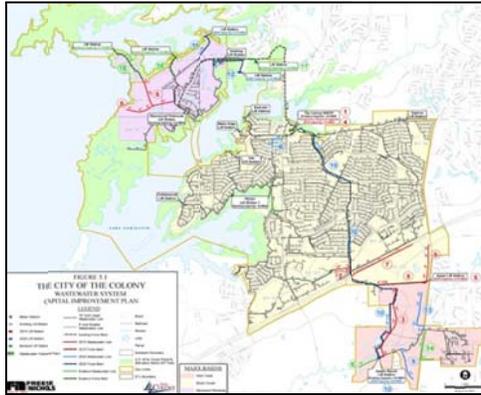




Innovative approaches
Practical results
Outstanding service



Wastewater Master Plan Update

Prepared for:

City of The Colony

April 2011

Prepared by:

FREESE AND NICHOLS, INC.
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FNI Project Number: COY10279
City Purchase Order 10-01547

Wastewater Master Plan Update

Prepared for:

City of The Colony



FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

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Executive Summary

Freese and Nichols, Inc. (FNI) was retained by the City of The Colony in 2010 to update the Wastewater Master Plan. The previous master plan was completed in 2006 and an amendment to the Master Plan was completed by FNI in 2008. Since that time, population projections and distribution have been updated. The updated population projections are generally less aggressive than previous projections. The purpose of this project is to evaluate the proposed collection system and to determine the effect the reduced flow projections have on the capital improvement plan.

FNI was provided updated populations, water billing data, existing land use, and growth points for future development by Alan Plummer and Associates, Inc. (APAI). The buildout population has been reduced by 6,073 people. FNI analyzed recent wastewater flow data and adjusted the per capita flow and peaking factors for residential and commercial developments. The updated population and land use data, accompanied by the revised per capita flow and peaking factors, were used to develop updated wastewater flow projections.

The Colony has constructed a number of recommended improvements from the 2008 Wastewater Master Plan Amendment. In the Stewart Creek Basin, Master Lift Station 1 has been expanded. The gravity lines along Curry Road and south of the wastewater treatment plant have also been replaced. In the Indian Creek Basin, the Austin Ranch Lift Station has been constructed and gravity lines between the Indian Creek Lift Station and the Austin Ranch Lift Station are complete. Gravity lines southwest and east of Wynnwood Peninsula Lift Station have been completed in the Wynnwood Peninsula Basin.

The hydraulic model from the 2008 Wastewater Master Plan Amendment was modified to include recently constructed projects and updated flow projections based on the updated populations and land use. The updated model was then utilized to conduct model runs for the 2010, 2015, 2020, and Buildout planning periods. The model results were used to evaluate the proposed capital improvement plan. The model results

indicate that some projects can be reduced in size or not built at all due to the reduction in flows.

The Capital Improvements Plan (CIP) was updated to reflect these changes. The revised CIP also reflects changes in phasing and improvements that have been constructed since the completion of the 2008 Master Plan Amendment. **Table ES.1** summarizes the costs of the wastewater CIP.

Table ES.1 Wastewater System Capital Improvements Plan Costs

Planning Period	Wastewater System Capital Cost
2011-2015	\$12,485,780
2016-2020	\$7,107,130
2021-Buildout	\$1,869,810
TOTAL	\$21,462,720

1.0 Introduction

Freese and Nichols, Inc. (FNI) was retained in 2010 by the City of The Colony to evaluate the City's existing wastewater collection system and to recommend an updated Capital Improvements Plan (CIP) through buildout. The previous master plan was completed in 2006 and an amendment to the Master Plan was completed by FNI in 2008. Since that time, population projections and distribution have been updated. The updated population projections are generally less aggressive than previous projections. The purpose of this project is to evaluate the proposed collection system and to determine the effect the reduced flow projections have on the capital improvement plan.

1.1 Scope of Work

The major elements of the scope of this project include:

- Update wastewater flow projections for 5-year, 10-year, and Buildout Conditions
- Update the wastewater system hydraulic model
- Hydraulic modeling of wastewater system
- Update Capital Improvement Plan, CIP Schedule and CIP Mapping
- Prepare Wastewater Master Plan Update Report

1.2 List of Abbreviations

The abbreviations used in this report are presented in the table below.

Abbreviation	Actual
APAI	Alan Plummer and Associates, Inc.
CIP	Capital Improvements Plan
FM	Force Main
FNI	Freese and Nichols, Inc.
GIS	Geographic Information System
GM	Gravity Main
gpcd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
IC	Indian Creek
I/I	Infiltration and Inflow
LS	Lift Station
MG	Million Gallons
MGD	Million Gallons per Day
MLS	Master Lift Station
SC	Stewart Creek
WP	Wynnwood Peninsula
WWTP	Wastewater Treatment Plant

2.0 Revised Populations and Wastewater Flows

The population and flow projections were updated based on information received from the Alan Plummer and Associates, Inc. (APAI) who is currently updating the City's Water Master Plan. APAI provided metered water billing data, existing land use, and growth points for future developments. A map of the updated land use is shown on **Figure 2.1**. A map of the geocoded billing data provided by APAI is shown in **Appendix A**. The buildout population of the City was reduced from 73,673 people to 67,600 people. The updated population distribution was based on the percentage of water usage in each basin. Existing land use was summarized by sub-basin for residential and commercial land use. Each growth point provided by Alan Plummer was assigned to a sub-basin and the population and developed acres were added to the planning year indicated by APAI. Growth Point 2 was split between sub-basins WP-1 and WP-2 and growth point 10 was split between sub-basins WP-5 and WP-3 based on discussions with APAI staff. APAI also called for an additional 1,800 people to fill in the Stewart Creek Basin. To distribute the additional population, FNI determined the percentage of vacant land per sub-basin using the land use shapefile. The additional 1,800 people were proportionally assigned to the areas of the Stewart Creek Basin with the most vacant land. The planning years for this study are 2010, 2015, 2020, and Buildout. Since the APAI study did not include 2015 as a planning year, the populations and flows for 2015 were calculated using straight line interpolation.

FNI analyzed recent wastewater flow data from the treatment plant to revise per capita flow and the peaking factors for residential and commercial developments. The Colony currently experiences minimal infiltration and inflow (I/I), but I/I is expected to increase in the future as the system ages. The updated flow projections reflect this increase by raising the peak I/I allowance from 800 gallons per day per acre in 2010 to 1,000 gallons per day per acre at buildout. A summary of the revised flow projections is shown in

Table 2.1. The complete tables including populations and commercial and industrial land use are provided in **Appendix B**.

Table 2.1 **Projected Population and Wastewater Flows**

Year	Population	Average Dry Weather Flow (MGD)	Peak Wet Weather Flow (MGD)
2010	40,500	3.96	13.19
2015	48,350	4.57	15.27
2020	56,200	5.19	17.39
Buildout	67,600	6.12	20.78

