

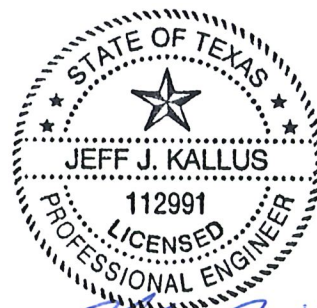
Land Use Assumptions and 2022 Water Capital Improvements Plan

for

County Line Special Utility District

8870 Camino Real
Uhland, Texas 78640
General Manager: Daniel Heideman

Revised: June 2022



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6/21/2022



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I. Introduction

The County Line Special Utility District's (CLSUD) mission as a public water supplier is to provide customers with an adequate supply of high quality, affordable water consistent with the objectives listed below:

1. Provide that all water delivered to customers meet state and federal quality requirements.
2. Provide customers with the quantity of water that is usual and customary during normal conditions, allowing for reduced water availability during drought or other water shortage conditions.
3. Provide water to customers at the lowest possible cost, compatible with objectives one and two.
4. Provide water for new customers.
5. Be responsive to customers.
6. Provide a pleasant workplace environment for employees:
 - a. safe and free of any health hazards;
 - b. free of any kind of harassment; and
 - c. encourages career development.

In connection with new service, the CLSUD will strive to provide water to all requestors, consistent with the above stated mission. In all instances of potential new service, the CLSUD will require development to pay for expansion costs and will seek to minimize any economic impact on the existing customer base. With these objectives in mind, the CLSUD has authorized Southwest Engineers, Inc. (SWE) to complete a Capital Improvement Plan (CIP) which identifies system improvements and facility expansions that are necessary for the next 5 years.

II. Methodology

The term capital improvements refers to the improvements made to supply, treatment and distribution facilities, including facility expansions whether or not located within the service area with a life expectancy of three or more years. These improvements are deemed necessary due to the projected increase in the number of connections over a developmental period not to exceed ten years.

In order to adequately complete the CIP, SWE will analyze the existing facilities and their capacities, the level of current usage, the reserve capacity commitments, any unallocated excess capacity, and determine the projected land uses and growth within CLSUD's service area. The calculations will be based on the number of existing and proposed Living Unit Equivalents (LUEs) connected to the infrastructure. An LUE is defined as the typical flow that would be produced by a single-family residence located in a typical subdivision. The following

LUE conversions in Table 1 will be used to estimate flows for the various land uses and development types.

Table 1 – LUE Conversions

<u>Land Use</u>	<u>Type of Development</u>	<u>LUE Conversion</u>
Residential - Single Family	Single Family Home or Mobile Home	1 LUE per home
Residential - Other	Duplex	2 LUEs per structure
	Triplex, Fourplex, Condo, or Apartment (<24 units/acre)	0.7 LUE per unit
	Condo or Apartment (24+ units/acre)	0.5 LUE per unit

<u>Land Use</u>	<u>Type of Development</u>	<u>LUE Conversion</u>
Commercial - Business	Hotel or Motel	2 rooms per LUE
	RV Park	5 spaces per LUE
	Office Building	3,000 square feet per LUE
	Retail/Shopping Center	1,660 square feet per LUE
	Restaurant/Cafeteria	200 square feet per LUE
	Hospital	1 bed per LUE
	Rest Home	2 beds per LUE
	Church	70 seats per LUE
Commercial - School	High School	13 students per LUE
	Elementary School	15 students per LUE
Industrial	Warehouse	4,000 square feet per LUE

III. Current Customer Base

The CLSUD consist of 4,733 active connections at the end of the 2021 year. The majority of the active connections are residential with an approximate total of 4,705. A breakdown of customer type is provided in Table 2.

