TECHNICAL MEMORANDUM

FREESE AND NICHOLS

Innovative approaches
Practical results
Outstanding service

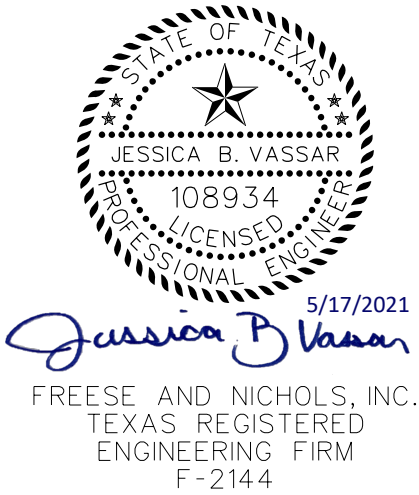
10431 Morado Circle, Suite 300 + Austin, Texas 78759 + 512-617-3100 + FAX 817-735-7491 www.freese.com

TO: Amy Giannini, P.E., City of Pflugerville
Jenna Goolsby, P.E., City of Pflugerville
Patricia Davis, P.E., City of Pflugerville

FROM: Jessica Vassar, P.E., Freese and Nichols, Inc.

SUBJECT: Water and Wastewater Master Plan Update

DATE: May 17, 2021



INTRODUCTION

Freese and Nichols, Inc. (FNI) was contracted by the City of Pflugerville to amend the capital improvement plans (CIPs) developed as part of the 2020 Water Master Plan and 2020 Wastewater Master Plan by FNI. FNI was tasked with revising the CIPs for the water distribution system and wastewater collection system based on updated growth patterns and revised service plans. The scope of the project also included an update to the timing of anticipated 5-year developments and revised cost estimates for proposed CIP projects.

LAND USE AND GROWTH ASSUMPTIONS

FNI updated growth patterns to reflect changes that took place since the completion of the Water and Wastewater Master Plans. The City provided geographic information system (GIS) data to FNI that showed the locations of completed, in-progress, and proposed residential construction. Parcels with completed and in-progress construction that had been previously classified as future development were reclassified as existing development. Parcels with proposed development were classified as developing in the 2021-2025 (5-Year) planning period. These growth patterns were reviewed with City staff and revised based on their input.

During the development of the Water and Wastewater Master Plans, parcels expected to develop in the 5-Year planning period were assigned development percentages of 15%, 50%, or 100%. During this update to growth patterns, it was decided by City and FNI staff that parcels that had been assumed to be 15% developed in the 5-Year planning period in the master plans should instead be assumed to be 5%

developed in the 2021-2025 planning period. Similarly, parcels that had been assumed to be 50% developed in the 5-Year planning period in the master plans should instead be assumed to be 30% developed in the 2021-2025 planning period. FNI updated the 5-Year Development map initially included in the Water and Wastewater Master Plans based on this data. **Figure 1** shows the updated 5-Year Development map that was revised based on analysis by FNI and input from City staff.

The City provided to FNI the current number of water and wastewater connections. FNI used the updated growth patterns and the land use assumptions developed as part of the Water and Wastewater Master Plans to develop updated connection projections. **Table 1** shows the updated connection projections for the Water and Wastewater Service Areas. The Water Service Area is expected to grow by 7.91% by the end of 2026 and by 7.64% between 2027 and 2031. The Wastewater Service Area is expected to grow by 8.16% by the end of 2026 and by 8.24% between 2027 and 2031.

Table 1: Connection Projections by Service Area

Planning Year	Water Connections	Water Connections Annual Growth Rate	Total Wastewater Connections	Wastewater Connections Annual Growth Rate
2021	20,449	-	22,879	-
2026	29,915	7.91%	33,870	8.16%
2031	43,231	7.64%	50,332	8.24%
Buildout	68,415	-	133,744	-

WATER DEMAND PROJECTIONS

Water demands were projected for 2021, 2026, 2031, and Buildout conditions for the City of Pflugerville Water Service Area. The design criteria developed as part of the Water Master Plan was used to project average day water demands. FNI utilized a design residential usage of 440 gallons per connection per day (gpCd), a design maximum day to average day peaking factor of 2.00, and a design peak hour to maximum day peaking factor of 2.00. Wholesale demand projections were included for the City's three existing customers based on the existing agreements, as summarized in the Water Master Plan. It was assumed that the current contracted supply rates would not increase in the future. **Table 2** shows the demand projections for 2021, 2026, 2031, and Buildout for each pressure zone. Demands for Pflugerville customers currently served by Manville WSC were included, as these customers are planned to be served by the City in the future.

