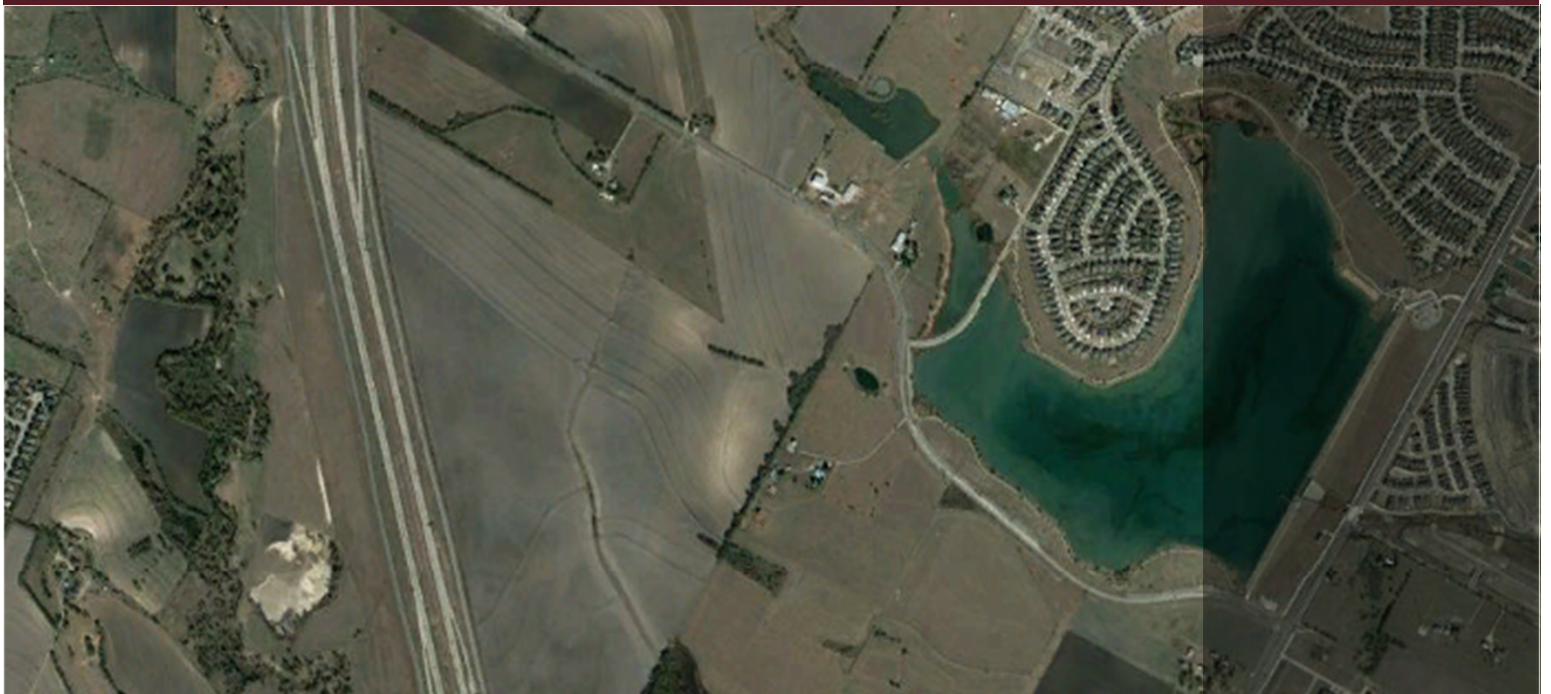


Pflugerville Water Supply Alternatives Evaluation

DRAFT Technical Memorandum



Prepared For:

City of Pflugerville

July 2020



Water Supply Alternatives Evaluation

Technical Memorandum

City of Pflugerville, Texas

Garver Project No. 19W07185

Prepared by:



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July 2020

Garver Project No.: 19W07185



Engineer's Certification

I hereby certify that this Water Supply Evaluation for the Pflugerville WTP Expansion Project was prepared by Garver under my direct supervision for the City of Pflugerville.

Ian P. Toohey, PE
State of Texas PE License No. 116105



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1.0 Introduction

Garver was retained by the City of Pflugerville (the City) to complete an evaluation of water supply alternatives to keep pace with future demands. The City recently completed a Water Master Plan (WMP) which identifies capital improvements that would enable the City to provide a continuous treated water supply to its customer base through full buildout. Included in the WMP was a quantification of the water supply needed to meet projected demands at defined future intervals. The WMP concluded that by 2029 the City will be required to have additional water sources online in order to meet anticipated demands. This technical memorandum expands upon the water supply assessment outlined within the 2020 Water Master Plan and outlines conceptual water supply alternatives which will allow the City to proactively plan for the future and meet all anticipated water demands.

1.1 Background

The City of Pflugerville is in Travis County in Central Texas just northeast of the City of Austin. The 2020 WMP estimates that the City's 2019 water service population is 56,558 which equates to 19,108 water service area connections based upon an assumption of 2.96 people per connection. In 2019, the City had an average daily water demand of 7.7 MGD and a max day water demand of 19.1 MGD. The City is growing rapidly with an average growth rate of 5.6% per year from 2009-2017, and the service population is anticipated to nearly double to an average day demand of 16.3 MGD by 2029. The City has an existing Water Treatment Plant (WTP) with a rated capacity of 17.3 MGD and two active groundwater pumps with a combined supply of 6.2 MGD (variable).

1.2 Project Scope

The project scope consists of the development of a set of water supply alternatives to address the projected water supply gap for the City of Pflugerville. The general scope of work is summarized below:

- Water Rights Gap Analysis
 - Demand Forecast Review
 - Water Rights Confirmation
 - Water Supply Gap Confirmation
- Water Rights Availability Analysis
 - Available Raw Water Rights Evaluation
 - Wholesale Water Purchasing Alternatives Development
- Water Supply Alternatives Development
 - Conceptual Capital Improvements
 - Qualitative Comparative Analysis

The intent of this evaluation is primarily to research and summarize the options available to the City to acquire new sources of water, and to relay information gathered from multiple sources and stakeholders involved in local water rights management and governance.



2.0 Water Rights Gap Analysis

2.1 Water Demand Forecasts

Two separate entities have recently developed population and water demand projections for the City of Pflugerville: the City of Pflugerville through its 2020 Water Master Plan Update, and the Texas Water Development Board (TWDB) through the development of 2021 Regional Water Plan Updates. The results of the water demand analyses from both sources are outlined in the sections below.

2.1.1 2020 Water Master Plan

The City of Pflugerville's 2020 Water Master Plan contains a detailed analysis of historical water demands and projected future water demands. In summary, the Plan projects that the average day demand will increase from 9.7 MGD in 2019 to 16.3 MGD in 2029, and ultimately 31.6 MGD at full buildout. Table 2-1 contains a summary of information contained within the 2020 Water Master Plan.

Table 2-1: 2020 Water Master Plan Water Demand Forecast

Planning Year	No. Water Service Connections	Service Population	Average Day Demand (MGD)	Max Day Demand (MGD)	Total Water Demand (acre-feet per year)
2019	19,108	56,558	9.69	19.06	13,035
2024	25,570	75,687	12.53	24.75	16,856
2029	34,216	101,279	16.34	32.36	21,981
Buildout	67,812	200,724	31.56	62.81	42,456

2.1.2 TWDB Region K and Region G Water Plans

The Texas Water Development Board (TWDB) has divided the State of Texas into sixteen (16) water planning groups (WPG): A-P. The majority of the City of Pflugerville is in Region K, the Lower Colorado WPG, though a small portion in the northern part of the City is in Region G, the Brazos WPG. Figure 2-1 and Figure 2-2 depict the City of Pflugerville in relation to the TWDB Regional Planning Groups.

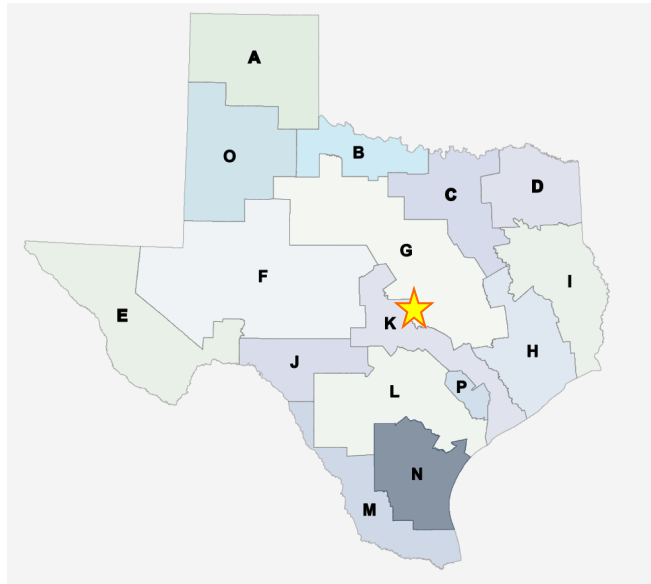


Figure 2-1: TWDB Regional Water Planning Groups

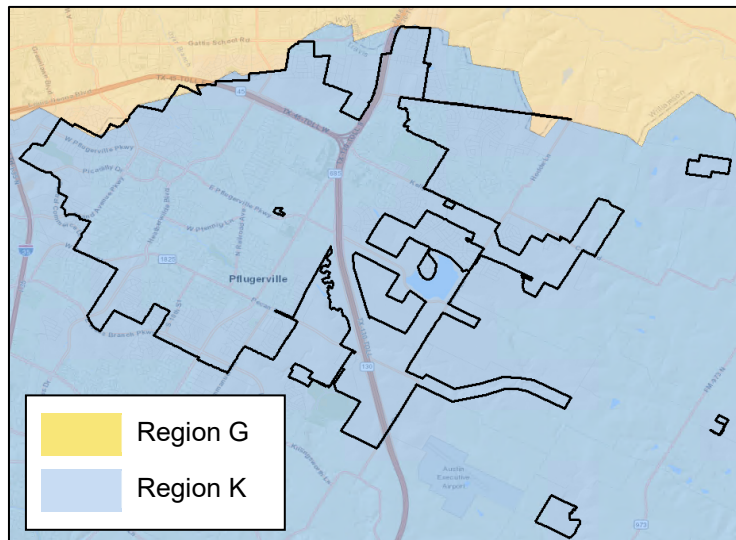


Figure 2-2: City of Pflugerville and the TWDB Regional Planning Groups K & G

Each of the WPG's are required to update their Regional Water Plans every 5 years. The current Water Plans for both regions were published in 2016; however, Water Plan Updates are to be published in 2021 and drafts are available through TWDB for both regions for review. Values from both the 2016 and 2021 versions of the Region Plans are included in this report for comparison purposes. Table 2-2 summarizes the population projections for the City of Pflugerville as outlined in the Region K and Region G Water Plans.





Table 2-2: TWDB Regions K & G City of Pflugerville Population Projections

Planning Year	2016 Regional Plans			2021 Regional Plans		
	Region K Population	Region G Population	Total Population (K + G)	Region K Population	Region G Population	Total Population (K + G)
2020	77,054	458	77,512	62,745	373	63,118
2030	104,405	576	104,981	78,245	469	78,714
2040	130,195	722	130,917	95,599	588	96,187
2050	159,073	880	159,953	112,807	717	113,524
2060	-	-	-	130,167	862	131,029
2070	-	-	-	130,167	1,013	131,180

The numbers outlined in Table 2-2 indicate that Region K anticipates the City of Pflugerville to reach full buildout in 2060, while Region G still anticipates some small growth from 2060-2070. Table 2-3 summarizes the anticipated water demand for the City of Pflugerville in the Region K and Region G Water Plans.

Table 2-3: TWDB Regions K & G City of Pflugerville Water Demand Projections (acre-feet per year)

Planning Year	2016 Regional Plans			2021 Regional Plans		
	Region K Water Demand	Region G Water Demand	Total Water Demand (K + G)	Region K Population	Region G Population	Total Population (K + G)
2020	12,775	76	12,851	10,403	62	10,465
2030	17,105	95	17,200	12,819	77	12,896
2040	21,243	118	21,361	15,598	96	15,694
2050	25,896	144	26,040	18,364	117	18,481
2060	-	-	-	21,167	140	21,307
2070	-	-	-	21,156	165	21,321

2.1.3 Demand Forecast Comparison

Figure 2-3 includes a comparison of the projected water demands for the City of Pflugerville from the 2020 Water Master Plan and the 2016 and 2021 Region K and G Regional Plans. The 2020 Water Master Plan far exceeds the projections for the both the 2016 and 2021 Regional Plans. To remain conservative, the projections forecast within the 2020 Water Master Plan are utilized for water rights planning. If the City is able to obtain a water rights supply that meets or exceeds the projections in the 2020 Water Master Plan, they can be assured that their water supply needs will be met.



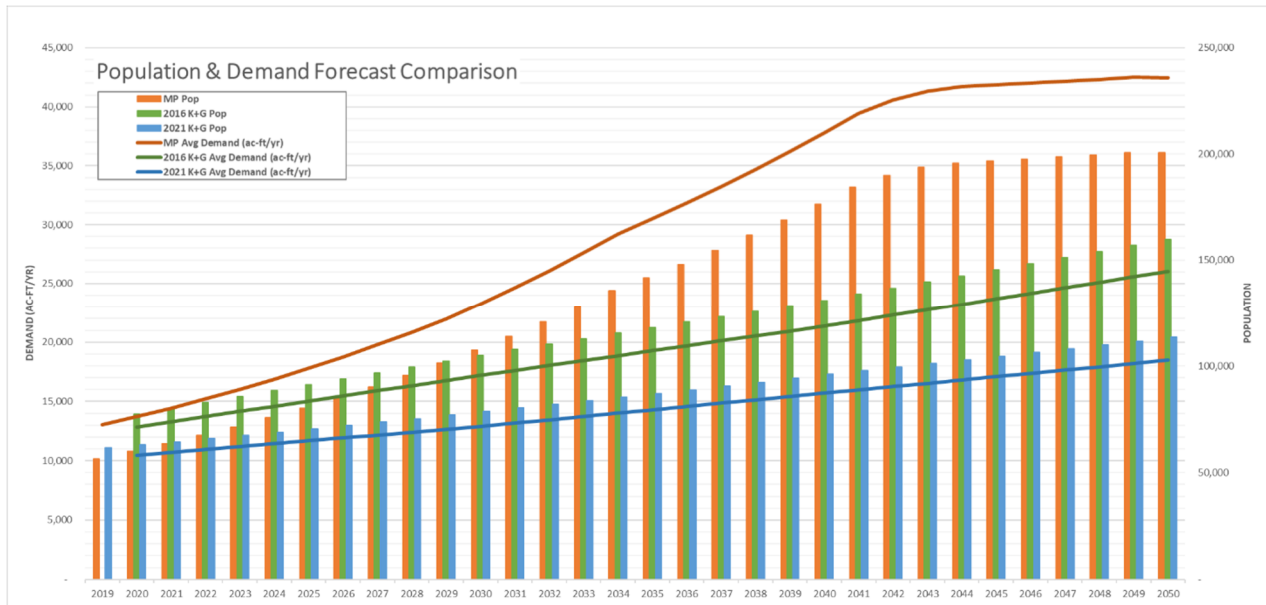


Figure 2-3: Comparison of Water Rights Demand Forecast Projections

2.2 Existing Water Rights

The City currently utilizes both surface and groundwater as components of its water supply system. The below sections outline the existing water rights owned by the City.

2.2.1 TWDB Region K and Region G Water Plans

The 2016 and 2021 TWDB Region K and Region G Water Plans outline existing water supplies, as currently utilized, for the City of Pflugerville as shown in Table 2-4. The City has a contract with the Lower Colorado River Authority (LCRA) for a total of approximately 12,000 acre-feet per year as run-of-river rights controlled from the Highland Lakes Reservoir System.

Table 2-4: TWDB Region K City of Pflugerville Existing Water Supplies (Current Utilization)

Source	Water Supply (acre-feet per year)
Edwards-BFZ Aquifer Travis County	2,531
Highland Lakes Lake/Reservoir System	9,513
Total	12,044 (AVG)

2.2.2 TCEQ Water Rights Database

The Texas Commission of Environmental Quality (TCEQ) compiles an up-to-date water rights database showing all active water rights in the State of Texas. The water rights for the City of Pflugerville contained in the database are shown in Table 2-5 and align with the water supply rights included within the 2016 and 2021 Region K and G Water Plans.





Table 2-5: TCEQ City of Pflugerville Existing Water Rights

Basin	Water Supply (acre-feet per year)	Use
Colorado River Basin	12,000	Municipal/Domestic

2.2.3 TWDB Groundwater Database

In addition to the surface water rights outlined in Sections 2.2.1 and 2.2.2, the City obtains groundwater from an unregulated portion of the Edwards Aquifer. Since the portion of the Aquifer is unregulated, the City is not required to obtain water rights and there are no limits on the quantity of water withdrawn. Based upon the TWDB Groundwater Database the City of Pflugerville currently owns six (6) groundwater wells, four (4) of which are stated to be capable of withdrawing water for public supply, while the other two (2) are for observation and testing. Only two (2) of the wells are currently active: Wells #6 and #7. Table 2-6 outlines the wells contained within the TWDB Groundwater Database.

Table 2-6: City of Pflugerville Groundwater Wells from TWDB Groundwater Database

State Well No.	Name	Year Installed	Capacity (gpm)
5835609	Test Well	1980	Inactive
5835617	Well #4	1980	Inactive
5835618	Well #5	1983	Inactive
5835619 ¹	Well #6	1984	2,800
5835624 ¹	Well #7	1992	1,500
5835626	Observation Well	1998	Inactive

¹Capacity determined from 2020 Water Master Plan.

2.3 Water Supply Gap

According to the 2020 Master Plan, it is the stated desire of the City to not rely upon groundwater resources past the planning year 2029 due to the unreliability of groundwater during droughts. The City's remaining water rights amount to 12,000 acre-feet per year or 10.71 MGD (3,910 MG annually). Based upon both the 2020 Water Master Plan and the Region K and G Water Plans, the City will need additional water resources online by 2030; however, the two sources differ on the quantity of water that the City will require. The calculated water gap using data from both sources is included within Table 2-7.





Table 2-7: City of Pflugerville Water Supply Gap

Year	Water Supply Gap (acre-feet per year)		
	2020 Water Master Plan	2016 Region K & G Water Plans	2021 Region K & G Water Plans
2019 / 2020	0	0	0
2024	0	-	-
2029 / 2030	9,981	5,200	896
2040	-	9,361	3,694
2050	-	14,040	6,481
2060	-	-	9,307
2070 ¹	30,456	-	9,321

¹Full Buildout value from the 2020 Master Plan is used.

The 2020 Water Plan suggests that the City of Pflugerville will require significantly more water supply than assumed within the Region K and G plans due to its more aggressive growth assumptions than the Regional plans. Utilizing the conservative projections from the 2020 Master Plan, Figure 2-4 shows that demand will exceed supply in 2027.

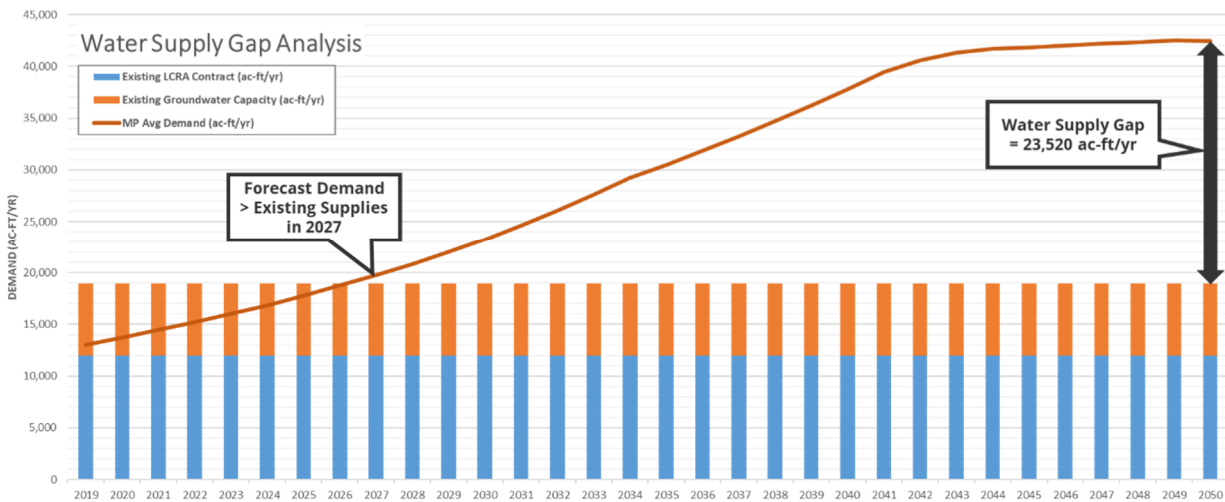


Figure 2-4: Water Supply Gap Analysis

Therefore, it will be assumed for the purposes of the water supply alternatives analysis that an additional 9,981 ac-ft/yr (or 14.4 MGD) will need to be available by 2029, and that the full buildout gap of 30,456 ac-ft/yr (or 43.9 MGD) will need to be available by 2050.





3.0 Water Supply Alternatives

The City has multiple options for reaching its water supply needs, and different water supply strategies yield different benefits. The water supply strategies presented below are generally broken into two categories: near-term supply relief and long-term permanent water rights. The sections below outline potential water supply alternatives for the City of Pflugerville along with associated necessary capital improvements.

3.1 Near-Term Water Supply Relief Strategies

Four options are identified for the City to obtain near-term water supplies. Three of these options are finished water wholesale agreements with nearby entities, which are presented below. Finished water purchase agreements are typically short-term in nature and the water rights are not guaranteed for perpetuity, but due to the nature of the water (purchased finished water) they do not generally require extensive capital improvements (e.g. expansion of water treatment). The fourth identified near-term water supply option is increasing the City's existing groundwater supplies.

3.1.1 Alternative 1 – Finished Water Wholesale Agreement – City of Round Rock

The City of Round Rock is adjacent to the City of Pflugerville to the northwest. It has a population of approximately 130,000 and, similar to the City of Pflugerville, is expanding rapidly. The City of Round Rock has its own water treatment and distribution system which it uses to serve its population. Through discussions with the City of Round Rock, there exists the potential for the City of Pflugerville to purchase a maximum of 5 MGD for less than 5-years from the City of Round Rock. Pflugerville's demand is not projected to exceed supply until 2027 (based upon 2020 Master Plan projections), so obtaining additional supply from 2027-2032 would have several benefits. Foremost among these is the supply could be used to supplement peak demand in the summer months during the expansion of the City's existing WTP. In addition, the added supply would allow the City to be less reliant on its existing groundwater supplies which are vulnerable to drought.

Required Capital Improvements

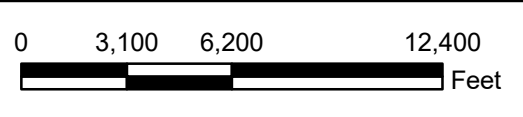
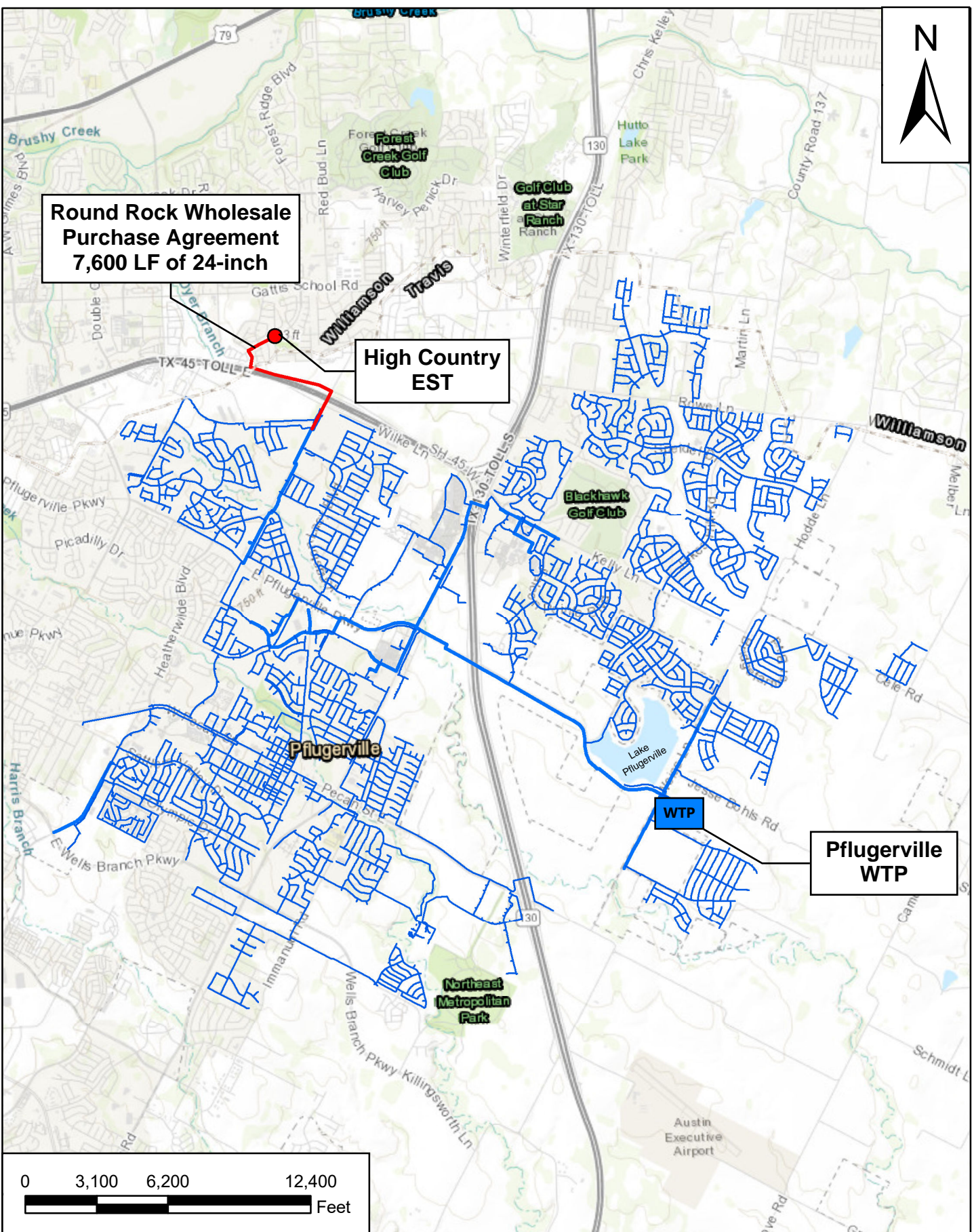
To obtain water from the City of Round Rock it is proposed to connect to the City of Round Rock's distribution system at the High Country Elevated Storage Tank (EST) located in southern Round Rock. The connection point would consist of an air-gapped takepoint and associated pump station. It is proposed to construct approximately 7,600 LF of 24-inch waterline leading from the High Country EST across SH 45 to connect in to an existing 24-inch waterline along Heatherwilde Boulevard. A map depicting the proposed connection route is included as Figure 3-1.