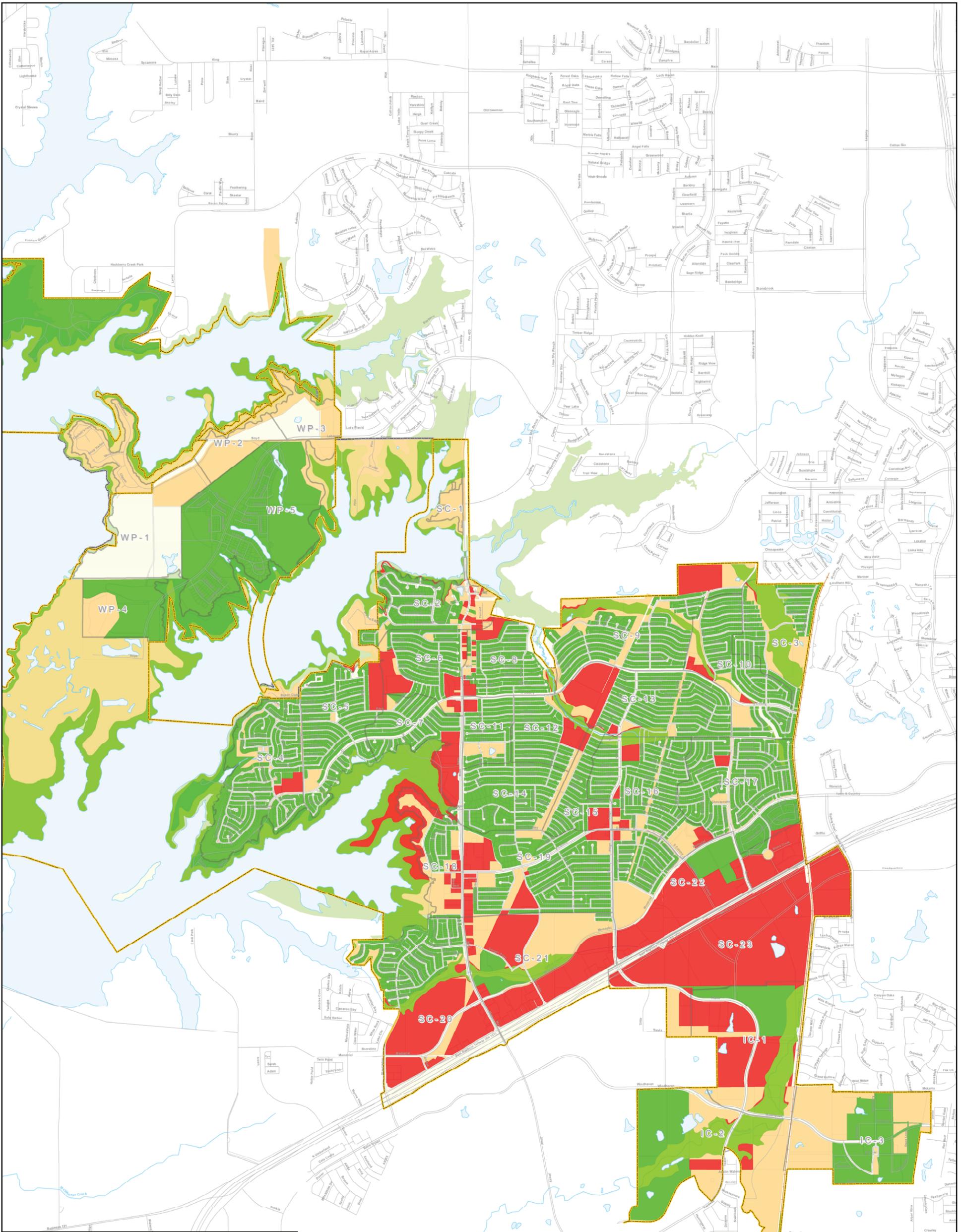


FIGURE 2.1
THE CITY OF THE COLONY
LAND USE BY SUBBASIN

LEGEND

- | | |
|--|-----------------|
| Road | Non-Residential |
| Railroad | Residential |
| Stream | Floodplain |
| Lake | Vacant |
| Parcel | City Limits |
| Subbasin Boundary | ETJ Boundary |
| U.S. Army Corps Property
(Elevation Below 537 Feet) | |



3.0 Wastewater System Overview

A number of recommended improvements from the 2008 Wastewater Master Plan Amendment have since been constructed. In the past three years, The Colony has primarily experienced growth on the Wynnwood Peninsula and in Austin Ranch. This growth has resulted in improvements on the Wynnwood Peninsula, in Austin Ranch, and on the lines between Austin Ranch and the wastewater treatment plant.

On the Wynnwood Peninsula, the gravity line southwest of the Wynnwood Peninsula Lift Station has been completed. The gravity line on the east end of the Wynnwood Peninsula has also been completed. In Austin Ranch, the lift station and force main are complete as well as the portion of the gravity line from the Indian Creek Lift Station to the Austin Ranch Lift Station. These improvements allow flow to go through the Austin Ranch Lift Station to The Colony Wastewater Treatment Plant instead of through the Indian Creek Lift Station. The Master Lift Station 1 has been expanded to a firm capacity of 10 MGD and has a slot for an additional 5 MGD pump. The gravity lines going to the wastewater treatment plant from Master Lift Station 1 have also been updated including the lines south of the WWTP and portions of lines along Curry Road. An updated map of the existing system is shown on **Figure 3.1**. The updated capital improvements plan is detailed in **Section 5.0**.

The Colony's wastewater system is well maintained and experiences very little infiltration and inflow (I/I). The City does not experience any surcharging in the existing system. The Colony primarily has residential development and the majority of commercial development is along SH121 and FM423.

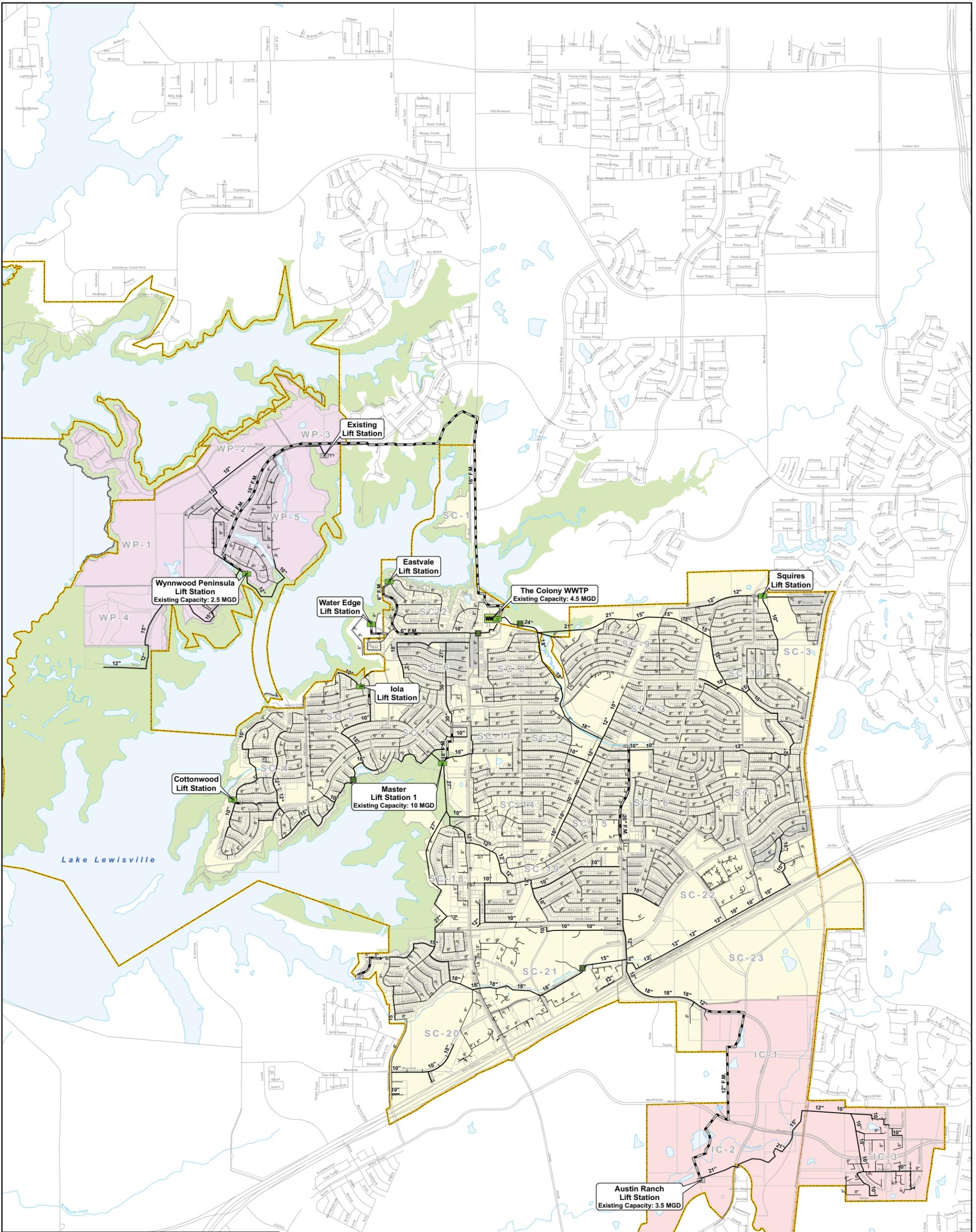


FIGURE 3.1
THE CITY OF THE COLONY
EXISTING WASTEWATER SYSTEM
LEGEND

- | | |
|--------------------------------|---|
| Meter Station | Road |
| Modeled Lift Station | Railroad |
| Existing Lift Station | Stream |
| Wastewater Treatment Plant | Lake |
| 10" and Larger Wastewater Line | Parcel |
| 8" and Smaller Wastewater Line | Subbasin Boundary |
| Existing Force Main | U.S. Army Corps Property (Elevation Below 537 Feet) |
| | City Limits |
| | ETJ Boundary |

MAJOR BASINS

- Indian Creek
- Stewart Creek
- Wynwood Peninsula



4.0 Wastewater System Hydraulic Analysis

The H2OMap Sewer model from the 2006 Wastewater Master Plan was updated to include recently constructed wastewater lines. Wastewater loadings were redistributed to reflect the updated flow projections based on the revised population distribution. The model was run under peak wet weather conditions to verify the recommended improvements are sized properly. The ratio of actual flow depth to the diameter of the pipe (d/D) was 0.90 or less in all buildout lines. This number indicates no surcharging in the collection system. The lift stations were sized to handle peak wet weather flows. The wastewater treatment plant was sized to handle average day dry weather flow. Graphs of the treatment plant capacity are shown in **Appendix C**.

As a result of the reduced population and wastewater flows, a number of projects have been reduced in size or eliminated. The capacities of the lift stations on the Wynnwood Peninsula were reduced, and the diameters of the associated gravity lines were also reduced. The reduced flows on the Wynnwood Peninsula also eliminate the need for an expansion to the Wynnwood Peninsula lift station. The existing 18-, 21-, and 27-inch gravity line carrying flow from the Indian Creek Basin through the Stewart Creek Basin to upstream of Master Lift Station 1 was shown to have adequate capacity through buildout without additional improvements with the exception of the portion of the line near SH121 east of the meter. The decrease in flows also eliminated the need for an expansion to the Master Lift Station 1. The diameter of the gravity line along SH121 was reduced. The majority of the lines in Austin Ranch were reduced and one of the expansions at the Austin Ranch lift station is no longer necessary. A table of the changes in the capital improvement plan from the 2008 Amendment can be found in **Appendix C**. Overall no additional line improvements were identified due to the change in flow distribution, and most projects were reduced in scope or diameter. The improvements were phased for 2011 to 2015, 2016 to 2020, and 2021 to Buildout. The detailed improvements are shown in **Section 5.0**.

