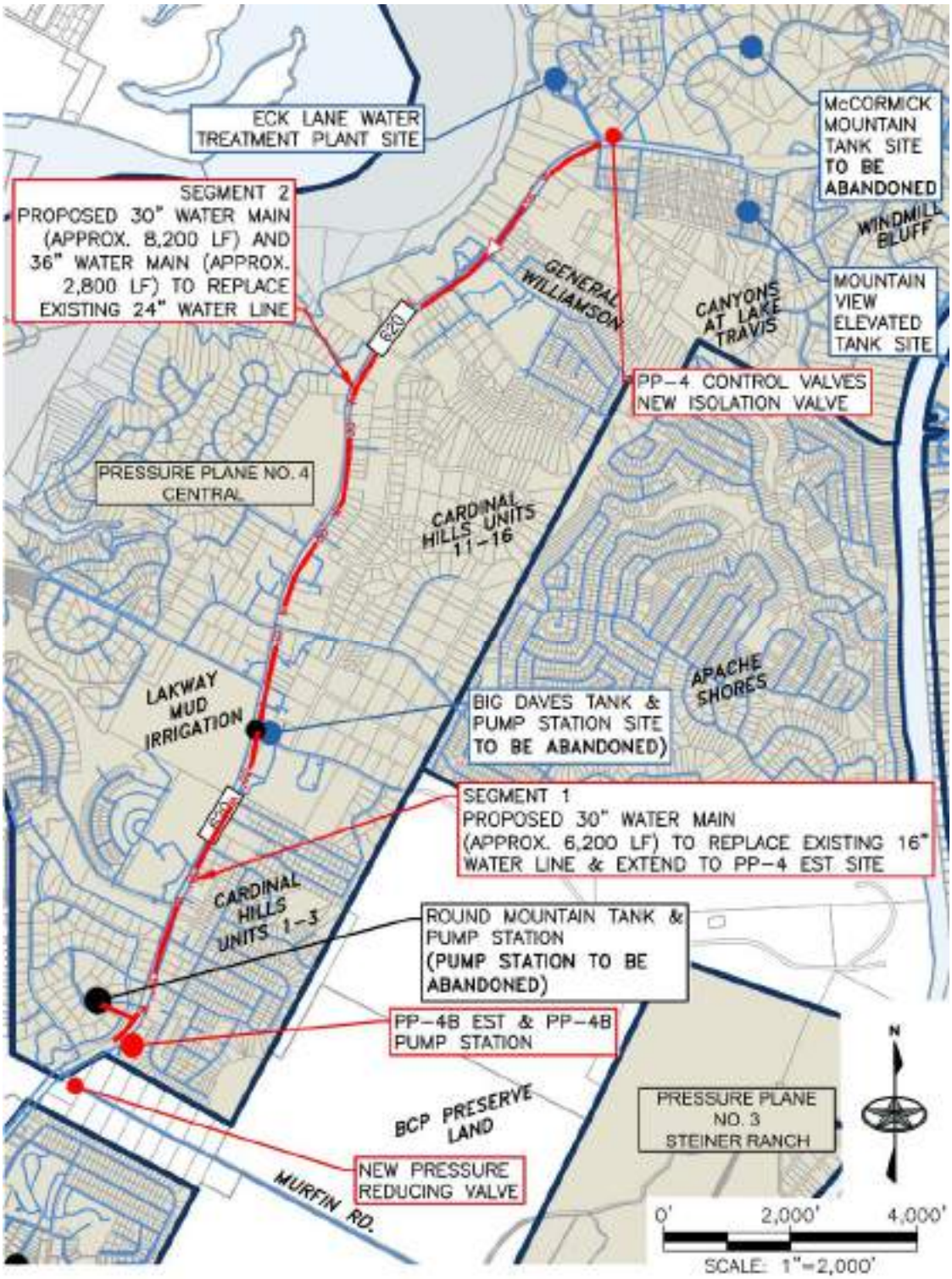


Figure 7.2
RR 620 Water Main Improvements

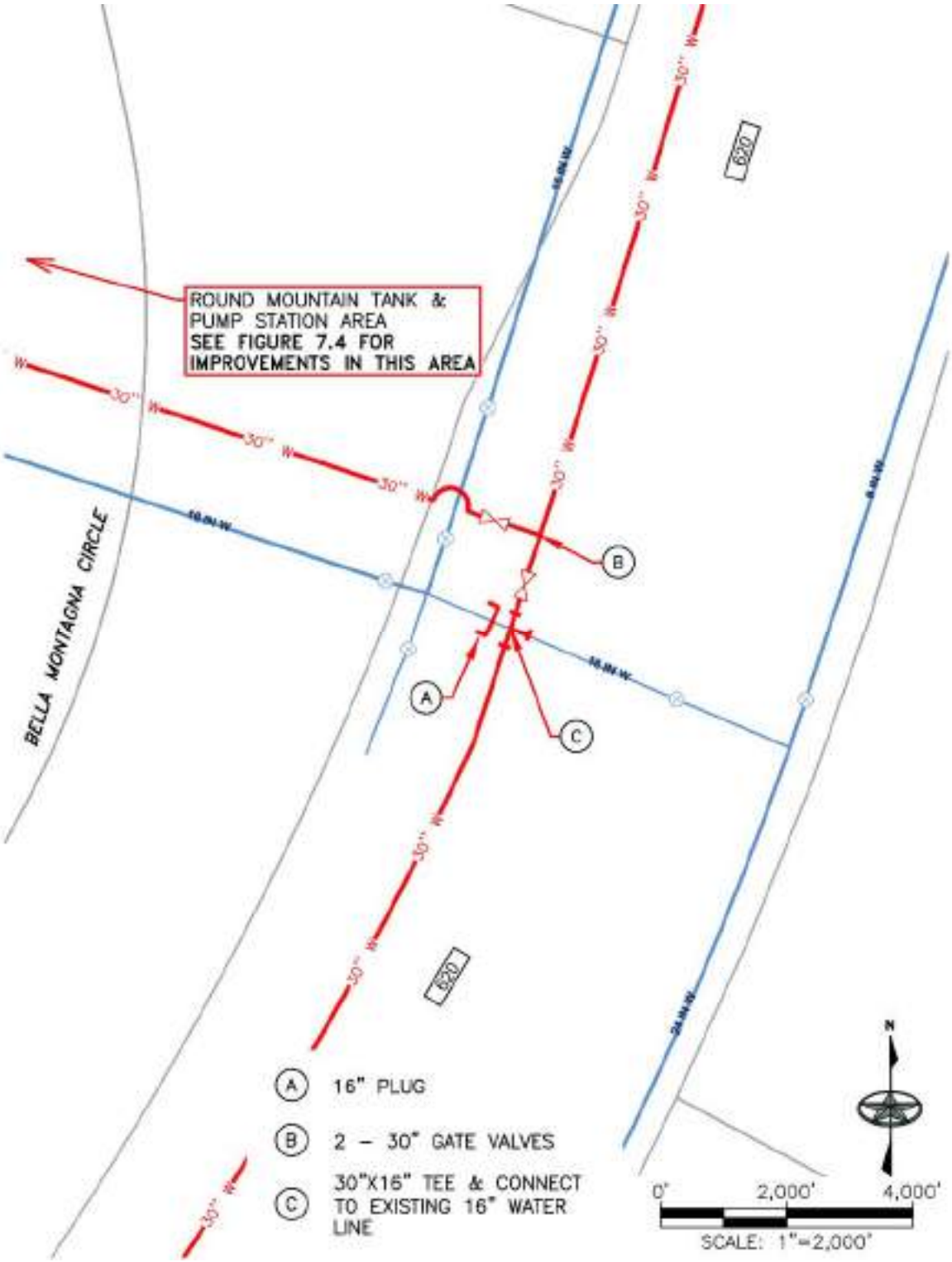


Figure 7.3
RR 620 Water Main Improvements –
Enlarged View of Improvements at Existing 16" Line Near Round Mountain

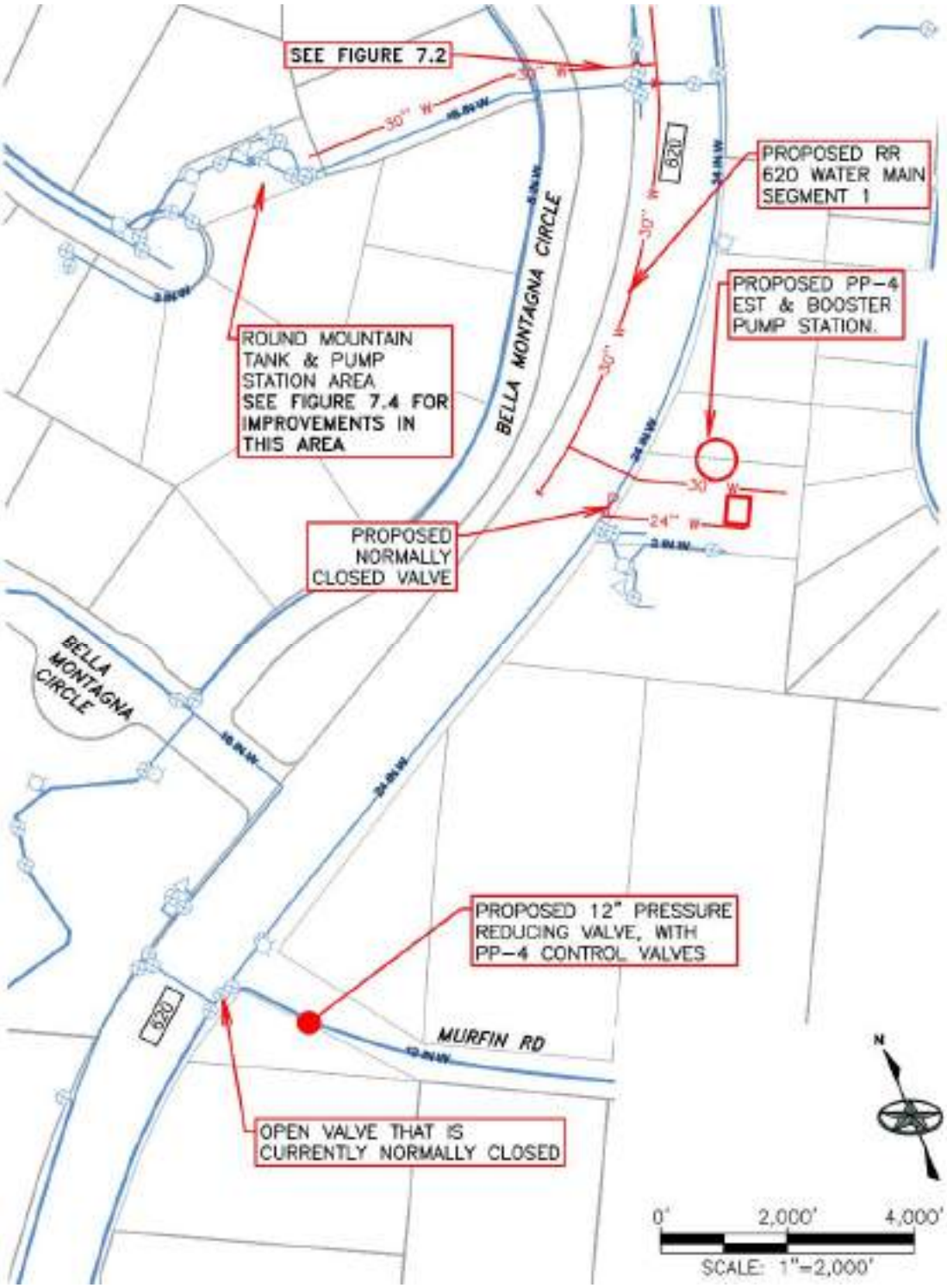


Figure 7.4
RR 620 Water Main Improvements – Round Mountain Area

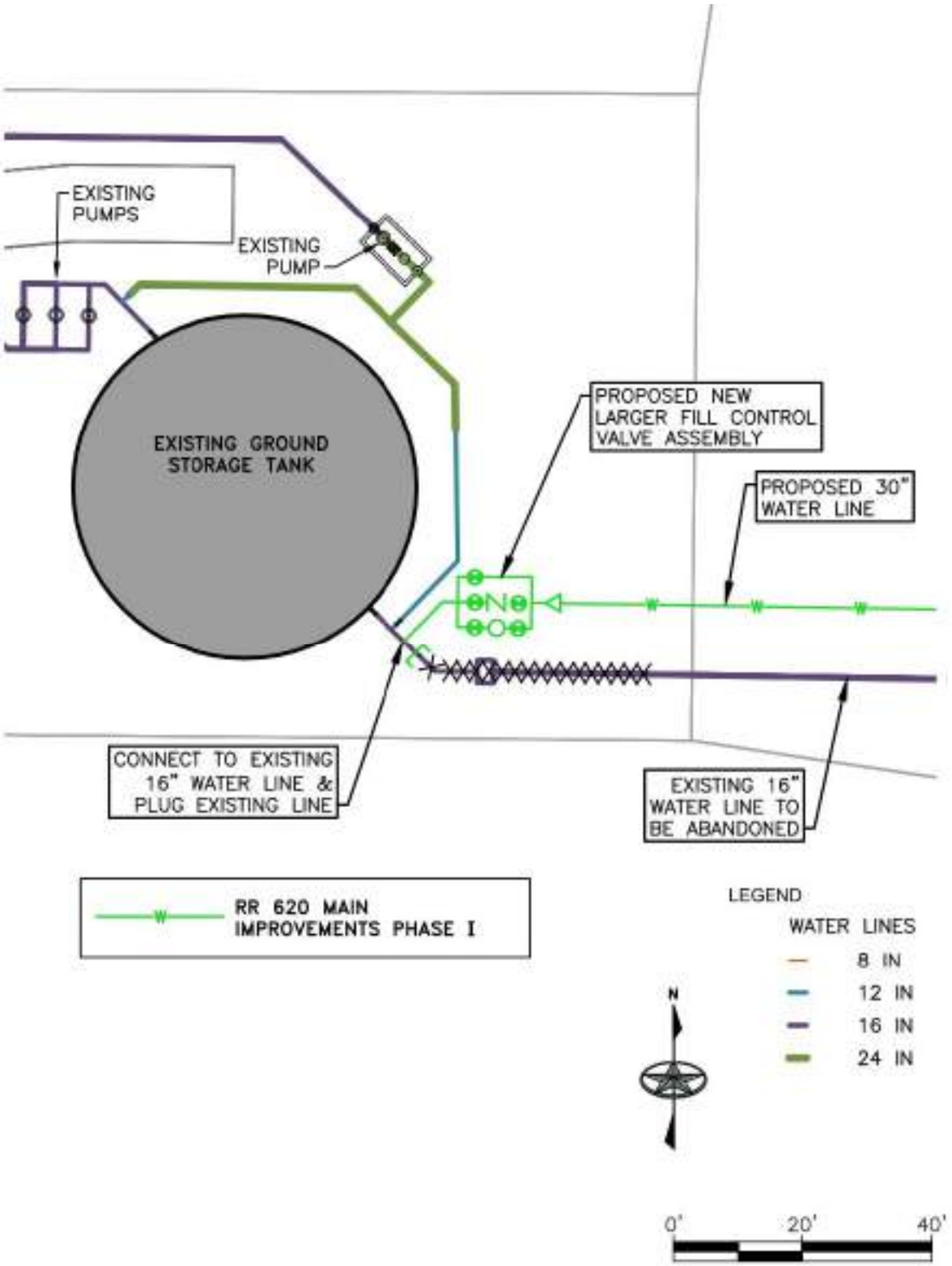


Figure 7.5
Round Mountain Pump Station Site Improvements

7.2 PP-4B Elevated Storage Tank

A new elevated storage tank is proposed to address the need for additional storage capacity in the proposed PP-4B. As discussed in Section 6.2, a new 1.85 MG EST, in conjunction with the existing Round Mountain GST, will provide the storage capacity needed for the proposed PP-4B at anticipated ultimate conditions. Once installed, the existing Big Daves Tank can be removed from service when desired. This new EST is needed before PP-4 is divided or when the demand of the existing PP-4 reaches 7,217 LUEs. There is a need to install this EST to allow the existing Round Mountain GST to be taken off-line for maintenance. A projected date of need of May 2028 is used for planning purposes, as this is the soonest date we anticipate the tank could be brought on-line. The estimated project cost includes land acquisition for this EST and the proposed PP-4B Booster Pump Station, as well as a portion of the site and electrical improvements needed for the PP-4B Booster Pump Station.

- Survey & Design (8 Months): January 2025 – September 2025
- Approvals (8 Months): September 2025 – May 2026
- Bidding & Contracts (3 Months): May 2026 – August 2026
- Construction (21 Months): August 2026 – May 2028

Table 7.2
PP-4B Elevated Storage Tank – Estimated Project Costs

Project	Estimated Project Cost
PP-4B Elevated Storage Tank	$19,181,000

7.3 PP-4 Control Valves

As discussed in Section 6.3, two (2) control valves and one (1) new isolation valve need to be installed to facilitate dividing PP-4. A new isolation valve (typically a gate valve) is proposed on the 24" RR 620 Water Main between Eck Ln and Hudson Bend Rd to allow PP-4 to be divided. A new flow control valve is proposed on the 24" RR 620 Water Main just north of the MWTP discharge line connection to control the flow into PP-3 from the MWTP. Functionality of this flow control valve is described in the Capacity Study. A new pressure reducing valve (PRV) is needed on the 12" water main on Murfin Road. The portion of the existing 24" RR 620 Water Main that the Murfin Road main connects into is currently on PP-4 but when the proposed PP-4A Booster Pump Station and associated piping is installed it will be on the higher-pressure PP-6 and need the pressure to be reduced. These valves are shown on Attachment D and the Murfin PRV is also shown on Figure 7.4. The date of need of these improvements matches the PP-4A EST, since this is when we anticipate PP-4 will be divided. These valves may be installed as a separate project or as part of the RR 620 Water Main, PP-4B EST, or PP-4B Booster Pump Station projects.