**Round Rock Wholesale
Purchase Agreement
7,600 LF of 24-inch**

**High Country
EST**

**Pflugerville
WTP**



PFLUGERVILLE WTP
PFLUGERVILLE, TEXAS
ALTERNATIVE 1- City of Round Rock
Wholesale Purchase Connection
FIGURE: 3-1



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Suite 325
Austin, TX 78704
(512) 485-0009





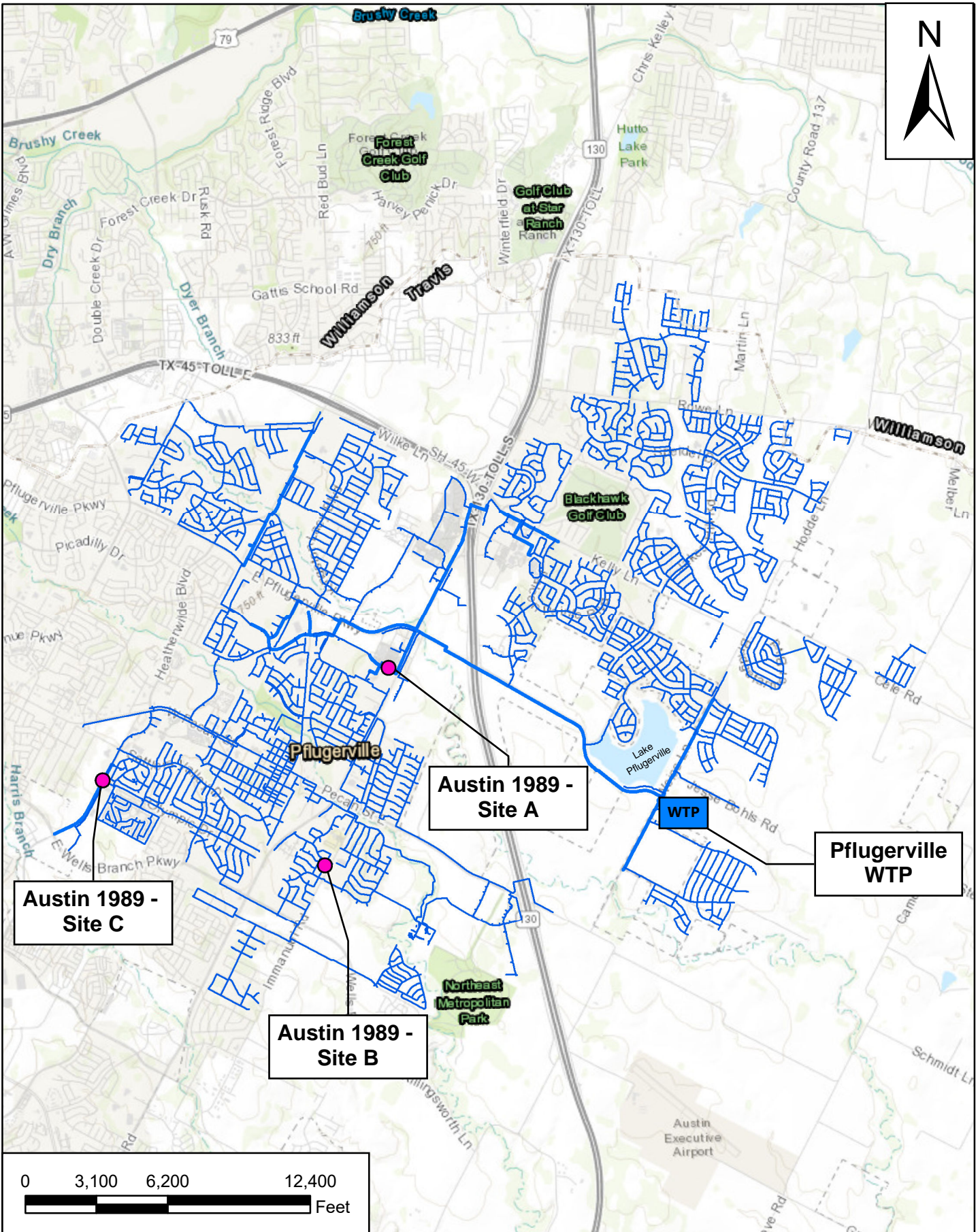
3.1.2 Alternative 2 – Finished Water Wholesale Agreement – City of Austin

The City of Austin is adjacent to the City of Pflugerville to the south with a population of approximately one million retail customers. The City of Austin has an extensive water treatment and distribution system including three treatment plants. Due to its size and redundant water supplies, the City of Austin has plenty of near-term capacity that the City of Pflugerville could buy into. However, in preliminary discussions with the City of Austin, no proposed purchase amounts or timeframes were specifically discussed.

A possible drawback to entering into a purchase agreement with the City of Austin, is the potential for a complicated contracting process. The City of Austin is currently entangled in a Public Utilities Commission rate case dispute with several wholesale customers rates which may present difficulties in reaching a quick and straightforward agreement.

Required Capital Improvements

The City of Pflugerville has entered into agreements with the City of Austin in the past in both 1989 and 2003, and therefore interconnects already exist between the City of Austin and the City of Pflugerville's distribution systems. These agreements are included in Appendix A. There are currently three interconnects (A, B, and C) all constructed in 1989 within the City of Pflugerville's city limits as shown in Figure 3-2. The presence of these interconnects means that limited additional capital improvements would be required. General rehabilitation of the takepoints would be recommended to bring equipment up-to-date, and the addition of pump stations may be required to accommodate changes in hydraulic conditions since their initial installment.

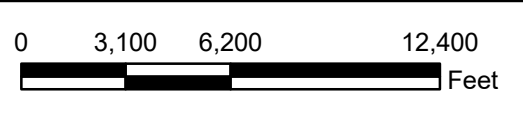


**Austin 1989 -
Site C**

**Austin 1989 -
Site A**

**Austin 1989 -
Site B**

**Pflugerville
WTP**



PFLUGERVILLE WTP
PFLUGERVILLE, TEXAS
ALTERNATIVE 2- City of Austin
Wholesale Purchase Connection
FIGURE: 3-2



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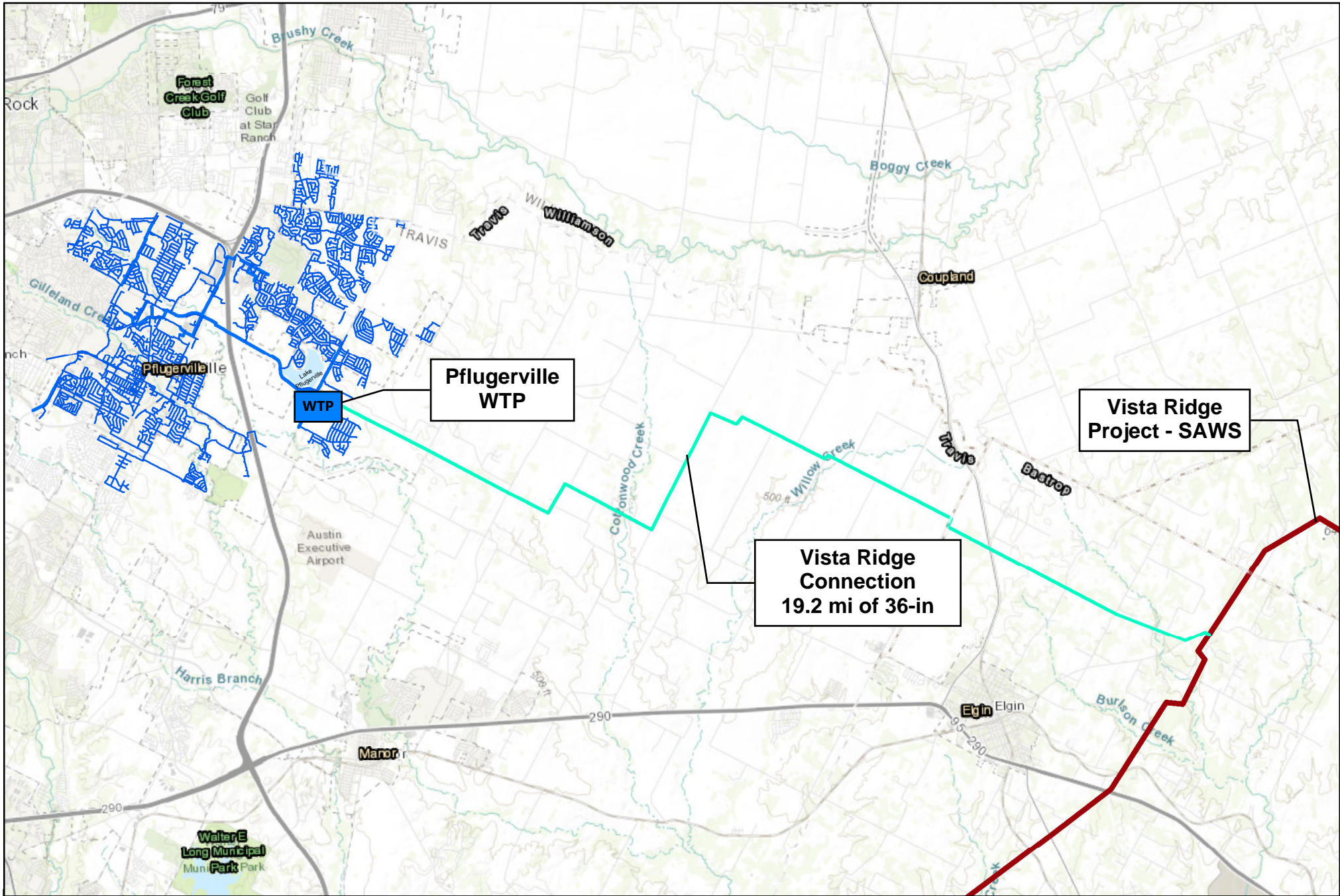


3.1.3 Alternative 3 – Finished Water Wholesale Agreement – SAWS Vista Ridge

The construction of a 142-mile pipeline connecting a water well field in Burleson County to San Antonio in Bexar County was recently completed for San Antonio Water Systems (SAWS). The project is called the Vista Ridge Pipeline and is slated to convey 50,000 acre-feet per year to provide for increased demand in the City of San Antonio over the next 30 years. The Vista Ridge pipeline is sized to provide adequate water supply to City of San Antonio in 30 years, but the City's demands are currently lower than the pipeline's capacity. Therefore, there is additional capacity available in the pipeline in the near-term. The SAWS 2017 Water Management Plan includes up to 15,000 acre-feet per year of excess supply over the next 10-15 years leaving the possibility open for short-term water supply acquisition by the City of Pflugerville. An additional 15,000 acre-feet would meet the City of Pflugerville's projected water demands through the 15-year time frame until 2035.

Required Capital Improvements

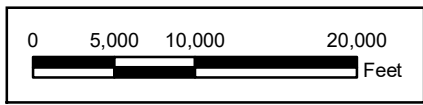
Obtaining water from the SAWS Vista Ridge pipeline would require the construction of approximately 19.2 miles of 36-inch waterline to convey 15,000 acre-feet (approx. 13.4 MGD) from the Vista Ridge pipeline near Elgin, TX to the existing Pflugerville WTP. A pump station would be necessary at the takepoint to convey water to the plant. Cooling and water softening would be required at the plant prior to mixing the Vista Ridge water and water from the City's existing water supply.



**Pflugerville
WTP**

**Vista Ridge
Project - SAWS**

**Vista Ridge
Connection
19.2 mi of 36-in**



PFLUGERVILLE WTP
PFLUGERVILLE, TEXAS
ALTERNATIVE 3- Vista Ridge Wholesale Purchase
Connection
FIGURE: 3-3



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3.2 Permanent Water Supply Strategies

3.2.1 Alternative 4 – Groundwater Well Rehabilitation

The City of Pflugerville has an existing operational groundwater supply of approximately 6.2 MGD, per TCEQ records. The groundwater is supplied through two wells (Well #6 and Well #7). The City has additional wells which are inactive and could be rehabilitated to provide additional water supply capacity if needed. In addition, the two existing operational wells could be expanded. Benefits of expanding the existing groundwater supply are the relative low capital cost, and short construction timeframe allowing the water to be online earlier than many other options. However, groundwater supplies are generally less reliable long-term as they are vulnerable to drought.

Required Capital Improvements

A benefit of expanding the City's existing groundwater supplies is that the required infrastructure is largely pre-existing. Proposed capital improvements would include the installation of additional pumps, or upsizing of existing pumps at Wells #6 and #7. Depending upon the desired groundwater capacity, new pumps could be installed at Wells #4 and #5 to make them operational.

3.2.2 Alternative 5 – BRA Alcoa Lake

The Brazos River Authority (BRA) handles water rights within TWDB Region G. Region G includes nearby cities such as Georgetown, Round Rock, Leander, Cedar Park, and Hutto. These Cities are all a component of the Central Texas corridor and are expanding rapidly along with the City of Pflugerville. Due to explosive growth, existing water rights in Region G as handled by the Brazos River Authority are generally fully allocated.

While the existing water supplies are fully allocated, there is a potential new water supply within Region G at Alcoa Lake which is a component of the Carrizo Aquifer. Alcoa Lake was initially constructed for use by the Aluminum Company of America (Alcoa), a private aluminum manufacturing company. The company maintained an aluminum smelting facility in Rockdale, TX for which Alcoa Lake was used as a water supply. The smelting facility has since been decommissioned, and the water rights at the property are now available for other uses. The property has a permitted groundwater capacity of 50,000 ac-ft/yr, which is all currently available for purchase.

Required Capital Improvements

Alcoa Lake is approximately 30 miles from Lake Pflugerville as the crow flies. Over 30-miles of piping and associated pump stations would be required to convey flow from Alcoa Lake to Lake Pflugerville.

3.2.3 Alternative 6 – LCRA Expanded Colorado River Rights

The Lower Colorado River Authority (LCRA) handles water rights within TWDB Region K which include both the City of Pflugerville and the City of Austin. The City of Pflugerville currently contracts with the LCRA for a total of 12,000 acre-feet per year from the Colorado River. The City owns and maintains a pump station and approximately 14.8 miles of 30-inch waterline conveying the water from the Colorado River to Lake Pflugerville.

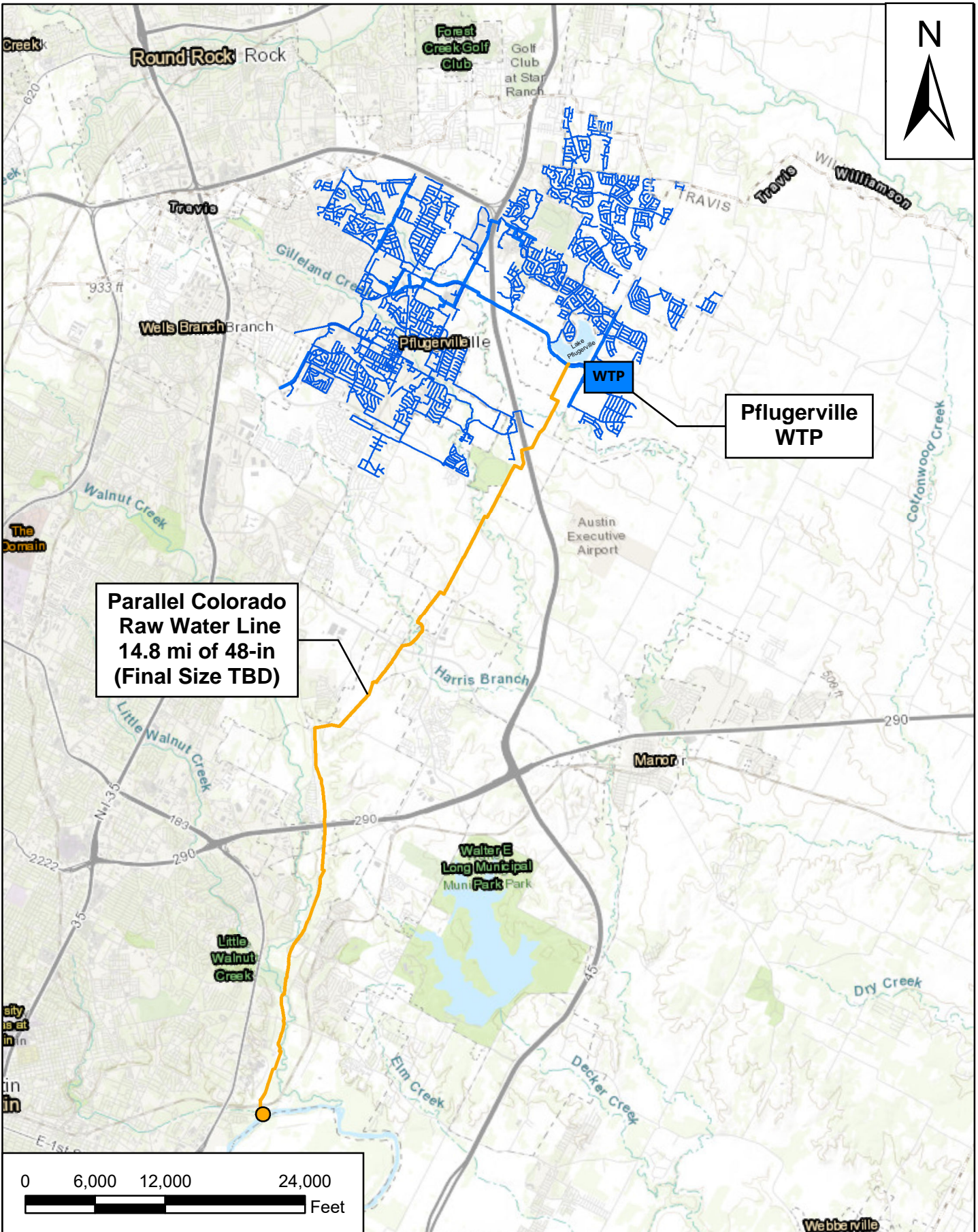


Through preliminary discussions with LCRA, it was determined that starting in 2023 there will be an additional 9,000 acre-feet/year available through the Arbuckle Reservoir project. An additional 9,000 acre-feet per year would provide adequate water supply for the City of Pflugerville through 2033, assuming that the City's existing groundwater supplies remain online.

Beyond this timeframe, LCRA has several other mid-basin reservoir projects that will increase the general yield of the Colorado River system beyond that provided by the Arbuckle Reservoir project. LCRA has indicated that there would be adequate available water supply in the Colorado River system to provide the full allocation to meet the City's buildout needs.

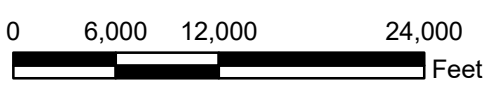
Required Capital Improvements

To obtain additional water from the Colorado River, it is proposed to upsize the City's existing Raw Water Pump Station along the banks of the Colorado River and install a parallel waterline adjacent to the City's existing 30-inch water line between the Colorado River and Lake Pflugerville. The final size of this waterline would need to be determined relative to other water supply alternatives under consideration, but the 2020 WMP identifies a parallel 48-inch line be installed along this route to provide full water supply from the Colorado River. A benefit of this alternative is that the parallel water line could likely be installed within existing easements. Figure 3-4 depicts the proposed capital improvements necessary to obtain additional water from the Colorado River.



**Parallel Colorado
Raw Water Line
14.8 mi of 48-in
(Final Size TBD)**

**Pflugerville
WTP**



PFLUGERVILLE WTP
PFLUGERVILLE, TEXAS
ALTERNATIVE 6- Colorado River



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FIGURE: 3-4



3.2.4 Alternative 7 – HB1437 Brushy Creek Intake

In 1999, the Texas Legislature passed House Bill 1437 (HB1437) which authorized the Lower Colorado River Authority (LCRA) to provide water to entities in Williamson County in some circumstances even if they are outside of the Lower Colorado watershed. The bill authorizes LCRA to contract up to 25,000 acre-feet of water annually to BRA to sell to Williamson County municipalities if the transfer results in “no net loss” of water to the Lower Colorado River Basin. The “no net loss” condition requires LCRA to conserve, replace, or offset an amount of water within the Lower Colorado River Basin equal to the amount contracted to Williamson County.

LCRA currently is contracted with BRA to provide water to multiple Williamson County entities. To fulfill the “no net loss” condition, water purchasers in Williamson County pay a surcharge to finance a Water Conservation Fund. The fund is used to pay for water conservation efforts in the Lower Colorado Basin that offset increased out-of-basin transfer sales, and is administered and allocated by LCRA. According to LCRA’s HB1437 2019 Annual Report (included in Appendix B), the current (2020) allocation of offset credits is set to be exceeded by forecast water sales in 2032, as shown in Figure 3-5:

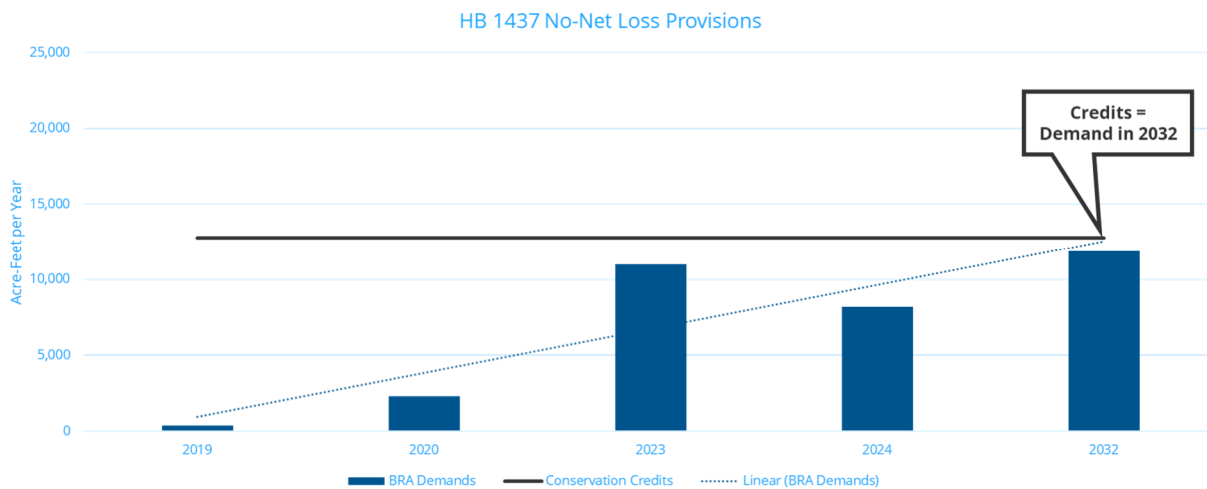
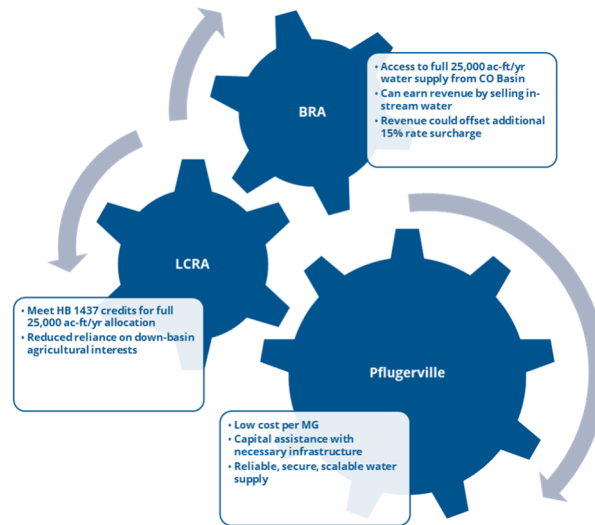


Figure 3-5: Forecast Demands and Offset Credits for HB1437

The provisions in HB1437 provide a unique opportunity for the City of Pflugerville to secure a long-term, low-cost water supply. Currently, entities including Round Rock, Leander, and Cedar Park are purchasing water from the Lower Colorado Basin which, upon use, is discharged into their wastewater distribution systems and routed to the Brushy Creek Regional WWTP for treatment. The Brushy Creek WWTP then discharges effluent into Brushy Creek which is located outside of the Lower Colorado watershed. It is proposed to route effluent from the Brushy Creek WWTP, either directly from the plant’s discharge or from Brushy Creek downstream of the plant’s discharge, to Lake Pflugerville. Routing flow from Brushy Creek to Lake Pflugerville places the water back in the Lower Colorado Basin and could provide LCRA and BRA with a solution to meeting the “no net loss” requirements of HB1437. Therefore, this arrangement holds benefits for multiple entities, providing an avenue for LCRA to sell the additional water to BRA while meeting the conditions of the governing legislation.