Table 2 – Active Meters

	Active Meters
Residential (SF)	4,705
Commercial	19
Institutional	8
Industrial	1
<i>Total</i>	<i>4,733</i>

IV. Existing Infrastructure

The CLSUD currently owns six (6) plant sites along with a 44.98% share in the Canyon Regional Water Authority's (CRWA) Hays Caldwell Water Treatment Plant (HCWTP). The HCWTP is located south of the City of San Marcos along SH 80 and has a total capacity of 6-million gallons per day (MGD), which 1,874-gpm is considered CLSUD's share. The five (5) plant sites belonging to County Line are listed below:

- **Brooks Plant Site** (located west of the City of Kyle)
 - 1 – 212,000 gallon standpipe
 - 1 – 650 gpm water well
 - 1 – 415 gpm water well
- **Woodlands Park Site** (located in Woodlands Park Subdivision off FM 150)
 - 1 – 1,000,000 gallon elevated storage tank
- **Hemphill Site** (located on CR 202 off of FM 150)
 - 1 – 250,000 gallon elevated storage tank
- **High Road Elevated Tank** (located off High Road)
 - 1 – 500,000 gallon elevated storage tank
- **SH 21 Booster Station Site** (located along SH 21 east of the intersection with FM 1966)
 - 2 – 240,000 gallon ground storage tank
 - 3 – 900 gpm booster pumps
- **High Road Booster Station Site** (located along High Road across from the elementary school).
 - 1 – 125,000 gallon ground storage tank
 - 1 - 10,000 gallon pressure tank
 - 2 – 500 gpm booster pumps

The Brooks Plant Site is located outside County Line’s service area, which consist of two wells that pump into a standpipe which then gravity feeds by a transmission main to the service area. The SH 21 Booster Station receives treated surface water from the CRWA’s HCWTP and then pumps to the elevated tanks located at the Woodlands Park, High Road and Hemphill Tank Sites. The elevated tanks provide storage and pressure maintenance for the entire service area. County Line purchased the booster station facilities along High Road from Goforth SUD. This plant will receive the water from Alliance Regional Water Authority (ARWA) and then pump into the distribution system. Currently, this plant is not in use.

A. Water Rights

County Line SUD utilizes both groundwater and surface water to serve its customers. The SUD’s two wells are within the Edwards Aquifer, which the water system is permitted 291.418 acre-feet of water rights. The surface water rights are through CRWA, which 1,308 acre-feet is allocated to County Line SUD. Therefore, CLSUD has a combined total of 1,599.418 acre-feet of water rights per year.

B. Water Production

The Texas Commission on Environmental Quality (TCEQ) sets forth rules and guidelines for minimum water system capacities in order for the public to have safe and adequate potable water available. For water systems serving more than 250 connections, the TCEQ’s requirements for water production states the system shall have two or more sources having a total capacity of 0.6-gpm per connection. With the use of historic pumping data, CLSUD has been able to file an alternative capacity request to the TCEQ, which reduced this requirement to a 0.41-gpm per connection.

CLSUD’s water systems consist of two wells at the Brooks Site and receives surface water at the SH 21 Booster Station. The two wells have a capacity of 650 gpm and 415 gpm, but have a combined capacity of 760 gpm when both wells operate simultaneously. The contract amount for supply to the SH 21 Booster Station is 1,054 gpm.

Table 3 – Production Facilities

Production Facility	Capacity (gpm)	Total Potential Customers
Brooks Wells	760	1,854
CRWA Hays Caldwell WTP	1,054	2,571
Total	1,814	4,424

C. Water Storage

The TCEQ's requirement for total storage for public water systems with 250 or more connections is to have a total storage capacity of 200 gallons per connection, with the possibility of 100 gallons of elevated storage capacity and the other 100 gallons of ground storage capacity. For water systems with more than 2,500 connections, the elevated storage capacity of 100 gallons per connection is a requirement. However, if the water system provides 200 gallons per connection of elevated storage, TCEQ allows the booster pump capacity to reduce from 2-gpm per connection to 0.6-gpm per connection.