FIGURE 1
CITY OF PFLUGERVILLE
5-YEAR DEVELOPMENT

5-YEAR DEVELOPMENT PHASING

- Existing Development
- 5-Year 5% Developed
- 5-Year 30% Developed
- 5-Year 100% Developed
- Future Development

LEGEND

- Wastewater Service Area
- Road
- Stream
- Lake
- Parcel
- City Limit
- ETJ Boundary
- County Boundary

where quality meets life
PFLUGERVILLE
TEXAS

AND FREESE NICHOLS

Created On:5/13/2021

0 2,300 4,600

SCALE IN FEET

Created By Freese and Nichols, Inc
Job No.: PFL18279
Location: H:\W_WW_PLANNING\01_DELIVERABLES\34-CIP Update\Figure_1)-5-Year_Growth.mxd
Updated: Thursday, May 13, 2021 3:57:51 PM
User Name: ISH18

Table 2: Projected Water Demands

Pressure Zone and Overflow Elevation	Number of Connections	Average Day Demand (MGD)[1]	Maximum Day Demand (MGD)[1]	Peak Hour Demand (MGD)
2021				
East Pressure Zone (850')	1,536	0.68	1.35	2.70
Central Pressure Zone (891')	7,639	4.37	7.97	14.69
West Pressure Zone (942')	1,332	0.59	1.17	2.34
960' Pressure Zone (960')	4,751	2.36	5.18	9.36
Pflugerville Subtotal	**15,258**	**8.00**	**15.68**	**29.10**
Manville Central Pressure Zone (900')	5,191	2.28	4.57	9.14
Manville Subtotal	**5,191**	**2.28**	**4.57**	**9.14**
Total	**20,449**	**10.28**	**20.25**	**38.24**
2026				
794' Pressure Zone (794')[2]	3,317	1.46	2.92	5.84
Central Pressure Zone (891')	13,118	6.78	12.79	24.34
West Pressure Zone (942')	1,332	0.59	1.17	2.34
960' Pressure Zone (960')	6,194	3.00	6.45	11.90
Pflugerville Subtotal	**23,960**	**11.82**	**23.34**	**44.42**
Manville Central Pressure Zone (900')	5,955	2.62	5.24	10.48
Manville Subtotal	**5,955**	**2.62**	**5.24**	**10.48**
Total	**29,916**	**14.45**	**28.58**	**54.90**
2031				
794' Pressure Zone (794')[2]	3,916	1.72	3.45	6.89
Central Pressure Zone (891')	22,533	10.92	21.08	40.91
960' Pressure Zone (960')[3]	10,812	5.03	10.51	20.03
Pflugerville Subtotal	**37,261**	**17.68**	**35.04**	**67.83**
Manville Central Pressure Zone (900')	5,971	2.63	5.25	10.51
Manville Subtotal	**5,971**	**2.63**	**5.25**	**10.51**
Total	**43,232**	**20.30**	**40.29**	**78.34**
Buildout				
794' Pressure Zone (794')[2]	7,556	3.32	6.65	13.30
Central Pressure Zone (891')	40,295	18.74	36.71	72.17
960' Pressure Zone (960')[3]	16,041	7.33	15.12	29.23
Pflugerville Subtotal	**63,892**	**29.39**	**58.47**	**114.70**
Manville Central Pressure Zone (900')[4]	4,523	1.99	3.98	7.96
Manville Subtotal	**4,523**	**1.99**	**3.98**	**7.96**
Total	**68,415**	**31.38**	**62.46**	**122.66**

(1) Demands for the Central Pressure Zone include wholesale demands for Manville and City of Manor, and the demands for 960' Pressure Zone include wholesale demands for Windermere.
(2) In 2026, the existing connections in the East Pressure Zone are consolidated into the 794' Pressure Zone.
(3) In 2031, the existing connections in the West Pressure Zone are consolidated into the 960' Pressure Zone.
(4) By Buildout, 596 of the existing Manville Central Pressure Zone connections are included in the 794' Pressure Zone totals.

WASTEWATER FLOW PROJECTIONS

Wastewater flows were projected for 2021, 2026, 2031, and Buildout conditions for the City of Pflugerville Wastewater Service Area. The design criteria developed as part of the Wastewater Master Plan was used to project average day wastewater flows. FNI utilized a per-connection average day flow of 260 gpCd for all wastewater flow projections. **Table 3** shows the flow projections for 2021, 2026, 2031, and Buildout for each sewer basin. The flow treated at the Central WWTP differs due to the amount of flow transferred from various lift stations throughout the wastewater collection system.

Table 3: Projected Wastewater Flows

Sewer Basin	Number of Connections	Average Daily Flow (MGD)
2021		
Central	12,268	3.19
Wilbarger	10,582	2.75
Cottonwood	29	0.01
Total	**22,879**	**5.95**
2026		
Central	17,852	4.64
Wilbarger	15,355	3.99
Cottonwood	663	0.17
Total	**33,870**	**8.81**
2031		
Central	26,273	6.83
Wilbarger	21,009	5.46
Cottonwood	3,050	0.79
Total	**50,332**	**13.09**
Buildout		
Central	41,929	10.90
Wilbarger	36,436	9.47
Cottonwood	55,379	14.40
Total	**133,744**	**34.77**

WATER SYSTEM CAPITAL IMPROVEMENT PLAN UPDATE

The water system CIP developed as part of the Water Master Plan was updated to reflect the changes that took place in the system since the master plan. These changes included the revised growth patterns discussed above, as well as previously proposed projects that had begun design or construction since the master plan was completed. The recommended projects in the 5-Year planning period are presented on **Figure 2**. Locations shown for new water lines and other recommended improvements were generalized for hydraulic analysis. Specific alignments and sites will be determined as part of the design process. It is recommended that these projects be constructed generally in the order listed. However, development patterns may make it necessary to construct some projects sooner or later than anticipated.