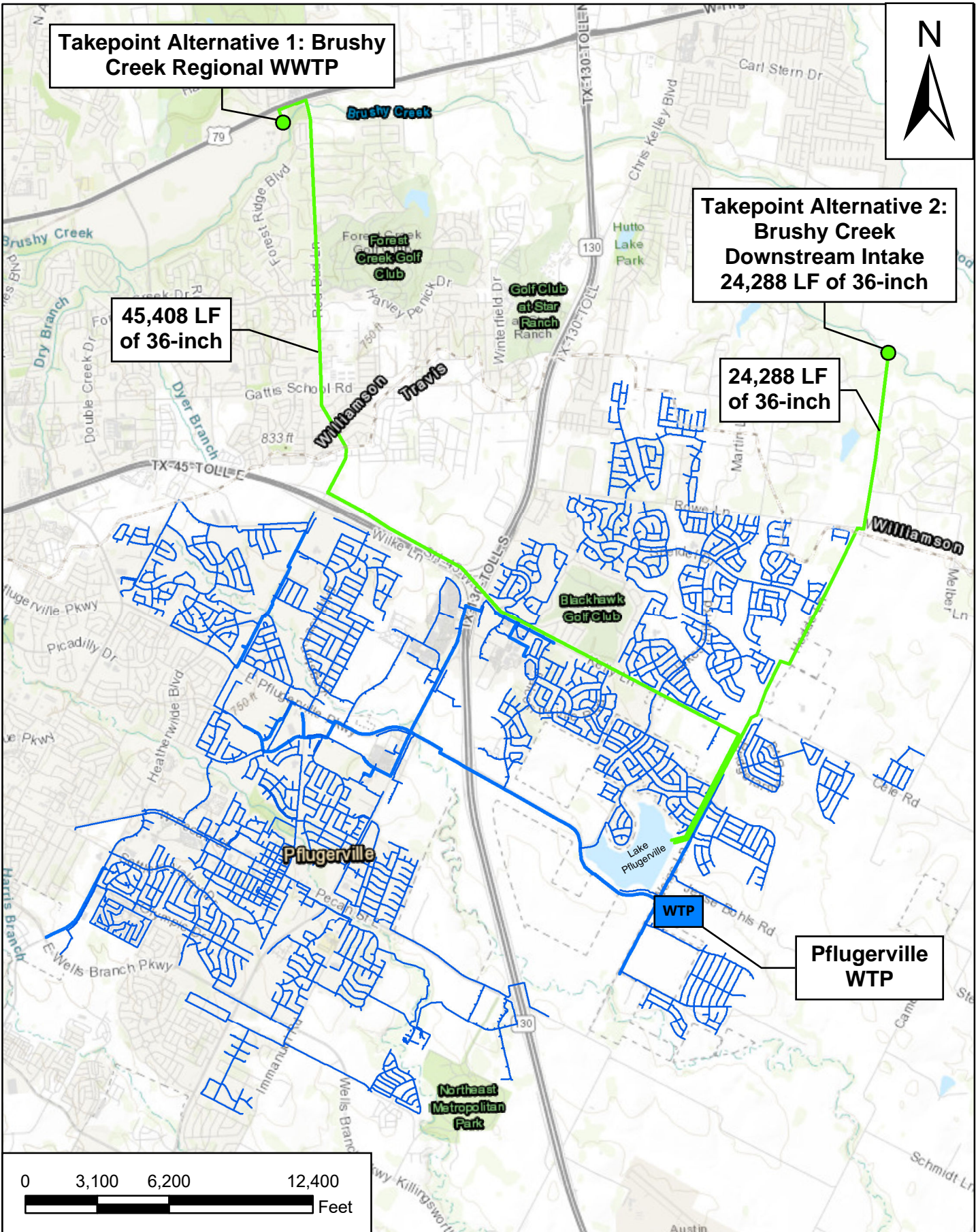


Obtaining water supply from Brushy Creek has multiple benefits including providing a water supply that will scale with population growth in the Central TX area. In addition, the nature of the “no net loss” provision and the presence of a fund dedicated to supporting projects that aid in meeting that condition promises community support and potential for funding collaboration. **It is important to note, however, that in initial discussions with LCRA on this topic, LCRA made no commitments or allowances for these funds to be applied to the project; this would need to be evaluated and discussed with the parties engaged in the HB1437 arrangement.**

Required Capital Improvements

Two options are identified for routing flow from the Brushy Creek WWTP to Lake Pflugerville. The first option is to route flow directly from the Brushy Creek WWTP discharge to Lake Pflugerville. This option may require additional treatment at the Pflugerville WTP such as reuse filtration or UV disinfection. In addition, it would require coordination with all entities who have a stake in the Brushy Creek WWTP including the Cities of Round Rock, Leander, Cedar Park, and Austin. Required capital improvements would consist of a new pump station at the Brushy Creek WWTP, approximately 8.6 miles of 36-inch pipeline, and any necessary treatment upgrades at the Pflugerville WTP to ensure adequate water quality. Proposed improvements are outlined in Figure 3-6.

The second option is to route flow from a location along Brushy Creek that is downstream of the Brushy Creek WWTP discharge, and closer to Lake Pflugerville. The location identified for a water intake is approximately 6.5 river miles downstream of the Brushy Creek WWTP discharge. This option may also require additional treatment at the Pflugerville WTP such as reuse filtration or UV disinfection, though upgrades are likely less extensive than those identified in Option 1 due to the increased treatment through natural attenuation along Brushy Creek. It is anticipated that, with this option, all contract negotiations would take place with a single entity: BRA. Required capital improvements would consist of a new intake and pump station along Brushy Creek, approximately 4.6 miles of 36-inch pipeline, and any necessary treatment upgrades at the Pflugerville WTP to ensure adequate water quality. Proposed improvements are outlined in Figure 3-6.



PFLUGERVILLE WTP
 PFLUGERVILLE, TEXAS
 ALTERNATIVE 7- House Bill 1437

FIGURE: 3-6



3755 S Capital of Texas Hwy
 Suite 325
 Austin, TX 78704
 (512) 485-0009





3.2.5 Alternative 8 – Central WWTP Indirect Potable Reuse

The City of Pflugerville currently owns and operations the Central Wastewater Treatment Plant (WWTP) which is approximately 3 miles from the Pflugerville WTP. Effluent from the plant is proposed to be routed to Lake Pflugerville for a closed-loop indirect potable reuse system. Additional treatment would likely be required at the Pflugerville WTP such as reuse filtration or UV disinfection. Minimal external coordination would be required, with the exception of any additional necessary permitting.

Required Capital Improvements

Required capital improvements would consists of a new pump station at the Central WWTP, approximately 3.0 miles of 36-inch pipeline, and any necessary treatment upgrades at the Pflugerville WTP to ensure adequate water quality.

3.2.6 Alternative 9 – Lower Colorado River Authority Bastrop County Groundwater Development

The Lower Colorado River Authority (LCRA) is in the process of permitting a new groundwater development with an available water supply of 50,000 acre-feet per year. The groundwater development has the benefit of being a large water supply source with the potential to fill the entire identified water gap for the City of Pflugerville through full buildout. However, the distance of the water supply from Lake Pflugerville indicates that initial capital costs to obtain the water would be high.

Required Capital Improvements

The proposed groundwater development is approximately 26 miles from Lake Pflugerville as the crow flies. Over 26-miles of piping and associated pump stations would be required to convey flow from the groundwater development to Lake Pflugerville.



4.0 Conclusions and Recommendations

4.1 Comparison of Alternatives

Short and long-term alternatives are compared in Table 4-1 for the following items:

- Potential yield
- Required capital improvements
 - Pipeline
 - Pumping
 - Treatment
- Agency/Entity Coordination
- Reliability
- Drought Resiliency

Table 4-1: Comparison of Water Supply Alternatives

No.	Alternative Name	Potential Yield	Pipeline Required	P.S. Required	Treatment Required	Coordination Effort	Long-Term Reliability	Drought Resiliency
1	RR Wholesale	<5,600 ac-ft/yr	~7,600 LF of 24-in	Yes (air gap)	No	Medium	Low/None	Low (curtailment)
2	AW Wholesale	TBD	Potentially little	Yes (air gap)	No	Challenging	Low/None	Low (curtailment)
3	Vista Ridge Wholesale	Up to 15,000 ac-ft/yr	~19.2 mi of 36-in	Yes	Yes	Medium	Low/Mid	Resilient
4	Expanded Local Groundwater Supplies	TBD	Potentially Little	Wells	No	Low	Low/Mid	Low/Mid
5	BRA Alcoa Lake Groundwater	TBD (In Permitting)	~30 mi (Milam County)	Yes	Yes	Medium	Mid/High	Resilient
6	LCRA Colorado River Rights	>9,000 ac-ft/yr	~14.8 mi of 48-in	Expand Existing	No	Low	Mid/High	Impacted (Surface)
7	LCRA HB 1437-Brushy Creek	>25,000 ac-ft/yr (Scalable)	~4.6-8.6 mi of 36-in	Yes – River Intake	Yes	Challenging	High	Highly Resilient
8	Local Central WWTP IPR	Scalable	~3 mi of 36-in	Yes	Yes	Challenging	High	Highly Resilient
9	LCRA Bastrop County GW	~50,000 ac-ft/yr	>26 mi (Bastrop County)	Yes	TBD	Low	High	Resilient





4.2 Recommended Approach

It is recommended that the City of Pflugerville pursue a combination of short and long-term water supply options, with an emphasis on building multi-source redundancy into its water supply portfolio. The City is growing rapidly and needs to ensure adequate water supply for its customers within the next five to ten years as well as prepare for expansive future growth by full buildout. The coordination and effort required to obtain permanent water rights can often take years, and the City may require additional water supply to meet projected demands prior to when permanent water supply rights are able to be obtained. In addition to obtaining the additional water rights, the design and construction of necessary capital improvements also need to be completed which further lengthens the timeline.

Based upon the comparison of alternatives as outlined in Section 4.1, the recommended short-term water supply alternative is Alternative 1, a finished wholesale water agreement with the City of Round Rock. The short-term agreement could provide the necessary water to tie the City over during the design and construction of the expansion of the Pflugerville WTP and provide additional water during the time frame while the City is obtaining permanent future water rights. Alternative 1 has low required capital improvements and less challenging coordination than would be required to contract with the City of Austin. In addition, this Alternative would provide a future emergency water source from a neighboring utility that could be used by the City in the event of a significant service interruption, providing additional system redundancy beyond the near-term supply benefit. It is recommended that the City plan on developing the capital improvements necessary to have this water supply online by the time current water resources are exhausted, in the 2026 timeframe.

In addition to the Round Rock wholesale option, it is recommended that the City retain and investigate the enhancement of its existing groundwater supplies. The option is also a permanent water supply option and could give the City a longer buffer for arranging permanent future additional water supply rights. These groundwater supplies could then be phased out in the future, once more permanent and multi-layered water supply redundancies are brought online. Maintaining these active facilities also leaves the door open for a potential future aquifer storage and recovery (ASR) application in the City of Pflugerville – depending on aquifer conditions – which could further buffer out water supply variability in the primarily surface water sources recommended herein.

The recommended long-term permanent water supply alternative is Alternative 7, the construction of an intake along Brushy Creek as related to the “no net loss” provisions of HB1437. The project has high resiliency and the potential to scale with future growth which cannot be as readily, or inexpensively, obtained with any of the other identified alternatives. The project would be able to meet projected full buildout demands for the City of Pflugerville with minimal capital improvements as compared to other alternatives, and would likely be supported by surrounding communities due to its facilitation of the requirements of HB1437 on water sales by LCRA to BRA and its Williamson County customer utilities.

The secondary recommended long-term permanent water supply alternative is Alternative 6, the expansion of existing water supply rights from the Colorado River through LCRA. Alternative 6 would increase the City’s existing water supply rights from 12,000 acre-feet per year to 21,000 acre-feet per year, with the ability to scale up in the future. Alternative 6 could easily be coordinated with LCRA and capital improvements could be constructed on existing easements which would allow for a quicker construction



timeframe. This would also allow the two sources of LCRA water rights, the Brushy Creek and Colorado River intakes, to be balanced against each other to buffer out fluctuations in surface water availability (which adds drought resilience), and to allow flexibility in scaling up water availability to meet future demands.

It is recommended that the various water supply alternatives recommended above be phased in the following sequence, as shown in Figure 4-1:

1. Round Rock Wholesale Supply – Bring 5 MGD of additional supply online in the 2026 timeframe, with a planned usage for approximately 5-years. Once this near-term need is no longer needed, the facilities should be maintained on an emergency-use basis under an agreement with the City of Round Rock.
2. HB1437 Water Rights – Construct the Brushy Creek intake to begin supplying water to Lake Pflugerville at an initial phase of 12,500 ac-ft/yr in 2029. This will allow necessary operational adjustments to take place to integrate the new influent water quality at the WTP.
3. Groundwater Supply – Once the Brushy Creek supply is online, the groundwater supplies could be phased out, but kept active as a backup, drought-resilient water supply.
4. In 2031, the HB1437 supply could be ramped up to the full 25,000 ac-ft/yr allotment with LCRA's decreased reliance on downstream agricultural offsets for “no net loss” credits. The operational wholesale purchase agreement with the City of Round Rock could then be made dormant, with arrangements made for a contractual emergency backup agreement.
5. In 2039, as demands continue to rise, the City would expand its existing Colorado River intake system with a pump station expansion and a parallel pipeline. Figure 4-1 shows an increase of 9,000 ac-ft/yr to a total of 21,000 ac-ft/yr from the river, which would cover the additional demand and be available with only the Arbuckle Reservoir project online – reducing the City's dependence on the construction of additional mid-basin reservoirs in the future to be able to provide adequate water.

This sequence of water supplies would allow the City to have scalable, redundant supplies from both the Brushy Creek and Colorado River sources – both of which would be ultimately sourced from LCRA – and would provide for operational flexibility to fill Lake Pflugerville from either or both sources. In addition, the existing groundwater supply and the City of Round Rock emergency connection would provide reliable backups if needed, further bolstering the City's multi-layered water supply portfolio.

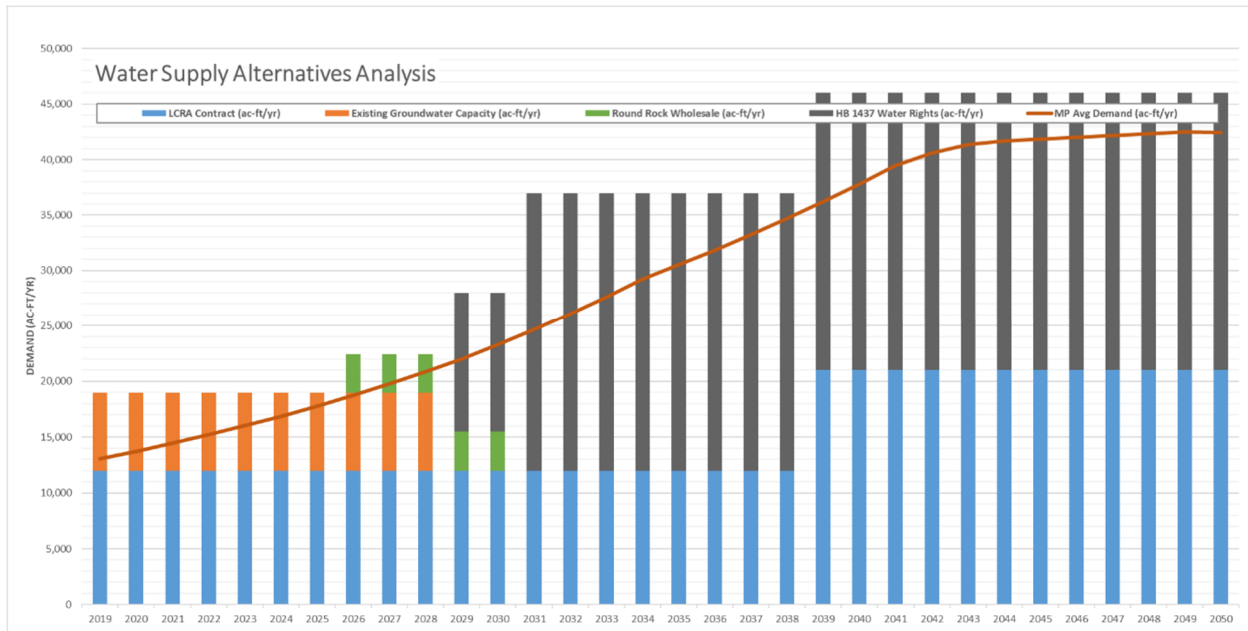


Figure 4-1: Phased Water Supply Alternatives

4.3 Next Steps

The following next steps are recommended, once the City confirms the desired alternatives to procure additional water rights:

1. Garver will summarize the intended projects and communicate them to the relevant Region K and G planning group teams, in order for them to be included in the 2021 Regional Water Plans. This will aid in project funding through programs such as TWDB State Water Implementation Fund of Texas, which requires projects it funds to be reflected in the State Water Plan.
2. The City should retain specialized legal water rights/water supply counsel to represent them in negotiations with relevant parties, such as LCRA, Round Rock, and BRA. This representation should be coordinated through the City Attorney.
3. Garver, under a supplemental agreement, will facilitate meetings with relevant parties, provide technical information, and generally participate in discussions with project stakeholders to further negotiations of water rights within the timeframes provided.
4. Garver, under a supplemental agreement, will support the City in the definition of capital projects necessary to implement the selected alternatives in the timeframes provided. This would include preliminary modeling and cost estimation for budgetary purposes.
5. These capital projects would then be executed by the City's preferred mechanism.



APPENDIX A

CITY OF AUSTIN 1989 WHOLESALE PURCHASE AGREEMENT AND 2003 AMENDMENT

WATER SERVICE AGREEMENT

THE STATE OF TEXAS *
*
COUNTY OF TRAVIS *

KNOW ALL PERSONS BY THESE PRESENTS:

This Agreement is made and entered into by and between the City of Austin, Texas, a home rule city and municipal corporation situated in Travis County, Texas, acting herein by and through its undersigned duly authorized City Manager, as authorized by specific action of its City Council, and the City of Pflugerville, Texas (hereinafter referred to as "Pflugerville"), a general law city situated in Travis County, Texas, acting herein by and through its undersigned duly authorized Mayor, as authorized by specific action of its City Council.

For and in consideration of the premises and the mutual agreements, covenants, and conditions hereinafter set forth, the parties hereto contract and agree as follows, to-wit:

ARTICLE I

DEFINITIONS

For the purposes of this Agreement, the following terms shall have the meaning set out herein, unless expressly defined otherwise:

- A. "Public Water Facilities" means transmission lines, pumping stations, distribution mains, residential and industrial connections, storage tanks and reservoirs, and any other parts or components that comprise the public water system of Pflugerville within its city limits, extraterritorial jurisdiction, and certificated service area.
- B. "Point of Delivery" means a point on an Austin water line where Pflugerville may receive water into storage prior to repressurization and distribution within Pflugerville's water system. Those points are described in Exhibit "A" to this Agreement.

ARTICLE II

PROVISION FOR UTILITY SERVICE TO PFLUGERVILLE

- A. Pflugerville desires to provide water service within its present city limits, extraterritorial jurisdiction, certificated service area, and specific areas set forth in existing contractual agreements by means of constructing public water facilities which shall be connected to Austin's water facilities located in proximity to Pflugerville. Water service provided to

Pflugerville by Austin shall be nondiscriminatory and consistent with Austin's policies, ordinances, and regulations for the provision of wholesale water service to other municipalities.

- B. Austin agrees to sell Pflugerville water required for the operation of Pflugerville's public water system for domestic, commercial, and industrial uses on an as needed basis. The water will be supplied from Austin's water distribution system and delivered to Pflugerville at the point or points of delivery described in Exhibit "A" to this Agreement. Austin shall deliver water to Pflugerville at a minimum pressure of 20 pounds per square inch at each master meter located at each point of delivery.
- C. Pflugerville intends to continue operating its current public drinking water system that utilizes ground water. Additional water sales shall be governed by the provisions of this Agreement.
- D. Pflugerville agrees to impose on its customers when receiving Austin water all voluntary and mandatory conservation and use restrictions imposed by Austin on its own customers, provided Pflugerville will not be required to impose more stringent controls than Austin imposes on its own citizens.
- E. Pflugerville agrees to maintain an air break separation between Austin's water system and its own. The air break shall be designed, constructed, and operated consistent with the standards of the Texas Department of Health and the City of Austin.
- F. City of Austin is not obligated to construct facilities to bring water service to those Points of Delivery.

ARTICLE III

AMOUNT, RATES AND PAYMENT

- A. Austin agrees to provide Pflugerville potable water up to a maximum flow rate of ten million (10,000,000) gallons per day at a pressure of not less than twenty (20) pounds per square inch in phased increments as Pflugerville's water CCN is developed to total build out. Austin shall not be required to provide Pflugerville with any water service prior to January 1, 1990, nor shall it be required to provide in any year more than 500,000 gallons per day over and above the previous year's average daily use amount; provided that, in the event Pflugerville's water system experiences sudden system failure or other emergency condition, Austin will provide Pflugerville as much

water as it can while still meeting its own service level requirements.

- B. Pflugerville agrees to pay Austin for all water delivered to Pflugerville at the rate authorized by City of Austin ordinance, as amended from time to time, applicable to sales of water to similarly situated customers. In executing this Agreement, Pflugerville acknowledges that Austin's water supply rates are just, reasonable, and nondiscriminatory.
- C. Pflugerville shall be required to pay Austin the minimum monthly meter charge regardless of whether or not water is used as per Austin's rate ordinance.
- D. Austin shall render a monthly bill to Pflugerville.
- E. Payment shall be made by Pflugerville not later than the 30th day following the billing date for the period covered by the bill. Failure to make a payment when and as specified will terminate all obligations of Austin under this Agreement, at the option of Austin.
- F. Water delivered to Pflugerville shall be measured by a master water meter(s) of suitable size installed at the point(s) of delivery. Pflugerville shall be solely responsible for the costs incurred in the purchase and installation of the master meter.
- G. Pflugerville may charge its customers such rate or rates as Pflugerville may deem proper.
- H. Pflugerville shall pay in full Austin's applicable capital recovery fee for water service only, based on master water meter size as per Austin's Capital Recovery Fee Ordinance at the time the master water meter is installed.

ARTICLE IV

OPERATION AND MANAGEMENT

- A. Pflugerville is responsible for the operation and maintenance of its entire water distribution system, including all of that portion of Pflugerville's system used to transport water from Austin. Pflugerville agrees that the operation and maintenance of the facilities used to transport Austin water shall be in accordance with the standards and procedures used by Austin in the operation and maintenance of its own facilities.
- B. Austin is responsible for the operation and maintenance of any facilities it constructs for the purpose of

transporting water to, or across, any portion of Pflugerville or its extraterritorial jurisdiction.

- C. It is agreed and stipulated that from and after the effective date of this Agreement, Pflugerville shall have complete control and management of its system, including reading the meters of Pflugerville's customers and any and every other thing necessary or incident to the operation and management of an efficient water system, including the disconnection and discontinuance of service to any customers who may be connected to Pflugerville's water system.

ARTICLE V

AREA OF AND LIMITATIONS ON SERVICE

- A. Unless the prior approval of the City Council of Austin is obtained, Pflugerville shall not knowingly:
- 1) construct or install public facilities to serve areas outside Pflugerville's certificated service area or specific areas set forth in existing contractual agreements as shown in Exhibit "B"; or
 - 2) connect and serve a customer who, in turn, sells water service directly or indirectly to another person or entity, except to the extent that existing contractual agreements may provide for such service to the Ujdur tract and to the ACG Number Thirteen tract, as shown in Exhibit "B".
- B. Unless the prior approval of the City Council of Pflugerville is obtained, Austin may not serve areas either within Pflugerville's city limits, extraterritorial jurisdiction, or certificated area as shown in Exhibit "B".

ARTICLE VI

POINTS OF DELIVERY

- A. Austin and Pflugerville acknowledge that Austin's water facilities shall be available to Pflugerville at the point or points of delivery described in Exhibit "A" to this Agreement. Additional points of delivery may be designated by mutual agreement.
- B. Pflugerville agrees that each request for connection of its public water facilities to the Austin facilities shall be accompanied by an engineering report and

plans, as prepared by a Texas registered professional engineer which detail the area to be served and include the quantity of water to be delivered to the requested point of delivery. The engineering report and plans will be reviewed by Austin to determine whether adequate capacity exists in Austin's water system to deliver the demand predicted for the new connection point.

ARTICLE VII

CONSTRUCTION OF PUBLIC WATER FACILITIES

- A. Pflugerville agrees that such public water facilities which it may construct, up to and including the master meters contemplated in this Agreement, shall be designed and constructed according to standards and specifications at least as stringent as those of Austin that are in effect at the time of construction.
- B. It is understood and acknowledged that Pflugerville is responsible for the financing, construction, inspection, and maintenance of all of its public water facilities, and that upon completion of construction Pflugerville shall be the sole owner of the facilities. Austin is not responsible for construction of water facilities located in Pflugerville designed to exclusively serve customers in Pflugerville, its extraterritorial jurisdiction, and certificated service area.
- C. In order to ensure compliance with the standards and specifications referred to in Paragraph A of this article, Austin may inspect, at its own expense, all phases of the construction of Pflugerville's public water facilities required to receive Austin water, as described in Paragraph A, above.
- D. Before the beginning of construction of the public water facilities contemplated in Paragraph A, above, Pflugerville shall submit to Austin the plans and specifications for the facilities. The plans and specifications must be approved by both Pflugerville and Austin before construction begins. After all approvals are obtained and before construction of the facilities begins, Pflugerville must give written notice to the Director of the Water and Wastewater Utility of the City of Austin of the date on which construction is scheduled to begin.
- E. Pflugerville is responsible for obtaining any easement or right-of-way necessary for the construction of its public water facilities. Austin is responsible for obtaining any easement or right-of-way necessary for

the construction of its lines or facilities that pass through Pflugerville or its extraterritorial jurisdiction.

