

**AGENDA
CITY OF THE COLONY
CAPITAL IMPROVEMENTS ADVISORY COMMITTEE
SEPTEMBER 13, 2016**

After determining that a quorum is present, the Capital Improvement Advisory Committee of the City of The Colony, Texas will convene into regular session which will be held on Tuesday, September 13, 2016 at 6:45 PM in the City Council Chambers located in City Hall, 6800 Main Street, The Colony, Texas, at which time the following items will be addressed:

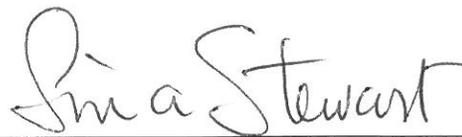
1.0	CALL REGULAR SESSION TO ORDER
2.0	CONSENT AGENDA
2.1	Consider approval of the minutes of the August 23, 2016 Regular Session.
3.0	DISCUSSION ITEMS
3.1	Discuss and consider making a recommendation to City Council on Land Use Assumptions and Capital Improvements Plan relating to the Amendment of Office Creek Drainage Impact Fees.
3.2	Discuss and consider making a recommendation to City Council on Land Use Assumptions and Capital Improvements Plan relating to the Amendment of Roadway Impact Fees.

“Pursuant to the Texas Open Meetings Act, Government Code Chapter 551, one or more of the above items may be considered in executive session closed to the public. Any decision held on such matter will be taken or conducted in open session following the conclusion of the executive session”.

Persons with disabilities who plan to attend this meeting who may need auxiliary aids such as interpreters for persons who are deaf or hearing impaired, readers or, large print are requested to contact Tina Stewart, City Secretary, at 972-624-3105 at least two (2) working days prior to the meeting so that appropriate arrangements can be made.

CERTIFICATION

I hereby certify that above notice of meeting was posted outside the front door of City Hall by 5:00 p.m. on the 9th day of September 2016.



Tina Stewart, City Secretary



**MINUTES
CITY OF THE COLONY
CAPITAL IMPROVEMENTS ADVISORY COMMITTEE
August 23, 2016**

After determining that a quorum is present, the Capital Improvements Advisory Committee of the City of The Colony, Texas convened into regular session which was held on August 23, 2016 at 6:45 p.m. in the City Council Chambers located in City Hall, 6800 Main Street, The Colony, Texas, at which time the following item were addressed:

Board Members Present: Karen Hames, Chairman, Detrick DeBurr, Vice Chairman, Cesar Molina Jr., Shannon Hebb, Brian Buffington, and Shawn Rockenbaugh.

Board Member Absent: Janece Pool

Staff Present: Gordon Scruggs, P.E. Director of Engineering and Development Services, Ron Hartline, P.E. Engineering Team Leader, Surupa Sen, AICP, Senior Planner, Brian Mcnuelty, Engineering Technician, and David Ritter, City Attorney.

1.0	CALL REGULAR SESSION TO ORDER
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Chairperson Hames called the meeting to order at 6:45 pm.

2.0	CONSENT AGENDA
2.1	Consider approval of the minutes of the August 31, 2010 Regular Session.

Chairman Hames read the Consent Agenda item into the record.

Commissioner Molina moved to approve Item 2.1 Commissioner Buffington seconded the motion. Motion carried (6-0).

3.0	DISCUSSION ITEMS
3.1	Receive a workshop on Land Use Assumptions and Capital Improvements Plan relating to the Amendment of Office Creek Drainage Impact Fees and Roadway Impact Fees.

Chairman Hames read the discussion item 3.1 into record.

Mr. Scruggs gave a brief background on the Impact Fees schedule and introduced the consultant team from Kimley-Horn and Associates.

Jeff Whitacre and Kate E. Ploetzner presented the reports for Roadway and Drainage Impact Fee updates and answered questions.

Being no more discussion, Chairperson Hames adjourned the meeting at 7:35 pm.

Karen Hames, Chairperson

Surupa Sen, AICP, Senior Planner



OFFICE CREEK DRAINAGE IMPACT FEE UPDATE

JULY 2016



Kimley»»Horn

The Colony, Texas

2016 Office Creek Drainage Impact Fee Update

July 2016



Prepared for:
The Colony

Prepared by:
Kimley»Horn

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TBPE Firm Registration Number: F-928

Project Number: 63678007





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Executive Summary

Impact Fees are a mechanism for funding the public infrastructure necessitated by new development. They originated and evolved in Florida, California and other fast-growing municipalities and counties, primarily in the Southern and Western United States. Across the country, they are used to fund police and fire facilities, parks, schools, roads, and utilities. In Texas, the legislature has allowed their use for water, wastewater, roadway, and drainage facilities. Impact Fees are currently being used to fund public drainage, water and wastewater improvements as well as funding roadway infrastructure in the City of The Colony (City).

In the most basic terms, impact fees are meant to recover the incremental cost of each new unit of development in terms of new infrastructure needs. In the case of drainage impact fees, the infrastructure need is increased capacity of drainage facilities to serve future development. The purpose of this Impact Fee Study Update is to identify the fee per unit of new development necessary to fund these improvements in accordance with the enabling legislation, Chapter 395 of the Texas Local Government Code.

Impact Fees are a one-time fee, and are charged only against new development. They are based on the cost of the capacity improvements necessary to accommodate new growth. For drainage impact fee purposes the City has one (1) service area for the Office Creek watershed. A service area is a geographic area within which a unique maximum impact fee is determined. All fees collected within the service area must be spent on eligible improvements within that same service area.

Impact fees are assessed when a final plat is recorded. The assessment defines the impact of each unit at the time of platting, according to land use, and may not exceed the maximum impact fee allowed by law. Impact fees are collected when a building permit is issued. Therefore, funds are not collected until development impacts are introduced to the City's drainage system. Funds collected within a service area can be used only within the same service area. Finally, fees must be utilized within 10 years of collection, or must be refunded with interest.

Chapter 395 of the Texas Local Government Code stipulates a specific process for the adoption of Impact Fees. An Advisory Committee is required to review the Land Use Assumptions and CIP used in calculating the maximum fee, and to provide its findings for consideration by the City Council. The City Council must then conduct a public hearing on the Land Use Assumptions and CIP before considering an Impact Fee ordinance.

The Impact Fee ordinance is considered separately from the Land Use Assumptions and CIP. The Advisory Committee must review the Impact Fee ordinance and provide its findings to the City Council. Following receipt of the report by the Advisory Committee, the City Council is required to conduct at least one public hearing on the Impact Fee ordinance prior to adoption.

This report includes details of the impact fee calculation methodology in accordance with Chapter 395, the applicable Land Use Assumptions, and the development of the CIP.

The 2016 maximum assessable drainage impact fee calculated in this report is \$242.53 per service unit. This is a \$34.49 reduction from the 2010 fee, which was \$277.02.



I. Introduction

Chapter 395 of the Texas Local Government Code (Chapter 395) describes the procedures and regulations that Texas cities must follow in order to create and implement impact fees within a political subdivision. In 2001, Senate Bill 243 (SB 243) was enacted, redefining the Impact Fee according to Chapter 395 as “a charge or assessment imposed by a political subdivision against a new development in order to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development.”

Chapter 395 mandates that such impact fees be reviewed and updated due to changes in Land Use Assumptions and Capital Improvements Plan (CIP). Accordingly, updated Land Use Assumptions were prepared by Kimley-Horn and the City has developed its CIP with which to update the City's Office Creek drainage impact fees. The City has retained Kimley-Horn to provide professional engineering services for the 2016 update of the Office Creek Drainage Impact Fee calculation methodology in accordance with Chapter 395 and SB 243. Associated revisions to the Land Use Assumptions and the City's hydrologic modeling of the watershed have been performed by Kimley-Horn and included as appendices to this report. The Capital Improvements Plan within the impact fee service area has also been established with this update.

This report consists of a detailed discussion of the methodology used for the computation of the Office Creek drainage impact fee. The discussion addresses each of the following components as well as modifications required for the 2016 update:

- Existing and Fully-Built Out Growth Projections
- Service Areas
- Service Units
- Cost per Service Unit
- Cost of the Capital Improvements Plan
- Service Unit Calculation
- Maximum Assessable Impact Fee per Service Unit

The report also includes a section outlining a plan for awarding the Office Creek drainage impact fee credit. This plan details the maximum assessable impact fee per service unit that the City may apply under Chapter 395.



II. Drainage Impact Fee Calculation Inputs

A. Land Use Assumptions

1. Purpose and Overview

In order to assess the drainage impact fee, Land Use Assumptions must be developed to provide a basis for growth projections within a political subdivision. As defined by Chapter 395, these assumptions include a description of changes in land use, densities, intensities, and populations within the service area. These assumptions are also useful to the City in determining the need and timing of capital improvements to serve future development.

Chapter 395 states that the Drainage Impact Fee and Capital Improvements Plan must contain specific enumeration of "...the projected demand for capital improvements or facility expansions required by new service units projected over a reasonable period of time, not to exceed 10 years." In the case of the Drainage Impact Fee, this demand is measured by comparing the existing discharge rates at the location of each improvement with those projected in the 10-year growth and ultimate conditions. The City anticipates the Office Creek watershed will be fully-built out by the year 2026.

In accordance with Chapter 395, information from the following sources was compiled: the City of The Colony Comprehensive Plan – July 2007, the North Central Texas Council of Governments (NCTCOG), and consultation with City staff.

Kimley-Horn prepared land use assumptions and hydrologic modeling for existing (2016) and fully-built out (2026) conditions of the watershed.

2. Methodology

Existing and fully-built out land use assumptions were included in the "Roadway Impact Fee Update" study performed by Kimley-Horn in June 2016. Minor modifications were made to the "Roadway Impact Fee Update" study's land uses to represent the hydrologic conditions of the Existing and Ultimate development scenarios. These land use assumptions were used to determine the amount of runoff that is generated in the Office Creek Service Area. Exhibits showing the existing (2016) and fully-built out (2026) land uses are located in Appendix A.

3. Impact Fee Service Areas

The geographic boundary of the existing impact fee service areas for drainage facilities is shown in Appendix A as the Office Creek watershed. Portions of the City outside of this service area will not have a Drainage Impact Fee assessed for new development in the Office Creek watershed and were not considered in this analysis.



4. Hydrologic Modeling

Kimley-Horn obtained hydrologic modeling of the Office Creek watershed from the City in July of 2010 (City effective modeling), which included 2010 development conditions and ultimate development conditions. Kimley-Horn prepared a 2016 (Existing) condition hydrologic model by revising the City effective modeling's 2010 drainage area delineations, times of concentration values, and Curve Numbers based on current development conditions. Kimley-Horn prepared a 2026 (Fully-Built Out) condition model by revising the City effective modeling's ultimate drainage area delineations, times of concentration values, and Curve Numbers based on fully-built out land use assumptions based on the land use information from the "Roadway Impact Fee Update" (Kimley-Horn, June 2016).

5. Summary

The Office Creek watershed is projected to be fully built-out within the next ten years, with development consisting of primarily non-residential land uses and a mixed use areas. A summary of the land use information and hydrologic parameters for the existing and fully-built out development conditions are been included in Appendix C of this report. Output from the hydrologic modeling is included in Appendix D of this report. This output summarizes discharge rates in the watershed in existing and fully-built out conditions. The existing and fully-built out drainage area maps and land use maps can be found in Appendix A.



B. Capital Improvement Plan

Chapter 395 of the Texas Local Government Code dictates that impact fees “may be imposed only to pay the costs of constructing capital improvements or facility expansions” within the subject service area. A capital improvement, or a storm water, drainage, or flood control facility that is owned and operated by the political subdivision, must be listed within the Capital Improvements Plan in order to be assessed the appropriate drainage impact fee. The City Colony has identified the City-funded drainage infrastructure improvements that have been constructed or are needed in order to accommodate ultimate conditions within the Office Creek watershed. The Capital Improvements Plan (CIP) is a list of these projects. It should be noted that the CIP is a listing of both proposed improvements and existing infrastructure with available capacity.

The CIP for the Office Creek Drainage Impact Fee compiled for the 2016 Drainage Impact Fee update is shown in Table 1. This table shows the location and size of each project within the watershed. The CIP was developed with information from the currently adopted Master Drainage Plan, discussions with City staff, and available information on existing or under-construction drainage infrastructure. Locations of each Capital Improvement are shown on Figure 4 in Appendix A. Project 23 is included to cover the fee for the development of the CIP and this impact fee study.

Table 1 – Capital Improvements Projects

Project Number	Location of Improvement	Location of Crossing	Length of Improved Channel	Status
1	Office Creek Channel	Morningstar Drive to South Colony Boulevard	1,350 Linear Feet	Constructed
2	Office Creek Channel	Memorial Drive to Upstream Face of Paige Road	1,950 Linear Feet	Constructed
3	Office Creek Channel	Downstream Face of Paige Road to Memorial Drive	1,950 Linear Feet	Constructed
4	Office Creek Channel	Between Memorial Drive and Blair Oaks Drive	350 Linear Feet	Constructed
5	Tributary Channel	Channel Excavation at Horizon Water Park	850 Linear Feet	Constructed
6	Office Creek Channel	Upstream Face of South Colony Blvd. to eastern Sonoma Grande boundary	700 Linear Feet	Constructed

Table 1 – Capital Improvements Projects (continued)

Project Number	Location of Improvement	Location of Crossing	Size of Improved Structure	Status
7	Morningstar Drive	At Office Creek Crossing	1 - 8'x4' RCB	Constructed
8	South Colony Boulevard	At Office Creek Crossing	2 - 7'x6' RCB's	Constructed
9	Paige Road	North of Memorial Drive	5 - 8'x8' RCB's	Constructed
10	Paige Road	Approximately 550' South of Memorial Drive	3 - 60" RCP's	Constructed
11	Blair Oaks Drive	Approximately 300' South of Cougar Alley	4 - 10'x10' RCB's	Constructed
12	Memorial Drive	At Worley Drive	3 - 7'x6' RCB's	Constructed
13	Memorial Drive	Approximately 1000' East of Paige Road	4 - 9'x6' RCB's	Constructed
14	Memorial Drive	Approximately 1650' East of Blair Oaks Drive	4 - 10'x5' RCB's	Constructed
15	Memorial Drive	Approximately 850' East of Blair Oaks Drive	2 - 8'x5' RCB's	Constructed
16	Memorial Drive	Approximately 100' East of Blair Oaks Drive	2 - 8'x5' RCB's	Constructed
17	F.M. 423 (Main Street)	At Office Creek Crossing	3 - 8'x8' RCB's	Constructed
18	Paige/121 Addition -- Chevron, USA	NWC of Paige Road and SH 121	4 - 8'x4' RCB's	Not Constructed
19	Detention Outfalls	Various	Varies	Not Constructed
20	Paige Road	At Office Creek Crossing	--	Not Constructed
21	Memorial Drive	At Office Creek Crossing	3 - 7'x6' RCB's	Not Constructed
22	Blair Oaks Drive	At Office Creek Crossing	2 - 84" CMP's	Not Constructed
23	Impact Fee Study	--	--	Completed



III. Methodology for Drainage Impact Fees

A. Service Areas

The service area used in the 2016 Drainage Impact Fee update is shown on Figure 1 in Appendix A, and represents the watershed boundary of Office Creek. This area covers only a portion of the corporate boundary of the City of The Colony, and also includes areas from the City of Lewisville and the Town of Hebron. While there are portions of the service area within these other jurisdictions, contributing areas from those municipalities will not be assessed an impact fee. However, they must be included in the service area as they generate runoff that is conveyed through the facilities in the Capital Improvements Plan.

B. Service Units

The service unit is a measure of use of the Capital Improvement facilities within the service area or watershed boundary. For the purposes of the Drainage Impact Fee, it is a measure of the development that occurs within the watershed compared to the additional drainage infrastructure capacity (in cubic feet per second) necessitated by this development.

The total number of service units within the Office Creek watershed was calculated by totaling the amount of additional impervious area proposed to be constructed within the next 10 years. The increase in runoff anticipated in the next ten years is directly attributable to the increase in impervious area, and that increase can be measured with each proposed development, allowing an equitable application of the impact fee.

The area for a service unit will be defined as the average impervious area for a single family residential lot in the City of the Colony, approximately 3,406 square feet. Each single family residential property developed will be considered a service unit, while all other development will be assessed the impact fee for a service unit with each 3,406 square feet of impervious area proposed.

Table 2 shows the calculation of the total increase in impervious area anticipated per subbasin in the watershed. The last row of Table 2 shows the calculation for the total number of service units in the service area.

Table 2 – Service Unit Calculation

Subbasin	Area (ac.)	% Impervious Existing	% Impervious 2026	Additional Impervious Area (ac.)
OC01	31.4	58	70	3.77
OC02	68.5	49	64	10.27
OC03	22.7	10	51	9.31
OC04	13.4	76	76	0.00
OC05	41.9	70	70	0.00
OC06A	33.1	67	67	0.00
OC06B	51.4	78	78	0.00
OC07	45.8	92	93	0.45
OC08	63.7	20	84	40.77
OC09	65.3	60	61	0.65
OC10	11.9	43	88	5.35
OC11	11.9	65	66	0.11
OC12	34.4	63	63	0.00
OC13	8.3	37	37	0.00
OC14	2.8	78	85	0.20
OC15	15.6	19	19	0.00
OC16	2.6	44	79	0.91
OC17A	22.4	63	63	0.00
OC17B	79.2	58	78	15.84
OC19	18.8	74	83	1.69
OC20	31.8	58	67	2.87
OC21	14.6	12	12	0.00
OC22	10.2	15	68	5.41
OC23	42.8	24	24	0.00
OC24	34.6	39	60	7.27
OC25	34.7	99	99	0.00
OC26A	10.6	66	66	0.00
OC26B	14.7	62	62	0.00
OC27	18.8	52	72	3.76
OC28	29.1	39	72	9.60
OC29	25.2	64	72	2.01
OC30	39.1	71	71	0.00
Total Additional Impervious Area (ac.) =				120.24
3,406 square feet impervious area = 1 Service Unit				
Total Service Units =				1,537.8



C. Cost Per Service Unit

A critical step in the Drainage Impact Fee process is to establish a cost for each service unit within the watershed. This cost per service unit reflects the amount paid by a developer per additional impervious area to help fund the construction of drainage infrastructure within the watershed. In the case of the Drainage Impact Fee, this fee is calculated so that each developer pays an amount consistent with the infrastructure necessitated by development of their property.

D. Cost of the CIP

The costs that may be included in the cost per service unit calculation are all of the implementation costs of the Impact Fee update, as well as project costs for channel, structural, or other drainage infrastructure outlined in the Capital Improvements Plan. Chapter 395 of the Texas Local Government Code specifies that the allowable costs are "...including and limited to the:

1. Construction contract price;
2. Surveying and engineering fees;
3. Land acquisition costs, including land purchases, court awards and costs, attorney's fees, and expert witness fees; and
4. Fees actually paid or contracted to be paid to an independent qualified engineer or financial consultant preparing or updating the capital improvements plan who is not an employee of the political subdivision."

For projects outlined in the CIP that have already been constructed, the total project cost has been determined through evaluation of final bid tabs for each respective project. Cost information was obtained from City of The Colony staff and available cost data associated with projects designed by Kimley-Horn. For proposed improvements within the Office Creek watershed, opinions of probable cost reflect only conceptual-level opinions or assumptions regarding the future cost to implement the CIP. Actual costs of construction are likely to change with time, and the engineer cannot guarantee that proposals, bids, or construction costs will not vary from these opinions. Costs for materials and equipment are dependent on market and economic conditions that cannot be precisely predicted at this time. In addition to the costs for the projects in the CIP, a cost has been added for the fees paid for the preparation of the CIP and drainage impact fee update. A summary of the costs for projects within the Office Creek watershed is shown in Table 3. Project cost sheets for each individual project has been included in Appendix B of this report.



Table 3 – Capital Improvements Projects – Costs

Project Number	Location of Improvement	Location of Crossing	Length of Improved Channel	Status	Total Construction Cost
1	Office Creek Channel	Morningstar Drive to South Colony Boulevard	1350 Linear Feet	Constructed	\$708,115
2	Office Creek Channel	Memorial Drive to Upstream Face of Paige Road	1950 Linear Feet	Constructed	\$340,153
3	Office Creek Channel	Downstream Face of Paige Road to Memorial Drive	1950 Linear Feet	Constructed	\$483,269
4	Office Creek Channel	Between Memorial Drive and Blair Oaks Drive	350 Linear Feet	Constructed	\$214,466
5	Tributary Channel	Channel Excavation at Horizon Water Park	850 Linear Feet	Constructed	\$159,535
6	Office Creek Channel	Upstream Face of South Colony Blvd. to eastern Sonoma Grande boundary	700 Linear Feet	Constructed	\$147,217
7	Morningstar Drive	At Office Creek Crossing	1 - 8'x4' RCB	Constructed	\$134,900
8	South Colony Boulevard	At Office Creek Crossing	2 - 7'x6' RCB's	Constructed	\$191,340
9	Paige Road	Immediately North of Memorial Drive	5 - 8'x8' RCB's	Constructed	\$439,199
10	Paige Road	Approximately 550' South of Memorial Drive	3 - 60" RCP's	Constructed	\$143,840
11	Blair Oaks Drive	Approximately 300' South of Cougar Alley	4 - 10'x10' RCB's	Constructed	\$562,232
12	Memorial Drive	At Worley Drive	3 - 7'x6' RCB's	Constructed	\$171,668
13	Memorial Drive	Approximately 1000' East of Paige Road	4 - 9'x6' RCB's	Constructed	\$212,928
14	Memorial Drive	Approximately 1650' East of Blair Oaks Drive	4 - 10'x5' RCB's	Constructed	\$119,410
15	Memorial Drive	Approximately 850' East of Blair Oaks Drive	2 - 8'x5' RCB's	Constructed	\$78,325
16	Memorial Drive	Approximately 100' East of Blair Oaks Drive	2 - 8'x5' RCB's	Constructed	\$80,560
17	F.M. 423 (Main Street)	At Office Creek Crossing	3 - 8'x8' RCB's	Constructed	\$323,300
18	Paige/121 Addition - Chevron, USA	NWC of Paige Road and SH 121	4 - 8'x4' RCB's	Not Constructed	\$2,704,550
19	Detention Outfalls	Various	Varies	Not Constructed	\$270,500
20	Paige Road	At Office Creek Crossing	--	Not Constructed	\$96,600
21	Memorial Drive	At Office Creek Crossing	3 - 7'x6' RCB's	Not Constructed	\$497,527
22	Blair Oaks Drive	At Office Creek Crossing	2 - 84" CMP's	Not Constructed	\$288,425
23	Impact Fee Study	--	--	Completed	\$39,000

E. Service Unit Calculation

The basic service unit for the computation of the City's Drainage Impact Fees is dependent upon the amount of area that will be converted from a pervious to an impervious surface and the amount of runoff that additional impervious area will produce over existing conditions. To determine the cost per service unit, it is necessary to project the growth in development within the watershed for the 10-year growth period and to estimate the future increase in impervious surface as discussed earlier in this report.

Kimley-Horn used the land use assumptions and anticipated impervious areas to develop hydrologic models for existing and ultimate (build-out) conditions based on the City-provided modeling. As described earlier in this report, those models were used to calculate 100-year design flows at various locations throughout the service area.

Using the hydrologic models created for each development condition, discharge rates were established at the location of each improvement outlined in the CIP. Table 4 shows these discharge rates (in cubic feet per second) in each of the two development scenarios at each of the CIP project locations.

Table 4 – Capital Improvement Projects – Design Flows

Project Number	Hydrologic Model Combination Point	Existing (2016) Condition Flow	Fully-Built Out (2026) Condition Flow	Percent Attributable to 10-Year Growth
1	OC01	243	248	2.02%
2	Junction-5	2247	2513	10.58%
3	Junction-6.5	2877	3178	9.47%
4	Junction-9	4126	4625	10.79%
5	OC09	507	508	0.20%
6	Junction-1	677	691	2.03%
7	OC01	243	248	2.02%
8	Junction-2	677	691	2.03%
9	Junction-6.5	2877	3178	9.47%
10	OC19	130	151	13.91%
11	Junction-10	5069	5577	9.11%
12	Junction-4	809	855	5.38%
13	Junction-14	1181	1262	6.42%
14	Junction-17	849	973	12.74%
15	R-OC26A	60	60	0.00%
16	Junction-19	542	550	1.45%
17	Junction-12	5753	6355	9.47%
18	Junction-16B	533	600	11.17%
19	Junction-12	5753	6355	9.47%
20	Junction-6.5	2877	3178	9.47%
21	Junction-14	1181	1262	6.42%
22	Junction-10	5069	5577	9.11%



The assessable impact fee portion of each project is based on the percentage of the capital improvement capacity that will be necessitated by development within the 10-year growth period. The 10-year condition flow is assumed to be equal to fully-built out condition flow. This percentage, known as Percent of Capacity Attributable to Growth, has been calculated using the following equation:

$$\text{Percent Attributable to 10-Year Growth} = \frac{\text{Fully-Built Out Condition Flow} - \text{Existing Condition Flow}}{\text{Fully-Built Out Condition Flow}}$$

In addition to the discharge rates for each development condition, Table 4 also shows the Percent Attributable to Growth calculated using the equation above. This percentage represents the portion of the respective capital improvement that can be assessed the drainage impact fee. When the total construction cost of each improvement is multiplied by this percentage, the total construction cost attributable to growth is established. The sum of these costs for each project outlined in the CIP yields the total construction cost attributable to growth for the watershed, and was calculated for the Office Creek watershed to be approximately \$745,917. A breakdown of these costs is shown in Appendix B.