- Survey & Design (6 Months): November 2025 – May 2026
- Approvals (6 Months): May 2026 – November 2026
- Bidding & Contracts (3 Months): November 2026 – February 2027
- Construction (15 Months): February 2027 – May 2028

Table 7.3
PP-4 Control Valves – Estimated Project Costs

Project	Estimated Project Cost
PP-4 Control Valves	$ 1,364,000

7.4 PP-4B Booster Pump Station

Additional booster pump capacity is needed, beyond the existing Round Mountain Pump Station's firm pumping capacity of 3,750 gpm, to meet the projected ultimate peak day demands of the Pressure Planes 6-8. As discussed in Section 6.4 and in the Capacity Study, a new booster pump station is proposed with a firm pumping capacity of 7,500 gpm to replace the existing Round Mountain Pump Station. It is proposed to locate the proposed PP-4A Booster Pump Station on the same site as the proposed PP-4B EST, with both located near the Round Mountain GST so that the new pump station can take suction from either of these storage tanks and either tank can be taken off-line for maintenance in the lower demand periods. The anticipated improvements include 4 – 2,500 gpm pumps and associated improvements. The Capacity Study includes a preliminary layout. The additional pumping capacity will be needed when the combined demand from Pressure Planes 6-8 reaches 6,041 LUEs, which is projected to occur in May 2028. The estimated cost for land acquisition is included with the PP-4B EST project.

- Design (8 Months): June 2025 – February 2026
- Approvals (6 Months): February 2026 – August 2026
- Bidding & Contracts (3 Months): August 2026 – November 2026
- Construction (18 Months): November 2026 – May 2028

Table 7.4
PP-4B Booster Pump Station – Estimated Project Cost

Project	Estimated Project Cost
PP-4B Booster Pump Station	$ 4,677,000

7.5 PP-6 Elevated Storage Tank

A new elevated storage tank is proposed to address the projected deficiency in capacity at ultimate demand conditions in PP-6. As discussed in Section 6.5, a 0.25 MG Elevated Storage Tank will provide adequate storage and allow the existing Cardinal Hills Storage Tank to be removed from service during the lower demand portion of the year. A 0.25 MG spheroid welded steel style tank and a 0.3 MG composite style tank were evaluated. A 0.3 MG volume was used for the composite style because this is the minimum volume available from most tank builders. A 0.3 MG composite style tank was included because of its lower life cycle cost. Figure 7.7 shows the approximate location of this EST and the new water mains needed for it to function properly. A site for this EST is being provided by the Lohmans Defined Area. The proposed water lines are being installed as part of the developments they will run through. It is anticipated this capacity will be needed when the demand in Pressure Plane 6 reaches 2,207 LUEs. An annual growth rate of 5% was assumed for PP-6 and 3% for PP's 7 & 8 to project the date of need of August 2030. This is due to the increased proposed development activity in this area. Below is preliminary schedule to meet the projected date of need:

- Survey & Design (3 Months): May 2028 – August 2028
- Approvals (6 Months): August 2028 – February 2029
- Bidding & Contracts (3 Months): February 2029 – May 2029
- Construction (15 Months): May 2029 – August 2030

Table 7.5
PP-6 Elevated Storage Tank – Estimated Project Cost

Project	Estimated Project Cost
PP-6 Elevated Storage Tank	$ 8,724,000

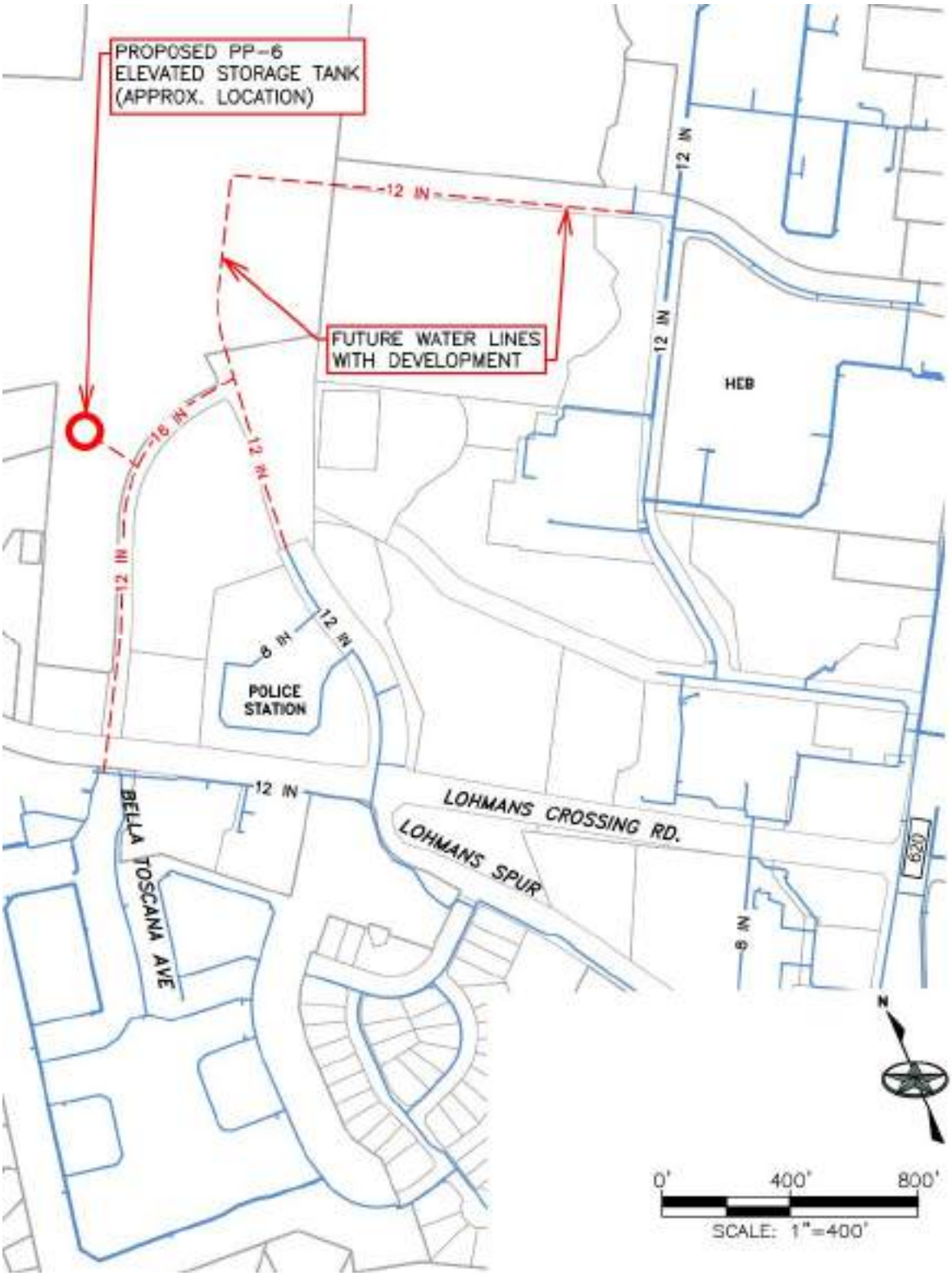


Figure 7.7
PP-6 Elevated Storage Tank

7.6 Lohmans Spur Water Main

Approximately 1,000 lf of new 12" water line is needed, from the existing 12" water line on the east side of RR 620 to the Lohmans Crossing Pump Station site, shown on Figure 7.8. Based on the evaluation performed with the Capacity Study, this water main will allow the two (2) existing Lohmans Storage Tanks to be filled at a rate of 4,000 gpm (matching the capacity of the Pump Station after the proposed expansion) and maintain line velocities of approximately 4 fps. Below is an estimated schedule for this project to achieve completion by summer of 2028. Ideally, this water main would be constructed in tandem with the TxDOT proposed RR 620 roadway improvements but due to the delay in this roadway project it may not be feasible.

- Survey & Preliminary Design (4 Months): September 2025 – January 2026
- Easement Acquisition (6 Months): January 2026 – July 2026
- Design (3 Months): July 2026 – October 2026
- Approvals (8 Months): October 2026 – June 2027
- Bidding & Contracts (3 Months): June 2027 – September 2027
- Construction (8 Months): September 2027 – May 2028

Table 7.6
Lohmans Water Main – Estimated Project Cost

Project	Estimated Project Cost
Lohmans Spur Water Main	$ 885,000

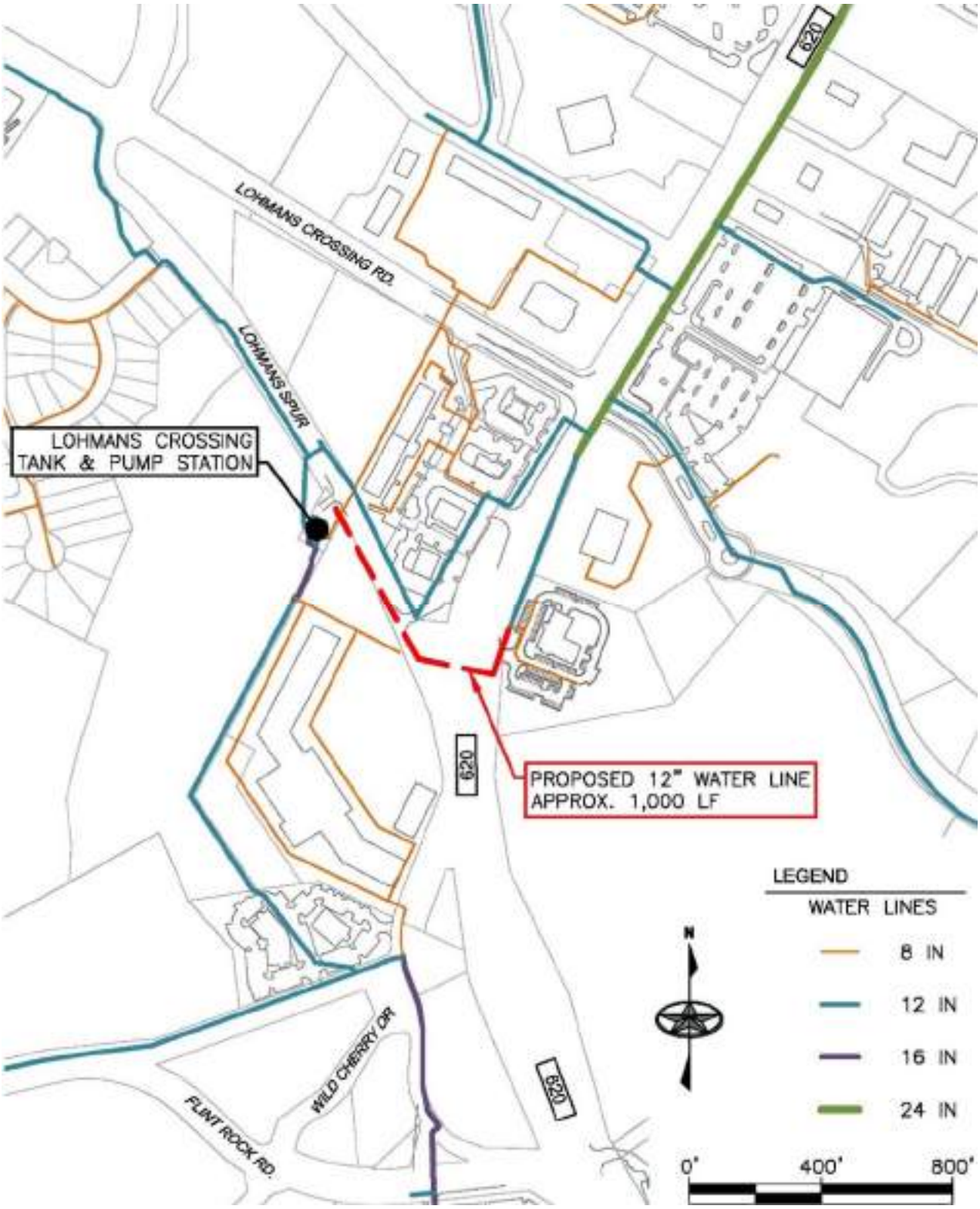


Figure 7.8
Lohmans Spur Water Main

7.7 Lohmans Pump Station Expansion

This Pump Station will need to be expanded from its current firm capacity of 3,600 gpm to 4,000 gpm to meet the anticipated peak day demands of PP-7 and PP-8. It is anticipated this will be needed when the combined demand from PP-7 and PP-8 reaches 5,141 LUEs, which is projected to occur in Summer 2034.

- Design (6 Months): December 2031 – June 2032
- Approvals (4 Months): June 2032 – October 2032
- Bidding & Contracts (3 Months): October 2032 – January 2033
- Construction (16 Months): January 2033 – May 2034

Table 7.7
Lohmans Pump Station Expansion – Estimated Project Cost

Project	Estimated Project Cost
Lohmans Pump Station Expansion	$ 2,470,000

7.8 Flintrock Trace Water Main

A new 12" water main is needed along Flintrock Trace, beginning at the intersection with Flintrock Road and going north approximately 550 lf. This water main will enable the main to be extended across RR 620 and through the 34-acre tract at 2811 RR 620 South. This will provide a second connection to the east side of RR 620 for PP-7. The second benefit is water quality. The 34-acre tract will be extending a 12" water main from the south for service, which would result in a long dead-end main. The Flintrock Trace Water Main and extension across RR 620 will form a looped system and avoid this. It is anticipated that the developer of the 34-acre tract will design and install this line as part of the development, with the District cost sharing in the overall project to fund the installation of the Flintrock Trace Water Main. The project is needed when the 34-acre tract is developed.

Table 7.8
Flintrock Trace Water Main – Estimated Project Cost

Project	Estimated Project Cost
Flintrock Trace Water Main	$ 446,000

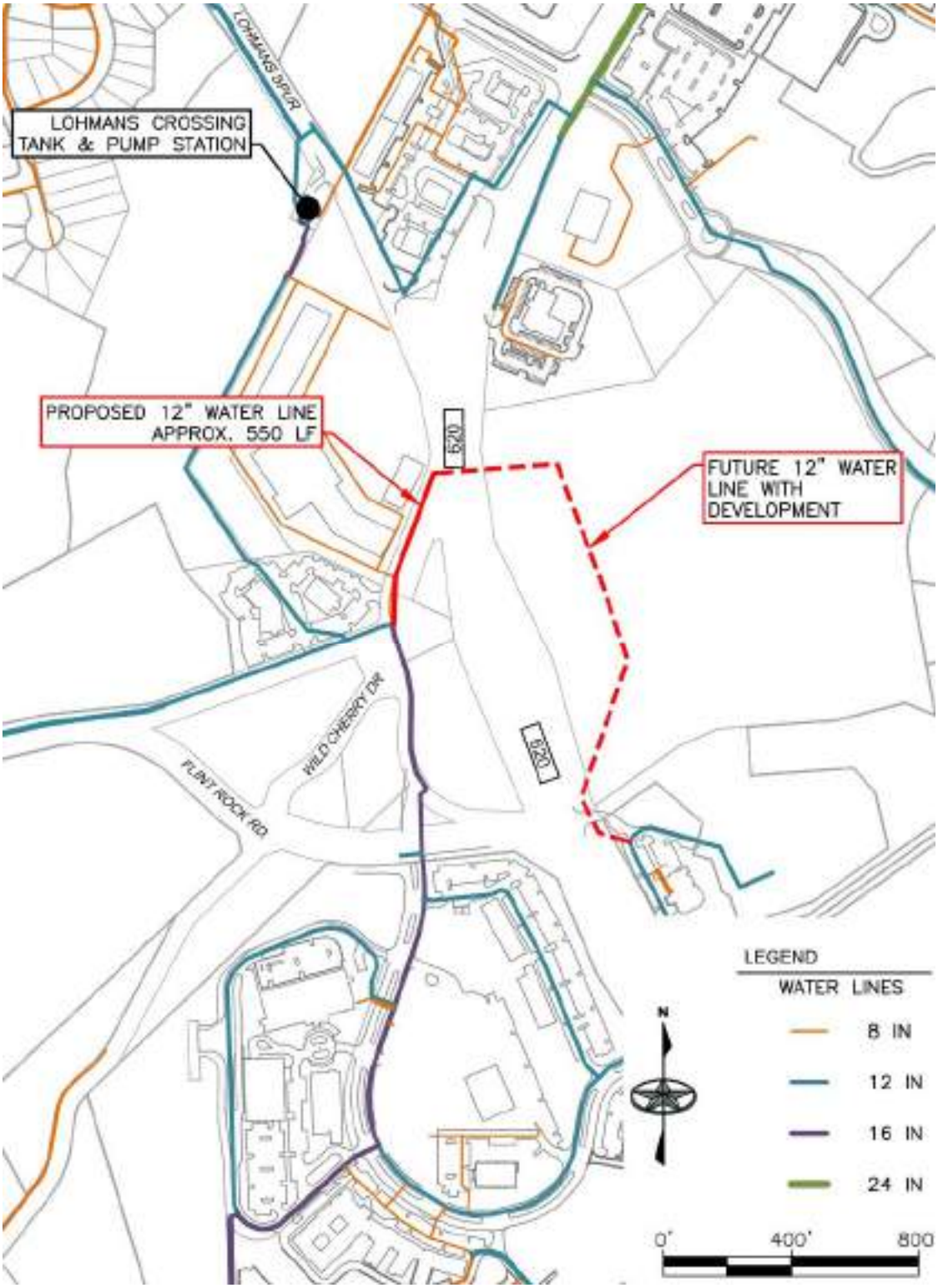


Figure 7.9
Flintrock Trace Water Main

7.9 Mansfield WTP Expansion to 14 MGD

As discussed in the Capacity Study, having the MWTP service PP-4A and PP-5 will create the need to expand the capacity of the MWTP from its current capacity of 12 MGD to 14 MGD. Based on current District design standards, this additional capacity will be needed when the combined demand from Pressure Planes 1, 2, 3, 4A, and 5 reach 11,900 LUEs, which is projected to occur Summer 2029.