ARTICLE VIII

MEASUREMENT OF THE WATER DELIVERED
INTO THE PFLUGERVILLE SYSTEM

Water flows from Austin into Pflugerville's water storage facilities shall be master metered. Austin shall maintain and read the master meter or meters. A meter shall be installed at each point of delivery by Pflugerville. The cost of each meter, including design and installation, shall be borne by Pflugerville.

ARTICLE IX

TERM OF AGREEMENT

This Agreement is effective from the date of its execution by both parties and continues in effect until terminated by mutual agreement or at the option of either party by giving one year written notice to the other party.

ARTICLE X

FORCE MAJEURE

In the event that the performance by Austin or Pflugerville of any of its obligations or undertakings hereunder shall be interrupted or delayed by any occurrence not occasioned by its own conduct, whether such occurrence be an act of God or the common enemy or the result of war, riot, civil commotion, sovereign conduct, or the act or conduct of any person or persons not a party or privy hereto, then it shall be excused from such performance for such period of time as is reasonably necessary after such occurrence to remedy the effects thereof.

ARTICLE XI

ADDRESSES

The addresses of the parties, until changed as hereinafter provided, shall be as shown below. The parties shall have the right at any time to change their respective addresses by giving at least 15 days' written notice to the other party.

1. City of Austin
P. O. Box 1088
Austin, Texas 78767-8828
Attention: Director, Water and Wastewater Utility

2. City of Pflugerville
P. O. Box 589
Pflugerville, Texas 78660
Attention: Mayor

ARTICLE XII

SEVERABILITY

The provisions of this Agreement are severable, and if any word, phrase, clause, sentence, paragraph, section, or other part of this Agreement or the application thereof to any person or circumstance shall ever be held by any court of competent jurisdiction to be invalid or unconstitutional for any reason, the remainder of this Agreement and the application of such word, phrase, clause, sentence, paragraph, section, or other part of this Agreement to other persons or circumstances shall not be affected thereby.

ARTICLE XIII

MERGER AND AMENDMENT

This Agreement, including Exhibits "A" and "B" attached hereto and made a part hereof for all purposes, constitutes the entire agreement between the parties relative to the subject matter of this Agreement. All prior agreements, covenants, representations, or warranties, whether oral or in writing, between the parties are merged herein. No amendment of this Agreement is effective unless and until it is reduced to a writing signed by the authorized representatives of Pflugerville and Austin, respectively, which amendment shall incorporate this Agreement in every particular not otherwise changed by the amendment.

IN WITNESS WHEREOF each of the parties has caused this Agreement to be executed by its duly authorized representative, in multiple copies, each of equal dignity, on the date or dates indicated below.

APPROVED AS TO FORM:

CITY OF AUSTIN, TEXAS

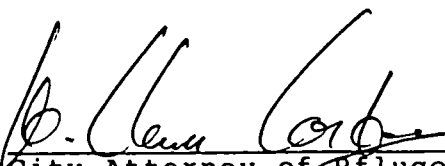


Assistant City Attorney

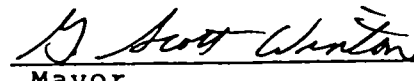
BY: 

Acting City Manager

CITY OF PFLUGERVILLE, TEXAS



City Attorney of Pflugerville

BY: 

Mayor

THE STATE OF TEXAS *

COUNTY OF TRAVIS *

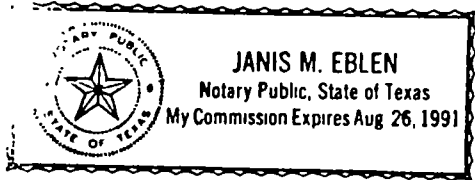
BEFORE ME, the undersigned authority, a Notary Public in and for said County and State, on this day personally appeared Barney L. Knight, known to me to be the person whose name is subscribed to the foregoing instrument as Acting City Manager of the CITY OF AUSTIN, TEXAS, a municipal corporation, and acknowledged to me that (s)he executed the same in such capacity as the act and deed of said City of Austin for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 20th day of January, ~~1988~~ 1989.

Janis M. Eblen
Notary Public, The State of Texas

Typed/Printed Name of Notary

My Commission Expires: _____



THE STATE OF TEXAS *
COUNTY OF TRAVIS *

BEFORE ME, the undersigned authority, a Notary Public in and for said County and State, on this day personally appeared Scott Winton, known to me to be the person whose name is subscribed to the foregoing instrument as Mayor of Pflugerville, Texas, and acknowledged to me that (s)he executed the same in such capacity as the act and deed of said City of Pflugerville for the purposes and consideration therein expressed.

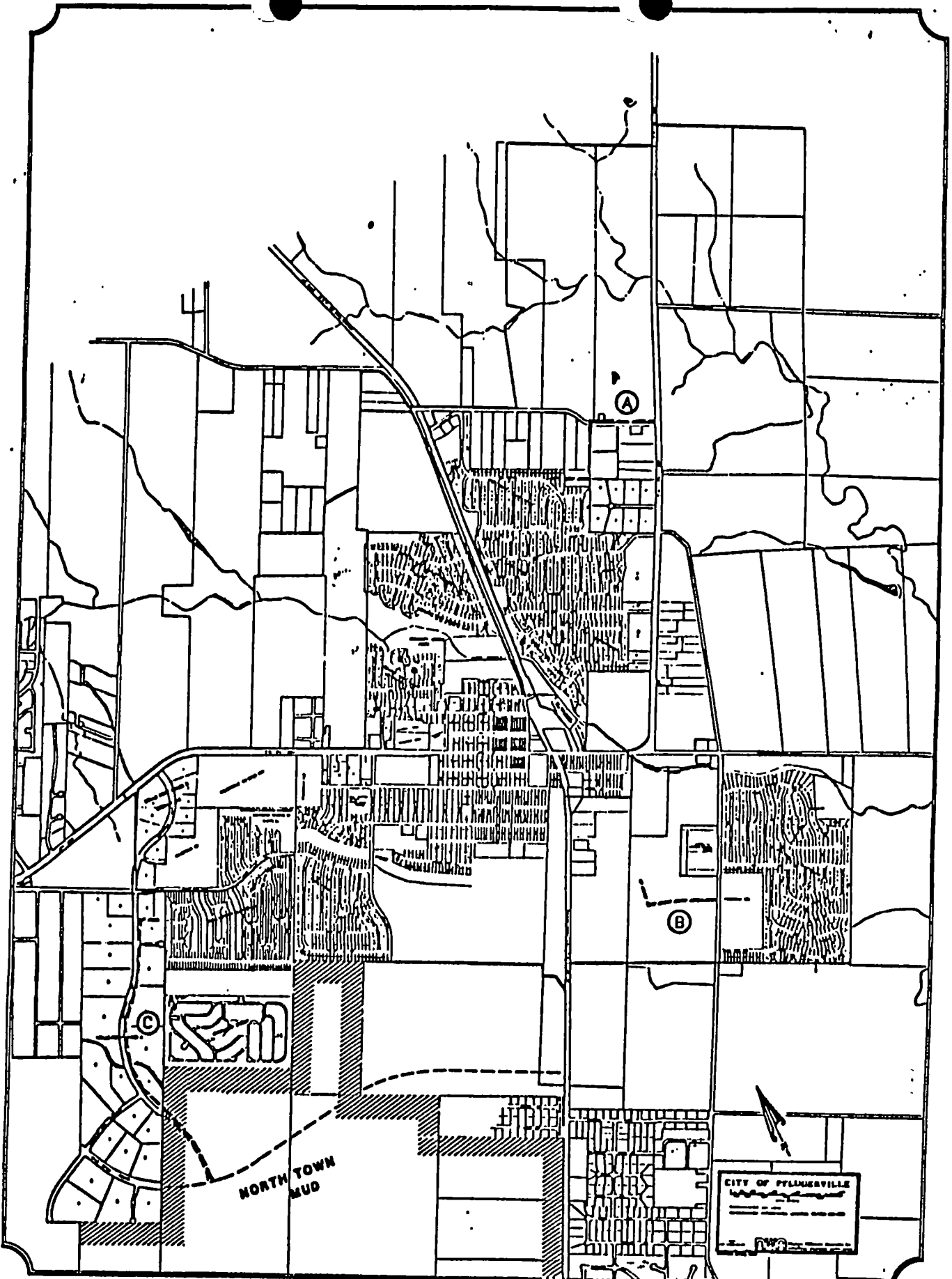
GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 13 day of December, 1988.

Margaret A. Cathey
Notary Public, The State of Texas

MARGARET A. CATHEY
My Commission Expires 1-30-89

Typed/Printed Name of Notary

My Commission Expires: _____



- A PFENNING LANE
- B SETTLERS VALLEY DRIVE
- C WELL BRANCH PARKWAY / HEATHERWILDE BLVD.

8/24/87

EXHIBIT "A"
 AUSTIN / PFLUGERVILLE
 WATER PURCHASE AGREEMENT

EXHIBIT "B"
AUSTIN / PFLUGERVILLE
WATER PURCHASE AGREEMENT

BOUNDARY OF
CERTIFIED NO. 11303
SERVICE AREA

PFLUGERVILLE
E.T.J. BOUNDARY

CENTRAL WASTEWATER
TREATMENT PLANT SITE

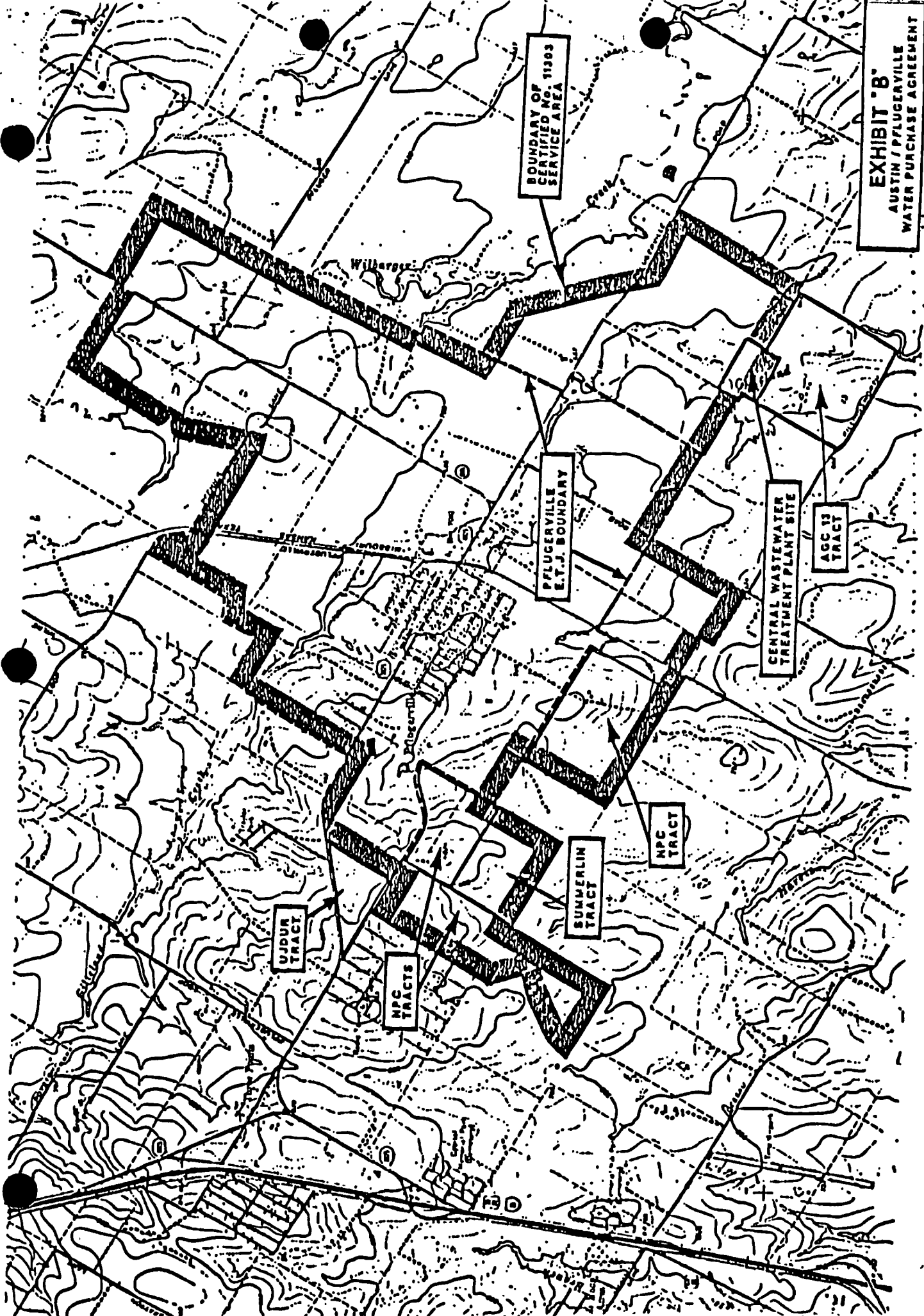
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NPC TRACT

SUMMERLIN
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NPC TRACTS

UJOUR
TRACT



FIRST AMENDMENT TO WATER SERVICE AGREEMENT

THE STATE OF TEXAS §
 § **KNOW ALL BY THESE PRESENTS:**
COUNTY OF TRAVIS §

THIS FIRST AMENDMENT TO WATER SERVICE AGREEMENT (“First Amendment”) is made and entered into by and between the of City of Austin, Texas (“Austin”), a Texas home rule municipal corporation, and the City of Pflugerville, a Texas home rule municipal corporation (“Pflugerville”), collectively (“Parties”), and may be referred to as the “First Amendment to Water Service Agreement.”

WHEREAS, Austin and Pflugerville previously entered into a water service agreement effective January 20, 1989, entitled “Water Service Agreement” (the “Agreement”), pursuant to which Austin agreed to provide a potable water supply to Pflugerville for its distribution system that served connections within a defined area;

WHEREAS, Pflugerville desires to provide water service using water delivered by Austin under the Agreement within its city limits and extraterritorial jurisdiction (“ETJ”), as those areas may change from time to time;

WHEREAS, Austin is willing to allow Pflugerville to provide service within the Amended Service Area, provided that the Agreement is amended to provide for a contract term that expires December 31, 2007;

WHEREAS, Austin has approved and Pflugerville has completed construction of a new “Point of Delivery” located on Howard Lane as more particularly shown on **EXHIBIT A**;

NOW, THEREFORE, in consideration of the foregoing premises and the mutual undertakings herein contained, the parties hereby amend the Agreement as follows:

ARTICLE I

1.01. Point of Delivery. Exhibit “A” of the Agreement is amended and replaced in its entirety by **EXHIBIT A** attached to this First Amendment and made a part hereof for all purposes.

1.02. Service Area.

A. The first sentence of Article III, Section A, of the Agreement is hereby amended to read as follows:

Austin agrees to provide Pflugerville potable water up to a maximum flow rate of ten million (10,000,000) gallons per day in phased increments at a pressure of not less than twenty (20) pounds per square inch.

B. Article V, Section A, of the Agreement is hereby amended to read as follows:

(A) Unless the prior written approval of the Austin City Council is obtained, Pflugerville shall not knowingly construct, install, or connect public facilities to provide retail or wholesale water service using water delivered by Austin under this Agreement to areas outside Pflugerville's city limits and ETJ (the "Amended Service Area"), as they may exist from time to time. Unless the prior written approval of the Director of Austin's Water and Wastewater Utility is obtained, Pflugerville shall not knowingly connect and serve a customer who, in turn, sells water service, directly or indirectly, to another person or entity using water provided by Austin under this Agreement but only for the period of time specified by the Director.

(1) With regard to retail water and wastewater service to that certain subdivision comprised of approximately 365 acres commonly known as "Boulder Ridge South" located as shown on **EXHIBIT A** ("Boulder Ridge South"), the parties agree as follows:

(a) Pflugerville, in accordance with its rates, fees and service policies, is authorized by Austin to provide retail water and wastewater service to Boulder Ridge South, until a 30-day written notice given by Austin notifying Pflugerville that Austin will provide retail water and wastewater service.

(b) Disconnection of Boulder Ridge South from the Pflugerville water and wastewater system and the construction of new connecting facilities will be at Austin's cost and in accordance with Austin's standards and policies, and at no expense to Sun Communities Finance, L.L.C. ("Sun"), its successors or assigns in the ownership of Boulder Ridge South.

(c) Pflugerville agrees that Pflugerville fees and charges will not apply to Austin's disconnection of Boulder Ridge South from the Pflugerville water and wastewater systems or to Austin's connection of Boulder Ridge South to Austin's water and wastewater systems. After disconnection of Boulder Ridge South from the Pflugerville water and wastewater systems, the existing public utilities located within Killingsworth Lane that provide water and wastewater service to the private water and wastewater service to the private water and wastewater mains located within Boulder Ridge South will remain the property of Pflugerville.

(d) Austin agrees that its Capital Recovery Fees will not be charged to the existing Pflugerville water and wastewater customers connected within Boulder Ridge South at the time that Austin commences Austin water and ~~w~~ wastewater service to Boulder Ridge South, or for any service unit of Boulder Ridge South for which capital recovery fees have already been paid to Pflugerville. Austin will charge its Capital Recovery Fees for any additional development within Boulder Ridge South after Austin commences water and wastewater service but only in accordance with Austin policies and ordinances.

(e) Pflugerville acknowledges and represents that, on or before the effective date of this First Amendment, Pflugerville and Sun have entered into a separate agreement that: (i) provides for the future termination of that certain Development

Agreement for Boulder Ridge South between Pflugerville and Sun as approved by the Pflugerville City Council on October 12, 1999 ("Development Agreement") and that certain Restrictive Covenant Concerning Utility Service, Document No. 2002190626, Official Public Records of Travis County, Texas; (ii) acknowledges that Sun has received adequate consideration for all the parcels of land that were dedicated under the terms of the Development Agreement; and (iii) ensures that the terms of the restrictive covenant limiting the density of development within Boulder Ridge South and limiting development on the south side of the proposed extension of Wells Branch Parkway to only single family homes remain in effect and that they can only be amended with Pflugerville's prior written agreement. A true copy of the separate agreement between Pflugerville and Sun has been provided to Austin concurrent with Pflugerville's execution of this First Amendment.

(f) The requirements of this Agreement related to Boulder Ridge South shall be enforceable by Sun and its subsequent purchasers and assignees as third party beneficiaries hereof as well as by Pflugerville and Austin.

(2) With regard to retail water and wastewater service to those certain subdivisions comprised of approximately 55.0 acres commonly known as "Bluebonnet Acres Sections 1, 2 and 3," ("Bluebonnet Acres") located as shown on **EXHIBIT A**, the parties agree as follows:

(a) Pflugerville, in accordance with its rates, fees, and service policies, is authorized by Austin to provide retail water service to Bluebonnet Acres, until a 30-day written notice given by Austin given by Austin notifying Pflugerville that Austin will provide retail water service to this area. Wastewater service is provided through private landowner septic systems.

(b) Disconnection of Bluebonnet Acres from the Pflugerville water system and the construction of new connecting facilities will be at Austin's cost and in accordance with Austin's standards and policies.

(c) Pflugerville agrees that Pflugerville fees and charges shall not apply to Austin's disconnection of Bluebonnet Acres from the Pflugerville water system or to Austin's connection of Bluebonnet Acres to the Austin water system.

(d) Pflugerville will convey all existing water facilities located within Bluebonnet Acres, together with all easements and appurtenant rights, if any, to Austin at no cost to Austin within 30 days of Austin's written notice to Pflugerville that Austin will commence Austin retail water service. Said conveyance shall be acceptable in form and content to the Director and Austin's City Attorney. Austin agrees that its Water Capital Recovery Fees will not be charged to the existing customers of Bluebonnet Acres at the time that Austin commences Austin water utility service.

(e) Austin will charge its Water Capital Recovery Fee for any service units of new development connected after Austin commences Austin water utility service.

(3) With regard to that certain subdivision comprised of approximately 83.0 acres commonly known as "Tech Ridge" located as shown on **EXHIBIT A**, Pflugerville further agrees to terminate Pflugerville's interim retail water service to Tech Ridge, on or before the expiration of sixty one (61) days from the effective date of this First Amendment given that Austin has installed water facilities necessary to provide Austin water service to Tech Ridge. Disconnection of the Tech Ridge development from the Pflugerville system will be performed at the expense of Austin and Tech-Ridge. Pflugerville agrees that Pflugerville fees and charges shall not apply to Austin's disconnection of the Tech Ridge development from the Pflugerville water system or to Austin's connection of the Tech Ridge development to the Austin water system.

(4) The provisions of this Agreement related to the provision of utility services to Boulder Ridge South and Bluebonnet Acres shall survive the termination of this Agreement.

C. Article V, Section B, of the Agreement is hereby amended to read as follows:

Unless the prior approval of the City Council of Pflugerville is obtained or Austin is providing service at the time an area is added to the Amended Service Area, Austin may not provide retail or wholesale service within the Amended Service Area.

1.03 **Term.** Article IX of the Agreement is hereby amended to read as follows:

This Agreement is effective from the date of its execution by both parties and continues in effect until December 31, 2007, or when the City of Pflugerville declares its proposed surface water treatment plant operational, whichever is earlier.

1.04. **Pflugerville Agreement to File Application for Decertification.** As a condition of Austin's agreement to the provisions of this First Amendment, Pflugerville agrees to file, at its sole cost, within thirty (30) days of the effective date of this Agreement, an application to the Texas Commission on Environmental Quality to decertify all areas previously certificated to Pflugerville that are located within the corporate limits and ETJ of Austin as indicated on **EXHIBIT A**.

ARTICLE II. GENERAL PROVISIONS

2.01. **Notices.** Any notice required or permitted to be delivered under this Agreement must be forwarded via hand-delivery or the United States Postal Service, postage prepaid, to the addresses shown below:

City of Austin
P.O. Box 1088
Austin, Texas 78767-8828
Attn: Director
Water and Wastewater Utility

City of Pflugerville
P. O. Box 589
Pflugerville, Texas 78691-0589
Attn: City Manager

2.02. Interlocal Cooperation. Austin and Pflugerville will cooperate with each other at all times so as to promote the efficient performance of the utility services provided hereunder. Austin and Pflugerville agree to use a third-party mediation service for any unresolved disputes prior to seeking legal remedies through lawsuits or court or agency actions.

2.03. Severability. The provisions of this First Amendment are severable, and if any word, phrase, clause, sentence, paragraph, section, or other part of this First Amendment or the application thereof to any person or circumstances is ever held by any court of competent jurisdiction to be invalid or unconstitutional for any reason, the remainder of this First Amendment and the application of such word, phrase, clause, sentence, paragraph, section, or other part of this First Amendment to other persons or circumstances will not be affected thereby and this First Amendment will be construed as if such invalid or unconstitutional portion had never been contained herein.

2.04. Entire Agreement. This First Amendment, including any exhibits attached hereto and made a part hereof by reference for all purposes, constitutes the entire agreement between the parties relative to the subject matter of this First Amendment and, except as provided in this Section, supersedes all prior or contemporaneous agreements, representations, covenants or warranties, whether oral or in writing, respecting the subject matter hereof including, without limitation, the Temporary Emergency Water Service Arrangements for City of Pflugerville and Windermere Utility Co., Inc. executed on August 10, 2000 by Pflugerville, Austin and Windermere Utility Co., Inc. Pflugerville and Austin agree that this First Amendment does not supersede the Interlocal Agreement Regarding Temporary Wholesale Water and Wastewater Service executed on April 3, 1998 by Pflugerville, Austin and Northtown MUD.

2.05. Compliance with Rules. Pflugerville will file a copy of this First Amendment with the Executive Director of the Texas Commission on Environmental Quality, P.O. Box 13087, Capitol Station, Austin, Texas 78711, it being fully recognized by the parties hereunder that the effectiveness of this First Amendment is dependent upon and subject to compliance with all valid rules, regulations, and applicable laws of the United States of America, the State of Texas, Austin, Pflugerville, or any other governmental body or agency having lawful jurisdiction or any authorized representative or agency of any of them.

2.06. Duplicate Originals. This First Amendment may be executed in duplicate originals each of equal dignity.

2.07. Effective Date. This First Amendment becomes effective on the date of execution by the authorized representatives of Austin and Pflugerville.

IN WITNESS WHEREOF, the authorized representatives of Austin and Pflugerville have executed this First Amendment as of the date(s) set forth below.

APPROVED AS TO FORM:

CITY OF AUSTIN:

John M. Kennedy
Assistant City Attorney

By: Jose E. Canales
Jose E. Canales
Deputy City Manager

Date: 1-30-03

APPROVED AS TO FORM:

CITY OF PFLUGERVILLE:

[Signature]
Attorney for Pflugerville

By: Steve Jones
Steve Jones, City Manager

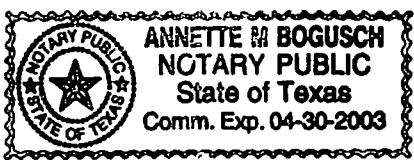
Date: 1/28/03

THE STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

THIS INSTRUMENT is acknowledged before me on this 30th day of January, 2003, by Jose E. Canales, Deputy City Manager of Austin, Texas, a municipal corporation, on behalf of said municipal corporation.