Detailed descriptions and opinions of probable construction cost (OPCC) for the proposed 5-Year water system projects are included in **Appendix A**. The OPCCs developed are Class 5 estimates as defined by the American Association of Cost Engineers (AACE). Per AACE, a Class 5 estimate corresponds to a maturity level of project design deliverables between 0 and 2 percent. This is consistent with a typical Master Plan. Based on AACE guidelines and experience on similar projects, FNI estimates that the true project construction cost for the proposed design concept can be expected to fall within -30 to +50 percent of the Class 5 OPCC. **Table 4** summarizes the costs of the 5-Year water capital improvement plan for the City of Pflugerville. The costs are in 2021 dollars and include an allowance for engineering, surveying, and contingencies.

Table 4: 5-Year Water System Capital Improvement Plan

Project No.	Project Name	Cost
1	Colorado River Raw Water Line	$23,348,770
2	12-inch Water Lines in New 794' PZ	$5,685,900
3	36/30-inch Weiss Lane/Kelly Lane Water Lines	$9,468,600
4	20-inch State Highway 130 Water Line	$3,832,000
5	30/24-inch State Highway 130 Water Lines	$8,893,000
6	12-inch Looping Improvements in Central PZ	$2,649,700
7	South Standpipe Rehabilitation	$688,100
8	Chisholm Ground Storage Tanks Rehabilitation	$279,200
9	WTP Clearwell 1 Rehabilitation	$648,100
10	Pfennig Ground Storage Tanks Rehabilitation	$144,300
11	Water Master Plan Update	$350,000
12	5.0-MGD State Highway 45 Pump Station & 1.25-MG GST	$15,762,700
13	30/24-inch State Highway 45 Pump Station Discharge Line	$8,193,500
	Total 2021 – 2025	**$79,943,870**

FIGURE 2
CITY OF PFLUGERVILLE
WATER DISTRIBUTION SYSTEM
5-YEAR CAPITAL IMPROVEMENTS

State Highway 45 Pump Station
(1) - 1.25 MG Ground Storage Tank
5.0 MGD Firm Capacity

1.5 MG Heatherwilde
Elevated Storage Tank
Overflow Elev. = 960 ft.

0.5 MG Falcon Pointe EST

Pfennig
(2) - 0.5 MG Ground Storage Tanks
(2) - 2,200 GPM Pumps
(2) - 2,100 GPM Pumps
Ground Storage Tanks Rehabilitation

Manville West Takepoint

2.5 MG North EST
Overflow Elev. = 891.5'

1.0 MG North Standpipe

Lake Pump Station
Rated Capacity = 18.0 MGD
Expand Firm Capacity to 30.0 MGD

Windermere Takepoint
Ground Storage Tank

Well 6
(1) - 0.5 MG Ground Storage Tank
(3) - 1,200 GPM Pumps

1.5 MG South Standpipe
Overflow Elev. = 942 ft.
Standpipe Rehabilitation

Central PZ Pump Station
Rated Capacity = 17.3 MGD
Expand Firm Capacity to 20.5 MGD
Expand Firm Capacity to 24.0 MGD

Manville East Takepoint

Pflugerville Water Treatment Plant
Rated Capacity = 17.3 MGD
Expand Treatment Capacity to 20.5 MGD
Expand Treatment Capacity to 30.0 MGD
Emergency Generator Power System
Clearwell 1 Rehabilitation

2.0 MG WTP EST
Elevated Storage Tank
Overflow Elev. = 794

794' PZ Pump Station
6.0 MGD Firm Capacity

Chisholm
(2) - 0.25 MG Ground Storage Tanks
(1) - 1,500 GPM Pump
(2) - 900 GPM Pumps
Ground Storage Tanks Rehabilitation

Lake Pump Station

Pflugerville Water Treatment Plant and Central PZ Pump Station

Other Projects

- J — Conversion of Water Meters to AMI
- K — CCN Acquisition
- L — System Rehabilitation Projects
- N — HCA Infrastructure Improvements Water Line
- 1 — Colorado River Raw Water Line
- 11 — Water Master Plan Update

River Pump Station (Not Shown)
Rated Capacity = 10.0 MGD
I — Intake Screen System

PRESSURE ZONES

- 960' Pressure Zone
- Manville Central Pressure Zone
- Central Pressure Zone
- Proposed 794' Pressure Zone
- West Pressure Zone
- East PZ to PFL-794'

LEGEND

Under Design/Construction Improvements
- WTP — Water Treatment Plant
- PS — Pump Station
- Elevated Storage Tank
- Water Line

5-Year Improvements
- WTP — Water Treatment Plant
- PS — Pump Station
- Standpipe
- Ground Storage Tank
- Water Line

Existing Water System
- Valve
- Well
- Standpipe
- Ground Storage Tank
- Elevated Storage Tank
- Road
- Stream
- Lake
- Parcel
- ETJ Boundary
- City Limit
- County Boundary

0 2,000 4,000
SCALE IN FEET

where quality meets life
PFLUGERVILLE TEXAS

Created On: 5/13/2021
FREESE AND NICHOLS

Created By Freese and Nichols, Inc.
Job No.: PFL19239
Filepath: T:\PFL19239_PLANNING\01_DELIVERABLES\34-CIP Update\Figure_2\Water 5-Year Capital Improvements.mxd
Updated: Thursday, May 13, 2021 3:38:35 PM
User Name: 02818