- Design (6 Months): October 2026 – April 2027
- Approvals (4 Months): April 2027 – August 2027
- Bidding & Contracts (3 Months): August 2027 – November 2027
- Construction (18 Months): November 2027 – May 2029

Table 7.9
Mansfield WTP Expansion – Estimated Project Cost

Project	Estimated Project Cost
Mansfield WTP Expansion	$ 6,545,000

7.10 Mansfield WTP Back-Up Generator

A prime rated 3,000 kW diesel powered generator is proposed at the Mansfield WTP to support a treatment capacity of 8 MGD. This will enable the Mansfield WTP to operate under a loss of electrical power and support the projected winter water usage of the entire District at full build-out.

Table 7.10
Mansfield WTP Back-Up Generator – Estimated Project Cost

Project	Estimated Project Cost
Mansfield WTP Back-Up Generator	$ 4,403,000

7.11 Proposed Improvements Summary

A summary of the recommended capital improvements is included in Table 7.10. These improvements in conjunction with the existing facilities will enable the District to meet the projected service demands of the Impact Fee Area through the 10-year planning period, which coincides with projected build-out of the Service Area. The estimated project costs shown do not include any finance costs. The projected date of need and milestones listed represent when the capacity associated with that improvement is projected to reach 100%. The anticipated start of design date is the estimated latest date that design should commence to meet the date of need listed, based on estimated project phase durations.

In addition to the recommended improvement projects the system controls are recommended to be revised:

1. Once the RR 620 Water Main Segment 1 improvements are complete and the Big Daves Pump Station removed from service, the Eck Lane WTP High Service Pumps are recommended to be controlled based on the level in the Round Mountain Tank or PP-4 EST, instead of the Big Daves Tank as they are currently. The control settings modeled are included as part of Attachment G in the 2018 Study.

Table 7.11
Summary of Proposed Capital Improvement Projects

Project	Latest Start of Design [c]	Projected Date of Need	Milestone	Estimated Project Cost
Mansfield WTP Back-Up Generator	In Progress	N/A	N/A	$ 4,403,000
Flintrock Trace Water Main	By Developer [d]	May 2027 [d]	N/A [d]	$ 446,000
RR 620 Water Main Segment 1[a, b]	August 2025	May 2028	11,499 LUEs (PPs 4B, 6-8)	$11,942,000
PP-4B Booster Pump Station	June 2025	May 2028	6,041 (PPs 6-8)	$ 4,677,000
PP-4B Elevated Storage Tank	January 2025	May 2028	When PP-4 is split	$19,181,000
PP-4 Control Valves	November 2025	May 2028	When PP-4 is split	$ 1,364,000
Lohmans Spur Water Main [b]	September 2025	May 2028	4,359 LUEs (PPs 7 & 8)	$ 885,000
RR 620 Water Main Segment 2 [b]	June 2026	August 2029	11,273 LUEs (PPs 4B, 6-8)	$19,613,000
Mansfield WTP Expansion to 14 MGD	October 2026	May 2029	11,900 LUEs (PPs 1-3, 4A, 5)	$ 6,545,000
PP-6 Elevated Storage Tank	April 2027	August 2030	2,207 LUEs (PP-6)	$ 8,724,000
Lohmans Pump Station Expansion	December 2030	May 2034	5,141 LUEs (PPs 7 & 8)	$ 2,470,000
			TOTAL	**$80,250,000**

[a] Projected Date of Need and Milestone assumes Quinlan Park Road Water Main is in operation and that three (3) pumps at Big Daves Pump Station operate.
[b] Milestones for water mains on RR 620 are independent of TxDOT roadway improvements as work on these projects may need to commence prior to TxDOT.
[c] Latest start of design is the latest date design can commence and meet the date of need, according to the estimated schedule for each project.
[d] Flintrock Trace Water Main is needed when the property at 2811 RR 620 South is developed. It is anticipated that the developer of this tract will design and construct this water main.

8.0 FEE DEVELOPMENT

Impact Fees allow the District to fund or recoup the costs for facility improvements attributable to System growth. These facilities include water treatment, pumping, storage, and transmission. They do not include the cost of extending service to the individual customer (i.e. distribution). Consistent with the requirements of Chapter 395 of the Texas Local Government Code, fees collected by the District are to be used for the projects identified in this Study.

A bond issue is anticipated to fund the 6 highest priority projects. A summary of the estimated costs is included in Attachment H3. The Water Capital Improvements Inventory and Cost, Attachment H1, includes an itemization of the recommended projects described in the preceding Sections of this Study as well as existing infrastructure with remaining capacity to serve future growth. Attachment H1 includes the estimated finance and interest costs of the proposed bond. The capacity of each improvement is given and the unit cost per LUE is calculated for each of the improvement categories. The actual costs expended were used for the existing infrastructure. Cost estimates were used for the proposed improvements. To account for future inflation, estimated future value cost estimates were then calculated for the anticipated date of construction for each project, based on the projected date of need and an estimated annual rate of inflation. Further detail on the existing and proposed project costs is included in Attachment H2. **The maximum calculated Impact Fee is $12,539 per LUE.** The Impact Fee amount without interest and finance charges from the upcoming bond issue included is $9,805 per LUE.

This represents a 40%, or $3,596 per LUE, increase from the current Impact Fee of $8,943 per LUE that was adopted with the 2022 Study. This increase is primarily due to the additions made to the Capital Improvements Plan and the addition of the projected bond finance and interest costs. The degree of the increase was offset by the increased number of LUEs projected to be served compared to the 2022 Study.

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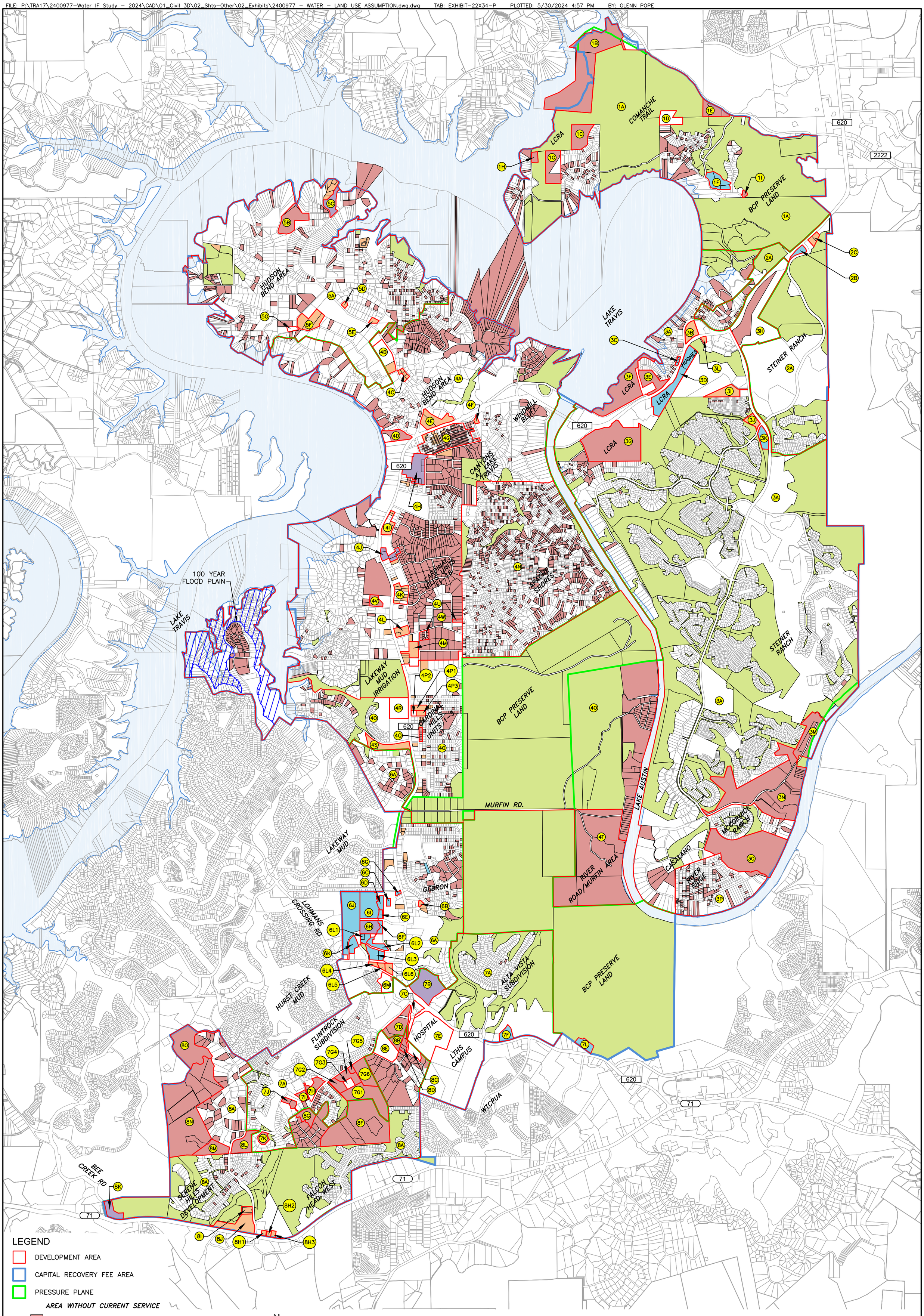

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TRAVIS COUNTY WCID NO. 17
WATER IMPACT FEE STUDY
2024 UPDATE

ATTACHMENT 'A'
LAND USE ASSUMPTION MAP

ATTACHMENT 'B'
TRAVIS COUNTY WCID No. 17

LAND USE ASSUMPTIONS - 2024 UPDATE

Land Use Assumption Basis

Code	Class	LUEs /Ac	Source
a	Residential - Platted		Based on Number of Lots
b	Submitted/Approved Plan		Plan Data
c	Residential w/No WW Available	0.99	Comparables
d	Residential w/WW Available	2.13	Comparables
e	Commercial	2.65	Comparables
e2	Commercial w/No WW Available	2.05	Comparables
f	Mixed Use	2.39	Average of Commercial & Residential w/WW
g	Multi-Family	12.2	Comparables

Pressure Plane 1 - Comanche Trail Elevated Pressure Plane

No	Description	Anticipated Use	Area (Ac)	No. of Lots / Tracts	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Basis for Land Use Assum. / Notes	2022 Update Total Projected LUEs	Difference 2024 minus 2022
1A	Comanche Trail - Existing	Mixed Use	386.49		486.0	0.0	486.0	1.26	N/A	513.0	-27.0
1A	Comanche Trail - Prop. Residential	Residential	75.40	81	0.0	94.8	94.8	1.26	Assumed density of remaining tracts to match that of existing, with	100.1	
1A	Preserve / Dedicated Green Space	N/A	1,272.19	24	0.0	0.0	0.0	0.00	No Development	0.0	
1B	Residential - Acreage	Residential	127.02	2	0.0	0.0	0.0	0.00	Isolated by Preserve / Lake: Bosco Ozzie Boy LLC tracts	0.0	
1C	Meisler Tract	Residential	20.46	1	0.0	16.0	16.0	0.78	Assumed 2 ac lots (due to topo) w/ 3/4" meters	16.0	
1D	Garriott Tract	Residential	12.73	1	1.5	0.0	1.5	0.12		11.6	-10.1
1E	Strickland Tracts	Residential	12.95	3	0.0	10.0	10.0	0.77	Assumed 2 ac lots (due to creek) w/ 3/4" meters.	10.0	
1F	Oasis Mixed Use	Mixed Use	13.71	3	0.0	33.2	33.2	2.42	f	33.2	
1G	Lots 1 & 2, Blk A, Panorama Add'n	Residential	23.92	2	2.5	13.9	16.4	0.69	Assume 2 ac lots (due to topo) w/ 3/4" meters.	15.4	1.0
1H	Waters Tract	Residential	3.10	1	0.0	3.0	3.0	0.99	c	4.0	
1I	Lot 1, Blk B, Comanche Canyon Ranch Area 2	Residential	1.36	1	0.0	6.0	6.0	4.41	6 Existing pressure sewer services. Assume 1 LUEs per unit.	6.0	
	Capacity Bank					65.0	65.0		To account for developments requiring more LUEs than listed and for redevelopment of existing properties	0.0	65.0
Total Pressure Plane 1			**1,949.33**		**490.0**	**241.9**	**731.9**	**0.4**		**709.3**	**22.6**

Pressure Plane 2 - Comanche Trail Pressure Plane

No	Description	Anticipated Use	Area (Ac)	No. of Lots / Tracts	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Basis for Land Use Assum. / Notes	2022 Update Total Projected LUEs	Difference 2024 minus 2022
2A	Comanche Tr Elev - Existing	Mixed Use	507.00		887.0	0.0	887.0	1.75	N/A	1,140.0	-253.0
2A	Comanche Tr Elev - Prop. Residential	Residential	17.01	24	0.0	36.0	36.0	2.12	a - Assume 3/4" meters	36.0	
2A	Hughes Park -Preserve / Dedicated Green Space	N/A	287.84	1	0.0	0.0	0.0	0.00	No Development	0.0	
2B	Starbucks	Commercial	3.95	1	0.0	4.0	4.0	2.05	WCID 17 Assignment Table (9/1/2022 - 3/22/2024)	5.0	-1.0
2C	Steiner MU-15	Commercial	3.96	2	5.5	5.5	11.0	2.78	b - Prelim Plan (1.5" Meter/Lot assumed)	10.0	1.0
	Capacity Bank					95.0	95.0		To account for developments requiring more LUEs than listed and for redevelopment of existing properties	0.0	95.0
Total Pressure Plane 2			**819.76**		**892.5**	**140.5**	**1,033.0**	**1.26**		**1,191.0**	**-158.0**

ATTACHMENT 'B'
TRAVIS COUNTY WCID No. 17
LAND USE ASSUMPTIONS - 2024 UPDATE

Pressure Plane 3 - Steiner Ranch Pressure Plane

No	Description	Anticipated Use	Area (Ac)	No. of Lots / Tracts	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Basis for Land Use Assum. / Notes	2022 Update Total Projected LUEs	Difference 2024 minus 2022
3A	Steiner PP - Existing	Mixed Use	3,614.55		7090.5	0.0	7,090.5	1.96	N/A	6,793.5	297.0
3A	Steiner PP - Prop. Residential	Residential	80.39	81	0.0	121.5	121.5	1.51	a - Assume 3/4" Meters	121.5	
3A	Steiner PP - Preserve / Dedicated Green Space	N/A	1,441.30		0.0	0.0	0.0	0.00	No Development	0.0	
3B	Lot 1 & 2, Blk A, Marshall Ford Overlook	Commercial	9.19	1	0.0	24.0	24.0	2.65	e	24.0	
3C	Mansfield Dr & 620 Intersection	Mixed Use	1.31	4	0.0	7.1	7.1	5.42	Assume equiv. of 3/4" meter per lot	7.1	
3D	Hughes & LCRA Tracts - 620 Front	Mixed Use	34.24	2	0.0	61.4	61.4	1.79	e - corrected for 10.42ac in HC Rdwy (34.02 ac - 10.42 ac = 23.6 ac x 2.6 LUEs/ac = 61 LUEs)	61.4	
3E	LCRA Tract - East of Mansfield WTP	Residential	16.61	1	0.0	40.0	40.0	2.41	Nov. 2020 evaluation: determined the existing pressure sewer system can support a max of 28 gpm from the LCRA tracts to the west and east of the MWTP, assuming 0.7 gpm/LUE for WW flows = 40 LUEs.	40.0	
3F	LCRA Tract - West of Mansfield WTP	Residential	54.34	1	0.0	53.0	53.0	0.99	c - See No. 3E, assumed this site would utilize OSSF.	54.0	
3G	LCRA Tract - Low Water Crossing & RR 620	Residential	90.50	1	0.0	88.0	88.0	0.99	c	89.0	
3H	The Retreat (Steiner MU-14)	Residential	101.99	106	162.5	0.0	162.5	1.59		164.0	-1.5
3I	Steiner MU-1B, Lot 3, Blk A	Commercial	12.68	1	0.0	33.0	33.0	2.65	e	33.0	
3J	Steiner MU-3, Lot 1, Blk C, Steiner Ranch, Ph 2, Sec 11	Commercial	5.91	1	0.0	15.5	15.5	2.62	e	15.5	
3K	Steiner MU-4, Lot 1, Blk D, Steiner Ranch Ph 2, Sec 11	Mixed Use	8.36	1	13.0	8.0	21.0	2.51	b - 2" meter and 1.5" irrig meter existing. Anticipated to add 1-2" meter.	21.0	
3L	Lot 9 Steiner Ranch Ph 2, Sec 10 (Randalls Shopping Center)	Commercial	1.37	1	0.0	6.5	6.5	4.73	WCID 17 Assignment Table (9/1/2022 - 3/22/2024)	4.0	2.5
3M	Panther Hollow Area	Residential	39.55	2	0.0	26.4	26.4	0.67	c	26.4	
3N	Selma Hughes Park Area	Residential	165.19	16	0.0	88.0	88.0	0.53	c - subtracted unbuildable 67.7-ac. (157.07-67.7 = 89.37 ac X 0.98 LUEs/ac = 88 LUEs)	88.0	
3O	McCormick Ranch Ph 3	Residential	116.67	26	0.0	40.5	40.5	2.13	July 2022 Prelim Plan: 26 SF Lots. Add 1-3/4" irrig meter.	40.5	
3P	River Ridge - Existing	Residential	183.92		329.0	0.0	329.0	1.79	N/A	284.5	44.5
3P	River Ridge - Prop. Residential	Residential	15.00	71	0.0	14.7	14.7	0.98	c	29.5	-14.8
	Capacity Bank					250.0	250.0		To account for developments requiring more LUEs than listed and for redevelopment of existing properties	0.0	250.0
Total Pressure Plane 3			**5,993.07**		**7,595.0**	**877.6**	**8,472.6**	**1.4**		**7,896.9**	**575.7**

