



September 16, 2019

Mr. Ed Horne  
Chairman of Impact Fee Committee  
175 Elizabeth Park Blvd.  
Liberty Hill, TX 78642

Re: 10-year Capital Improvement Plan

Dear Mr. Horne:

The City of Liberty Hill is experiencing significant growth within the water and wastewater service areas. To assist in the planning for improvements to handle the growth, the City engaged Steger Bizzell to prepare a Capital Improvement Plan that identifies the short-term improvements needed within the next 10 years. Figure 1 shows the City's water Certificate of Convenience and Necessity (CCN) and Figure 2 shows wastewater CCN boundaries as well as the existing and future developments that will be served by the water and wastewater utilities.

Based on historical population growth and known plans for the development of new subdivisions within the water and wastewater service areas, the City of Liberty Hill's (City) utility systems are projected to have significant growth. The Water system is expected to grow system-wide with a 10.2% annual average growth rate. This results in growth from the existing 741 connections in early 2018 to 1,958 connections by the end of 2028.

The Wastewater system is expected to grow system-wide with a 11.5% annual average growth rate. This results in growth from the existing 4,413 connections in 2018 to almost 13,089 connections in 2028. Table 1 shows the anticipated water system growth.

This capital improvement program identifies improvements to serve the projected population growth in the City's utility customers by identifying a series of capital improvement project recommendations to increase water production, storage, pumping and transmission capacity as well as wastewater collection, pumping, and treatment improvements needed to meet the 10-year growth demands. The recommended water and wastewater projects are identified in Tables 2 and 3 respectively. Maps showing the water and wastewater projects are shown in Figures 3 and 4 respectively. The associated detailed cost summaries can be found in Appendices of this letter.

As these projects are implemented, the City will see the following benefits:

- Increase in fire flow capacity within the downtown area
- Service life extension of existing infrastructure
- Increase in water supply sources to meet long-term future demands
- Improved system operating efficiency by improving transmission line capacity, adding elevated storage, and decommissioning older existing facilities

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TEXAS REGISTERED ENGINEERING FIRM F-181

**SERVICES**

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>> PLANNERS

>> SURVEYORS

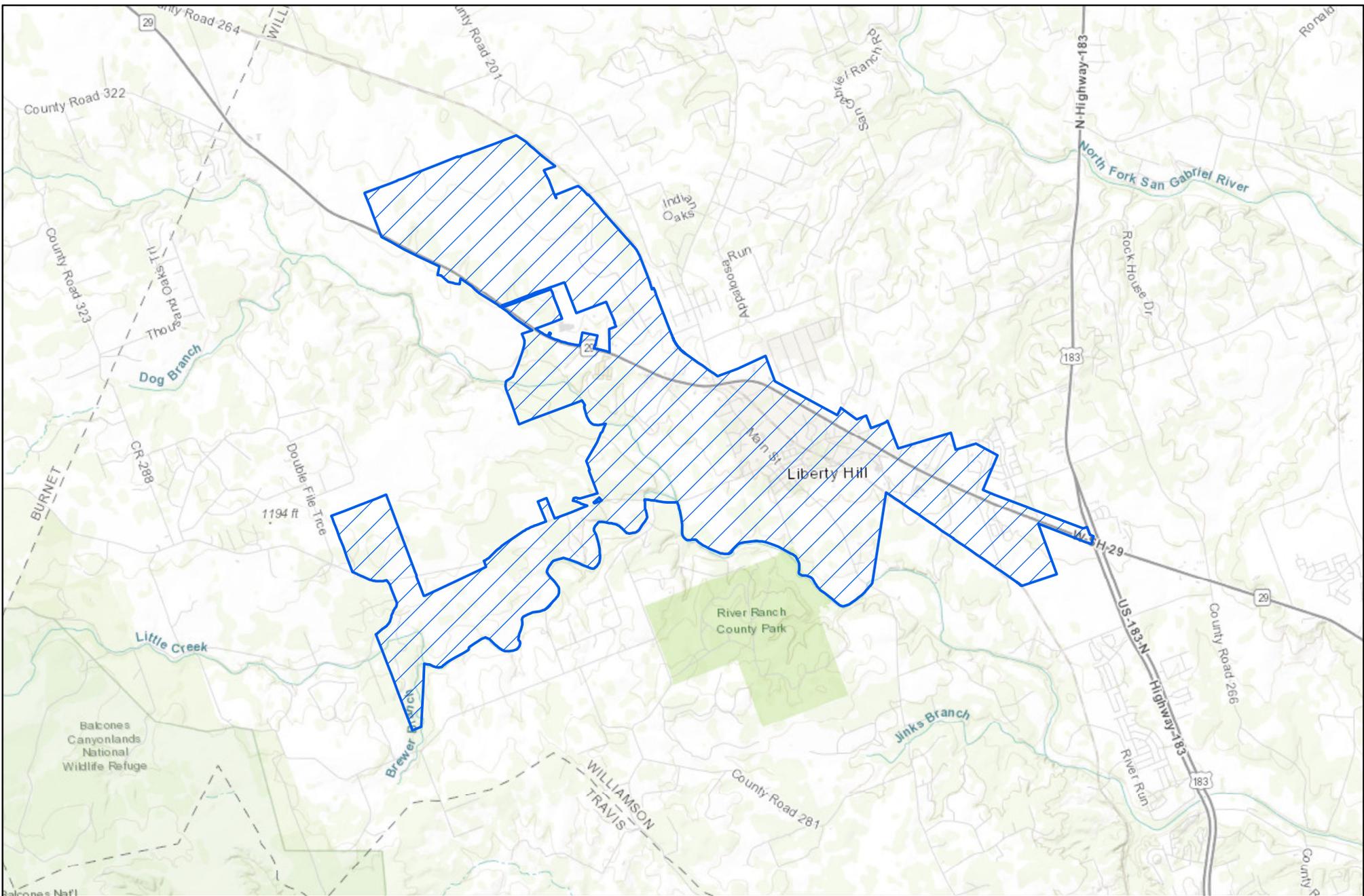
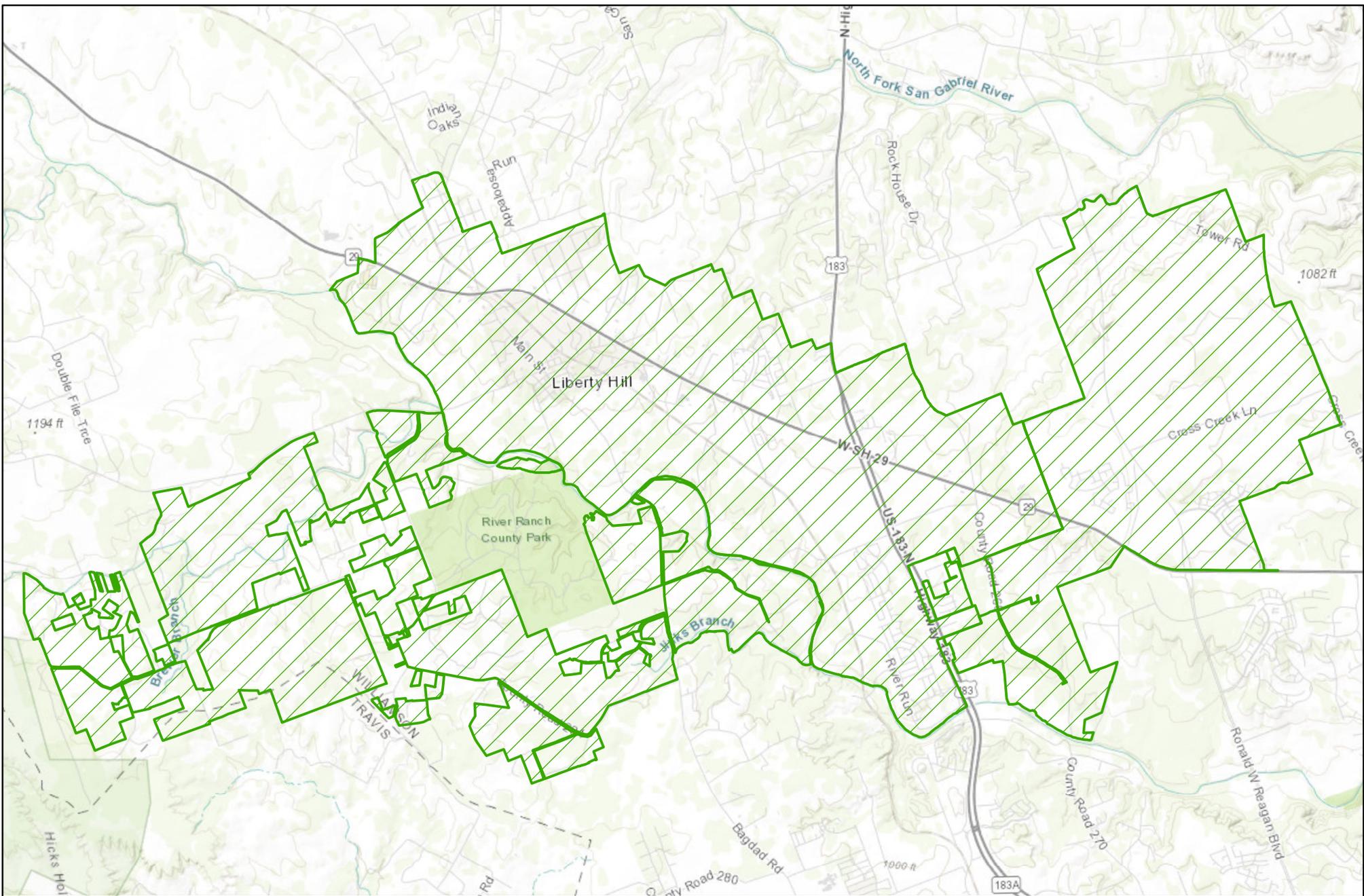