WASTEWATER SYSTEM CAPITAL IMPROVEMENT PLAN UPDATE

The wastewater system CIP developed as part of the Wastewater Master Plan was updated to reflect the changes that took place in the system since the master plan. These changes included the revised growth patterns discussed above, as well as previously proposed projects that had begun design or construction since the master plan was completed. The recommended projects in the 5-Year planning period are presented on **Figure 3**. Locations shown for new wastewater lines and other recommended improvements were generalized for hydraulic analysis. Specific alignments and sites will be determined as part of the design process. It is recommended that these projects be constructed generally in the order listed. However, development patterns may make it necessary to construct some projects sooner or later than anticipated.

Detailed descriptions and opinions of probable construction cost (OPCC) for the proposed 5-Year wastewater system projects are included in **Appendix B**. The OPCCs developed are Class 5 estimates as defined by the American Association of Cost Engineers (AACE). Per AACE, a Class 5 estimate corresponds to a maturity level of project design deliverables between 0 and 2 percent. This is consistent with a typical Master Plan. Based on AACE guidelines and experience on similar projects, FNI estimates that the true project construction cost for the proposed design concept can be expected to fall within -30 to +50 percent of the Class 5 OPCC. **Table 5** summarizes the costs of the 5-Year wastewater capital improvement plan for the City of Pflugerville. The costs are in 2021 dollars and include an allowance for engineering, surveying, and contingencies.

Table 5: 5-Year Wastewater System Capital Improvement Plan

Project No.	Project Name	Cost
1	27-inch Kelly Lane Interceptor	$12,506,000
2	15-inch North Wilbarger Interceptor	$1,920,600
3	15-inch Gilleland Creek Interceptor	$1,453,600
4	18/12-inch North Central Basin Interceptors	$3,025,100
5	8-inch Bohls Place Interceptor	$1,223,500
6	12-inch Club Interceptor	$2,945,300
7	Boulder Ridge Lift Station Expansion	$920,400
8	Wastewater Master Plan Update	$350,000
	Total 2021 – 2025	**$24,344,500**

FIGURE 3
CITY OF PFLUGERVILLE
WASTEWATER SYSTEM
5-YEAR CAPITAL IMPROVEMENTS

Other Projects
- I — System Rehabilitation Projects
- J — Colorado Sands Drive Interceptor
- 8 — Wastewater Master Plan Update

SEWER BASINS
- Central
- Cottonwood Creek
- Wilbarger

PROPOSED IMPROVEMENTS

5-Year Improvements
- Expand Lift Station
- Decommission Lift Station
- Wastewater Line
- Decommission Force Main

LEGEND

Under Design/Construction Improvements
- Lift Station
- Wastewater Treatment Plant
- Wastewater Line
- Force Main
- Decommission Force Main
- Parcel
- City Limit
- ETJ Boundary

Existing Wastewater System
- Lift Station
- Wastewater Treatment Plant
- 10" and Smaller Wastewater Line
- 12" and Larger Wastewater Line
- Force Main
- Road
- Stream
- Lake

where quality meets life
PFLUGERVILLE TEXAS

Created On: 5/13/2021
FREESE AND NICHOLS

Central

Cottonwood Creek

Wilbarger

Highland Park Lift Station — Decommission
Colorado Sands Lift Station
Pfluger Crossing Lift Station — Decommission
Bohls Place Lift Station — Decommission
Club Lift Station — Decommission
Kelly Lane Lift Station — Decommission
Dunes Lift Station — Decommission
Blackhawk Lift Station — Decommission
Falcon Pointe Lift Station — Decommission
Weiss Lane Lift Station — Decommission
Verona Lift Station — Decommission
Vine Creek Lift Station
Central Wastewater Treatment Plant
Treatment Capacity = 5.30 MGD
Expand to Treatment Capacity = 7.25 MGD (Phase 1)
Expand to Treatment Capacity = 8.50 MGD (Phase 2)
Boulder Ridge Lift Station — Expand to Firm Capacity = 0.60 MGD
Renewable Energy Park Lift Station
Carmel Lift Station — Lift Station Upgrades
New Sweden Lift Station
Proposed 6.0 MGD Wilbarger Wastewater Treatment Plant

0 2,500 5,000
SCALE IN FEET

Created By Freese and Nichols, Inc.
Job No.: PFL 19219
Location: H:\W_WW_PLANNING\01_DELIVERABLES\34-CIP Update\Figure_4's\Wastewater 5-Year Capital Improvements.mxd
Updated: Thursday, May 13, 2021 4:00:18 PM
User Name: 02818

APPENDIX A
5-YEAR WATER SYSTEM CAPITAL IMPROVEMENT PLAN
COST ESTIMATES

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 1 — **Phase: 2021-2025**

Project Name: Colorado River Raw Water Line

Project Description:

A second raw water line from the Colorado River, constructed within the City's existing easement, and capacity improvements to the existing Colorado River Pump Station.