ATTACHMENT 'B'

TRAVIS COUNTY WCID No. 17

LAND USE ASSUMPTIONS - 2024 UPDATE

Pressure Plane 4-A - Central Pressure Plane A (Served by MWTP)

No	Description	Anticipated Use	Area (Ac)	No. of Lots / Tracts	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Basis for Land Use Assum. / Notes	2022 Update Total Projected LUEs	Difference 2024 minus 2022
4A	Central PP North - Existing	Mixed Use	450.00	329	718.5	0.0	718.5	1.60	N/A	744.5	-26.0
4A	Central PP North - Prop. Residential	Residential	70.26	67	0.0	139.24	139.24	1.98	a - Assume Half 3/4" Meters	139.2	
4A	Central PP North - Prop. Commercial	Commercial	3.37	1	0.0	3.71	3.71	1.10	e2	3.7	
4A	Central PP North - Preserve / Dedicated Green Space	N/A	40.00		0.0	0.0	0.0	0.00	No Development	0.0	
4B	Hudson Bend Boat & Camper	Commercial	19.01	2	0.0	20.2	20.2	1.06	e2	22.2	-2.0
4C	Ewing Irrigation	Commercial	3.21	5	0.0	4.1	4.1	1.28	e2	4.1	
4E	KRN Rock 1	Commercial	16.13	2	0.0	18.2	18.2	2.05	e2	18.2	
4F	Southwestern Bell - Double Dome	Commercial	1.22	1	0.0	2.0	2.0	2.05	e2	2.0	
4G	Mountain View Area	Mixed Use	54.60	160	41.0	32.6	73.6	1.35	c	65.6	8.0
	Capacity Bank					100.0	100.0		To account for developments requiring more LUEs than listed and for redevelopment of existing properties	0.0	100.0
Total Pressure Plane 4A			**657.81**		**759.5**	**320.1**	**1,079.6**	**1.6**		**999.5**	**80.0**

ATTACHMENT 'B'

TRAVIS COUNTY WCID No. 17

LAND USE ASSUMPTIONS - 2024 UPDATE

Pressure Plane 4-B - Central Pressure Plane B (Served by EWTP)

No	Description	Anticipated Use	Area (Ac)	No. of Lots / Tracts	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Basis for Land Use Assum. / Notes	2022 Update Total Projected LUEs	Difference 2024 minus 2022
4A	Central PP North - Existing	Mixed Use	1,519.36		1,389.0	0.0	1,389.0	0.91	N/A	1,439.0	-50.0
4A	Central PP North - Prop. Residential	Residential	655.77	452	0.0	503.3	503.3	0.77	a - Assume Half 3/4" Meters	503.3	
4A	Central PP North - Prop. Commercial	Commercial	9.62	9	0.0	10.8	10.8	1.12	e2	10.8	
4A	Central PP North - Preserve / Dedicated Green Space	N/A	161.98		0.0	0.0	0.0	0.00	No Development	0.0	
4D	Jacomides Tracts	Multi-Family	12.98	2	1.0	19.8	20.8	1.60		19.8	1.0
4H	United Properties - 3317 RR 620	Multi-Family	23.50	8	2.0	259.0	261.0	11.11	WCID 17 Assignment Table (9/1/2022 - 3/22/2024)	259.0	2.0
4I	Swing & 620 Commercial	Commercial	9.21	19	4.0	7.0	11.0	1.19	e2	11.0	
4J	Villas at Lakeway Apartments	Multi-Family	7.06	5	18.0	92.0	110.0	15.58	b - Dec. 2020 Construction Plans (180 Units x 0.6 LUE/unit = 108 LUEs, Amenity Center & Irrig = 2 LUEs). Construction on hold.	110.0	
4K	Stroup & 620 Commercial	Commercial	12.80	13	12.0	3.0	15.0	2.05	e2	15.0	
4L	Quik Trip (Debba & 620)	Commercial	5.99	2	0.0	8.0	8.0	1.34	SER Tracker - 4/9/2024	8.8	-0.8
4M	Garages of Texas	Commercial	8.07	1	0.0	16.5	16.5	2.04	WCID 17 Assignment Table (9/1/2022 - 3/22/2024)	9.0	7.5
4N	Apache Shores - Existing	Residential	746.88		1,637.5	0.0	1,637.5	2.19	N/A	1,586.0	51.5
4N	Apache Shores - Prop. Residential	Residential	213.04	609	0.0	207.9	207.9	0.98	c (Some unserved lots have impvts that span to served lot)	207.9	
4U	1501 Barney Dr (Tumble Town)	Commercial	1.55	1	0.0	2.0	2.0	1.29	SER Tracker - 4/9/2024		2.0
4V	26930 Oak Grove Blvd	Commercial	6.10	1	0.0	5.0	5.0	0.82	SER Tracker - 4/9/2024		5.0
4W	Debba Circle	Residential		13	0.0	13.0	13.0		SER Tracker - 4/9/2024		13.0
Subtotal - Pressure Plane 4B-1 Served By EWTP HS Pump Sta			**3,386.24**		**3,063.5**	**1,147.3**	**4,210.8**	**1.24**		**4,179.6**	**31.2**
4O	Central PP South - Existing	Mixed Use	414.07		1,089.5	0.0	1,089.5	2.63	N/A	1,135.5	-46.0
4O	Central PP South - Prop. Residential	Residential	263.73	199	0.0	248.5	248.5	0.94	a - Assume Half 3/4" Meters	248.5	
4O	Central PP North - Prop. Commercial	Commercial	10.87	14	0.0	12.2	12.2	1.12	e2	12.2	
4O	Central PP South - Preserve/Green	N/A	34.98		0.0	0.0	0.0	0.00	No Development	0.0	
4P	Nightingale Tracts	Mixed Use						#DIV/0!	e2	9.7	-9.7
4P1	Auto Zone (311 RR 620 N)	Commercial	3.85	1	0.0	5.0	5.0	1.30	SER Tracker - 4/9/2024		5.0
4P2	Nightingale Tracts	Mixed Use	1.33	1	0.0	1.5	1.5	1.12	e2		1.5
4P3	Nightingale Tracts	Mixed Use	2.48	1	0.0	3.0	3.0	1.12	e2		3.0
4Q	Whipporwill Business Park	Commercial	2.20	7	0.0	7.0	7.0	3.18	b - Feb. 2022 Construction Plans for 4 Bldgs (Assumed 4-3/4" meters, + 1 5/8" irrigation meter)	7.0	
4R	HR Austin Group (Lexus Dev)	Commercial	18.88	1	0.0	42.5	42.5	2.25	LUE density used for Bellagio LS & 2018 CRF land use assumptions	42.5	
4S	Lakeway 620, Clara Van & 620	Commercial	14.89	2	5.0	28.2	33.2	2.23	LUE density used for Bellagio LS & 2018 CRF land use assumptions	33.2	0.0
4T	Murfin Area Tracts	Residential	178.30	4	0.0	174.0	174.0	0.98	c	174.0	
Subtotal - Pressure Plane 4B-2 Served By Big Daves Pump Sta			**945.58**		**1,094.5**	**521.9**	**1,616.4**	**1.71**		**1,662.6**	**-46.2**
	Capacity Bank					580.0	580.0		To account for developments requiring more LUEs than listed and for redevelopment of existing properties	0.0	580.0
Total Pressure Plane 4B			**4,331.82**		**4,158.0**	**2,249.2**	**6,407.2**	**1.5**		**5,842.2**	**565.0**
				Total PP-4	**4,917.5**	**2,569.2**	**7,486.7**			**6,841.7**	**645.0**

ATTACHMENT 'B'

TRAVIS COUNTY WCID No. 17

LAND USE ASSUMPTIONS - 2024 UPDATE

Pressure Plane 5 - Hudson Bend Pressure Plane

No	Description	Anticipated Use	Area (Ac)	No. of Lots / Tracts	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Basis for Land Use Assum. / Notes	2022 Update Total Projected LUEs	Difference 2024 minus 2022
5A	Hudson Bend - Existing	Mixed Use	1,323.71		1065.0	0.0	1065.0	0.80	N/A	1,047.5	17.5
5A	Hudson Bend - Prop. Residential	Residential	135.06	178	0.0	121.1	121.1	0.90	c	121.1	
5A	Hudson Bend - Prop. Commercial	Commercial	10.99	7	0.0	12.3	12.3	1.12	e2	12.3	
5A	Hudson Bend - Preserve / Dedicated Green Space	N/A	73.84	1	0.0	0.0	0.0	0.00	No Development	0.0	
5B	Forest Way Tract	Residential	21.53	1	0.0	21.8	21.8	1.01	c	21.8	
5C	Hudson Bend Condos	Multi-Family	10.61	1	1.0	52.2	53.2	5.01	b - June 2022 Un-Approved Plans: 76 units x 0.7 LUEs/unit (OSSF	53.2	
5D	Exist. 'Tillman Self Storage'	Commercial	1.28	1	0.0	2.0	2.0	1.56	e2	2.0	
5E	Hudson Bend & Beacon; Lot 1 & 2, La Hacienda Est. Sec. 2	Commercial	1.92	1	1.0	2.0	3.0	1.56	e2	3.0	
5F	McBee Properties	Commercial	17.00	1	1.0	19.2	20.2	1.19	e2	20.2	
5G	5010 Doss Road		2.00	1	1.0	1.0	2.0	1.00	SER Tracker - 4/9/2024		2.0
	Capacity Bank					186.0	186.0		To account for developments requiring more LUEs than listed and for redevelopment of existing properties	0.0	186.0
Total Pressure Plane 5			**1,597.94**		**1,069.0**	**417.6**	**1,486.6**	**0.9**		**1,281.1**	**205.5**

ATTACHMENT 'B'
TRAVIS COUNTY WCID No. 17
LAND USE ASSUMPTIONS - 2024 UPDATE

Pressure Plane 6 - Cardinal Hills Pressure Plane

No	Description	Anticipated Use	Area (Ac)	No. of Lots / Tracts	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Basis for Land Use Assum. / Notes	2022 Update Total Projected LUEs	Difference 2024 minus 2022
6A	Cardinal Hills PP - Existing	Mixed Use	562.53		1,535.0	0.0	1,535.0	2.73	N/A	1,424.5	110.5
6A	Cardinal Hills PP - Prop. Residential	Residential	77.22	84	0.0	102.4	102.4	1.33	a - Assume Half 3/4" Meters	102.4	
6A	Cardinal Hills PP - Prop. Commercial	Commercial	12.25	11	0.0	32.0	32.0	2.61	e	32.0	
6A	Cardinal Hills PP - Preserve/Green Space	N/A	54.08		0.0	0.0	0.0	0.00	No Development	0.0	
6B	Lakeway Ambulatory Center	Commercial	1.02	1	0.0	5.0	5.0	4.90	WCID 17 Assignment Table (9/1/2022 - 3/22/2024)	2.5	2.5
6C	Oaks at Lakeway - Lot 7, Blk B - Remaining Pad Sites	Mixed Use	2.00	1	0.0	10.0	10.0	5.00	b - Bury Engineering: Oaks at Lakeway "LUE Exhibit" sheet, dated 10/2014. Building J: 5 LUEs, Building K: 5 LUEs.	10.0	
6D	Oaks at Lakeway - Lot 9, Blk B	Mixed Use	4.30	1	0.0	8.0	8.0	1.86	b - Bury Engineering: Oaks at Lakeway "LUE Exhibit" sheet, dated 10/2014, assumes 40,000 sf shop. 2" meter assumed.	8.0	
6E	Oaks at Lakeway - Lot 8, Blk B	Mixed Use	1.66	1	0.0	5.0	5.0	3.02	b - Bury Engineering: Oaks at Lakeway "LUE Exhibit" sheet, dated 10/2014, assumes 7,500 sf shop space. 1.5" meter assumed.	5.0	
6F	Oaks at Lakeway - Lot 1, Blk C	Mixed Use	1.56	1	0.0	5.0	5.0	3.21	b - Bury Engineering: Oaks at Lakeway "LUE Exhibit" sheet, dated 10/2014, assumes bank. 1.5" meter assumed.	5.0	
6G	Oaks at Lakeway - Lot 6, Blk B	Mixed Use	0.96	1	0.0	5.0	5.0	5.21	b - Bury Engineering: Oaks at Lakeway "LUE Exhibit" sheet, dated 10/2014. Building M: 5 LUEs.	5.0	
6H	Saint Ambrose - 3052 Main St.	Multi-Family	11.91	1	0.0	144.0	144.0	12.09	b - Jan. 11, 2023 SER: 270 Units (0.7 LUEs/unit). Also added 5 LUEs	194.0	-50.0
6I	Stratus Lakeway	Mixed Use	22.81	1	0.0	8.0	8.0	0.35	b - From 10/12/2022 mtg w/Stratus & COLW: tract will be deeded	8.0	
6J	Legend Communities / Square at Lohma	Mixed Use	54.95	2	0.0	244.0	244.0	4.44	b- Based on June 2023 Prelim Plan Rpt by CBD for DA	424.0	-180.0
6K	Jovie	Multi-Family	5.72	1	0.0	126.0	126.0	22.02	WCID 17 Assignment Table (9/1/2022 - 3/22/2024)	134.0	-8.0
6L	Lohmans Crossing Office/Retail	Commercial	0.00	6	0.0	0.0	0.0	#DIV/0!	e - COLW Zoning: C-1 (Office/Retail)	68.3	-68.3
6L1	2200S RR 620 (Berry Tract)	Multi-Family	3.96	1	0.0	53.0	53.0	13.38	SER Tracker - 4/9/2024	0.0	53.0
6L2	300 Birrell St		5.36	1	0.0	46.0	46.0	2.65	SER Tracker - 4/9/2024	0.0	46.0
6L3	2410 RR 620 (Lakeway Towne Center 4)	Commercial	8.53	2	0.0	16.0	16.0	1.88	SER Tracker - 4/9/2024	0.0	16.0
6L4	1457981 Lohmans Spur	Commercial	1.72	1	0.0	4.0	4.0	2.65	e - COLW Zoning: C-1 (Office/Retail)	0.0	4.0
6L5	128459 Lohmans Spur	Commercial	2.00	1	0.0	5.0	5.0	2.65	e - COLW Zoning: C-1 (Office/Retail)	0.0	5.0
6L6	2051 Lohmans Spur	Commercial	3.70	1	0.0	10.0	10.0	2.65	e - COLW Zoning: C-1 (Office/Retail)	0.0	10.0
6M	The Landing Lakeway Villas	Multi-Family	16.52	1	83.5	0.0	83.5	5.05		86.5	-3.0
	Capacity Bank					305.0	305.0		To account for developments requiring more LUEs than listed and for redevelopment of existing properties	0.0	305.0
Total Pressure Plane 6			**854.76**		**1,618.5**	**1,133.4**	**2,751.9**	**3.2**		**2,509.2**	**242.7**

ATTACHMENT 'B'

TRAVIS COUNTY WCID No. 17

LAND USE ASSUMPTIONS - 2024 UPDATE

Pressure Plane 7 - High School Pressure Plane

No	Description	Anticipated Use	Area (Ac)	No. of Lots / Tracts	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Basis for Land Use Assum. / Notes	2022 Update Total Projected LUEs	Difference 2024 minus 2022
7A	High School PP - Existing	Mixed Use	952.49		1,879.0	0.0	1,879.0	1.97	N/A	1,904.5	-25.5
7A	High School PP - Prop. Residential	Residential	16.09	32	0.0	40.0	40.0	2.49	a - Assume Half 3/4" Meters	40.0	
7A	High School PP - Preserve/Green	N/A	280.08		0.0	0.0	0.0	0.00	No Development	0.0	
7B	Balcones Point (2811 RR 620)	Multi-Family	33.86	1	0.0	178.5	178.5	5.27	SER Tracker - 4/9/2024	230.0	-51.5
7C	Overlook at Lakeway	Commercial	9.21	2	18.0	1.5	19.5	2.12	1 - 3/4" meter for irrigation assumed (Previously assumed 1-2"	17.5	2.0
7D	Hillsong - Lower Portion	Residential	19.59	2	0.0	86.5	86.5	4.42	b - July 2022 Plans. Total: 126 Residential Condos, 1 City Park.	86.5	
7E	Hospital Development	Mixed Use	64.39	2	279.0	13.0	292.0	4.53	b - Lakeway Medical Village remaining= Bldg A: 1" meter, Bldg B: 1"	320.0	-28.0
7F	Garnett Tract	Mixed Use	7.40	1	0.0	18.0	18.0	2.39	f	18.0	
7G	Twin Creeks Tracts	Residential					0.0			76.0	-76.0
7G1	16177 Flint Rock Rd	Residential	35.90	1	2.5	0.0	2.5		WCID 17 Assignment Table (9/1/2022 - 3/22/2024)		2.5
7G2	1864452 Flint Rock Rd	Residential	7.03	1		6.9	6.9	0.99	c		6.9
7G3	16103 Flint Rock Rd	Residential	3.67	1		3.6	3.6	0.99	c		3.6
7G4	16103 Flint Rock Rd	Residential	10.05	1		9.9	9.9	0.99	c		9.9
7G5	16001 Flint Rock Rd	Residential	1.92	1		1.9	1.9	0.99	c		1.9
7G6	15809 Flint Rock Rd	Residential	18.80	1		18.4	18.4	0.99	c		18.4
7H	BTE Energy Tracts	Residential	10.04	2	1.0	9.0	10.0	0.99	c	10.0	
7I	4008 Pawnee Pass	Residential	4.06	1	0.0	4.0	4.0	0.99	c	4.0	
7J	Ford Tracts	Residential	4.39	2	0.0	5.0	5.0	0.99	c	5.0	
7K	16609 Flintrock Rd	Residential	5.08	1	0.0	5.0	5.0	0.99	c	5.0	
7L	3595 S RR 620	Mixed Use	7.07	1	0.0	0.0	0.0	0.00	Property is bordered by WTCPUA properties and infrastructure to	0.0	
	Capacity Bank					320.0	320.0		To account for developments requiring more LUEs than listed and for redevelopment of existing properties	0.0	320.0
Total Pressure Plane 7			**1,491.11**		**2,179.5**	**721.2**	**2,900.7**	**1.9**		**2,716.5**	**184.2**