(SEAL)

Annette M. Bogusch
Notary Public, State of Texas



THE STATE OF TEXAS

§

COUNTY OF TRAVIS

§

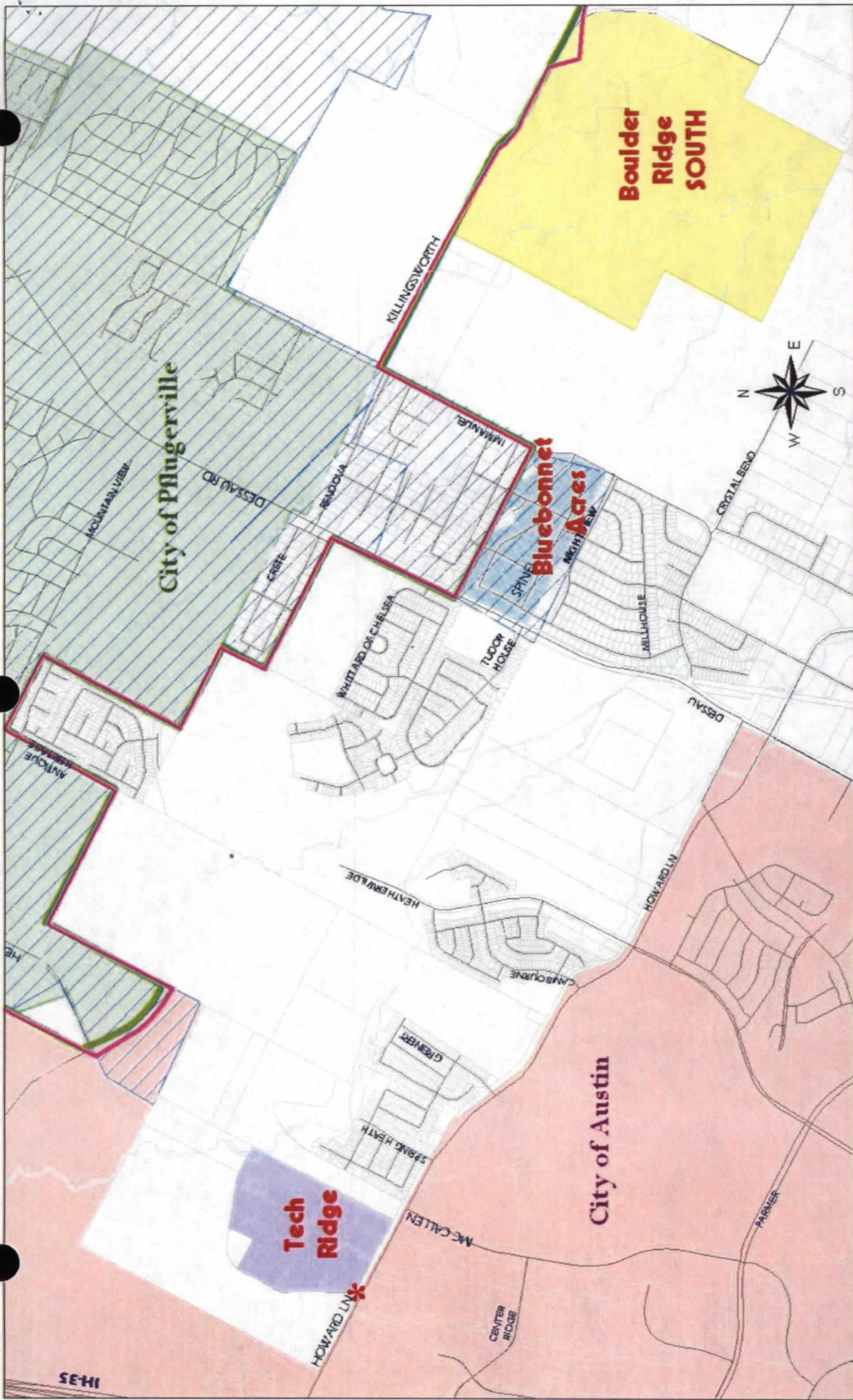
§

THIS INSTRUMENT is acknowledged before me on this 28TH day of January, 2003, by Steve Jones, City Manager of the City of Pflugerville, a municipal corporation, on behalf of said municipal corporation.

(SEAL)



Karen S. Thompson
Notary Public, State of Texas



	Austin ETJ		Austin City Limits		TECH RIDGE		1000 0 1000 2000 Feet
	Pflugerville ETJ		Pflugerville City Limits		BOULDER RIDGE		
	Pflugerville Water and Wastewater CCN		Bluebonnet Acres		Lot Lines		
	Point of Delivery						



 City of Austin
 Water and Wastewater Utility
 GIS Services
 August 7, 2002
 *Rev 9/12/2002

EXHIBIT "A"



CITY OF AUSTIN
RECOMMENDATION FOR COUNCIL ACTION

AGENDA ITEM NO:
AGENDA DATE: 7-19-01
RCA TYPE: Resolution
PAGE 1 OF 1

SUBJECT: Authorize negotiation and execution of amendment to the existing Wholesale Water Service Agreement with City of Pflugerville to expand the approved wholesale service area to include all of Pflugerville's Extraterritorial Jurisdiction (ETJ) and to modify the remaining term of the agreement.

AMOUNT & SOURCE OF FUNDING: No fiscal impact to the City.

REQUESTING DEPT: Water and Wastewater **DIRECTOR'S SIGNATURE:** *Cheryl Lypert*

FOR MORE INFORMATION CONTACT: Mike Erdmann 322-2876, Laura Wiley 322-2902

PRIOR COUNCIL ACTION: City Council approval of an amendment to the Water Service Agreement 2000.

BOARD AND COMMISSION ACTION: Water and Wastewater Commission recommended 6-6-01

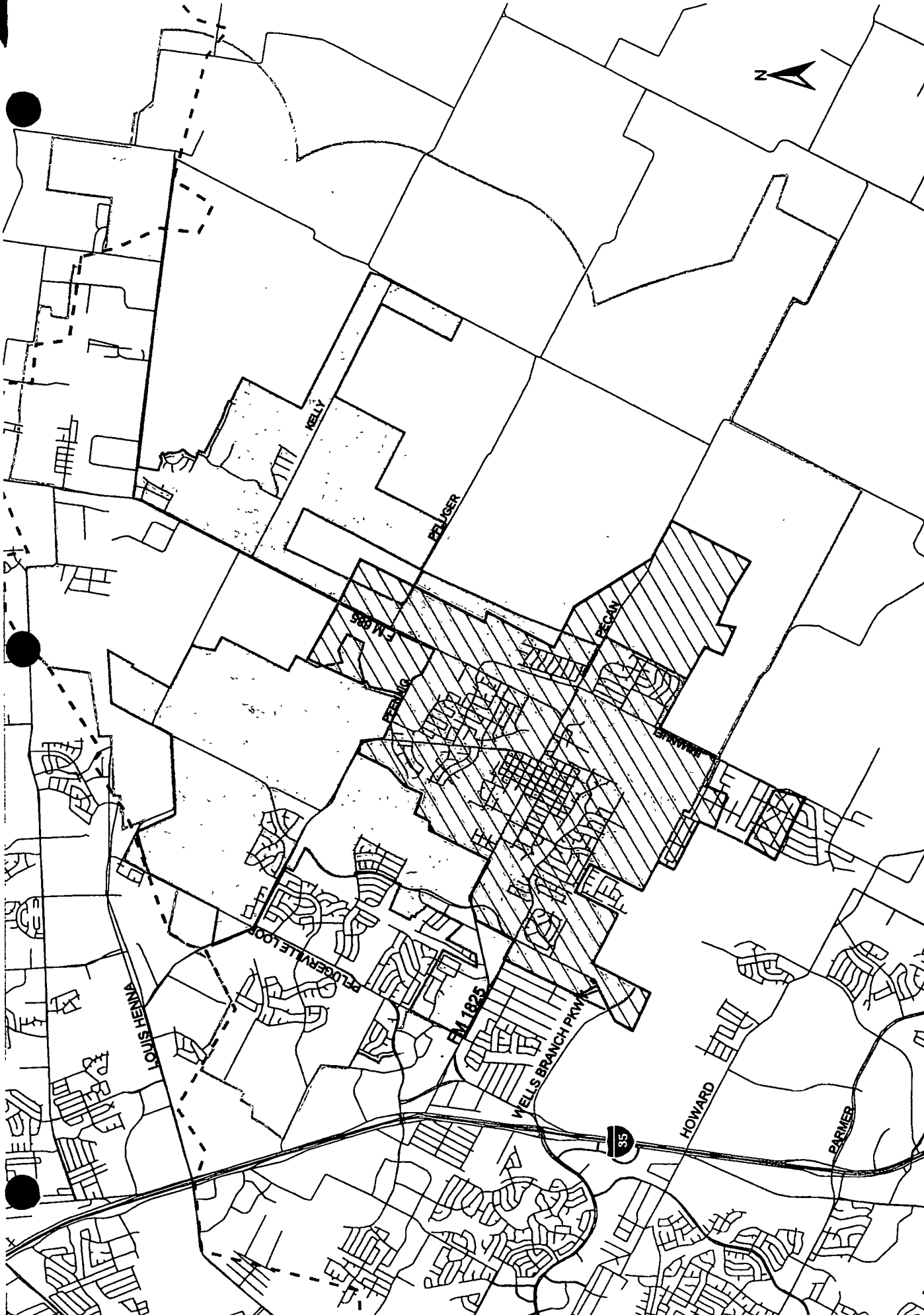
-----REQUIRED AUTHORIZATION-----

LAW: Martha Terry **FINANCE:** David Anders
OTHER: _____

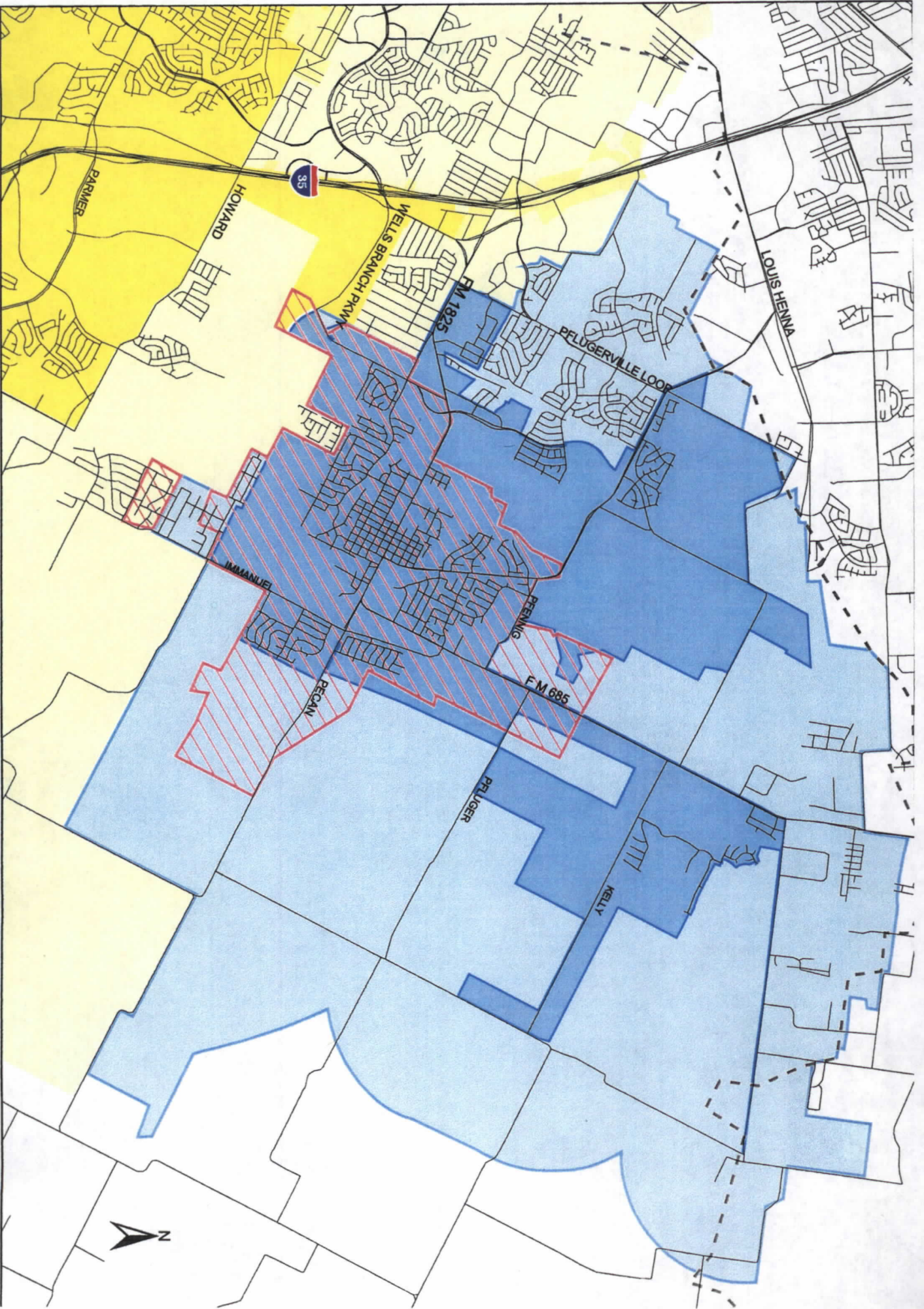
The Water and Wastewater Utility received a request from the City of Pflugerville to amend the existing 1989 Wholesale Water Service Agreement between the City of Austin and the City of Pflugerville to add all of Pflugerville's Extra-Territorial Jurisdiction (ETJ) land to the approved wholesale service area. The existing Wholesale Water Service Agreement has a specific boundary or limit within which Pflugerville can utilize Austin water to serve existing or new customer requests which includes only a portion of Pflugerville's ETJ. The existing wholesale service area boundary was the Pflugerville ETJ, as it existed in 1989, when the original wholesale water agreement was finalized.

In order for Pflugerville to serve additional customers now within their ETJ, the agreement with Austin has to be amended for each new individual request. The Water and Wastewater Utility has no objection to this contract amendment particularly since Austin and Pflugerville have amended their extra-territorial jurisdictional boundaries several times since approval of the 1989 water service agreement. These amendments were approved by Council between 1995 and 1997 when Austin released large tracts of land totaling approximately 9,605 acres from Austin's ETJ that were then assigned to Pflugerville's ETJ.

Pflugerville is also in the process of designing and constructing their own water treatment facility, and once completed, Pflugerville will no longer need to purchase water from the City of Austin. The current wholesale water service agreement is for an unspecified open-ended time period, only requiring a twelve month notice by either party to terminate. The requested modification of the termination provision found in Article IX, would keep the agreement in effect until December 31, 2008, or when the City of Pflugerville declares its new water treatment plant is operational, whichever date is earlier. The earlier termination date will benefit Austin in that it will effectively reduce the overall amount of water to be provided by Austin from the current contract quantity of ten (10) million gallons per day, down to four and one-half (4.5) million gallons per day.



- Pflugerville City Limits
- Austin City Limits
- Pflugerville Certificate of Convenience and Necessity (CCN)
- Austin ETJ (Water Service Area)
- Austin ETJ & LTD



- Pflugerville City Limits
- Pflugerville ETJ (Water Service Area)
- Austin City Limits
- Austin ETJ & LTR
- Pflugerville Certificate of Convenience and Necessity (CCN)



No. 060601-H
WATER AND WASTEWATER COMMISSION RESOLUTION
AMENDMENT TO THE PFLUGERVILLE WATER SERVICE AGREEMENT TO EXPAND
PFLUGERVILLE'S CERTIFICATED SERVICE AREA

June 6, 2001
REGULAR MEETING
VOTE: 7-0-0-2

Motion made by: Haley
Commissioners Consenting: Cooper, Douglas, Marin, McKee, McPherson, Wilson
Commissioners Dissenting:
Commissioners Abstaining:
Commissioners Absent: Lee, Warner

The Water and Wastewater Commission recommends the Council approve the request for an amendment to the Pflugerville Water Service Agreement to expand Pflugerville's certificated service area to add land known as Pflugerville East and to modify the length of the agreement.

Darwin McKee
Darwin McKee, Chairperson
Water and Wastewater Commission

06/06/01
Date



SUBJECT: Authorize negotiation and execution of an amendment to the existing Wholesale Water Service Agreement with the City of Pflugerville to expand Pflugerville's approved retail service area to add a tract of approximately 365 acres on Killingsworth Lane known as "Boulder Ridge South" and to provide interim water service to the "tech-ridge Development section 4" located along Howard Lane.

AMOUNT & SOURCE OF FUNDING: No fiscal impact to the City.

REQUESTING DEPT: Water and Wastewater **DIRECTOR'S SIGNATURE:** Chris Lopez

FOR MORE INFORMATION CONTACT: Mike Erdmann 322-2876

PRIOR COUNCIL ACTION: City Council approval of Water Service Agreement 1988.

BOARD AND COMMISSION ACTION: Water and Wastewater Commission approved 9-6-00

REQUIRED AUTHORIZATION

LAW: Marty Terry **UTILITY FINANCE:** David Anders

OTHER: _____

The Water and Wastewater Utility received a request from Sun Communities Texas Limited Partnership and the City of Pflugerville to modify the existing 1989 Wholesale Water Service Agreement between the City of Austin and the City of Pflugerville to add a 365-acre tract known as Boulder Ridge South to the approved Pflugerville service area. Boulder Ridge South is planned as a companion manufactured housing development, to the existing Boulder Ridge community located on the northside of Killingsworth Lane, that already receives water and wastewater service from Pflugerville.

The current agreement has a fixed service area boundary for Pflugerville that does not include the 365-acre tract of land located on the south side of Killingsworth Lane. Killingsworth Lane forms the southern boundary of the existing Pflugerville water service area. In order for Pflugerville to serve Boulder Ridge South on a retail basis, the agreement with the City of Austin will need to be amended.


The Water and Wastewater Utility has no objection to this amendment, particularly since Austin and Pflugerville have amended their extra-territorial jurisdictional boundaries several times since approval of the 1989 water service agreement. These changes in jurisdictional boundaries approved by Council between 1995 and 1997 removed large tracts of land totaling approximately 9,605 acres from Austin's ETJ and released them to Pflugerville. The Boulder Ridge South tract was previously included within the certificated service area of Manville Water Supply Corporation (WSC) and could not be served directly by Austin. Earlier this year, Manville WSC and Pflugerville worked out an agreement in which Manville WSC released the water service area to Pflugerville. The only remaining action needed under the existing wholesale contract to allow Pflugerville to provide retail water service to the tract is negotiation and execution of the amendment to the existing water service agreement.

The other action item this amendment is seeking is approval for Pflugerville to provide interim water service to a future City of Austin retail outside city customer, "tech-ridge Development section 4". The development is located on the north side of Howard Lane across from the Dell manufacturing facilities. The site needs a higher level of water pressure than the existing City water lines can currently provide. Council recently awarded contracts to construct the Howard Lane Pump Station and Transmission Mains, which upon completion will provide the necessary higher pressure water to serve this site. Current estimated completion of these Capital Improvement Projects is late summer of 2001. The "tech-ridge" development will finish several buildings in the next three months and needs an interim source of water until the City projects are completed and in service. The "tech-ridge Development section 4", will be converted from a Pflugerville customer to a direct outside city retail customer of Austin upon completion of the Howard Lane Pump Station and Transmission Main projects.

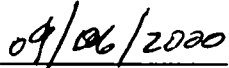
No 090600-M
WATER AND WASTEWATER COMMISSION RESOLUTION
AMENDMENT TO THE EXISTING WHOLESALE WATER SERVICES AGREEMENT WITH THE
CITY OF PFLUGERVILLE - EXPAND THE SERVICE AREA TO ADD BOULDER RIDGE SOUTH
September 6, 2000
REGULAR MEETING
VOTE: 7-0-0-2

Motion made by: McKee
Commissioners Consenting: Cooper, Haley, Douglas, Lee, Warner, Wilson
Commissioners Dissenting:
Commissioners Abstaining:
Commissioners Absent: Marin, McPherson

The Water and Wastewater Commission recommends the Council authorize negotiation and execution of an amendment to the existing Wholesale Water Service Agreement with the City of Pflugerville to expand Pflugerville's approved retail service area to add a tract of approximately 365 acres on Killingsworth Lane known as "Boulder Ridge South."



Darwin McKee, Chairperson
Water and Wastewater Commission



Date

RESOLUTION NO. 000928-

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF AUSTIN:

The Council authorizes the negotiation and execution of an amendment to the existing Wholesale Water Service Agreement with the City of Pflugerville to expand Pflugerville's approved retail service area to add a tract of approximately 365 acres on Killingsworth Lane known as "Boulder Ridge South" and to provide interim water service to the "tech-ridge Development section 4" located along Howard Lane; and authorizes the City Manager or his designee to enter into the amendment agreement on such terms and conditions as may be reasonable, necessary, or required.

ADOPTED: _____, 2000

ATTEST: _____

Shirley A. Brown
City Clerk

CITY OF AUSTIN
RECOMMENDATION FOR COUNCIL ACTION

AGENDA ITEM NO:
AGENDA DATE: 9-28-00
RCA TYPE: Resolution
PAGE 1 OF 1

SUBJECT: Authorize negotiation and execution of an amendment to the existing Wholesale Water Service Agreement with the City of Pflugerville to expand Pflugerville's approved retail service area to add a tract of approximately 365 acres on Killingsworth Lane known as "Boulder Ridge South" and to provide interim water service to the "tech-ridge Development section 4" located along Howard Lane.

AMOUNT & SOURCE OF FUNDING: No fiscal impact to the City.

REQUESTING DEPT: Water and Wastewater **DIRECTOR'S SIGNATURE:** _____

FOR MORE INFORMATION CONTACT: Mike Erdmann 322-2876

PRIOR COUNCIL ACTION: City Council approval of Water Service Agreement 1988.

BOARD AND COMMISSION ACTION: Water and Wastewater Commission review 9-6-00

-----**REQUIRED AUTHORIZATION**-----
LAW: _____ **UTILITY FINANCE:**  _____
OTHER: _____

The Water and Wastewater Utility received a request from Sun Communities Texas Limited Partnership and the City of Pflugerville to modify the existing 1989 Wholesale Water Service Agreement between the City of Austin and the City of Pflugerville to add a 365-acre tract known as Boulder Ridge South to the approved Pflugerville service area. Boulder Ridge South is planned as a companion manufactured housing development, to the existing Boulder Ridge community located on the northside of Killingsworth Lane, that already receives water and wastewater service from Pflugerville.

The current agreement has a fixed service area boundary for Pflugerville that does not include the 365-acre tract of land located on the south side of Killingsworth Lane. Killingsworth Lane forms the southern boundary of the existing Pflugerville water service area. In order for Pflugerville to serve Boulder Ridge South on a retail basis, the agreement with the City of Austin will need to be amended.

The Water and Wastewater Utility has no objection to this amendment, particularly since Austin and Pflugerville have amended their extra-territorial jurisdictional boundaries several times since approval of the 1989 water service agreement. These changes in jurisdictional boundaries approved by Council between 1995 and 1997 removed large tracts of land totaling approximately 9,605 acres from Austin's ETJ and released them to Pflugerville. The Boulder Ridge South tract was previously included within the certificated service area of Manville Water Supply Corporation (WSC) and could not be served directly by Austin. Earlier this year, Manville WSC and Pflugerville worked out an agreement in which Manville WSC released the water service area to Pflugerville. The only remaining action needed under the existing wholesale contract to allow Pflugerville to provide retail water service to the tract is negotiation and execution of the amendment to the existing water service agreement.

The other action item this amendment is seeking is approval for Pflugerville to provide interim water service to a future City of Austin retail outside city customer, "tech-ridge Development section 4". The development is located on the north side of Howard Lane across from the Dell manufacturing facilities. The site needs a higher level of water pressure than the existing City water lines can currently provide. Council recently awarded contracts to construct the Howard Lane Pump Station and Transmission Mains, which upon completion will provide the necessary higher pressure water to serve this site. Current estimated completion of these Capital Improvement Projects is late summer of 2001. The "tech-ridge" development will finish several buildings in the next three months and needs an interim source of water until the City projects are completed and in service. The "tech-ridge Development section 4", will be converted from a Pflugerville customer to a direct outside city retail customer of Austin upon completion of the Howard Lane Pump Station and Transmission Main projects.

Jennings, Bart

From: Steve Jones [tsjones@cityofpflugerville.com]
Sent: Friday, June 20, 2003 11:44 AM
To: 'Bart Jennings'
Cc: 'John Carlton'; 'Jim Nias'
Subject: Boulder Ridge South agreement



Agreement
1-30-03.pdf

Bart,

I have attached an executed copy of the Boulder Ridge South agreement in PDF format. The file may be too large to go through email, so I'll send a hard copy by mail. The effective date of the agreement is January 30, 2003.

Again, I apologize for taking so long to get this done. I hope it has not caused you too much trouble. Let me know if you need anything else. I'll try to respond in less than six months. Thanks.

Steve Jones, City Manager
100 E. Main St., Suite 300
P.O. Box 589, Pflugerville, TX 78691
Phone. (512) 990-4363

**AGREEMENT CONCERNING BOULDER RIDGE SOUTH
DEVELOPMENT AGREEMENT AND RESTRICTIVE COVENANTS**

This Agreement Concerning Boulder Ridge South Development Agreement and Restrictive Covenants ("Agreement") is executed by and between **SUN COMMUNITIES FINANCE, LLC**, a Michigan limited liability company ("Sun") and **THE CITY OF PFLUGERVILLE, TEXAS**, a home-rule municipality located in Travis County, Texas ("City").

RECITALS:

A. Sun is the owner of certain real property in Travis County, Texas, being 356.920 acres, as more particularly described on the attached Exhibit "A", save and except for the portion thereof which was dedicated to Travis County for road right-of-way purposes pursuant to the instrument recorded at Document No. 2001058777 of the Official Public Records of Travis County (the "Property").