Project Driver:

This project will provide additional production capacity to serve growth.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	48-inch Water Line	1	LS	$ 22,573,020	$ 22,573,020
2	Colorado River Pump Station Upgrade	1	LS	$ 775,750	$ 775,750
				SUBTOTAL:	**$ 23,348,770**
			CONTINGENCY	-	$ -
				SUBTOTAL:	**$ 23,348,770**
			ENG/SURVEY	-	$ -
				SUBTOTAL:	**$ 23,348,770**
				Estimated Project Total (2021 Dollars):	**$ 23,348,770**

Note: Cost estimate was provided by City of Pflugerville.

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 2 — **Phase: 2021-2025**

Project Name: 12-inch Water Lines in New 794' PZ

Project Description:

12-inch water lines to serve growth in the new 794' Pressure Zone.

Project Driver:

This project will serve growth in the eastern and southeastern portion of the service area and provide looping improvements for the 794' Pressure Zone.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	12" WL & Appurtenances	13,500	LF	$ 144	$ 1,944,000
2	24" Boring and Casing	1,500	LF	$ 480	$ 720,000
3	Pavement Repair	300	LF	$ 100	$ 30,000
4	ROW Acquisition	405,000	SF	$ 3	$ 1,012,500
				SUBTOTAL:	**$ 3,706,500**
		CONTINGENCY		30%	$ 1,112,000
				SUBTOTAL:	**$ 4,818,500**
		ENG/SURVEY		18%	$ 867,400
				SUBTOTAL:	**$ 5,685,900**
				Estimated Project Total (2021 Dollars):	**$ 5,685,900**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 3 — **Phase: 2021-2025**

Project Name: **36/30-inch Weiss Lane/Kelly Lane Water Lines**

Project Description:

36- and 30-inch water lines along Weiss Lane and Kelly Lane to connect the 36-inch water line under design along Weiss Lane to the existing 30-inch water line under design along Kelly Lane.

Project Driver:

This project will provide additional transmission capacity and serve growth.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	36" WL & Appurtenances	5,200	LF	$ 432	$ 2,246,400
2	30" WL & Appurtenances	5,100	LF	$ 360	$ 1,836,000
3	54" Boring and Casing	500	LF	$ 1,080	$ 540,000
4	48" Boring and Casing	500	LF	$ 960	$ 480,000
5	Pavement Repair	400	LF	$ 100	$ 40,000
6	ROW Acquisition	412,000	SF	$ 3	$ 1,030,000
				SUBTOTAL:	**$ 6,172,400**
		CONTINGENCY		30%	$ 1,851,800
				SUBTOTAL:	**$ 8,024,200**
		ENG/SURVEY		18%	$ 1,444,400
				SUBTOTAL:	**$ 9,468,600**
				Estimated Project Total (2021 Dollars):	**$ 9,468,600**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 4 — **Phase: 2021-2025**

Project Name: **20-inch State Highway 130 Water Line**

Project Description:

20-inch water line along the west side of State Highway 130 from Pflugerville Parkway to Farm to Market 685.

Project Driver:

This project will serve growth along the State Highway 130 corridor and provide looping improvements for the Central Pressure Zone.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	20" WL & Appurtenances	5,900	LF	$ 240	$ 1,416,000
2	Pavement Repair	200	LF	$ 100	$ 20,000
3	ROW Acquisition (Toll Road)	236,000	SF	$ 5	$ 1,062,000
				SUBTOTAL:	**$ 2,498,000**
		CONTINGENCY		30%	$ 749,400
				SUBTOTAL:	**$ 3,247,400**
		ENG/SURVEY		18%	$ 584,600
				SUBTOTAL:	**$ 3,832,000**
				Estimated Project Total (2021 Dollars):	**$ 3,832,000**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 5 — **Phase: 2021-2025**

Project Name: **30/24-inch State Highway 130 Water Lines**

Project Description:

30- and 24-inch water lines along the west side of State Highway 130 from Pecan Street to Pflugerville Parkway.

Project Driver:

This project will serve growth along the State Highway 130 corridor and provide looping improvements for the Central Pressure Zone.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	30" WL & Appurtenances	3,000	LF	$ 360	$ 1,080,000
2	24" WL & Appurtenances	7,900	LF	$ 288	$ 2,275,200
3	48" Boring and Casing	500	LF	$ 960	$ 480,000
4	ROW Acquisition (Toll Road)	436,000	SF	$ 5	$ 1,962,000
				SUBTOTAL:	**$ 5,797,200**
		CONTINGENCY		30%	$ 1,739,200
				SUBTOTAL:	**$ 7,536,400**
		ENG/SURVEY		18%	$ 1,356,600
				SUBTOTAL:	**$ 8,893,000**
				Estimated Project Total (2021 Dollars):	**$ 8,893,000**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 6 — **Phase: 2021-2025**

Project Name: 12-inch Looping Improvements in Central PZ

Project Description:

12-inch water lines in the Central Pressure Zone that will serve new development and improve system operations.