IV. Drainage Impact Fee Calculation

A. Maximum Assessable Impact Fee Per Service Unit

This section presents the maximum assessable impact fee rate calculated for developments within the Office Creek watershed. The maximum assessable fee is the allowable cost of the CIP for drainage infrastructure divided by the total number of service units representing growth attributable to development within the 10-year period. Many of the components of this calculation have been presented in previous sections of this report. The purpose of this section is to outline the computation of the impact fee and demonstrate the guidelines of Chapter 395.

The calculations described in Section III of this report have been performed for every improvement within the Drainage Impact Fee service area (the Office Creek watershed) and the sum of all of the Construction Costs Attributable to Growth have been calculated to determine the total cost of the CIP within the service area. Following this calculation, the Cost Per Service Unit and the Maximum Assessable Impact Fee Rate is calculated. Table 5 illustrates the steps of this computation:

LINE 1 in Table 5 is the *Total Construction Costs Attributable to Growth* within the Office Creek watershed, and is taken from Figure 4. LINE 2 is the *Total Number of Service Units* within the basin, and is taken from Table 3. LINE 3, the *Cost Per Service Unit Attributable to Growth*, is then calculated by dividing LINE 1 by LINE 2.

B. Plan for Awarding the Drainage Impact Fee Credit

Chapter 395 of the Texas Local Government Code requires the Capital Improvements Plan for Drainage Impact Fees to contain specific enumeration of a plan for awarding the impact fee credit. Section 395.014 of the Code states:

"(7) A plan for awarding:

- (A) a credit for the portion of ad valorem tax and utility service revenues generated by new service units during the program period that is used for the payment of improvements, including the payment of debt, that are included in the capital improvements plan; or
- (B) In the alternative, a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan..."

The City has determined that the maximum assessable impact fee per service unit shall be 50% of the total projected cost of implementing the capital improvements plan. Therefore, LINE 4 of Table 5, the *Percent of Fee Recoverable* is equal to 50%. LINE 4 is then multiplied by LINE 3 to yield the *Maximum Assessable Impact Fee Per Service Unit* (LINE 5), which has been calculated at \$242.53.

Table 5 – Maximum Assessable Drainage Impact Fee

LINE 1	Total Construction Costs Attributable to Growth (From Figure 4 of Appendix A)	\$745,917
LINE 2	Total Number of Service Units* (From Table 2)	1,537.8
LINE 3	Cost of CIP per Service Unit Attributable to Growth = LINE 1/LINE 2	\$485.05
LINE 4	Percent of Fee Recoverable (From Chapter 395 of Texas Local Government Code)	50%
LINE 5	Maximum Assessable Fee per Service Unit = (LINE 3 * LINE 4)	\$242.53

*Note: One Service Unit is 3,406 square feet of impervious area.

V. Sample Calculations

The following section details two (2) examples of maximum assessable Drainage Impact Fee calculations.

Example 1 – Development Type - One (1) Unit of Single-Family Housing

Drainage Impact Fee Calculation Steps – Example 1	
Step 1	Determine Development Unit and Impervious Area
	Development Type: 1 Dwelling Unit of Single-Family Detached Housing Number of Service Units: 1 Service Unit
Step 2	Determine Maximum Assessable Impact Fee Per Service Unit
	Office Creek Watershed: \$242.53
Step 3	Determine Maximum Assessable Impact Fee
	Impact Fee = # of Service Units * Max. Fee Per Service Unit
	Impact Fee = 1 * \$242.53 Maximum Assessable Impact Fee = \$242.53

Example 2 – Development Type – 5 Acre Commercial Development

Drainage Impact Fee Calculation Steps – Example 2	
Step 1	Determine Development Unit and Impervious Area
	Development Type: Commercial Development Impervious Area (from plat) – 178,596 square feet (82% of 5 acre development) Number of Service Units = Impervious Area / 3,406 square feet Service Units = 178,596 / 3,406 = 52.4
Step 2	Determine Maximum Assessable Impact Fee Per Service Unit
	Office Creek Watershed: \$242.53
Step 3	Determine Maximum Assessable Impact Fee
	Impact Fee = # of Service Units * Max. Fee Per Service Unit
	Impact Fee = 52.4 * \$242.53 Maximum Assessable Impact Fee = \$12,708.57



VI. Conclusion

The City of the Colony has established a process the City has utilized to implement the assessment and collection of drainage impact fees in the Office Creek watershed through the adoption of an impact fee ordinance that is consistent with Chapter 395 of the Texas Local Government Code.

This report establishes the maximum allowable drainage impact fee that could be assessed by the City within the Office Creek watershed upstream of Main Street. It is intended to serve as a guide to the assessment of drainage impact fees pertaining to future development and the City's need for drainage improvements to accommodate that growth. Following the public hearing process, the City Council may establish an amount to be assessed (if any) up to the maximum established within this report and update the Drainage Impact Fee Ordinance accordingly.

In conclusion, it is our opinion that the data and methodology used in this update are appropriate and consistent with Chapter 395 of the Texas Local Government Code. That information, as well as the proposed Capital Improvements Plan, are appropriately incorporated into the process.



APPENDICES

- A. Service Area Mapping
- B. Conceptual Level Project Cost Projections
- C. Hydrologic Modeling Parameters
- D. Hydrologic Modeling Output
- E. Actual Impact Fees to be Assessed by Land Use

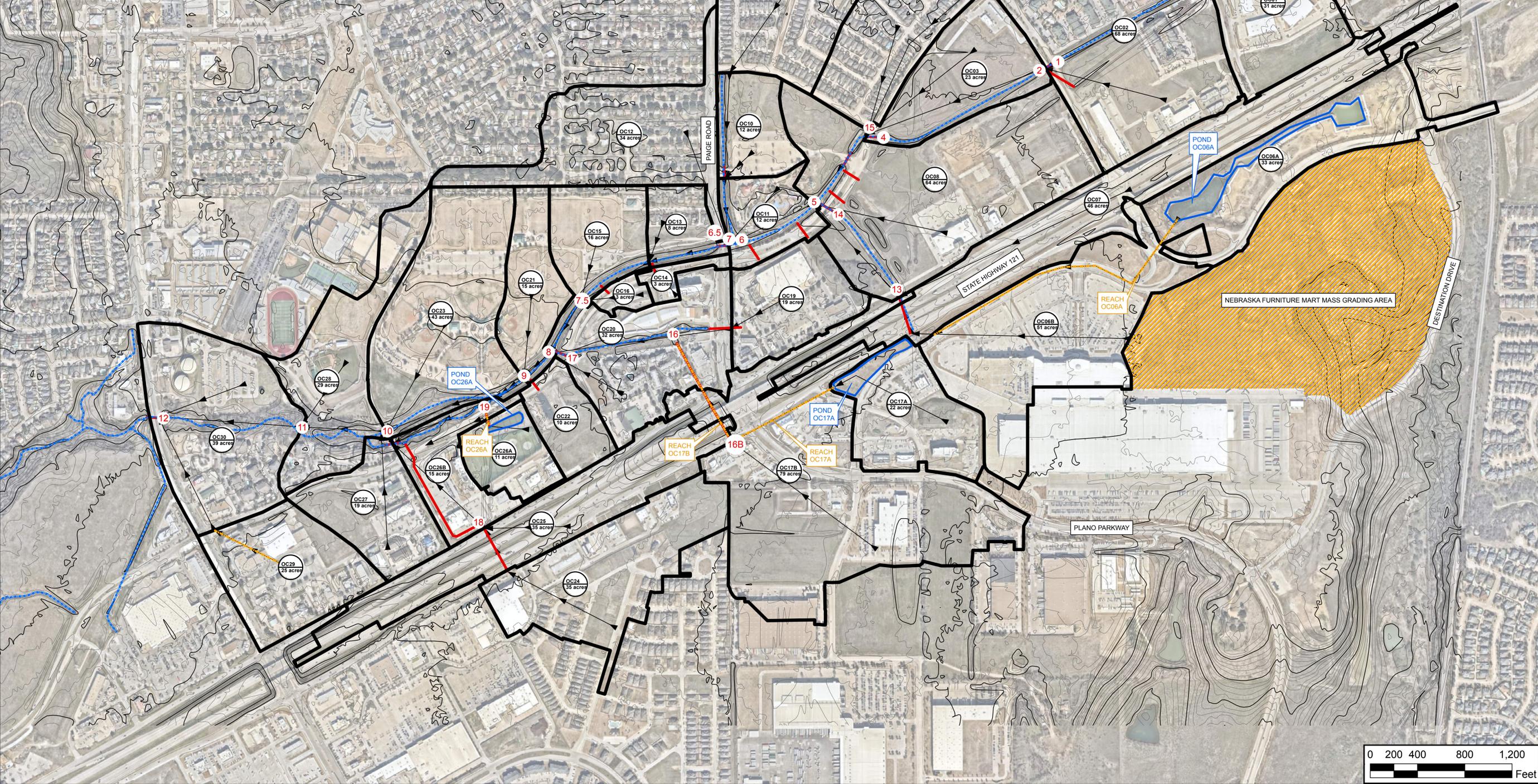


A. Service Area Mapping

Legend

- Reach
- Subbasin Divides
- Office Creek Centerlines
- Office Creek Culverts
- Downstream Connection
- 2 ft. Contours (Received from Halff, March 2016)
- 10 ft. Contours (Received from Halff, March 2016)

NOTE:
 1. THE SUBBASIN DIVIDES ARE BASED ON THE CITY OF THE COLONY HYDROLOGIC MODELING DATED JULY 2010. REVISIONS TO THE SUBBASIN DIVIDES, TIMES OF CONCENTRATION VALUES, AND CURVE NUMBERS WERE REVISED BASED ON DEVELOPMENT THAT HAS OCCURRED SINCE 2010. DETENTION PONDS OC06A, OC17A AND OC26A WERE ALSO ADDED TO THE CITY'S HYDROLOGIC MODEL.
 2. KIMLEY-HORN ASSUMED EXISTING (2016) DRAINAGE PATTERN FOR THE "NEBRASKA FURNITURE MART MASS GRADING AREA" IS CONSISTENT WITH "DESTINATION DRIVE CONSTRUCTION PLANS FOR NEBRASKA FURNITURE MART OF TEXAS SET 3", SHEET 33 (GRAHAM ASSOCIATES INC. JUNE 2015). AS SUCH, THIS AREA IS ASSUMED TO DRAIN SOUTHEAST TOWARDS DESTINATION DRIVE IN EXISTING CONDITIONS AND DOES NOT DRAIN INTO THE OFFICE CREEK WATERSHED.
 3. AERIAL IMAGERY FROM GOOGLE EARTH PRO (DECEMBER, 2015)



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 (972) 770-1300 Phone
 (972) 239-3820 Fax



Office Creek
 Drainage Impact Fee
 City of The Colony, Texas



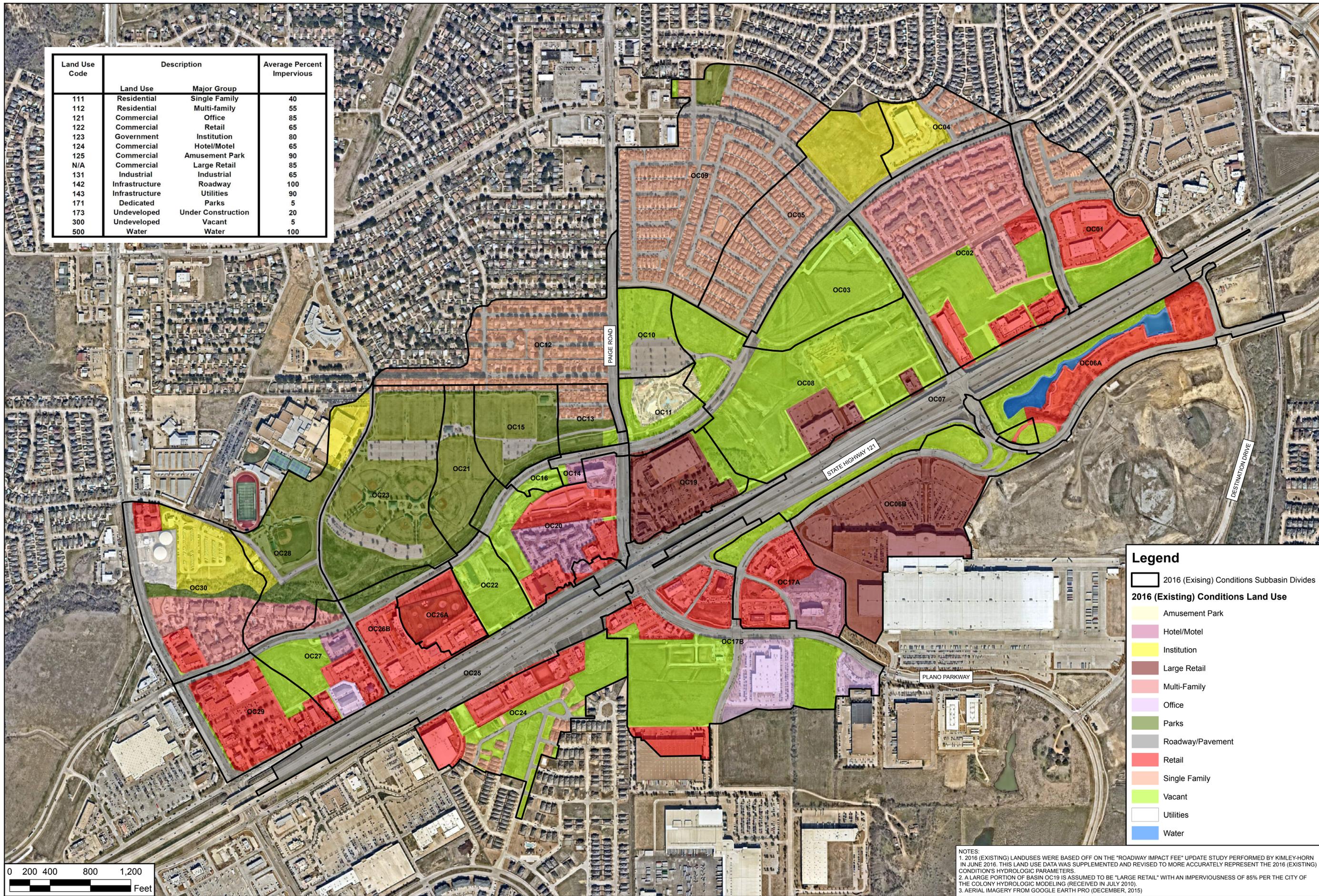
Drainage Area Map

DATE:	JULY 2016
DESIGN:	KEP
DRAWN:	MF
CHECKED:	SDG
KHA NO.:	63678007

SHEET
EX-1

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Land Use Code	Description	Average Percent Impervious
111	Residential Single Family	40
112	Residential Multi-family	55
121	Commercial Office	85
122	Commercial Retail	65
123	Government Institution	80
124	Commercial Hotel/Motel	65
125	Commercial Amusement Park	90
N/A	Commercial Large Retail	85
131	Industrial Industrial	65
142	Infrastructure Roadway	100
143	Infrastructure Utilities	90
171	Dedicated Parks	5
173	Undeveloped Under Construction	20
300	Undeveloped Vacant	5
500	Water Water	100



Legend

- 2016 (Existing) Conditions Subbasin Divides
- 2016 (Existing) Conditions Land Use**
 - Amusement Park
 - Hotel/Motel
 - Institution
 - Large Retail
 - Multi-Family
 - Office
 - Parks
 - Roadway/Pavement
 - Retail
 - Single Family
 - Vacant
 - Utilities
 - Water

NOTES:
 1. 2016 (EXISTING) LANDUSES WERE BASED OFF ON THE "ROADWAY IMPACT FEE" UPDATE STUDY PERFORMED BY KIMLEY-HORN IN JUNE 2016. THIS LAND USE DATA WAS SUPPLEMENTED AND REVISED TO MORE ACCURATELY REPRESENT THE 2016 (EXISTING) CONDITION'S HYDROLOGIC PARAMETERS.
 2. A LARGE PORTION OF BASIN OC19 IS ASSUMED TO BE "LARGE RETAIL" WITH AN IMPERVIOUSNESS OF 85% PER THE CITY OF THE COLONY HYDROLOGIC MODELING (RECEIVED IN JULY 2016).
 3. AERIAL IMAGERY FROM GOOGLE EARTH PRO (DECEMBER, 2015)

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Office Creek
 Drainage Impact Fee
 City of The Colony, Texas



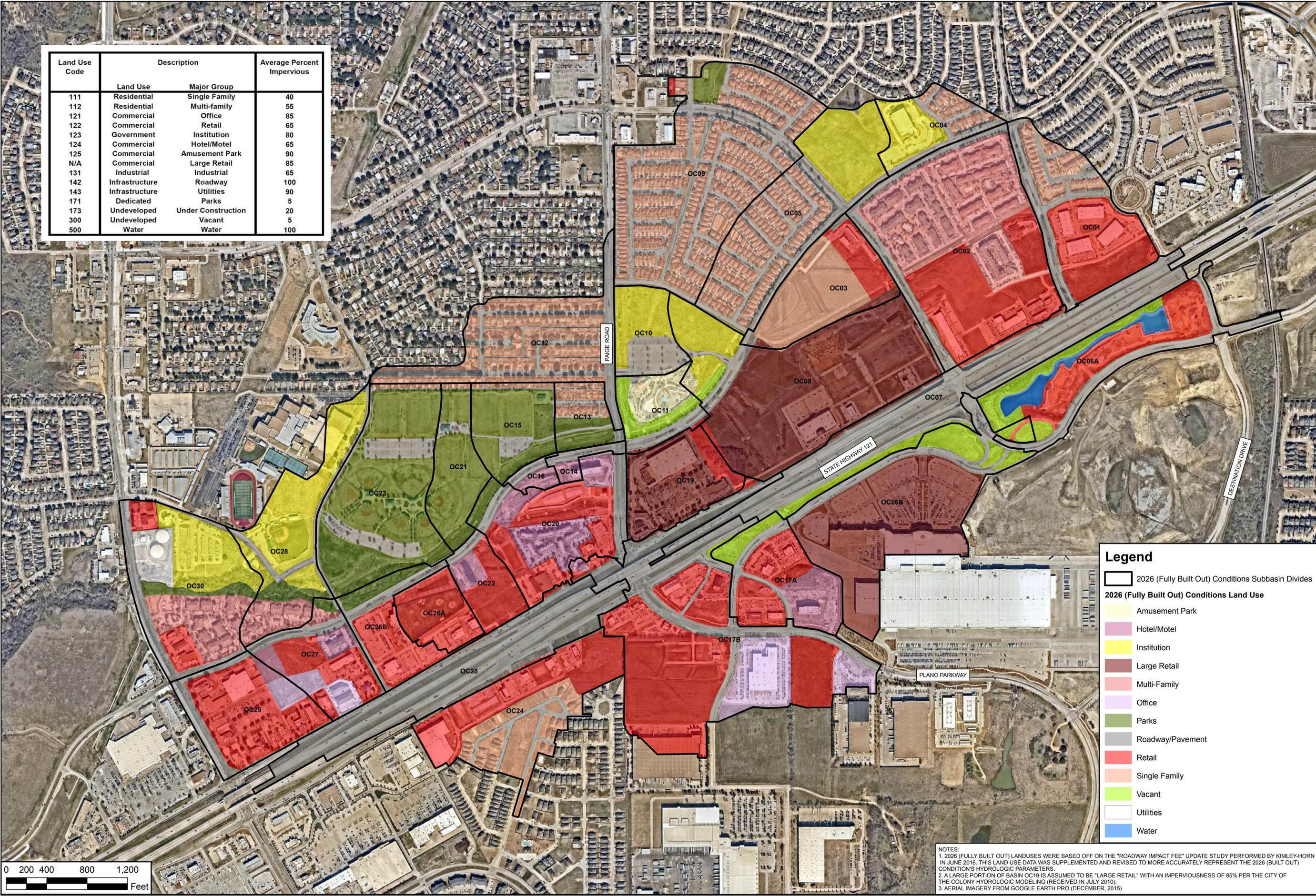
**2016 (Existing) Conditions
 Land Use Map**

DATE:	JULY 2016
DESIGN:	KEP
DRAWN:	MF
CHECKED:	SDG
KHA NO.:	63678007

SHEET
EX-2

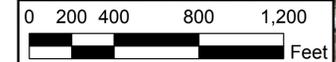
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Land Use Code	Description	Average Percent Impervious
111	Residential Single Family	40
112	Residential Multi-family	55
121	Commercial Office	85
122	Commercial Retail	65
123	Government Institution	80
124	Commercial Hotel/Motel	65
125	Commercial Amusement Park	90
N/A	Commercial Large Retail	85
131	Industrial Industrial	65
142	Infrastructure Roadway	100
143	Infrastructure Utilities	90
171	Dedicated Parks	5
173	Undeveloped Under Construction	20
300	Undeveloped Vacant	5
500	Water Water	100



Legend

- 2026 (Fully Built Out) Conditions Subbasin Divides
- 2026 (Fully Built Out) Conditions Land Use**
 - Amusement Park
 - Hotel/Motel
 - Institution
 - Large Retail
 - Multi-Family
 - Office
 - Parks
 - Roadway/Pavement
 - Retail
 - Single Family
 - Vacant
 - Utilities
 - Water



NOTES:
 1. 2026 (FULLY BUILT OUT) LANDUSES WERE BASED OFF ON THE "ROADWAY IMPACT FEE" UPDATE STUDY PERFORMED BY KIMLEY-HORN IN JUNE 2016. THIS LAND USE DATA WAS SUPPLEMENTED AND REVISED TO MORE ACCURATELY REPRESENT THE 2026 (BUILT OUT) CONDITION'S HYDROLOGIC PARAMETERS.
 2. A LARGE PORTION OF BASIN OC19 IS ASSUMED TO BE "LARGE RETAIL" WITH AN IMPERVIOUSNESS OF 85% PER THE CITY OF THE COLONY HYDROLOGIC MODELING (RECEIVED IN JULY 2016).
 3. AERIAL IMAGERY FROM GOOGLE EARTH PRO (DECEMBER, 2015)

Kimley-Horn
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 12750 Merit Drive, Suite 1000
 Dallas, Texas 75251
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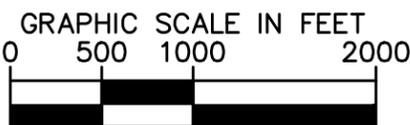
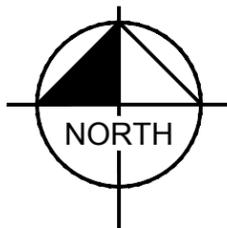
**Office Creek
 Drainage Impact Fee
 City of The Colony, Texas**

**2026 (Fully Built Out)
 Conditions Land Use Map**

DATE:	JULY 2016
DESIGN:	KEP
DRAWN:	MF
CHECKED:	SDG
KHA NO.:	63678007

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**SHEET
 EX-3**



LEGEND

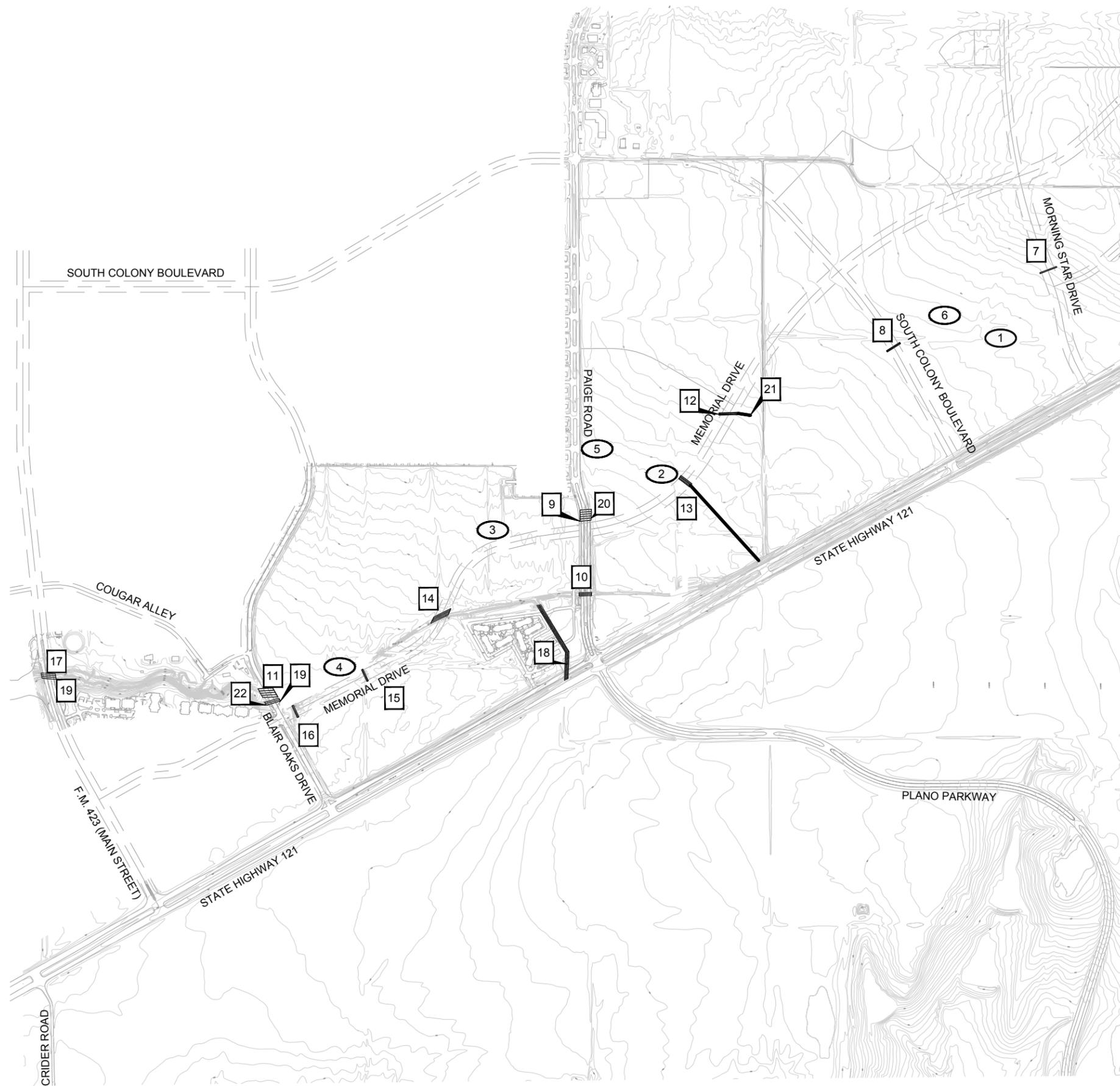
	RIGHT-OF-WAY BOUNDARY
	EXISTING CONTOUR
	APPROXIMATE STRUCTURAL IMPROVEMENT LOCATION
	APPROXIMATE CHANNEL IMPROVEMENT LOCATION

CHANNEL IMPROVEMENTS

PROJECT NUMBER	LOCATION	LENGTH OF IMPROVED CHANNEL
1	MORNINGSTAR DRIVE TO SOUTH COLONY BLVD.	1,350 L.F.
2	MEMORIAL DRIVE TO UPSTREAM FACE OF PAIGE ROAD	1,950 L.F.
3	DOWNSTREAM FACE OF PAIGE ROAD TO MEMORIAL DRIVE	1,950 L.F.
4	BETWEEN MEMORIAL DRIVE AND BLAIR OAKS DRIVE	350 L.F.
5	CHANNEL EXCAVATION AT HORIZON WATER PARK	850 L.F.
6	UPSTREAM FACE OF SOUTH COLONY BLVD. TO EASTERN SONOMA GRANDE BOUNDARY	700 L.F.