Figure 1 City of Liberty Hill Water CCN No. 10324

9.7 Sq. Mi. / 6,200 Ac.



0 0.5 1 2 Miles



**Figure 2 : City of Liberty Hill Sewer CCN No. 20992**

28.4 Sq. Mi. / 18,194.4 Ac.

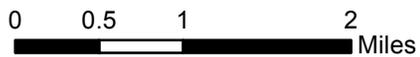


Table 1. Water and Wastewater Customer Forecast

<b>CITY OF LIBERTY HILL</b>					
<b>FORECAST TOTAL CUSTOMERS</b>					
<b>Fiscal Year</b>	<b>Residential In-City</b>	<b>Residential Out-of-City</b>	<b>Commercial In-City</b>	<b>Commercial Out-of-City</b>	<b>Total</b>
<b>WATER Total Customers</b>					
FY 2016	446	-	127	-	573
FY 2017	535	-	130	-	665
FY 2018	608	-	133	-	741
TY 2019	693	-	140	-	833
FY 2020	808	-	150	-	958
FY 2021	923	-	160	-	1,083
FY 2022	1,038	-	170	-	1,208
FY 2023	1,153	-	180	-	1,333
FY 2024	1,268	-	190	-	1,458
FY 2025	1,383	-	200	-	1,583
FY 2026	1,498	-	210	-	1,708
FY 2027	1,613	-	220	-	1,833
FY 2028	1,728	-	230	-	1,958
<b>Fiscal Year</b>	<b>Residential In-City</b>	<b>Residential Out-of-City</b>	<b>Commercial In-City</b>	<b>Commercial Out-of-City</b>	<b>Total</b>
<b>WASTEWATER Total Customers (LUEs)</b>					
FY 2016	146	2,523	348	15	3,036
FY 2017	230	2,900	415	15	3,564
FY 2018	285	3,689	418	17	4,413
TY 2019	325	4,205	439	19	4,989
FY 2020	440	4,979	449	20	5,889
FY 2021	555	5,753	459	21	6,789
FY 2022	670	6,527	469	22	7,689
FY 2023	785	7,301	479	23	8,589
FY 2024	900	8,075	489	24	9,489
FY 2025	1,015	8,849	499	25	10,389
FY 2026	1,130	9,623	509	26	11,289
FY 2027	1,245	10,397	519	27	12,189
FY 2028	1,360	11,171	529	28	13,089

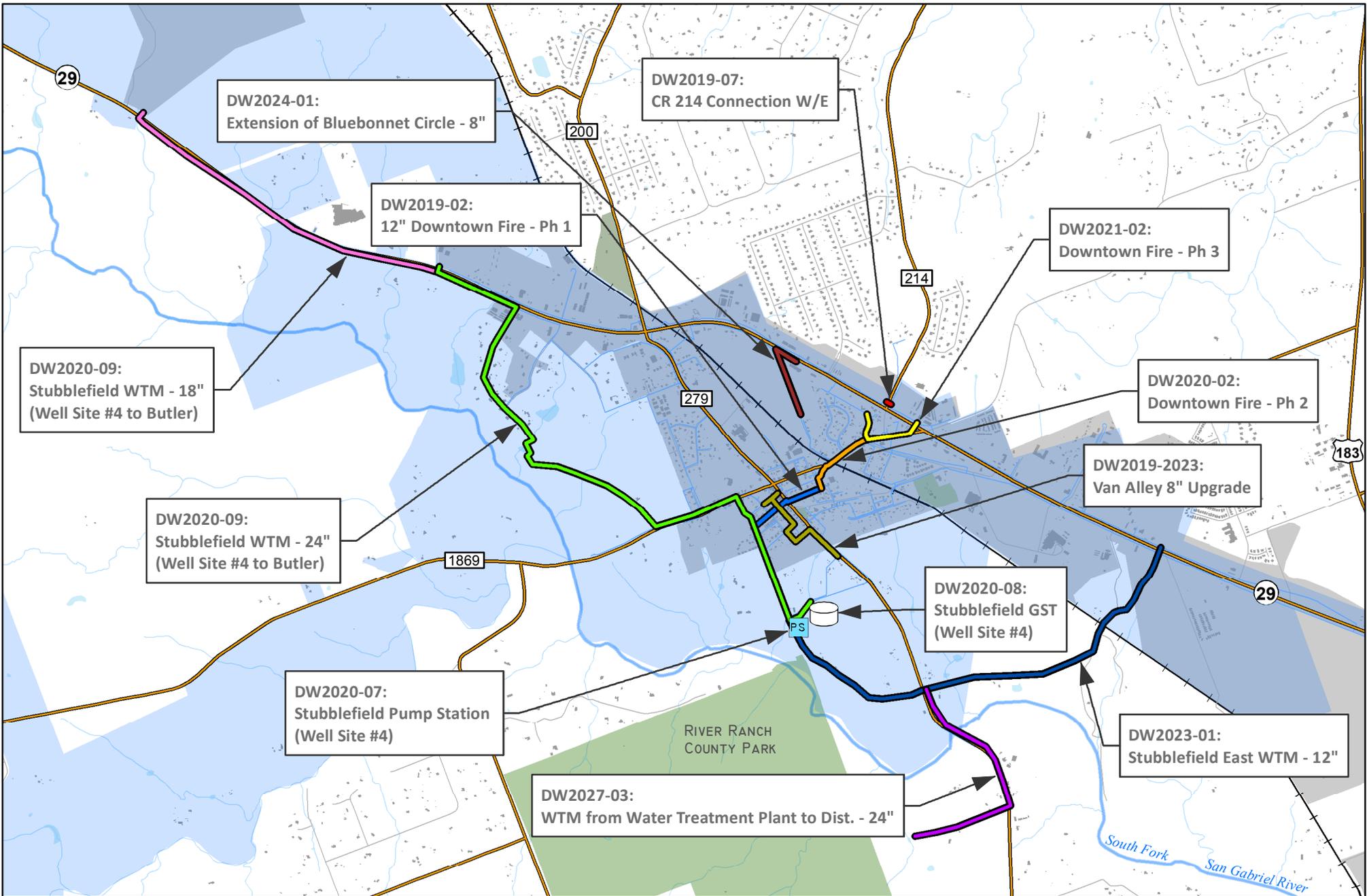
**Table 2**  
**2019-2028**  
**City of Liberty Hill**  
**Capital Improvement Program**

Drinking Water Infrastructure Projects							
Project ID	Project Description	Facility Type	Estimated Start	Estimated Completion	Project Budget	Potential LUEs Served	Cost Per LUE
DW2019-01	Well Site #3 EST Tank Painting	-	2/1/2019	5/1/2019	\$365,675	1,500	\$244
DW2019-02	Downtown Fire Protection Phase 1 - 12" WL Along Grange and Hickman from Stubblefield to Church (small diameter and replace AC)	Transmission & Distribution	6/1/2019	12/30/2019	\$322,760	3,525	\$92
DW2019-03	2019 Install ~200 Fixed Network AMRs and auto valves	-	1/1/2019	12/31/2019	\$150,000	200	\$750
DW2019-04	2019 System-wide valve and hydrant replacement	-	1/1/2019	12/31/2019	\$50,000	NA	NA
DW2019-05	Construct Well #8	Supply	1/1/2019	10/31/2019	\$1,573,700	250	\$6,295
DW2019-06	2019 Water Line Oversizing Cost Share Budget	Transmission & Distribution	1/1/2019	12/31/2019	\$50,000	250	\$200
DW2019-07	CR 214 8" Loop Closure	Transmission & Distribution	1/1/2019	12/31/2019	\$64,825	1,567	\$41
DW2020-01	Ground Storage Tank Painting (3 GST with no lead)	-	1/1/2020	12/31/2020	\$385,500	500	\$771
DW2020-02	Downtown Fire Protection Phase 2 - 12" WL Along Church from Hickman to Matthews Circle Along 1869 (replace AC)	Transmission & Distribution	6/1/2020	10/30/2020	\$367,890	3,525	\$104
DW2020-03	2020 Install ~200 Fixed Network AMRs and auto valves	-	1/1/2020	12/31/2020	\$150,000	200	\$750
DW2020-04	2020 System-wide valve and hydrant replacement	-	1/1/2020	12/31/2020	\$50,000	NA	NA
DW2020-05	Construct Well #9	Supply	1/1/2020	12/31/2020	\$617,500	250	\$2,470
DW2020-06	2020 Water Line Oversizing Cost Share Budget	Transmission & Distribution	1/1/2020	12/31/2020	\$50,000	250	\$200
DW2020-07	Stubblefield Pump Station (Well Site 4)	Pumping	1/1/2020	12/31/2020	\$2,083,800	1,200	\$1,737
DW2020-08	Stubblefield GST (Well Site 4)	Storage	1/1/2020	12/31/2020	\$338,800	1,694	\$200
DW2020-09	Stubblefield WTM (Well Site 4 to Butler Development)	Transmission & Distribution	1/1/2020	12/31/2020	\$3,981,818	14,100	\$282
DW2021-01	Downtown Fire Protection Phase 3 - 12" WL Along Forrest Street (replace AC)	Transmission & Distribution	6/1/2020	10/30/2020	\$437,240	3,525	\$124
DW2021-02	2021 Install ~200 Fixed Network AMRs and auto valves	-	1/1/2021	12/31/2021	\$150,000	200	\$750
DW2021-03	2021 System-wide valve and hydrant replacement	-	1/1/2021	12/31/2021	\$50,000	NA	NA
DW2021-04	2021 Water Line Oversizing Cost Share Budget	Transmission & Distribution	1/1/2020	12/31/2020	\$50,000	250	\$200
DW2022-01	Van Alley 8" Upgrade	Transmission & Distribution	1/1/2019	12/31/2020	\$435,465	1,567	\$278
DW2023-01	Stubblefield East 12" WTM	Transmission & Distribution	1/1/2023	12/31/2023	\$1,456,295	3,525	\$413
DW2024-01	Extension of Bluebonnet Circle 8"	Transmission & Distribution	1/1/2024	12/31/2024	\$223,950	1,567	\$143
DW2027-01	Drinking Water Reservoir	Storage	1/1/2027	1/1/2029	\$12,608,933	8,000	\$1,576
DW2027-02	Raw Water Intake, Pump Station, and Transmission Main	Pumping	1/1/2027	1/1/2029	\$15,902,327	8,000	\$1,988
DW2027-03	Direct Reuse Drinking Water Treatment Plant 2 MGD	Supply	1/1/2027	1/1/2029	\$19,762,500	8,000	\$2,470
DW2027-04	WTM from Water Treatment Plant to Distribution	Transmission & Distribution	1/1/2027	1/1/2029	\$1,594,518	8,000	\$199
					<b>10-year Total</b>	<b>\$61,922,320</b>	