B. Sun Communities Texas Limited Partnership, a Michigan limited partnership ("Sun Communities") and the City entered into that certain Development Agreement for Boulder Ridge South, which was approved by the City of Pflugerville City Council on October 12, 1999, and was amended by that certain First Amendment to Development Agreement for Boulder Ridge South approved by the City Council of the City on November 28, 2000 and that certain Second Amendment to Development Agreement for Boulder Ridge South approved by the City Council of the City on February 27, 2001, concerning development of the Property. The Development Agreement for Boulder Ridge South and the amendments thereto are collectively referred to as the "Development Agreement".

C. Sun Communities assigned the Development Agreement to Sun effective April 16, 2001.

D. Sun and the City also entered into: (i) that certain Restrictive Covenant Concerning Utility Service recorded as Document No. 2002190626, Official Public Records of Travis County, Texas ("Utility Service Restrictive Covenant"); and (ii) that certain Restrictive Covenant recorded as Document No. 2001083402, Official Public Records of Travis County, Texas ("Development Restrictive Covenant"). The Utility Service Restrictive Covenant and the Restrictive Covenant place certain limitations on the use and development of the Property.

E. Sun hereby acknowledges that pursuant to that certain First Amendment to Water Service Agreement between the City of Austin, Texas and the City dated effective January 30, 2003, the City agreed, subject to certain terms and conditions, to enter into an agreement with Sun that would provide for the termination of the Development Agreement and Utility Service Restrictive Covenant and the modification and extension of the Development Restrictive Covenant.

F. Sun and the City desire to set forth their understanding regarding the Development Agreement, Utility Service Restrictive Covenant and the Development Restrictive Covenant.

NOW, THEREFORE, for and in consideration of TEN AND NO/100 DOLLARS (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, City and Sun hereby agree as follows:

1. Development Agreement. Sun hereby acknowledges and agrees that Sun has received adequate consideration for all of the parcels of land that were dedicated under the terms of the Development Agreement. Furthermore, Sun and City hereby agree that at such time as City of Austin commences retail water and wastewater service to the Property, the Development Agreement will automatically terminate and from that date forward will be of no further force or effect with respect to the Property. Sun and City agree to execute any other documents that may be required to memorialize the termination of the Development Agreement as provided in this paragraph.

2. Utility Service Restrictive Covenant. Sun and City hereby agree that at such time as City of Austin commences retail water and wastewater service to the Property, the Utility Service Restrictive Covenant will automatically terminate and from that date forward will be of no further force or effect with respect to the Property. Sun and City agree to execute any other documents, in recordable form, which may be required or desirable to memorialize the termination of the Utility Service Restrictive Covenant as provided in this paragraph.

3. Development Restrictive Covenant. Sun and City hereby agree that at such time as City of Austin commences retail water and wastewater service to the Property, Sun and City will enter into an amendment to the Development Restrictive Covenant, the form of which shall be substantially as attached as Exhibit "B", that will provide that certain terms and conditions set forth the Development Restrictive Covenant will remain in full force when and if the City of Austin commences the provision of retail water and wastewater service to the Property.

4. Binding Effect. This Agreement shall bind and inure to the benefit of the respective parties, their personal representatives, successors and assigns.

5. Governing Law/Severability. This Agreement will be construed under and in accordance with the laws of the State of Texas and all obligations are performable in Travis County, Texas. If any of the provisions of this Agreement are, for any reason, held to be invalid, illegal, or unenforceable, that invalidity, illegality or unenforceability will not affect the remainder of this Agreement, which will continue in full force and effect.

6. Entire Agreement. This Agreement contains the entire agreement between Sun and the City with respect to the subject matter, and no oral statements or prior written matter not specifically incorporated will be of any force and effect. No modification of this Agreement will be binding on either party unless set forth in a written document, executed by such parties or a duly authorized agent, officer or representative. Both parties have participated in the negotiation and drafting of this Agreement; therefore, in the event of any ambiguity, the provisions of this Agreement will not be construed for or against either party.

7. Attorneys' Fees. Any party to this Agreement bringing suit against the other in respect to any matters stated in this Agreement may, if successful in such suit, recover from the nonprevailing party its costs of court and reasonable attorneys' fees and associated legal expenses in such suit.

This Agreement is executed on JUNE 19, 2003 to be effective as of JAN. 30, 2003.

SUN:

SUN COMMUNITIES FINANCE, LLC, a
Michigan limited liability company

By: Sun Communities Operating Limited
Partnership, a Michigan limited partnership,
as Sole Member

By: Sun Communities, Inc., a Maryland
corporation, as general partner

By: [Signature]
Printed Name: Jonathan Calman
Title: Executive Vice President

CITY:

CITY OF PFLUGERVILLE, TEXAS

By: [Signature]
G. Scott Winton, Mayor

ATTEST:

[Signature]
Karen Thompson, City Secretary

EXHIBIT "A"

DESCRIPTION OF THE PROPERTY

356.920 ACRES - SUN COMMUNITIES

THAT PART OF THE ALEXANDER WALTERS SURVEY AND THE M. CASTRO SURVEY, SITUATED IN TRAVIS COUNTY, TEXAS, BEING A PART OF TRACT NO. FIVE, AS CONVEYED FROM KVET BROADCASTING CO., INC, (GRANTOR) TO BUTLER BROADCASTING COMPANY, INC (GRANTEE) BY DEED RECORDED IN VOLUME 13079, PAGE 1875 OF THE REAL PROPERTY RECORDS OF TRAVIS COUNTY, TEXAS, AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS

BEGIN AT AN IRON ROD FOUND IN THE SOUTH LINE OF KILLINGSWORTH LANE, FOR THE NORTHWEST CORNER OF SAID TRACT NO FIVE AND FOR THE NORTHWEST CORNER OF THAT TRACT OF LAND CONTAINING 170.21 ACRES CONVEYED TO KVET BROADCASTING COMPANY, INC., BY DEED RECORDED IN VOLUME 4399, PAGE 1513 OF THE DEED RECORDS OF TRAVIS COUNTY, TEXAS;

THENCE ALONG THE NORTH LINE OF SAID TRACT NO. FIVE, THE SAME BEING THE NORTH LINE OF THE SAID 170 21 ACRE TRACT AND THE SOUTH LINE OF KILLINGSWORTH LANE, THE FOLLOWING TEN (10) COURSES:

- 1 S 60°39'00"E., 1351.56 FEET TO AN IRON ROD FOUND;
- 2 S 54°22'57"E., 210.06 FEET TO AN IRON ROD FOUND,
3. S.36°34'06"E., 258.13 FEET TO AN IRON ROD FOUND,
- 4 S 50°05'45"E., 190.17 FEET TO AN IRON ROD FOUND,
- 5 S.60°37'07"E , 1146.27 FEET TO AN IRON ROD FOUND,
- 6 S.59°35'14"E., 516.41 FEET TO AN IRON ROD FOUND;
- 7 S.48°03'23"E., 196.57 FEET TO AN IRON ROD FOUND;
8. S 25°32'17"E., 203.66 FEET TO AN IRON ROD FOUND;
- 9 S 05°22'14"E , 143.21 FEET TO AN IRON ROD FOUND;
- 10 S 03°15'11"W , 729.36 FEET TO AN IRON ROD FOUND IN THE WEST LINE OF SAID KILLINGSWORTH LANE;

THENCE CONTINUE ALONG THE EAST LINE OF SAID TRACT NO FIVE, THE SAME BEING THE EAST LINE OF THE SAID 170 21 ACRE TRACT AND THE WEST LINE OF KILLINGSWORTH LANE THE FOLLOWING TWO (2) COURSES.

1. S.16°41'48"W., 144.38 FEET TO AN IRON ROD FOUND,
- 2 S 29°53'56"W., 624.11 FEET TO AN IRON ROD FOUND IN THE EAST LINE OF SAID TRACT NO. FIVE, FOR THE SOUTHEAST CORNER OF THE SAID 170 21 ACRE TRACT AND FOR THE NORTHEAST CORNER OF THAT TRACT OF LAND CONTAINING 195 21 ACRES CONVEYED TO KVET BRAODCASTING COMPANY, INC BY DEED RECORDED IN VOLUME 4349, PAGE 150 OF THE DEED RECORDS OF TRAVIS COUNTY, TEXAS;

THENCE S 29°50'58"W , ALONG THE EAST LINE OF SAID TRACT NO FIVE AND THE WEST LINE OF KILLINGSWORTH LANE, 1066.21 FEET TO AN IRON ROD SET AND TO A LINE 60 00 FEET NORTH OF AND PARALLEL WITH A SOUTH LINE OF SAID TRACT NO FIVE,

THENCE N.60°03'59"W , ALONG SAID PARAI LEL LINE AND CROSSING SAID TRACT NO FIVE, 593.81 FEET TO AN IRON ROD SET AND TO A LINE 60 00 FEET WEST OF AND PARALLEL WITH AN EAST LINE OF SAID TRACT NO FIVE,

356.920 ACRES - SUN COMMUNITIES

THENCE S.29°31'22"W., ALONG SAID PARALLEL LINE, 665 28 FEET TO AN IRON ROD SET,
THENCE CONTINUE CROSSING SAID TRACT NO. FIVE THE FOLLOWING TWO (2)
COURSES:

- 1 N 60°10'03"W , 415 01 FEET TO AN IRON ROD SET,
- 2 S.29°31'22"W., 620 00 FEET TO AN IRON ROD SET IN THE SOUTH LINE OF SAID TRACT NO FIVE, THE SAME BEING THE SOUTH LINE OF THE SAID 195 21 ACRE TRACT,

THENCE ALONG THE SOUTH LINE OF SAID TRACT NO. FIVE AND THE SOUTH LINE OF THE SAID 195 21 ACRE TRACT THE FOLLOWING THREE (3) COURSES.

1. N 60°10'03"W., 464.94 FEET TO AN IRON ROD FOUND,
- 2 N.60°13'32"W., 396.79 FEET TO AN IRON ROD FOUND,
- 3 N.60°36'54"W., 1425.11 FEET TO AN IRON ROD FOUND FOR THE SOUTHERLY SOUTHWEST CORNER OF SAID TRACT NO. FIVE AND THE FOR THE SOUTHERLY SOUTHWEST CORNER OF THE SAID 195 21 ACRE TRACT IN THE WEST LINE OF THE SAID M CASTRO SURVEY AND AN EAST LINE OF THE SAID ALEXANDER WALTERS SURVEY;

THENCE N.29°45'56"E ALONG THE WEST LINE OF SAID TRACT NO FIVE, THE SAME BEING THE WEST LINE OF THE SAID 195 21 ACRE TRACT THE WEST LINE OF THE SAID M CASTRO SURVEY, 1273 45 FEET TO AN IRON ROD FOUND;

THENCE N 60°02'21"W., ALONG A SOUTH LINE OF SAID TRACT NO FIVE AND A SOUTH LINE OF THE SAID 195 21 ACRE TRACT, 1193 49 FEET TO AN IRON ROD FOUND,

THENCE N 30°28'46"E., ALONG THE WEST LINE OF SAID TRACT NO. FIVE AND THE WEST LINE OF THE SAID 195 21 ACRE TRACT, 1135.37 FEET TO AN IRON ROD FOUND FOR THE NORTHWEST CORNER OF THE SAID 195.21 ACRE TRACT AND FOR THE SOUTHWEST CORNER OF THE SAID 170 21 ACRE TRACT;

THENCE N 30°35'08"E., ALONG THE WEST LINE OF SAID TRACT NO. FIVE AND THE WEST LINE OF THE SAID 170.21 ACRE TRACT, 1784 26 FEET TO THE SAID POINT OF BEGINNING

CONTAINING 356 92 ACRES, MORE OR LESS

Randall S Jones 3/27/0

RANDALL S JONES
REGISTERED PROFES
STATE OF TEXAS



RJ SURVEYING, INC.
1300 EAST BRAKER LANE
AUSTIN, TEXAS 78753

FILE 728-P1

EXHIBIT "B"

FIRST AMENDMENT TO RESTRICTIVE COVENANT

THE STATE OF TEXAS §
 § KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF TRAVIS §

This First Amendment to Restrictive Covenant (the "First Amendment") is made by **SUN COMMUNITIES FINANCE, LLC**, a Michigan limited liability company ("Owner") and **THE CITY OF PFLUGERVILLE, TEXAS**, a home-rule municipality located in Travis County, Texas ("City"), and is as follows:

RECITALS:

- A. Owner previously executed that certain Restrictive Covenant, which was recorded as Document No.2001083402, Official Public Records of Travis County, Texas (the "Restrictive Covenant").
- B. The Restrictive Covenant encumbers approximately 342.53 acres of land in Travis County, Texas, as more particularly described in the Restrictive Covenant (the "Property").
- C. Paragraph 3 of the Restrictive Covenant provides that the Restrictive Covenant will expire and be of no further force and effect if the agreement under which the City is providing water and wastewater service to the Property is terminated.
- D. Owner hereby acknowledges that pursuant to that certain First Amendment to Water Service Agreement between the City of Austin, Texas and the City dated effective January 30, 2003, the City of Austin will provide retail water and wastewater service to the Property.
- E. Owner further acknowledges and agrees that Owner desires to amend the Restrictive Covenant so that the terms and conditions set forth the Restrictive Covenant will remain in full force and effect if and when the City of Austin commences the provision of retail water and wastewater service to the Property.
- F. Pursuant to Paragraph 7 of the Restrictive Covenant, the Restrictive Covenant may be amended by the recording in the Official Public Records of Travis County, Texas, of an instrument setting forth the amendment executed and acknowledged by the City and the owners of at least 51% of the Property at the time of the amendment.
- G. The Owner owns 100% of the Property, and the Owner and the City desire to amend the Restrictive Covenant as set forth in this First Amendment.

NOW, THEREFORE, City and Owner hereby amend and modify the Restrictive Covenant as follows:

1. **Paragraph 3; Expiration of the Restrictive Covenant.** City and Owner agree that Paragraph 3 of the Restrictive Covenant is hereby deleted in its entirety. Although water service for the Property will be provided by the City of Austin, Texas, the terms and conditions of the Restrictive Covenant will remain in full force and effect.

2. **Defined Terms.** All terms delineated with initial capital letters in this First Amendment that are defined in the Restrictive Covenant have the same meanings in this First Amendment as in the Restrictive Covenant. Other terms have the meanings commonly ascribed to them.

3. **Effect of Amendment.** Except as specifically amended in this First Amendment, all terms of the Restrictive Covenant remain in full force and effect.

EXECUTED the _____ day of _____, 2003 to be effective the day of _____, 2003.

OWNER:

SUN COMMUNITIES FINANCE, LLC, a Michigan limited liability company

By: Sun Communities Operating Limited Partnership, a Michigan limited partnership, as Sole Member

By: Sun Communities, Inc., a Maryland corporation, as general partner

By: _____

Printed Name:

Title: _____

CITY:

CITY OF PFLUGERVILLE, TEXAS

By: 
G. Scott Winton, Mayor

ATTEST:


Karen Thompson, City Secretary

THE STATE OF TEXAS

COUNTY OF TRAVIS §
§

This instrument was acknowledged before me on June, 2003, by _____ of Sun Communities, Inc., a Maryland corporation, General Partner of Sun Communities Operating Limited Partnership, a Michigan limited partnership, Sole Member of Sun Communities Finance, LLC, a Michigan limited liability company, on behalf of said corporation, limited partnership and limited liability company.

Notary Public Signature

THE STATE OF TEXAS §
COUNTY OF Travis §

This instrument was acknowledged before me on June 19, 2003, by G. Scott Winton, Mayor of the City of Pflugerville, Texas, on behalf of said municipality.



Karen S. Thompson

**AGREEMENT CONCERNING BOULDER RIDGE SOUTH
DEVELOPMENT AGREEMENT AND RESTRICTIVE COVENANTS**

This Agreement Concerning Boulder Ridge South Development Agreement and Restrictive Covenants ("Agreement") is executed by and between **SUN COMMUNITIES FINANCE, LLC**, a Michigan limited liability company ("Sun") and **THE CITY OF PFLUGERVILLE, TEXAS**, a home-rule municipality located in Travis County, Texas ("City").

RECITALS:

A. Sun is the owner of certain real property in Travis County, Texas, being 356.920 acres, as more particularly described on the attached Exhibit "A", save and except for the portion thereof which was dedicated to Travis County for road right-of-way purposes pursuant to the instrument recorded at Document No. 2001058777 of the Official Public Records of Travis County (the "Property").

B. Sun Communities Texas Limited Partnership, a Michigan limited partnership ("Sun Communities") and the City entered into that certain Development Agreement for Boulder Ridge South, which was approved by the City of Pflugerville City Council on October 12, 1999, and was amended by that certain First Amendment to Development Agreement for Boulder Ridge South approved by the City Council of the City on November 28, 2000 and that certain Second Amendment to Development Agreement for Boulder Ridge South approved by the City Council of the City on February 27, 2001, concerning development of the Property. The Development Agreement for Boulder Ridge South and the amendments thereto are collectively referred to as the "Development Agreement".

C. Sun Communities assigned the Development Agreement to Sun effective April 16, 2001.

D. Sun and the City also entered into: (i) that certain Restrictive Covenant Concerning Utility Service recorded as Document No. 2002190626, Official Public Records of Travis County, Texas ("Utility Service Restrictive Covenant"); and (ii) that certain Restrictive Covenant recorded as Document No. 2001083402, Official Public Records of Travis County, Texas ("Development Restrictive Covenant"). The Utility Service Restrictive Covenant and the Restrictive Covenant place certain limitations on the use and development of the Property.

E. Sun hereby acknowledges that pursuant to that certain First Amendment to Water Service Agreement between the City of Austin, Texas and the City dated effective January 30, 2003, the City agreed, subject to certain terms and conditions, to enter into an agreement with Sun that would provide for the termination of the Development Agreement and Utility Service Restrictive Covenant and the modification and extension of the Development Restrictive Covenant.

F. Sun and the City desire to set forth their understanding regarding the Development Agreement, Utility Service Restrictive Covenant and the Development Restrictive Covenant.

NOW, THEREFORE, for and in consideration of TEN AND NO/100 DOLLARS (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, City and Sun hereby agree as follows:

1. Development Agreement. Sun hereby acknowledges and agrees that Sun has received adequate consideration for all of the parcels of land that were dedicated under the terms of the Development Agreement. Furthermore, Sun and City hereby agree that at such time as City of Austin commences retail water and wastewater service to the Property, the Development Agreement will automatically terminate and from that date forward will be of no further force or effect with respect to the Property. Sun and City agree to execute any other documents that may be required to memorialize the termination of the Development Agreement as provided in this paragraph.

2. Utility Service Restrictive Covenant. Sun and City hereby agree that at such time as City of Austin commences retail water and wastewater service to the Property, the Utility Service Restrictive Covenant will automatically terminate and from that date forward will be of no further force or effect with respect to the Property. Sun and City agree to execute any other documents, in recordable form, which may be required or desirable to memorialize the termination of the Utility Service Restrictive Covenant as provided in this paragraph.

3. Development Restrictive Covenant. Sun and City hereby agree that at such time as City of Austin commences retail water and wastewater service to the Property, Sun and City will enter into an amendment to the Development Restrictive Covenant, the form of which shall be substantially as attached as Exhibit "B", that will provide that certain terms and conditions set forth the Development Restrictive Covenant will remain in full force when and if the City of Austin commences the provision of retail water and wastewater service to the Property.

4. Binding Effect. This Agreement shall bind and inure to the benefit of the respective parties, their personal representatives, successors and assigns.

5. Governing Law/Severability. This Agreement will be construed under and in accordance with the laws of the State of Texas and all obligations are performable in Travis County, Texas. If any of the provisions of this Agreement are, for any reason, held to be invalid, illegal, or unenforceable, that invalidity, illegality or unenforceability will not affect the remainder of this Agreement, which will continue in full force and effect.

6. Entire Agreement. This Agreement contains the entire agreement between Sun and the City with respect to the subject matter, and no oral statements or prior written matter not specifically incorporated will be of any force and effect. No modification of this Agreement will be binding on either party unless set forth in a written document, executed by such parties or a duly authorized agent, officer or representative. Both parties have participated in the negotiation and drafting of this Agreement; therefore, in the event of any ambiguity, the provisions of this Agreement will not be construed for or against either party.

7. Attorneys' Fees. Any party to this Agreement bringing suit against the other in respect to any matters stated in this Agreement may, if successful in such suit, recover from the nonprevailing party its costs of court and reasonable attorneys' fees and associated legal expenses in such suit.

This Agreement is executed on JUNE 19, 2003 to be effective as of JAN. 30, 2003.

SUN:

SUN COMMUNITIES FINANCE, LLC, a
Michigan limited liability company

By: Sun Communities Operating Limited
Partnership, a Michigan limited partnership,
as Sole Member

By: Sun Communities, Inc., a Maryland
corporation, as general partner

By: [Signature]
Printed Name: Jonathan Colman
Title: Executive Vice President

CITY:

CITY OF PFLUGERVILLE, TEXAS

By: [Signature]
G. Scott Winton, Mayor

ATTEST:

[Signature]
Karen Thompson, City Secretary

EXHIBIT "A"

DESCRIPTION OF THE PROPERTY

356.920 ACRES - SUN COMMUNITIES

THAT PART OF THE ALEXANDER WALTERS SURVEY AND THE M CASTRO SURVEY, SITUATED IN TRAVIS COUNTY, TEXAS, BEING A PART OF TRACT NO FIVE, AS CONVEYED FROM KVET BROADCASTING CO , INC, (GRANTOR) TO BUTLER BROADCASTING COMPANY, INC (GRANTEE) BY DEED RECORDED IN VOLUME 13079, PAGE 1875 OF THE REAL PROPERTY RECORDS OF TRAVIS COUNTY, TEXAS, AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGIN AT AN IRON ROD FOUND IN THE SOUTH LINE OF KILLINGSWORTH LANE, FOR THE NORTHWEST CORNER OF SAID TRACT NO. FIVE AND FOR THE NORTHWEST CORNER OF THAT TRACT OF LAND CONTAINING 170.21 ACRES CONVEYED TO KVET BROADCASTING COMPANY, INC , BY DEED RECORDED IN VOLUME 4399, PAGE 1513 OF THE DEED RECORDS OF TRAVIS COUNTY, TEXAS,

THENCE ALONG THE NORTH LINE OF SAID TRACT NO. FIVE, THE SAME BEING THE NORTH LINE OF THE SAID 170.21 ACRE TRACT AND THE SOUTH LINE OF KILLINGSWORTH LANE, THE FOLLOWING TEN (10) COURSES:

1. S.60°39'00"E., 1351.56 FEET TO AN IRON ROD FOUND;
- 2 S 54°22'57"E., 210 06 FEET TO AN IRON ROD FOUND;
- 3 S.36°34'06"E., 258 13 FEET TO AN IRON ROD FOUND;
- 4 S 50°05'45"E , 190 17 FEET TO AN IRON ROD FOUND;
- 5 S 60°37'07"E , 1146 27 FEET TO AN IRON ROD FOUND,
- 6 S 59°35'14"E , 516 41 FEET TO AN IRON ROD FOUND,
- 7 S.48°03'23"E., 196.57 FEET TO AN IRON ROD FOUND,
- 8 S.25°32'17"E , 203 66 FEET TO AN IRON ROD FOUND,
- 9 S 05°22'14"E , 143 21 FEET TO AN IRON ROD FOUND,
- 10 S 03°15'11"W , 729 36 FEET TO AN IRON ROD FOUND IN THE WEST LINE OF SAID KILLINGSWORTH LANE,

THENCE CONTINUE ALONG THE EAST LINE OF SAID TRACT NO FIVE, THE SAME BEING THE EAST LINE OF THE SAID 170.21 ACRE TRACT AND THE WEST LINE OF KILLINGSWORTH LANE THE FOLLOWING TWO (2) COURSES:

1. S.16°41'48"W , 144 38 FEET TO AN IRON ROD FOUND;
- 2 S 29°53'56"W , 624 11 FEET TO AN IRON ROD FOUND IN THE EAST LINE OF SAID TRACT NO. FIVE, FOR THE SOUTHEAST CORNER OF THE SAID 170 21 ACRE TRACT AND FOR THE NORTHEAST CORNER OF THAT TRACT OF LAND CONTAINING 195.21 ACRES CONVEYED TO KVET BRAODCASTING COMPANY, INC BY DEED RECORDED IN VOLUME 4349, PAGE 150 OF THE DEED RECORDS OF TRAVIS COUNTY, TEXAS,

THENCE S 29°50'58"W , ALONG THE EAST LINE OF SAID TRACT NO. FIVE AND THE WEST LINE OF KILLINGSWORTH LANE, 1066 21 FEET TO AN IRON ROD SET AND TO A LINE 60 00 FEET NORTH OF AND PARALLEL WITH A SOUTH LINE OF SAID TRACT NO FIVE,

THENCE N 60°03'59"W , ALONG SAID PARAI LEL LINE AND CROSSING SAID TRACT NO FIVE, 593 81 FEET TO AN IRON ROD SET AND TO A LINE 60 00 FEET WEST OF AND PARALLEL WITH AN EAST LINE OF SAID TRACT NO FIVE,

356.920 ACRES - SUN COMMUNITIES

THENCE S.29°31'22"W , ALONG SAID PARALLEL LINE, 665 28 FEET TO AN IRON ROD SET,
THENCE CONTINUE CROSSING SAID TRACT NO. FIVE THE FOLLOWING TWO (2)
COURSES

- 1 N 60°10'03"W , 415 01 FEET TO AN IRON ROD SET;
- 2 S 29°31'22"W , 620.00 FEET TO AN IRON ROD SET IN THE SOUTH LINE OF SAID TRACT NO FIVE, THE SAME BEING THE SOUTH LINE OF THE SAID 195.21 ACRE TRACT,