ATTACHMENT 'B'
TRAVIS COUNTY WCID No. 17
LAND USE ASSUMPTIONS - 2024 UPDATE

Pressure Plane 8 - Highway 71 Pressure Plane

No	Description	Anticipated Use	Area (Ac)	No. of Lots / Tracts	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Basis for Land Use Assum. / Notes	2022 Update Total Projected LUEs	Difference 2024 minus 2022
8A	Hwy 71 PP - Existing	Mixed Use	557.83		1,665.5	0.0	1,665.5	2.99	N/A	1,749.0	-83.5
8A	Hwy 71 PP - Prop. Residential	Residential	188.38	103	0.0	128.8	128.8	0.68	a - Assume Half 3/4" Meters	128.8	
8A	Hwy 71 PP - Prop. Commercial	Commercial	0.00	0	0.0	0.0	0.0	2.65	e	0.0	
8A	Hwy 71 PP - Preserve/Green	N/A	415.97		0.0	0.0	0.0	0.00	No Development	0.0	
8B	Hillsong - Upper Portion	Residential	6.38	1	0.0	50.0	50.0	7.84	b - July 2022 Plans. Total: 126 Residential Condos, 1 City Park. Assume 5/8" meter per condo, 2" meter for park, 1" meter for irrigation (136.5 LUEs total); 50 Condos shown in Service Level 8.	50.0	
8C	Cherry Peak Office Condos	Commercial	6.22	1	32.0	0.0	32.0	5.14		24.0	8.0
8D	Cherry Peak Office Condos Ph. 2	Commercial	4.87	4	0.0	19.5	19.5	4.00	WCID 17 Assignment Table (9/1/2022 - 3/22/2024)	19.5	
8E	Mitchum Tract	Residential	20.89	1	0.0	20.6	20.6	0.99	c	22.1	-1.5
8F	Tracts North of Falcon Head West	Residential	104.38	5	0.0	102.0	102.0	0.99	c	102.0	
8G	Heller Tract	Residential	9.77	1	0.0	10.0	10.0	0.99	c	10.0	
8H	Serene Hills Commercial East Subd. - Lots 3 - 5	Commercial	0	0	0.0	0.0	0.0	#DIV/0!	Assumed 1.5" meter per lot.	15.0	-15.0
8H1	Serene Hills Commercial East Subd. - Lot 3 (16728 W SH 71)	Commercial	1.22	1	0.0	5.0	5.0		SER Tracker - 4/9/2024		5.0
8H2	Serene Hills Commercial East Subd. - Lot 4	Commercial	1.13	1	0.0	5.0	5.0		Assumed 1.5" meter per lot.		5.0
8H3	Serene Hills Commercial East Subd. - Lot 5	Commercial	1.44	1	8.0	0.0	8.0		Assumed 1.5" meter per lot.		8.0
8I	Serene Hills - Travis County ESD 6	Commercial	3.815	2	0.0	10.0	10.0	2.65	e	10.0	
8J	Serene Hills - HEB Tract	Commercial	21.183	1	8.0	52.0	60.0	2.83	b - Engineering Rpt for Upgrade of Serene Hills Lift Station, by LJA	60.0	
8K	Serene Hills - Revel Lakeway	Multi-Family	9.21	1	0.0	35.0	35.0	3.80	b - 1-4" meter + 1.5" irrigation meter	35.0	
8L	Wells Tract	Residential	15.84	1	0.0	15.5	15.5	0.98	c	15.5	
8M	Eastside Landing	Residential	15.05	30	0.0	46.0	46.0	3.06	SER Tracker - 4/9/2024	46.0	
8N	Serene Hills West - Undeveloped	Residential	166.07	10	0.0	83.2	83.2	0.50	Rough Terrain	83.2	
8O	Lakeway Estates	Residential	46.01	23	0.0	34.5	34.5	0.75	b - Sept. 2021 Plans; 23 SF Lots: Assume 3/4" meter/Lot. OSSF WW.	34.5	
	Capacity Bank					126.0	126.0		To account for developments requiring more LUEs than listed and for redevelopment of existing properties	0.0	126.0
Total Pressure Plane 8			**1,595.65**		**1,713.5**	**743.1**	**2,456.6**	**1.5**		**2,404.6**	**52.0**

ATTACHMENT 'B'

TRAVIS COUNTY WCID No. 17

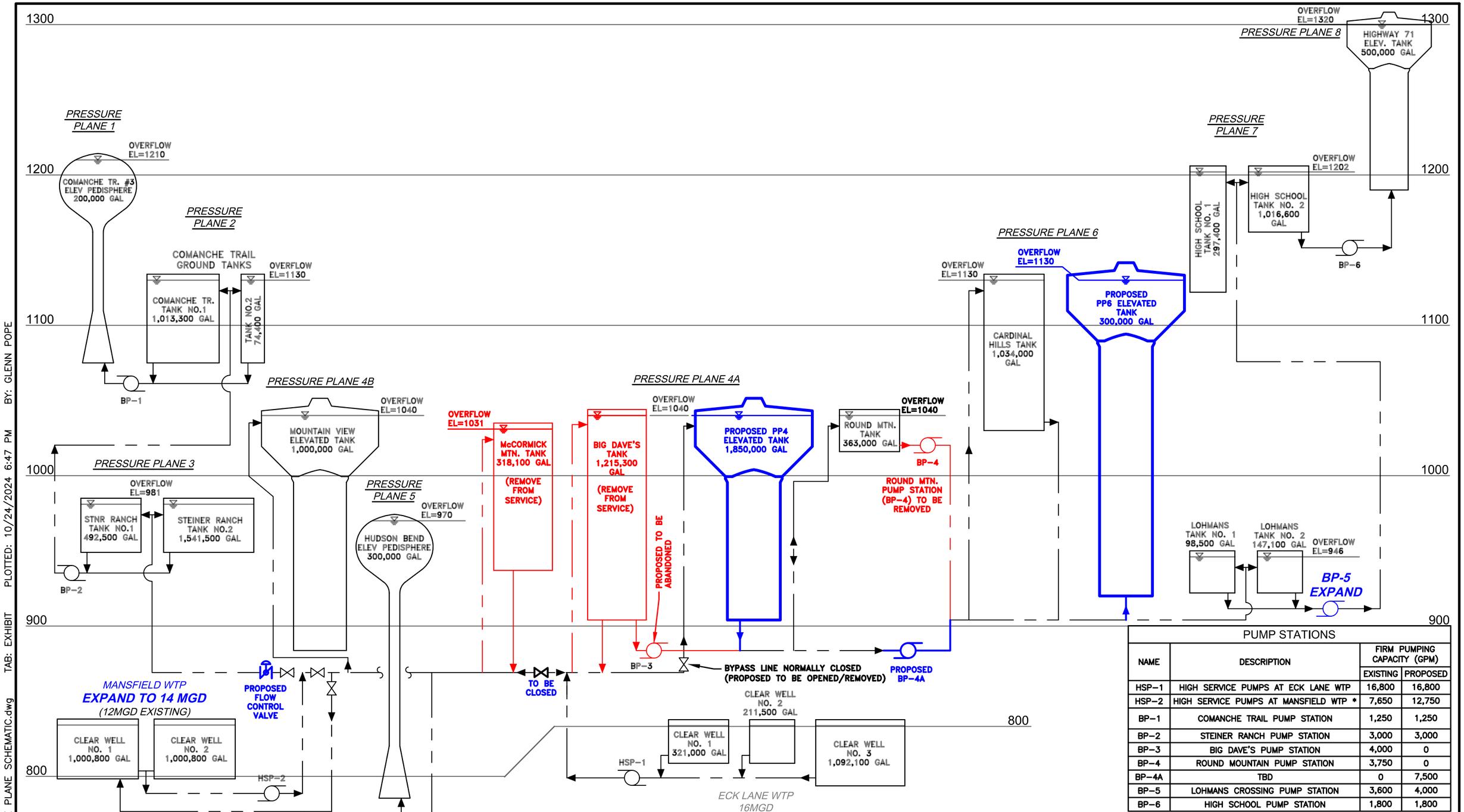
LAND USE ASSUMPTIONS - 2024 UPDATE

Summary

Service Level No.	Pressure Plane	Area (Ac)	Current LUEs	Assumed LUEs to be Added	Total Projected LUEs	LUEs /Ac	Existing/ Total Projected		2022 Update Total Projected LUEs	Difference 2024 minus 2022
1	Comanche Trail Elevated Pressure Plane	1,949.3	490.0	241.9	731.9	0.4	67%		709.3	22.6
2	Comanche Trail Pressure Plane	819.8	892.5	140.5	1,033.0	1.3	86%		1,191.0	-158.0
3	Steiner Ranch Pressure Plane	5,993.1	7,595.0	877.6	8,472.6	1.4	90%		7,896.9	575.7
4A	Central Pressure Plane-A	657.8	759.5	320.1	1,079.6	1.6	70%		999.5	80.0
5	Hudson Bend Pressure Plane	1,597.9	1,069.0	417.6	1,486.6	0.9	72%		1,281.1	205.5
Subtotal - Mansfield WTP Service Area		**11,017.9**	**10,806.0**	**1,997.7**	**12,803.7**	**1.2**	**84%**		**12,077.9**	**725.8**
4B	Central Pressure Plane-B	4,331.8	4,158.0	2,249.2	6,407.2	1.5	65%		5,842.2	565.0
6	Cardinal Hills Pressure Plane	854.8	1,618.5	1,133.4	2,751.9	3.2	59%		2,509.2	242.7
7	High School Pressure Plane	1,491.1	2,179.5	721.2	2,900.7	1.9	75%		2,716.5	184.2
8	Highway 71 Tank Pressure Plane	1,595.7	1,713.5	743.1	2,456.6	1.5	70%		2,404.6	52.0
Subtotal - Eck WTP Service Area		**8,273**	**9,669.5**	**4,846.8**	**14,516.3**	**1.8**	**67%**		**13,472.4**	**1,043.9**
TOTAL:		**19,291**	**20,476**	**6,844.5**	**27,320.0**	**1.4**	**75%**		**25,550.3**	**1,769.7**

Capacity Bank Summary

	LUEs
Mansfield WTP Service Area	**696**
Eck Ln WTP Service Area	**1,331**
TOTAL:	**2,027**



PUMP STATIONS

NAME	DESCRIPTION	FIRM PUMPING CAPACITY (GPM)	
		EXISTING	PROPOSED
HSP-1	HIGH SERVICE PUMPS AT ECK LANE WTP	16,800	16,800
HSP-2	HIGH SERVICE PUMPS AT MANSFIELD WTP *	7,650	12,750
BP-1	COMANCHE TRAIL PUMP STATION	1,250	1,250
BP-2	STEINER RANCH PUMP STATION	3,000	3,000
BP-3	BIG DAVE'S PUMP STATION	4,000	0
BP-4	ROUND MOUNTAIN PUMP STATION	3,750	0
BP-4A	TBD	0	7,500
BP-5	LOHMANS CROSSING PUMP STATION	3,600	4,000
BP-6	HIGH SCHOOL PUMP STATION	1,800	1,800

LEGEND

PROPOSED

TO BE REMOVED

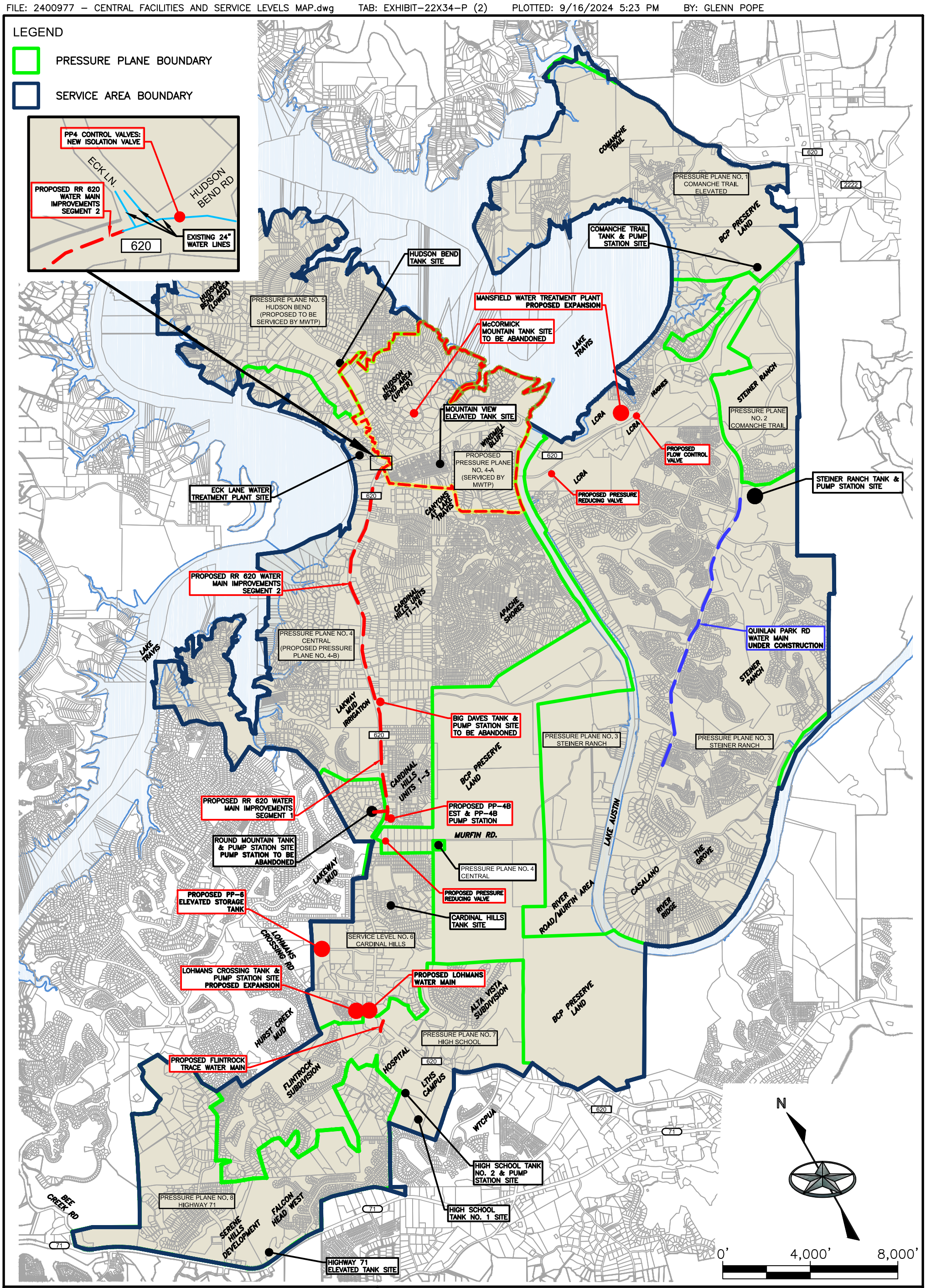
Green Civil Design
a BAXTER & WOODMAN company
301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(512)640-6590
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
WATER IMPACT FEE STUDY
2024 UPDATE

ATTACHMENT 'C'
CENTRAL FACILITIES & PRESSURE PLANE SCHEMATIC

FILE: 2400977 – PRESSURE PLANE SCHEMATIC.dwg TAB: EXHIBIT PLOTTED: 10/24/2024 6:47 PM BY: GLENN POPE

FILE: 2400977 – CENTRAL FACILITIES AND SERVICE LEVELS MAP.dwg TAB: EXHIBIT–22X34–P (2) PLOTTED: 9/16/2024 5:23 PM BY: GLENN POPE



Green Civil Design
a BAXTER & WOODMAN company

301 DENALI PASS DR., SUITE 3
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(281)350–7027
TEXAS REGISTERED ENGINEERING FIRM F–21783