**Table 3**

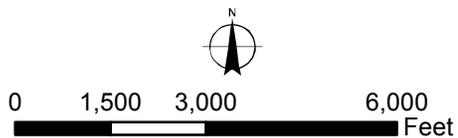
**2019-2028  
City of Liberty Hill  
Capital Improvement Program**

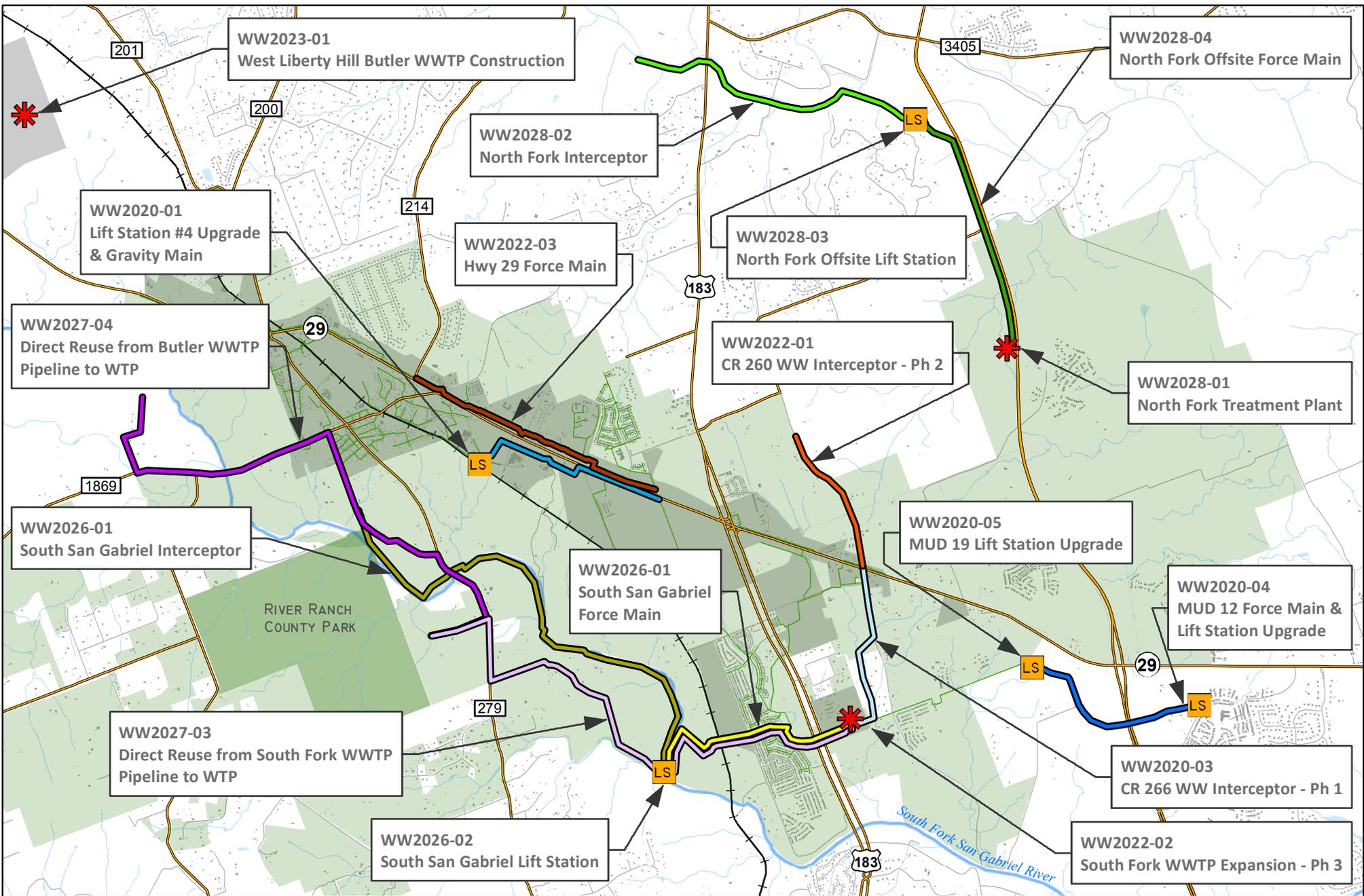
<b>Wastewater Infrastructure Projects</b>							
<b>Project ID</b>	<b>Project Description</b>	<b>Project Type</b>	<b>Estimated Start</b>	<b>Estimated Completion</b>	<b>Project Budget</b>	<b>Potential LUEs Served</b>	<b>Cost Per LUE</b>
WW2012-01	LCRA Plant Purchase (400,000 gpd)	-	4/1/2012	12/31/2015	\$3,700,000	0	N/A
WW2012-01	Phase 1 Plant Expansion (800,000 gpd)	-	4/1/2017	12/31/2018	\$12,000,000	4,000	\$3,000
WW2019-01	Holmes Road Gravity Line - Phase 2	Pumping & Force Mains	4/1/2019	12/31/2019	\$347,824	1,291	\$269
WW2019-02	2019 - Upgrade LS comms to radios (LS 3, 4, 5A, 5B)	-	11/1/2018	2/28/2019	\$30,000	NA	NA
WW2019-03	South Fork WWTP Expansion Phase 2	Treatment	8/1/2019	7/31/2021	\$11,000,000	6,000	\$1,833
WW2020-01	Lift Station #4 Upgrade and Force Main Capacity	Pumping & Force Mains	3/1/2020	5/1/2021	\$853,235	1,410	\$605
WW2020-02	2020 - Upgrade LS comms to radios (LS12B, 13, 14A, 14B, 23B)	-	1/1/2020	12/31/2020	\$45,000	NA	NA
WW2020-03	CR 266 Interceptor - Phase 1	Gravity Collection	1/1/2020	12/31/2020	\$1,775,385	5,183	\$343
WW2020-04	MUD 12 Lift Station Upgrade and Kauffman Loop Force Main	Pumping & Force Mains	3/1/2019	3/1/2020	\$1,025,240	3,172	\$323
WW2020-05	MUD 19 Lift Station Upgrade	Pumping & Force Mains	3/1/2019	3/1/2020	\$1,170,000	2,500	\$468
WW2022-01	CR 260 Interceptor - Phase 2	Gravity Collection	1/1/2022	12/31/2022	\$1,319,609	2,027	\$651
WW2022-02	South Fork WWTP Expansion Phase 3	Treatment	1/1/2022	11/30/2024	\$11,000,000	6,000	\$1,833
WW2022-03	Hwy 29 Force Main Capacity Increase CR 214 to Gravity Line	Pumping & Force Mains	6/1/2020	6/1/2021	\$1,335,860	1,410	\$947
WW2023-01	West Liberty Hill Butler WWTP Construction - 400,000 gpd capacity	Treatment	6/1/2023	6/1/2026	\$6,247,500	2,000	\$3,124
WW2026-01	South San Gabriel Interceptor	Gravity Collection	1/1/2026	1/31/2028	\$5,449,550	5,183	\$1,051
WW2026-02	South San Gabriel Lift Station and Force Main	Pumping & Force Mains	1/1/2026	1/31/2028	\$7,456,345	16,000	\$466
WW2027-01	Reuse Pump Station Upgrade at South Fork WWTP	Treatment	1/1/2027	1/31/2027	\$1,275,000	16,000	\$80
WW2027-02	Direct Reuse Pump Station for West Liberty Hill WWTP	Pumping & Force Mains	1/1/2027	1/31/2027	\$1,083,800	16,000	\$68
WW2027-03	Direct Reuse from South Fork WWTP to WTP	Gravity Collection	1/1/2027	1/31/2027	\$6,440,775	16,000	\$403
WW2027-04	Direct Reuse from West Liberty Hill WWTP to WTP	Gravity Collection	1/1/2027	1/31/2027	\$3,130,100	1,143	\$2,739
WW2028-01	North Fork WWTP Construction-1,400,000 gpd capacity	Treatment	6/1/2028	6/1/2029	\$16,000,000	7,000	\$2,286
WW2028-02	North Fork Interceptor	Gravity Collection	1/1/2028	12/31/2029	\$3,069,715	5,183	\$592
WW2028-03	North Fork Offsite Lift Station and Force Main	Pumping & Force Mains	1/1/2028	12/31/2029	\$7,311,335	5,183	\$1,411
<b>10-year Total</b>					<b>\$75,943,449</b>		



City of Liberty Hill 10 Year Water CIP Projects

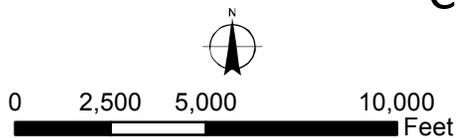
Figure 3





City of Liberty Hill 10 Year Wastewater CIP Projects

Figure 4



September 16, 2019

Mr. Ed Horne

Page 9

- Increase wastewater treatment capacity
- Increased wastewater lift station and force main capacity to meet high growth area demand
- Increased wastewater gravity capacity to reduce reliance on lift station and force main infrastructure
- Overall efficient, cost-effective use of capital expenditures to meet current and future growth demands

This plan also identifies a sequence of construction for these projects that will keep the City in compliance with applicable regulations and bring additional system capacity online in time to meet future system demand.

If you have any questions or additional comments, please feel free to me at (512) 930-9412.

Sincerely,



Curtis R. Steger, P.E.

Appendix 1: - Water Project Cost Estimates

Appendix 2: - Wastewater Project Cost Estimates

September 16, 2019

Mr. Ed Horne

Page 10

Appendix 1: - Water Project Cost Estimates

## Well Site #3 Elevated Storage Tank Painting

MAP KEY: DW2019-01

This project will resurface the second and final elevated storage tank and allow the new City of Liberty Hill logo to be painted. This tank is in urgent need of painting as several areas have significant corrosion. This recoating is for the interior and exterior of the tank.