THENCE ALONG THE SOUTH LINE OF SAID TRACT NO FIVE AND THE SOUTH LINE OF THE SAID 195 21 ACRE TRACT THE FOLLOWING THREE (3) COURSES

1. N 60°10'03"W , 464.94 FEET TO AN IRON ROD FOUND,
- 2 N 60°13'32"W., 396 79 FEET TO AN IRON ROD FOUND;
3. N 60°36'54"W., 1425.11 FEET TO AN IRON ROD FOUND FOR THE SOUTHERLY SOUTHWEST CORNER OF SAID TRACT NO. FIVE AND THE FOR THE SOUTHERLY SOUTHWEST CORNER OF THE SAID 195.21 ACRE TRACT IN THE WEST LINE OF THE SAID M. CASTRO SURVEY AND AN EAST LINE OF THE SAID ALEXANDER WALTERS SURVEY;

THENCE N.29°45'56"E ALONG THE WEST LINE OF SAID TRACT NO FIVE, THE SAME BEING THE WEST LINE OF THE SAID 195 21 ACRE TRACT THE WEST LINE OF THE SAID M CASTRO SURVEY, 1273 45 FEET TO AN IRON ROD FOUND,

THENCE N 60°02'21"W., ALONG A SOUTH LINE OF SAID TRACT NO. FIVE AND A SOUTH LINE OF THE SAID 195 21 ACRE TRACT, 1193 49 FEET TO AN IRON ROD FOUND;

THENCE N.30°28'46"E., ALONG THE WEST LINE OF SAID TRACT NO. FIVE AND THE WEST LINE OF THE SAID 195.21 ACRE TRACT, 1135.37 FEET TO AN IRON ROD FOUND FOR THE NORTHWEST CORNER OF THE SAID 195 21 ACRE TRACT AND FOR THE SOUTHWEST CORNER OF THE SAID 170 21 ACRE TRACT,

THENCE N 30°35'08"E , ALONG THE WEST LINE OF SAID TRACT NO. FIVE AND THE WEST LINE OF THE SAID 170 21 ACRE TRACT, 1784 26 FEET TO THE SAID POINT OF BEGINNING

CONTAINING 356 92 ACRES, MORE OR LESS

Randall S Jones 3/27/0

RANDALL S. JONES
REGISTERED PROFES
STATE OF TEXAS



RJ SURVEYING, INC
1300 EAST BRAKER LANE
AUSTIN, TEXAS 78753

FILE 728-P1

EXHIBIT "B"

FIRST AMENDMENT TO RESTRICTIVE COVENANT

THE STATE OF TEXAS §
 § KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF TRAVIS §

This First Amendment to Restrictive Covenant (the "First Amendment") is made by SUN COMMUNITIES FINANCE, LLC, a Michigan limited liability company ("Owner") and THE CITY OF PFLUGERVILLE, TEXAS, a home-rule municipality located in Travis County, Texas ("City"), and is as follows:

RECITALS:

- A. Owner previously executed that certain Restrictive Covenant, which was recorded as Document No.2001083402, Official Public Records of Travis County, Texas (the "Restrictive Covenant").
- B. The Restrictive Covenant encumbers approximately 342.53 acres of land in Travis County, Texas, as more particularly described in the Restrictive Covenant (the "Property").
- C. Paragraph 3 of the Restrictive Covenant provides that the Restrictive Covenant will expire and be of no further force and effect if the agreement under which the City is providing water and wastewater service to the Property is terminated.
- D. Owner hereby acknowledges that pursuant to that certain First Amendment to Water Service Agreement between the City of Austin, Texas and the City dated effective January 30, 2003, the City of Austin will provide retail water and wastewater service to the Property.
- E. Owner further acknowledges and agrees that Owner desires to amend the Restrictive Covenant so that the terms and conditions set forth the Restrictive Covenant will remain in full force and effect if and when the City of Austin commences the provision of retail water and wastewater service to the Property.
- F. Pursuant to Paragraph 7 of the Restrictive Covenant, the Restrictive Covenant may be amended by the recording in the Official Public Records of Travis County, Texas, of an instrument setting forth the amendment executed and acknowledged by the City and the owners of at least 51% of the Property at the time of the amendment.
- G. The Owner owns 100% of the Property, and the Owner and the City desire to amend the Restrictive Covenant as set forth in this First Amendment.

NOW, THEREFORE, City and Owner hereby amend and modify the Restrictive Covenant as follows:

1. **Paragraph 3; Expiration of the Restrictive Covenant.** City and Owner agree that Paragraph 3 of the Restrictive Covenant is hereby deleted in its entirety. Although water service for the Property will be provided by the City of Austin, Texas, the terms and conditions of the Restrictive Covenant will remain in full force and effect.

2. **Defined Terms.** All terms delineated with initial capital letters in this First Amendment that are defined in the Restrictive Covenant have the same meanings in this First Amendment as in the Restrictive Covenant. Other terms have the meanings commonly ascribed to them.

3. **Effect of Amendment.** Except as specifically amended in this First Amendment, all terms of the Restrictive Covenant remain in full force and effect.

EXECUTED the _____ day of _____, 2003 to be effective the day of _____, 2003.

OWNER:

SUN COMMUNITIES FINANCE, LLC, a Michigan limited liability company

By: Sun Communities Operating Limited Partnership, a Michigan limited partnership, as Sole Member

By: Sun Communities, Inc., a Maryland corporation, as general partner

By: _____
Printed Name:
Title: _____

CITY:

CITY OF PFLUGERVILLE, TEXAS

By: 
G. Scott Winton, Mayor

ATTEST:


Karen Thompson, City Secretary

THE STATE OF TEXAS

COUNTY OF TRAVIS §
§

This instrument was acknowledged before me on June, 2003, by _____ of Sun Communities, Inc., a Maryland corporation, General Partner of Sun Communities Operating Limited Partnership, a Michigan limited partnership, Sole Member of Sun Communities Finance, LLC, a Michigan limited liability company, on behalf of said corporation, limited partnership and limited liability company.

Notary Public Signature

THE STATE OF TEXAS §
COUNTY OF Travis §

This instrument was acknowledged before me on June 19, 2003, by G. Scott Winton, Mayor of the City of Pflugerville, Texas, on behalf of said municipality.



Karen S. Thompson



APPENDIX B

LCRA 2019 HB1437 ANNUAL REPORT

2019 ANNUAL REPORT

—

House Bill 1437 Agricultural
Water Conservation Program

LCRA Board of Directors

Timothy Timmerman, Chair
Stephen F. Cooper, Vice Chair
Joseph M. "Joe" Crane, Secretary
Michael L. "Mike" Allen
Lori A. Berger
Laura D. Figueroa
Raymond A. "Ray" Gill Jr.
Charles B. "Bart" Johnson
Thomas L. "Tom" Kelley
Robert "Bobby" Lewis
Thomas Michael Martine
George W. Russell
Margaret D. "Meg" Voelter
Martha Leigh M. Whitten
Nancy Eckert Yeary

General Manager and Chief Executive Officer

Phil Wilson

The Board of Directors is composed of 15 members appointed to six-year terms by the governor with advice and consent of the Texas Senate. Directors represent counties in the electric and water service areas. The Board meets regularly to set strategic corporate direction for the general manager and staff, to approve projects and large expenditures, and to review progress on major activities and issues.

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Executive Summary

In accordance with LCRA Board Policy 301.603 – Agricultural Water Conservation Fund, this report provides a summary of projects implemented in 2019. The report also provides information about provisions in the House Bill 1437 legislation and a status update on the fund.

Background

The Texas Legislature passed HB 1437 in 1999. The law authorizes LCRA to provide up to 25,000 acre-feet per year of surface water to Williamson County if there is “no net loss” to the lower Colorado River basin.

The legislation also created the HB 1437 Agricultural Water Conservation Fund, which is used to address the costs of mitigating any adverse effects of transferring water to Williamson County. The fund may be used only for water resources development or water use strategies to replace or offset the amount of transferred surface water, and those water resources must be used to benefit the water service areas of LCRA’s irrigation operations. Projects are funded by a 25% surcharge on all water under contract to the Brazos River Authority, which has secured the full 25,000 acre-feet per year.

Water Conserved and No Net Loss

To date, all of LCRA’s projects to meet the “no net loss” requirement have involved water conservation in the irrigation operations. In 2019, HB 1437-funded projects conserved an estimated 12,800 acre-feet of water. The amount of water available for transfer in 2020 under no net loss is 12,637 acre-feet, a figure computed in accordance with the LCRA Water Contract Rules by averaging the amount of water conserved annually in 2017, 2018 and 2019. LCRA transferred 345 acre-feet of water to Williamson County in 2019 under the HB 1437 program. The most recent information from the Brazos River Authority indicates transfers are expected to reach approximately 2,300 acre-feet per year in 2020, then increase to 11,000 acre-feet per year by 2023 due to a short-term wholesale treated water agreement, declining to 8,200 acre-feet per year by 2024 and rising to 11,900 acre-feet per year by 2032.

2019 Activities

In 2019, LCRA finished the gate rehabilitation project in the Gulf Coast Irrigation Division, and began planning for the Garwood gate automation project.

Agricultural Water Conservation Fund

The balance in the Agricultural Water Conservation Fund as of Dec. 31, 2019, was \$2.96 million. In 2019, the fund’s income totaled \$540,310, and expenditures were \$117,579.

Program Outlook for 2020

The 2020 program includes beginning the Garwood gate automation project and continued work on savings verification studies.

1.0 Program Overview and Requirements

1.1 Purpose of Report

This report summarizes HB 1437 Agricultural Water Conservation Program activities in 2019. It is submitted in accordance with LCRA Board Policy 301 – Finance and LCRA’s Water Contract rules. The report provides:

- Background on HB 1437 legislation and program.
- An update on projects implemented to achieve no net loss and the volume of water currently available for transfer.
- Statistics on how funds in the Agricultural Water Conservation Fund were spent.
- An overview of activities planned through fiscal year 2021.

1.2 HB 1437 Legislation

HB 1437, passed by the Texas Legislature in 1999, authorizes LCRA to provide up to 25,000 acre-feet of surface water per year for use outside the lower Colorado River watershed in Williamson County under several conditions.¹

- LCRA can only transfer water in accordance with HB 1437 if it assures “no net loss” of surface water to the lower Colorado River basin, as determined by the LCRA Board of Directors.² LCRA’s Water Contract Rules provide that the requirement for “no net loss” be satisfied prior to any diversion of water.
- LCRA is required to add a minimum of a 10% surcharge to the rates for water contracted in accordance with HB 1437. Proceeds from the surcharge are deposited in the Agricultural Water Conservation Fund. In December 1999, the LCRA Board established the HB 1437 surcharge at 25%, which has remained unchanged.
- The LCRA Board may use money from the Agricultural Water Conservation Fund only to address the costs of mitigating any adverse effects of the transfer of water to Williamson County and to develop water resources or other water use strategies to replace or offset the amount of surface water transferred. This includes opportunities to reduce reliance on surface water for agricultural irrigation. Water resources developed or conserved through the additional charge may be acquired from any source inside or outside LCRA’s boundaries and must be used to benefit the water service area of the authority’s irrigation operations.
- An agricultural advisory committee must be established and consulted on projects funded by HB 1437. The advisory committee is composed of agricultural interest representatives appointed by the Colorado, Wharton and Matagorda county judges.

¹ The 25,000 acre-feet per year amount is in addition to surface water that may be transferred to Cedar Park and Leander, municipalities that were water customers of LCRA on May 20, 1997, and are located in the watersheds of both the Colorado River and Brazos River.

² LCRA’s Water Contract Rules provide that the requirement for “no net loss” be satisfied prior to any diversion of water. The rules define “no net loss” as “a hydrologic condition where the volume of Transferred Water is equivalent to, or less than, the combined value of Conserved Water, Developed Water, and Returned Water resulting in a reduced reliance on Surface Water for agricultural irrigation” (“Surface Water” is limited to Colorado River supplies). The amount of conserved, developed or transferred water is based on the average volume over a continuous three-year period.

1.3 LCRA Board Policy

In accordance with HB 1437, the LCRA Board has established policies to implement the “no net loss” requirement and established the surcharge and procedures for tracking use of the Agricultural Water Conservation Fund. These are presently included in Board Policy 301 and the LCRA Water Contract Rules (Article 12).

1.4 Agricultural Conservation Fund Advisory Committee

The Agricultural Conservation Fund Advisory Committee was established in 2000 in accordance with HB 1437. The advisory committee represents agricultural irrigation interests appointed by Matagorda, Wharton and Colorado county judges. In August 2017, these county judges appointed new committee members, and one committee member from Colorado County was replaced in October 2018. The committee last met in November 2019, and unanimously confirmed support for funding the Garwood gate automation project with HB1437 funds.

1.5 Brazos Water Contract and Interbasin Transfer Permit

In October 2000, LCRA and the Brazos River Authority signed a 50-year water sale agreement for 25,000 acre-feet per year. In addition to the standard contract provisions, the agreement included the statutorily required surcharge (currently set by the LCRA Board at 25%) for transferred and reserved water. It also contains a clause that allows the Brazos River Authority to terminate the agreement on Feb. 15 of any year after the contract has been in effect for 10 years by providing notice on or before Jan. 15 of that year. The contract has been in effect for more than 10 years, and the Brazos River Authority has not terminated the contract.

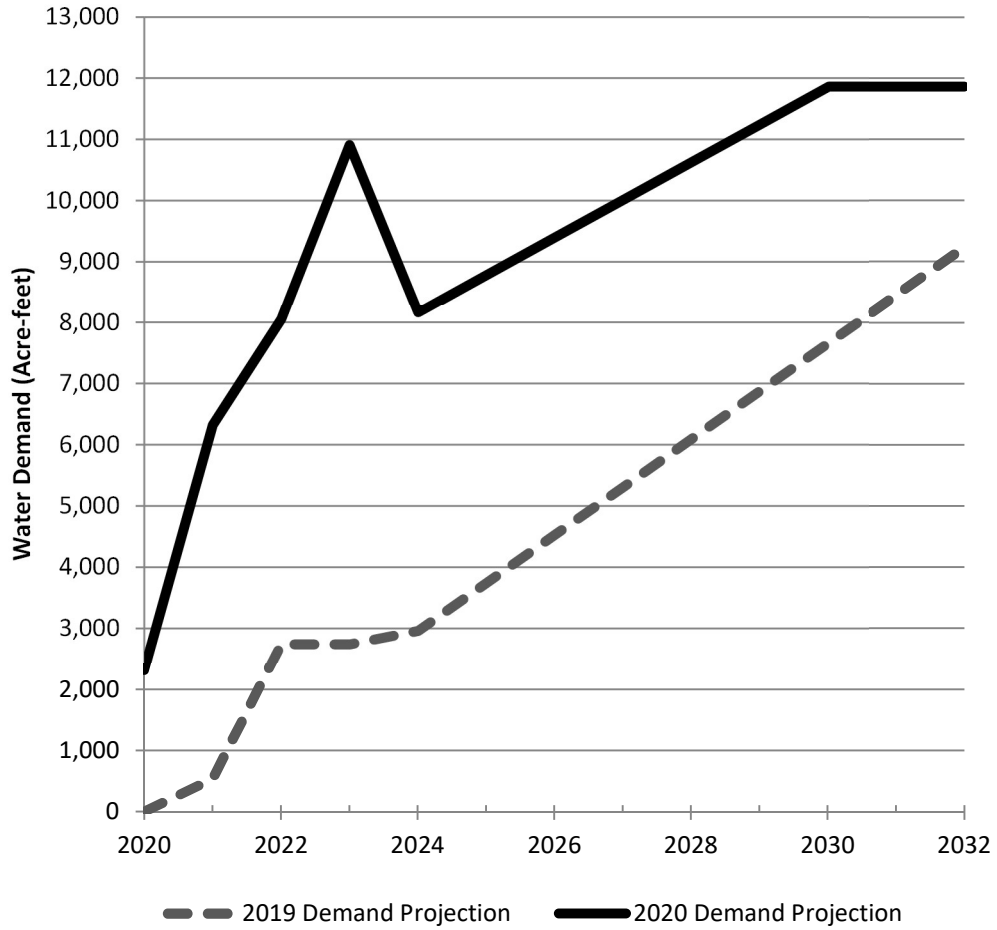
Brazos River Authority holds the interbasin transfer permit to allow transfer up to 25,000 acre-feet per year to Williamson County in the Brazos River Basin. In 2019, 345 acre-feet of water transfers occurred.

1.6 Demand Projections for HB 1437 Water

As required by its water contract, the Brazos River Authority updates water demand projections for HB 1437 water each year. In February 2020, the Brazos River Authority presented updated water demand projections, which are higher overall in anticipation of an added contract with the City of Georgetown of 1,200 acre-feet starting in May 2020. The amount of water demand will increase by 7,200 acre-feet per year in 2023 and by 1,100 acre-feet per year in 2032 compared to the projections estimated in 2018 (Figure 1.1). The Brazos River Authority is contracted to supply most of its reserved water to the City of Round Rock, with a smaller allocations to the Liberty Hill Water Supply Corporation and the City of Georgetown. Larger transfers to Round Rock are projected to begin in 2021 at a rate of 3,900 acre-feet per year and increasing to 8,500 acre-feet per year by 2023 and 9,500 acre-feet per year by 2032. The City of Round Rock is working on a possible short-term treated wholesale water agreement with a neighboring entity that would increase their water usage temporarily and possibly require them to

transfer more water through HB 1437, resulting in the elevated demand from 2021-2023.

Figure 1.1 – Demand Projections for HB 1437 Water



1.7 Water Conserved and Available for Transfer

HB 1437 requires “no net loss” be met for interbasin transfer of surface water to Williamson County. “No net loss” occurs when the average annual volume of HB 1437 water transferred in a given year is less than or equal to the rolling average of water conserved, developed or returned in the three preceding years (per Article 12 of LCRA’s Water Contract Rules).

Water Conserved

LCRA estimates a total savings of 12,800 acre-feet conserved in 2019 in all three LCRA irrigation divisions.

In 2019, 9,914 acres of agricultural fields previously laser-leveled with matching funds from LCRA’s Agricultural Water Conservation Fund were in production and conserved approximately 4,560 acre-feet of water. LCRA did not provide any new funds for land leveling in 2019. The installation of standardized delivery structures and canal rehabilitation within the Garwood Irrigation Division saved an additional estimated 3,400 acre-feet of water, and the automation of canal gates in the Gulf Coast Irrigation Division saved an estimated 4,840 acre-feet in 2019.

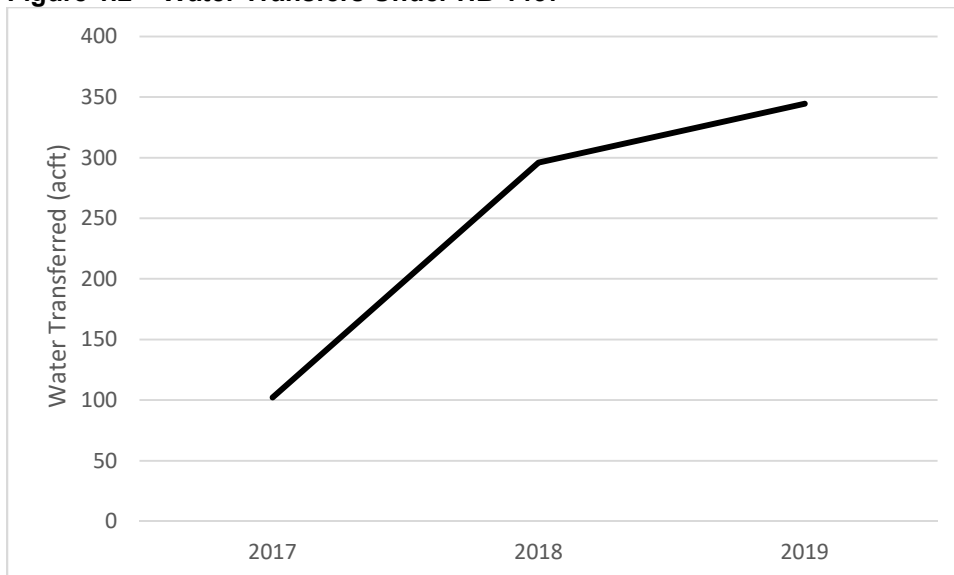
Water Available for Transfer

Based on data from the last three years, there is 12,637 acre-feet of water available for transfer to Williamson County in 2020. Staff estimates that water conserved through existing projects will be sufficient to meet the “no net loss” requirement consistent with Brazos River Authority’s projections through 2023.

Water Transferred

In 2019, 345 acre-feet of water was transferred, which includes 331 acre-feet of water to Liberty Hill, and 14 acre-feet of construction water.

Figure 1.2 – Water Transfers Under HB 1437



No Net Loss Status

The “no net loss” chart (Table 1.1) summarizes HB 1437 availability. LCRA can presently satisfy demand for up to 12,637 acre-feet of water.

Table 1.1 – No Net Loss Summary, Volume of HB 1437 Water in Acre-Feet

Year	Annual Vol. Conserved	Vol. Developed	Vol. Returned	Total Vol. Available in the next year	Forecast Demand **	Actual Transferred	Net Loss
2006	1,274	0	0	1,274	0	0	0
2007	1,688	0	0	1,481	0	0	0
2008	3,656	0	0	2,206*	0	0	0
2009	4,900	0	0	3,415*	0	0	0
2010	5,607	0	0	4,721*	0	0	0
2011	7,101	0	0	5,869*	0	0	0
2012	5,803	0	0	6,170*	0	0	0
2013	5,681	0	0	6,195*	0	0	0
2014	5,188	0	0	5,557*	0	0	0
2015	5,538	0	0	5,469*	0	0	0
2016	12,200	0	0	7,642*	32	0	0
2017	12,036	0	0	9,925*	532	102	0
2018	13,076	0	0	12,437	532	296	0
2019	12,800	0	0	12,637	2,316	345	0

* Three-year rolling average

** Forecast for 2020, Letter from Brazos River Authority to LCRA, Feb. 14, 2020

2.0 HB 1437 Programs

2.1 Program Planning

In 2004, the LCRA Board authorized a seven-year plan to meet projected water demands through on-farm and in-district water conservation projects and a 25% surcharge on the water transferred to Williamson County customers.

In 2009, a report of short-term water conservation strategies included a five-year plan (2010-2014) to meet revised demand projections for water transfers to Williamson County. Strategies included 12,500 acres of land leveling cost-share grants, which were completed in 2013; construction of the Garwood measurement project, which was completed in 2012; and the first gate rehabilitation project in the Gulf Coast Irrigation Division, which was completed in 2012.

Since 2014 in five phases, LCRA continued to rehabilitate gates in Gulf Coast based on availability of funding and irrigation division staff labor. The project was completed in 2019. Based on the success of this project, LCRA is proposing to automate gates in Garwood beginning in 2020.

Discussions are underway with Brazos River Authority regarding estimated current conservation savings and on potential infrastructure projects for meeting HB1437 requirements a long-term plan.

2.2 Laser Land Leveling Cost-Share Program

In 2006, the LCRA Board adopted the application guidelines, eligibility rules and contract provisions for awarding cost-sharing conservation grants from the Agricultural Water Conservation Fund. The guidelines integrated the Natural Resources Conservation Service (NRCS) technical specifications and payment certification processes, which significantly reduced the verification and administrative costs for the HB 1437 grant program.

Table 2.1 shows the total acres leveled and cost-share grants awarded from 2006 to 2013. The program shared the precision land leveling cost for 365 fields, totaling 30,288 acres. The most acreage is in the Lakeside Irrigation Division (53%), followed by Garwood (43%) and Gulf Coast (4%). Since its inception, the HB 1437 Agricultural Water Conservation Fund has contributed nearly \$1.75 million of a total land leveling cost of about \$9.68 million – an average of 18% cost-share. The average acreage of a leveled field is about 83 acres. The average total cost to precision land level a field was about \$320 per acre during this time frame.

Table 2.1 – 2006-2013 Acres Leveled and HB 1437 Cost-Share Grants

Division	Fields Leveled	Acres Leveled	Total Project Cost	HB 1437 Grant Amount
Lakeside	189	16,177*	\$5,645,770	\$996,763
Garwood	162	13,023	\$3,730,554	\$689,938
Gulf Coast	14	1,088	\$305,932	\$61,818
Total	365	30,288	\$9,682,255	\$1,748,518

* Excludes 682 acres leveled with HB 1437 grant funds but refunded to the Agricultural Water Conservation Fund in 2010 and 2011 due to contractual issues.

LCRA's cost-share program ended in 2013 after achieving the five-year planning goals set in 2009. HB 1437 funds had become less relevant in encouraging participation in the NRCS Environmental Quality Incentives Program (EQIP), due to increases in the percentage of total precision land leveling cost that EQIP would fund. The LCRA program funded 11,500 acres above the original planned implementation study and 5,000 acres above the goal set in the 2009 five-year strategy report update.

In this report, LCRA incorporated water savings from land leveled acreage in production funded through the HB 1437 program in all three irrigation divisions. Land leveled acreage in production in 2019 (Figure 2.1) was slightly lower than estimated, due to lower land leveled acreage in production in Lakeside.