5.0 Updated Wastewater System CIP

The unit costs used to develop the opinion of probable project costs for future wastewater projects are shown in **Table 5.1**. Unit costs for future projects are based on bid tab review for similar projects and are in 2010 dollars. Construction costs, contingency, and engineering costs are all estimated in the total cost. Special services such as environmental permitting, land agent costs and geotechnical investigations are not including in the estimates. These costs are typically not known before more detailed study of each project is performed during the preliminary engineering design phase. Construction costs do not include individual service connections, or subdivision internal collectors.

Table 5.1 Estimated Unit Cost for Wastewater System Construction in Year 2010 Dollars

4" Force Main	8" Force Main	16" Force Main	20" Force Main	6" Sewer Line	8" Sewer Line
\$24 per LF	\$48 per LF	\$96 per LF	\$120 per LF	\$36 per LF	\$48 per LF
10" Sewer Line	12" Sewer Line	18" Sewer Line	21" Sewer Line	30" Sewer Line	36" Sewer Line
\$60 per LF	\$72 per LF	\$108 per LF	\$126 per LF	\$180 per LF	\$216 per LF
Boring & 18" Casing	Boring & 20" Casing	Pavement Repair	48" Diameter Manhole	60" Diameter Manhole	72" Diameter Manhole
\$250 per LF	\$300 per LF	\$50 per LF	\$5,000 each	\$6,000 each	\$6,000 each

The 2010 Wastewater Capital Improvement Plan (CIP) has three planning periods: 2011 to 2015, 2016 to 2020, and 2021 to Buildout. All of the proposed improvements are shown in **Figure 5.1**. Opinions of probable cost for all CIP Projects are provided in **Appendix D**. 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 than anticipated. **Table 5.2** summarizes the costs of the wastewater CIP.

Table 5.2 Wastewater System Capital Improvements Plan Costs

	Proj. No.	Wastewater System Capital Improvement Plan	Cost
2011-2015	1	WWTP Phosphorus Removal Upgrade	\$ 430,010
	2	Replace Existing Lines between SH121 Crossing and Meter Station	\$ 366,590
	3	Serve Growth in Austin Ranch West of Plano Parkway	\$ 1,040,500
	4	Expand Wastewater Treatment Plant Capacity	\$ 8,250,000
	5	Serve Growth in North Austin Ranch	\$ 1,113,110
	6	Extend Lines to Serve WP-1	\$ 669,530
	7	New Gravity Sewer to Serve South Side of SH121	\$ 616,040
Total 2011-2015			\$ 12,485,780
2016-2020	8	Gravity Line along Curry Road	\$ 788,020
	9	Service for Southeast Austin Ranch	\$ 383,090
	10	Expand Austin Ranch Lift Station Capacity and Extend Force Main	\$ 4,620,240
	11	Extend Collection System on Wynnwood Peninsula to serve WP-3	\$ 437,420
	12	Lift Station East of Wynnwood Peninsula	\$ 474,840
	13	Serve Growth in Austin Ranch East of Plano Parkway	\$ 403,520
Total 2016-2020			\$ 7,107,130
2021-Buildout	14	Serve New Development in East Austin Ranch in IC-3	\$ 324,860
	15	Extend Collection System in IC-2	\$ 211,140
	16	Extend Collection System on Wynnwood Peninsula to WP-2	\$ 406,330
	17	Lift Station East of Wynnwood Peninsula	\$ 473,180
	18	Lift Station on Northwest Wynnwood Peninsula	\$ 454,300
Total 2021-Buildout			\$ 1,869,810
Grand Total			\$ 21,462,720

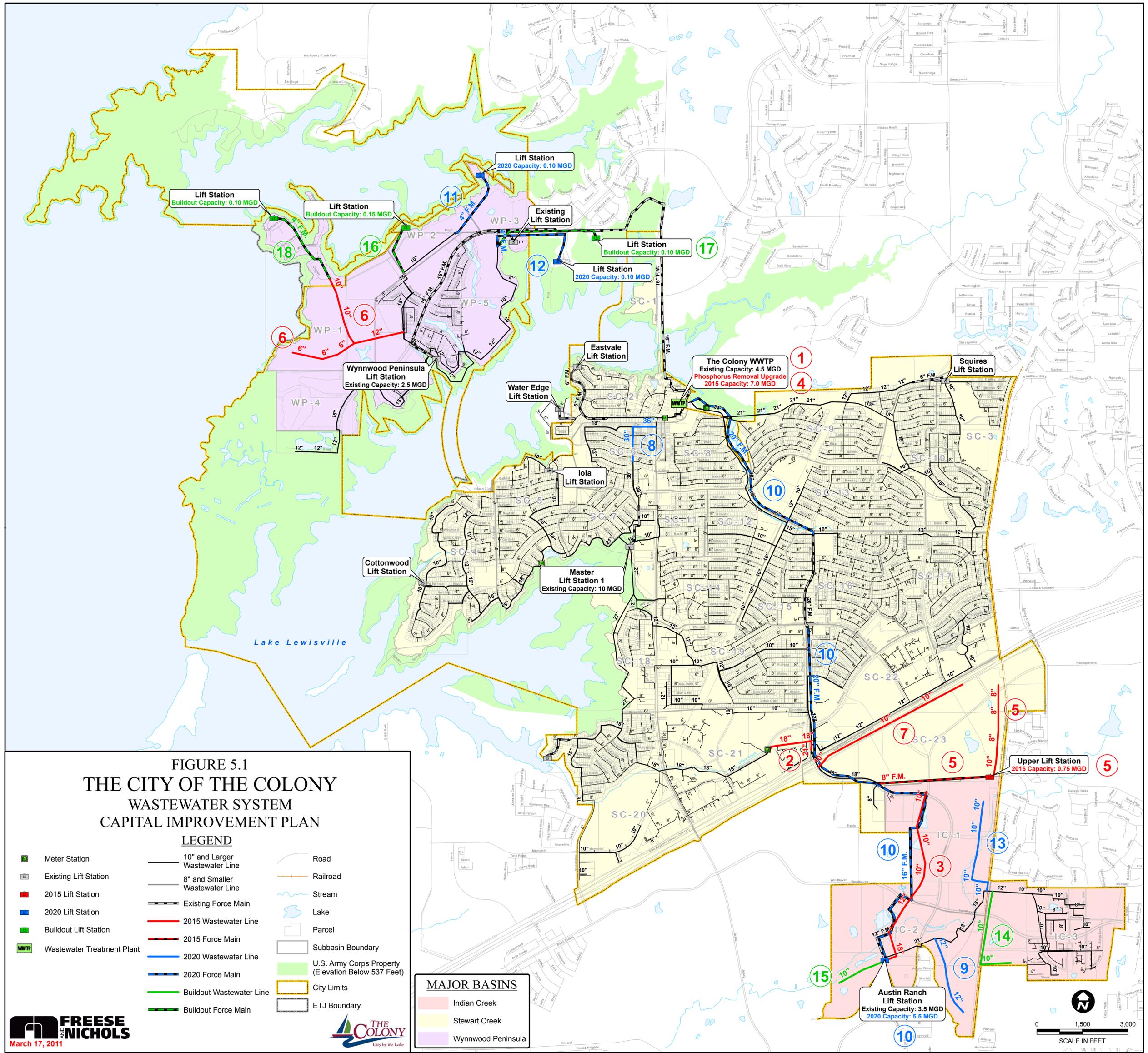


FIGURE 5.1
THE CITY OF THE COLONY
WASTEWATER SYSTEM
CAPITAL IMPROVEMENT PLAN

LEGEND

- | | | |
|----------------------------|--------------------------------|---|
| Meter Station | 10" and Larger Wastewater Line | Road |
| Existing Lift Station | 8" and Smaller Wastewater Line | Railroad |
| 2015 Lift Station | Existing Force Main | Stream |
| 2020 Lift Station | 2015 Wastewater Line | Lake |
| Buildout Lift Station | 2015 Force Main | Parcel |
| Wastewater Treatment Plant | 2020 Wastewater Line | Subbasin Boundary |
| | 2020 Force Main | U.S. Army Corps Property (Elevation Below 537 Feet) |
| | Buildout Wastewater Line | City Limits |
| | Buildout Force Main | ETJ Boundary |

MAJOR BASINS

- Indian Creek
- Stewart Creek
- Wynwood Peninsula

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 Job No.: 00110079
 Location: 11101 JW FARMER/DELIVERABLES/DRAFT_Report_01-25-10/Figure_5-1_Wastewater_CIP.mxd
 Issued: Thursday, February 03, 2011

5.1 Wastewater System Improvements from 2011 to 2015

The population of The Colony is projected to be 48,350 by 2015. Growth during this time period is expected to occur primarily in the Wynnwood Peninsula in the northwest portion of the City, and in the Austin Ranch area south of SH121. FNI recommends several wastewater collection system improvements for the 2011 to 2015 planning period to serve these areas, and to increase the capacity of the system.