The CLSUD's water system has 1,750,000 gallons of elevated storage available between the Woodlands Park Elevated Tank, the Hemphill Elevated Tank, and the High Road Elevated Tank. At 200-gallons per connection, the three elevated tanks provide capacity for 8,750 connections. The water system also has 480,000 gallons of ground storage at the SH 21 Booster Station and the Brooks Standpipe is 212,000 gallons.

D. Booster Pumps

TCEQ requirements state a water system must have two or more pumps with a capacity of 2.0-gpm per connection or that have a total capacity of at least 1,000-gpm and the ability to meet peak hourly demands with the largest pump out of service, whichever is less. For systems that provide an elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6-gpm per connection is required. If only wells and elevated storage are available, service pumps are not required. CLSUD's water system currently provides 200 gallons of elevated storage per connection; therefore, TCEQ requires a booster pump capacity of 0.6-gpm per connection. CLSUD currently has three (3) 900-gpm booster pumps at the SH 21 Booster Station that are good for 4,500 connections for that plant. The wells at the Brooks Site pump directly to the water system and provide similar capacity as a pump of 760 gpm.

A summary of the water plant capacities is provided on the next table:

Table 4 – Plant Capacities

Plants	Water Rights (Acre-foot)	Supply (gpm)	Elevated Storage (gallons)	Total Storage (gallons)	Pumps (gpm)
CRWA - HCWTP	1,308	1,054	-	-	-
Highway 21 Booster Plant	-	-	-	480,000	2,700
Brooks Plant	291.418	760	-	212,000	760
Hemphill Elevated Tank	-	-	250,000	250,000	-
Woodlands Park Elevated Tank	-	-	1,000,000	1,000,000	-
High Road Elevated Tank	-	-	500,000	500,000	-
Total:	1,599	1,814	1,750,000	2,442,000	3,460
TCEQ Requirements per Connection:		0.41-gpm	200 gallons	200 gallons	0.6-gpm
Capacity (Connections):		4,424	8,750	12,210	5,767
Percent Capacity:		107%	54%	39%	82%

The water has exceeded its supply capacity and is seeking interim water sources until new water sources are available starting in 2023. The booster pumps are at 82% capacity, but this capacity will increase with plant facilities that are needed for the additional water sources. The water system has adequate storage capacity.

E. Water Distribution

The TCEQ's water distribution requirement states that water system must maintain at least 35-psi throughout the water distribution system at a demand of 1.5-gpm per connection. The hydraulic model of the water system does not indicate any low pressures within the distribution system when analyzed at a peak demand. The only low pressure indicated was along the transmission main from the Brooks Plant, which is due to elevation.

It does not appear the water system contains any major water lines that have exceeded the line size capacities as the hydraulic model does not indicate any lines with velocities greater than 5 feet per second.

V. Land Use Assumptions and Projected Growth

CLSUD's service area consists of approximately 30.7 square miles of which approximately 3,140-acres are located within the FEMA 100-year flood plain. It is projected that the majority of the growth will occur in the form of residential subdivisions, with some retail/commercial developments and schools to serve the growing population as well as the potential of industrial customers. The growth is expected throughout the impact fee service area as the area is experiencing historic growth. A 10-year land use assumption is provided as Exhibit A.

The historical growth rate of active connections has increased drastically the past few years with a 15% growth rate in 2020 and 13% for last year as shown in the following table.

Table 5 – Historical Growth

Year	Connections	Growth	% Growth
2016	2,878	-	-
2017	3,051	173	6%
2018	3,325	274	9%
2019	3,665	340	10%
2020	4,200	535	15%
2021	4,733	533	13%

CLSUD’s growth projections anticipated a 15% growth rate for 2021, which steadily decreased to 11% growth by 2026. At the end of year 2026, it is projected that CLSUD will have roughly 8,895 connections and adding approximately 4,160 LUEs over the next 5 year. Table 5 provides the projected growth for 2022 through 2026. The projected growth pattern is anticipated to continue on past the 5-year projections shown in the table below.