STRUCTURAL IMPROVEMENTS

PROJECT NUMBER	LOCATION	SIZE OF IMPROVED STRUCTURE
7	MORNINGSTAR DRIVE AT OFFICE CREEK CROSSING	1 - 8' x 4' RCB
8	SOUTH COLONY BOULEVARD AT OFFICE CREEK CROSSING	2 - 7' x 6' RCB
9	PAIGE ROAD IMMEDIATELY NORTH OF MEMORIAL DRIVE	5 - 8' x 8' RCB
10	PAIGE ROAD APPROXIMATELY 550' SOUTH OF MEMORIAL DRIVE	3 - 60" RCP
11	BLAIR OAKS DRIVE APPROXIMATELY 300' SOUTH OF COUGAR ALLEY	4 - 10' x 10' RCB
12	MEMORIAL DRIVE AT WORLEY DRIVE	3 - 7' x 6' RCB
13	MEMORIAL DRIVE APPROXIMATELY 1,000' EAST OF PAIGE ROAD	4 - 9' x 6' RCB
14	MEMORIAL DRIVE APPROXIMATELY 1,650' EAST OF BLAIR OAKS DRIVE	4 - 10' x 5' RCB
15	MEMORIAL DRIVE APPROXIMATELY 850' EAST OF BLAIR OAKS DRIVE	2 - 8' x 5' RCB
16	MEMORIAL DRIVE APPROXIMATELY 100' EAST OF BLAIR OAKS DRIVE	2 - 8' x 5' RCB
17	F.M. 423 AT OFFICE CREEK CROSSING	3 - 8' x 8' RCB
18	NWC OF PAIGE ROAD AND SH 121	4 - 8' x 4' RCB
19	VARIOUS DETENTION OUTFALLS	VARIES
20	PAIGE ROAD AT OFFICE CREEK CROSSING	VARIES
21	MEMORIAL DRIVE AT OFFICE CREEK CROSSING	3 - 7' x 6' RCB
22	BLAIR OAKS DRIVE AT OFFICE CREEK CROSSING	3 - 60" CMP



Scale:	AS SHOWN
Designed by:	KEP
Drawn by:	MF
Checked by:	SDG
Date:	JULY 2016
Project No.:	63678007

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B. Conceptual Level Project Cost Projections

IMPACT FEE CALCULATIONS

Channel Improvements:

Project Number	Location of Improvement	Location of Crossing	Length of Improved Channel	Status	Hydrologic Model Combination Point	Existing (2016) Condition Flow ¹ (cfs)	Fully Built-Out (2026) Condition Flow ² (cfs)	Total Construction Cost	Percentage in 10-Year Growth ³	Cost of 10-Year Growth Capacity
1	Office Creek Channel	Morningstar Drive to South Colony Boulevard	1350 Linear Feet	Constructed	OC01	243	248	\$ 708,115	2.02%	\$ 14,304
2	Office Creek Channel	Memorial Drive to Upstream Face of Paige Road	1950 Linear Feet	Constructed	Junction-5	2247	2513	\$ 340,153	10.58%	\$ 35,988
3	Office Creek Channel	Downstream Face of Paige Road to Memorial Drive	1950 Linear Feet	Constructed	Junction-6.5	2877	3178	\$ 483,269	9.47%	\$ 45,766
4	Office Creek Channel	Between Memorial Drive and Blair Oaks Drive	350 Linear Feet	Constructed	Junction-9	4126	4625	\$ 214,466	10.79%	\$ 23,141
5	Tributary Channel	Channel Excavation at Horizon Water Park	850 Linear Feet	Constructed	OC09	507	508	\$ 159,535	0.20%	\$ 319
6	Office Creek Channel	Upstream Face of South Colony Blvd. to eastern Sonoma Grande boundary	700 Linear Feet	Constructed	Junction-1	677	691	\$ 147,217	2.03%	\$ 2,988

Structural Improvements:

Project Number	Location of Improvement	Location of Crossing	Size of Improved Structure	Status	Hydrologic Model Combination Point	Existing (2016) Condition Flow ¹ (cfs)	Fully Built-Out (2026) Condition Flow ² (cfs)	Total Construction Cost	Percentage in 10-Year Growth	Cost of 10-Year Growth Capacity
7	Morningstar Drive	At Office Creek Crossing	1 - 8'x4' RCB	Constructed	OC01	243	248	\$ 134,900	2.02%	\$ 2,725
8	South Colony Boulevard	At Office Creek Crossing	2 - 7'x6' RCB's	Constructed	Junction-2	677	691	\$ 191,340	2.03%	\$ 3,884
9	Paige Road	Immediately North of Memorial Drive	5 - 8'x8' RCB's	Constructed	Junction-6.5	2877	3178	\$ 439,199	9.47%	\$ 41,592
10	Paige Road	Approximately 550' South of Memorial Drive	3 - 60" RCP's	Constructed	OC19	130	151	\$ 143,840	13.91%	\$ 20,008
11	Blair Oaks Drive	Approximately 300' South of Cougar Alley	4 - 10'x10' RCB's	Constructed	Junction-10	5069	5577	\$ 562,232	9.11%	\$ 51,219
12	Memorial Drive	At Worley Drive	3 - 7'x6' RCB's	Constructed	Junction-4	809	855	\$ 171,668	5.38%	\$ 9,236
13	Memorial Drive	Approximately 1000' East of Paige Road	4 - 9'x6' RCB's	Constructed	Junction-14	1181	1262	\$ 212,928	6.42%	\$ 13,670
14	Memorial Drive	Approximately 1650' East of Blair Oaks Drive	4 - 10'x5' RCB's	Constructed	Junction-17	849	973	\$ 119,410	12.74%	\$ 15,213
15	Memorial Drive	Approximately 850' East of Blair Oaks Drive	2 - 8'x5' RCB's	Constructed	R-OC26A	60	60	\$ 78,325	0.00%	\$ -
16	Memorial Drive	Approximately 100' East of Blair Oaks Drive	2 - 8'x5' RCB's	Constructed	Junction-19	542	550	\$ 80,560	1.45%	\$ 1,168
17	F.M. 423 (Main Street)	At Office Creek Crossing	3 - 8'x8' RCB's	Constructed	Junction-12	5753	6355	\$ 323,300	9.47%	\$ 30,617
18	Paige/121 Addition -- Chevron, USA	NWC of Paige Road and SH 121	4 - 8'x4' RCB's	Not Constructed	Junction-16B	533	600	\$ 2,704,550	11.17%	\$ 302,098
19	Detention Outfalls	Various	Varies	Not Constructed	Junction-12	5753	6355	\$ 270,500	9.47%	\$ 25,616
20	Paige Road	At Office Creek Crossing	--	Not Constructed	Junction-6.5	2877	3178	\$ 96,600	9.47%	\$ 9,148
21	Memorial Drive	At Office Creek Crossing	3 - 7'x6' RCB's	Not Constructed	Junction-14	1181	1262	\$ 497,527	6.42%	\$ 31,941
22	Blair Oaks Drive	At Office Creek Crossing	2 - 84" CMP's	Not Constructed	Junction-10	5069	5577	\$ 288,425	9.11%	\$ 26,276
23	Impact Fee Study	--	--	Completed	--	--	--	\$ 39,000	100.00%	\$ 39,000

Total Construction Costs: \$ 8,407,059

Notes:

- Existing Condition flows obtained from HMS modeling that was previously prepared by the City of the Colony (July 2010) and revised by Kimley-Horn in May 2016.
- Fully Built Out Condition Flows obtained from HMS modeling that was previously prepared by the City of the Colony (July 2010) and revised by Kimley-Horn in May 2016.
- 10-Year Growth Percentages have been calculated by the following formula: $\frac{\text{Fully Built-Out Flow} - \text{Existing Flow}}{\text{Fully Built-Out Flow}}$

Total Cost of 10-Year Growth Capacity: \$ 745,917
Maximum Assessable Cost (50%): \$ 372,959
Total Number of Service Units: 1,537.8
Maximum Assessable Impact Fee: \$ 242.53

City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No. 1
Name:	Office Creek Channel	This project consisted of the construction of approximately 1350 linear feet of channel between Morningstar Drive and South Colony Boulevard. Construction was completed and paid for by Flournoy Development Company, LLC in 2004. Costs below reflect actual costs paid by Flournoy Development Company to complete the channel improvements.	
Limits:	Morningstar Drive to South Colony Boulevard		
Improvement Type:	Channel		
Channel Length:	1350 Linear Feet		
Status:	Constructed		
Cost Source:	A		

Final Construction Costs						
No.	Item Description	Quantity	Unit	Unit Price	Item Cost	
100	Pilot Channel	1	LS	\$ 14,210	\$ 14,210	
200	Excavation	1	LS	\$327,980	\$ 327,980	
300	Temporary Construction Entrance	1	LS	\$ 2,000	\$ 2,000	
400	Construction Staking	1	LS	\$ 10,000	\$ 10,000	
500	Curlex Erosion Control	1	LS	\$ 64,720	\$ 64,720	
600	Weir Structure	1	LS	\$ 11,000	\$ 11,000	
700	Channel Bottom Rip Rap	1	LS	\$ 28,300	\$ 28,300	
800	Water Line Relocation	1	LS	\$ 7,840	\$ 7,840	
Construction Cost Subtotal:					\$ 466,050	
Change Order Items						
No.	Item Description	Notes	Quantity	Unit	Unit Price	Item Cost
110	Weir Redesign		1	LS	\$ 5,470	\$ 5,470
120	Sewer Line Encasement		1	LS	\$ 5,400	\$ 5,400
130	Water Line Encasement		1	LS	\$ 1,500	\$ 1,500
140	Additional Rip Rap		1	LS	\$ 23,275	\$ 23,275
150	Traffic Wall		1	LS	\$ 17,900	\$ 17,900
160	Canal Redesign		1	LS	\$104,048	\$ 104,048
170	Reseeding		1	LS	\$ 20,072	\$ 20,072
Change Order Subtotal:					\$ 177,665	

Project Cost Summary		
Item Description	Notes:	Item Cost
Construction:		\$ 466,050
Change Order Items:		\$ 177,665
Estimated Engineering Fees:	Percent of Construction Cost (+/-): 10%	\$ 64,400
Project Cost TOTAL:		\$ 708,115

Notes:

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No.
Name:	Office Creek Channel	This project consisted of the construction of approximately 1950 linear feet of channel east of Paige Road between the upstream face of Paige Road and the downstream face of Memorial Drive. Construction was completed on this project in 2004. Construction costs below represent final construction costs paid by the developer and the City.	2
Limits:	Memorial Drive to Upstream Face of Paige Road		
Improvement Type:	Channel		
Length:	1950 Linear Feet		
Status:	Constructed		
Cost Source:	C		

Final Construction Cost					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
100	Mobilization	1	LS	\$ 12,500	\$ 12,500
200	Channel Excavation	18,945	CY	\$ 3.00	\$ 56,835
400	Pilot Channel	557	LF	\$ 27.00	\$ 15,039
500	Rock Rip Rap	82	CY	\$ 35.00	\$ 2,870
600	Gabion Drop Structure	1,040	SY	\$ 44.00	\$ 45,760
700	Erosion Control	1	LS	\$ 31,250	\$ 31,250
800	Erosion Control Matting	300	SY	\$ 4.00	\$ 1,200
900	Hydromulching	8	AC	\$ 5,000	\$ 40,000
Construction Cost Subtotal:					\$ 205,454

Total Project Cost Summary		
Item Description	Notes:	Item Cost
Construction:		\$ 205,454
Project Management Fees:	25% JNC Total -- See Reimbursement Request	\$ 32,100
Engineering/Surveying Fees:	25% JNC Total -- See Reimbursement Request	\$ 102,599
Project Cost TOTAL:		\$ 340,153

Notes:

1. Cost for Mobilization calculated as one-third of the total cost shown on Sheet 2 of Cost Source C.
2. Costs for Channel Excavation calculated using total costs for Channels B and C Excavation on Sheet 2 of Cost Source C and cost for Channel C Excavation on Sheet 3 of Cost Source C.
3. Cost for Rock Rip Rap, Gabion Drop Structure, and Hydromulching have been calculated using total costs shown on Sheet 2 of Cost Source C.
4. Cost for Erosion Control has been calculated as 50% of the total cost shown on Sheet 3 of Cost Source C.
5. Cost for Erosion Control Matting has been calculated using total costs shown on Sheets 2 and 3 of Cost Source C.
6. Project Management Fees have been included as 25% of the total cost of Project Management reported in the JNC Reimbursement Request (February, 2005).
7. Engineering/Surveying Fees have been included as 25% of the total cost of Engineering/Surveying Services reported in the JNC Reimbursement Request (February, 2005).

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No.
Name:	Office Creek Channel	This project consisted of the construction of approximately 1950 linear feet of channel west of Paige Road between the downstream face of Paige Road and the upstream face of Memorial Drive. Construction was completed on this project in 2004. Construction costs below represent final construction costs paid by the developer and the City.	3
Limits:	Downstream Face of Paige Road to Memorial Drive		
Improvement Type:	Channel		
Length:	1950 Linear Feet		
Status:	Constructed		
Cost Source:	C		

Final Construction Cost					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
100	Mobilization	1	LS	\$ 12,500	\$ 12,500
200	Channel Excavation	24,083	CY	\$ 2.95	\$ 71,045
300	Channel Excavation	7,293	CY	\$ 5.06	\$ 36,903
400	Channel Excavation	24,083	CY	\$ 2.06	\$ 49,611
500	Clearing and Grubbing	6.62	AC	\$ 1,610	\$ 10,658
600	Pilot Channel	1,752	LF	\$ 60	\$ 105,120
700	Erosion Control	1	LS	\$ 28,933	\$ 28,933
800	Rock Rip Rap	202	CY	\$ 100	\$ 20,200
900	Hydromulching	6.8	AC	\$ 2,000	\$ 13,600
Construction Cost Subtotal:					\$ 348,570

Total Project Cost Summary		
Item Description	Notes:	Item Cost
Construction:		\$ 348,570
Project Management Fees:	25% JNC Total -- See Reimbursement Request	\$ 32,100
Engineering/Surveying Fees:	25% JNC Total -- See Reimbursement Request	\$ 102,599
Project Cost TOTAL:		\$ 483,269

Notes:

1. Cost for Channel Excavation has been calculated as 85% of the total cost shown on Sheet 1 of Cost Source C, and 85% of the costs shown for Channel A Excavation on Sheets 2 and 3.
2. Cost for Clearing and Grubbing has been calculated as 85% of the total cost shown on Sheet 1 of Cost Source C.
3. Cost for Erosion Control has been calculated as one-third of the cost shown on Sheet 2 of Cost Source C. and 42.5% of the costs shown on Sheet 3 of Cost Source C.
4. Costs for Pilot Channel, Rock Rip Rap and Hydromulching have been calculated as 85% of the costs shown on Sheet 3 of Cost Source C.
5. Cost for Mobilization has been calculated as one-third of the cost shown on Sheet 2 of Cost Source C.
6. Project Management Fees have been included as 25% of the total cost of Project Management reported in the JNC Reimbursement Request (February, 2005).
7. Engineering/Surveying Fees have been included as 25% of the total cost of Engineering/Surveying Services reported in the JNC Reimbursement Request (February, 2005).

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No.
Name:	Office Creek Channel	This project consisted of the construction of approximately 350 linear feet of channel immediately downstream of Memorial Drive between Memorial Drive and Blair Oaks Drive. Construction was completed on this project in 2004. Construction costs below represent final construction costs paid by the developer and the City.	4
Limits:	Between Memorial Drive and Blair Oaks Drive		
Improvement Type:	Channel		
Length:	350 Linear Feet		
Status:	Constructed		
Cost Source:	C		

Final Construction Costs					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
100	Mobilization	1	LS	\$ 12,500	\$ 12,500
200	Channel Excavation	4,317	CY	\$ 2.06	\$ 8,893
300	Channel Excavation	4,317	CY	\$ 2.95	\$ 12,735
400	Channel Excavation	1,307	CY	\$ 5.06	\$ 6,613
500	Pilot Channel	314	LF	\$ 60	\$ 18,840
600	Clearing and Grubbing	1.19	AC	\$ 1,610	\$ 1,916
700	Erosion Control	1	LS	\$ 12,170	\$ 12,170
800	Rock Rip Rap	36	SY	\$ 100	\$ 3,600
900	Hydromulching	1.25	AC	\$ 2,000	\$ 2,500
Construction Cost Subtotal:					\$ 79,767

Total Project Cost Summary		
Item Description	Notes:	Item Cost
Construction:		\$ 79,767
Project Management Fees:	25% JNC Total -- See Reimbursement Request	\$ 32,100
Engineering/Surveying Fees:	25% JNC Total -- See Reimbursement Request	\$ 102,599
Project Cost TOTAL:		\$ 214,466

Notes:

1. Cost for Channel Excavation has been calculated as 15% of cost shown on Sheet 1 of Cost Source C and 15% of the total costs shown for Channel A Excavation on Sheets 2 and 3.
2. Cost for Erosion Control has been calculated as one-third of the cost shown on Sheet 2 of Cost Source C and 7.5% of the cost shown on Sheet 3 of Cost Source C.
3. Cost for Clearing and Grubbing has been calculated as 15% of the cost shown on Sheet 1 of Cost Source C.
4. Costs for Pilot Channel, Rock Rip Rap and Hydromulching have been calculated as 15% of the costs shown on Sheet 3 of Cost Source C.
5. Cost for Mobilization has been calculated as one-third of the cost shown on Sheet 2 of Cost Source C.
6. Project Management Fees have been included as 25% of the total cost of Project Management reported in the JNC Reimbursement Request (February, 2005).
7. Engineering/Surveying Fees have been included as 25% of the total cost of Engineering/Surveying Services reported in the JNC Reimbursement Request (February, 2005).

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No.	5
Name:	Tributary Channel	This project consisted of the construction of an additional channel immediately west of the Horizon Water Park. The channel is located along the eastern side of Paige Road and flows under the 9'x6' RCB culvert crossing at the water park. This improvement was designed by Halff Associates in 2004 and provides additional detention volume to the Office Creek watershed.		
Limits:	Channel Excavation at Horizon Water Park			
Improvement Type:	Channel			
Length:	850 Linear Feet			
Status:	Constructed			
Cost Source:	E			

Final Construction Costs					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Rock Berm	67	LF	\$ 40.00	\$ 2,680
	4" Topsoil	10,274	SY	\$ 0.75	\$ 7,706
	Hydromulching	10,274	SY	\$ 0.50	\$ 5,137
	Turf Reinforcement Mat	7,920	SY	\$ 2.00	\$ 15,840
	Unclassified Channel Excavation	10,864	CY	\$ 2.00	\$ 21,728
	Concrete Pilot Channel	921.00	SY	\$ 30.00	\$ 27,630
	Reinforced Concrete Weir	1	LS	\$ 21,000	\$ 21,000
	Reinforced Concrete Rip Rap	494	SY	\$ 45.00	\$ 22,230
	Geotextile for Gabion Mattress	402	SY	\$ 2.00	\$ 804
	Gabion Mattress	338.00	SY	\$ 60.00	\$ 20,280
Construction Cost Subtotal:					\$ 145,035

Total Project Cost Summary		
Item Description	Notes:	Item Cost
Construction:		\$ 145,035
Engineering/Surveying Fees:	Percent of Construction Cost (+/-): 10%	\$ 14,500
Project Cost TOTAL:		\$ 159,535

Notes:

1. Items 6 & 7 from Cost Source E not included in the calculation above. The subject items are not considered part of the Impact Fee CIP and cannot be considered in the drainage impact fee calculation.

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 6/7/2016

Project Information:		Description:	Project No. 6
Name:	Office Creek Channel	This project consisted of the construction of a weir structure, regrading of approximately 700 linear feet of channel between South Colony Boulevard and the eastern edge of Sonoma Grande. Construction was completed and paid for by Flournoy Development Company, LLC in 2006. Costs below reflect actual costs paid by Flournoy Development Company to complete the channel improvements.	
Limits:	Upstream Face of South Colony Blvd. to eastern Sonoma Grande boundary		
Improvement Type:	Channel		
Length:	700 Linear Feet		
Status:	Constructed		
Cost Source:	F		

Final Construction Costs					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Concrete Pilot Channel	7,010	SF	\$ 3.66	\$ 25,657
	Riprap at Structure	782	SF	\$ 60	\$ 46,920
	Channel Cut	7,470	CY	\$ 2	\$ 14,940
	Weir Structure	1	EA	\$ 24,000	\$ 24,000
Construction Cost Subtotal:					\$ 111,517
Construction Subtotal:					\$ 111,517
Construction Contingency (+/-): 20%					\$ 22,300
Construction Cost TOTAL:					\$ 133,817

Project Cost Summary		
Item Description	Notes:	Item Cost
Construction:		\$ 133,817
Engineering/Survey Fees:	Percent of Construction Cost (+/-): 10%	\$ 13,400
Project Cost TOTAL:		\$ 147,217

Notes:

1. Final Construction Costs were based on "Total Construction Costs" shown on Cost Source F.
2. Construction Contingency is 20% per Cost Source F.

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Projected Construction Cost

Kimley-Horn and Associates, Inc.