Project (1) – Wastewater Treatment Plant Phosphorus Removal Upgrade

Project (1) is an upgrade to the phosphorus removal at the wastewater treatment plant. The City will need to make this improvement once they have a three month running average of 3.39 MGD at the treatment plant. This improvement is detailed in the *City of The Colony Wastewater Treatment Plant Capacity Evaluation* prepared by FNI for the City.

Project (2) – Replace Existing Lines between SH121 Crossing and Meter Station

An existing 18-inch gravity sewer serving existing development on the south side of SH121 in the Austin Ranch area crosses SH121 on the east side of Plano Parkway. This section of pipe was modeled using pipe invert elevations measured at manholes during a previous project using surveying equipment. Model results indicate that this section of pipe has sufficient capacity for estimated existing flows. The city is monitoring this location with a flow meter and is prepared to the replace the section of line with a 21-inch line. Project (2) also includes replacing the 12- and 15-inch line from Paige Road to the meter station with an 18-inch line. This improvement is sized to handle flows through buildout.

Project (3) – Serve Growth in Austin Ranch West of Plano Parkway

There are no existing sewer facilities on the west side of Plano Parkway. Project (3) is a 10/12/18/21-inch gravity line to serve projected growth in this area. The line starts with a 10-inch diameter on the north side of the east-west portion of

Plano Parkway, and heads south, crossing the road. The line continues southward increasing to a 12-inch, crosses Windhaven Parkway, and increases to an 18-inch diameter as the line nears the Austin Ranch lift station. On the southern end a 21-inch line connects to the Austin Ranch lift station.

Project (4) – Expand Wastewater Treatment Plant Capacity

The existing capacity of The Colony wastewater treatment plant is 4.5 MGD. Project (4) will expand the plant treatment capacity to 7.0 MGD. The Phase III improvements detailed in the 2003 *City of The Colony Wastewater Treatment Plant Capacity Evaluation* prepared by FNI for the City makes specific recommendations for expanding the plant capacity from 4.5 MGD to 7.0 MGD. In addition to expanding the plant capacity, the Phase III improvements include sludge thickening and dewatering improvements, and increasing the effluent filter capacity.

Project (5) – Serve Growth in North Austin Ranch

Project (5) consists of 8/10-inch gravity lines to serve the area in east SC-23. The 8-inch line will start south of SH121 and follow the railroad/City Limit south, and connect to the upper lift station. The firm capacity of the lift station is 0.75 MGD and the lift station will have an 8-inch force main from the lift station to Plano Parkway. The force main connects to the existing system at the existing 18-inch line where the Austin Ranch force main ends.

Project (6) – Extend Collection System of Wynnwood Peninsula to Serve WP-1

Project (6) consists of a 6/12-inch line to serve the southwest portion of sub-basin WP-1, and a 10-inch line to serve the remainder of the basin. The 10-inch line flows from north to south and has been sized to serve existing houses in the far northwest portion of the basin.

Project (7) – New Gravity Sewer to Serve South Side of SH121

As development occurs along the south side of SH121 in northern Austin Ranch, new facilities will be required. A 10-inch line paralleling the south side of SH121 is recommended to serve this area. The line will cross Plano Parkway and connect to the existing 18-inch gravity line on the east side of the road.

5.2 Wastewater System Improvements from 2016 to 2020

The population of The Colony is projected to be 56,200 by 2020. Continued growth along SH 121 and in Austin Ranch is anticipated during this time period. FNI recommends several wastewater collection system improvements for the 2016 to 2020 planning period to serve these areas and to increase the capacity of some of the existing facilities that will see increased flow due to new development.

New sewer lines will be required to serve portions of Austin Ranch north of Windhaven Parkway, and in the southeast corner of Austin Ranch as development occurs in these areas. New development in these areas will result in increased flow to the Austin Ranch lift station and improvements will be needed, including extending the force main to the Stewart Creek wastewater treatment plant. FNI recommends the following improvements to serve the needs of projected growth during the 2016 to 2020 planning period.

Project (8) – Gravity Line along Curry Road

The existing 24/30-inch West trunk main along Curry Road does not have sufficient capacity to carry the flow from additional growth. A 30/36-inch line, Project (8) is recommended to replace the existing line from Larner Street to new 30-inch line along Lake Highlands.

Project (9) – Service for Southeast Austin Ranch

A new 12-inch gravity line will be required to serve the far southeast portion of Austin Ranch. This line will connect to the existing line that crosses the southern portion of Austin Ranch connecting on the east side of Plano Parkway.

Project (10) – Expand Austin Ranch Lift Station Capacity and Extend Force Main

As Austin Ranch grows the capacity of the lift station serving the area will need to be expanded from 3.5 MGD to 5.5 MGD, Project (10). A 16-inch force main will be constructed parallel to the existing 12-inch force main. This 16-inch line connects to an 18-inch gravity line (the SW trunk main) that follows Memorial Drive, and eventually terminates at MLS-1. If the Austin Ranch force main remains connected to this gravity system, the existing SW trunk main from Paige Road to MLS-1 will not have sufficient capacity. In order to avoid expanding the capacity of this large diameter line, it is recommended to extend the existing force main to The Colony Wastewater Treatment Plant. Extending the force main will also eliminate the need for expansion at MLS-1. A portion of the 20-inch force main along Paige Road has already been built from Worley Drive to Yager Drive, but it will not be in service until the rest of the force main is built. Because of the longer force main the original pumps will need to be replaced with higher head and higher capacity pumps. Therefore Project (10) includes for a new pumps with a 5.5 MGD firm capacity.

Project (11) – Extend Collection System on Wynnwood Peninsula to serve WP-3

As sub-basin WP-3 begins to develop, the proposed collection system will need to be extended. Project (11) consists of a new 0.10 MGD lift station and a 4-inch force main.

Project (12) – Lift Station East of Wynnwood Peninsula

Due to growth east of the Wynnwood peninsula, a lift station is recommended to pump flow from the development area to the existing 8-inch line. Project (12) is a 0.1 MGD lift station with a 4-inch force main.

Project (13) – Serve Growth in Austin Ranch East of Plano Parkway

Project (13) consists of 10-inch gravity lines to serve the area east of Plano Parkway. The 10-inch line will start south of SC-23 boundary and follow the railroad/City Limit south, and connect to the existing 18-inch line

5.3 Wastewater System Improvements from 2021 to Buildout

The Colony is projected to have a buildout population of 67,600. As the Wynnwood Peninsula and Austin Ranch areas develop, new facilities will be required. FNI recommends the following improvements to serve the needs of projected growth from 2021 to Buildout.

Project (14) – Serve New Development in East Austin Ranch in IC-3

Additional sewer facilities will be needed to serve the outlying areas of sub-basin IC-3 in eastern Austin Ranch as development continues. Project (14) is a 10-inch gravity line to serve areas south of Windhaven Parkway and west of Toad Hollow Lane. The new line will run east to west parallel to the southern City Limit, turning north at the railroad. The line will then parallel the railroad northward, and tie into the existing 12-inch line.

Project (15) – Extend Collection System in IC-2

Project (15) is a 10-inch line west of the Austin Ranch lift station to serve the southwestern portion of sub-basin IC-2.

Project (16) – Extend Collection System on Wynnwood Peninsula to WP-2

As sub-basin WP-2 begins to develop, the proposed collection system will need to be extended. Project (16) is a 0.15 MGD lift stations and a 4-inch force main to serve sub-basin WP-2.

Project (17) – Lift Station East of Wynnwood Peninsula

Due to growth east of the Wynnwood peninsula, a lift station recommended to pump flow from the development area to the existing 8-inch line. Project (17) will be 0.1 MGD lift station with a 4-inch force main.

Project (18) – Lift Station on Northwest Wynnwood Peninsula

Project (18) is a lift station to pump flow from the existing development to the proposed 10-inch line. The lift station will be 0.1 MGD and have a 4-inch force main.