<b>DW2019-01</b>				
<b>Well Site #3 Elevated Tank Painting</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
Remove interior coating by abrasive blasting all surfaces to near white condition (SSPC-SP 10)	1	LS	\$40,000.00	\$ 40,000.00
Recoat interior with a two component, 100% solids, 0 VOC, elastomeric, aromatic polyurethane hybrid coating	1	LS	\$33,575.00	\$ 33,575.00
Install Tank Shroud	1	LS	\$50,000.00	\$ 50,000.00
Remove exterior coating by abrasive blasting all surfaces to near white condition (SSPC-SP 10)	1	LS	\$75,000.00	\$ 75,000.00
Coat exterior areas with an organic zinc-rich epoxy primer, and a modified Polysiloxane hybrid top coat	1	LS	\$15,000.00	\$ 15,000.00
Overcoat exterior coating with high solids mastic primer, penetrating sealer and a modified Polysiloxane top coat	1	LS	\$65,000.00	\$ 65,000.00
Replace existing Flap Gate	1	LS	\$1,500.00	\$ 1,500.00
Replace existing 30" Roof Hatch	1	LS	\$6,000.00	\$ 6,000.00
Replace existing Roof Vent	1	LS	\$5,000.00	\$ 5,000.00
Install Ladder Safety Climb Device			\$6,000.00	\$ -
Welding Repairs	1	LS	\$4,000.00	\$ 4,000.00
Paint City of Liberty Hill logo on tank exterior with a modified Polysiloxane hybrid top coat	1	LS	\$5,000.00	\$ 5,000.00
Disinfect tank	1	LS	\$2,000.00	\$ 2,000.00
			Construction Subtotal	\$ 302,075.00
			Engineering, Surveying, Legal (6%)	\$ 18,200.00
			Contingencies (15%)	\$ 45,400.00
<b>TOTAL</b>				<b>\$365,675.00</b>

*This is a preliminary cost summary based on similar work in the City of Liberty Hill Service area and not an actual cost quote or bid. It has not been based on any engineering plans or survey. A revised and more accurate estimate will be provided after the engineering plans have been prepared and/or actual construction bids have been received and tabulated.*

## Downtown Fire Protection Improvements-Phase 1

MAP KEY: DW2019-02

This 12" water line project is the first phase of water system improvements to improve the fire flow capacity of the central Liberty Hill area, including downtown and State Highway 29 corridor. This project is divided into three phases based on estimated available funding. The exact alignment has not been determined.

<b>DW2019-02</b>				
<b>Downtown Fire Protection Phase 1</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
12" C900, DR-18 PVC Water Line (w/ Trenching, Locator Tape and Backfill)	1,860	L.F.	\$ 50.00	\$ 93,000.00
M.J. SSB CL-350 D.I. Fittings w/ Restraint Glands	1,000	Lbs	\$ 6.00	\$ 6,000.00
Connection to Existing Water Main	3	Ea.	\$ 7,500.00	\$ 22,500.00
Fire Hydrant Assembly (w/ Hydrant, Lead, Gate Valve, Valve Box and Tee)	5	Ea.	\$ 6,000.00	\$ 30,000.00
2" Combination Air Release Valve (w/ vault, valve and appurtunances)	5	Ea.	\$ 7,500.00	\$ 37,500.00
12" Gate Valve (w/ Valve Box and Restraint Glands)	5	Ea.	\$ 3,000.00	\$ 15,000.00
Open Cut & Encase w/ 18" PVC Casing Pipe (w/ Casing Spacers and End Seals)	100	L.F.	\$ 165.00	\$ 16,500.00
Erosion and Sedimentation Control - Silt Fence	1,760	L.F.	\$ 4.50	\$ 7,920.00
Clearing & Chipping	1,760	L.F.	\$ 10.00	\$ 17,600.00
Trench Safety	1,760	L.F.	\$ 4.00	\$ 7,040.00
			Construction Subtotal	\$ 253,060.00
			Engineering, Surveying, Legal (12.5%)	\$ 31,700.00
			Contingencies (15%)	\$ 38,000.00
<b>TOTAL</b>				<b>\$322,760.00</b>

## Well #8

MAP KEY: DW2019-05

This project includes drilling the well (projected to have a capacity of 150 GPM), ground storage and high service pumping capacity, near the City's existing distribution system infrastructure. If location is not near existing infrastructure, the offsite transmission main improvements could add significant cost to the project. The exact location has not been determined.

<b>DW2019-05</b>				
<b>Construct Well #8</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
Construction of Well Capable of 150 gpm (Depth TBD)	1	LS	\$ 250,000.00	\$ 250,000.00
Well Pump and Well Head Equipping	1	LS	\$ 65,000.00	\$ 65,000.00
Yard Piping	1	LS	\$ 30,000.00	\$ 30,000.00
Site Work (grading and access road)	1	LS	\$ 50,000.00	\$ 50,000.00
Chemical Treatment (Chloramination)	1	LS	\$ 40,000.00	\$ 40,000.00
Ground Storage	1	LS	\$ 250,000.00	\$ 250,000.00
High Service Pump Station	1	LS	\$ 500,000.00	\$ 500,000.00
Connection to Existing Distribution System	1	LS	\$ 10,000.00	\$ 10,000.00
			Construction Subtotal	\$ 1,195,000.00
			Engineering, Surveying, Legal (12.5%)	\$ 149,400.00
			Contingencies (15%)	\$ 179,300.00
			Property Acquisition	\$ 50,000.00
<b>TOTAL</b>				<b>\$1,573,700.00</b>

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## CR 214 Water Line Connection

MAP KEY: DW2019-07

This 8" water line project is to improve water pressure and fire flow capacity along the central portion of the Highway 29 corridor by closing the loop on an existing gap. The exact alignment has not been determined.

<b>DW2019-07</b>				
<b>CR 214 Loop Closure Connection West/East</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
8" C900, DR-18 PVC Water Line (w/ Trenching, Locator Tape and Backfill)	130	L.F.	\$ 40.00	\$ 5,200.00
M.J. SSB CL-350 D.I. Fittings w/ Restraint Glands	300	Lbs	\$ 6.00	\$ 1,800.00
Connection to Existing Water Main	2	Ea.	\$ 7,500.00	\$ 15,000.00
8" Gate Valve (w/ Valve Box and Restraint Glands)	2	Ea.	\$ 2,500.00	\$ 5,000.00
Bore & Encase w/ 12" PVC Casing Pipe (w/ Casing Spacers and End Seals)	80	L.F.	\$ 285.00	\$ 22,800.00
Erosion and Sedimentation Control - Silt Fence	50	L.F.	\$ 4.50	\$ 225.00
Clearing & Chipping	50	L.F.	\$ 10.00	\$ 500.00
Trench Safety	50	L.F.	\$ 4.00	\$ 200.00
			Construction Subtotal	\$ 50,725.00
			Engineering, Surveying, Legal (12.5%)	\$ 6,400.00
			Contingencies (15%)	\$ 7,700.00
<b>TOTAL</b>				<b>\$64,825.00</b>

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## Van Alley 8" Water Line Improvements

MAP KEY: DW2019-2023-01

This 8" water line project is replacing an aging 6" asbestos cement water pipeline along the same general alignment. This system improvement will add much needed capacity in the downtown area to improve the fire flow capacity.

<b>DW2019-2023-01</b>				
<b>Van Alley 8" Water Line</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
8" C900, DR-18 PVC Water Line (w/ Trenching, Locator Tape and Backfill)	3,290	L.F.	\$ 40.00	\$ 131,600.00
M.J. SSB CL-350 D.I. Fittings w/ Restraint Glands	1,000	Lbs	\$ 6.00	\$ 6,000.00
Connection to Existing Water Main	5	Ea.	\$ 7,500.00	\$ 37,500.00
Reconnect existing services	25	Ea.	\$ 1,500.00	\$ 37,500.00
Fire Hydrant Assembly (w/ Hydrant, Lead, Gate Valve, Valve Box and Tee)	8	Ea.	\$ 6,000.00	\$ 48,000.00
8" Gate Valve (w/ Valve Box and Restraint Glands)	8	Ea.	\$ 2,500.00	\$ 20,000.00
Erosion and Sedimentation Control - Silt Fence	3,290	L.F.	\$ 4.50	\$ 14,805.00
Clearing & Chipping	3,290	L.F.	\$ 10.00	\$ 32,900.00
Trench Safety	3,290	L.F.	\$ 4.00	\$ 13,160.00
			Construction Subtotal	\$ 341,465.00
			Engineering, Surveying, Legal (12.5%)	\$ 42,700.00
			Contingencies (15%)	\$ 51,300.00
<b>TOTAL</b>				<b>\$435,465.00</b>

\* Project to be constructed with proposed road improvements.

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## Ground Storage Tank Repainting

MAP KEY: DW2020-01

This project consists of repainting 3 ground storage tanks throughout the City's water system well sites. These tanks are beginning to show sign of corrosion. This project is for recoating the interior and exterior of the tanks.

<b>DW2020-01</b>				
<b>Ground Storage Tank Repainting</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
Remove interior coating by abrasive blasting all surfaces to near white condition (SSPC-SP 10)	3	LS	\$15,000.00	\$ 45,000.00
Recoat interior with a two component, 100% solids, 0 VOC, elastomeric, aromatic polyurethane hybrid coating	3	LS	\$15,000.00	\$ 45,000.00
Remove exterior coating by abrasive blasting all surfaces to near white condition (SSPC-SP 10)	3	LS	\$20,000.00	\$ 60,000.00
Coat exterior areas with an organic zinc-rich epoxy primer, and a modified Polysiloxane hybrid top coat	3	LS	\$10,000.00	\$ 30,000.00
Overcoat exterior coating with high solids mastic primer, penetrating sealer and a modified Polysiloxane top coat	3	LS	\$20,000.00	\$ 60,000.00
Replace existing Flap Gate	3	LS	\$1,500.00	\$ 4,500.00
Replace existing 30" Roof Hatch	3	LS	\$6,000.00	\$ 18,000.00
Replace existing Roof Vent	3	LS	\$5,000.00	\$ 15,000.00
Install Ladder Safety Climb Device	3	LS	\$6,000.00	\$ 18,000.00
Welding Repairs	3	LS	\$4,000.00	\$ 12,000.00
Paint City of Liberty Hill logo on tank exterior with a modified Polysiloxane hybrid top coat	0	LS	\$5,000.00	\$ -
Disinfect tank	3	LS	\$2,000.00	\$ 6,000.00
			Construction Subtotal	\$ 313,500.00
			Engineering, Surveying, Legal (6%)	\$ 18,900.00
			Contingencies (15%)	\$ 47,100.00
<b>TOTAL</b>				<b>\$379,500.00</b>

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## Downtown Fire Protection Improvements-Phase 2

MAP KEY: DW2020-02

This 12" water line project is the second phase of water system improvements to improve the fire flow capacity of the central Liberty Hill area, including downtown and State Highway 29 corridor. This project is divided into three phases based on estimated available funding. The exact alignment has not been determined.