Updated:

7/6/2010

Project Information:		Description:	Project No.	7
Name:	Morningstar Drive	This project consisted of the construction of one 8'x4' Reinforced Concrete Box (RCB) culvert under Morningstar Drive.		
Limits:	At Office Creek Crossing			
Improvement Type:	Structural			
Size:	1 - 8'x4' RCB			
Status:	Constructed			
Cost Source:	Projected			

Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
462	1 - 8' x 4' RCB	120	LF	\$ 450	\$ 54,000
466	Flared Wingwall	2	EA	\$ 8,000	\$ 16,000
100	Grouted Rock Rip Rap	80	SY	\$ 70	\$ 5,600
540	Metal Beam Guard Fence	40	LF	\$ 30	\$ 1,200
200	Bridge Rail	100	LF	\$ 50	\$ 5,000
110	Unclassified Excavation	850	CY	\$ 4.00	\$ 3,400
Construction Cost Subtotal:					\$ 85,200
Major Construction Component Allowances:					
No.	Item Description			Allowance	Item Cost
	Mobilization		+/-	10%	\$ 8,500
	Traffic Control		+/-	5%	\$ 4,300
	Erosion Control		+/-	5%	\$ 4,300
	Utility Relocation		+/-	5%	\$ 4,300
Allowance Subtotal:					\$ 21,400
Construction and Allowance Subtotal:					\$ 106,600
				Construction Contingency (+/-):	15%
					\$ 16,000
Construction Cost TOTAL:					\$ 122,600

Project Cost Summary			
Item Description		Allowance	Item Cost
Construction:		N/A	\$ 122,600
Engineering/Survey Fees:	Percent of Construction Cost	10%	\$ 12,300
Project Cost TOTAL:			\$ 134,900

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated:

7/6/2010

Project Information:		Description:	Project No.	8
Name:	South Colony Boulevard	This project consisted of the construction of two 7'x6' Reinforced Concrete Box (RCB) culverts under South Colony Boulevard.		
Limits:	At Office Creek Crossing			
Improvement Type:	Structural			
Size:	2 - 7'x6' RCB's			
Status:	Constructed			
Cost Source:	Actual			

Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
462	2 - 7' x 6' RCB's	1	LS		\$ 173,940
Construction Cost Subtotal:					\$ 173,940
Construction Cost TOTAL:					\$ 173,940

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 173,940
Engineering/Survey Fees:	Percent of Construction Cost (+/-)	10%	\$ 17,400
Project Cost TOTAL:			\$ 191,340

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No.
Name:	Paige Road	This project consisted of the construction of five (5) - 8'x8' Reinforced Concrete Box (RCB) culverts under Paige Road. Construction was completed on this project in 2004. Construction costs below represent final construction costs paid by the developer to construct the improvements.	9
Limits:	Immediately North of Memorial Drive		
Improvement Type:	Structural		
Size:	5 - 8'x8' RCB's		
Status:	Constructed		
Cost Source:	C		

Final Construction Cost					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	5 - 8' x 8' RCB's	500	LF	\$ 355	\$ 177,500
	MCW-P Headwall	2	EA	\$ 25,000	\$ 50,000
	Metal Beam Guard Fence	250	LF	\$ 31.40	\$ 7,850
	Structural Excavation	3,000	CY	\$ 6.00	\$ 18,000
	Roadway Demolition	120	CY	\$ 50	\$ 6,000
	8" Reinforced Concrete Pavement	800	SY	\$ 39.50	\$ 31,600
	Water Main Relocation	86	LF	\$ 50	\$ 4,300
	Traffic Control	1	LS	\$ 9,250	\$ 9,250
Construction Cost Subtotal:					\$ 304,500

Total Project Cost Summary		
Item Description	Notes:	Item Cost
Construction:		\$ 304,500
Project Management Fees:	25% JNC Total -- See Reimbursement Request	\$ 32,100
Engineering/Surveying Fees:	25% JNC Total -- See Reimbursement Request	\$ 102,599
Project Cost TOTAL:		\$ 439,199

Notes:

1. Items shown on Cost Source C not included in the above calculations have been applied to Projects 3, 4, and 5.
2. Project Management Fees have been included as 25% of the total cost of Project Management reported in the JNC Reimbursement Request (February, 2005).
3. Engineering/Surveying Fees have been included as 25% of the total cost of Engineering/Surveying Services reported in the JNC Reimbursement Request (February, 2005).

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Projected Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No. 10
Name:	Paige Road	This project consisted of the construction of three (3) existing 60" Reinforced Concrete Pipes located approximately 550 feet south of Memorial Drive.	
Limits:	Approximately 550' South of Memorial Drive		
Improvement Type:	Structural		
Size:	3 - 60" RCP's		
Status:	Constructed		
Cost Source:	Projected		

Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	3 - 60" RCP's	390	LF	\$ 250	\$ 97,500
	Flared Wingwall	2	EA	\$ 8,000	\$ 16,000
	Grouted Rock Rip Rap	150	SY	\$ 60.00	\$ 9,000
	Metal Beam Guard Fence	60	LF	\$ 30.00	\$ 1,800
	Bridge Rail	100	LF	\$ 50.00	\$ 5,000
	Unclassified Excavation	360	CY	\$ 4.00	\$ 1,440
Construction Cost Subtotal:					\$ 130,740

Total Project Cost Summary			
Item Description	Notes:		Item Cost
Construction:			\$ 130,740
Engineering/Surveying Fees:	Percent of Construction Cost (+/-):	10%	\$ 13,100
Project Cost TOTAL:			\$ 143,840

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 1/1/1900

Project Information:		Description:	Project No. 11
Name:	Blair Oaks Drive	This project consisted of the construction of four (4) - 10'x10' Reinforced Concrete Box (RCB) culverts under Paige Road. Construction was completed on this project in 2004.	
Limits:	Approximately 300' South of Cougar Alley		
Improvement Type:	Structural		
Size:	4 - 10'x10' RCB's		
Status:	Constructed		
Cost Source:	D		

Final Construction Cost					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	4 - 10' x 10' RCB's	300	LF	\$ 400	\$ 120,000
	Pavement Removal	343	SY	\$ 10.00	\$ 3,430
	Roadway Grading	57	CY	\$ 20.00	\$ 1,140
	Structural Excavation	2,446	CY	\$ 3.00	\$ 7,338
	Unclassified Channel Excavation	13,164	CY	\$ 3.00	\$ 39,492
	Erosion Control	1	LS	\$ 6,300	\$ 6,300
	Traffic Control	1	LF	\$ 50,000	\$ 50,000
	Mobilization	1	LS	\$ 20,000	\$ 20,000
	TxDOT Parallel Wing Headwall	2	EA	\$ 66,000	\$ 132,000
	TxDOT Traffic Rail	654	LF	\$ 70.00	\$ 45,780
	Filter Fabric	771	SY	\$ 2.00	\$ 1,542
	18" Gabion Mattresses	684	SY	\$ 61.00	\$ 41,724
	Gabion Basket Toewall	309	LF	\$ 37.00	\$ 11,433
	Curlex Quickgrass Erosion Control	261	SY	\$ 3.00	\$ 783
	8" Reinforced Concrete Pavement	342	SY	\$ 35.00	\$ 11,970
	Hydromulch	1	AC	\$ 1,250	\$ 1,250
	3" Caliper Trees	22	EA	\$ 225	\$ 4,950
	Tree Removal	1	LS	\$ 8,500	\$ 8,500
	Traffic Buttons and Striping	1	LS	\$ 3,500	\$ 3,500
Construction Cost Subtotal:					\$ 511,132

Total Project Cost Summary			
Item Description	Notes:		Item Cost
Construction:			\$ 511,132
Engineering/Surveying Fees:	Percent of Construction Cost (+/-):	10%	\$ 51,100
Project Cost TOTAL:			\$ 562,232

Notes:

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No. 12
Name:	Memorial Drive	This project consisted of the construction of three (3) 7'x6' Reinforced Concrete Box culverts immediately west of the intersection of Memorial Drive with Worley Drive.	
Limits:	At Worley Drive		
Improvement Type:	Structural		
Size:	3 - 7'x6' RCB's		
Status:	Constructed		
Cost Source:	B		

Final Construction Cost					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	7'x6' Reinforced Concrete Box	160	LF	\$ 661.50	\$ 105,840
	Sloped Headwalls	2	EA	\$ 21,000.00	\$ 42,000
	Construction Staking	1	LS	\$ 2,290.00	\$ 2,290
	Silt Fence	795	LF	\$ 1.75	\$ 1,391
	Channel Excavation	500	CY	\$ 8.66	\$ 4,330
	Sheeting, Shoring, and Bracing	207	LF	\$ 1.05	\$ 217
Construction Cost Subtotal:					\$ 156,068
Project Cost Summary					
Item Description		Notes:	Allowance	Item Cost	
Construction:			N/A	\$ 156,068	
Engineering/Survey Fees:		Percent of Construction Cost (+/-):	10%	\$ 15,600	
Project Cost TOTAL:					\$ 171,668

Notes:

1. Cost for Construction Staking and Silt Fence are one-third of total costs shown on Cost Source B.
2. Cost for Sheeting, Shoring, and Benching is 50% of total cost shown on Cost Source B.
3. Cost for Channel Excavation calculated using 500 CY of Channel Excavation from total shown on Cost Source B.
4. Items 1, 2, 4 through 8, and 14 through 16 from Cost Source B not included with Project 12.

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated:

7/6/2010

Project Information:		Description:	Project No.	13
Name:	Memorial Drive	This project consisted of the construction of four (4) 9'x6' Reinforced Concrete Box culverts located approximately 1000 feet east of the intersection of Memorial Drive and Paige Road. Construction of this improvement has not been completed.		
Limits:	Approximately 1000' East of Paige Road			
Improvement Type:	Structural			
Size:	4 - 9'x6' RCB's			
Status:	Constructed			
Cost Source:	B			

Final Construction Cost					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	9'x6' Reinforced Concrete Box Culverts	136	LF	\$ 976.50	\$ 132,804
	Sloped Headwalls	2	EA	\$26,250.00	\$ 52,500
	Construction Staking	1	LS	\$ 2,289.00	\$ 2,289
	Silt Fence	793	LF	\$ 1.75	\$ 1,388
	Channel Excavation	500	CY	\$ 8.66	\$ 4,330
	Sheeting, Shoring, and Bracing	207	LF	\$ 1.05	\$ 217
Construction Cost Subtotal:					\$ 193,528

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 193,528
Engineering/Survey Fees:	Percent of Construction Cost (+/-):	10%	\$ 19,400
Project Cost TOTAL:			\$ 212,928

Notes:

1. Cost for Construction Staking and Silt Fence are one-third of total costs shown on Cost Source B.
2. Cost for Sheeting, Shoring, and Benching is 50% of total cost shown on Cost Source B.
3. Cost for Channel Excavation calculated using 500 CY of Channel Excavation from total shown on Cost Source B.
4. Items 1, 2, 4 through 8, and 14 through 16 from Cost Source B not included with Project 13.

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No.
Name:	Memorial Drive	This project consisted of construction of four (4) 10'x5' Reinforced Concrete Box (RCB) culverts at the crossing of Office Creek with Memorial Drive. Construction of the project was completed in 2004.	14
Limits:	Approximately 1650' East of Blair Oaks Drive		
Improvement Type:	Structural		
Size:	4 - 10'x5' RCB's		
Status:	Constructed		
Cost Source:	D		

Final Construction Cost					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Metal Beam Guard Fence	75	LF	\$ 25	\$ 1,875
	SGT Railing End Section	1	EA	\$ 2,300	\$ 2,300
	TAS Railing End Section	1	EA	\$ 500	\$ 500
	4 - 10' x 5' RCB's	61	LF	\$ 1,050	\$ 64,050
	Parallel Wingwall	1	LS	\$ 10,500	\$ 10,500
	Flared Wingwall	1	LS	\$ 20,000	\$ 20,000
	Grouted Rock Rip Rap	125	SY	\$ 65	\$ 8,125
	Erosion Control	1	LS	\$ 1,160	\$ 1,160
Construction Cost Subtotal:					\$ 108,510

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 108,510
Engineering/Survey Fees:	Percent of Construction Cost (+/-):	10%	\$ 10,900
Project Cost TOTAL:			\$ 119,410

Notes:

1. Cost for Metal Beam Guard Fence is one-third of total cost shown on Cost Source D.
2. Costs for SGT and TAS Railings are one-third of total cost shown on Cost Source D.
3. Cost for Erosion Control is one-third of total cost shown on Cost Source D.
4. Cost for Grouted Rock Rip Rap is one-third of total cost shown on Cost Source D.
5. Items shown on Cost Source D not included in Projects 11 and 14 through 16 apply to associated paving improvements and cannot be included in drainage impact fee calculations.

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No. 15
Name:	Memorial Drive	This project consisted of construction of two (2) 8'x5' Reinforced Concrete Box (RCB) culverts on Memorial Drive approximately 850' east of Blair Oaks Drive. Construction of the project was completed in 2004.	
Limits:	Approximately 850' East of Blair Oaks Drive		
Improvement Type:	Structural		
Size:	2 - 8'x5' RCB's		
Status:	Constructed		
Cost Source:	D		

Final Construction Cost					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Mobilization	1	LS	\$ 5,000	\$ 5,000
	2 - 8' x 5' RCB's	101	LF	\$ 475	\$ 47,975
	Flared Wingwall	2	LS	\$ 5,000	\$ 10,000
	Grouted Rock Rip Rap	150	SY	\$ 65	\$ 9,750
	Erosion Control	1	LS	\$ 3,500	\$ 3,500
Construction Cost Subtotal:					\$ 71,225

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 71,225
Engineering/Survey Fees:	Percent of Construction Cost (+/-):	10%	\$ 7,100
Project Cost TOTAL:			\$ 78,325

Notes:

1. Cost for Metal Beam Guard Fence is one-third of total cost shown on Cost Source D.
2. Costs for SGT and TAS Railings are one-third of total cost shown on Cost Source D.
3. Cost for Erosion Control is one-third of total cost shown on Cost Source D.
4. Cost for Grouted Rock Rip Rap is one-third of total cost shown on Cost Source D.
5. Cost for 8'x5' RCB's are 50% of the total cost shown on Cost Source D.
6. Items shown on Cost Source D not included in Projects 11 and 14 through 16 apply to associated paving improvements and cannot be included in drainage impact fee calculations.

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Final Construction Cost

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No. 16
Name:	Memorial Drive	This project consisted of construction of two (2) 8'x5' Reinforced Concrete Box (RCB) culverts on Memorial Drive approximately 100' East of Blair Oaks Drive. Construction of the project was completed in 2004.	
Limits:	Approximately 100' East of Blair Oaks Drive		
Improvement Type:	Structural		
Size:	2 - 8'x5' RCB's		
Status:	Constructed		
Cost Source:	D		

Final Construction Cost					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Metal Beam Guard Fence	75	LF	\$ 25	\$ 1,875
	SGT Railing End Section	1	EA	\$ 2,300	\$ 2,300
	TAS Railing End Section	1	EA	\$ 500	\$ 500
	2 - 8' x 5' RCB's	101	LF	\$ 475	\$ 47,975
	Parallel Wingwall	1	LS	\$ 11,000	\$ 11,000
	Flared Wingwall	1	LS	\$ 5,000	\$ 5,000
	Grouted Rock Rip Rap	125	SY	\$ 65	\$ 8,125
	Erosion Control	1	LS	\$ 1,160	\$ 1,160
Construction Cost Subtotal:					\$ 73,260

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 73,260
Engineering/Survey Fees:	Percent of Construction Cost (+/-):	10%	\$ 7,300
Project Cost TOTAL:			\$ 80,560

Notes:

1. Cost for Metal Beam Guard Fence is one-third of total cost shown on Cost Source D.
2. Costs for SGT and TAS Railings are one-third of total cost shown on Cost Source D.
3. Cost for Erosion Control is one-third of total cost shown on Cost Source D.
4. Cost for Grouted Rock Rip Rap is one-third of total cost shown on Cost Source D.
5. Cost for 8'x5' RCB's are 50% of the total cost shown on Cost Source D.
6. Items shown on Cost Source D not included in Projects 11 and 14 through 16 apply to associated paving improvements and cannot be included in drainage impact fee calculations.

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Project Cost Projection

Kimley-Horn and Associates, Inc.

Updated: 7/6/2010

Project Information:		Description:	Project No. 17
Name:	F.M. 423 (Main Street)	This project consisted of the construction of three (3) 8'x8' Reinforced Concrete Box (RCB) culverts at the crossing of Office Creek with F.M. 423 (Main Street).	
Limits:	At Office Creek Crossing		
Improvement Type:	Structural		
Size:	3 - 8'x8' RCB's		
Status:	Constructed		
Cost Source:	Projected		

Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	3 - 8'x8' RCB's	260	LF	\$ 550.00	\$ 143,000
	Unclassified Excavation	1,000	CY	\$ 4.00	\$ 4,000
	Grouted Rock Rip Rap	130	SY	\$ 70.00	\$ 9,100
	Metal Beam Guard Fence	100	LF	\$ 30.00	\$ 3,000
	Bridge Rail	150	LF	\$ 50.00	\$ 7,500
	Parallel Headwall	2	EA	\$ 15,000.00	\$ 30,000
Construction Cost Subtotal:					\$ 196,600
Major Construction Component Allowances:					
No.	Item Description	Notes		Allowance	Item Cost
	Mobilization		+/-	10%	\$ 19,700
	Traffic Control		+/-	5%	\$ 9,800
	Erosion Control		+/-	5%	\$ 9,800
	Utility Relocation		+/-	10%	\$ 19,700
Allowance Subtotal:					\$ 59,000
Construction and Allowance Subtotal:					\$ 255,600
				Construction Contingency (+/-): 15%	\$ 38,300
Construction Cost TOTAL:					\$ 293,900

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 293,900
Engineering/Survey Fees:	Percent of Construction Cost (+/-):	10%	\$ 29,400
Project Cost TOTAL:			\$ 323,300

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Project Cost Projection

Kimley-Horn and Associates, Inc.

Updated: 6/7/2016

Project Information:		Description:	Project No.	18
Name:	Paige/121 Addition -- Chevron, USA	This project consists of replacing the existing 8'x4' Reinforced Concrete Box culvert under the Paige/121 Addition (Chevron Station) with four (4) 8'x4' RCBs. The crossing at SH 121 will be constructed by TxDOT, while improvements downstream shall be constructed in future phases of development by the City of The Colony.		
Limits:	NWC of Paige Road and SH 121			
Improvement Type:	Structural			
Size:	4 - 8'x4' RCB's			
Status:	Not Constructed			
Cost Source:	Projected			

Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	8' x4' RCB	2,970	LF	\$ 460	\$ 1,366,200
	Remove Existing Concrete Pavement	2,500	SY	\$ 5	\$ 12,500
	Grading and Subgrade Preparation	400	CY	\$ 15	\$ 6,000
	Structural Excavation	4,200	CY	\$ 19	\$ 79,800
	Connect to Existing Storm Sewer	1	LS	\$ 15,000	\$ 15,000
	Flared Wingwall	2	EA	\$ 10,800	\$ 21,600
	Place Reinforced Concrete Pavement	2,500	SY	\$ 55	\$ 137,500
	Grouted Rip Rap at Headwall	85	SY	\$ 70	\$ 5,950
Construction Cost Subtotal:					\$ 1,644,550
Major Construction Component Allowances:					
No.	Item Description	Notes		Allowance	Item Cost
	Mobilization		+/-	10%	\$ 164,500
	Traffic Control		+/-	5%	\$ 82,200
	Erosion Control		+/-	5%	\$ 82,200
	Utility Relocation		+/-	10%	\$ 164,500
Allowance Subtotal:					\$ 493,400
Construction and Allowance Subtotal:					\$ 2,137,950
Construction Contingency (+/-):				15%	\$ 320,700
Construction Cost TOTAL:					\$ 2,458,650

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 2,458,650
Engineering/Surveying Fees:	Percent of Construction Cost (+/-):	10%	\$ 245,900
Project Cost TOTAL:			\$ 2,704,550

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Project Cost Projection

Kimley-Horn and Associates, Inc.

Updated:

6/7/2016

Project Information:		Description:	Project No.	19
Name:	Detention Outfalls	This project consists of the construction of flow restrictor devices at various locations along Office Creek to take advantage of available volume in the channel for detention. Two constrictions are anticipated. They will be located near the Blair Oaks Drive and F.M. 423 channel crossings.		
Limits:	Various			
Improvement Type:	Structural			
Size:	Varies			
Status:	Not Constructed			
Cost Source:	Projected			

Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Blair Oaks Drive Structure	1	LS	\$ 65,000	\$ 65,000
	F.M. 423 Structure	1	LS	\$ 75,000	\$ 75,000
Construction Cost Subtotal:					\$ 140,000
Major Construction Component Allowances:					
No.	Item Description	Notes		Allowance	Item Cost
	Mobilization		+/-	20%	\$ 28,000
	Erosion Control		+/-	5%	\$ 7,000
	Traffic Control		+/-	5%	\$ 7,000
	Utility Relocation		+/-	10%	\$ 14,000
Allowance Subtotal:					\$ 56,000
Construction and Allowance Subtotal:					\$ 196,000
Construction Contingency (+/-):				15%	\$ 29,400
Construction Cost TOTAL:					\$ 225,400

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 225,400
Engineering/Surveying Fees:	Percent of Construction Cost (+/-):	20%	\$ 45,100
Project Cost TOTAL:			\$ 270,500

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Project Cost Projection

Kimley-Horn and Associates, Inc.

Updated:

6/7/2016

Project Information:		Description:	Project No.
Name:	Paige Road	This project consists of upgrading an inline stepped weir at the intersection of Office Creek and Paige Road for low flow events.	20
Limits:	At Office Creek Crossing		
Improvement Type:	Structural		
Size:	Varies		
Status:	Not Constructed		
Cost Source:	Projected		

Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Paige Road Structure Upgrade	1	LS	\$ 50,000	\$ 50,000
Construction Cost Subtotal:					\$ 50,000
Major Construction Component Allowances:					
No.	Item Description	Notes		Allowance	Item Cost
	Mobilization		+/-	20%	\$ 10,000
	Erosion Control		+/-	5%	\$ 2,500
	Traffic Control		+/-	5%	\$ 2,500
	Utility Relocation		+/-	10%	\$ 5,000
Allowance Subtotal:					\$ 20,000
Construction and Allowance Subtotal:					\$ 70,000
Construction Contingency (+/-):				15%	\$ 10,500
Construction Cost TOTAL:					\$ 80,500

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 80,500
Engineering/Surveying Fees:	Percent of Construction Cost (+/-):	20%	\$ 16,100
Project Cost TOTAL:			\$ 96,600

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Project Cost Projection

Kimley-Horn and Associates, Inc.
 Updated: 6/7/2016

Project Information:		Description:	Project No.
Name:	Memorial Drive	This project consists of the construction of 3-7'x6' Reinforced Concrete Box (RCB) culverts at the intersection of Office Creek and Memorial Drive to serve the future Memorial Drive Expansion.	21
Limits:	At Office Creek Crossing		
Improvement Type:	Structural		
Size:	3 - 7'x6' RCB's		
Status:	Not Constructed		
Cost Source:	G		

Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Construction Staking	1	LS	\$ 14,050	\$ 14,050
	Trench Safety for Storm Drain Lines	110	LF	\$ 2	\$ 220
	Stabilized Construction Entrance	1	EA	\$ 2,200	\$ 2,200
	Solid Sod	6,020	SY	\$ 7	\$ 42,140
	Rock Check Dam	40	LF	\$ 40	\$ 1,600
	Hydromulch Seeding	9,784	SY	\$ 1	\$ 13,698
	Soil Retention Blanket	7,403	SY	\$ 1	\$ 8,884
	Remove Existing Headwall	1	EA	\$ 2,560	\$ 2,560
	Removal and Disposal of Material and Replacement Fill	100	CY	\$ 60	\$ 6,000
	3-7' X 6' RCB Culverts (open cut)	110	LF	\$ 1,100	\$ 121,000
	Concrete Headwall (FW) for 3 -7 'x 6' RCB	1	EA	\$ 29,200	\$ 29,200
	24-inch Thick Grouted Rock Rip Rap	271	CY	\$ 225	\$ 60,975
Construction Cost Subtotal:					\$ 302,527
Major Construction Component Allowances:					
No.	Item Description	Notes		Allowance	Item Cost
	Mobilization		+/-	10%	\$ 30,300
	Erosion Control		+/-	5%	\$ 15,100
	Traffic Control		+/-	5%	\$ 15,100
	Utility Relocation		+/-	10%	\$ 30,300
Allowance Subtotal:					\$ 90,800
Construction and Allowance Subtotal:					\$ 393,327
Construction Contingency (+/-):					15%
Construction Cost TOTAL:					\$ 452,327

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 452,327
Engineering/Surveying Fees:	Percent of Construction Cost (+/-):	10%	\$ 45,200
Project Cost TOTAL:			\$ 497,527

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City of The Colony
2016 Office Creek Drainage Impact Fee Update
Project Cost Projection

Kimley-Horn and Associates, Inc.