Appendix A: Geocoded Billing Data

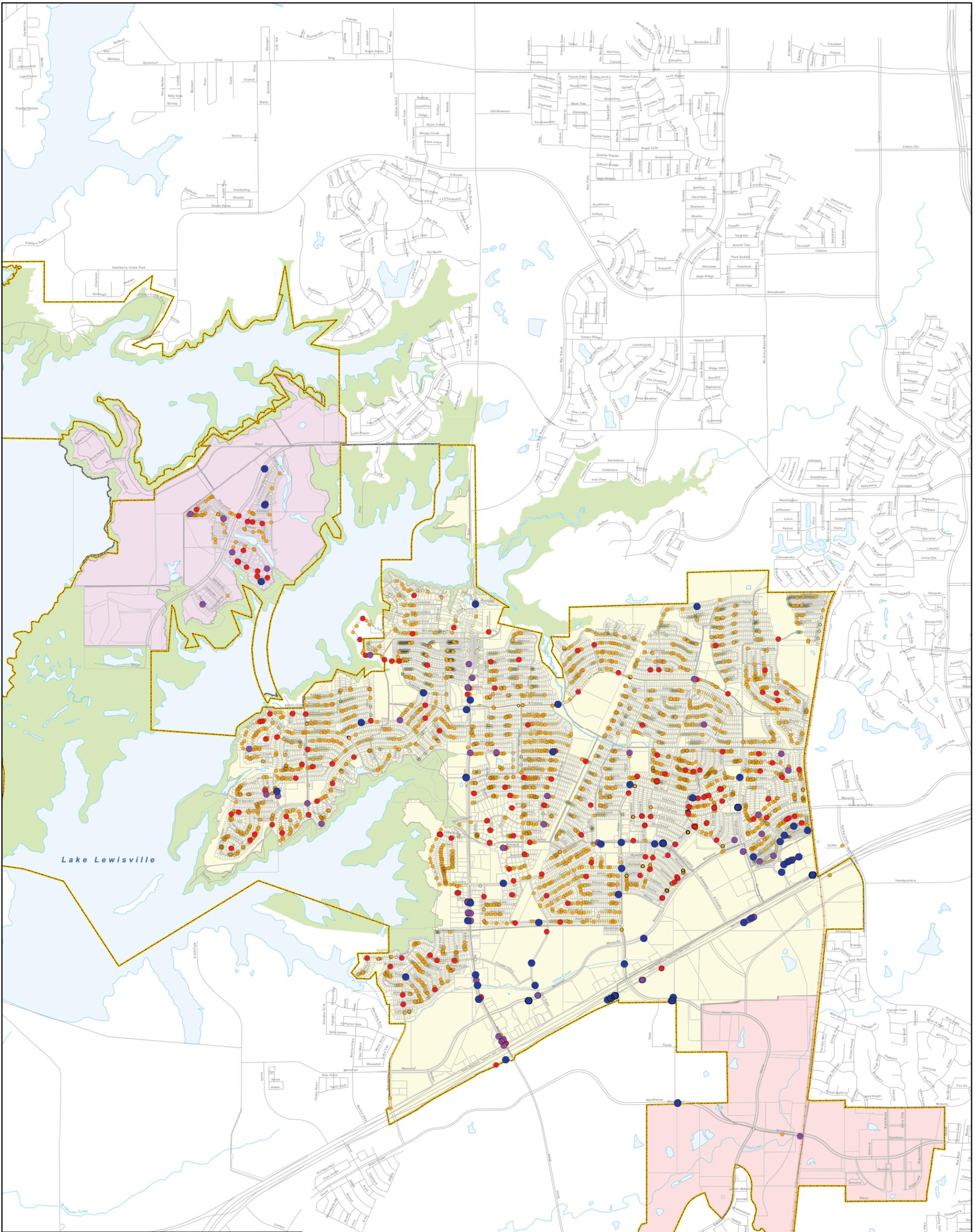


FIGURE A.1
THE CITY OF THE COLONY
BILLING METERS BY SUBBASIN
LEGEND

- October 2009 Water Usage (1,000 gallons)**
- Less than 10
 - 10 - 25
 - 25 - 50
 - 50 - 100
 - Greater than 100
- Road
 - Railroad
 - Stream
 - Lake
 - Parcel
 - Subbasin Boundary
 - U.S. Army Corps Property (Elevation Below 537 Feet)
 - City Limits
 - ETJ Boundary

- MAJOR BASINS**
- Indian Creek
 - Stewart Creek
 - Wynwood Peninsula

Appendix B: Flow Projections

Table B-1
City of The Colony
Year 2010

Basin	Sub-basin	Residential				Commercial and Industrial			Average Dry Weather Flow (MGD)	Peak Dry Weather Flow (MGD)	Peak I/I Allowance (800 gpd/acre) (MGD)	Peak Wet Weather Flow (MGD)
		Developed Area (Acres)	Population	Average Day Domestic Flow (75 gpcd) (MGD)	Peak Dry Weather Flow (2.5*Avg Day) (MGD)	Developed Area (Acres)	Average Day Flow (700 gpd/acre) (MGD)	Peak Flow (2.5*Avg) (MGD)				
Wynwood Peninsula												
	WP-1	0	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	WP-2	0	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	WP-3	0	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	WP-4	84	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.07	0.07
	WP-5	391	682	0.05	0.13	0	0.00	0.00	0.05	0.13	0.31	0.44
Total Wynwood Peninsula		475	682	0.05	0.13	0	0.00	0.00	0.05	0.13	0.38	0.51
Stewart Creek												
	SC-1	0	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	SC-2	79	680	0.05	0.13	9	0.01	0.02	0.06	0.14	0.07	0.21
	SC-3	57	828	0.06	0.16	1	0.00	0.00	0.06	0.16	0.05	0.20
	SC-4	178	2,701	0.20	0.51	10	0.01	0.02	0.21	0.52	0.15	0.67
	SC-5	131	2,260	0.17	0.42	16	0.01	0.03	0.18	0.45	0.12	0.57
	SC-6	73	1,276	0.10	0.24	34	0.02	0.06	0.12	0.30	0.09	0.38
	SC-7	64	945	0.07	0.18	35	0.02	0.06	0.10	0.24	0.08	0.32
	SC-8	77	1,298	0.10	0.24	15	0.01	0.03	0.11	0.27	0.07	0.34
	SC-9	128	1,963	0.15	0.37	33	0.02	0.06	0.17	0.43	0.13	0.55
	SC-10	105	2,013	0.15	0.38	8	0.01	0.01	0.16	0.39	0.09	0.48
	SC-11	45	775	0.06	0.15	4	0.00	0.01	0.06	0.15	0.04	0.19
	SC-12	62	1,162	0.09	0.22	13	0.01	0.02	0.10	0.24	0.06	0.30
	SC-13	123	1,807	0.14	0.34	50	0.04	0.09	0.17	0.43	0.14	0.56
	SC-14	113	1,878	0.14	0.35	0	0.00	0.00	0.14	0.35	0.09	0.44
	SC-15	45	619	0.05	0.12	13	0.01	0.02	0.06	0.14	0.05	0.19
	SC-16	120	2,605	0.20	0.49	18	0.01	0.03	0.21	0.52	0.11	0.63
	SC-17	184	4,345	0.33	0.81	7	0.00	0.01	0.33	0.83	0.15	0.98
	SC-18	25	564	0.04	0.11	32	0.02	0.06	0.06	0.16	0.05	0.21
	SC-19	158	2,715	0.20	0.51	47	0.03	0.08	0.24	0.59	0.16	0.76
	SC-20	98	1,773	0.13	0.33	146	0.10	0.26	0.24	0.59	0.20	0.78
	SC-21	26	71	0.01	0.01	152	0.11	0.27	0.11	0.28	0.14	0.42
	SC-22	126	1,542	0.12	0.29	176	0.12	0.31	0.24	0.60	0.24	0.84
	SC-23	3	0	0.00	0.00	368	0.26	0.64	0.26	0.64	0.30	0.94
Total Stewart Creek		2,020	33,818	2.54	6.34	1,187	0.83	2.08	3.37	8.42	2.57	10.98
Indian Creek												
	IC-1	59	0	0.00	0.00	116	0.08	0.20	0.08	0.20	0.14	0.34
	IC-2	110	0	0.00	0.00	15	0.01	0.03	0.01	0.03	0.10	0.13
	IC-3	129	6,000	0.45	1.13	0	0.00	0.00	0.45	1.13	0.10	1.23
Total Indian Creek		298	6,000	0.45	1.13	131	0.09	0.23	0.54	1.35	0.34	1.70
TOTAL		2,793	40,500	3.04	7.59	1,318	0.92	2.31	3.96	9.90	3.29	13.19