Project Driver:

This project will serve growth and provide increased redundancy.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	12" WL & Appurtenances	6,700	LF	$ 144	$ 964,800
2	24" Boring and Casing	500	LF	$ 480	$ 240,000
3	Pavement Repair	200	LF	$ 100	$ 20,000
4	ROW Acquisition	201,000	SF	$ 3	$ 502,500
				SUBTOTAL:	**$ 1,727,300**
		CONTINGENCY		30%	$ 518,200
				SUBTOTAL:	**$ 2,245,500**
		ENG/SURVEY		18%	$ 404,200
				SUBTOTAL:	**$ 2,649,700**
				Estimated Project Total (2021 Dollars):	**$ 2,649,700**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 7 — **Phase: 2021-2025**

Project Name: South Standpipe Rehabilitation

Project Description:

Rehabilitation of the interior and exterior of the South Standpipe.

Project Driver:

Regular maintenance.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	South Standpipe Rehabilitation	1	LS	$ 688,089	$ 688,089
				SUBTOTAL:	**$ 688,100**
		CONTINGENCY		-	$ -
				SUBTOTAL:	**$ 688,100**
		ENG/SURVEY		-	$ -
				SUBTOTAL:	**$ 688,100**
				Estimated Project Total (2021 Dollars):	**$ 688,100**

Note: Cost estimate was provided by City of Pflugerville.

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 8 — **Phase: 2021-2025**

Project Name: Chisholm Ground Storage Tanks Rehabilitation

Project Description:

Rehabilitation of the interior and exterior of the Chisholm Ground Storage Tanks.

Project Drivers:

Regular maintenance.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Chisholm Ground Storage Tanks Rehabilitation	1	LS	$ 279,200	$ 279,200
				SUBTOTAL:	**$ 279,200**
		CONTINGENCY		-	$ -
				SUBTOTAL:	**$ 279,200**
		ENG/SURVEY		-	$ -
				SUBTOTAL:	**$ 279,200**
				Estimated Project Total (2021 Dollars):	**$ 279,200**

Note: Cost estimate was provided by City of Pflugerville.

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 9 — **Phase: 2021-2025**

Project Name: WTP Clearwell 1 Rehabilitation

Project Description:

Rehabilitation of the interior and exterior of Clearwell 1 at the Water Treatment Plant.

Project Drivers:

Regular maintenance.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	WTP Clearwell 1 Rehabilitation	1	LS	$ 648,048	$ 648,048
				SUBTOTAL:	**$ 648,100**
		CONTINGENCY		-	$ -
				SUBTOTAL:	**$ 648,100**
		ENG/SURVEY		-	$ -
				SUBTOTAL:	**$ 648,100**
				Estimated Project Total (2021 Dollars):	**$ 648,100**

Note: Cost estimate was provided by City of Pflugerville.

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 10 — **Phase: 2021-2025**

Project Name: Pfennig Ground Storage Tanks Rehabilitation

Project Description:

Rehabilitation of the interior and exterior of the Pfennig Ground Storage Tanks.

Project Drivers:

Regular maintenance.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pfennig Ground Storage Tanks Rehabilitation	1	LS	$ 144,236	$ 144,236
				SUBTOTAL:	**$ 144,300**
		CONTINGENCY		-	$ -
				SUBTOTAL:	**$ 144,300**
		ENG/SURVEY		-	$ -
				SUBTOTAL:	**$ 144,300**
				Estimated Project Total (2021 Dollars):	**$ 144,300**

Note: Cost estimate was provided by City of Pflugerville.

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 11 — **Phase: 2021-2025**

Project Name: Water Master Plan Update

Project Description:

An update to the 2020 Water Master Plan.

Project Drivers:

Ongoing water distribution system planning.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Water Master Plan Update	1	LS	$ 350,000	$ 350,000
				SUBTOTAL:	**$ 350,000**
		CONTINGENCY		-	$ -
				SUBTOTAL:	**$ 350,000**
		ENG/SURVEY		-	$ -
				SUBTOTAL:	**$ 350,000**
				Estimated Project Total (2021 Dollars):	**$ 350,000**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 12 — **Phase: 2021-2025**

Project Name: 5.0-MGD State Highway 45 Pump Station & 1.25-MG GST

Project Description:

A 5.0-MGD pump station and 1.25-MG ground storage tank in the northwest corner of the intersection of State Highway 130 and State Highway 45 serving the 960' Pressure Zone. 30-inch water lines along Kelly Lane, the eastern frontage road of State Highway 130, and the northern frontage road of State Highway 45 crossing under State Highway 130, providing a means to fill the ground storage tank from the Central Pressure Zone.

Project Drivers:

This project will provide additional pumping capacity to serve growth in the 960' Pressure Zone.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pump Station - New 5.0 MGD	1	LS	$ 5,376,000	$ 5,376,000
2	1.25 MG Ground Storage Tank	1	LS	$ 937,500	$ 937,500
3	Flow Control Valve with Vault	1	LS	$ 200,000	$ 200,000
4	30" WL & Appurtenances	4,300	LF	$ 360	$ 1,548,000
5	48" Boring and Casing	1,500	LF	$ 960	$ 1,440,000
6	ROW Acquisition (Toll Road)	172,000	SF	$ 5	$ 774,000
				SUBTOTAL:	**$ 10,275,500**
		CONTINGENCY		30%	$ 3,082,700
				SUBTOTAL:	**$ 13,358,200**
		ENG/SURVEY		18%	$ 2,404,500
				SUBTOTAL:	**$ 15,762,700**
				Estimated Project Total (2021 Dollars):	**$ 15,762,700**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 13 — **Phase: 2021-2025**

Project Name: 30/24-inch State Highway 45 Pump Station Discharge Line

Project Description:

30- and 24-inch water lines along the northern frontage road of State Highway 45 and Heatherwilde Boulevard. This project will connect the State Highway 45 Pump Station to the 960' Pressure Zone.