TRAVIS COUNTY WCID NO. 17
WATER IMPACT FEE STUDY
2024 UPDATE

ATTACHMENT 'D'
CENTRAL FACILITIES AND SERVICE LEVELS MAP

ATTACHMENT E-1

TRAVIS COUNTY WCID 17

WATER SYSTEM EVALUATION SUMMARY

Facility	Existing Water System						Water System w/Proposed Improvements				Capacity Bank [a] (LUEs)	LUEs To Reach 95% Capacity [b]
	Capacity		Existing Conditions		Projected Ultimate Demands		Capacity		Projected Ultimate Demands			
		(LUEs)	LUEs	% Capacity	LUEs	% Capacity		(LUEs)	LUEs	% Capacity		
Overall System (Service Levels 1-8)		**29,228**	**20,476**	**70%**	**27,320**	**93%**		**31,315**	**27,320**	**87%**		
Water Treatment (Eck Ln & Mansfield)	28 MGD	29,228	20,476	70%	27,320	93%	30 MGD	31,315	27,320	87%		
Clearwell Storage	3,626,456 Gal	37,776	20,476	54%	27,320	72%	3,626,456 Gal	37,776	27,320	72%		
Elevated Storage	6,234,846 Gal	32,541	20,476	63%	27,320	84%	7,872,493 Gal	41,088	27,320	66%		
Total Storage	13,238,490 Gal	31,149	20,476	66%	27,320	88%	13,805,070 Gal	32,483	27,320	84%		
Raw Water Pumps	22,200 GPM	33,370	20,476	61%	27,320	82%	22,200 GPM	33,370	27,320	82%		
High Service Pumps	29,550 GPM	37,015	20,476	55%	27,320	74%	29,550 GPM	37,015	27,320	74%		
Mansfield WTP System (Service Levels 1-3, 4A, 5)		**12,526**	8,978	**72%**	12,804	**102%**		**14,614**	12,804	**88%**	**696**	**1,080**
Water Treatment	12 MGD	12,526	8,978	72%	12,804	102%	14 MGD	14,614	12,804	88%		
Clearwell Storage	2,001,694 Gal	20,851	8,978	43%	12,804	61%	2,001,694 Gal	20,851	12,804	61%		
Elevated Storage	3,000,419 Gal	15,660	8,978	57%	12,804	82%	3,500,419 Gal	18,269	12,804	70%		
Total Storage	5,323,478 Gal	12,526	8,978	72%	12,804	102%	6,323,478 Gal	14,879	12,804	86%		
Raw Water Pumps	11,000 GPM	16,534	8,978	54%	12,804	77%	11,000 GPM	16,534	12,804	77%		
High Service Pumps	12,750 GPM	15,971	8,978	56%	12,804	80%	12,750 GPM	15,971	12,804	80%		
Eck Ln WTP System (Service Levels 4B, 6-8)		**16,701**	9,670	**58%**	14,516	**87%**		**16,701**	14,516	**87%**	**1,331**	**1,351**
Water Treatment	16 MGD	16,701	9,670	58%	14,516	87%	16 MGD	16,701	14,516	87%		
Clearwell Storage	1,624,762 Gal	16,925	9,670	57%	14,516	86%	1,624,762 Gal	16,925	14,516	86%		
Elevated Storage	3,234,426 Gal	16,881	9,670	57%	14,516	86%	4,372,074 Gal	22,819	14,516	64%		
Total Storage	7,415,012 Gal	17,447	9,670	55%	14,516	83%	7,481,592 Gal	17,604	14,516	82%		
Raw Water Pumps	11,200 GPM	16,835	9,670	57%	14,516	86%	11,200 GPM	16,835	14,516	86%		
High Service Pumps	16,800 GPM	21,044	9,670	46%	14,516	69%	16,800 GPM	21,044	14,516	69%		
Service Level 1 (Comanche Tr Elev Pressure Plane)		**1,044**	490	**47%**	732	**70%**		**1,044**	732	**70%**	**65**	**260**
Elevated Storage	200,000 Gal	1,044	490	47%	732	70%	200,000 Gal	1,044	732	70%		
Total Storage	491,102 Gal	1,156	490	42%	732	63%	491,102 Gal	1,156	732	63%		
Booster Pump Capacity	1,250 GPM	1,879	490	26%	732	39%	1,250 GPM	1,879	732	39%		
Service Level 2 (Comanche Tr Pressure Plane)		**2,686**	893	**33%**	1,033	**39%**		**2,686**	1033	**39%**	**95**	**1,520**
Elevated Storage	594,458 Gal	3,103	893	29%	1,033	33%	594,458 Gal	3,103	1,033	33%		
Total Storage	1,141,741 Gal	2,686	893	33%	1,033	38%	1,141,741 Gal	2,686	1,033	38%		
Booster Pump Capacity	3,000 GPM	4,509	1,383	31%	1,765	39%	3,000 GPM	4,509	1,765	39%		
Service Level 3 (Steiner Ranch Pressure Plane)		**9,860**	7,595	**77%**	8,473	**86%**		**8,919**	8,473	**95%**	**250**	**1**
Elevated Storage	2,205,962 Gal	11,513	7,595	66%	8,473	74%	1,805,962 Gal	9,426	8,473	90%		
Total Storage	4,190,635 Gal	9,860	7,595	77%	8,473	86%	3,790,635 Gal	8,919	8,473	95%		
Booster Pump Capacity	12,750 GPM	19,165	8,978	47%	10,238	53%	12,750 GPM	19,165	10,238	53%		

ATTACHMENT E-1

TRAVIS COUNTY WCID 17

WATER SYSTEM EVALUATION SUMMARY

Facility	Existing Water System						Water System w/Proposed Improvements				Capacity Bank [a] (LUEs)	LUEs To Reach 95% Capacity [b]
	Capacity		Existing Conditions		Projected Ultimate Demands		Capacity		Projected Ultimate Demands			
		(LUEs)	LUEs	% Capacity	LUEs	% Capacity		(LUEs)	LUEs	% Capacity		
Service Level 4-A (Central Pressure Plane A)		**1,548**	760	**56%**	1,080	**70%**		**1,576**	1,080	**68%**	**100**	**419**
Elevated Storage	604,907 Gal	3,157	760	24%	1,080	34%	670,000 Gal	3,497	1,080	31%		
Total Storage	658,105 Gal	1,548	760	49%	1,080	70%	670,000 Gal	1,576	1,080	68%		
Booster Pump Capacity	12,750 GPM	19,165	10,733	56%	12,804	67%	12,750 GPM	19,165	12,804	67%		
Service Level 4-B (Central Pressure Plane B)		**3,761**	4,158	**111%**	6,407	**170%**		**6,895**	6,407	**93%**	**580**	**143**
Elevated Storage	720,519 Gal	3,761	4,158	111%	6,407	170%	2,213,074 Gal	11,550	6,407	55%		
Total Storage	2,228,903 Gal	5,244	4,158	79%	6,407	122%	2,930,208 Gal	6,895	6,407	93%		
Booster Pump Capacity	16,800 GPM	25,253	9,670	38%	14,516	57%	16,800 GPM	25,253	14,516	57%		
Service Level 5 (Hudson Bend Pressure Plane)		**1,437**	1,069	**74%**	1,487	**103%**		**1,566**	1,487	**95%**	**186**	**1**
Elevated Storage	300,000 Gal	1,566	1,069	68%	1,487	95%	300,000 Gal	1,566	1,487	95%		
Total Storage	610,933 Gal	1,437	1,069	74%	1,487	103%	680,933 Gal	1,602	1,487	93%		
No Booster Pumps - Fed by Gravity	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Service Level 6 (Cardinal Hills Pressure Plane)		**2,453**	1,619	**98%**	2,752	**144%**		**3,679**	2,752	**75%**	**305**	**743**
Elevated Storage	470,014 Gal	2,453	1,619	66%	2,752	112%	720,014 Gal	3,758	2,752	73%		
Total Storage	1,313,428 Gal	3,090	1,619	52%	2,752	89%	1,563,428 Gal	3,679	2,752	75%		
Booster Pump Capacity	3,750 GPM	5,637	5,512	98%	8,109	144%	7,500 GPM	11,273	8,109	72%		
Service Level 7 (High School Pressure Plane)		**3,335**	2,180	**72%**	2,901	**99%**		**3,335**	2,901	**89%**	**320**	**268**
Elevated Storage	638,987 Gal	3,335	2,180	65%	2,901	87%	638,987 Gal	3,335	2,901	87%		
Total Storage	1,504,232 Gal	3,539	2,180	62%	2,901	82%	1,504,232 Gal	3,539	2,901	82%		
Booster Pump Capacity	3,600 GPM	5,411	3,893	72%	5,357	99%	4,000 GPM	6,013	5,357	89%		
Service Level 8 (Hwy 71 Tank Pressure Plane)		**2,587**	1,714	**66%**	2,457	**95%**		**2,587**	2,457	**95%**	**126**	**1**
Elevated Storage	500,000 Gal	2,610	1,714	66%	2,457	94%	500,000 Gal	2,610	2,457	94%		
Total Storage	1,099,411 Gal	2,587	1,714	66%	2,457	95%	1,099,411 Gal	2,587	2,457	95%		
Booster Pump Capacity	1,800 GPM	2,706	1,714	63%	2,457	91%	1,800 GPM	2,706	2,457	91%		

a. The Capacity Bank is capacity assigned to each Pressure Plane to account for developments requiring more LUEs than listed and for redevelopment of existing properties.
b. This is the number of LUEs, in addtion to the Capacity Bank, to reach 95% capacity.

ATTACHMENT E-2

ANALYSIS OF EXISTING AND PROPOSED IMPROVEMENTS

PRESSURE PLANES

Pressure Plane No. 1
"Comanche Trail Elevated Pressure Plane"
Overflow Elevation: 1210 Serves Elevations: 1100 to 700

LUEs

Service Level (Subject & Downstream)	Existing LUEs	Total Projected LUEs
1	490	732
Total (Used for Pump Rqmts):	490	732

Existing Water Storage Tanks

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Comanche Trail Elevated Tank	200,000	0	200,000
Comanche Trail Tank No. 1	0	138,184	138,184
Comanche Trail Tank No. 2	0	9,805	9,805
MWTP Clearwell No. 1	0	71,557	71,557
MWTP Clearwell No. 2	0	71,557	71,557
Total:	200,000	291,102	491,102

Existing Booster Pump Stations

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Comanche Trail Pump Station	2 - 1250 gpm centrifugal pumps	1,250
	Total:	1,250

Evaluation:

	Existing Conditions			Proposed Conditions		
Requirement	Required	Capacity	% Capacity	Required	Capacity	% Capacity
Elevated Water Storage (gal)	93,884	200,000	47%	140,241	200,000	70%
Total Water Storage (gal)	208,250	491,102	42%	311,077	491,102	63%
Booster Pump Capacity (gpm)	326	1,250	26%	487	1,250	39%

Note: Elevated Storage calculated as water storage volume located at least 80' above highest elevation served.

ATTACHMENT E-2

ANALYSIS OF EXISTING AND PROPOSED IMPROVEMENTS

PRESSURE PLANES

Pressure Plane No. 2
"Comanche Trail Pressure Plane"
Overflow Elevation: 1130 Serves Elevations: 1020 to 700

LUEs

Service Level (Subject & Downstream)	Existing LUEs	Total Projected LUEs
2	893	1,033
1	490	732
Total (Used for Pump Rqmts):	1,383	1,765

Existing Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Comanche Trail Tank No. 1 [a]	552,736	322,429	875,165
Comanche Trail Tank No. 2 [a]	41,721	22,877	64,599
MWTP Clearwell No. 1	0	100,989	100,989
MWTP Clearwell No. 2	0	100,989	100,989
Total:	594,458	547,284	1,141,741

Existing Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Steiner Ranch Pump Station	3 - 1500 gpm vertical turbine pumps	3,000
	Total:	3,000

Evaluation:

	Existing Conditions			Proposed Conditions		
Requirement	Required	Capacity	% Capacity	Required	Capacity	% Capacity
Elevated Water Storage (gal)	171,003	594,458	29%	197,923	594,458	33%
Total Water Storage (gal)	379,313	1,141,741	33%	439,025	1,141,741	38%
Booster Pump Capacity (gpm)	920	3,000	31%	1,175	3,000	39%

(a) Portion of Comanche Trail Tank storage allocated as ground storage for Service Level 1

Note: Elevated Storage calculated as water storage volume located at least 80' above highest elevation served.

PRESSURE PLANES

Pressure Plane No. 3
"Steiner Ranch Pressure Plane"
Overflow Elevation: 981 Serves Elevations: 875 to 640

LUEs

Service Level (Subject & Downstream)	Existing LUEs	Total Projected LUEs
3	7,595	8,473
2	893	1,033
1	490	732
Total (Used for Pump Rqmts):	8,978	10,238

Existing Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Steiner Ranch Tank No. 1	413,048	79,432	492,480
Steiner Ranch Tank No. 2	1,292,914	248,637	1,541,551
Mountain View Elevated Tank [(a)]	500,000	0	500,000
MWTP Clearwell No. 1	0	828,302	828,302
MWTP Clearwell No. 2	0	828,302	828,302
Total:	2,205,962	1,984,673	4,190,635

Proposed Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Steiner Ranch Tank No. 1	413,048	79,432	492,480
Steiner Ranch Tank No. 2	1,292,914	248,637	1,541,551
Mountain View Elevated Tank [(a)]	100,000	0	100,000
MWTP Clearwell No. 1	0	828,302	828,302
MWTP Clearwell No. 2	0	828,302	828,302
Total:	1,805,962	1,984,673	3,790,635

Existing Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Mansfield WTP High Service Pumps	6- 2550 gpm High Service Pumps	12,750
	Total:	12,750

Evaluation:

	Existing Conditions			Proposed Conditions		
Requirement	Required	Capacity	% Capacity	Required	Capacity	% Capacity
Elevated Water Storage (gal)	1,455,202	2,205,962	66%	1,623,350	1,805,962	90%
Total Water Storage (gal)	3,227,875	4,190,635	77%	3,600,855	3,790,635	95%
Booster Pump Capacity (gpm)	5,973	12,750	47%	6,811	12,750	53%

(a) 500,000 gallons of the 1,000,000 gallon Mountain View Elevated Tank is used for Service Level 3 ("Steiner Ranch Pressure Plane") elevated storage while Service Level 4 ("Central Pressure Plane") supplements. When Pressure Plane 4 is separated, Mountain View Tank will predominantly serve PP-4A, but also provide storage to PP-3 and PP-5.

Note: Elevated Storage calculated as water storage volume located at least 80' above highest elevation served.

ATTACHMENT E-2

ANALYSIS OF EXISTING AND PROPOSED IMPROVEMENTS

PRESSURE PLANES

Pressure Plane No. 4A
"Central Pressure Plane-A"
Overflow Elevation: 1040 Serves Elevations: 920 to 700

LUEs

Service Level (Subject & Downstream)	Existing LUEs	Total Projected LUEs
4A	759.5	1,079.6
1	490.0	731.9
2	819.8	1,033.0
3	7,595.0	8,472.6
5	1,069.0	1,486.6
Total (Used for Pump Rqmts):	10,733.3	12,803.7

Existing Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Mountain View Elevated Tank [(a)]	500,000	0	500,000
McCormick Mountain Tank [(b)]	104,907	53,198	158,105
Total:	604,907	53,198	658,105

Proposed Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Mountain View Elevated Tank [(a)]	670,000	0	670,000
McCormick Mountain Tank [(b)]	0	0	0
Total:	670,000	0	670,000

Existing Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Msfld WTP High Service Pumps	6- 2550 gpm High Service Pumps	12,750
	Total:	12,750

Proposed Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Msfld WTP High Service Pumps	6- 2550 gpm High Service Pumps	12,750
	Total:	12,750

Evaluation:

	Existing Conditions			Proposed Conditions		
Requirement	Required	Capacity	% Capacity	Required	Capacity	% Capacity
Elevated Water Storage (gal)	145,520	604,907	24%	206,842	670,000	31%
Total Water Storage (gal)	322,788	658,105	49%	458,809	670,000	68%
Booster Pump Capacity (gpm)	7,141	12,750	56%	8,519	12,750	67%

a) 500,000 gallons of the 1,000,000 gallon Mountain View Elevated Tank is currently used for Service Level 3 ("Steiner Ranch Pressure Plane") elevated storage while Service Level 4 ("Central Pressure Plane") supplements. When Pressure Plane 4 is separated, Mountain View Tank will predominantly serve PP 4A, but also provide storage to PP-3 and PP-5.

(b) A portion of the McCormick Mountain Tank is currently shown for PP-5 ("Hudson Bend Pressure Plane") ground storage, but it is assumed it will be removed from service.

Note: Elevated Storage calculated as water storage volume located at least 80' above highest elevation served.

ATTACHMENT E-2

ANALYSIS OF EXISTING AND PROPOSED IMPROVEMENTS

PRESSURE PLANES

Pressure Plane No. 4B
"Central Pressure Plane-B"
Overflow Elevation: 1040 Serves Elevations: 920 to 700

LUEs

Service Level (Subject & Downstream)	Existing LUEs	Total Projected LUEs
4B	4,158.0	6,407.2
6	1,618.5	2,751.9
7	2,179.5	2,900.7
8	1,713.5	2,456.6
Total (Used for Pump Rqmts):	9,669.5	14,516.3

Existing Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Big Daves Tank	357,445	857,869	1,215,314
Round Mountain Tank	363,074	0	363,074
EWTP Clearwell No. 1	0	128,545	128,545
EWTP Clearwell No.2	0	84,682	84,682
EWTP Clearwell No. 3	0	437,288	437,288
Total:	720,519	1,508,384	2,228,903

Proposed Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Big Daves Tank	0	0	0
Round Mountain Tank	363,074	0	363,074
PP-4 Elevated Storage Tank	1,850,000	0	1,850,000
EWTP Clearwell No. 1	0	141,709	141,709
EWTP Clearwell No.2	0	93,354	93,354
EWTP Clearwell No. 3	0	482,070	482,070
Total:	2,213,074	717,134	2,930,208

Existing Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Eck Ln WTP High Service Pumps	5 - 2100 gpm centrifugal pumps	8,400
Eck Ln WTP High Service Pumps	4 - 2100 gpm vertical turbine pumps	8,400
Big Daves Pump Station	3 - 2000 gpm vertical turbine pumps	0
	Total:	16,800

Proposed Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Eck Ln WTP High Service Pumps	5 - 2100 gpm centrifugal pumps	8,400
Eck Ln WTP High Service Pumps	4 - 2100 gpm vertical turbine pumps	8,400
Big Daves Pump Station	Abandoned	0
	Total:	16,800

Evaluation:

	Existing Conditions			Proposed Conditions		
Requirement	Required	Capacity	% Capacity	Required	Capacity	% Capacity
Elevated Water Storage (gal)	796,673	720,519	111%	1,227,618	2,213,074	55%
Total Water Storage (gal)	1,767,150	2,228,903	79%	2,723,056	2,930,208	93%
Booster Pump Capacity (gpm)	6,433	16,800	38%	9,658	16,800	57%

Note: Elevated Storage calculated as water storage volume located at least 80' above highest elevation served.