Table B-2
City of The Colony
Year 2015

Basin	Sub-basin	Residential				Commercial and Industrial			Average Dry Weather Flow (MGD)	Peak Dry Weather Flow (MGD)	Peak I/I Allowance (850 gpd/acre) (MGD)	Peak Wet Weather Flow (MGD)
		Developed Area (Acres)	Population	Average Day Domestic Flow (75 gpcd) (MGD)	Peak Dry Weather Flow (2.5*Avg Day) (MGD)	Developed Area (Acres)	Average Day Flow (700 gpd/acre) (MGD)	Peak Flow (2.5*Avg) (MGD)				
Wynnwood Peninsula												
	WP-1	0	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	WP-2	0	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	WP-3	12	180	0.01	0.03	0	0.00	0.00	0.01	0.03	0.01	0.04
	WP-4	125	650	0.05	0.12	0	0.00	0.00	0.05	0.12	0.11	0.23
	WP-5	520	2,702	0.20	0.51	0	0.00	0.00	0.20	0.51	0.44	0.95
	Total Wynnwood Peninsula	656	3,532	0.26	0.66	0	0.00	0.00	0.26	0.66	0.56	1.22
Stewart Creek												
	SC-1	0	4	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	SC-2	89	928	0.07	0.17	9	0.01	0.02	0.08	0.19	0.08	0.27
	SC-3	57	844	0.06	0.16	1	0.00	0.00	0.06	0.16	0.05	0.21
	SC-4	178	2,736	0.21	0.51	10	0.01	0.02	0.21	0.53	0.16	0.69
	SC-5	131	2,286	0.17	0.43	16	0.01	0.03	0.18	0.46	0.12	0.58
	SC-6	73	1,300	0.10	0.24	34	0.02	0.06	0.12	0.30	0.09	0.39
	SC-7	64	954	0.07	0.18	35	0.02	0.06	0.10	0.24	0.08	0.32
	SC-8	77	1,322	0.10	0.25	15	0.01	0.03	0.11	0.27	0.08	0.35
	SC-9	128	2,013	0.15	0.38	33	0.02	0.06	0.17	0.44	0.14	0.57
	SC-10	105	2,056	0.15	0.39	8	0.01	0.01	0.16	0.40	0.10	0.50
	SC-11	45	788	0.06	0.15	4	0.00	0.01	0.06	0.15	0.04	0.20
	SC-12	62	1,174	0.09	0.22	13	0.01	0.02	0.10	0.24	0.06	0.31
	SC-13	123	1,846	0.14	0.35	50	0.04	0.09	0.17	0.43	0.15	0.58
	SC-14	113	1,899	0.14	0.36	0	0.00	0.00	0.14	0.36	0.10	0.45
	SC-15	45	646	0.05	0.12	13	0.01	0.02	0.06	0.14	0.05	0.19
	SC-16	120	2,679	0.20	0.50	18	0.01	0.03	0.21	0.53	0.12	0.65
	SC-17	241	5,316	0.40	1.00	7	0.00	0.01	0.40	1.01	0.21	1.22
	SC-18	25	685	0.05	0.13	32	0.02	0.06	0.07	0.18	0.05	0.23
	SC-19	158	2,809	0.21	0.53	47	0.03	0.08	0.24	0.61	0.17	0.78
	SC-20	98	1,832	0.14	0.34	159	0.11	0.28	0.25	0.62	0.22	0.84
	SC-21	26	99	0.01	0.02	152	0.11	0.27	0.11	0.28	0.15	0.44
	SC-22	126	1,566	0.12	0.29	176	0.12	0.31	0.24	0.60	0.26	0.86
	SC-23	3	36	0.00	0.01	387	0.27	0.68	0.27	0.68	0.33	1.02
	Total Stewart Creek	2,087	35,818	2.69	6.72	1,219	0.85	2.13	3.54	8.85	2.81	11.66
Indian Creek												
	IC-1	59	0	0.00	0.00	121	0.08	0.21	0.08	0.21	0.15	0.36
	IC-2	228	3,000	0.23	0.56	15	0.01	0.03	0.24	0.59	0.21	0.80
	IC-3	129	6,000	0.45	1.13	0	0.00	0.00	0.45	1.13	0.11	1.23
	Total Indian Creek	416	9,000	0.68	1.69	136	0.10	0.24	0.77	1.93	0.47	2.39
TOTAL		3,158	48,350	3.63	9.07	1,355	0.95	2.37	4.57	11.44	3.84	15.27

Table B-3
City of The Colony
Year 2020

Basin	Sub-basin	Residential				Commercial and Industrial			Average Dry Weather Flow (MGD)	Peak Dry Weather Flow (MGD)	Peak I/I Allowance (900 gpd/acre) (MGD)	Peak Wet Weather Flow (MGD)
		Developed Area (Acres)	Population	Average Day Domestic Flow (75 gpcd) (MGD)	Peak Dry Weather Flow (2.5*Avg Day) (MGD)	Developed Area (Acres)	Average Day Flow (700 gpd/acre) (MGD)	Peak Flow (2.5*Avg) (MGD)				
Wynnwood Peninsula												
	WP-1	0	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	WP-2	0	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	WP-3	23	360	0.03	0.07	0	0.00	0.00	0.03	0.07	0.02	0.09
	WP-4	165	1,300	0.10	0.24	0	0.00	0.00	0.10	0.24	0.15	0.39
	WP-5	648	4,722	0.35	0.89	0	0.00	0.00	0.35	0.89	0.58	1.47
Total Wynnwood Peninsula		836	6,382	0.48	1.20	0	0.00	0.00	0.48	1.20	0.75	1.95
Stewart Creek												
	SC-1	0	8	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	SC-2	99	1,176	0.09	0.22	9	0.01	0.02	0.09	0.24	0.10	0.33
	SC-3	57	860	0.06	0.16	1	0.00	0.00	0.07	0.16	0.05	0.22
	SC-4	178	2,772	0.21	0.52	10	0.01	0.02	0.21	0.54	0.17	0.71
	SC-5	131	2,313	0.17	0.43	16	0.01	0.03	0.18	0.46	0.13	0.59
	SC-6	73	1,324	0.10	0.25	34	0.02	0.06	0.12	0.31	0.10	0.40
	SC-7	64	963	0.07	0.18	35	0.02	0.06	0.10	0.24	0.09	0.33
	SC-8	77	1,346	0.10	0.25	15	0.01	0.03	0.11	0.28	0.08	0.36
	SC-9	128	2,064	0.15	0.39	33	0.02	0.06	0.18	0.44	0.14	0.59
	SC-10	105	2,098	0.16	0.39	8	0.01	0.01	0.16	0.41	0.10	0.51
	SC-11	45	801	0.06	0.15	4	0.00	0.01	0.06	0.16	0.04	0.20
	SC-12	62	1,186	0.09	0.22	13	0.01	0.02	0.10	0.25	0.07	0.31
	SC-13	123	1,885	0.14	0.35	50	0.04	0.09	0.18	0.44	0.16	0.60
	SC-14	113	1,920	0.14	0.36	0	0.00	0.00	0.14	0.36	0.10	0.46
	SC-15	45	672	0.05	0.13	13	0.01	0.02	0.06	0.15	0.05	0.20
	SC-16	120	2,753	0.21	0.52	18	0.01	0.03	0.22	0.55	0.12	0.67
	SC-17	297	6,287	0.47	1.18	7	0.00	0.01	0.48	1.19	0.27	1.46
	SC-18	25	807	0.06	0.15	32	0.02	0.06	0.08	0.21	0.05	0.26
	SC-19	158	2,903	0.22	0.54	47	0.03	0.08	0.25	0.63	0.18	0.81
	SC-20	98	1,892	0.14	0.35	171	0.12	0.30	0.26	0.65	0.24	0.90
	SC-21	26	128	0.01	0.02	152	0.11	0.27	0.12	0.29	0.16	0.45
	SC-22	126	1,590	0.12	0.30	176	0.12	0.31	0.24	0.61	0.27	0.88
	SC-23	3	71	0.01	0.01	406	0.28	0.71	0.29	0.72	0.37	1.09
Total Stewart Creek		2,153	37,818	2.84	7.09	1,250	0.88	2.19	3.71	9.28	3.06	12.34
Indian Creek												
	IC-1	59	0	0.00	0.00	126	0.09	0.22	0.09	0.22	0.17	0.39
	IC-2	346	6,000	0.45	1.13	15	0.01	0.03	0.46	1.15	0.32	1.48
	IC-3	129	6,000	0.45	1.13	0	0.00	0.00	0.45	1.13	0.12	1.24
Total Indian Creek		534	12,000	0.90	2.25	141	0.10	0.25	1.00	2.50	0.61	3.10
TOTAL		3,523	56,200	4.22	10.54	1,391	0.97	2.43	5.19	12.97	4.42	17.39

**Table B-4
City of The Colony
Buildout**

Basin	Sub-basin	Residential				Commercial and Industrial			Average Dry Weather Flow (MGD)	Peak Dry Weather Flow (MGD)	Peak I/I Allowance (1000 gpd/acre) (MGD)	Peak Wet Weather Flow (MGD)
		Developed Area (Acres)	Population	Average Day Domestic Flow (75 gpcd) (MGD)	Peak Dry Weather Flow (2.5*Avg Day) (MGD)	Developed Area (Acres)	Average Day Flow (700 gpd/acre) (MGD)	Peak Flow (2.5*Avg) (MGD)				
Wynnwood Peninsula												
	WP-1	80	1,275	0.10	0.24	0	0.00	0.00	0.10	0.24	0.08	0.32
	WP-2	27	425	0.03	0.08	0	0.00	0.00	0.03	0.08	0.03	0.11
	WP-3	23	360	0.03	0.07	0	0.00	0.00	0.03	0.07	0.02	0.09
	WP-4	165	1,300	0.10	0.24	0	0.00	0.00	0.10	0.24	0.17	0.41
	WP-5	648	4,722	0.35	0.89	2	0.00	0.00	0.36	0.89	0.65	1.54
Total Wynnwood Peninsula		943	8,082	0.61	1.52	2	0.00	0.00	0.61	1.52	0.95	2.46
Stewart Creek												
	SC-1	0	8	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
	SC-2	99	1,176	0.09	0.22	9	0.01	0.02	0.09	0.24	0.11	0.34
	SC-3	57	860	0.06	0.16	1	0.00	0.00	0.07	0.16	0.06	0.22
	SC-4	178	2,772	0.21	0.52	10	0.01	0.02	0.21	0.54	0.19	0.73
	SC-5	131	2,313	0.17	0.43	16	0.01	0.03	0.18	0.46	0.15	0.61
	SC-6	73	1,324	0.10	0.25	34	0.02	0.06	0.12	0.31	0.11	0.41
	SC-7	64	963	0.07	0.18	48	0.03	0.08	0.11	0.26	0.11	0.38
	SC-8	77	1,346	0.10	0.25	15	0.01	0.03	0.11	0.28	0.09	0.37
	SC-9	128	2,064	0.15	0.39	33	0.02	0.06	0.18	0.44	0.16	0.61
	SC-10	105	2,098	0.16	0.39	8	0.01	0.01	0.16	0.41	0.11	0.52
	SC-11	45	801	0.06	0.15	4	0.00	0.01	0.06	0.16	0.05	0.21
	SC-12	62	1,186	0.09	0.22	13	0.01	0.02	0.10	0.25	0.08	0.32
	SC-13	123	1,885	0.14	0.35	50	0.04	0.09	0.18	0.44	0.17	0.61
	SC-14	113	1,920	0.14	0.36	0	0.00	0.00	0.14	0.36	0.11	0.47
	SC-15	45	672	0.05	0.13	13	0.01	0.02	0.06	0.15	0.06	0.21
	SC-16	120	2,753	0.21	0.52	18	0.01	0.03	0.22	0.55	0.14	0.69
	SC-17	297	6,287	0.47	1.18	7	0.00	0.01	0.48	1.19	0.30	1.49
	SC-18	100	2,507	0.19	0.47	32	0.02	0.06	0.21	0.53	0.13	0.66
	SC-19	158	2,903	0.22	0.54	47	0.03	0.08	0.25	0.63	0.21	0.83
	SC-20	98	1,892	0.14	0.35	171	0.12	0.30	0.26	0.65	0.27	0.92
	SC-21	26	128	0.01	0.02	152	0.11	0.27	0.12	0.29	0.18	0.47
	SC-22	126	1,590	0.12	0.30	176	0.12	0.31	0.24	0.61	0.30	0.91
	SC-23	3	71	0.01	0.01	456	0.32	0.80	0.32	0.81	0.46	1.27
Total Stewart Creek		2,228	39,518	2.96	7.41	1,313	0.92	2.30	3.88	9.71	3.54	13.25
Indian Creek												
	IC-1	59	0	0.00	0.00	164	0.11	0.29	0.11	0.29	0.22	0.51
	IC-2	346	6,000	0.45	1.13	15	0.01	0.03	0.46	1.15	0.36	1.51
	IC-3	416	14,000	1.05	2.63	0	0.00	0.00	1.05	2.63	0.42	3.04
Total Indian Creek		821	20,000	1.50	3.75	179	0.13	0.31	1.63	4.06	1.00	5.06
TOTAL		3,992	67,600	5.07	12.68	1,494	1.05	2.61	6.12	15.29	5.49	20.78