Table 6 – Projected Growth

Year	LUEs
2022	5,555
2023	6,332
2024	7,155
2025	8,014
2026	8,895

VI. Capital Improvements

CLSUD’s water system is needing to increase its water supply capacity. It is expected CLSUD will be receiving water from the ARWA project in 2023 and additional water from the GBRA in 2024. The ARWA initial phase will provide 467 AF water at a peak flowrate of 377 gpm. Ultimately, CLSUD will receive 1,102 AF from the ARWA project at a peak flowrate of 888 gpm. The GBRA project is expected to provide 2,419 AF of water at a peak flowrate of 1,950 gpm. Both sources are to be delivered with peaking factor of 1.3.

It is estimated that the new sources (ARWA & GBRA) will have a capital cost of \$21,700 per gpm delivered. Using CLSUD’s alternative capacity for supply of 0.41-gpm, the cost to receive the new water sources comes out to approximately \$8,900 per LUE. The capital cost for the water needs of the 5-year projected growth is estimated to be \$37,024,000. The two sources will provide sufficient supply capacity for the growth projected over the next 5-years.

A new water plant will be needed to receive the GBRA water and pump to the distribution system. It is expected that the new plant site will be located near Bobwhite Road and FM 2720 and will be sized to match the water that is available. Currently, it is expected that a 2.8 MGD plant will be needed, which will have a cost of approximately \$2,965,000. The addition of the plant will also increase the water system’s pump and storage capacity.

A 24-inch water main will be needed along FM 2720 from the proposed water plant to Old Spanish Trail where it will tie into an existing 16-inch water line. The project will be roughly 21,000 linear feet and have an estimated construction cost of \$5,050,000 and a total cost of \$6,450,000.

A second ground storage tank at the High Road Booster Station will be needed to increase the capacity at that site. The proposed tank will be a 250,000 gallon welded steel tank, which has an estimated cost of approximately \$605,000.

A water line is proposed along Gristmill Road to complete a loop from Heidenreich Lane to SH 21. The project includes approximately 560 linear feet of 16-inch water line and approximately 8,800 linear feet of 12-inch water line. The project has an estimate construction cost of approximately \$1,190,000 and total cost of approximately \$1,650,000.

Detailed preliminary cost estimates for the capital improvement projects mentioned previously may be found within Exhibit A, and Exhibit B contains a location map of the improvements. The table below summarizes the estimated cost for the capital improvements and expected project dates.

Table 7 – List of Capital Improvements

Capital Improvements		Preliminary Cost Estimate		Estimated Date
		Construction	Total	
1	Gristmill Road Water Line	\$1,189,180	\$1,651,680	2022
2	FM 2720 Booster Site	\$2,250,000	\$2,965,000	2024
3	FM 2720 Water Main	\$5,049,750	\$6,449,750	2024
4	High Road GST	\$470,000	\$605,000	2024
5	ARWA/GBRA Water Sources* ¹	-	\$37,024,000	2024/2025
		TOTAL:	\$48,695,430	