<b>DW2020-02</b>				
<b>Downtown Fire Protection Phase 2</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
12" C900, DR-18 PVC Water Line (w/ Trenching, Locator Tape and Backfill)	1,740	L.F.	\$ 50.00	\$ 87,000.00
M.J. SSB CL-350 D.I. Fittings w/ Restraint Glands	2,500	Lbs	\$ 6.00	\$ 15,000.00
Connection to Existing Water Main	3	Ea.	\$ 7,500.00	\$ 22,500.00
Fire Hydrant Assembly (w/ Hydrant, Lead, Gate Valve, Valve Box and Tee)	5	Ea.	\$ 6,000.00	\$ 30,000.00
2" Combination Air Release Valve (w/ vault, valve and appurtunances)	5	Ea.	\$ 7,500.00	\$ 37,500.00
12" Gate Valve (w/ Valve Box and Restraint Glands)	5	Ea.	\$ 3,000.00	\$ 15,000.00
Open Cut & Encase w/ 18" PVC Casing Pipe (w/ Casing Spacers and End Seals)	100	L.F.	\$ 165.00	\$ 16,500.00
Bore & Encase w/ 18" Steel Casing Pipe (w/ Casing Spacers and End Seals)	100	L.F.	\$ 365.00	\$ 36,500.00
Erosion and Sedimentation Control - Silt Fence	1,540	L.F.	\$ 4.50	\$ 6,930.00
Clearing & Chipping	1,540	L.F.	\$ 10.00	\$ 15,400.00
Trench Safety	1,540	L.F.	\$ 4.00	\$ 6,160.00
			Construction Subtotal	\$ 288,490.00
			Engineering, Surveying, Legal (12.5%)	\$ 36,100.00
			Contingencies (15%)	\$ 43,300.00
<b>TOTAL</b>				<b>\$367,890.00</b>

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## Well #9

MAP KEY: DW2020-05

This project includes drilling the well (projected to have a capacity of 150 GPM), ground storage and high service pumping capacity, near the City's existing distribution system infrastructure. If location is not near existing infrastructure, the offsite transmission main improvements could add significant cost to the project. The exact location has not been determined.

<b>DW2020-05</b>				
<b>Construct Well #9</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
Construction of Well Capable of 150 gpm (Depth TBD)	1	LS	\$ 250,000.00	\$ 250,000.00
Well Pump and Well Head Equipping	1	LS	\$ 65,000.00	\$ 65,000.00
Yard Piping	1	LS	\$ 30,000.00	\$ 30,000.00
Site Work (grading and access road)	1	LS	\$ 50,000.00	\$ 50,000.00
Chemical Treatment (Chloramination)	1	LS	\$ 40,000.00	\$ 40,000.00
Connection to Existing Distribution System	1	LS	\$ 10,000.00	\$ 10,000.00
			Construction Subtotal	\$ 445,000.00
			Engineering, Surveying, Legal (12.5%)	\$ 55,700.00
			Contingencies (15%)	\$ 66,800.00
			Property Acquisition	\$ 50,000.00
<b>TOTAL</b>				<b>\$617,500.00</b>

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## Downtown Fire Protection Improvements-Phase 3

MAP KEY: DW2021-01

This 12" water line project is the third phase of water system improvements to improve the fire flow capacity of the central Liberty Hill area, including downtown and State Highway 29 corridor. This project is divided into three phases based on estimated available funding. The exact alignment has not been determined.

<b>DW2021-01</b>				
<b>Downtown Fire Protection Phase 3</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
12" C900, DR-18 PVC Water Line (w/ Trenching, Locator Tape and Backfill)	1,940	L.F.	\$ 50.00	\$ 97,000.00
M.J. SSB CL-350 D.I. Fittings w/ Restraint Glands	3,500	Lbs	\$ 6.00	\$ 21,000.00
Connection to Existing Water Main	3	Ea.	\$ 7,500.00	\$ 22,500.00
Fire Hydrant Assembly (w/ Hydrant, Lead, Gate Valve, Valve Box and Tee)	5	Ea.	\$ 6,000.00	\$ 30,000.00
2" Combination Air Release Valve (w/ vault, valve and appurtunances)	5	Ea.	\$ 7,500.00	\$ 37,500.00
12" Gate Valve (w/ Valve Box and Restraint Glands)	5	Ea.	\$ 3,000.00	\$ 15,000.00
Open Cut & Encase w/ 18" PVC Casing Pipe (w/ Casing Spacers and End Seals)	100	L.F.	\$ 165.00	\$ 16,500.00
Bore & Encase w/ 18" Steel Casing Pipe (w/ Casing Spacers and End Seals)	200	L.F.	\$ 365.00	\$ 73,000.00
Erosion and Sedimentation Control - Silt Fence	1,640	L.F.	\$ 4.50	\$ 7,380.00
Clearing & Chipping	1,640	L.F.	\$ 10.00	\$ 16,400.00
Trench Safety	1,640	L.F.	\$ 4.00	\$ 6,560.00
			Construction Subtotal	\$ 342,840.00
			Engineering, Surveying, Legal (12.5%)	\$ 42,900.00
			Contingencies (15%)	\$ 51,500.00
<b>TOTAL</b>				<b>\$437,240.00</b>

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## Stubblefield East 12" WTM

MAP KEY: DW2023-01

Similar to the Downtown Fire Protection Improvements, this 12" water line project is to improve water pressure and fire flow capacity along the eastern portion of the Highway 29 corridor. The exact alignment has not been determined.

<b>DW2023-01</b>				
<b>Stubblefield East 12" WTM</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
12" C900, DR-18 PVC Water Line (w/ Trenching, Locator Tape and Backfill)	11,050	L.F.	\$ 50.00	\$ 552,500.00
M.J. SSB CL-350 D.I. Fittings w/ Restraint Glands	10,000	Lbs	\$ 6.00	\$ 60,000.00
Connection to Existing Water Main	2	Ea.	\$ 7,500.00	\$ 15,000.00
Fire Hydrant Assembly (w/ Hydrant, Lead, Gate Valve, Valve Box and Tee)	10	Ea.	\$ 6,000.00	\$ 60,000.00
2" Combination Air Release Valve (w/ vault, valve and appurtunances)	10	Ea.	\$ 7,500.00	\$ 75,000.00
12" Gate Valve (w/ Valve Box and Restraint Glands)	10	Ea.	\$ 3,000.00	\$ 30,000.00
Open Cut & Encase w/ 18" PVC Casing Pipe (w/ Casing Spacers and End Seals)	210	L.F.	\$ 165.00	\$ 34,650.00
Existing Driveway Repair	7	Ea.	\$ 2,500.00	\$ 17,500.00
Bore & Encase w/ 18" PVC Casing Pipe (w/ Casing Spacers and End Seals)	80	L.F.	\$ 315.00	\$ 25,200.00
Bore & Encase w/ 18" Steel Casing Pipe (w/ Casing Spacers and End Seals)	200	L.F.	\$ 365.00	\$ 73,000.00
Erosion and Sedimentation Control - Silt Fence	10,770	L.F.	\$ 4.50	\$ 48,465.00
Clearing & Chipping	10,770	L.F.	\$ 10.00	\$ 107,700.00
Trench Safety	10,770	L.F.	\$ 4.00	\$ 43,080.00
			Construction Subtotal	\$ 1,142,095.00
			Engineering, Surveying, Legal (12.5%)	\$ 142,800.00
			Contingencies (15%)	\$ 171,400.00
<b>TOTAL</b>				<b>\$1,456,295.00</b>

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## Bluebonnet Circle 8" Water Line Extension

MAP KEY: DW2024-01

Similar to the Downtown Fire Protection Improvements, this 8" water line project is to improve water pressure and fire flow capacity along the central portion of the Highway 29 corridor. The exact alignment has not been determined.

DW2024-01				
Bluebonnet Circle 8" Water Line Extension				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
8" C900, DR-18 PVC Water Line (w/ Trenching, Locator Tape and Backfill)	2,200	L.F.	\$ 40.00	\$ 88,000.00
M.J. SSB CL-350 D.I. Fittings w/ Restraint Glands	800	Lbs	\$ 6.00	\$ 4,800.00
Connection to Existing Water Main	2	Ea.	\$ 7,500.00	\$ 15,000.00
Fire Hydrant Assembly (w/ Hydrant, Lead, Gate Valve, Valve Box and Tee)	1	Ea.	\$ 6,000.00	\$ 6,000.00
1" Combination Air Release Valve (w/ vault, valve and appurtunances)	1	Ea.	\$ 5,000.00	\$ 5,000.00
8" Gate Valve (w/ Valve Box and Restraint Glands)	3	Ea.	\$ 2,500.00	\$ 7,500.00
Bore & Encase w/ 12" PVC Casing Pipe (w/ Casing Spacers and End Seals)	30	L.F.	\$ 285.00	\$ 8,550.00
Erosion and Sedimentation Control - Silt Fence	2,200	L.F.	\$ 4.50	\$ 9,900.00
Clearing & Chipping	2,200	L.F.	\$ 10.00	\$ 22,000.00
Trench Safety	2,200	L.F.	\$ 4.00	\$ 8,800.00
			Construction Subtotal	\$ 175,550.00
			Engineering, Surveying, Legal (12.5%)	\$ 22,000.00
			Contingencies (15%)	\$ 26,400.00
<b>TOTAL</b>				<b>\$223,950.00</b>

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## Water Treatment Plant Storage Reservoir

MAP KEY: DW2027-01

This reservoir will store surface water and reclaimed water to allow the water to be blended and have 180 days of water storage for 2mgd of production. The plant site has not been determined, but is expected to be on the south side of Liberty Hill.