Updated: 6/7/2016

Project Information:		Description:	Project No.
Name:	Blair Oaks Drive	This project consists of re-lining existing 2 - 84" CMPs with aluminized steel liner and installing parallel headwalls.	22
Limits:	At Office Creek Crossing		
Improvement Type:	Structural		
Size:	2 - 84" CMP's		
Status:	Not Constructed		
Cost Source:	Projected		

Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Aluminized Steel Liner	113	LF	\$ 225	\$ 25,425
	Parallel Headwall	2	EA	\$ 18,000	\$ 36,000
	Grouted Rip Rap at Headwall	507	CY	\$ 225	\$ 114,000
Construction Cost Subtotal:					\$ 175,425
Major Construction Component Allowances:					
No.	Item Description	Notes		Allowance	Item Cost
	Mobilization		+/-	10%	\$ 17,500
	Traffic Control		+/-	5%	\$ 8,800
	Erosion Control		+/-	5%	\$ 8,800
	Utility Relocation		+/-	10%	\$ 17,500
Allowance Subtotal:					\$ 52,600
Construction and Allowance Subtotal:					\$ 228,025
Construction Contingency (+/-):				15%	\$ 34,200
Construction Cost TOTAL:					\$ 262,225

Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		N/A	\$ 262,225
Engineering/Surveying Fees:	Percent of Construction Cost (+/-):	10%	\$ 26,200
Project Cost TOTAL:			\$ 288,425

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C. Hydrologic Modeling Parameters

Weighted Percent Impervious						
DA	2016 (Existing) Conditions			2026 (Fully Built Out) Conditions		
	Area (AC)	Area (mi ²)	Percent Impervious (%)	Area (AC)	Area (mi ²)	Percent Impervious (%)
OC01	31.4	0.0491	58	31.4	0.0491	70
OC02	68.5	0.1070	49	68.5	0.1070	64
OC03	22.7	0.0354	10	22.7	0.0354	51
OC04	13.4	0.0209	76	13.4	0.0209	76
OC05	41.9	0.0654	70	41.9	0.0654	70
OC06A	33.1	0.0517	67	33.1	0.0517	67
OC06B	51.4	0.0804	78	51.4	0.0804	78
OC07	45.8	0.0715	92	45.8	0.0715	93
OC08	63.7	0.0995	20	63.7	0.0995	84
OC09	65.3	0.1020	60	65.3	0.1020	61
OC10	11.9	0.0186	43	11.9	0.0186	88
OC11	11.9	0.0185	65	11.9	0.0185	66
OC12	34.4	0.0537	63	34.4	0.0537	63
OC13	8.3	0.0130	37	8.3	0.0130	37
OC14	2.8	0.0044	78	2.8	0.0044	85
OC15	15.6	0.0244	19	15.6	0.0244	19
OC16	2.6	0.0041	44	2.6	0.0041	79
OC17A	22.4	0.0350	63	22.4	0.0350	63
OC17B	79.2	0.1237	58	79.2	0.1237	78
OC19	18.8	0.0294	74	18.8	0.0294	83
OC20	31.8	0.0498	58	31.8	0.0498	67
OC21	14.6	0.0228	12	14.6	0.0228	12
OC22	10.2	0.0159	15	10.2	0.0159	68
OC23	42.8	0.0668	24	42.8	0.0668	24
OC24	34.6	0.0540	39	34.6	0.0540	60
OC25	34.7	0.0543	99	34.7	0.0543	99
OC26A	10.6	0.0166	66	10.6	0.0166	66
OC26B	14.7	0.0229	62	14.7	0.0229	62
OC27	18.8	0.0294	52	18.8	0.0294	72
OC28	29.1	0.0454	39	29.1	0.0454	72
OC29	25.2	0.0394	64	25.2	0.0394	72
OC30	39.1	0.0611	71	39.1	0.0611	71

Reach Information			
Reach R-OC06A	Reach R-OC17A	Reach R-OC26A	Reach R-OC17B
Length (ft)= 2897	Length (ft)= 1542	Length (ft)= 145	Length (ft)= 945
V (ft/s)= 6	V (ft/s)= 6	V (ft/s)= 6	V (ft/s)= 6
Lag Time= 8.0	Lag Time= 4.3	Lag Time= 0.4	Lag Time= 2.6

NOTE: Similar to the City of The Colony hydrologic modeling of the Office Creek Watershed (dated July 2010), the SCS Curve Number method was used assuming a curve number of 80 along with the impervious percentages shown above for each modeled subbasin.



D. Hydrologic Modeling Output

2016 (Existing) Conditions Hydrologic Model Output		
100-Year Event		
Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)
Junction-1	0.1561	676.5
Junction-10	1.3108	5069.4
Junction-11	1.3856	5376.5
Junction-12	1.4861	5753.1
Junction-13	0.2036	778.4
Junction-14	0.3031	1180.9
Junction-15	0.0863	283.6
Junction-16	0.1881	641.8
Junction-16B	0.1587	532.8
Junction-17	0.2464	849.0
Junction-18	0.1083	494.8
Junction-19	0.1249	542.3
Junction-2	0.1561	676.5
Junction-4	0.1915	808.8
Junction-5	0.5809	2247.0
Junction-6	0.5994	2332.7
Junction-6.5	0.72	2877.2
Junction-7	0.7737	3024.6
Junction-7.5	0.8111	3182.5
Junction-8	1.0575	3993.9
Junction-9	1.0962	4125.6
OC01	0.0491	243.4
OC02	0.107	454.7
OC03	0.0354	137.0
OC04	0.0209	106.4
OC05	0.0654	224.9
OC06A	0.0517	246.9
OC06B	0.0804	357.8
OC07	0.0715	345.7
OC08	0.0995	402.7
OC09	0.102	507.2
OC10	0.0186	73.8
OC11	0.0185	89.3
OC12	0.0537	190.4
OC13	0.013	52.4
OC14	0.0044	20.2
OC15	0.0244	114.0
OC16	0.0041	19.9
OC17A	0.035	165.3
OC17B	0.1237	470.8
OC19	0.0294	129.7
OC20	0.0498	237.9
OC21	0.0228	91.4
OC22	0.0159	53.4
OC23	0.0668	314.6
OC24	0.054	225.9
OC25	0.0543	285.5
OC26A	0.0166	79.1
OC26B	0.0229	106.0
OC27	0.0294	129.6
OC28	0.0454	183.7
OC29	0.0394	128.9
OC30	0.0611	308.7
P-OC06A	0.0517	163.6
P-OC17A	0.035	72.2
P-OC26A	0.0166	60.3
R-OC06A	0.0517	163.6
R-OC17A	0.035	72.2
R-OC26A	0.0166	60.3

2026 (Fully Built Out) Conditions Hydrologic Model Output		
100-Year Event		
Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)
Junction-1	0.1561	691.2
Junction-10	1.3108	5576.8
Junction-11	1.3856	5903.5
Junction-12	1.4861	6355.3
Junction-13	0.2036	778.9
Junction-14	0.3031	1262.2
Junction-15	0.0863	395.9
Junction-16	0.1881	716.2
Junction-16B	0.1587	600.1
Junction-17	0.2464	973.2
Junction-18	0.1083	502.5
Junction-19	0.1249	550.0
Junction-2	0.1561	691.2
Junction-4	0.1915	855.3
Junction-5	0.5809	2513.3
Junction-6	0.5994	2600.2
Junction-6.5	0.72	3178.4
Junction-7	0.7737	3313.4
Junction-7.5	0.8111	3487.4
Junction-8	1.0575	4451.9
Junction-9	1.0962	4625.3
OC01	0.0491	247.7
OC02	0.107	465.2
OC03	0.0354	168.7
OC04	0.0209	106.4
OC05	0.0654	296.3
OC06A	0.0517	246.9
OC06B	0.0804	357.8
OC07	0.0715	346.2
OC08	0.0995	494.2
OC09	0.102	507.9
OC10	0.0186	96.3
OC11	0.0185	92.8
OC12	0.0537	190.4
OC13	0.013	62.5
OC14	0.0044	20.4
OC15	0.0244	114.0
OC16	0.0041	21.0
OC17A	0.035	165.3
OC17B	0.1237	550.6
OC19	0.0294	151.1
OC20	0.0498	241.2
OC21	0.0228	105.4
OC22	0.0159	74.3
OC23	0.0668	314.6
OC24	0.054	233.3
OC25	0.0543	285.5
OC26A	0.0166	79.1
OC26B	0.0229	106.0
OC27	0.0294	148.8
OC28	0.0454	193.5
OC29	0.0394	167.9
OC30	0.0611	308.7
P-OC06A	0.0517	163.6
P-OC17A	0.035	72.2
P-OC26A	0.0166	60.3
R-OC06A	0.0517	163.6
R-OC17A	0.035	72.2
R-OC26A	0.0166	60.3



E. Actual Impact Fees to be Assessed by Land Use (As
Adopted by Ordinance # _____)



F. Digital Files



ROADWAY IMPACT FEE UPDATE

JULY 2016



Kimley»Horn

The Colony, Texas
2016 Roadway Impact Fee Update
July 2016



Prepared for:
The Colony

7/22/2016

Prepared by:
Kimley»Horn

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TBPE Firm Registration Number: F-928

Project Number: 061117025



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Example 2: Development Type – 125,000 square foot Home Improvement	26



Executive Summary

Impact Fees are a mechanism for funding the public infrastructure necessitated by new development. They originated and evolved in Florida, California and other fast-growing municipalities and counties, primarily in the Southern and Western United States. Across the country, they are used to fund police and fire facilities, parks, schools, roads, and utilities. In Texas, the legislature has allowed their use for water, wastewater, roadway, and drainage facilities. Impact Fees are currently being used to fund public water and wastewater improvements as well as funding roadway infrastructure in the City of The Colony.

In the most basic terms, impact fees are meant to recover the incremental cost of each new unit of development in terms of new infrastructure needs. In the case of roadway impact fees, the infrastructure need is increased capacity on arterial and collector roadways. The purpose of this Impact Fee Study Update is to identify the fee per unit of new development necessary to fund these improvements in accordance with the enabling legislation, Chapter 395 of the Texas Local Government Code.

Impact Fees are a one-time fee, and are charged only against new development. They are based on the cost of the capacity improvements necessary to accommodate new growth. For roadway impact fee purposes the City has one (1) service area. A service area is a geographic area within which a unique maximum impact fee is determined. All fees collected within the service area must be spent on eligible improvements within that same service area.

Impact fees are assessed when a final plat is recorded. The assessment defines the impact of each unit at the time of platting, according to land use, and may not exceed the maximum impact fee allowed by law. Impact fees are collected when a building permit is issued. Therefore, funds are not collected until development impacts are introduced to the transportation system. Funds collected within a service area can be used only within the same service area. Finally, fees must be utilized within 10 years of collection, or must be refunded with interest.

Chapter 395 of the Texas Local Government Code stipulates a specific process for the adoption of Impact Fees. An Advisory Committee must review the Land Use Assumptions, CIP, and resulting maximum fee. Once feedback is provided to City Council on these items, a public meeting is to be held prior to adoption.

This report includes details of the impact fee calculation methodology in accordance with Chapter 395, the applicable Land Use Assumptions, development of the CIP, and the Land Use Equivalency Table.

The 2016 maximum assessable roadway impact fee calculated in this report is \$236 per vehicle-mile. This is a \$234 reduction from the 2010 fee, which was \$470.



I. Introduction

Chapter 395 of the Texas Local Government Code describes the procedure Texas cities must follow in order to create and implement Impact Fees. Senate Bill 243 (SB 243) amended Chapter 395 in September 2001 to define an Impact Fee as “a charge or assessment imposed by a political subdivision against new development in order to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development.”

Chapter 395 mandates that impact fees be reviewed and updated at least every five (5) years due to changes in the Land Use Assumptions and Capital Improvements Plan (CIP). Accordingly, the City of The Colony has developed its Land Use Assumptions and CIP with which to update the City’s Roadway Impact Fees from June 2010. The City has retained Kimley-Horn and Associates, Inc. to provide professional transportation engineering services for the 2016 update of their Roadway Impact Fees. This report includes the details of the Roadway Impact Fee calculation methodology in accordance with Chapter 395, the applicable Land Use Assumptions, development of the CIP, and refinement of the Land Use Equivalency Table.

This report introduces and references two of the basic inputs to the Roadway Impact Fee:

1. Land Use Assumptions
2. Capital Improvement Plan

Information from the Land Use Assumptions and Capital Improvement Plan is used extensively throughout the remainder of the report.

This report consists of a detailed discussion of the methodology for the computation of impact fees and is broken down into two components:

1. Methodology for Roadway Impact Fees
2. Roadway Impact Fee Calculation

The components of the Methodology for Roadway Impact Fee includes development of:

- Service Area
- Service Units
- Cost Per Service Unit
- Cost of the CIP
- Service Unit Calculation

The components of the Roadway Impact Fee Calculation include:

- Maximum Assessable Impact Fee Per Service Unit
- Service Unit Demand Per Unit of Development

This report also includes a section concerning the Plan for Awarding the Roadway Impact Fee Credit. This plan details the maximum assessable impact fee per service unit the City of The Colony may apply under Chapter 395 of the Texas Local Government Code.

The final section of the report is the Conclusion, which presents the findings of the update analysis and summarizes the report.



II. Roadway Impact Fee Calculation Inputs

A. Land Use Assumptions

1. Purpose and Overview

In order to assess an impact fee, Land Use Assumptions must be developed to provide the basis for population and employment growth projections within a political subdivision. As defined by Chapter 395 of the Texas Local Government Code, these assumptions include a description of changes in land uses, densities, intensities, and population in the service area. In addition, these assumptions are useful in assisting the City of The Colony in determining the need and timing of capital improvements to serve future development.

In accordance with Chapter 395, information from the following sources was compiled: the City of The Colony Comprehensive Plan – July 2007, the North Central Texas Council of Governments (NCTCOG), and consultation with City staff.

The components of the Land Use Assumptions include the following:

- Methodology – An overview of the general methodology used to generate the land use assumptions;
- Impact Fee Service Areas – Explanation of the division of The Colony into service areas for roadway facilities;
- Population and Employment – Data on population and employment within the service area for the base year (2016) and growth projections by service area over the next ten years (2016 – 2026); and
- Land Use Assumptions Summary – a synopsis of the land use assumptions.

The population and employment estimates and projections were all compiled in accordance with the following categories:

Units: Number of dwelling units, both single and multi-family.

Population: Number of people based on person per dwelling unit factors.

Employment: Square feet of building area based on three (3) different classifications. Each classification has unique trip-making characteristics.

Retail: Land use activities which provide for the retail sale of goods that primarily serve households and whose location choice is oriented toward the household sector, such as grocery stores, and restaurants.

Service: Land use activities which provide personal and professional services such as government and other professional administrative offices.

Basic: Land use activities that produce goods and services such as those exported outside the local economy, such as manufacturing, construction, transportation, wholesale, trade, warehousing, and other industrial uses.



2. Methodology

The population and employment growth projections formulated in this report were done using reasonable and generally accepted planning principles. The following factors were considered in developing these projections:

- Character, type, density, and quantity of existing development;
- Current zoning plans;
- Future Land Use Plan (as currently adopted July 2007);
- Growth trends;
- Location of vacant land; and
- Physical holding capacity of The Colony.

Existing population and employment data was compiled using field and aerial survey of existing development. For the remaining undeveloped areas, assumptions based upon existing development patterns and the future land use plan were utilized. Consultation with City staff helped to determine the Build Out year to be 2026.

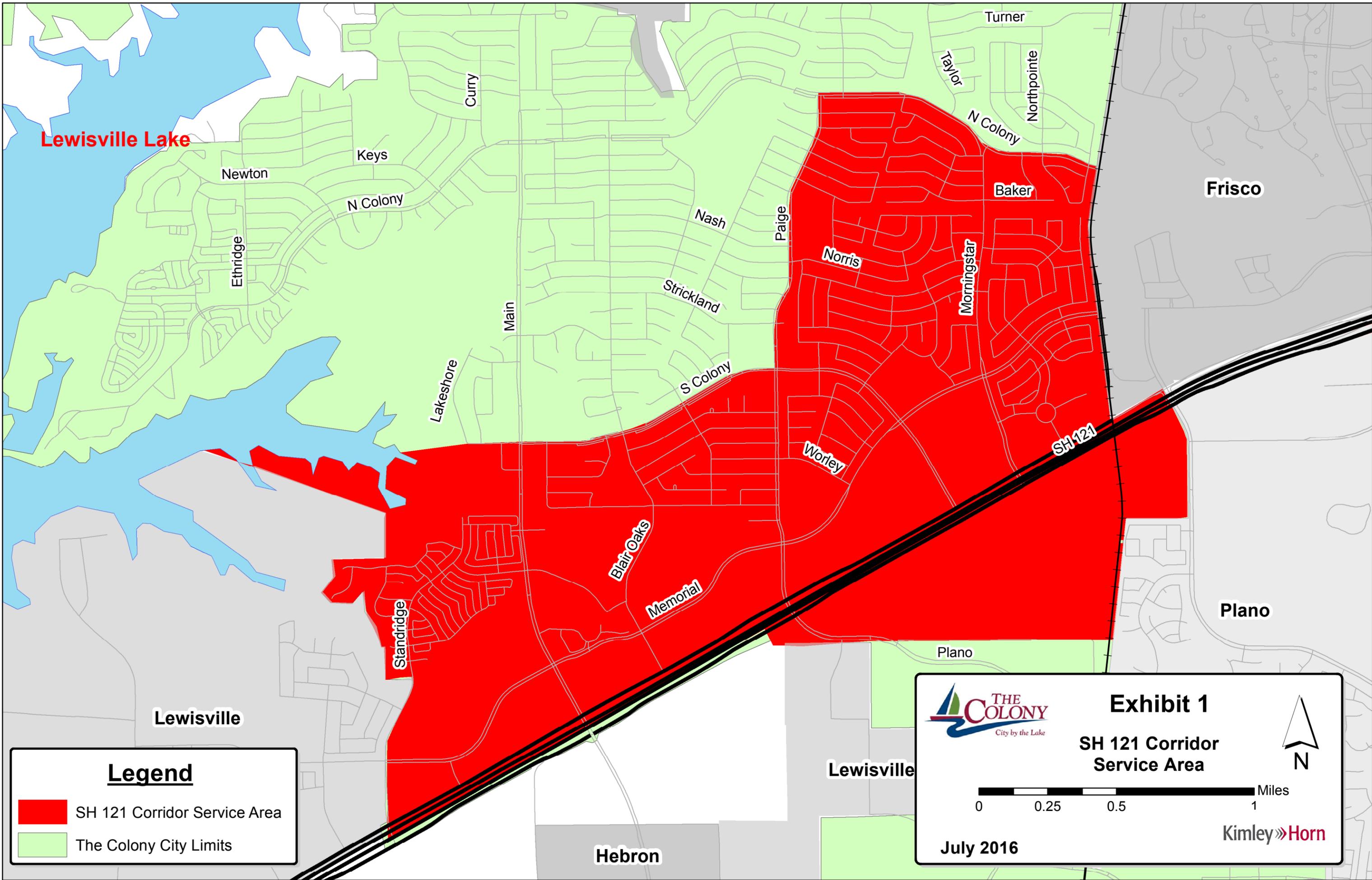
3. Impact Fee Service Areas

The geographic boundary of the existing impact fee service areas for roadway facilities is shown in Exhibit 1. The remaining portions of the City outside of this service area will not have a Roadway Impact Fee assessed for new development and were not considered in this analysis.

It should be noted that at locations where the service area boundary follows a thoroughfare facility (e.g. North Colony Boulevard), the proposed boundary is intended to be inclusive of the entire ROW of the facility. This distinction is significant in establishing the Capital Improvements Plan for Roadway Impact Fees in later sections of this report.

4. Population and Employment

Population and employment estimates for the base year (2016) were performed based upon a survey of the existing land uses. Build Out projections were prepared based upon combining the existing land uses within the service area with reasonable assumptions for undeveloped land based upon the current Future Land Use Plan. Ten year growth projections were prepared based upon consultation with City staff regarding the Build Out year, which was assumed to be 2026. Exhibit 2 presents the current Future Land Use Plan and Exhibit 3 displays the proposed SH 121 Corridor Service Area boundary and aerial photography. Table 1 summarizes the population and employment projections within the SH 121 Service Area for 2016 and 2026 (Build Out).



Lewisville Lake

Frisco

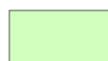
Plano

Lewisville

Lewisville

Hebron

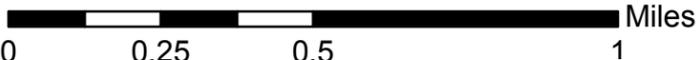
Legend

-  SH 121 Corridor Service Area
-  The Colony City Limits

 **Exhibit 1**

SH 121 Corridor Service Area

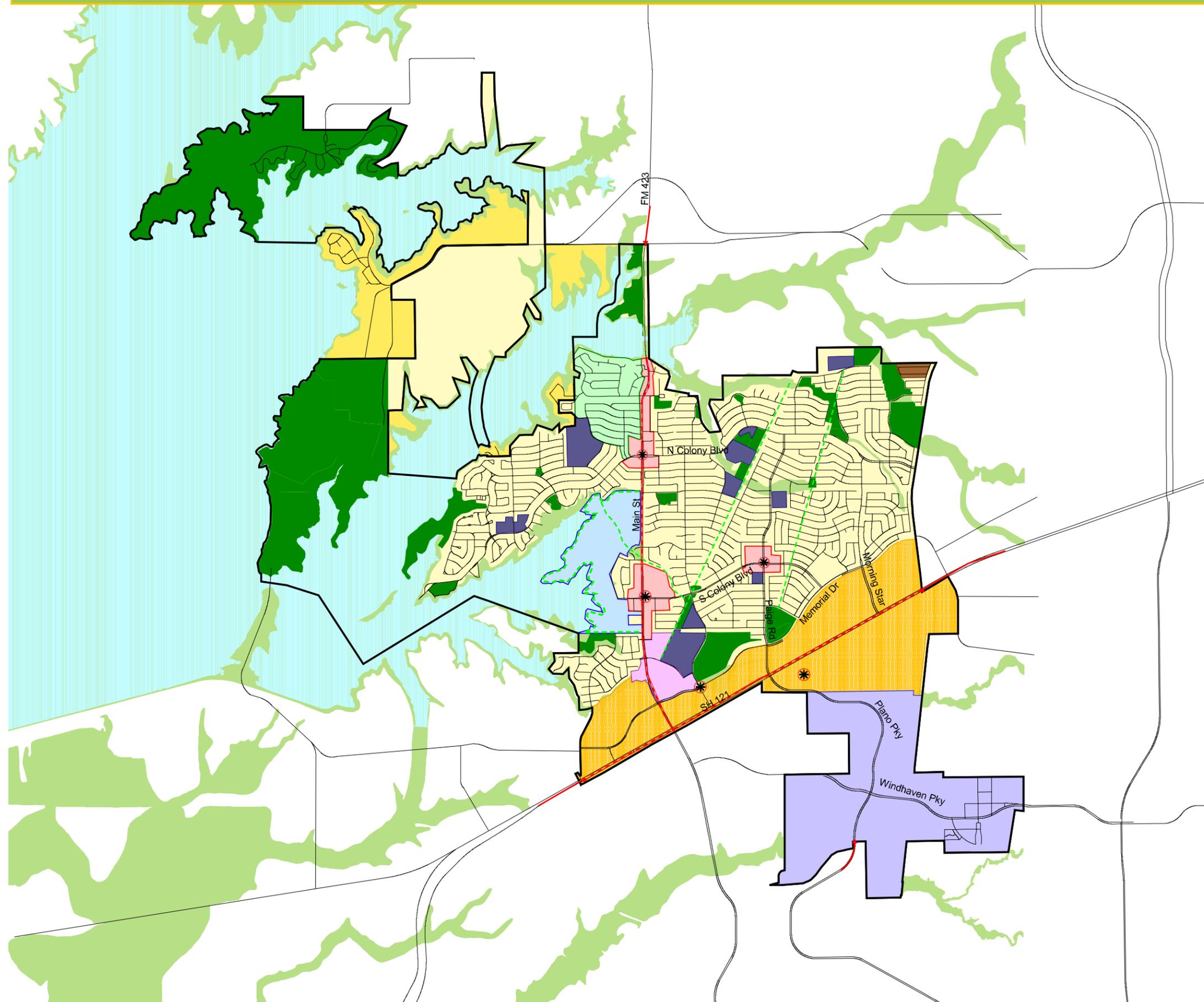
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 Miles

0 0.25 0.5 1

July 2016 

City of The Colony Future Land Use Plan



- Legend**
- City Limits
 - Low Density Residential
 - Medium Density Residential
 - Residential ETJ
 - Urban Corridor / Potential Town Center Redevelopment
 - Main Street Lake Access / Corridor Viewshed
 - Neighborhood Revitalization Area
 - SH 121 Corridor Development Zone
 - Commercial / Office Development
 - Austin Ranch - Mixed Use Development Area
 - Public / Semi-Public
 - Parks and Recreation
 - Lake Louisville
 - 100 Year Floodplain
 - Roads
 - Primary Arterials
 - Entry Features
 - Trail Priorities
 - Potential Town Center

Information contained within this map is generated from the City of The Colony Geographic Information System. No warranty is made of any kind as to its contents.