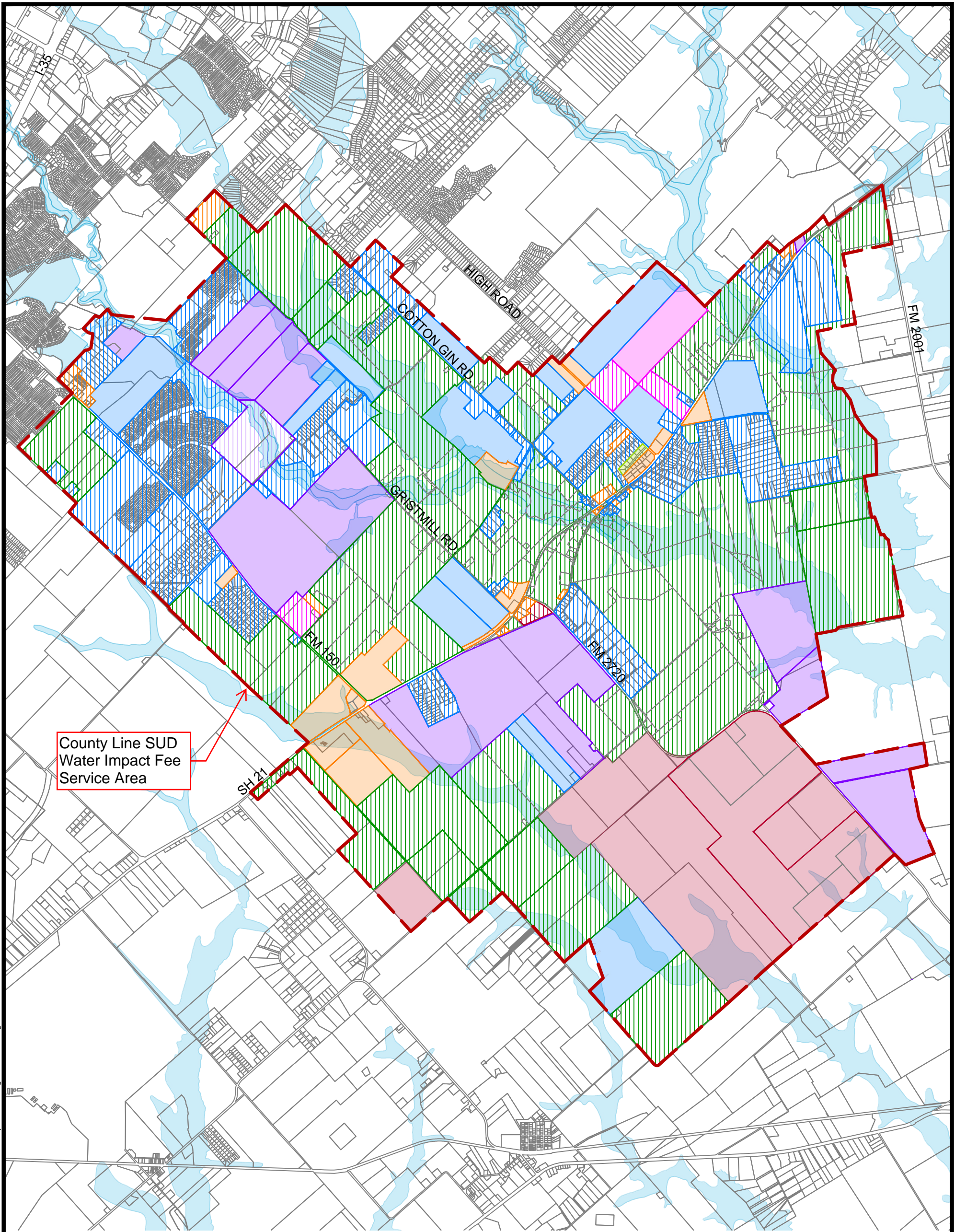
*¹ Estimated capital cost for ARWA/GBRA Water Sources for the needs of the 5-year projected growth of 4,160 LUEs.

Based on the projected growth over the next 5 years (Table 6) and the anticipated expenditures for associated capital improvements (Table 7), CLSUD would need to collect approximately **\$11,705 per LUE** from all new developments.

As CLSUD does not collect an ad valorem tax nor plan to use service fee revenues to pay for these capital improvements, an Impact Fee in the above amount would need to be assessed on all new developments. Since most of these capital improvements will need to be designed and constructed before many of the future subdivisions pay their Impact Fees, County Line SUD will likely need to acquire loans and/or issue debt to initially pay for some of these improvements; therefore, financing costs have been included in these cost estimates as indicated above. County Line SUD may also elect to pay cash for some of the improvements if they have sufficient cash on hand.