Table B-5: City of the Colony
Change in Peak Wet Weather Wastewater Flows

Sub-basin	2010 Flow Original	2010 Flow Updated	Change in 2010 Flows	2015 Flow Original	2015 Flow Updated	Change in 2015 Flows	Buildout Flow Original	Buildout Flow Updated	Change in Buildout Flows
WP-1	0.00	0.00	0.00	0.17	0.00	-0.17	1.09	0.32	-0.77
WP-2	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.11	-0.30
WP-3	0.00	0.00	0.00	0.00	0.04	0.04	0.41	0.09	-0.31
WP-4	0.52	0.07	-0.45	0.96	0.23	-0.73	1.06	0.41	-0.65
WP-5	0.69	0.44	-0.25	1.44	0.95	-0.49	2.09	1.54	-0.55
SC-1	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	-0.03
SC-2	0.44	0.21	-0.22	0.57	0.27	-0.29	0.62	0.34	-0.27
SC-3	0.39	0.20	-0.19	0.47	0.21	-0.26	0.53	0.22	-0.31
SC-4	0.63	0.67	0.05	0.67	0.69	0.02	0.79	0.73	-0.06
SC-5	0.68	0.57	-0.11	0.72	0.58	-0.14	0.83	0.61	-0.22
SC-6	0.47	0.38	-0.09	0.61	0.39	-0.22	0.70	0.41	-0.29
SC-7	0.42	0.32	-0.10	0.45	0.32	-0.13	0.53	0.38	-0.15
SC-8	0.41	0.34	-0.07	0.44	0.35	-0.09	0.59	0.37	-0.22
SC-9	0.59	0.55	-0.03	0.61	0.57	-0.04	0.70	0.61	-0.09
SC-10	0.62	0.48	-0.14	0.69	0.50	-0.20	0.76	0.52	-0.24
SC-11	0.28	0.19	-0.09	0.33	0.20	-0.13	0.37	0.21	-0.17
SC-12	0.35	0.30	-0.05	0.40	0.31	-0.10	0.43	0.32	-0.11
SC-13	0.80	0.56	-0.23	0.89	0.58	-0.31	1.03	0.61	-0.42
SC-14	0.54	0.44	-0.10	0.58	0.45	-0.13	0.66	0.47	-0.19
SC-15	0.32	0.19	-0.14	0.36	0.19	-0.17	0.41	0.21	-0.20
SC-16	0.66	0.63	-0.03	0.76	0.65	-0.11	0.85	0.69	-0.17
SC-17	0.72	0.98	0.26	0.77	1.22	0.45	0.84	1.49	0.65
SC-18	0.28	0.21	-0.07	0.33	0.23	-0.09	0.48	0.66	0.18
SC-19	1.04	0.76	-0.28	1.22	0.78	-0.44	1.32	0.83	-0.49
SC-20	0.93	0.78	-0.15	1.43	0.84	-0.60	1.93	0.92	-1.01
SC-21	0.70	0.42	-0.28	0.96	0.44	-0.52	1.25	0.47	-0.78
SC-22	1.30	0.84	-0.46	1.87	0.86	-1.01	2.28	0.91	-1.37
SC-23	1.14	0.94	-0.20	1.72	1.02	-0.71	3.05	1.27	-1.78
IC-1	0.09	0.34	0.25	0.15	0.36	0.22	1.34	0.51	-0.83
IC-2	0.28	0.13	-0.16	0.60	0.80	0.20	2.46	1.51	-0.95
IC-3	2.88	1.23	-1.65	3.18	1.23	-1.94	3.36	3.04	-0.32
Total	18.15	13.19	-4.96	23.37	15.27	-8.10	33.22	20.78	-12.44