DW2027-01				
Water Treatment Plant Storage Reservoir (30 Surface Acres)				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
Excavation (Rock/Soil)	965,333	CY	\$ 5.50	\$ 5,309,333.33
Dam Embankment	965,333	CY	\$ 3.50	\$ 3,378,666.67
Spillway Structure	1	LS	\$ 500,000.00	\$ 500,000.00
Water Intake	2	LS	\$ 500,000.00	\$ 1,000,000.00
			Construction Subtotal	\$ 10,188,000.00
			Engineering, Surveying, Legal (12.5%)	\$ 1,273,500.00
			Contingencies (15%)	\$ 1,528,200.00
<b>TOTAL</b>				<b>\$12,989,700.00</b>

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## Water Treatment Plant

MAP KEY: DW2027-02

This raw water intake, pump station, and transmission main will draw water from Lake Travis, convey it through an 18" pipeline, and deliver it to the water treatment plant storage reservoir, where it will be blended with reclaimed water. The plant site has not been determined, but is expected to be on the south side of Liberty Hill.

<b>DW2027-02</b>				
<b>Raw Water Inake, Pump Station, and Transmission Main</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
Raw Water Intake	1	LS	\$ 2,000,000.00	\$ 2,000,000.00
Raw Water Pump Station	1	LS	\$ 1,000,000.00	\$ 1,000,000.00
18" C905, DR-18 PVC Water Line (w/ Trenching, Locator Tape and Backfill)	118,789	L.F.	\$ 70.00	\$ 8,315,230.00
M.J. SSB CL-350 D.I. Fittings w/ Restraint Glands	144,000	Lbs	\$ 6.00	\$ 864,000.00
18" Gate Valve (w/ Valve Box and Restraint Glands)	6	Ea.	\$ 6,000.00	\$ 36,000.00
Open Cut & Encase w/ 24" PVC Casing Pipe (w/ Casing Spacers and End Seals)	1500	L.F.	\$ 225.00	\$ 337,500.00
Bore & Encase w/ 24" PVC Casing Pipe (w/ Casing Spacers and End Seals)	2000	L.F.	\$ 375.00	\$ 750,000.00
Erosion and Sedimentation Control - Silt Fence	116,789	L.F.	\$ 4.50	\$ 525,550.50
Clearing & Chipping	116,789	L.F.	\$ 10.00	\$ 1,167,890.00
Trench Safety	116,789	L.F.	\$ 4.00	\$ 467,156.00
			Construction Subtotal	\$ 12,463,326.50
			Engineering, Surveying, Legal (12.5%)	\$ 1,558,000.00
			Contingencies (15%)	\$ 1,869,500.00
<b>TOTAL</b>				<b>\$15,890,826.50</b>

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## Water Treatment Plant Finished Water Transmission Main

MAP KEY: DW2027-03

This water treatment plant will treat blended surface water and reclaimed water to allow the water to produce high quality potable water. The plant site has not been determined, but is expected to be on the south side of Liberty Hill.

<b>DW2027-03</b>				
<b>Water Treatment Plant</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
Ultra Filtration Membrane Water Treatment Plant	1	LS	\$ 6,000,000.00	\$ 6,000,000.00
Water Treatment Plant Building	1	LS	\$ 2,500,000.00	\$ 2,500,000.00
Water Treatment Site Improvements	1	LS	\$ 3,250,000.00	\$ 3,250,000.00
Clearwell	1	LS	\$ 1,500,000.00	\$ 1,500,000.00
WTP High Service Pumps	1	LS	\$ 750,000.00	\$ 750,000.00
Site Electrical	1	LS	\$ 1,500,000.00	\$ 1,500,000.00
			Construction Subtotal	\$ 15,500,000.00
			Engineering, Surveying, Legal (12.5%)	\$ 1,937,500.00
			Contingencies (15%)	\$ 2,325,000.00
<b>TOTAL</b>				<b>\$19,762,500.00</b>

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## Water Treatment Plant Finished Water Transmission Main

MAP KEY: DW2027-04

This pipeline will connect the future surface water treatment plant to the distribution system. The alignment will generally be along CR 279. The exact alignment has not been determined.

DW2027-04				
Water Treatment Plant Finished Water WTM				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
24" CL250 Ductile Iron Water Line (w/ Trenching, Locator Tape and Backfill)	5,800	L.F.	\$ 130.00	\$ 754,000.00
M.J. SSB CL-350 D.I. Fittings w/ Restraint Glands	4,000	Lbs	\$ 6.00	\$ 24,000.00
Connection to Existing Water Main	1	Ea.	\$ 7,500.00	\$ 7,500.00
Fire Hydrant Assembly (w/ Hydrant, Lead, Gate Valve, Valve Box and Tee)	2	Ea.	\$ 6,000.00	\$ 12,000.00
2" Combination Air Release Valve (w/ vault, valve and appurtunances)	2	Ea.	\$ 7,500.00	\$ 15,000.00
24" Butterfly Valve (w/ Valve Box and Restraint Glands)	2	Ea.	\$ 10,000.00	\$ 20,000.00
Open Cut & Encase w/ 36" PVC Casing Pipe (w/ Casing Spacers and End Seals)	210	L.F.	\$ 360.00	\$ 75,600.00
Bore & Encase w/ 36" PVC Casing Pipe (w/ Casing Spacers and End Seals)	345	L.F.	\$ 700.00	\$ 241,500.00
Erosion and Sedimentation Control - Silt Fence	5,455	L.F.	\$ 4.50	\$ 24,547.50
Clearing & Chipping	5,455	L.F.	\$ 10.00	\$ 54,550.00
Trench Safety	5,455	L.F.	\$ 4.00	\$ 21,820.00
			Construction Subtotal	\$ 1,250,517.50
			Engineering, Surveying, Legal (12.5%)	\$ 156,400.00
			Contingencies (15%)	\$ 187,600.00
<b>TOTAL</b>				<b>\$1,594,517.50</b>

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September 16, 2019

Mr. Ed Horne

Page 11

Appendix 2: - Wastewater Project Cost Estimates

## Lift Station #4 Upgrade and Force Main Capacity

MAP KEY: WW2020-01

This project includes the permitting, design and construction of upgrades to the existing City of Liberty Hill Lift Station #4 and wastewater force main to provide an additional pumping and force main capacity to support growth in the drainage area. The design includes an additional 0.6 MGD of firm capacity at the lift station and approximately 8,130 LF of 8" PVC wastewater force main and associated appurtenances.

The final force main alignment has not been determined.

WW2020-01				
Lift Station #4 Upgrade and Force Main Capacity				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
Lift Station Upgrade	0.6	MGD	\$ 200,000.00	\$ 120,000.00
8" C900, DR-18 PVC Force Main (w/ Trenching, Locator Tape and Backfill)	8,130	L.F.	\$ 45.00	\$ 365,850.00
8" Full Port Plug Valve (w/ Valve Box and Restraint Glands)	4	Ea.	\$ 4,000.00	\$ 16,260.00
Clean-Out Station (8" Force Main)	2	LS	\$ 18,000.00	\$ 36,000.00
Bore & Encase w/ 12" PVC Casing Pipe (w/ Casing Spacers and End Seals)	180	L.F.	\$ 285.00	\$ 51,300.00
Erosion and Sedimentation Control - Silt Fence	7,950	L.F.	\$ 4.50	\$ 35,775.00
Clearing & Chipping	7,950	L.F.	\$ 15.00	\$ 119,250.00
Trench Safety	7,950	L.F.	\$ 4.00	\$ 31,800.00
			Construction Subtotal	\$ 656,235.00
			Engineering, Surveying, Legal (15%)	\$ 98,500.00
			Contingencies (15%)	\$ 98,500.00
<b>TOTAL</b>				<b>\$853,235.00</b>

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## CR 266 Interceptor - Phase 1

MAP KEY: WW2020-03

This project includes the permitting, design and construction of a 24" wastewater gravity interceptor that serves the area between the South Fork WWTP and Hwy 29 and east of Hwy 183. The design includes approximately 6,670 LF of 24" PVC gravity wastewater main and associated appurtenances.

The final gravity interceptor alignment has not been determined.

WW2020-03				
CR 266 Interceptor - Phase 1				
<i>Item</i>	<i>Qty.</i>	<i>Units</i>	<i>Estimated Unit Cost</i>	<i>Estimated Total Cost</i>
24" PS-115 PVC Wastewater Line (w/ Trenching, Locator Tape and Backfill)	6,670	L.F.	\$ 150.00	\$ 1,000,500.00
60" Diameter Bolted & Sealed Manhole	13	Ea.	\$ 10,000.00	\$ 133,400.00
Manhole Vent	4	Ea.	\$ 2,500.00	\$ 10,000.00
Open Cut & Encase w/ 30" PVC Casing Pipe (w/ Casing Spacers and End Seals)	40	L.F.	\$ 275.00	\$ 11,000.00
Existing Driveway Repair	1	Ea.	\$ 2,500.00	\$ 2,500.00
Bore & Encase w/ 30" PVC Casing Pipe (w/ Casing Spacers and End Seals)	40	L.F.	\$ 475.00	\$ 19,000.00
Bore & Encase w/ 30" Steel Casing Pipe (w/ Casing Spacers and End Seals)	120	L.F.	\$ 525.00	\$ 63,000.00
Erosion and Sedimentation Control - Silt Fence	6,510	L.F.	\$ 4.50	\$ 29,295.00
Clearing & Chipping	6,510	L.F.	\$ 15.00	\$ 97,650.00
Trench Safety	6,510	L.F.	\$ 4.00	\$ 26,040.00
			Construction Subtotal	\$ 1,392,385.00
			Engineering, Surveying, Legal (12.5%)	\$ 174,100.00
			Contingencies (15%)	\$ 208,900.00
<b>TOTAL</b>				<b>\$1,775,385.00</b>

## MUD 12 Lift Station Upgrade and Kauffman Loop Force Main

MAP KEY: WW2020-04

This project includes the permitting, design and construction of improvements to the existing MUD 12 lift station and additional force main to provide pumping for the service area east of Ronald Reagan Blvd. The design includes upgrades to provide 5.0 MGD firm capacity to the existing lift station and approximately 7,760 LF of 12" PVC wastewater force main and associated appurtenances.

The final force main alignment has not been determined.