Exhibit A

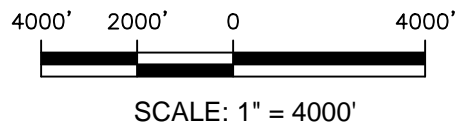
County Line SUD
Water Impact Fee Service Area
& 10-Year Land Use Assumptions Map



County Line SUD
Water Impact Fee
Service Area

LEGEND

- | | | |
|-----|-------|-----------------------------|
| EX. | PROP. | |
| | | RESIDENTIAL - SINGLE FAMILY |
| | | RESIDENTIAL - OTHER |
| | | COMMERCIAL - BUSINESS |
| | | COMMERCIAL - SCHOOL |
| | | INDUSTRIAL |
| | | MIXED USE |
| | | AGRICULTURAL |



**COUNTY LINE SUD
WATER IMPACT FEE SERVICE AREA
& 10 YEAR LAND USE ASSUMPTION**

MARCH 2022

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Exhibit B
Cost Estimates

Grist Mill Road - 16" & 12" Water Line

Preliminary Construction Cost					
No.	Item	Quantity	Unit	Unit Cost	Total Cost
1	16" C900 PVC Water Line	430	L.F.	\$123.00	\$52,890.00
2	16" C900RJ PVC Water Line	130	L.F.	\$133.00	\$17,290.00
3	12" C900 PVC Water Line	8,270	L.F.	\$80.00	\$661,600.00
4	12" C900RJ PVC Water Line	530	L.F.	\$100.00	\$53,000.00
5	24" Bored Steel Casing	120	L.F.	\$425.00	\$51,000.00
6	20" Bored Steel Casing	590	L.F.	\$350.00	\$206,500.00
7	Base Repair	120	L.F.	\$20.00	\$2,400.00
8	16" Gate Valve	1	E.A.	\$8,500.00	\$8,500.00
9	12" Gate Valve	4	E.A.	\$3,000.00	\$12,000.00
10	16" Mechanical Joint Restraint	20	E.A.	\$550.00	\$11,000.00
11	12" Mechanical Joint Restraint	45	E.A.	\$400.00	\$18,000.00
12	Fire Hydrant Assembly	5	E.A.	\$3,500.00	\$17,500.00
13	Meter Tie-Ins	14	E.A.	\$1,500.00	\$21,000.00
14	Water Line Tie-Ins	10	E.A.	\$2,500.00	\$25,000.00
15	Misc. Ductile Iron Fittings	3	TON	\$8,000.00	\$24,000.00
16	Erosion Control Measures	1	L.S.	\$7,500.00	\$7,500.00
Preliminary Construction Cost					\$1,189,180.00
Preliminary Non-Construction Cost					
No.	Task	Cost			
1	Engineering Design	\$100,000.00			
2	Survey	\$20,000.00			
3	Permits	\$2,500.00			
4	Storm Water Pollution Prevention Plan	\$5,000.00			
5	Easement/ Land Acquisition Agent Fees	\$55,000.00			
6	Easement/ Land Acquisition	\$40,000.00			
7	Contingency	\$240,000.00			
Preliminary Non-Construction Costs					\$462,500.00
Total Project Preliminary Cost					
Subtotal Construction Costs					\$1,189,180.00
Subtotal Non-Construction Costs					\$462,500.00
Total Project Preliminary Cost Estimate					\$1,651,680.00

FM 2720 Booster Station

Preliminary Construction Cost					
No.	Item	Quantity	Unit	Unit Cost	Total Cost
1	500,000 Gallon Welded Steel Tank	1	L.S.	\$750,000.00	\$750,000.00
2	Tank Foundation	1	L.S.	\$75,000.00	\$75,000.00
3	Building	1	L.S.	\$75,000.00	\$75,000.00
4	High Service Pumps	1	L.S.	\$150,000.00	\$150,000.00
5	Site Yard Piping	3	L.S.	\$250,000.00	\$750,000.00
6	Site Work	4	L.S.	\$50,000.00	\$200,000.00
7	Electrical & Controls	1	L.S.	\$250,000.00	\$250,000.00
Preliminary Construction Cost					\$2,250,000.00
Preliminary Non-Construction Cost					
No.	Task	Cost			
1	Engineering Design	\$175,000.00			
2	Survey	\$5,000.00			
3	Land Acquisition	\$75,000.00			
3	Geotechnical Survey	\$10,000.00			
4	Contingency	\$450,000.00			
Preliminary Non-Construction Costs					\$715,000.00
Total Project Preliminary Cost					
Subtotal Construction Costs					\$2,250,000.00
Subtotal Non-Construction Costs					\$715,000.00
Total Project Preliminary Cost Estimate					\$2,965,000.00