PRESSURE PLANES

Pressure Plane No. 5
"Hudson Bend Pressure Plane"
Overflow Elevation: 970 Serves Elevations: 800 to 700

LUEs

Service Level (Subject & Downstream)	Existing LUEs	Total Projected LUEs
5	1,069	1,487
Total (Used for Pump Rqmts):	1,069	1,487

Existing Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
McCormick Mountain Tank [(a)]	0	160,000	160,000
Hudson Bend Tank	300,000	0	300,000
EWTP Clearwell No. 1	0	29,825	29,825
EWTP Clearwell No.2	0	19,648	19,648
EWTP Clearwell No. 3	0	101,460	101,460
Total:	300,000	310,933	610,933

Proposed Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
McCormick Mountain Tank [(b)]	0	0	0
Mountain View Tank	0	230,000	230,000
Big Daves Tank	0	0	0
Hudson Bend Tank	300,000	0	300,000
EWTP Clearwell No. 1	0	29,825	29,825
EWTP Clearwell No.2	0	19,648	19,648
EWTP Clearwell No. 3	0	101,460	101,460
Total:	300,000	380,933	680,933

Existing Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
None	None Constructed	0
	Total:	0

Evaluation:

Requirement	Existing Conditions			Proposed Conditions		
	Required	Capacity	% Capacity	Required	Capacity	% Capacity
Elevated Water Storage (gal)	204,820	300,000	68%	284,833	300,000	95%
Total Water Storage (gal)	454,325	610,933	74%	631,805	680,933	93%
Booster Pump Capacity (gpm)	0	0		0	0	

(a) Remaining volume of McCormick Mountain Tank is used for Service Level 4 ("Central Pressure Plane") ground and elevated storage.

(b) McCormick Mountain Tank assumed to be removed from service.

Note: Elevated Storage calculated as water storage volume located at least 80' above highest elevation served.

PRESSURE PLANES

Pressure Plane No. 6
"Cardinal Hills Pressure Plane"
Overflow Elevation: 1130 Serves Elevations: 1000 to 800

LUEs

Service Level (Subject & Downstream)	Existing LUEs	Total Projected LUEs
6	1,619	2,752
7	2,180	2,901
8	1,714	2,457
Total (Used for Pump Rqmts):	5,512	8,109

Existing Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Cardinal Hills Tank	470,014	564,016	1,034,030
EWTP Clearwell No. 1	0	55,210	55,210
EWTP Clearwell No.2	0	36,371	36,371
EWTP Clearwell No. 3	0	187,816	187,816
Total:	470,014	843,414	1,313,428

Proposed Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
SL 6 Elevated Storage Tank	250,000	0	250,000
Cardinal Hills Tank	470,014	564,016	1,034,030
EWTP Clearwell No. 1	0	55,210	55,210
EWTP Clearwell No.2	0	36,371	36,371
EWTP Clearwell No. 3	0	187,816	187,816
Total:	720,014	843,414	1,563,428

Existing Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Round Mountain Pump Station	3 - 1250 gpm vertical turbine pumps and 1 -3500 gpm vertical	3,750
	Total:	3,750

Proposed Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Round Mountain Pump Station	4-2500 gpm vertical turbine pumps (3 to operate)	7,500
	Total:	7,500

Evaluation:

	Existing Conditions			Proposed Conditions		
Requirement	Required	Capacity	% Capacity	Required	Capacity	% Capacity
Elevated Water Storage (gal)	310,105	470,014	66%	527,264	720,014	73%
Total Water Storage (gal)	687,863	1,313,428	52%	1,169,558	1,563,428	75%
Booster Pump Capacity (gpm)	3,667	3,750	98%	5,395	7,500	72%

Note: Elevated Storage calculated as water storage volume located at least 80' above highest elevation served.

PRESSURE PLANES

Pressure Plane No. 7
"High School Pressure Plane"
Overflow Elevation: 1202 Serves Elevations: 1100 to 800

LUEs

Service Level (Subject & Downstream)	Existing LUEs	Total Projected LUEs
7	2,180	2,901
8	1,714	2,457
Total (Used for Pump Rqmts):	3,893	5,357

Existing Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Lohmans Tank No. 1	0	98,509	98,509
Lohmans Tank No. 2	0	147,155	147,155
High School Tank No. 1	84,456	212,975	297,431
High School Tank No. 2 (a)	554,531	112,101	666,632
EWTP Clearwell No. 1	0	58,196	58,196
EWTP Clearwell No.2	0	38,338	38,338
EWTP Clearwell No. 3	0	197,972	197,972
Total:	638,987	865,245	1,504,232

Proposed Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
Lohmans Tank No. 1	0	98,509	98,509
Lohmans Tank No. 2	0	147,155	147,155
High School Tank No. 1	84,456	212,975	297,431
High School Tank No. 2 (a)	554,531	112,101	666,632
EWTP Clearwell No. 1	0	58,196	58,196
EWTP Clearwell No.2	0	38,338	38,338
EWTP Clearwell No. 3	0	197,972	197,972
Total:	638,987	865,245	1,504,232

Existing Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Lohmans Crossing Pump Station	4 - 1,200 gpm centrifugal pumps	3,600
	Total:	3,600

Proposed Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
Lohmans Crossing Pump Station	4 - 1,335 gpm centrifugal pumps	4,000
	Total:	4,000

Evaluation:

	Existing Conditions			Proposed Conditions		
Requirement	Required	Capacity	% Capacity	Required	Capacity	% Capacity
Elevated Water Storage (gal)	417,592	638,987	65%	555,774	638,987	87%
Total Water Storage (gal)	926,288	1,504,232	62%	1,232,798	1,504,232	82%
Booster Pump Capacity (gpm)	2,590	3,600	72%	3,565	4,000	89%

(a) A portion of High School Tank No. 2 is used for Service Level No. 8 ("Hwy 71 Tank Pressure Plane") ground storage.

Note: Elevated Storage calculated as water storage volume located at least 80' above highest elevation served.

PRESSURE PLANES

Pressure Plane No. 8
"Hwy 71 Tank Elevated Pressure Plane"
Overflow Elevation: 1300 Serves Elevations: 1150 to 955

LUEs

Service Level (Subject & Downstream)	Existing LUEs	Total Projected LUEs
8	1,714	2,457
Total (Used for Pump Rqmts):	1,714	2,457

Existing Water Storage Tanks:

Tank	Elev Storage (Gallons)	Ground Storage (Gallons)	Total Storage (Gallons)
High School Tank No. 2	0	350,000	350,000
Hwy 71 Elevated Tank	500,000	0	500,000
EWTP Clearwell No. 1	0	49,285	49,285
EWTP Clearwell No.2	0	32,468	32,468
EWTP Clearwell No. 3	0	167,659	167,659
Total:	500,000	599,411	1,099,411

Existing Booster Pump Stations:

Booster Pump Station	Description	Firm Pumping Capacity (gpm)
High School Pump Station	2 - 1800 gpm pumps	1,800
	Total:	1,800

Evaluation:

	Existing Conditions			Proposed Conditions		
Requirement	Required	Capacity	% Capacity	Required	Capacity	% Capacity
Elevated Water Storage (gal)	328,307	500,000	66%	470,675	500,000	94%
Total Water Storage (gal)	728,238	1,099,411	66%	1,044,034	1,099,411	95%
Booster Pump Capacity (gpm)	1,140	1,800	63%	1,635	1,800	91%

Note: Elevated Storage calculated as water storage volume located at least 80' above highest elevation served.

ATTACHMENT F

TRAVIS COUNTY WCID 17

WATER STORAGE TANK INVENTORY

EXISTING SYSTEM

Name	Primary Service Level	Secondary Service Level	Style	Total Storage (Gal)	Elevated Storage (Gal)	Ground Storage (Gal)	Highest Elev Served	Diameter (Ft)	Height (Ft) (To Overflow)	Min WSEL	Overflow Elev	STORAGE ALLOCATIONS Service Level	Elevated Storage (Gal)	Ground Storage (Gal)	Service Level	Elevated Storage (Gal)	Ground Storage (Gal)
Comanche Trail Elevated	1	N/A	Spheroid	200,000	200,000	0	1100	41.00	139.0	1180.0	1210.0	NA	NA	NA	NA	NA	NA
Comanche Trail Tank No. 1	2	1	Standpipe	1,013,349	552,736	460,613	1020	56.00	55.0	1075.0	1130.0	2	552,736	322,429	1	0	138,184
Comanche Trail Tank No. 2	2	1	Standpipe	74,403	41,721	32,682	1020	15.39	53.5	1076.5	1130.0	2	41,721	22,877	1	0	9,805
Steiner Ranch Tank No. 1	3	N/A	Standpipe	492,480	413,048	79,432	875	52.00	31.0	950.0	981.0	NA	NA	NA	NA	NA	NA
Steiner Ranch Tank No. 2	3	N/A	Standpipe	1,541,551	1,292,914	248,637	875	92.00	31.0	950.0	981.0	NA	NA	NA	NA	NA	NA
McCormick Mountain Tank	4A	5	Standpipe	318,105	104,907	213,198	920	24.00	94.0	937.0	1031.0	4A	104,907	53,198	5	0	160,000
Mountain View Tank	4A	3	Composite	1,000,000	1,000,000	0	920	70.00	219.0	1002.0	1040.0	4A	500,000	0	3	500,000	0
Big Daves Tank	4B	N/A	Standpipe	1,215,314	357,445	857,869	920	39.00	136.0	904.0	1040.0	4B-1	357,445	600,508	4B-2	0	257,361
Round Mountain Tank	4B	N/A	Standpipe	363,074	363,074	0	920	53.00	22.0	1018.0	1040.0	NA	NA	NA	NA	NA	NA
Hudson Bend Tank	5	N/A	Spheroid	300,000	300,000	0	840	47.42	185.6	937.6	970.6	NA	NA	NA	NA	NA	NA
Cardinal Hills Tank	6	N/A	Standpipe	1,034,030	470,014	564,016	1000	40.00	110.0	1020.0	1130.0	NA	NA	NA	NA	NA	NA
Lohmans Crossing Tank No. 1	7	N/A	Standpipe	98,509	0	98,509	1100	27.00	23.0	923.0	946.0	NA	NA	NA	NA	NA	NA
Lohmans Crossing Tank No. 2	7	N/A	Standpipe	147,155	0	147,155	1100	33.00	23.0	923.0	946.0	NA	NA	NA	NA	NA	NA
High School Tank No. 1	7	N/A	Standpipe	297,431	84,456	212,975	1100	25.00	81.0	1122.0	1203.0	NA	NA	NA	NA	NA	NA
High School Tank No. 2	7	8	Standpipe	1,016,632	554,531	462,101	1100	65.50	40.3	1161.7	1202.0	7	554,531	112,101	8	0	350,000
Highway 71 Elevated Tank	8	N/A	Composite	500,000	500,000	0	1185	53.00	167.0	1287.5	1320.0	NA	NA	NA	NA	NA	NA
Eck Ln WTP Clearwell No. 1	N/A	N/A	Standpipe	321,061	0	321,061	N/A	36.00	42.2	759.8	802.0	NA	NA	NA	NA	NA	NA
Eck Ln WTP Clearwell No. 2	N/A	N/A	Standpipe	211,506	0	211,506	N/A	30.00	40.0	762.0	802.0	NA	NA	NA	NA	NA	NA
Eck Ln WTP Clearwell No. 3	N/A	N/A	Standpipe	1,092,194	0	1,092,194	N/A	65.00	44.0	757.9	801.9	NA	NA	NA	NA	NA	NA
Mansfield WTP Clearwell No. 1	N/A	N/A	Standpipe	1,000,847	0	1,000,847	N/A	78.00	28.0	761.0	789.0	NA	NA	NA	NA	NA	NA
Mansfield WTP Clearwell No. 2	N/A	N/A	Standpipe	1,000,847	0	1,000,847	N/A	78.00	28.0	761.0	789.0	NA	NA	NA	NA	NA	NA
TOTAL EXISTING				**13,238,490**	**6,234,846**	**7,003,644**											

ATTACHMENT F

TRAVIS COUNTY WCID 17

WATER STORAGE TANK INVENTORY

SYSTEM WITH PROPOSED IMPROVEMENTS

												STORAGE ALLOCATIONS								
Name	Primary Service Level	Secondary Service Level	Style	Total Storage (Gal)	Elevated Storage (Gal)	Ground Storage (Gal)	Highest Elev Served	Diameter (Ft)	Height (Ft) (To Overflow)	Min WSEL	Overflow Elev	Service Level	Elevated Storage (Gal)	Ground Storage (Gal)	Service Level	Elevated Storage (Gal)	Ground Storage (Gal)	Service Level	Elevated Storage (Gal)	Ground Storage (Gal)
Comanche Trail Elevated	1	N/A	Spheroid	200,000	200,000	0	1100	41.00	139.0	1180.0	1210.0	NA	NA	NA	NA	NA	NA			
Comanche Trail Tank No. 1	2	1	Standpipe	1,013,349	552,736	460,613	1020	56.00	55.0	1075.0	1130.0	2	552,736	322,429	1	0	138,184			
Comanche Trail Tank No. 2	2	1	Standpipe	74,403	41,721	32,682	1020	15.39	53.5	1076.5	1130.0	2	41,721	22,877	1	0	9,805			
Steiner Ranch Tank No. 1	3	N/A	Standpipe	492,480	413,048	79,432	875	52.00	31.0	950.0	981.0	NA	NA	NA	NA	NA	NA			
Steiner Ranch Tank No. 2	3	N/A	Standpipe	1,541,551	1,292,914	248,637	875	92.00	31.0	950.0	981.0	NA	NA	NA	NA	NA	NA			
McCormick Mountain Tank [a]	4A	5	Standpipe	0	0	0	920	24.00	94.0	937.0	1031.0	4A	0	0	5	0	0			
Mountain View Tank	4A	3	Composite	1,000,000	1,000,000	0	920	70.00	219.0	1002.0	1040.0	4A	670,000	0	5	0	230,000	3	100,000	0
Big Daves Tank [a]	4B	N/A	Standpipe	0	0	0	920	39.00	136.0	904.0	1040.0	4B	0	0	5	0	0			
Round Mountain Tank	4B	N/A	Standpipe	363,074	363,074	0	920	53.00	22.0	1018.0	1040.0	NA	NA	NA	NA	NA	NA			
PP 4B Elevated Storage Tank	4B	N/A	Composite	1,850,000	1,850,000	0	920	52.00	TBD	1003.5	1040.0	NA	NA	NA	NA	NA	NA			
Hudson Bend Tank	5	N/A	Spheroid	300,000	300,000	0	800	47.42	185.6	937.6	970.6	NA	NA	NA	NA	NA	NA			
Cardinal Hills Tank	6	N/A	Standpipe	1,034,030	470,014	564,016	1000	40.00	110.0	1020.0	1130.0	NA	NA	NA	NA	NA	NA			
PP 6 Elevated Storage Tank	6	N/A	Spheroid	250,000	250,000	0	1000	45.00	210.0	1100.0	1130.0	NA	NA	NA	NA	NA	NA			
Lohmans Crossing Tank No. 1	7	N/A	Standpipe	98,509	0	98,509	1100	27.00	23.0	923.0	946.0	NA	NA	NA	NA	NA	NA			
Lohmans Crossing Tank No. 2	7	N/A	Standpipe	147,155	0	147,155	1100	33.00	23.0	923.0	946.0	NA	NA	NA	NA	NA	NA			
High School Tank No. 1	7	N/A	Standpipe	297,431	84,456	212,975	1100	25.00	81.0	1122.0	1203.0	NA	NA	NA	NA	NA	NA			
High School Tank No. 2	7	8	Standpipe	1,016,632	554,531	462,101	1100	65.50	40.3	1161.7	1202.0	7	554,531	112,101	8	0	350,000			
Highway 71 Elevated Tank	8	N/A	Composite	500,000	500,000	0	1150	53.00	167.0	1287.5	1320.0	NA	NA	NA	NA	NA	NA			
Eck Ln WTP Clearwell No. 1	N/A	N/A	Standpipe	321,061	0	321,061	N/A	36.00	42.2	759.8	802.0	NA	NA	NA	NA	NA	NA			
Eck Ln WTP Clearwell No. 2	N/A	N/A	Standpipe	211,506	0	211,506	N/A	30.00	40.0	762.0	802.0	NA	NA	NA	NA	NA	NA			
Eck Ln WTP Clearwell No. 3	N/A	N/A	Standpipe	1,092,194	0	1,092,194	N/A	65.00	44.0	757.9	801.9	NA	NA	NA	NA	NA	NA			
Mansfield WTP Clearwell No. 1	N/A	N/A	Standpipe	1,000,847	0	1,000,847	N/A	78.00	28.0	761.0	789.0	NA	NA	NA	NA	NA	NA			
Mansfield WTP Clearwell No. 2	N/A	N/A	Standpipe	1,000,847	0	1,000,847	N/A	78.00	28.0	761.0	789.0	NA	NA	NA	NA	NA	NA			
TOTAL PROPOSED				**13,805,070**	**7,872,493**	**5,932,577**														

Tanks with changes to Existing Conditions are represented in red.

a. McCormick Mountain Tank and Big Daves Tank assumed removed from service.