**Appendix C: Wastewater Treatment Plant Graph and Change in
Capital Improvement Plan**

Figure C-1: City of The Colony Wastewater Treatment Plant Permit

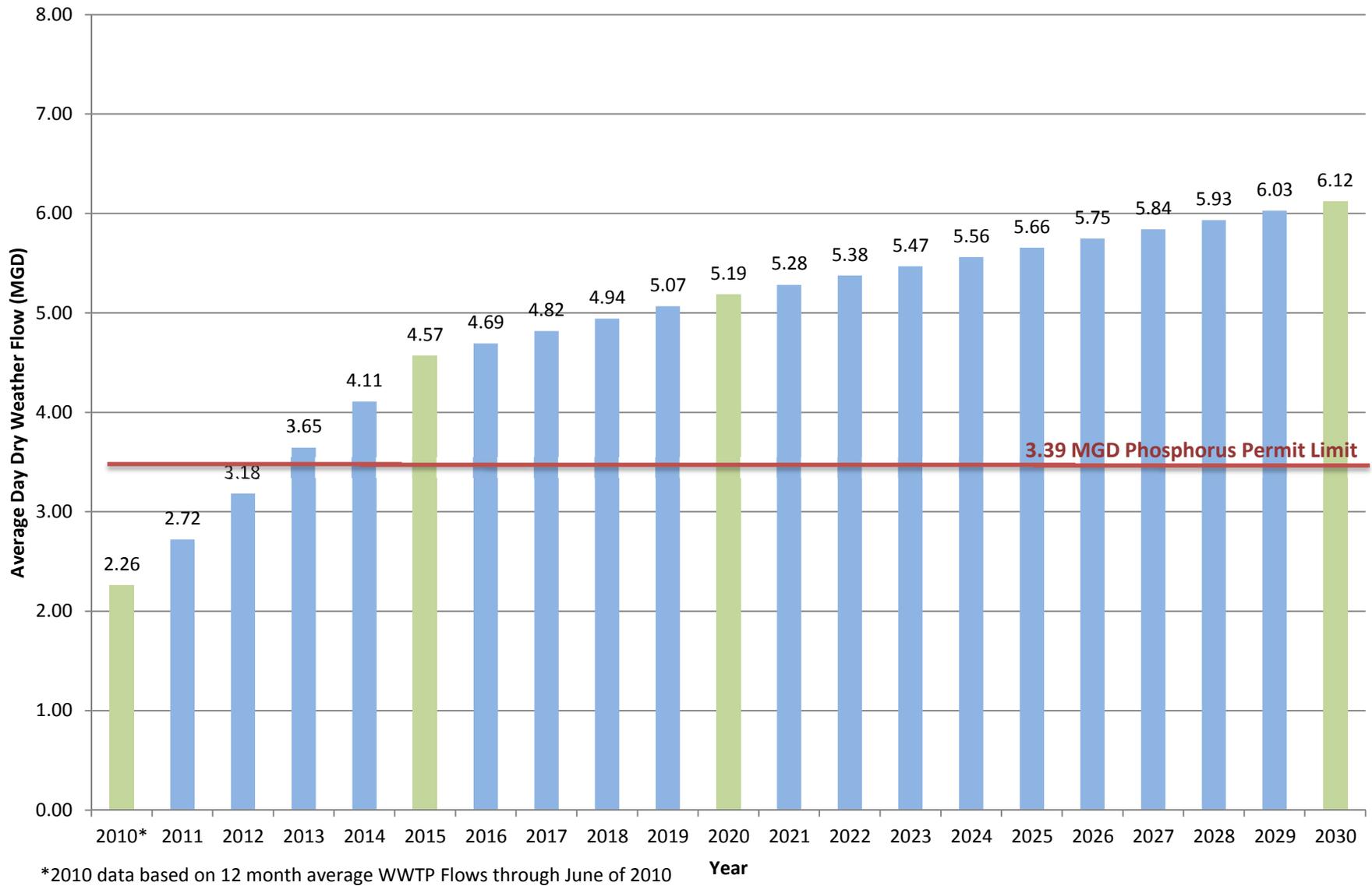
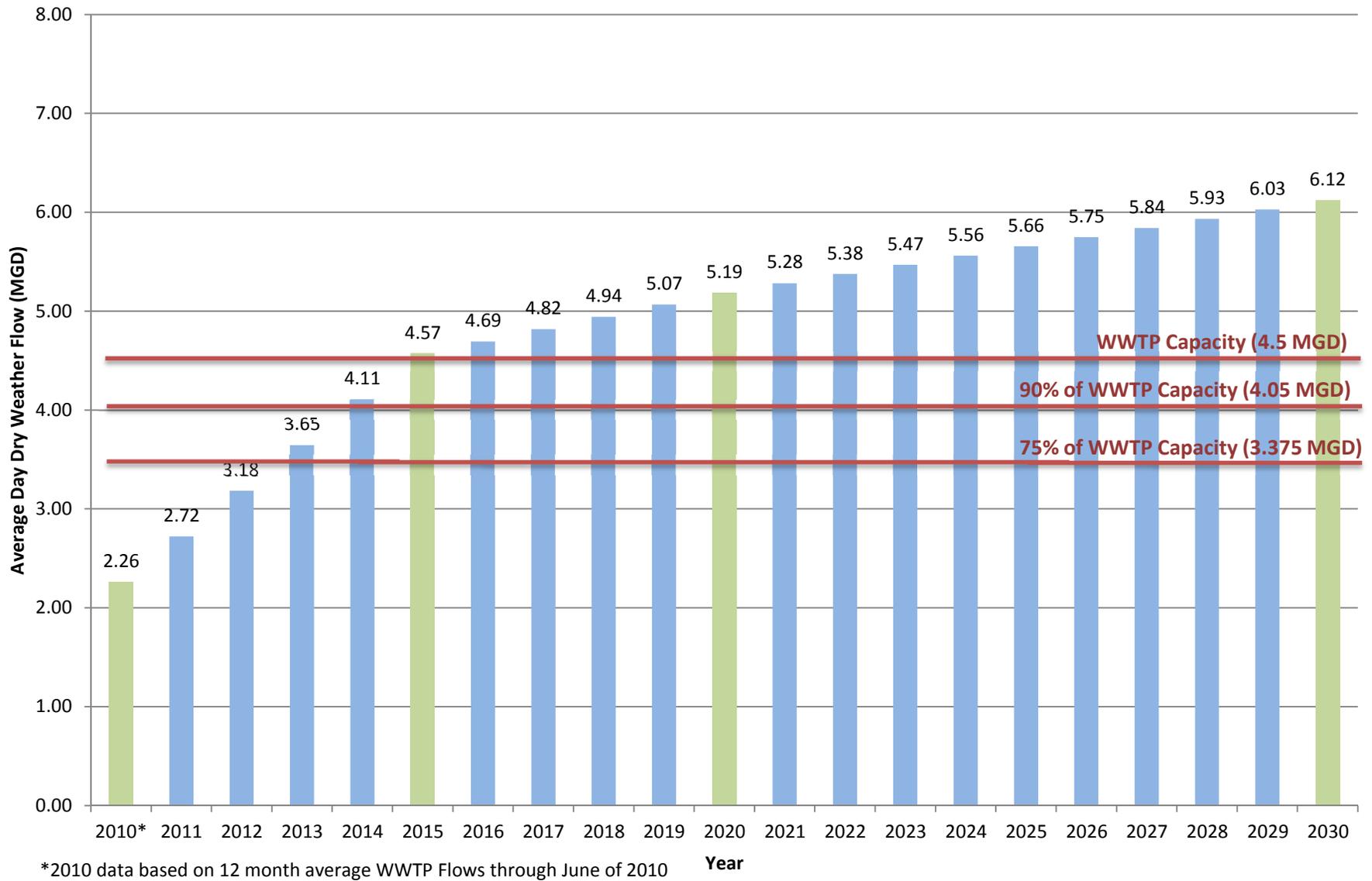


Figure C-2: City of The Colony Wastewater Treatment Plant Capacity



**Table C-3: City of the Colony
Wastewater CIP Comparison**

2008 Wastewater Master Plan Austin Ranch Amendment	2010 Wastewater Master Plan Update
Project 1	Complete
Project 2	Complete
Project 3	Complete
Project 4	Partially Complete- rest of project is new Project 15
Project 5	New Project 14- Line diameters reduced one size due to deceased flows
Project 6	Complete
Project 7	Removed due to new project alignment
Project 8	Complete
Project 9	Split into new Projects 11 and 16- Lift stations reduced to 0.1 MGD with 4-inch force mains
Project 10	New Project 6- Line diameters reduced one size due to deceased flows
Project 11	New Project 2 (plus additional line)- Replace 12-inch and 15-inch line with 18-inch line to meter
Project 12	New Project 13- line diameters decreased one size due to flows
Project 13	New Project 3- alignment and diameters changed based on drawings provided by City from C+P Engineering for Austin Ranch Indian Creek Wastewater Interceptor
Project 14	New Project 9- lift station expansion reduced to 5.5 MGD
Project 15	New Project 5- diameters decreased due to flows
Project 16	New Project 5- lift station reduced to 0.75 MGD and 8-inch force main
Project 17	New Project 7- Diameter decreased to 10-inch
Project 18	New Project 10- lift station expansion reduced to 5.5 MGD
Project 19	New Project 4
Project 20	Partially Complete- rest of project is new Project 8
Project 21	Removed due to decreased flows
Project 22	Removed due to decreased flows
Project 23	Removed due to decreased flows
Project 24	Removed due to decreased flows
Project 25	New Project 12
Project 26	New Project 17
Project 27	Combined with new Project 13

Appendix D: CIP - Opinions of Probable Cost

**City of the Colony
Wastewater CIP**



OPINION OF PROBABLE COST

UPDATE

Construction Project Number **5**

Project Description
Serve Growth in North Austin Ranch

Detailed Description
Construct 0.75 MGD Upper Lift Station, 8" FM, and 8"/10" line to serve sub-basin SC-23

Begin Engineering: 2013
In Service Date: 2015

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	0.75 MGD Lift Station	1	EA	\$400,000	400,000
2	8" Force Main	4,265	LF	\$48	204,720
3	8" Pipe	2,750	LF	\$48	132,000
4	10" Pipe	498	LF	\$60	29,880
5	48" Diameter Manhole	8	EA	\$5,000	40,000
SUBTOTAL:					\$806,600
CONTINGENCY 20%					\$161,320
SUBTOTAL:					\$967,920
ENG/SURVEY 15%					\$145,190
SUBTOTAL:					\$1,113,110
PROJECT TOTAL					\$1,113,110

Construction Project Number **6**

Project Description
Extend Lines to Serve WP-1

Detailed Description
Construct 6"/10"/12" line in sub-basin WP-1.

Begin Engineering: 2013
In Service Date: 2015

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	6" Pipe	2,570	LF	\$36	92,520
2	10" Pipe	2,620	LF	\$60	157,200
3	12" Pipe	2,020	LF	\$72	145,440
4	48" Diameter Manhole	18	EA	\$5,000	90,000
SUBTOTAL:					\$485,160
CONTINGENCY 20%					\$97,040
SUBTOTAL:					\$582,200
ENG/SURVEY 15%					\$87,330
SUBTOTAL:					\$669,530
PROJECT TOTAL					\$669,530

City of the Colony Wastewater CIP



OPINION OF PROBABLE COST

UPDATE

Construction Project Number

17

Project Description

Lift Station East of Wynnwood Peninsula

Detailed Description

Construct new 0.1 MGD LS far east of Wynnwood Peninsula and 4" FM.

Begin Engineering: 2022

In Service Date: 2024

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	0.1 MGD Lift Station	1	EA	\$250,000	250,000
2	4" Force Main	3,870	LF	\$24	92,880
SUBTOTAL:					\$342,880
CONTINGENCY					20%
SUBTOTAL:					\$411,460
ENG/SURVEY					15%
SUBTOTAL:					\$473,180

PROJECT TOTAL **\$473,180**

Construction Project Number

18

Project Description

Lift Station on Northwest Wynnwood Peninsula

Detailed Description

Construct a new 0.1 MGD LS on northwest Wynnwood Peninsula to serve the existing homes.

Begin Engineering: 2022

In Service Date: 2024

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	0.1 MGD Lift Station	1	EA	\$250,000	250,000
2	4" Force Main	3,300	LF	\$24	79,200
SUBTOTAL:					\$329,200
CONTINGENCY					20%
SUBTOTAL:					\$395,040
ENG/SURVEY					15%
SUBTOTAL:					\$454,300

PROJECT TOTAL **\$454,300**