Project Drivers:

This project will provide additional pumping capacity to serve growth in the 960' Pressure Zone.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	30" WL & Appurtenances	4,200	LF	$ 360	$ 1,512,000
2	24" WL & Appurtenances	4,900	LF	$ 288	$ 1,411,200
3	36" Boring and Casing	1,000	LF	$ 720	$ 720,000
4	Pavement Repair	600	LF	$ 100	$ 60,000
5	ROW Acquisition (Toll Road)	364,000	SF	$ 5	$ 1,638,000
				SUBTOTAL:	**$ 5,341,200**
		CONTINGENCY		30%	$ 1,602,400
				SUBTOTAL:	**$ 6,943,600**
		ENG/SURVEY		18%	$ 1,249,900
				SUBTOTAL:	**$ 8,193,500**
				Estimated Project Total (2021 Dollars):	**$ 8,193,500**

APPENDIX B
5-YEAR WASTEWATER SYSTEM CAPITAL IMPROVEMENT PLAN
COST ESTIMATES

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 1 — **Phase: 2021-2025**

Project Name: 27-inch Kelly Lane Interceptor

Project Description:

27-inch interceptor connecting the areas served by the Kelly Lane Lift Station to the existing 36-inch interceptor along Weiss Lane. 15/12-inch interceptors connecting the areas served by the Dunes, Blackhawk, and Falcon Pointe lift stations to the new 27-inch interceptor. Decommissioning of the Kelly Lane, Dunes, Blackhawk, and Falcon Pointe lift stations after completion of the interceptors.

Project Driver:

System reliability and future development in the northwest portion of the Wilbarger Basin.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	27" Pipe 8- 16 feet deep	13,900	LF	$ 320	$ 4,448,000
2	15" Pipe 8- 16 feet deep	500	LF	$ 180	$ 90,000
3	12" Pipe 8- 16 feet deep	900	LF	$ 140	$ 126,000
4	72" Diameter Manhole	18	EA	$ 12,000	$ 216,000
5	60" Diameter Manhole	2	EA	$ 10,000	$ 20,000
6	48" Diameter Manhole	3	EA	$ 5,000	$ 15,000
7	42" Boring and Casing	500	LF	$ 840	$ 420,000
8	24" Boring and Casing	1,000	LF	$ 480	$ 480,000
9	Pavement Repair	300	LF	$ 100	$ 30,000
10	ROW Acquisition	603,000	SF	$ 3	$ 1,507,500
11	Lift Station - Decommission	4	LS	$ 200,000	$ 800,000
				SUBTOTAL:	**$ 8,152,500**
		CONTINGENCY		30%	$ 2,445,800
				SUBTOTAL:	**$ 10,598,300**
		ENG/SURVEY		18%	$ 1,907,700
				SUBTOTAL:	**$ 12,506,000**
				Estimated Project Total (2021 Dollars):	**$ 12,506,000**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 2 — **Phase: 2021-2025**

Project Name: 15-inch North Wilbarger Interceptor

Project Description:

15-inch interceptor extending under State Highway 130 from north of Panther Drive to west of Butler National Drive.

Project Driver:

New development in the northwest portion of the Wilbarger Basin.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	15" Pipe 8- 16 feet deep	1,700	LF	$ 180	$ 306,000
2	60" Diameter Manhole	4	EA	$ 10,000	$ 40,000
3	30" Boring and Casing	1,000	LF	$ 600	$ 600,000
4	ROW Acquisition (Toll Road)	68,000	SF	$ 5	$ 306,000
				SUBTOTAL:	**$ 1,252,000**
		CONTINGENCY		30%	$ 375,600
				SUBTOTAL:	**$ 1,627,600**
		ENG/SURVEY		18%	$ 293,000
				SUBTOTAL:	**$ 1,920,600**
				Estimated Project Total (2021 Dollars):	**$ 1,920,600**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 3 — **Phase: 2021-2025**

Project Name: 15-inch Gilleland Creek Interceptor

Project Description:

15-inch interceptor along Gilleland Creek replacing an existing 12-inch interceptor.

Project Driver:

Insufficient interceptor capacity to meet projected peak flows.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	15" Pipe > 16 feet deep	2,700	LF	$ 225	$ 607,500
2	60" Diameter Manhole	6	EA	$ 10,000	$ 60,000
3	Pavement Repair	100	LF	$ 100	$ 10,000
4	ROW Acquisition	108,000	SF	$ 3	$ 270,000
				SUBTOTAL:	**$ 947,500**
		CONTINGENCY		30%	$ 284,300
				SUBTOTAL:	**$ 1,231,800**
		ENG/SURVEY		18%	$ 221,800
				SUBTOTAL:	**$ 1,453,600**
				Estimated Project Total (2021 Dollars):	**$ 1,453,600**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 4 — **Phase: 2021-2025**

Project Name: **18/12-inch North Central Basin Interceptors**

Project Description:

12-inch interceptor in the northern portion of the Central Basin that will serve new development. 18/12-inch interceptors replacing an existing 8-inch wastewater line east of Pencil Cactus Drive and an existing 15-inch interceptor along Great Basin Avenue.