FM 2720 - 24" Water Line

Preliminary Construction Cost					
No.	Item	Quantity	Unit	Unit Cost	Total Cost
1	24" C900 PVC Water Line	20,650	L.F.	\$225.00	\$4,646,250.00
2	24" C900RJ PVC Water Line	260	L.F.	\$250.00	\$65,000.00
3	30" Bored Steel Casing	210	L.F.	\$500.00	\$105,000.00
4	Base Repair	150	L.F.	\$20.00	\$3,000.00
5	24" Butterfly Valve	5	E.A.	\$7,500.00	\$37,500.00
6	16" Gate Valve	1	E.A.	\$5,500.00	\$5,500.00
7	12" Gate Valve	3	E.A.	\$3,000.00	\$9,000.00
8	Mechanical Joint Restraints	1	L.S.	\$50,000.00	\$50,000.00
9	Fire Hydrant Assembly	6	E.A.	\$3,500.00	\$21,000.00
10	Air Release Valve	5	E.A.	\$2,500.00	\$12,500.00
11	Water Line Tie-Ins	3	E.A.	\$5,000.00	\$15,000.00
12	Misc. Ductile Iron Fittings	1	L.S.	\$50,000.00	\$50,000.00
13	Erosion Control Measures	1	L.S.	\$30,000.00	\$30,000.00
Preliminary Construction Cost					\$5,049,750.00
Preliminary Non-Construction Cost					
No.	Task	Cost			
1	Engineering Design	\$375,000.00			
2	Survey	\$30,000.00			
3	Permits	\$15,000.00			
4	Storm Water Pollution Prevention Plan	\$10,000.00			
5	Easement/ Land Acquisition Agent Fees	\$70,000.00			
6	Easement/ Land Acquisition	\$150,000.00			
7	Contingency	\$750,000.00			
Preliminary Non-Construction Costs					\$1,400,000.00
Total Project Preliminary Cost					
Subtotal Construction Costs					\$5,049,750.00
Subtotal Non-Construction Costs					\$1,400,000.00
Total Project Preliminary Cost Estimate					\$6,449,750.00

High Road Booster Station - 250,000 Gallon Ground Storage Tank

Preliminary Construction Cost					
No.	Item	Quantity	Unit	Unit Cost	Total Cost
1	250,000 Gallon Welded Steel Tank	1	L.S.	\$350,000.00	\$350,000.00
2	Tank Foundation	1	L.S.	\$50,000.00	\$50,000.00
3	Site Yard Piping	1	L.S.	\$50,000.00	\$50,000.00
4	Site Work & Controls	1	L.S.	\$20,000.00	\$20,000.00
Preliminary Construction Cost					\$470,000.00
Preliminary Non-Construction Cost					
No.	Task	Cost			
1	Engineering Design	\$45,000.00			
2	Survey	\$2,500.00			
3	Geotechnical Survey	\$7,500.00			
4	Contingency	\$80,000.00			
Preliminary Non-Construction Costs					\$135,000.00
Total Project Preliminary Cost					
Subtotal Construction Costs					\$470,000.00
Subtotal Non-Construction Costs					\$135,000.00
Total Project Preliminary Cost Estimate					\$605,000.00