WW2020-04				
MUD 12 Lift Station Upgrade and Kauffman Loop Force Main				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
Lift Station Upgrade	5.0	MGD	\$ 200,000.00	\$ 1,000,000.00
12" C900, DR-18 PVC Force Main (w/ Trenching, Locator Tape and Backfill)	7,760	L.F.	\$ 60.00	\$ 465,600.00
12" Full Port Plug Valve (w/ Valve Box and Restraint Glands)	4	Ea.	\$ 5,000.00	\$ 19,400.00
Clean-Out Station (12" Force Main)	1	LS	\$ 20,000.00	\$ 20,000.00
Bore & Encase w/ 18" PVC Casing Pipe (w/ Casing Spacers and End Seals)	160	L.F.	\$ 315.00	\$ 50,400.00
Bore & Encase w/ 18" Steel Casing Pipe (w/ Casing Spacers and End Seals)	160	L.F.	\$ 365.00	\$ 58,400.00
Erosion and Sedimentation Control - Silt Fence	7,440	L.F.	\$ 4.50	\$ 33,480.00
Clearing & Chipping	7,440	L.F.	\$ 15.00	\$ 111,600.00
Trench Safety	7,440	L.F.	\$ 4.00	\$ 29,760.00
			Construction Subtotal	\$ 788,640.00
			Engineering, Surveying, Legal (15%)	\$ 118,300.00
			Contingencies (15%)	\$ 118,300.00
<b>TOTAL</b>				<b>\$1,025,240.00</b>

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## MUD 19 Lift Station Upgrade

MAP KEY: WW2020-05

This project includes the permitting, design and construction of improvements to the existing MUD 19 lift station to provide an additional 1.0 MGD of pumping to support the service area north of Hwy 29 and east of Ronald Reagan Blvd. The design includes upgrades to provide an additional 2.0 MGD firm capacity to the existing lift station.

<b>WW2020-05</b>				
<b>MUD 19 Lift Station Upgrade</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
Lift Station Upgrade	2.0	MGD	\$ 200,000.00	\$ 400,000.00
Lift Station Structural Modifications	1.0	LS	\$ 500,000.00	\$ 500,000.00
			Construction Subtotal	\$ 900,000.00
			Engineering, Surveying, Legal (15%)	\$ 135,000.00
			Contingencies (15%)	\$ 135,000.00
<b>TOTAL</b>				<b>\$1,170,000.00</b>

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## CR 260 Interceptor - Phase 2

MAP KEY: WW2022-01

This project includes the permitting, design and construction of a 15" wastewater gravity interceptor that serves the area between the South Fork WWTP and Hwy 29 and east of Hwy 183. The design includes approximately 5,864 LF of 15" PVC gravity wastewater main and associated appurtenances.

The final gravity interceptor alignment has not been determined.

WW2022-01				
CR 260 Interceptor - Phase 2				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
15" SDR-26 PVC Wastewater Line (w/ Trenching, Locator Tape and Backfill)	5,864	L.F.	\$ 120.00	\$ 703,680.00
60" Diameter Bolted & Sealed Manhole	12	Ea.	\$ 10,000.00	\$ 117,280.00
Manhole Vent	4	Ea.	\$ 2,500.00	\$ 10,000.00
Open Cut & Encase w/ 21" PVC Casing Pipe (w/ Casing Spacers and End Seals)	200	L.F.	\$ 195.00	\$ 39,000.00
Existing Driveway Repair	7	Ea.	\$ 2,500.00	\$ 17,500.00
Bore & Encase w/ 21" PVC Casing Pipe (w/ Casing Spacers and End Seals)	30	L.F.	\$ 345.00	\$ 10,350.00
Erosion and Sedimentation Control - Silt Fence	5,834	L.F.	\$ 4.50	\$ 26,253.00
Clearing & Chipping	5,834	L.F.	\$ 15.00	\$ 87,510.00
Trench Safety	5,834	L.F.	\$ 4.00	\$ 23,336.00
			Construction Subtotal	\$ 1,034,909.00
			Engineering, Surveying, Legal (12.5%)	\$ 129,400.00
			Contingencies (15%)	\$ 155,300.00
<b>TOTAL</b>				<b>\$1,319,609.00</b>

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## Hwy 29 FM Capacity Increase CR 214 to Gravity Line

MAP KEY: WW2022-03

This project includes the permitting, design and construction of a wastewater force main to provide an additional force main capacity to support growth west of CR 214 along Hwy 29. The design includes approximately 10,720 LF of 8" PVC wastewater force main and associated appurtenances.

The final force main alignment has not been determined.

WW2022-03				
Hwy 29 FM Capacity Increase CR 214 to Gravity Line				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
8" C900, DR-18 PVC Force Main (w/ Trenching, Locator Tape and Backfill)	10,720	L.F.	\$ 45.00	\$ 482,400.00
8" Full Port Plug Valve (w/ Valve Box and Restraint Glands)	5	Ea.	\$ 4,000.00	\$ 21,440.00
Clean-Out Station (8" Force Main)	5	LS	\$ 18,000.00	\$ 90,000.00
Open Cut & Encase w/ 12" PVC Casing Pipe (w/ Casing Spacers and End Seals)	200	L.F.	\$ 135.00	\$ 27,000.00
Existing Driveway Repair	6	Ea.	\$ 2,500.00	\$ 15,000.00
Bore & Encase w/ 12" PVC Casing Pipe (w/ Casing Spacers and End Seals)	540	L.F.	\$ 285.00	\$ 153,900.00
Bore & Encase w/ 12" Steel Casing Pipe (w/ Casing Spacers and End Seals)	60	L.F.	\$ 335.00	\$ 20,100.00
Erosion and Sedimentation Control - Silt Fence	10,120	L.F.	\$ 4.50	\$ 45,540.00
Clearing & Chipping	10,120	L.F.	\$ 15.00	\$ 151,800.00
Trench Safety	10,120	L.F.	\$ 4.00	\$ 40,480.00
			Construction Subtotal	\$ 1,047,660.00
			Engineering, Surveying, Legal (12.5%)	\$ 131,000.00
			Contingencies (15%)	\$ 157,200.00
<b>TOTAL</b>				<b>\$1,335,860.00</b>

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## West Liberty Hill Wastewater Treatment Plant

MAP KEY: WW2023-01

This project includes the permitting, design and construction of a wastewater treatment plant on the western side of the city of Liberty Hill. The plant will provide service for future growth in the area.

The plant site has not been determined.

WW2023-01				
West Liberty Hill Wastewater Treatment Plant				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
Wastewater Treatment Plant (400,000 GPD)	1	LS	\$ 4,900,000.00	\$ 4,900,000.00
			Construction Subtotal	\$ 4,900,000.00
			Engineering, Surveying, Legal (12.5%)	\$ 612,500.00
			Contingencies (15%)	\$ 735,000.00
<b>TOTAL</b>				<b>\$6,247,500.00</b>

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## South San Gabriel Interceptor

MAP KEY: WW2026-01

This project includes the permitting, design and construction of a 24" wastewater gravity interceptor that serves the South Fork Lift Station and associated South Fork WWTP service area. The design includes approximately 20,700 LF of 24" PVC gravity wastewater main and associated appurtenances.

The final gravity interceptor alignment has not been determined.

<b>WW2026-01</b>				
<b>South San Gabriel Interceptor</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Estimated Unit Cost</b>	<b>Estimated Total Cost</b>
24" PS-115 PVC Wastewater Line (w/ Trenching, Locator Tape and Backfill)	20,700	L.F.	\$ 150.00	\$ 3,105,000.00
60" Diameter Bolted & Sealed Manhole	41	Ea.	\$ 10,000.00	\$ 414,000.00
Manhole Vent	14	Ea.	\$ 2,500.00	\$ 35,000.00
Open Cut & Encase w/ 30" PVC Casing Pipe (w/ Casing Spacers and End Seals)	120	L.F.	\$ 275.00	\$ 33,000.00
Existing Driveway Repair	6	Ea.	\$ 2,500.00	\$ 15,000.00
Bore & Encase w/ 30" PVC Casing Pipe (w/ Casing Spacers and End Seals)	300	L.F.	\$ 475.00	\$ 142,500.00
Bore & Encase w/ 30" Steel Casing Pipe (w/ Casing Spacers and End Seals)	100	L.F.	\$ 525.00	\$ 52,500.00
Erosion and Sedimentation Control - Silt Fence	20,300	L.F.	\$ 4.50	\$ 91,350.00
Clearing & Chipping	20,300	L.F.	\$ 15.00	\$ 304,500.00
Trench Safety	20,300	L.F.	\$ 4.00	\$ 81,200.00
			Construction Subtotal	\$ 4,274,050.00
			Engineering, Surveying, Legal (12.5%)	\$ 534,300.00
			Contingencies (15%)	\$ 641,200.00
<b>TOTAL</b>				<b>\$5,449,550.00</b>

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## South San Gabriel Lift Station and Force Main

MAP KEY: WW2026-02

This project includes the permitting, design and construction of a lift station and force main to provide pumping for the South San Gabriel Interceptor (WW2026-01) and associated service area. The design includes a 9.0 MGD firm capacity lift station and approximately 9,510 LF of 16" PVC wastewater force main and associated appurtenances.

The final lift station location and force main alignment have not been determined.

WW2026-02				
South San Gabriel Lift Station and Force Main				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
Lift Station	9.0	MGD	\$ 500,000.00	\$ 4,500,000.00
16" C900, DR-18 PVC Force Main (w/ Trenching, Locator Tape and Backfill)	9,510	L.F.	\$ 70.00	\$ 665,700.00
16" Full Port Plug Valve (w/ Valve Box and Restraint Glands)	5	Ea.	\$ 10,000.00	\$ 47,550.00
Clean-Out Station (16" Force Main)	3	LS	\$ 30,000.00	\$ 90,000.00
Bore & Encase w/ 24" PVC Casing Pipe (w/ Casing Spacers and End Seals)	160	L.F.	\$ 375.00	\$ 60,000.00
Bore & Encase w/ 24" Steel Casing Pipe (w/ Casing Spacers and End Seals)	380	L.F.	\$ 425.00	\$ 161,500.00
Erosion and Sedimentation Control - Silt Fence	8,970	L.F.	\$ 4.50	\$ 40,365.00
Clearing & Chipping	8,970	L.F.	\$ 15.00	\$ 134,550.00
Trench Safety	8,970	L.F.	\$ 4.00	\$ 35,880.00
			Construction Subtotal	\$ 5,735,545.00
			Engineering, Surveying, Legal (15%)	\$ 860,400.00
			Contingencies (15%)	\$ 860,400.00
<b>TOTAL</b>				<b>\$7,456,345.00</b>

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## Reuse Pump Station Upgrade at South Fork WWTP

MAP KEY: WW2027-01

This project includes the design and construction of upgrades to the existing effluent pump station at the South Fork WWTP.