ATTACHMENT G
RECOMMENDED REVIEW SCHEDULE OF IF ITEMS

ITEM	FREQUENCY
Design Standards	Annually
Growth Rate	Annually
Land Use Assumptions	Every 2 – 3 Years

ATTACHMENT H-1
WATER CAPITAL IMPROVEMENTS INVENTORY AND COST
INCLUDING FINANCE COSTS FOR PROPOSED PROJECTS

				Capacity		Capacity Allocation (LUEs)				
	Project Cost	Finance Cost	Total Cost	Total	LUEs	Existing	Projected 10yr Growth	Projected Growth Beyond 10 Yr	Excess Capacity	Cost per LUE
Water Treatment										
Existing Facilities				MGD						
Mansfield WTP Ph 1 [a]	$ 28,710,025	$ 16,007,960	$ 44,717,985	6	6,263	5,403.0	856.2	0	4	$ 7,144
Proposed Facilities										
Mansfield WTP Exp. to 12	$ 11,538,023		$ 11,538,023	6	6,263	5,403.0	856.2	0	4	$ 1,843
Mansfield WTP Exp. to 14	$ 6,545,000		$ 6,545,000	2	2,088	0.0	285.4	0	1,802	
Subtotal Msfld WTP	**$ 46,793,048**	**$ 16,007,960**	**$ 62,801,008**	**14**	**14,614**	**10,806**	**1,998**	**0**	**1,810**	**$ 4,905**
MWTP Generator [f]	**$ 4,403,000**		**$ 4,403,000**	**8**	**27,320**	**20,416**	**5,134**	**0**	**1,770**	**$ 172**
TOTAL WATER TREATMENT	**$ 51,196,048**	**$ 16,007,960**	**$ 67,204,008**							**$ 5,077**
Water Storage										
Existing Facilities				MG						
Comanche Tr EST	$ 713,515		$ 713,515	0.200	1,044	516	193	0	335	
Comanche Tr Tank 2	$ 92,200		$ 92,200	0.074	218	63	10	0	145	
Mountain View EST [b]	$ 2,677,025	$ 1,595,239	$ 4,272,264	1.000	3,497	760	320	0	2,417	
Hudson Bend EST [b]	$ 1,252,718	$ 746,495	$ 1,999,213	0.300	1,566	1,069	418	0	79	
Cardinal Hills Tank	$ 791,029		$ 791,029	1.034	2,455	1,619	837	0	0	
High School Tank 2	$ 751,750		$ 751,750	1.016	2,890	1,739	721	0	430	
Hwy 71 EST	$ 1,523,037		$ 1,523,037	0.500	2,610	1,714	743	0	153	
Subtotal Existing	$ 7,801,274	$ 2,341,734	$ 10,143,008		14,279	7,478	3,242	0	3,560	
Proposed Facilities										
PP-4B Elev Storage Tank [i]	$ 18,230,000	$ 17,130,778	$ 35,360,778	2	9,656	2,263	2,249	0	5,143	
PP-6 Elev Storage Tank	$ 8,724,000	$ -	$ 8,724,000	0.250	1,305	0	296	0	1,008	
TOTAL WATER STORAGE	**$ 34,755,274**	**$ 19,472,511**	**$ 54,227,785**		**25,240**	**9,741**	**5,787**	**0**	**9,712**	**$ 3,492**
Water Transmission [h]										
Existing Facilities				Size (in)						
Eck Ln Water Main [b]	$ 310,076	$ 184,774	$ 494,850	24	8,890	5,753	2,021	0	1,116	
LTHS Water Main	$ 149,655		$ 149,655	12	2,700	1,775	660	0	265	

ATTACHMENT H-1
WATER CAPITAL IMPROVEMENTS INVENTORY AND COST
INCLUDING FINANCE COSTS FOR PROPOSED PROJECTS

Hudson Bd Water Main	$	1,016,122		$	1,016,122	12	2,700	1,049	233	0	1,418	
Steiner Water Main	$	702,000		$	702,000	24	10,670	4,456	398	0	5,816	
Steiner Tank Fill Valves [c]	$	270,933		$	270,933	16	5,630	4,456	398	0	776	
Subtotal Existing	$	2,448,786	$ 184,774	$	2,633,560							
Proposed Facilities												
Quinlan Pk Water Main	$	6,899,896		$	6,899,896	16	4,810	4,426	343	0	41	
Lohmans Water Main [i]	$	885,000	$ 895,267	$	1,780,267	12	2,700	1,596	465	0	639	
Flintrock Trace W Main	$	446,000		$	446,000	12	2,700	1,596	465	0	639	
RR 620 W Main Seg. 1 [i]	$	11,942,000	$ 12,323,928	$	24,265,928	30	16,530	10,457	3,810	0	2,263	
RR 620 W Main Seg. 2 [i]	$	19,613,000	$ 20,884,287	$	40,497,287	30	16,530	10,457	3,810	0	2,263	
PP-4 Control Valves [i]	$	1,364,000	$ 1,380,981	$	2,744,981		27,320	20,476	6,845	0	0	
Subtotal Proposed	$	41,149,896	$ 35,484,463	$	76,634,359							
TOTAL WATER TRANSMISSION	**$**	**43,598,682**	**$ 35,669,238**	**$**	**79,267,919**			**20,476**	**6,845**	**0**		**$ 2,901**
Water Pumping												
Existing Facilities						gpm						
High School Pump Sta	$	496,492		$	496,492	1,800	2,706	1,714	743	0	249	
Steiner Pump Sta [b]	$	652,568	$ 388,865	$	1,041,433	3,000	4,509	1,656	233	0	2,620	
Lohmans PS Expansion [d]	$	1,699,306		$	1,699,306	3,600	1,804	286	1,100	0	418	
Subtotal Existing	$	2,848,366	$ 388,865	$	3,237,232		9,019	3,655	2,076	0		
Proposed Facilities												
PP-4B Booster Pump Sta [i]	$	4,748,000	$ 4,733,561	$	9,481,561	7,500	11,273	5,511.5	2,597.7	0	3,164	
Lohmans PS Exp. [g]	$	2,470,000		$	2,470,000	4,000	601	0	364	0	237	
TOTAL WATER PUMPING	**$**	**10,066,366**	**$ 5,122,426**	**$**	**15,188,793**		**20,894**	**9,167**	**5,038**	**-**		**$ 1,069**
TOTAL WATER	**$**	**139,616,370**	**$ 76,272,135**	**$**	**215,888,506**							**$ 12,539**

[a] Includes interest at 4.05% for 25 yr note and bond issuance costs with debt service reserve fund excluded. Total issue of $23,915,000

[b] Includes pro rata interest included on the three 25 yr TWDB bonds. Total issue of three bonds of $11,610,000

[c] LUE capacity based on LUEs added due to expansion from 12" to 16"

[d] Project Cost and LUE capacity based on LUEs added due to expansion from 2,400 gpm to 3,600 gpm

[e] LUE capacity based on LUEs added due to expansion from 3,750 gpm to 6,000 gpm

[f] MWTP Generator will support production of 8 MGD which is projected to be adequate to serve the average winter demand at full build-out.

[g] Project Cost and LUE capacity based on LUEs added due to expansion from 3,600 gpm to 4,000 gpm

[h] Total Water Transmission capacity allocations are based on the total System Current/Existing LUEs and total System Projected LUEs from LUAs.

[i] Prorata share of 100% of issuance costs and interest for 25 yr note at 5.0%.

ATTACHMENT H-2
PROJECT COST DETAIL - PROPOSED FACILITIES

	Projected Date of Need	Est. Construction Bid Date [A]	Construction Estimate			Construction Contingency		Engr/Soft Cost		Total Project Cost Est (Future Value)	Notes
				Present	Future						
TREATMENT											
Mansfield WTP Expansion to 12 MG	Under Constr.		Actual	$ 8,608,935	$ 8,608,935	0.0%	$ -	Actual	$ 517,306	$ 9,126,241	B
Mansfield WTP - Pall Membranes	Under Constr.		Actual	$ 2,411,782	$ 2,411,782	0.0%	$ -		$ -	$ 2,411,782	C
Subtotal - MWTP Exp. To 12 MGD				$ 11,020,717	$ 11,020,717		$ -		$ 517,306	$ 11,538,023	
Mansfield WTP Exp to 14 MGD	May-2029	Aug-2027	Est.	$ 4,177,000	$4,609,000	30%	$ 1,383,000	12%	$ 553,000	$ 6,545,000	
Mansfield WTP - Generator	Current	Apr-2025	Act./Est	$ 3,907,000	$3,943,000	10%	$ 394,000	Act.	$ 66,000	$ 4,403,000	D
TOTAL TREATMENT				**$ 19,104,717**	**$ 19,572,717**		**$ 1,777,000**		**$ 1,136,306**	**$ 22,486,023**	
STORAGE											
PP-4B Elevated Storage Tank	May-2028	May-2026	Est.	$ 12,705,000	$13,508,000	30%	$ 4,052,000	Act/Est	$ 670,000	$ 18,230,000	G, H
PP-6 Elevated Storage Tank	May-2030	Feb-2029	Est.	$ 5,572,000	$6,428,000	30%	$ 1,928,000	Act/Est	$ 368,000	$ 8,724,000	J
TOTAL STORAGE				**$ 18,277,000**	**$ 19,936,000**		**$ 5,980,000**		**$ 1,038,000**	**$ 26,954,000**	
TRANSMISSION											
Quinlan Pk Water Line	Under Constr.		Actual	$ 5,723,007	$ 5,723,007	1.5%	$ 86,000	Actual	$ 407,238	$ 6,216,245	E
Quinlan Pk WL - Landscape	Under Constr.		Actual	$ 481,650.44	$ 481,650.44	42%	$ 202,000		$ -	$ 683,650	F
Subtotal - Quinlan Pk Water Line				$ 6,204,658	$ 6,204,658		$ 288,000		$ 407,238	$ 6,899,896	
Lohmans Spur Water Main	May-2028	Jun-2027	Est.	$ 567,000	$623,000	30%	$ 187,000	12%	$ 75,000	$ 885,000	
Flintrock Trace Water Main	May-2026	Jun-2025	Est.	$ 303,000	$314,000	30%	$ 94,000	12%	$ 38,000	$ 446,000	
RR 620 Water Main Segment 1 [K]	May-2028	Mar-2027	Est.	$ 8,065,000	$8,565,000	30%	$ 2,570,000	Act/Est	$ 807,000	$ 11,942,000	I
RR 620 Water Main Segment 2 [K]	May-2029	Mar-2027	Est.	$ 13,212,000	$14,031,000	30%	$ 4,209,000	Act/Est	$ 1,373,000	$ 19,613,000	I
PP-4 Control Valves	May-2028	Nov-2026	Est.	$ 890,000	$961,000	30%	$ 288,000	12%	$ 115,000	$ 1,364,000	
TOTAL TRANSMISSION				**$ 29,241,658**	**$ 30,698,658**		**$ 7,636,000**		**$ 2,815,238**	**$ 41,149,896**	
PUMPING											
PP-4B Booster Pump Sta.	May-2028	Jun-2025	Est.	$ 3,183,000	$3,294,000	30%	$ 988,000	Act/Est	$ 466,000	$ 4,748,000	H
Lohmans Pump Sta. Expansion	May-2033	Oct-2031	Est.	$ 1,393,000	$1,739,000	30%	$ 522,000	12%	$ 209,000	$ 2,470,000	
TOTAL PUMPING				**$ 4,576,000**	**$ 5,033,000**		**$ 1,510,000**		**$ 675,000**	**$ 7,218,000**	
TOTAL										**$ 97,807,919**	

Current Date: **4/5/2024** **Estimated Future Inflation:** **3.0% per year**

Key: Est = Estimated Actual or Act. = Actual Current Contract

Notes:

A. Estimated Bid Date corresponds with the date listed in Section 7.

B. Construction cost is through Final Pay Application. Engineering Cost is actual spent through Permitting/Approvals Phase plus remaining Contract NTE Amount for Construction Admin of $46,806.74.

C. Final cost, Pall contract complete. Final Pay Application (No. 5) January 16, 2023.

D. For Construction, the actual generator cost was used along with an estimate for the concrete pad, ATS and installation.Inflation is calculated on concrete pad, ATS and installation only. Engineering Cost is current Service Order. Current estimated delivery date is October 2025. Bid date estimated at 6 months prior to delivery date.

E: Bid Date: 10/6/2022. Construction cost through CO 8. Currently approx 97% complete.

F: Bid Date: 1/5/2023. Construction cost through CO 3. Currently approx 80% complete. Estimated contingency based on anticipated CO for irrigation repairs.

G: The estimated cost of land acquisition for 1.71 ac for the PP-4A EST and the PP-4A Booster Pump Sta. is included.

H: It is planned to install the PP-4B Pump Station and EST as one contract/project. The engineering cost is the engineering service order, equally split between these 2 projects, plus 2% for soft costs.

I: Engineering is the current ESO dated 2/13/2025. Construction and soft costs are taken from the Preliminary OPC, dated 2/18/2025.

J. Engineering is the current ESO, Addendum 3, dated 9/26/2024. Soft costs of 2% added.

K. A portion of the water mains proposed with the 620 Water Main project replace and relocate existing water mains that are in conflict with the proposed TxDOT road improvements project. The Present Construction listed includes a deduct of $2,344,000 for Seg. 1 and $4,359,000 for Seg. 2 from the construction cost estimate that are associated with the relcoations and will be funded from the TxDOT Relocation Fund.See the 620 Water Main Improvement Project Preliminary Opinion of Probable Cost for more detail.

ATTACHMENT H-3
WATER CAPITAL IMPROVEMENTS - PROPOSED BOND ISSUE

Travis County WCID #17 - TWDB (DWSRF) - Water Bond Sizing
Issuance Costs and Debt Service Schedule provided by SPFI 3/10/2025

	Total	Project's Share of Issuance Costs & Interest	Total Bond Principal & Interest
RR 620 Water Main - Segment 1	$ 8,576,000	$ 12,323,928.18	
RR 620 Water Main - Segment 2	$ 14,533,000	$ 20,884,287.35	
PP-4B Pump Station	$ 3,294,000	$ 4,733,561.04	
PP-4B Elevated Storage Tank	$ 11,921,000	$ 17,130,777.50	
PP-4 Control Valves	$ 961,000	$ 1,380,981.22	
Lohmans Spur Water Main	$ 623,000	$ 895,266.70	
		$ -	
Contingency	$ 11,972,000		
Construction Subtotal	**$ 51,880,000**		
Planning Phase	$ 931,000		
Engineering & Surveying	$ 1,888,000		
Permit Fees & Soft Costs	$ 1,585,000		
Easements/Land Acquisition	$ 4,853,000		
Total Estimated Project Costs	**$ 61,137,000**	**$ 57,348,802.00**	**$ 118,485,802**
Legal Fees (1%)	$ 692,850		
Fiscal Agent Fees (1.25%)*	$ 1,082,578		
Debt Service Reserve Fund**	$ 4,919,258		
DWSRF Loan Origination Fee (1.75%)	$ 1,358,529		
Bond Issuance Expense ***	$ 32,285		
Bond Engineering Report/TWDB Application (Estimate)	$ 50,000		
TCEQ Fee	$ -		
Attorney General's Fee	$ 9,500		
Subtotal Non-Construction Costs	**$ 8,145,000**		
Total Cost (Bond Par Amount)	**$ 69,282,000**		

* Subject to 1.25x gross-up for a state agency application.

** Calculated to equal average annual debt service; subject to change based upon actual final rates.

*** Includes bond documents, paying agent, CUSIPS, etc…

Total Principal:	$ 69,282,000
Total Principal & Interest for 25 Yr Note @5% (SPFI):	$ 118,485,802
Total Estimated Project Costs:	$ 61,137,000
Total Issuance Costs & Intersest:	$ 57,348,802

ATTACHMENT I

TRAVIS COUNTY WCID 17

PROJECTED DATES OF NEED FOR CIP PROJECTS

Date of Current LUEs: 4/11/2024

Project	Milestone			Current LUEs	Projected		Planning Date [1]	Construction	
	Criteria	Pressure Planes	LUEs		Date of Need	LUEs at Date of Need		Est. Duration (Mths)	Est. Latest Start Date
Flintrock Trace Water Main									
RR 620 Water Main Seg. 1 [b]	Peak Day Flow Rate of 7,650 gpm through existing 24" main.	4B, 6 - 8	11,499	9,669.5	2/1/2030	11,438	5/1/2028	26	6/1/2027
RR 620 Water Main Seg. 2 [b]	Velocity of 5 fps in ex. 24" DI WL (7,500 gpm) (from W Model)	4B, 6 - 8	11,273	9,669.5	8/1/2029	11,271	8/1/2029		
PP-4B EST [a]	When PP-4 is split.						5/1/2028	21	8/1/2026
PP-4 Control Valves [a]	When PP-4 is split.						5/1/2028	15	1/30/2027
PP-4B Booster Pump Sta.	Peak Day Flow Rate reaches 3,750 gpm (capacity of Rnd Mtn Pump Sta)	6 - 8	6,041	5,511.5	11/1/2026	6,033	5/1/2028	18	10/31/2026
PP-6 Elevated Storage Tank	Elev Storage Rqmt for PP-6 reaches 95% of current 470,014 gal	6	2,207	1,618.5	8/1/2030	2,202	8/1/2030	13	7/1/2029
Lohmans Spur Water Main	Peak Day Flow Rate of 2,900 gpm to PP- 7 & 8 (W Model results)	7 - 8	4,359	3,893.0	2/1/2028	4,357	5/1/2028	8	8/31/2027
Mansfield WTP Expansion to 14 MGD	When MWTP service area reaches 95% capacity of the existing 12 MGD capacity.	1 - 3, 4A, 5	11,900	10,806.0	2/1/2029	11,887	5/1/2029	16	12/31/2027
Lohmans Pump Station Expansion	Peak Day Demand of PPs 7&8 reaches 95% of current pump capacity of 3,600 gpm	7 - 8	5,141	3,893.0	9/1/2033	5,139	5/1/2034	18	10/30/2032

a. PP-4 EST and Control valves needed when PP-4 is split. Date of Need listed matches the PP-4 Booster Pump Sta. for planning.
b. Assumed Segment 1 and 2 of the 620 Water Mains will be constructed as 1 project for planning.

Notes
1. If the projected date of need does not occur in the summer months, then the Planning Date is the May following the projected date of need due to peak flows occuring in th
2.Growth in PP's 6 - 8 is anticipated to be faster than the remaining System. For planning, 5% growth used in PP-6, 3% in PPs 7 & 8, and 2% growth everywhere else.

ATTACHMENT I

TRAVIS COUNTY WCID 17

PROJECTED DATES OF NEED FOR CIP PROJECTS

Notes
Needed ASAP to relieve theBig Daves PS that is at capacity.
ASAP to allow PP to be split.
ASAP to allow PP to be split.
Projected need sooner, but date is as soon as can be anticipated to be in place.
Dates assume PP-4 has been split. Otherwise, capacity is adequate through projected build-out.

ıe summer months.