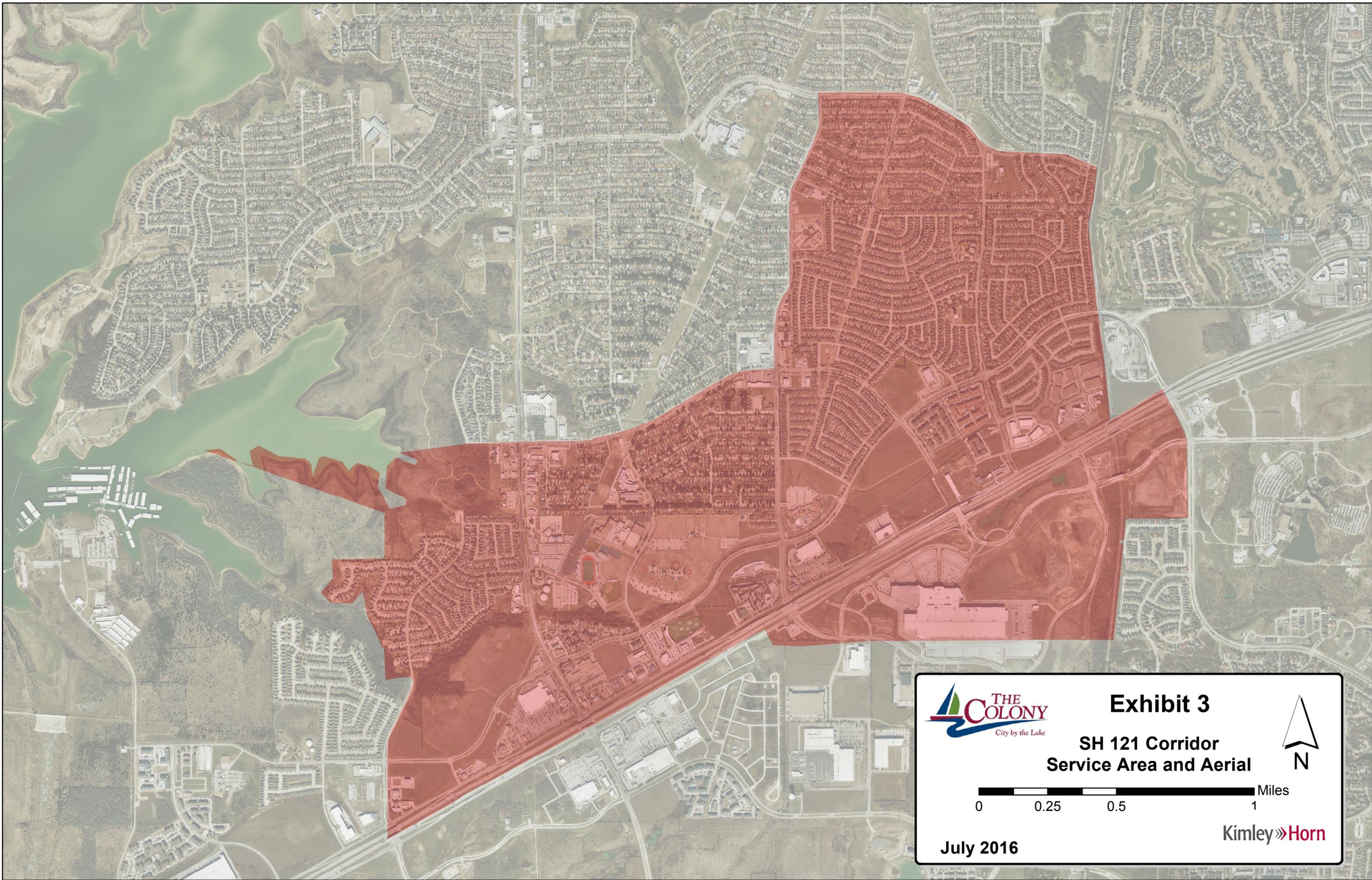
Texas Local Government Code 215.005: A comprehensive plan shall not constitute zoning regulations or establish zoning district boundaries.



1:1500

The City of The Colony
 6800 Main Street
 The Colony, TX 75056
www.ci.the-colony.tx.us

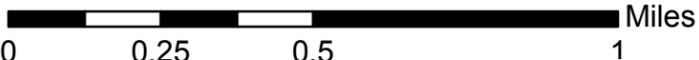
June 2007



 **Exhibit 3**

**SH 121 Corridor
Service Area and Aerial**

 N

 Miles

July 2016

Kimley»Horn



Table 1 – Residential and Non-Residential Projections for the SH 121 Corridor Service Area in the City of The Colony

	Year	Population	Units	Employment (Square Feet)			
				Basic	Service	Retail	Total
SH 121 Corridor Service Area	2016	13,603	4,911	467,000	1,132,000	5,086,000	6,685,000
	2026 Build Out	19,678	7,104	651,000	1,207,000	7,087,000	8,945,000

After examining the demographic projections developed for the service area, a number of observations can be made. Population growth within the SH 121 Corridor Service Area will be moderate and is projected to experience steady population growth. A majority of the residential areas within SH 121 Corridor Service Area are already built out. The remaining growth is projected to consist of the completion of a few single family tracts along with a few multi-family areas along SH 121. Based upon the City's Land Use Plan, the primary source of future population growth will be outside the studied service areas.

Employment growth within the City is projected to occur primarily along SH 121 Corridor. These growth trends are also consistent with the Future Land Use Plan.

5. Summary

The SH 121 Corridor Service Area is projected to experience a significant amount of employment growth within the next ten years and moderate population growth. This is consistent with the Future Land Use Plan in the Service Area, which consists of primarily non-residential land uses and a few mixed use areas. As a result of this analysis, the following summary statistics were compiled for the Service Area:

- The Existing (2016) population is approximately 13,603.
- The Existing (2016) employment area is approximately 6,685,000 square feet.
- The Build Out (2026) population projection is approximately 19,678.
- The Build Out (2026) employment area projection is approximately 8,945,000 square feet.



B. Capital Improvement Plan

The City has identified the City-funded transportation projects needed to accommodate the projected growth within the City. The Capital Improvement Plan (CIP) for Roadway Impact Fees is made up of the following:

- Recently completed projects with excess capacity available to serve new growth;
- Projects currently under construction; and
- All remaining projects needed to complete the City's Master Thoroughfare Plan.

The CIP includes arterial and collector class roadway facilities as well as intersection improvements. All of the facilities are part of the currently adopted Master Thoroughfare Plan.

The CIP for Roadway Impact Fees for the 2016 Impact Fee Update is listed in Table 2 and mapped in Exhibit 4. The table shows the length of each project as well as the facility's Master Thoroughfare Plan classification. The CIP was developed in conjunction with input from the City of The Colony staff and represents those projects that will be needed to accommodate the growth projected in the 2016 Land Use Assumptions for Impact Fee Update.

Table 2 – Roadway Improvement Plan for Roadway Impact Fees

Service Area	Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	
SH 121 Corridor	1	6D-B & 8D-A	Paige Rd.	SH 121 to S. Colony Blvd.	0.84	100%	
	2	4U-B (1/2)	S. Colony Blvd. (1)	Lakeshore Dr. to 165' E. of Ridgecrest Dr.	0.08	100%	
	3	4D-C	S. Colony Blvd. (2)	Paige Rd. to Bear Run Rd.	0.15	100%	
	4	4D-C	Memorial Dr. (1)	Standridge Dr. to 575' W. of Main St.	0.66	100%	
	5	4D-C	Memorial Dr. (2)	575' W. of Main St. to Main St.	0.12	100%	
	6	4D-C (1/2)	Memorial Dr. (3)	Blair Oaks Dr. to Paige Rd.	0.62	100%	
	7	4D-C (1/2)	Memorial Dr. (4)	Paige Rd. to 790' E. of Paige Rd.	0.15	100%	
	8	4D-C (1/2)	Memorial Dr. (5)	Worley Dr. to S. Colony Blvd.	0.29	100%	
	9	6D (1/3)	Memorial Dr. (6)	Standridge Dr. to City Limits	3.22	100%	
	10	4D-C	S. Colony Blvd. Overpass	SH 121 SBFR to SH 121 NBFR	0.32	100%	
	11	4U-A (1/2)	Morningstar Dr.	200' S. of Baker Dr. to N. Colony Blvd.	0.24	100%	
	Intersection Improvements						
	I-1	-		SH 121 Deceleration Lanes (1)	Paige Rd. / Plano Pkwy. - NB and SB	-	100%
	I-2	-		SH 121 Deceleration Lanes (2)	Morning Star Dr. - SB	-	100%
	I-3	-		SH 121 Deceleration Lanes (3)	Blair Oaks Dr. - SB	-	100%
	I-4	-		SH 121 Deceleration Lanes (4)	Market St. - SB	-	100%
	I-5	-		Paige Rd./Nash Dr. & Paige Rd./Norris	Nash Drive to Norris	-	100%

Roadway Improvements - SH 121 Corridor Service Area

#	Class	Project	Limits	Status	Project Cost
1	6D-B & 8D-A	Paige Rd.	SH 121 to S. Colony Blvd.	Completed	\$ 3,560,302
2	4U-B (1/2)	S. Colony Blvd. (1)	Lakeshore Dr. to 165' E. of Ridgecrest Dr.	Widening	\$ 152,000
3	4D-C	S. Colony Blvd. (2)	Paige Rd. to Bear Run Rd.	Completed	\$ 393,553
4	4D-C	Memorial Dr. (1)	Standridge Dr. to 575' W. of Main St.	Completed	\$ 1,730,726
5	4D-C	Memorial Dr. (2)	575' W. of Main St. to Main St.	Completed	\$ 370,009
6	4D-C (1/2)	Memorial Dr. (3)	Blair Oaks Dr. to Paige Rd.	Completed	\$ 136,971
7	4D-C (1/2)	Memorial Dr. (4)	Paige Rd. to 790' E. of Paige Rd.	Completed	\$ 121,706
8	4D-C (1/2)	Memorial Dr. (5)	Worley Dr. to S. Colony Blvd.	Widening	\$ 664,000
9	6D (1/3)	Memorial Dr. (6)	Standridge Dr. to City Limits	Median	\$ 5,266,000
10	4D-C	S. Colony Blvd. Overpass	SH 121 SBFR to SH 121 NBFR	Completed	\$ 5,132,914
11	4U-A (1/2)	Morningstar Dr.	200' S. of Baker Dr. to N. Colony Blvd.	Widening	\$ 615,000
Intersection Improvements					
I-1	-	SH 121 Deceleration Lanes (1)	Paige Rd. / Plano Pkwy. - NB and SB	New	\$ 550,000
I-2	-	SH 121 Deceleration Lanes (2)	Morning Star Dr. - SB	New	\$ 275,000
I-3	-	SH 121 Deceleration Lanes (3)	Blair Oaks Dr. - SB	New	\$ 275,000
I-4	-	SH 121 Deceleration Lanes (4)	Market St. - SB	New	\$ 275,000
I-5	-	Paige Rd./Nash Dr. & Paige Rd./Norris	Nash Drive to Norris	New	\$ 451,000

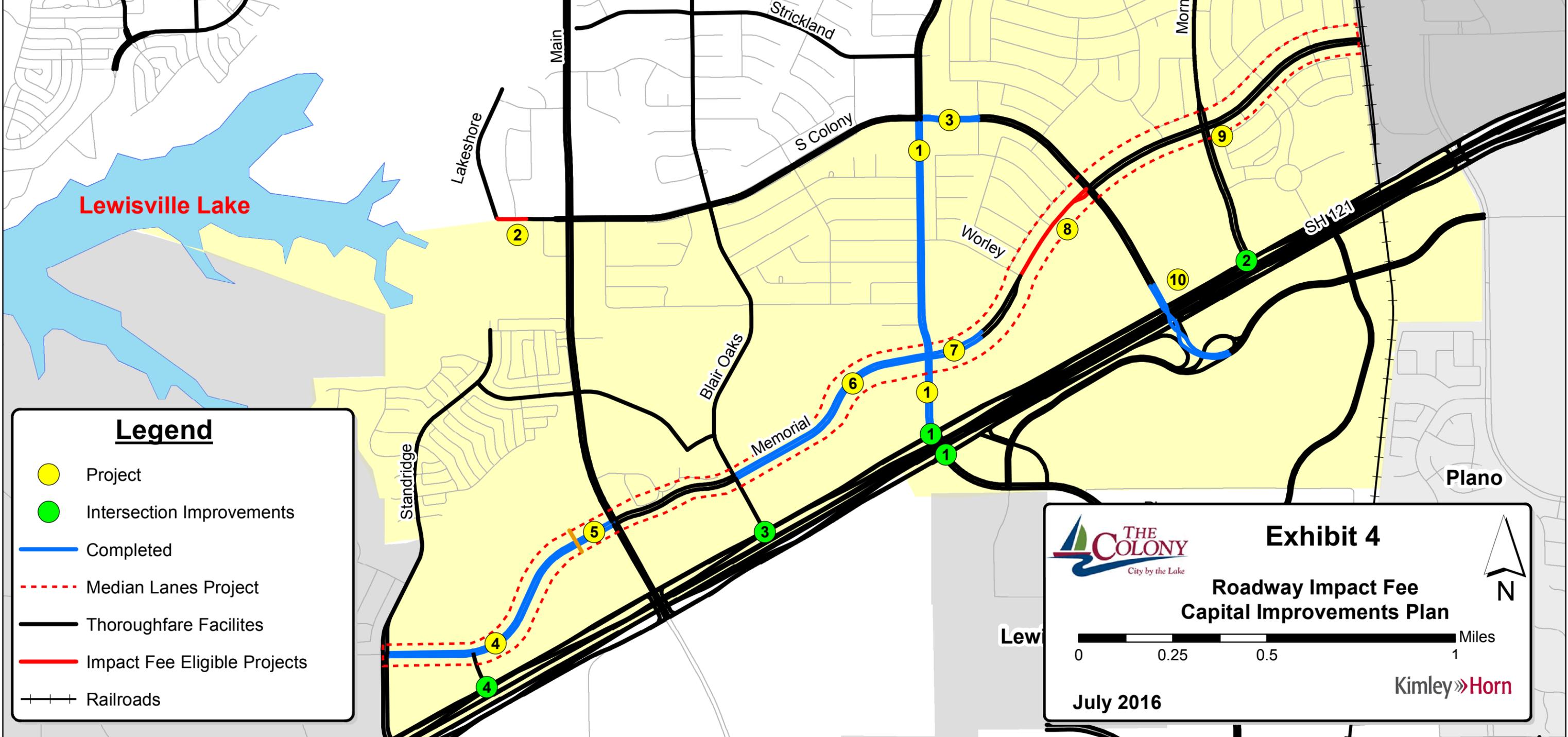



Exhibit 4
Roadway Impact Fee
Capital Improvements Plan


 0 0.25 0.5 1 Miles

July 2016 



III. Methodology for Roadway Impact Fees

A. Service Areas

The SH 121 Corridor Service Area used in the 2016 Roadway Impact Fee Update is shown in the previously referenced Exhibit 1. This service area covers only a portion of the corporate boundary of the City of The Colony. Chapter 395 of the Texas Local Government Code specifies that “the service area is limited to an area within the corporate boundaries of the political subdivision and shall not exceed six (6) miles.” Note that the SH 121 Corridor Service Area was limited to four (4) miles.

B. Service Units

The “service unit” is a measure of consumption or use of the roadway facilities by new development. In other words, it is the measure of supply and demand for roads in the City. For transportation purposes, the service unit is defined as a vehicle-mile.

Another aspect of the service unit is the service volume that is provided (supplied) by a lane-mile of roadway facility. This number, also referred to as capacity, is a function of the facility type, facility configuration, number of lanes, and level of service. Below is the definition for vehicle-mile.

Vehicle-Mile: The capacity consumed in a single lane in the PM peak hour by a vehicle making a trip one mile in length. The PM Peak is commonly used as the basis for transportation planning and the estimation of trips caused by new development.

Total Vehicle-Miles of Supply: Based on the total length (miles), number of lanes, and capacity (vehicles per hour) (see Appendix B).

Total Vehicle-Miles of Demand: Based on the 10-year growth projections. The demand is equal to PM Trip Rate (trips) * Trip Length (miles).

The hourly service volumes used in the Roadway Impact Fee Update are based upon Thoroughfare Capacity Criteria published by the North Central Texas Council of Governments (NCTCOG). Table 3 shows the service volumes as a function of the facility type.

Table 3 – Level of Use for Proposed Facilities
(used in Appendix B and Appendix C)

Roadway Type (MTP Classifications)	Median Configuration	Hourly Vehicle-Mile Capacity per Lane-Mile of Roadway Facility
2U-C – Minor Collector	Undivided	425
4U-A – Major Collector	Undivided	475
4U-B – Minor Collector	Undivided	475
4D-C – Minor Arterial	Divided	650
6D-A – Major Arterial	Divided	700
6D-B – Minor Arterial	Divided	700
8D-A – Major Arterial	Divided	700



C. Cost Per Service Unit

A fundamental step in the impact fee process is to establish the cost for each service unit. In the case of the Roadway Impact Fee, this is the cost for each vehicle-mile of travel. This cost per service unit is the cost to construct a roadway (lane-mile) needed to accommodate a vehicle-mile of travel at a level of service corresponding to the City's standards. The cost per service unit is calculated for each service area based on a specific list of projects within that service area.

The second component of the cost per service unit is the number of service units in each service area. This number is the measure of the growth in transportation demand that is projected to occur in the ten-year period. Chapter 395 requires that impact fees be assessed only to pay for growth projected to occur in the City limits within the next ten-years, a concept that will be covered in a later section of this report. As noted earlier, the units of demand are vehicle-miles of travel.

D. Cost of the CIP

The costs that may be included in the cost per service unit are all of the implementation costs for the Roadway Impact Fee Update, as well as project costs for arterial system elements within the Capital Improvement Plan. Chapter 395 of the Texas Local Government Code specifies that the allowable costs are "...including and limited to the:

1. Construction contract price;
2. Surveying and engineering fees;
3. Land acquisition costs, including land purchases, court awards and costs, attorney's fees, and expert witness fees; and
4. Fees actually paid or contracted to be paid to an independent qualified engineer or financial consultant preparing or updating the Capital Improvement Plan who is not an employee of the political subdivision."

The engineer's opinion of the probable costs of the projects in the CIP is based, in part, on the calculation of a unit cost of construction. This means that a cost per linear foot of roadway is calculated based on an average price for the various components of roadway construction. This allows the probable cost to be determined by the type of facility being constructed, the number of lanes, and the length of the project. The costs for location-specific items such as bridges, highway ramps, drainage structures, and any other special components are added to each project as appropriate. In addition, based upon discussions with City of The Colony staff, State, County, and developer driven projects have been included in the CIP as lump sum costs where the City has contributed a portion of the total project costs. The following is a detailed description of the costing worksheet/methodology for the Roadway Impact Fee CIP.

1. Overview of Roadway Impact Fee CIP Costing Worksheets

For each project a specific costing worksheet was developed (see Appendix A). Each worksheet contained the following four (4) main components:

- Project Information,
- Construction Pay Items,
- Construction Component Allowances and
- Summary of Costs and Allowances

An example costing sheet showing these four components is provided on the following page.



The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
updated: 6/3/2016

Project Information

Project Information:		Description:	Project No. 2
Name:	S. Colony Blvd. (1)	This project consists of the construction of the southern two lanes of an ultimate four-lane undivided section.	
Limits:	Lakeshore Dr. to 165' E. of Ridgecrest Dr.		
Impact Fee Class:	4U-B (1/2)		
Ultimate Class:	Minor Collector		
Length (lf):	405		
Service Area(s):	SH 121 Corridor		

Construction Pay Items

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	540	cy	\$ 9.00	\$ 4,860
210	8" Lime Stabilization (with Lime @ 32#/sy)	1,058	sy	\$ 4.00	\$ 4,232
310	7" Concrete Pavement	1,013	sy	\$ 45.00	\$ 45,585
410	4" Topsoil	360	sy	\$ 3.75	\$ 1,350
501	Concrete Driveway Approach	1	ea	\$ 4,000.00	\$ 4,000
Paving Construction Cost Subtotal:					\$ 60,027

Construction Component Allowances

Major Construction Component Allowances**:			
Item Description	Notes	Allowance	Item Cost
√ Prep ROW		4%	\$ 2,401
√ Traffic Control	Construction Phase Traffic Control	15%	\$ 9,004
√ Pavement Markings/Markers		3%	\$ 1,801
√ Roadway Drainage	Standard Internal System	35%	\$ 21,009
Special Drainage Structures	None Anticipated	\$0	\$ -
√ Water	Minor Adjustments	2%	\$ 1,201
√ Sewer	Minor Adjustments	5%	\$ 3,001
√ Landscaping and Irrigation		5%	\$ 3,001
√ Illumination	Standard Illumination System	6%	\$ 3,602
Other:		\$0	\$ -
**Allowances based on % of Paving Construction Cost Subtotal			Allowance Subtotal: \$ 45,020
Paving and Allowance Subtotal:			\$ 105,047
Construction Contingency:			\$ 15,757
Construction Cost TOTAL:			\$ 121,000

Summary of Costs and Allowances

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 121,000
Engineering/Survey/Testing:		20%	\$ 24,200
Mobilization		6%	\$ 7,260
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 152,000

NOTE: The planning level cost projections listed in this appendix have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Planning within the City of The Colony.
The planning level cost projections shall not supersede the City's design standards contained within the Subdivision Ordinance, Engineering Design Manual, or the determination of the City Engineer for a specific project.

2. Project Information

In order to correctly estimate the cost of a roadway project, several attributes are first identified:

- Project Number – Identifies each project with a corresponding number. The corresponding number does not represent any prioritizations and is used only to identify projects.
- Name – A unique identifier for each project.
- Limits – Represents the beginning and ending location for each project.
- Impact Fee Class – The costing class to be used in the analysis. The impact fee class provides the width for the various elements in the roadway. The construction costs are variable, based on the proposed Thoroughfare Plan classification of the roadway. Additional classifications are utilized in cases where a portion of the facility currently exists and the road is only to be widened. The following notations are used for these projects:
 - “(1/2)” for facilities where half the facility still needs to be constructed;
 - “(1/3)” for future six-lane principal arterials facilities where two additional median lanes are needed
- Ultimate Class – The functional classification on The Colony’s Thoroughfare Plan.
- Length (ft) – The distance measured in feet that is used to cost out the project.
- Service Area(s) – Represents the service area where the project is located.
- Description – Used to describe the project type assumed in the costing such as a widening or reconstruction.

3. Construction Pay Items

A typical roadway project consists of a number of costs, including the following: planning, survey, design engineering, permitting, right-of way acquisition, construction and inspection. While the construction cost component of a project may actually consist of approximately 100 various pay items, a simplified approach was used for developing the conceptual level project costs. Each new project’s construction cost was divided into three cost components: roadway construction cost, major construction component allowances, and summary of cost and allowances. The roadway construction components consist of the following pay items:

1. Street excavation
2. Lime stabilization
3. Concrete pavement
4. Topsoil
5. Concrete driveway approach

4. Construction Component Allowances

A percentage of the paving construction cost is allotted for various major construction component allowances, as appropriate. These allowances include preparation of right-of-way, traffic control, pavement markings and signage, roadway drainage, special drainage structures, incidental water and sewer

relocation, illumination, and landscaping and irrigation. These allowance percentages are also based on historical data.

Lump sum dollar allowances are provided for special drainage structures, railroad crossings, and intersection improvements where needs are anticipated.

The paving and allowance subtotal is given a fifteen percent (15%) contingency to determine the construction cost total.

5. Summary of Cost and Allowances

To determine the total Impact Fee Project Cost, twenty percent (20%) of the construction cost total is added for engineering, surveying, and testing. An additional six percent (6%) of the construction cost total is added for mobilization. Note that costs associated with right-of-way/easement acquisition was not included as part of the impact fee projects.

The Impact Fee Project Cost Total is the Construction Cost Total plus engineering, surveying, testing, and inspection.

Table 4 summarizes the CIP project list for the SH 121 Corridor service area with conceptual level cost projections. Detailed cost projections and methodology used for each individual project can be seen in Appendix A, Conceptual Level Project Cost Projections. It should be noted that these tables reflect only conceptual-level opinions or assumptions regarding the portions of future project costs that are potentially recoverable through impact fees. Actual costs of construction are likely to change with time and are dependent on market and economic conditions that cannot be precisely predicted at this time.

This CIP establishes the list of projects for which Impact Fees may be utilized. Essentially, it establishes a list of projects for which an impact fee funding program can be established. This is different from the City's construction CIP, which provides a broad list of capital projects for which the City is committed to building. The cost projections utilized in this study should not be utilized for the City's building program or construction CIP.