Exhibit C

Capital Improvements Location Map

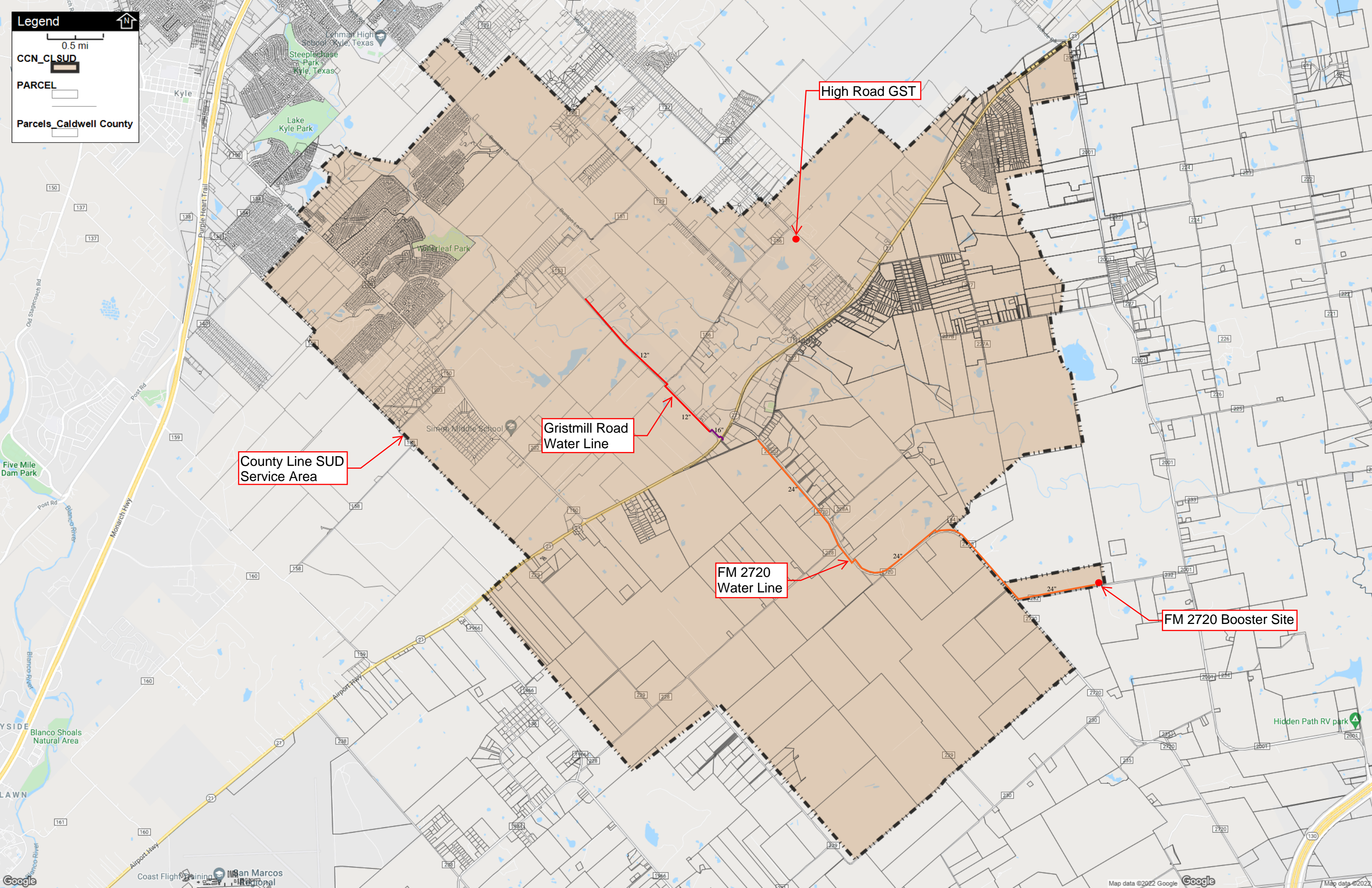
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PARCEL

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High Road GST

Gristmill Road Water Line

County Line SUD Service Area

FM 2720 Water Line

FM 2720 Booster Site