Project Driver:

Increased flows due to growth in the northern portion of the Central Basin.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	18" Pipe > 16 feet deep	1,800	LF	$ 270	$ 486,000
2	12" Pipe 8- 16 feet deep	4,400	LF	$ 140	$ 616,000
3	60" Diameter Manhole	3	EA	$ 10,000	$ 30,000
4	48" Diameter Manhole	10	EA	$ 5,000	$ 50,000
5	24" Boring and Casing	500	LF	$ 480	$ 240,000
6	Pavement Repair	400	LF	$ 100	$ 40,000
7	ROW Acquisition	204,000	SF	$ 3	$ 510,000
				SUBTOTAL:	**$ 1,972,000**
		CONTINGENCY		30%	$ 591,600
				SUBTOTAL:	**$ 2,563,600**
		ENG/SURVEY		18%	$ 461,500
				SUBTOTAL:	**$ 3,025,100**
				Estimated Project Total (2021 Dollars):	**$ 3,025,100**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 5 — **Phase: 2021-2025**

Project Name: 8-inch Bohls Place Interceptor

Project Description:

8-inch interceptor connecting the Bohls Place development to the State Highway 130 interceptor. Decommissioning of Bohls Place Lift Station after completion of the interceptor.

Project Driver:

System reliability and insufficient firm pumping capacity to meet existing peak flows.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	8" Pipe 8- 16 feet deep	2,100	LF	$ 100	$ 210,000
2	48" Diameter Manhole	6	EA	$ 5,000	$ 30,000
3	20" Boring and Casing	500	LF	$ 400	$ 200,000
4	ROW Acquisition	63,000	SF	$ 3	$ 157,500
5	Lift Station - Decommission	1	LS	$ 200,000	$ 200,000
				SUBTOTAL:	**$ 797,500**
		CONTINGENCY		30%	$ 239,300
				SUBTOTAL:	**$ 1,036,800**
		ENG/SURVEY		18%	$ 186,700
				SUBTOTAL:	**$ 1,223,500**
				Estimated Project Total (2021 Dollars):	**$ 1,223,500**

City of Pflugerville

Capital Improvement Cost Estimate — **Date of Estimate: 5/17/2021**

Construction Project Number: 6 — **Phase: 2021-2025**

Project Name: **12-inch Club Interceptor**

Project Description:

12-inch interceptor connecting the area served by the Club Lift Station to the existing 8-inch interceptor along Wells Branch Parkway. Decommissioning of Club Lift Station after completion of the interceptor.

Project Driver:

System reliability and insufficient firm pumping capacity to meet existing peak flows.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	12" Pipe 8- 16 feet deep	6,500	LF	$ 140	$ 910,000
2	8" Pipe 8- 16 feet deep	500	LF	$ 100	$ 50,000
3	48" Diameter Manhole	17	EA	$ 5,000	$ 85,000
4	Pavement Repair	1,500	LF	$ 100	$ 150,000
5	ROW Acquisition	210,000	SF	$ 3	$ 525,000
6	Lift Station - Decommission	1	LS	$ 200,000	$ 200,000
				SUBTOTAL:	**$ 1,920,000**
		CONTINGENCY		30%	$ 576,000
				SUBTOTAL:	**$ 2,496,000**
		ENG/SURVEY		18%	$ 449,300
				SUBTOTAL:	**$ 2,945,300**
				Estimated Project Total (2021 Dollars):	**$ 2,945,300**

City of Pflugerville

Capital Improvement Cost Estimate	**Date of Estimate: 5/17/2021**
Construction Project Number: 7	**Phase: 2021-2025**
Project Name:	**Boulder Ridge Lift Station Expansion**

Project Description:

Expansion of Boulder Ridge Lift Station from a firm capacity of 0.33 MGD to 0.60 MGD.

Project Driver:

Insufficient firm pumping capacity to meet existing peak flows.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	0.3 MGD Lift Station Expansion	1	LS	$ 500,000	$ 500,000
2	Generator	1	LS	$ 100,000	$ 100,000
				SUBTOTAL:	**$ 600,000**
		CONTINGENCY		30%	$ 180,000
				SUBTOTAL:	**$ 780,000**
		ENG/SURVEY		18%	$ 140,400
				SUBTOTAL:	**$ 920,400**
				Estimated Project Total (2021 Dollars):	**$ 920,400**

City of Pflugerville

Capital Improvement Cost Estimate	**Date of Estimate: 5/17/2021**
Construction Project Number: 8	**Phase: 2021-2025**
Project Name:	**Wastewater Master Plan Update**

Project Description:

An update to the 2020 Wastewater Master Plan.

Project Drivers:

Ongoing wastewater collection system planning.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Wastewater Master Plan Update	1	LS	$ 350,000	$ 350,000
				SUBTOTAL:	**$ 350,000**
		CONTINGENCY		-	$ -
				SUBTOTAL:	**$ 350,000**
		ENG/SURVEY		-	$ -
				SUBTOTAL:	**$ 350,000**
				Estimated Project Total (2021 Dollars):	**$ 350,000**