**Table 4 – 10-Year Capital Improvement Plan for Roadway Impact Fees
with Conceptual Level Project Cost Projections**

Service Area	Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Total Project Cost	Cost in Service Area	
SH 121 Corridor	1	6D-B & 8D-A	Paige Rd.	SH 121 to S. Colony Blvd.	0.84	100%	\$ 3,560,302	\$ 3,560,302	
	2	4U-B (1/2)	S. Colony Blvd. (1)	Lakeshore Dr. to 165' E. of Ridgecrest Dr.	0.08	100%	\$ 152,000	\$ 152,000	
	3	4D-C	S. Colony Blvd. (2)	Paige Rd. to Bear Run Rd.	0.15	100%	\$ 393,553	\$ 393,553	
	4	4D-C	Memorial Dr. (1)	Standridge Dr. to 575' W. of Main St.	0.66	100%	\$ 1,730,726	\$ 1,730,726	
	5	4D-C	Memorial Dr. (2)	575' W. of Main St. to Main St.	0.12	100%	\$ 370,009	\$ 370,009	
	6	4D-C (1/2)	Memorial Dr. (3)	Blair Oaks Dr. to Paige Rd.	0.62	100%	\$ 136,971	\$ 136,971	
	7	4D-C (1/2)	Memorial Dr. (4)	Paige Rd. to 790' E. of Paige Rd.	0.15	100%	\$ 121,706	\$ 121,706	
	8	4D-C (1/2)	Memorial Dr. (5)	Worley Dr. to S. Colony Blvd.	0.29	100%	\$ 664,000	\$ 664,000	
	9	6D (1/3)	Memorial Dr. (6)	Standridge Dr. to City Limits	3.22	100%	\$ 5,266,000	\$ 5,266,000	
	10	4D-C	S. Colony Blvd. Overpass	SH 121 SBFR to SH 121 NBFR	0.32	100%	\$ 5,132,914	\$ 5,132,914	
	11	4U-A (1/2)	Morningstar Dr.	200' S. of Baker Dr. to N. Colony Blvd.	0.24	100%	\$ 615,000	\$ 615,000	
	Intersection Improvements								
	I-1	-	-	SH 121 Deceleration Lanes (1)	Paige Rd. / Plano Pkwy. - NB and SB	-	100%	\$ 550,000	\$ 550,000
	I-2	-	-	SH 121 Deceleration Lanes (2)	Morning Star Dr. - SB	-	100%	\$ 275,000	\$ 275,000
	I-3	-	-	SH 121 Deceleration Lanes (3)	Blair Oaks Dr. - SB	-	100%	\$ 275,000	\$ 275,000
	I-4	-	-	SH 121 Deceleration Lanes (4)	Market St. - SB	-	100%	\$ 275,000	\$ 275,000
	I-5	-	-	Paige Rd./Nash Dr. & Paige Rd./Norris	Nash Drive to Norris	-	100%	\$ 451,000	\$ 451,000
								Service Area Project Cost Subtotal	\$ 19,969,181
								Roadway Impact Fee Study Cost	\$ 35,500
							Total Cost in SH 121 CORRIDOR SERVICE AREA	\$ 20,004,681	



E. Service Unit Calculation

The basic service unit for the computation of The Colony's roadway impact fees is the vehicle-mile of travel during the afternoon peak-hour. To determine the cost per service unit, it is necessary to project the growth in vehicle-miles of travel for the service area for the ten-year period.

The growth in vehicle-miles from 2016 to 2026 is based upon projected changes in residential and non-residential growth for the period. In order to determine this growth, baseline estimates of population, basic square feet, service square feet, and retail square feet for 2016 were made by the City, along with projections for each of these demographic statistics through 2026. The Land Use Assumptions for the 2016 Impact Fee Update details the growth estimates used for the impact fee determination.

The residential and non-residential statistics in the Land Use Assumptions provide the "independent variables" that are used to calculate the existing (2016) and projected (2026) transportation service units (vehicle-miles) used to establish the roadway impact fee maximum rates within each service area. The roadway demand service units (vehicle-miles) for the service area is the sum of the vehicle-miles "generated" by each category of land use in the service area.

For the purpose of impact fees, all developed and developable land is categorized as either residential or non-residential. For residential land uses, the existing and projected population is converted to dwelling units. The number of dwelling units in each service area is multiplied by a transportation demand factor to compute the vehicle-miles of travel that occur during the afternoon peak hour. This factor computes the average amount of demand caused by the residential land uses in the service area. The transportation demand factor is discussed in more detail below.

For non-residential land uses, the process is similar. The Land Use Assumptions provide existing and projected number of building square footages for three (3) categories of non-residential land uses – basic, service, and retail. These categories correspond to an aggregation of other specific land use categories based on the North American Industrial Classification System (NAICS).

Building square footage is the most common independent variable for the estimation of non-residential trips in the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 9th Edition. This characteristic is more appropriate than the number of employees because building square footage is tied more closely to trip generation and is known at the time of application for any development or development modification that would require the assessment of an impact fee.

The existing and projected Land Use Assumptions for the dwelling units and the square footage of basic, service, and retail land uses provide the basis for the projected increase in vehicle-miles of travel. As noted earlier, a transportation demand factor is applied to these values and then summed to calculate the total peak hour vehicle-miles of demand for the service area.

The transportation demand factors are aggregate rates derived from three sources – the ITE Trip Generation Manual, 9th Edition, Regional Origin-Destination Travel Survey performed by NCTCOG, and trip length information from the National Household Travel Survey (NHTS). ITE's Trip Generation Manual, 9th Edition provides the number of trips that are produced or attracted to the land use for each dwelling unit, square foot of building, or other corresponding unit. For the retail category of land uses, the rate is adjusted to account for the fact that a percentage of retail trips are made by people who would otherwise be traveling past that particular establishment anyway, such as a trip between work and home. These trips are called pass-by trips, and since the travel demand is accounted for in the



land use calculations relative to the primary trip, it is necessary to discount the retail rate to avoid double counting trips.

The next component of the transportation demand factor accounts for the length of each trip. The average trip length for each category is based on the region-wide travel characteristics survey conducted by NCTCOG as well as average vehicle trip lengths collected by NHTS.

The computation of the *transportation demand factor* is detailed in the following equation:

$$TDF = T * (1 - P_b) * L_{max}$$

where... $L_{max} = \min(L * OD \text{ or } SA_L)$

Variables:

- TDF = Transportation Demand Factor,
- T = Trip Rate (peak hour trips / unit),
- P_b = Pass-By Discount (% of trips),
- L_{max} = Maximum Trip Length (miles),
- L = Average Trip Length (miles), and
- OD = Origin-Destination Reduction (50%)
- SA_L = Max Service Area Trip Length

The maximum trip length was limited to four (4) miles based on the maximum trip length within each service area. Chapter 395 of the Texas Local Government Code allows for a service area of six (6) miles; however the service area within The Colony is approximately four (4) miles in diameter.

The adjustment made to the average trip length statistic in the computation of the maximum trip length is the origin-destination reduction. This adjustment is made because the Roadway Impact Fee is charged to both the origin and destination end of the trip. For example, impact fee methodology will account for a trip from home to work within The Colony to both residential and non-residential land uses. To avoid counting these trips as both residential and non-residential trips, a 50% origin-destination (OD) reduction factor is applied. Therefore, only half of the trip length is assessed to each land use. This methodology is consistent with that used in the NHTS.

Table 5 shows the derivation of the Transportation Demand Factor for the residential land uses and the three (3) non-residential land use categories. The values utilized for all variables shown in the transportation demand factor equation are also shown in the table.

Table 5 – Transportation Demand Factor Calculations

Variable	Residential (ITE 210)	Basic (ITE 110)	Service (ITE 710)	Retail (ITE 820)
T	1.00	0.97	1.49	3.71
P _b	0%	0%	0%	34%
L	9.79	10.02	10.92	6.43
L _{max}	4.00	4.00	4.00	3.22
TDF	4.00	3.88	5.96	7.87



The application of the demographic projections and the transportation demand factors are presented in the 10-Year Growth Projections in Table 6. This table shows the total vehicle-miles by service area for the years 2016 and 2026. These estimates and projections lead to the Vehicle-Miles of Travel for both 2016 and 2026.

Table 6 – 10-Year Growth Projections

Year 2016

SERVICE AREA	RESIDENTIAL VEHICLE-MILES		SQUARE FEET ⁴			TRANS. DEMAND FACTOR ⁵			NON-RESIDENTIAL VEHICLE-MILES ⁹			TOTAL VEHICLE MILES ¹⁰	
	DWELLING UNITS ¹	TDF ²	VEHICLE MILES ³	BASIC	SERVICE	RETAIL	BASIC ⁶	SERVICE ⁷	RETAIL ⁸	BASIC	SERVICE	RETAIL	TOTAL
SH121 CORRIDOR	4,911	1.00 4.00	19,644	467,000	1,132,000	5,086,000	0.97 3.88	1.49 5.96	3.71 7.87	1,812	6,747	40,027	48,586
													68,230

Year 2026

SERVICE AREA	RESIDENTIAL VEHICLE-MILES		SQUARE FEET ⁴			TRANS. DEMAND FACTOR ⁵			NON-RESIDENTIAL VEHICLE-MILES ⁹			TOTAL VEHICLE MILES ¹⁰	
	DWELLING UNITS ¹	TDF ²	VEHICLE MILES ³	BASIC	SERVICE	RETAIL	BASIC ⁶	SERVICE ⁷	RETAIL ⁸	BASIC	SERVICE	RETAIL	TOTAL
SH121 CORRIDOR	7,104	1.00 4.00	28,416	651,000	1,207,000	7,087,000	0.97 3.88	1.49 5.96	3.71 7.87	2,526	7,194	55,775	65,495
													93,911

VEHICLE-MILES OF INCREASE¹¹ (2016 - 2026)

SERVICE AREA	VEH-MILES
SH121 CORRIDOR	25,681

Notes:

- ¹ From Land Use Assumptions (included in 2016 Roadway Impact Fee Update Report)
- ² Transportation Demand Factor for the Service Area (from LUVMET) using Single Family Detached Housing land use and *trip generation rate*
- ³ Calculated by multiplying TDF by the number of dwelling units
- ⁴ From Land Use Assumptions included in 2016 Roadway Impact Fee Update Report
- ⁵ *Trip generation rate* and Transportation Demand Factors from LUVMET for each land use
- ⁶ 'Basic' corresponds to General Light Industrial land use and *trip generation rate*
- ⁷ 'Service' corresponds to General Office land use and *trip generation rate*
- ⁸ 'Retail' corresponds to Shopping Center land use and *trip generation rate*
- ⁹ Calculated by multiplying Transportation Demand Factor by the number of thousand square feet for each land use
- ¹⁰ Residential plus non-residential vehicle-mile totals for the SH 121 Corridor Service Area
- ¹¹ Total Vehicle-Miles (2016) subtracted from Total Vehicle-Miles (2026)



IV. Roadway Impact Fee Calculation

A. Maximum Assessable Impact Fee Per Service Unit

This section presents the maximum assessable impact fee rate calculated for each service area. The maximum assessable impact fee is the sum of the eligible Roadway Impact Fee CIP costs for the service area divided by the growth in travel attributable to new development projected to occur within the 10-year period. A majority of the components of this calculation have been described and presented in previous sections of this report. The purpose of this section is to document the computation for each service area and to demonstrate that the guidelines provided by Chapter 395 of the Texas Local Government Code have been addressed. Table 7 illustrates the computation of the maximum assessable impact fee computed for each service area. Each row in the table is numbered to simplify explanation of the calculation.

Table 7 – Maximum Assessable Roadway Impact Fee Computation

Line	Title	Description
1	<i>Total Vehicle-Miles of Capacity Added by the CIP</i>	The total number of vehicle-miles added to the service area based on the capacity, length, and number of lanes in each project (from Appendix B – CIP Service Units of Supply)

Each project identified in the Impact Fee CIP will add a certain amount of capacity to the City's roadway network based on its length and classification. This line displays the total amount added within each service area.

2	<i>Total Vehicle-Miles of Existing Demand</i>	A measure of the amount of traffic currently using the roadway facilities upon which capacity is being added. (from Appendix B – CIP Service Units of Supply)
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A number of facilities identified in the Impact Fee CIP have traffic currently utilizing a portion of their existing capacity. This line displays the total amount of capacity along these facilities currently being used by existing traffic.

3	<i>Total Vehicle-Miles of Existing Deficiencies</i>	Number of vehicle-miles of travel that are not accommodated by the existing roadway system (from Appendix C – Existing Roadway Facilities Inventory)
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In order to ensure that existing deficiencies on the City's roadway network are not recoverable through impact fees, this line is based on the entire roadway network within the service area. Any roadway within the service area that is deficient – even those not identified on the Impact Fee CIP – will have these additional vehicle-miles removed from the calculation.

4	<i>Net Amount of Vehicle-Miles of Capacity Added</i>	A measurement of the amount of vehicle-miles added by the CIP that will not be utilized by existing demand (Line 1 – Line 2 – Line 3)
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This calculation identifies the portion of the Impact Fee CIP (in vehicle-miles) that may be recoverable through the collection of impact fees.

5	<i>Total Cost of the CIP within the Service Area</i>	The total cost of the projects within each service area (from Table 4: 10-Year Capital Improvement Plan with Conceptual Level Cost Opinions)
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This line simply identifies the total cost of all of the projects identified in each service area.

6	<i>Cost of Net Capacity Supplied</i>	The total CIP cost (Line 5) prorated by the ratio of Net Capacity Added (Line 4) to Total Capacity Added (Line 1). [(Line 4 / Line 1) * (Line 5)]
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Using the ratio of vehicle-miles added by the Roadway Impact Fee CIP available to serve future growth to the total vehicle-miles added, the total cost of the CIP is reduced to the amount available for future growth (i.e. excluding existing usage and deficiencies).

7	<i>Cost to Meet Existing Needs and Usage</i>	The difference between the Total Cost of the CIP (Line 5) and the Cost of the Net Capacity supplied (Line 6). (Line 5 – Line 6)
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This line is provided for informational purposes only – it is to present the portion of the total cost of the Roadway Impact Fee CIP that is required to meet existing demand.

8	<i>Total Vehicle-Miles of New Demand over Ten Years</i>	Based upon the growth projection provided in the Land Use Assumptions, an estimate of the number of new vehicle-miles within the service area over the next ten years. (from Table 6)
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This line presents the amount of growth (in vehicle-miles) projected to occur within each service area over the next ten years.

9	<i>Percent of Capacity Added Attributable to New Growth</i>	The result of dividing Total Vehicle-Miles of New Demand (Line 8) by the Net Amount of Capacity Added (Line 4), limited to 100% (Line 10). This calculation is required by Chapter 395 to ensure capacity added is attributable to new growth.
10	<i>Chapter 395 Check</i>	

In order to ensure that the vehicle-miles added by the Roadway Impact Fee CIP do not exceed the amount needed to accommodate growth beyond the ten-year window, a comparison of the two values is performed. If the amount of vehicle-miles added by the Roadway Impact Fee CIP exceeds the growth projected to occur in the next ten years, the Roadway Impact Fee CIP cost is reduced accordingly.

11	<i>Cost of Capacity Added Attributable to New Growth</i>	The result of multiplying the Cost of Net Capacity Added (Line 6) by the Percent of Capacity Added Attributable to New Growth, limited to 100% (Line 9 and 10).
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This value is the total Impact Fee CIP project costs (excluding financial costs) that may be recovered through impact fees. This line is determined considering the limitations to impact fees required by the Texas legislature.

12	<i>Pre-Credit CIP Cost Per Service Unit</i>	Found by dividing the Cost of the CIP attributed to growth by the Total Vehicle-Miles of New Demand Over Ten Years (Line 8). (Line 11 / Line 8).
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This value is the total Impact Fee CIP project costs (excluding financial costs) that may be recovered through impact fees. This line is determined considering the limitations to impact fees required by the Texas legislature.



B. Plan for Awarding the Roadway Impact Fee Credit

Chapter 395 of the Texas Local Government Code requires the Capital Improvement Plan for Roadway Impact Fees contain specific enumeration of a plan for awarding the impact fee credit. Section 395.014 of the Code states:

"(7) A plan for awarding:

- (A) a credit for the portion of ad valorem tax and utility service revenues generated by new service units during the program period that is used for the payment of improvements, including the payment of debt, that are included in the capital improvements plan; or
- (B) In the alternative, a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan..."

The City of The Colony has determined the maximum assessable impact fee per service unit shall be 50% of the total projected cost of implementing the capital improvements plan. Therefore, the *Percent of Fee Recoverable* (Line 13) is multiplied by the *Pre-Credit CIP Cost Per Service Unit* (Line 12) to obtain the *Maximum Assessable Fee Per Service Unit* (Line 14).

Table 8 summarizes these calculations previously mentioned and provides the maximum assessable impact fee.

Table 8 – Maximum Assessable Roadway Impact Fee

SERVICE AREA:		SH 121 CORRIDOR
1	TOTAL VEH-MI OF CAPACITY ADDED BY THE CIP (FROM CIP UNITS OF SUPPLY, APPENDIX B)	14,650
2	TOTAL VEH-MI OF EXISTING DEMAND (FROM CIP UNITS OF SUPPLY, APPENDIX B)	3,798
3	TOTAL VEH-MI OF EXISTING DEFICIENCIES (FROM EXISTING FACILITIES INVENTORY, APPENDIX C)	1,961
4	NET AMOUNT OF VEH-MI OF CAPACITY ADDED (LINE 1 - LINE 2 - LINE 3)	8,891
5	TOTAL COST OF THE CIP WITHIN SERVICE AREA (FROM TABLE 4)	\$ 20,004,681
6	COST OF NET CAPACITY SUPPLIED (LINE 4 / LINE 1) * (LINE 5)	\$ 12,140,725
7	COST TO MEET EXISTING NEEDS AND USAGE (LINE 5 - LINE 6)	\$ 7,863,956
8	TOTAL VEH-MI OF NEW DEMAND OVER TEN YEARS (FROM TABLE 6 and Land Use Assumptions)	25,681
9	PERCENT OF CAPACITY ADDED ATTRIBUTABLE TO GROWTH (LINE 8 / LINE 4)	288.8%
10	IF LINE 8 > LINE 4, REDUCE LINE 9 TO 100%, OTHERWISE NO CHANGE	100.0%
11	COST OF CAPACITY ADDED ATTRIBUTABLE TO GROWTH (LINE 6 * LINE 10)	\$ 12,140,725
12	PRE-CREDIT CIP COST PER SERVICE UNIT (\$ PER VEH-MI) (LINE 11 / LINE 8)	\$ 472
13	PERCENT OF FEE RECOVERABLE (FROM CHAPTER 395 of the Local Government Code)	50%
14	MAX ASSESSABLE FEE PER SERVICE UNIT (\$ PER VEH-MI) (Line 12 * Line 13)	\$ 236



C. Service Unit Demand Per Unit Development

The Roadway Impact Fee is determined by multiplying the impact fee rate by the number of service units projected for the proposed development. For this purpose, the City utilizes the Land Use/Vehicle-Mile Equivalency Table (LUVMET), presented in Table 9. This table lists the predominant land uses that may occur within the City of The Colony. For each land use, the development unit that defines the development's magnitude with respect to transportation demand is shown. Although every possible use cannot be anticipated, the majority of uses are found in this table. If the exact use is not listed, one similar in trip-making characteristics can serve as a reasonable proxy. The individual land uses are grouped into categories, such as residential, office, commercial, and industrial.

The trip rates presented for each land use are a fundamental component of the LUVMET. The trip rate is the average number of trips generated during the afternoon peak hour by each land use per development unit. The next column, if applicable to the land use, presents the number of trips to and from certain land uses reduced by pass-by trips, as previously discussed.

The source of the trip generation and pass-by statistics is ITE's Trip Generation Manual, 9th Edition, the latest edition of the definitive source for trip generation data. This manual utilizes trip generation studies for a variety of land uses throughout the United States, and is the standard used by traffic engineers and transportation planners for traffic impact analysis, site design, and transportation planning.

To convert vehicle trips to vehicle-miles, it is necessary to multiply trips by trip length. The adjusted trip length values are based on the Regional Origin-Destination Travel Survey performed by the North Central Texas Council of Governments (NCTCOG) as well as average trip lengths from NHTS. The lower of the two trip lengths was utilized when calculating the transportation demand factor. The other adjustment to trip length is the 50% origin-destination reduction to avoid double counting of trips. At this stage, another important aspect of the state law is applied – the limit on transportation service unit demand. If the adjusted trip length is above four (4) miles, the maximum trip length used for calculation is reduced to four (4) miles. This reduction, as discussed previously, limits the maximum trip length to the approximate size of the service areas.

The remaining column in the LUVMET shows the vehicle-miles per development unit. This number is the product of the trip rate and the maximum trip length. This number, previously referred to as the Transportation Demand Factor, is used in the impact fee estimate to compute the number of service units attributed to each land use category. The number of service units is multiplied by the impact fee rate (established by City ordinance) in order to determine the impact fee for a development.



Table 9. Land Use / Vehicle-Mile Equivalency Table (LUVMET)

Land Use Category	ITE Land Use Code	Development Unit	Trip Gen Rate (PM)	Pass-by Rate	Pass-by Source	Trip Rate	Trip Length (mi)	Adj. For O-D	Adj. Trip Length (mi)	Max Trip Length (mi)	Veh-Mi Per Dev-Unit
PORT AND TERMINAL											
Truck Terminal	030	Acre	6.55			6.55	10.02	50%	5.01	4.00	26.20
INDUSTRIAL											
General Light Industrial	110	1,000 SF GFA	0.97			0.97	10.02	50%	5.01	4.00	3.88
General Heavy Industrial	120	1,000 SF GFA	0.68			0.68	10.02	50%	5.01	4.00	2.72
Industrial Park	130	1,000 SF GFA	0.85			0.85	10.02	50%	5.01	4.00	3.40
Warehousing	150	1,000 SF GFA	0.32			0.32	10.83	50%	5.42	4.00	1.28
Mini-Warehouse	151	1,000 SF GFA	0.26			0.26	10.83	50%	5.42	4.00	1.04
RESIDENTIAL											
Single-Family Detached Housing	210	Dwelling Unit	1.00			1.00	9.79	50%	4.90	4.00	4.00
Apartment/Multi-family	220	Dwelling Unit	0.62			0.62	9.79	50%	4.90	4.00	2.48
Residential Condominium/Townhome	230	Dwelling Unit	0.52			0.52	9.79	50%	4.90	4.00	2.08
Mobile Home Park / Manufactured Housing	240	Dwelling Unit	0.59			0.59	9.79	50%	4.90	4.00	2.36
Senior Adult Housing-Detached	251	Dwelling Unit	0.27			0.27	9.79	50%	4.90	4.00	1.08
Senior Adult Housing-Attached	252	Dwelling Unit	0.25			0.25	9.79	50%	4.90	4.00	1.00
Assisted Living	254	Beds	0.22			0.22	9.79	50%	4.90	4.00	0.88
LODGING											
Hotel	310	Room	0.60			0.60	6.43	50%	3.22	3.22	1.93
Motel / Other Lodging Facilities	320	Room	0.47			0.47	6.43	50%	3.22	3.22	1.51
RECREATIONAL											
Golf Driving Range	432	Tee	1.25			1.25	6.43	50%	3.22	3.22	4.02
Golf Course	430	Acre	0.30			0.30	6.43	50%	3.22	3.22	0.96
Recreational Community Center	495	1,000 SF GFA	2.74			2.74	6.43	50%	3.22	3.22	8.81
Ice Skating Rink	465	1,000 SF GFA	2.36			2.36	6.43	50%	3.22	3.22	7.59
Miniature Golf Course	431	Hole	0.33			0.33	6.43	50%	3.22	3.22	1.06
Multiplex Movie Theater	445	Screens	13.64			13.64	6.43	50%	3.22	3.22	43.85
Racquet / Tennis Club	491	Court	3.35			3.35	6.43	50%	3.22	3.22	10.77
INSTITUTIONAL											
Church	560	1,000 SF GFA	0.55			0.55	4.20	50%	2.10	2.10	1.16
Day Care Center	565	1,000 SF GFA	12.34	44%	B	6.91	4.20	50%	2.10	2.10	14.51
Primary/Middle School (1-8)	522	Students	0.16			0.16	4.20	50%	2.10	2.10	0.34
High School	530	Students	0.13			0.13	4.20	50%	2.10	2.10	0.27
Junior / Community College	540	Students	0.12			0.12	4.20	50%	2.10	2.10	0.25
University / College	550	Students	0.17			0.17	4.20	50%	2.10	2.10	0.36
MEDICAL											
Clinic	630	1,000 SF GFA	5.18			5.18	7.55	50%	3.78	3.78	19.55
Hospital	610	Beds	1.42			1.42	7.55	50%	3.78	3.78	5.36
Nursing Home	620	Beds	0.22			0.22	7.55	50%	3.78	3.78	0.83
Animal Hospital/Veterinary Clinic	640	1,000 SF GFA	4.72	30%	B	3.30	7.55	50%	3.78	3.78	12.46