The final pump station size has not been determined.

WW2027-01				
Reuse Pump Station Upgrade at South Fork WWTP				
<i>Item</i>	<i>Qty.</i>	<i>Units</i>	<i>Estimated Unit Cost</i>	<i>Estimated Total Cost</i>
Reuse Pump Station Upgrade	1	LS	\$ 1,000,000.00	\$ 1,000,000.00
			Construction Subtotal	\$ 1,000,000.00
			Engineering, Surveying, Legal (12.5%)	\$ 125,000.00
			Contingencies (15%)	\$ 150,000.00
<b>TOTAL</b>				<b>\$1,275,000.00</b>

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## Direct Reuse Pump Station for West Liberty Hill WWTP

MAP KEY: WW2027-02

This project includes the permitting, design and construction of a treated effluent pump station to provide pumping to the City of Liberty Hill WTP (DW2027-02) from the West Liberty Hill WWTP (WW2023-01). The design includes a 200,000 GPD firm capacity pump station and associated site work.

WW2027-02				
Direct Reuse Pump Station for West Liberty Hill WWTP				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
Site Work (Erosion Control, Access Road, Grading)	1	LS	\$ 50,000.00	\$ 50,000.00
Concrete Slab and Masonry Pump Building	1	LS	\$ 200,000.00	\$ 200,000.00
Pump Building Equipment (Pumps, Piping, Appurtunances, Crane)	1	LS	\$ 250,000.00	\$ 250,000.00
Yard Piping and Hydropneumatic Tank	1	LS	\$ 150,000.00	\$ 150,000.00
Electrical and Instrumentation	1	LS	\$ 200,000.00	\$ 200,000.00
			Construction Subtotal	\$ 850,000.00
			Engineering, Surveying, Legal (12.5%)	\$ 106,300.00
			Contingencies (15%)	\$ 127,500.00
<b>TOTAL</b>				<b>\$1,083,800.00</b>

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## Direct Reuse from South Fork WWTP to WTP

MAP KEY: WW2027-03

This project includes the permitting, design and construction of a 24" reclaimed water line that conveys treated effluent from the South Fork WWTP to the proposed Liberty Hill WTP. The design includes approximately 28,700 LF of 24" PVC water line and associated appurtenances.

The final water line alignment has not been determined.

WW2027-03				
Direct Reuse from South Fork WWTP to WTP				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
24" CL250 Ductile Iron Water Line (w/ Trenching, Locator Tape and Backfill)	28,700	L.F.	\$ 130.00	\$ 3,731,000.00
24" Butterfly Valve (w/ Valve Box and Restraint Glands)	12	Ea.	\$ 10,000.00	\$ 120,000.00
Blow-Off (24" Water Line)	12	Ea.	\$ 6,000.00	\$ 72,000.00
2" Combination Air Release Valve (w/ vault, valve and appurtenances)	10	Ea.	\$ 7,500.00	\$ 75,000.00
Open Cut & Encase w/ 36" PVC Casing Pipe (w/ Casing Spacers and End Seals)	120	L.F.	\$ 300.00	\$ 36,000.00
Existing Driveway Repair	6	Ea.	\$ 2,500.00	\$ 15,000.00
Bore & Encase w/ 36" PVC Casing Pipe (w/ Casing Spacers and End Seals)	690	L.F.	\$ 400.00	\$ 276,000.00
Bore & Encase w/ 36" Steel Casing Pipe (w/ Casing Spacers and End Seals)	160	L.F.	\$ 450.00	\$ 72,000.00
Erosion and Sedimentation Control - Silt Fence	27,850	L.F.	\$ 4.50	\$ 125,325.00
Clearing & Chipping	27,850	L.F.	\$ 15.00	\$ 417,750.00
Trench Safety	27,850	L.F.	\$ 4.00	\$ 111,400.00
			Construction Subtotal	\$ 5,051,475.00
			Engineering, Surveying, Legal (12.5%)	\$ 631,500.00
			Contingencies (15%)	\$ 757,800.00
<b>TOTAL</b>				<b>\$6,440,775.00</b>

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## Direct Reuse from West Liberty Hill WWTP to WTP

MAP KEY: WW2027-03

This project includes the permitting, design and construction of a 12" reclaimed water line that conveys treated effluent from the West Liberty Hill WWTP to the proposed Liberty Hill WTP. The design includes approximately 23,900 LF of 12" PVC water line and associated appurtenances.

The final water line alignment has not been determined.

WW2027-04				
Direct Reuse from West Liberty Hill WWTP to WTP				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
12" C900, DR-18 PVC Force Main (w/ Trenching, Locator Tape and Backfill)	23,900	L.F.	\$ 60.00	\$ 1,434,000.00
12" Full Port Plug Valve (w/ Valve Box and Restraint Glands)	10	Ea.	\$ 5,000.00	\$ 50,000.00
Blow-Off (24" Water Line)	10	Ea.	\$ 6,000.00	\$ 60,000.00
2" Combination Air Release Valve (w/ vault, valve and appurtenances)	9	Ea.	\$ 7,500.00	\$ 67,500.00
Open Cut & Encase w/ 36" PVC Casing Pipe (w/ Casing Spacers and End Seals)	220	L.F.	\$ 300.00	\$ 66,000.00
Existing Driveway Repair	11	Ea.	\$ 2,500.00	\$ 27,500.00
Bore & Encase w/ 36" PVC Casing Pipe (w/ Casing Spacers and End Seals)	500	L.F.	\$ 400.00	\$ 200,000.00
Erosion and Sedimentation Control - Silt Fence	23,400	L.F.	\$ 4.50	\$ 105,300.00
Clearing & Chipping	23,400	L.F.	\$ 15.00	\$ 351,000.00
Trench Safety	23,400	L.F.	\$ 4.00	\$ 93,600.00
			Construction Subtotal	\$ 2,454,900.00
			Engineering, Surveying, Legal (12.5%)	\$ 306,900.00
			Contingencies (15%)	\$ 368,300.00
<b>TOTAL</b>				<b>\$3,130,100.00</b>

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## North Fork Wastewater Treatment Plant

MAP KEY: WW2028-01

This project includes the permitting, design and construction of a wastewater treatment plant on the North Fork San Gabriel wastewater plant site. The plant will provide service for future growth in the area.

WW2028-01				
North Fork Wastewater Treatment Plant				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
Wastewater Treatment Plant (200,000 GPD)	1	LS	\$ 3,300,000.00	\$ 3,300,000.00
			Construction Subtotal	\$ 3,300,000.00
			Engineering, Surveying, Legal (15%)	\$ 495,000.00
			Contingencies (15%)	\$ 495,000.00
<b>TOTAL</b>				<b>\$4,290,000.00</b>

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## North San Gabriel Interceptor

MAP KEY: WW2028-02

This project includes the permitting, design and construction of a 24" wastewater gravity interceptor that serves the North Fork Lift Station and associated North Fork WWTP service area. The design includes approximately 12,030 LF of 24" PVC gravity wastewater main and associated appurtenances.

The final gravity interceptor alignment has not been determined.

<b>WW2028-02</b>				
<b>North Fork Interceptor</b>				
<b>Item</b>	<b>Qty.</b>	<b>Units</b>	<b>Est. Unit Cost</b>	<b>Est. Total Cost</b>
24" PS-115 PVC Wastewater Line (w/ Trenching, Locator Tape and Backfill)	12,030	L.F.	\$ 150.00	\$ 1,804,500.00
60" Diameter Bolted & Sealed Manhole	24	Ea.	\$ 10,000.00	\$ 240,600.00
Manhole Vent	8	Ea.	\$ 2,500.00	\$ 20,000.00
Bore & Encase w/ 36" Steel Casing Pipe (w/ Casing Spacers and End Seals)	140	L.F.	\$ 450.00	\$ 63,000.00
Erosion and Sedimentation Control - Silt Fence	11,890	L.F.	\$ 4.50	\$ 53,505.00
Clearing & Chipping	11,890	L.F.	\$ 15.00	\$ 178,350.00
Trench Safety	11,890	L.F.	\$ 4.00	\$ 47,560.00
Construction Subtotal				\$ 2,407,515.00
Engineering, Surveying, Legal (12.5%)				\$ 301,000.00
Contingencies (15%)				\$ 361,200.00
<b>TOTAL</b>				<b>\$3,069,715.00</b>

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## North San Gabriel Lift Station and Force Main

MAP KEY: WW2028-03

This project includes the permitting, design and construction of a lift station and force main to provide pumping for the North San Gabriel Interceptor and associated service area. The design includes a 9.0 MGD firm capacity lift station and approximately 10,350 LF of 16" PVC wastewater force main and associated appurtenances.

The final lift station location and force main alignment have not been determined.

WW2028-03				
North Fork Offsite Lift Station and Force Main				
Item	Qty.	Units	Estimated Unit Cost	Estimated Total Cost
Lift Station	9.0	MGD	\$ 500,000.00	\$ 4,500,000.00
16" C900, DR-18 PVC Force Main (w/ Trenching, Locator Tape and Backfill)	10,350	L.F.	\$ 70.00	\$ 724,500.00
16" Full Port Plug Valve (w/ Valve Box and Restraint Glands)	5	Ea.	\$ 10,000.00	\$ 51,750.00
Clean-Out Station (16" Force Main)	3	LS	\$ 30,000.00	\$ 90,000.00
Open Cut & Encase w/ 30" PVC Casing Pipe (w/ Casing Spacers and End Seals)	60	L.F.	\$ 275.00	\$ 16,500.00
Bore & Encase w/ 30" PVC Casing Pipe (w/ Casing Spacers and End Seals)	240	L.F.	\$ 475.00	\$ 114,000.00
Erosion and Sedimentation Control - Silt Fence	10,110	L.F.	\$ 4.50	\$ 45,495.00
Clearing & Chipping	10,110	L.F.	\$ 15.00	\$ 151,650.00
Trench Safety	10,110	L.F.	\$ 4.00	\$ 40,440.00
			Construction Subtotal	\$ 5,734,335.00
			Engineering, Surveying, Legal (12.5%)	\$ 716,800.00
			Contingencies (15%)	\$ 860,200.00
<b>TOTAL</b>				<b>\$7,311,335.00</b>

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