NRCS defines the useful life of projects in the EQIP program. Per NRCS, the useful life of precision land leveling projects is 15 years. At the end of the 15 years, NRCS allows

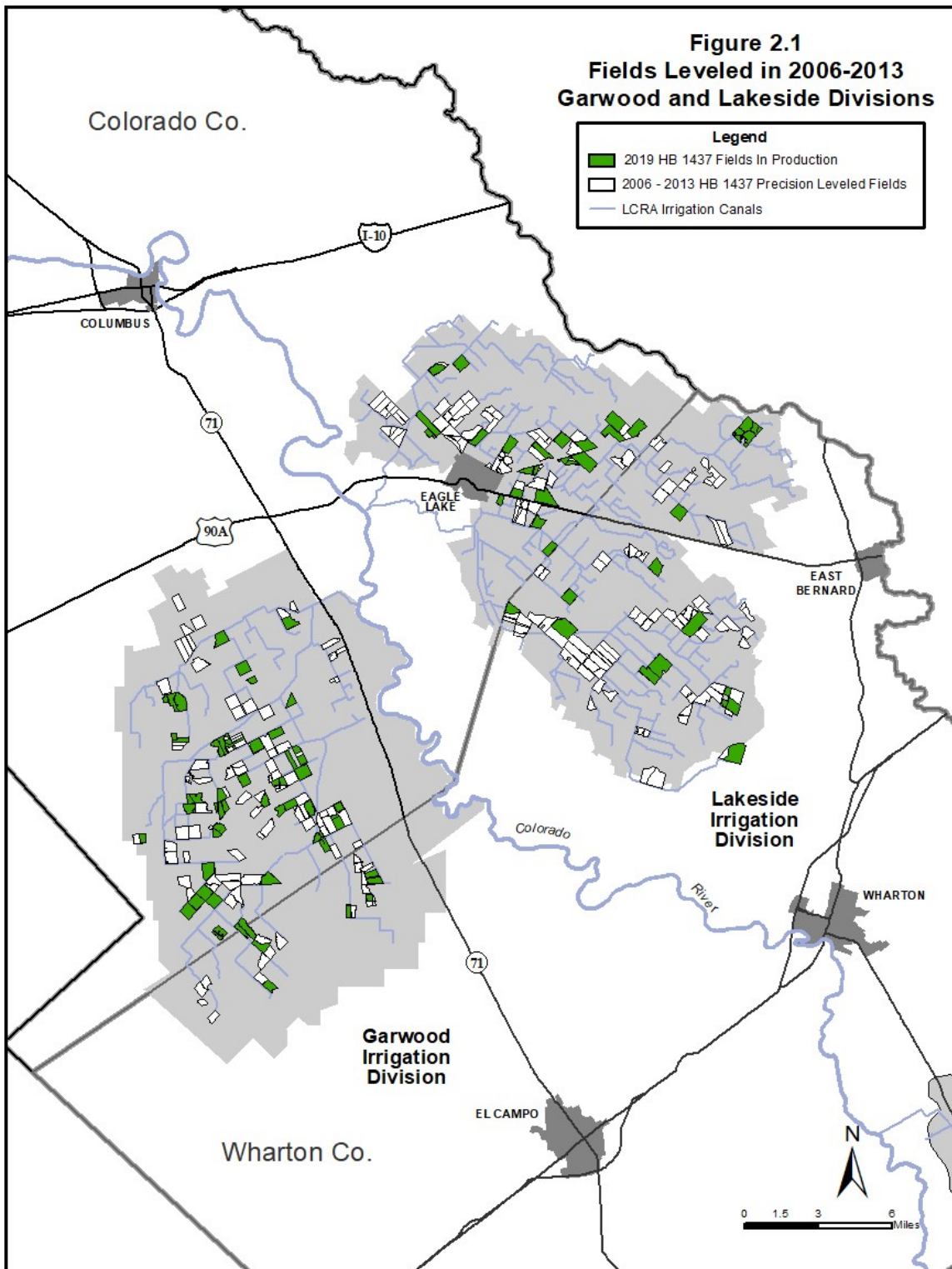
farmers to re-sign for additional financial assistance with the condition that new work must move at least 100 cubic yards of dirt per acre. The useful life on land LCRA awarded cost-share grants will begin maturing in 2021, with the largest yearly acreage reaching its maturity in 2023-2024. Staff will present options for verifying the water savings associated with existing land leveled fields to the advisory committee before LCRA-funded fields reach their 15-year life. The schedule for the expiration of LCRA HB 1437 contracts and associated NRCS contracts through EQIP is shown in Table 2.2. Staff conducted a survey of Garwood customers in early 2020 and half of the customers who had land leveled fields indicated they plan to re-apply for EQIP, and the rest plan to continue to perform yearly land-grading maintenance.

Table 2.2 - Expiration of HB 1437 Land Leveling Contracts

HB 1437 Grants 2006-2013			
Award Year	Expiration Year	Total Acres Funded	Percent Expiring
2006	2021	2599	9%
2007	2022	3533	12%
2008	2023	5592	18%
2009	2024	6463	21%
2010	2025	3217	11%
2011	2026	3189	11%
2012	2027	2216	7%
2013	2028	3479	11%

2.3 Garwood Irrigation Division Measurement Project

The Garwood volumetric measurement project installed or rehabilitated approximately 400 water measurement and check structures on existing canals and field laterals in the Garwood Irrigation Division. In addition, 85 miles of canal laterals were rehabilitated to facilitate LCRA control of all measurement structures. The project was completed in 2012 and was expected to conserve about 3,400 acre-feet of water each year.



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2.4 Gulf Coast Irrigation Division Gate Rehabilitation and Control Project

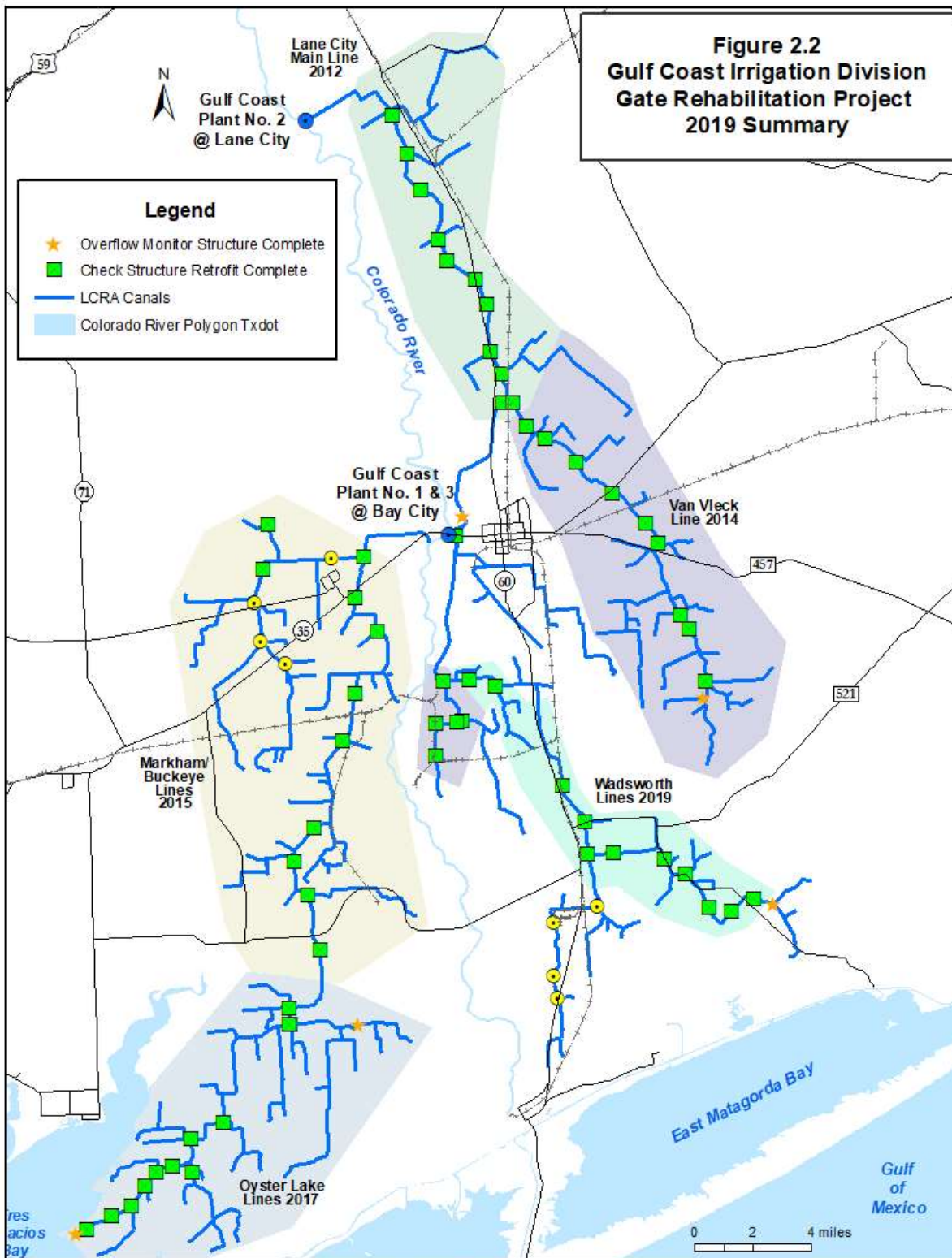
In 2011, LCRA began implementing rehabilitation, automation, and remote monitoring and control of main canal gates in the Gulf Coast Irrigation Division due to historical high canal water losses. A matching grant from the U.S. Bureau of Reclamation funded a portion of the work. A radio-based communications system and supervisory control and data acquisition (SCADA) interface now allows centralized management of the canal system's main gates, reducing water loss and spills.

2019 Gate Rehabilitation Project Results

In 2019, LCRA finished the last phase of the Gulf Coast Irrigation Division gate rehabilitation project to automate 12 additional gates on the Wadsworth line of the eastern canal system. Fifty seven main canal structures are now automated in the Gulf Coast canal system.

The combined gate rehabilitation projects are projected to save an estimated 4,840 acre-feet per year. In 2019, overflow volumes (excess water not needed for irrigation that is released out of the end of canal lines) were low throughout the system with only 14 acre-feet lost across all four measurement sites on the western canal system, and 136 acre-feet lost across all four measurement sites on the eastern canal system. Savings compared to overflow volumes before the gate rehabilitation project began are slightly higher than previous years at approximately 3,400 acre-feet.

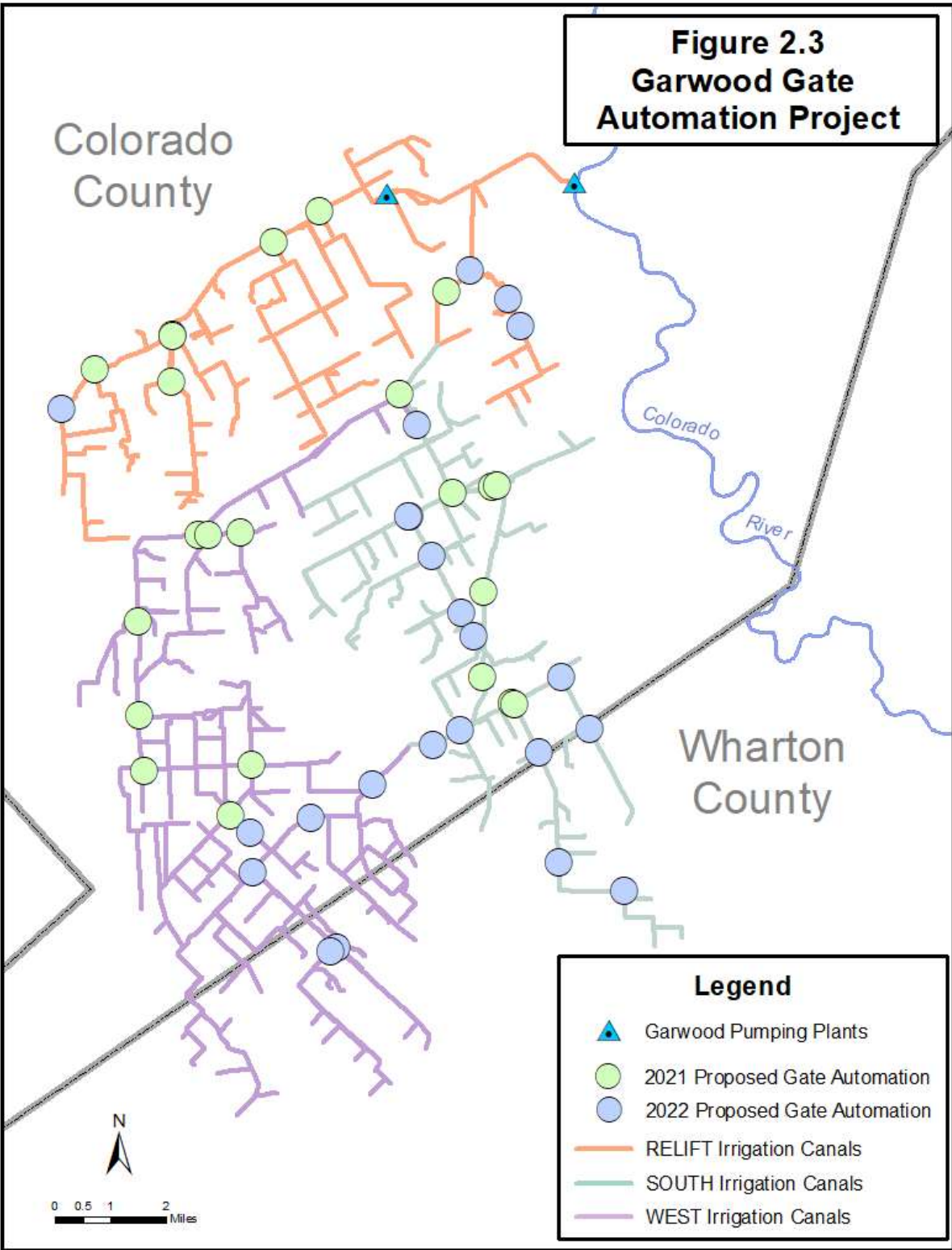
Figure 2.2 shows an overview of all gate rehabilitation projects completed to date.



2.5 Garwood Gate Automation Project

The main canal gate structures in the Garwood Irrigation Division are unique compared to the other irrigation divisions because they already have metal slide gates in good condition. Staff proposed automating the existing gates using the same actuators as in the Gulf Coast gate rehabilitation project. In fall 2019, irrigation staff built an automated gate prototype in Garwood. The two-week pilot project was successful, and in November 2019, staff presented the project to automate 46 main canal gate structures in Garwood to the HB 1437 Agricultural Water Conservation Fund Advisory Committee. With the committee's unanimous support for the project, LCRA added the three-year project to the LCRA FY 2021-2023 proposed budgets. In February 2020, LCRA submitted a grant proposal to the Texas Water Development board requesting funds to cover approximately one quarter of the project cost.

Figure 2.3 shows the sites planned for automation and the prioritization of which sites would be automated first. These structures will be integrated into the existing SCADA system developed for the Gulf Coast gate rehabilitation project.



2.6 Conservation Monitoring and Measurement

Accurate water conservation estimates are critical to show consistency with the “no net loss” requirement.

Leveling Verification Study

In 2012, LCRA worked with The University of Texas LBJ School of Public Affairs to complete a land leveling savings verification study. The study used six years of LCRA billing data and detailed farmer surveys to quantify water savings from the on-farm precision land leveling in the Lakeside Irrigation Division. The study identified a statistically significant difference in water use between leveled and non-leveled fields for the first crop. Based on the study, LCRA revised the savings estimate to 0.46 acre-foot per acre and extrapolated water savings for the second crop from the savings identified for the first crop based on average water use.

Land Leveled Field Mapping

LCRA uses an electronic mapping application to determine the land leveled acres in production each year, which is used to calculate water conserved through land leveling. LCRA staff developed the first version of this application called “uMap” in 2012. The application makes mapping fields for contracted acreage more efficient and accurate. In 2016, for the first time, all three irrigation divisions used uMap as a part of the irrigation water contracting process. In 2018, uMap was upgraded to a new platform called xMap and in 2019, for the first time, the irrigation billing software (WAMS) was linked to xMap. This linked system significantly reduced the QA/QC that was previously required to match data between the GIS platform and the billing software and time spent by staff to re-draw field shapes that can now be copied from one year to the next. In early 2020, the structures data set also was upgraded to xMap.

Ongoing and Future Verification Studies

In 2019, staff received results from the updated model for the 2012-2016 conservation practice savings verification study in Garwood from the University of Wisconsin. The study found volumetric billing conditions and decreased levee density result in decreased water use. Due to the relatively wide range of the quantified savings estimate, staff is conducting another survey of Garwood customers to add 2017-2019 data to the study and increase the number of participants. Updated model results should be available in late 2020.

The 2019 irrigation season data for Gulf Coast continues to verify the success of the gate rehabilitation project, reducing overflows from thousands of acre-feet to hundreds. However, the frequency and timing of shutdowns due to heavy rainfall events vary greatly between seasons, so at least five years of data is needed to statistically verify the savings estimate.

In 2018-2019, LCRA installed a total of 16 temporary water level monitoring devices at key check structure locations within the Lakeside and Garwood irrigation divisions. Irrigation division staff continue to find that having remote access to water flow data is a helpful tool to increase efficiency in managing canal water levels. Staff will continue to

gather data necessary to accurately identify which gate structures need to be automated in Lakeside to effectively manage water flow remotely within each canal system. This monitoring study is not funded through HB 1437, but the information gathered will be used to plan potential future projects that could be funded through HB 1437.

3.0 Agricultural Water Conservation Fund

The HB 1437 Agricultural Water Conservation Fund was established by the HB 1437 legislation to help fund conservation projects that benefit agricultural interests. It is managed separately from LCRA funds in an interest-bearing account.

The fund receives income from the annual conservation charge provision incorporated into the HB 1437 water sales contract with the Brazos River Authority. The current surcharge is 25% and is applied to both reserved and diverted water. Surcharge income is deposited into the Agricultural Water Conservation Fund in January of each year.

3.1 Expenditures

Table 3.1 summarizes 2019 expenditures by project. It shows that 2019 expenditures totaled \$117,579, which included \$94,417 for the Gulf Coast gate rehabilitation project. Program administration and conservation verification expenditures were \$23,161. The 2019 expenses in the Gulf Coast Gate Rehab column represent the final expenses for the Wadsworth line project on the eastern Gulf Coast canal system (see Section 2.4).

Table 3.1 – HB 1437 Expenditures by Project	Leveling Grants and Other Administrative Costs	Garwood Project	Gulf Coast Gate Rehab	Total
Previous Expenditures 2003-2018	\$2,754,690	\$817,606	\$1,503,063	\$5,075,359
Expenditures in 2019	\$23,161	\$0	\$94,417	\$117,579
Total	\$2,777,851	\$817,606	\$1,597,480	\$5,192,938

There were no additional LCRA Board authorizations from the fund in 2019. Program expenditures through 2019 were below the \$5.46 million amount authorized to date. Two of the gate projects came in under budget, several land leveling grants were paid back due to contractual issues and funds budgeted for future planning efforts and other administrative items have not yet been spent. An additional authorization of \$1.175 million is planned in May 2020 to cover the Garwood gate automation project.

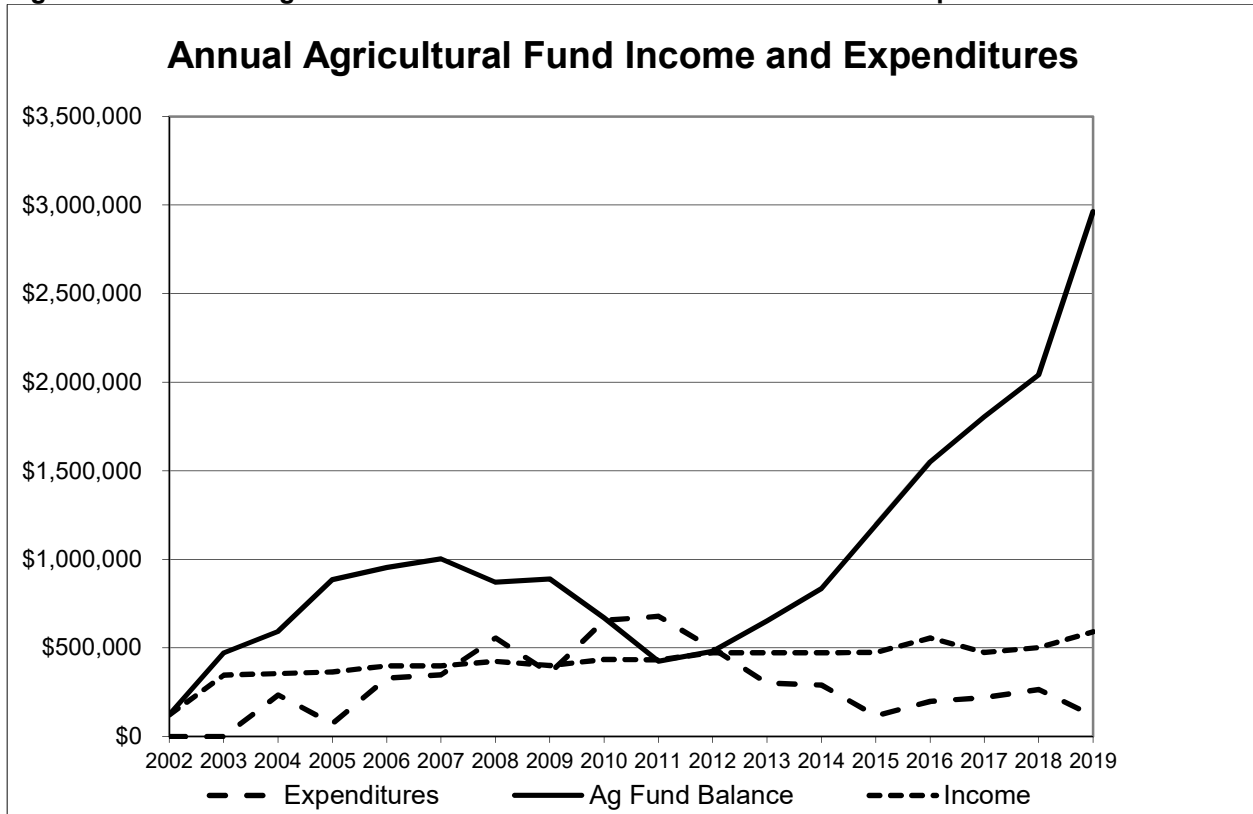
Table 3.2 – HB 1437 Board Approvals

LCRA Board Meeting	Amount	Purpose
November 2003	\$250,000	Implementation study
March 2005	\$75,000	Implementation study
March 2006	\$350,000	Spring 2006 on-farm conservation projects
November 2006	\$500,000	Spring 2007 on-farm conservation projects
December 2007	\$500,000	Spring 2008 on-farm conservation projects
December 2008	\$350,000	Spring 2009 on-farm conservation projects
November 2009	\$450,000	Spring 2010 on-farm conservation projects; Phase 1 of Garwood Measurement Project
May 2010	\$300,000	Cost-share match for Gulf Coast Gate Rehabilitation Project grant
December 2010	\$625,000	Spring 2011 on-farm conservation projects; Phase 2 of Garwood Measurement Project; Phase 1 of Gulf Coast Gate Rehabilitation Project
November 2011	\$590,000	Spring 2012 on-farm conservation projects; Phase 3 of Garwood Measurement Project; Phase 2 of Gulf Coast Gate Rehabilitation Project
January 2013	\$340,000	Spring 2013 on-farm conservation projects; Phase 3 of Gulf Coast Gate Rehabilitation Project – Oxea
March 2014	\$400,000	Phase 4 of Gulf Coast Gate Rehabilitation Project – Western Canal System
May 2016	\$430,000	Phase 5 of Gulf Coast Gate Rehabilitation Project – Western Canal System extension
August 2017	\$300,000	Phase 6 of Gulf Coast Gate Rehabilitation Project – Eastern Canal System completion
Total	\$5,460,000	

3.2 Fund Balance

Figure 3.1 shows the annual income, expenditures and current balance of the Agricultural Water Conservation Fund. The fund balance as of Dec. 31, 2019, was \$2,963,769. Expenditures over the 2019 reporting period totaled \$117,579. Total income over the 2019 reporting period was \$592,592. The TWDB grant for the Wadsworth gate project is included in this income.

Figure 3.1 – Annual Agricultural Water Conservation Fund Income and Expenditures



4.0 FY 2021 Program and Budget

The FY 2021 outlook includes ongoing work on verification studies and the beginning phase of the Garwood gate automation project (see section 2.5 for a detailed project description). This section discusses projects that are scheduled to be implemented during FY 2021.

4.1 Garwood Gate Automation Project

This project to automate 46 main canal gate structures in the Garwood Irrigation Division is expected to cost \$1.1 million and will be completed in phases over three fiscal years, FY21-FY23. This project will complete automation of key canal gate structures necessary to remotely control the majority of canal flows in the Garwood canal system. Staff anticipates bringing an item authorizing funds to be allocated for this project from the HB 1473 Agricultural Water Conservation Fund to the LCRA Board in May 2020. In February 2020, staff submitted a grant application to TWDB for matching funds up to \$244,744.

4.1 FY 2021 Budget

The budget period for HB 1437 is LCRA's fiscal year (July 1 through June 30). The proposed FY 2021 budget for the HB 1437 program is summarized in Table 4.1 and shows a total estimated budget of \$305,000.

Table 4.1 – HB 1437 Budget for FY 2021

Activity	Budget	Notes
1. Garwood gate automation project phase 1	\$280,000	This three-year project will be funded through one Board authorization to provide flexibility to complete it within two years, if possible.
2. Program management, communications, conservation verification and oversight	\$25,000	Preparation of annual report; ongoing savings verification study updates.
Total	\$305,000	

About LCRA

The Lower Colorado River Authority serves customers and communities throughout Texas by managing the lower Colorado River; generating and transmitting electric power; providing a clean, reliable water supply; and offering outdoor adventures at more than 40 parks along the Colorado River from the Texas Hill Country to the Gulf Coast. LCRA and its employees are committed to fulfilling our mission to enhance the quality of life of the Texans we serve through water stewardship, energy and community service.

LCRA was created by the Texas Legislature in 1934 and receives no state appropriations. For more information, visit lcra.org.



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