Key to Sources of Pass-by Rates:
A: ITE Trip Generation Handbook 3rd Edition (August 2014)
B: Estimated by Kimley-Horn based on ITE rates for similar categories
C: ITE rate adjusted upward by KHA based on logical relationship to other categories



Table 9 Cont'd. Land Use / Vehicle-Mile Equivalency Table (LUVMET)

Land Use Category	ITE Land Use Code	Development Unit	Trip Gen Rate (PM)	Pass-by Rate	Pass-by Source	Trip Rate	Trip Length (mi)	Adj. For O-D	Adj. Trip Length (mi)	Max Trip Length (mi)	Veh-Mi Per Dev-Unit
OFFICE											
Corporate Headquarters Building	714	1,000 SF GFA	1.41			1.41	10.92	50%	5.46	4.00	5.64
General Office Building	710	1,000 SF GFA	1.49			1.49	10.92	50%	5.46	4.00	5.96
Medical-Dental Office Building	720	1,000 SF GFA	3.57			3.57	10.92	50%	5.46	4.00	14.28
Single Tenant Office Building	715	1,000 SF GFA	1.74			1.74	10.92	50%	5.46	4.00	6.96
Office Park	750	1,000 SF GFA	1.48			1.48	10.92	50%	5.46	4.00	5.92
COMMERCIAL											
Automobile Related											
Automobile Care Center	942	1,000 SF Occ. GLA	3.11	40%	B	1.87	5.60	50%	2.80	2.80	5.22
Automobile Parts Sales	843	1,000 SF GFA	5.98	43%	A	3.41	5.60	50%	2.80	2.80	9.54
Gasoline/Service Station	944	Vehicle Fueling Position	13.87	42%	A	8.04	1.20	50%	0.60	0.60	4.83
Gasoline/Service Station w/ Conv Market	945	Vehicle Fueling Position	13.51	56%	B	5.94	1.20	50%	0.60	0.60	3.57
Gasoline/Service Station w/ Conv Market and Car Wash	946	Vehicle Fueling Position	13.86	56%	A	6.10	1.20	50%	0.60	0.60	3.66
New Car Sales	841	1,000 SF GFA	2.62	20%	B	2.10	5.60	50%	2.80	2.80	5.87
Quick Lubrication Vehicle Shop	941	Servicing Positions	5.19	40%	B	3.11	5.60	50%	2.80	2.80	8.72
Self-Service Car Wash	947	Stall	5.54	40%	B	3.32	1.20	50%	0.60	0.60	1.99
Tire Store	848	1,000 SF GFA	4.15	28%	A	2.99	5.60	50%	2.80	2.80	8.37
Dining											
Fast Food Restaurant with Drive-Thru Window	934	1,000 SF GFA	32.65	50%	A	16.33	4.79	50%	2.40	2.40	39.10
Fast Food Restaurant without Drive-Thru Window	933	1,000 SF GFA	26.15	50%	B	13.08	4.79	50%	2.40	2.40	31.31
High Turnover (Sit-Down) Restaurant	932	1,000 SF GFA	9.85	43%	A	5.61	4.79	50%	2.40	2.40	13.45
Quality Restaurant	931	1,000 SF GFA	7.49	44%	A	4.19	4.79	50%	2.40	2.40	10.05
Coffee/Donut Shop with Drive-Thru Window	937	1,000 SF GFA	42.80	70%	A	12.84	4.79	50%	2.40	2.40	30.75
Other Retail											
Free-Standing Discount Store	815	1,000 SF GFA	4.98	30%	C	3.49	6.43	50%	3.22	3.22	11.21
Nursery (Garden Center)	817	1,000 SF GFA	6.94	30%	B	4.86	6.43	50%	3.22	3.22	15.62
Home Improvement Superstore	862	1,000 SF GFA	2.33	48%	A	1.21	6.43	50%	3.22	3.22	3.90
Pharmacy/Drugstore w/o Drive-Thru Window	880	1,000 SF GFA	8.40	53%	A	3.95	6.43	50%	3.22	3.22	12.69
Pharmacy/Drugstore w/ Drive-Thru Window	881	1,000 SF GFA	9.91	49%	A	5.05	6.43	50%	3.22	3.22	16.25
Shopping Center	820	1,000 SF GFA	3.71	34%	A	2.45	6.43	50%	3.22	3.22	7.87
Supermarket	850	1,000 SF GFA	9.48	36%	A	6.07	6.43	50%	3.22	3.22	19.51
Toy/Children's Superstore	864	1,000 SF GFA	4.99	30%	B	3.49	6.43	50%	3.22	3.22	11.23
Department Store	875	1,000 SF GFA	1.87	30%	B	1.31	6.43	50%	3.22	3.22	4.21
Video Rental Store	896	1,000 SF GFA	13.60	50%	B	6.80	6.43	50%	3.22	3.22	21.86
SERVICES											
Walk-In Bank	911	1,000 SF GFA	12.13	40%	B	7.28	3.39	50%	1.70	1.70	12.34
Drive-In Bank	912	Drive-in Lanes	33.24	47%	A	17.62	3.39	50%	1.70	1.70	29.86
Hair Salon	918	1,000 SF GLA	1.45	30%	B	1.02	3.39	50%	1.70	1.70	1.72

Key to Sources of Pass-by Rates:

A: ITE Trip Generation Handbook 3rd Edition (August 2014)

B: Estimated by Kimley-Horn based on ITE rates for similar categories

C: ITE rate adjusted upward by KHA based on logical relationship to other categories



V. Sample Calculations

The following section details two (2) examples of maximum assessable Roadway Impact Fee calculations.

Example 1 – Development Type - One (1) Unit of Single-Family Housing

Roadway Impact Fee Calculation Steps – Example 1	
Step 1	Determine Development Unit and Vehicle-Miles Per Development Unit
	<i>From Table 9 [Land Use – Vehicle-mile Equivalency Table]</i> Development Type: 1 Dwelling Unit of Single-Family Detached Housing Number of Development Units: 1 Dwelling Unit Veh-Mi Per Development Unit: 4.00
Step 2	Determine Maximum Assessable Impact Fee Per Service Unit
	<i>From Table 8, Line 14 [Maximum Assessable Fee Per Service Unit]</i> Service Area: \$236
Step 3	Determine Maximum Assessable Impact Fee
	Impact Fee = # of Development Units * Veh-Mi Per Dev Unit * Max. Fee Per Service Unit
	Impact Fee = 1 * 4.00 * \$236 Maximum Assessable Impact Fee = \$944

Example 2 – Development Type – 125,000 square foot Home Improvement Superstore

Roadway Impact Fee Calculation Steps – Example 2	
Step 1	Determine Development Unit and Vehicle-Miles Per Development Unit
	<i>From Table 9 [Land Use – Vehicle-mile Equivalency Table]</i> Development Type: 125,000 square feet of Home Improvement Superstore Development Unit: 1,000 square feet of Gross Floor Area Veh-Mi Per Development Unit: 3.90
Step 2	Determine Maximum Assessable Impact Fee Per Service Unit
	<i>From Table 8, Line 14 [Maximum Assessable Fee Per Service Unit]</i> Service Area: \$236
Step 3	Determine Maximum Assessable Impact Fee
	Impact Fee = # of Development Units * Veh-Mi Per Dev Unit * Max. Fee Per Service Unit
	Impact Fee = 125 * 3.90 * \$236 Maximum Assessable Impact Fee = \$115,050



VI. Conclusion

The City of The Colony has established a process to implement the assessment and collection of roadway impact fees through the adoption of an impact fee ordinance that is consistent with Chapter 395 of the Texas Local Government Code.

This report establishes the maximum allowable roadway impact fee that could be assessed by the City of The Colony within the SH 121 Corridor Service Area. The maximum assessable roadway impact fee calculated in this report is \$236 per vehicle-mile.

This document serves as a guide to the assessment of roadway impact fees pertaining to future development and the City's need for roadway improvements to accommodate that growth. Following the public hearing process, the City Council may establish an amount to be assessed (if any) up to the maximum established within this report and update the Roadway Impact Fee Ordinance accordingly.

In conclusion, it is our opinion that the data and methodology used in this update are appropriate and consistent with Chapter 395 of the Texas Local Government Code. Furthermore, the Land Use Assumptions and the proposed Capital Improvement Plan are appropriately incorporated into the process.



APPENDICES

- A. Conceptual Level Project Cost Projections
- B. CIP Service Units of Supply
- C. Existing Roadway Facilities Inventory
- D. Actual Impact Fees to be Assessed by Land Use



A. Conceptual Level Project Cost Projections

The Colony - 2016 Roadway Impact Fee Update

Capital Improvement Plan for Roadway Impact Fees
Summary of Conceptual Level Project Cost Projections

Roadway Improvements - SH 121 Corridor Service Area

#	Class	Project	Limits	Status	Project Cost
1	6D-B & 8D-A	Paige Rd.	SH 121 to S. Colony Blvd.	Completed	\$ 3,560,302
2	4U-B (1/2)	S. Colony Blvd. (1)	Lakeshore Dr. to 165' E. of Ridgecrest Dr.	Widening	\$ 152,000
3	4D-C	S. Colony Blvd. (2)	Paige Rd. to Bear Run Rd.	Completed	\$ 393,553
4	4D-C	Memorial Dr. (1)	Standridge Dr. to 575' W. of Main St.	Completed	\$ 1,730,726
5	4D-C	Memorial Dr. (2)	575' W. of Main St. to Main St.	Completed	\$ 370,009
6	4D-C (1/2)	Memorial Dr. (3)	Blair Oaks Dr. to Paige Rd.	Completed	\$ 136,971
7	4D-C (1/2)	Memorial Dr. (4)	Paige Rd. to 790' E. of Paige Rd.	Completed	\$ 121,706
8	4D-C (1/2)	Memorial Dr. (5)	Worley Dr. to S. Colony Blvd.	Widening	\$ 664,000
9	6D (1/3)	Memorial Dr. (6)	Standridge Dr. to City Limits	Median	\$ 5,266,000
10	4D-C	S. Colony Blvd. Overpass	SH 121 SBFR to SH 121 NBFR	Completed	\$ 5,132,914
11	4U-A (1/2)	Morningstar Dr.	200' S. of Baker Dr. to N. Colony Blvd.	Widening	\$ 615,000
Intersection Improvements					
I-1	-	SH 121 Deceleration Lanes (1)	Paige Rd. / Plano Pkwy. - NB and SB	New	\$ 550,000
I-2	-	SH 121 Deceleration Lanes (2)	Morning Star Dr. - SB	New	\$ 275,000
I-3	-	SH 121 Deceleration Lanes (3)	Blair Oaks Dr. - SB	New	\$ 275,000
I-4	-	SH 121 Deceleration Lanes (4)	Market St. - SB	New	\$ 275,000
I-5	-	Paige Rd./Nash Dr. & Paige Rd./Norris	Nash Drive to Norris	New	\$ 451,000
TOTAL					\$ 19,969,181

NOTE: The planning level cost projections listed in this appendix have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Planning within the City of The Colony. The planning level cost projections shall not supersede the City's design standards contained within the Subdivision Ordinance, Engineering Design Manual, or the determination of the City Engineer for a specific project.

The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.

updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	Paige Rd.	This project consisted of the construction of a six-lane divided arterial north of Memorial Dr and an eight-lane arterial south of Memorial Dr. The City's total cost for this project was \$3,560,302.	1
Limits:	SH 121 to S. Colony Blvd.		
Impact Fee Class:	6D-B & 8D-A		
Ultimate Class:	Minor/Major Arterial		
Length (lf):	4,420		
Service Area(s):	SH 121 Corridor		

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Actual Construction Cost:		-	\$ 3,560,302
Construction Cost Estimate From City Engineering/Survey/Testing:			
ROW/Easement Acquisition:			
Impact Fee Project Cost TOTAL:			\$ 3,560,302

NOTE: The planning level cost projections listed in this appendix have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Planning within the City of The Colony. The planning level cost projections shall not supersede the City's design standards contained within the Subdivision Ordinance, Engineering Design Manual, or the determination of the City Engineer for a specific project.

The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.

updated: 7/19/2016

Project Information:		Description:	Project No. 2
Name:	S. Colony Blvd. (1)	<p>This project consists of the construction of the southern two lanes of an ultimate four-lane undivided section.</p>	
Limits:	Lakeshore Dr. to 165' E. of Ridgcrest Dr.		
Impact Fee Class:	4U-B (1/2)		
Ultimate Class:	Minor Collector		
Length (lf):	405		
Service Area(s):	SH 121 Corridor		

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
110	Unclassified Street Excavation	540	cy	\$ 9.00	\$ 4,860
210	8" Lime Stabilization (with Lime @ 32#/sy)	1,058	sy	\$ 4.00	\$ 4,232
310	7" Concrete Pavement	1,013	sy	\$ 45.00	\$ 45,585
410	4" Topsoil	360	sy	\$ 3.75	\$ 1,350
501	Concrete Driveway Approach	1	ea	\$ 4,000.00	\$ 4,000
Paving Construction Cost Subtotal:					\$ 60,027
Major Construction Component Allowances**:					
Item Description	Notes	Allowance	Item Cost		
√ Prep ROW		4%	\$	2,401	
√ Traffic Control	Construction Phase Traffic Control	15%	\$	9,004	
√ Pavement Markings/Markers		3%	\$	1,801	
√ Roadway Drainage	Standard Internal System	35%	\$	21,009	
Special Drainage Structures	None Anticipated	\$0	\$	-	
√ Water	Minor Adjustments	2%	\$	1,201	
√ Sewer	Minor Adjustments	5%	\$	3,001	
√ Landscaping and Irrigation		5%	\$	3,001	
√ Illumination	Standard Illumination System	6%	\$	3,602	
Other:		\$0	\$	-	
**Allowances based on % of Paving Construction Cost Subtotal					Allowance Subtotal: \$ 45,020
Paving and Allowance Subtotal:					\$ 105,047
Construction Contingency: 15%					\$ 15,757
Construction Cost TOTAL:					\$ 121,000

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 121,000
Engineering/Survey/Testing:		20%	\$ 24,200
Mobilization		6%	\$ 7,260
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 152,000

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The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	S. Colony Blvd. (2)	This project consisted of the reconstruction of an existing asphalt section to a four-lane divided arterial. The City's actual cost for this project was \$393,553.	3
Limits:	Paige Rd. to Bear Run Rd.		
Impact Fee Class:	4D-C		
Ultimate Class:	Minor Arterial		
Length (lf):	810		
Service Area(s):	SH 121 Corridor		

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Actual Construction Cost:		-	\$ 393,553
Construction Cost Estimate From City Engineering/Survey/Testing:			
ROW/Easement Acquisition:			
Impact Fee Project Cost TOTAL:			\$ 393,553

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The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	Memorial Dr. (1)	This project consisted of the construction of four lanes of an ultimate six-lane divided facility. The City's contribution to this project was \$1,730,726.	4
Limits:	Standridge Dr. to 575' W. of Main St.		
Impact Fee Class:	4D-C		
Ultimate Class:	Major Arterial		
Length (lf):	3,460		
Service Area(s):	SH 121 Corridor		

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Actual Construction Cost:		-	\$ 1,730,726
Construction Cost Estimate From City Engineering/Survey/Testing:			
ROW/Easement Acquisition:			
Impact Fee Project Cost TOTAL:			\$ 1,730,726

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The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.

updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	Memorial Dr. (2)	This project consisted of the construction of four lanes of an ultimate six-lane divided facility. The City's contribution to this project was \$370,009.	5
Limits:	575' W. of Main St. to Main St.		
Impact Fee Class:	4D-C		
Ultimate Class:	Major Arterial		
Length (lf):	625		
Service Area(s):	SH 121 Corridor		

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Actual Construction Cost:		-	\$ 370,009
Construction Cost Estimate From City Engineering/Survey/Testing:			
ROW/Easement Acquisition:			
Impact Fee Project Cost TOTAL:			\$ 370,009

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The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.

updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	Memorial Dr. (3)	This project consisted of the construction of two lanes of an ultimate six-lane divided facility. The City's previous actual contribution for the existing four-lane facility was \$136,971	6
Limits:	Blair Oaks Dr. to Paige Rd.		
Impact Fee Class:	4D-C (1/2)		
Ultimate Class:	Major Arterial		
Length (lf):	3,285		
Service Area(s):	SH 121 Corridor		

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Actual Construction Cost:			\$ 136,971
Construction Cost Estimate From City Engineering/Survey/Testing:			
ROW/Easement Acquisition:			
Impact Fee Project Cost TOTAL:			\$ 136,971

NOTE: The planning level cost projections listed in this appendix have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Planning within the City of The Colony. The planning level cost projections shall not supersede the City's design standards contained within the Subdivision Ordinance, Engineering Design Manual, or the determination of the City Engineer for a specific project.

The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.

updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	Memorial Dr. (4)	This project consisted of the construction of two northern lanes of an ultimate six-lane divided facility adjacent to the Home Depot. The City's previous actual contribution for the existing four-lane facility was \$121,706.	7
Limits:	Paige Rd. to 790' E. of Paige Rd.		
Impact Fee Class:	4D-C (1/2)		
Ultimate Class:	Major Arterial		
Length (lf):	770		
Service Area(s):	SH 121 Corridor		

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Actual Construction Cost:			\$ 121,706
Construction Cost Estimate From City Engineering/Survey/Testing:			
ROW/Easement Acquisition:			
Impact Fee Project Cost TOTAL:			\$ 121,706

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The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.

updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	Memorial Dr. (5)	This project consists of the construction of the southern two lanes of an ultimate six-lane divided section.	8
Limits:	Worley Dr. to S. Colony Blvd.		
Impact Fee Class:	4D-C (1/2)		
Ultimate Class:	Major Arterial		
Length (lf):	1,540		
Service Area(s):	SH 121 Corridor		

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
108	Unclassified Street Excavation	2,396	cy	\$ 9.00	\$ 21,564
208	10" Lime Stabilization (with Lime @ 40#/sy)	4,620	sy	\$ 4.00	\$ 18,480
308	8" Concrete Pavement	4,193	sy	\$ 48.00	\$ 201,264
408	4" Topsoil	3,252	sy	\$ 3.75	\$ 12,195
501	Concrete Driveway Approach	2	ea	\$ 4,000.00	\$ 8,000
Paving Construction Cost Subtotal:					\$ 261,503
Major Construction Component Allowances**:					
Item Description	Notes	Allowance	Item Cost		
√ Prep ROW		4%	\$	10,460	
√ Traffic Control	Construction Phase Traffic Control	15%	\$	39,225	
√ Pavement Markings/Markers		3%	\$	7,845	
√ Roadway Drainage	Standard Internal System	35%	\$	91,526	
Special Drainage Structures	None Anticipated	\$0	\$	-	
√ Water	Minor Adjustments	2%	\$	5,230	
√ Sewer	Minor Adjustments	5%	\$	13,075	
√ Landscaping and Irrigation		5%	\$	13,075	
√ Illumination	Standard Illumination System	6%	\$	15,690	
Other:		\$0	\$	-	
			Allowance Subtotal:	\$ 196,126	
**Allowances based on % of Paving Construction Cost Subtotal					
Paving and Allowance Subtotal:				\$ 457,629	
Construction Contingency: 15%				\$ 68,644	
Construction Cost TOTAL:				\$ 527,000	

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 527,000
Engineering/Survey/Testing:		20%	\$ 105,400
Mobilization		6%	\$ 31,620
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 664,000

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The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.

updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	Memorial Dr. (6)	This project consists of the construction of the median lanes to complete the six-lane divided arterial.	9
Limits:	Standrige Dr. to City Limits		
Impact Fee Class:	6D (1/3)		
Ultimate Class:	Major Arterial		
Length (lf):	17,015		
Service Area(s):	SH 121 Corridor		

Roadway Construction Cost Projection					
No.	Item Description	Quantity	Unit	Unit Price	Item Cost
109	Unclassified Street Excavation	24,578	cy	\$ 9.00	\$ 221,202
209	10" Lime Stabilization (with Lime @ 40#/sy)	48,210	sy	\$ 4.00	\$ 192,840
309	8" Concrete Pavement	47,264	sy	\$ 48.00	\$ 2,268,672
409	4" Topsoil	28,359	sy	\$ 3.75	\$ 106,346
501	Concrete Driveway Approach	18	ea	\$ 4,000.00	\$ 72,000
Paving Construction Cost Subtotal:					\$ 2,861,060
Major Construction Component Allowances**:					
Item Description	Notes	Allowance	Item Cost		
√ Prep ROW		4%	\$	114,442	
√ Traffic Control	Construction Phase Traffic Control	15%	\$	429,159	
√ Pavement Markings/Markers		3%	\$	85,832	
Roadway Drainage	None Anticipated	0%	\$	-	
Special Drainage Structures	None Anticipated	\$0	\$	-	
Water	None Anticipated	0%	\$	-	
Sewer	None Anticipated	0%	\$	-	
√ Landscaping and Irrigation		5%	\$	143,053	
Illumination	None Anticipated	0%	\$	-	
Other:		\$0	\$	-	
		Allowance Subtotal:	\$	772,486	
		Paving and Allowance Subtotal:	\$	3,633,546	
		Construction Contingency:	15%	\$	545,032
		Construction Cost TOTAL:	\$	4,179,000	

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 4,179,000
Engineering/Survey/Testing:		20%	\$ 835,800
Mobilization		6%	\$ 250,740
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
		Impact Fee Project Cost TOTAL:	\$ 5,266,000

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The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.
 updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	S. Colony Blvd. Overpass	This project consists of the widening of constructing an overpass connecting South Colony Blvd. with Grandscape Blvd. / Nebraska Furniture Mart Dr. The \$5,132,914 is the City's cost towards this improvement.	10
Limits:	SH 121 SBFR to SH 121 NBFR		
Impact Fee Class:	4D-C		
Ultimate Class:	Minor Arterial		
Length (lf):	1,675		
Service Area(s):	SH 121 Corridor		

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Actual Construction Cost:		-	\$ 5,132,914
Construction Cost Estimate From City Engineering/Survey/Testing:			
ROW/Easement Acquisition:			
Impact Fee Project Cost TOTAL:			\$ 5,132,914

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The Colony
2016 Roadway Impact Fee Update
Conceptual Level Project Cost Projection

Kimley-Horn and Associates, Inc.

updated: 7/19/2016

Project Information:		Description:	Project No.
Name:	Morningstar Dr.	This project consists of the widening of an existing two-lane facility to a four-lane undivided arterial.	11
Limits:	200' S. of Baker Dr. to N. Colony Blvd.		
Impact Fee Class:	4U-A (1/2)		
Ultimate Class:	Major Collector		
Length (lf):	1,255		
Service Area(s):	SH 121 Corridor		

Roadway Construction Cost Projection						
No.	Item Description	Quantity	Unit	Unit Price	Item Cost	
111	Unclassified Street Excavation	2,232	cy	\$ 9.00	\$ 20,088	
211	8" Lime Stabilization (with Lime @ 32#/sy)	4,393	sy	\$ 4.00	\$ 17,572	
311	7" Concrete Pavement	4,254	sy	\$ 45.00	\$ 191,430	
411	4" Topsoil	1,395	sy	\$ 3.75	\$ 5,231	
501	Concrete Driveway Approach	2	ea	\$ 4,000.00	\$ 8,000	
Paving Construction Cost Subtotal:					\$ 242,321	
Major Construction Component Allowances**:						
Item Description	Notes	Allowance	Item Cost			
√ Prep ROW		4%	\$	9,693		
√ Traffic Control	Construction Phase Traffic Control	15%	\$	36,348		
√ Pavement Markings/Markers		3%	\$	7,270		
√ Roadway Drainage	Standard Internal System	35%	\$	84,812		
Special Drainage Structures	None Anticipated	\$0	\$	-		
√ Water	Minor Adjustments	2%	\$	4,846		
√ Sewer	Minor Adjustments	5%	\$	12,116		
√ Landscaping and Irrigation		5%	\$	12,116		
√ Illumination	Standard Illumination System	6%	\$	14,539		
Other:		\$0	\$	-		
**Allowances based on % of Paving Construction Cost Subtotal					Allowance Subtotal:	\$ 181,740
Paving and Allowance Subtotal:					\$ 424,061	
Construction Contingency: 15%					\$ 63,609	
Construction Cost TOTAL:					\$ 488,000	

Impact Fee Project Cost Summary			
Item Description	Notes:	Allowance	Item Cost
Construction:		-	\$ 488,000
Engineering/Survey/Testing:		20%	\$ 97,600
Mobilization		6%	\$ 29,280
ROW/Easement Acquisition:	No ROW Acquisition Costs included	0%	\$ -
Impact Fee Project Cost TOTAL:			\$ 615,000

NOTE: The planning level cost projections listed in this appendix have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Planning within the City of The Colony.
The planning level cost projections shall not supersede the City's design standards contained within the Subdivision Ordinance, Engineering Design Manual, or the determination of the City Engineer for a specific project.



B. CIP Service Units of Supply

The Colony - 2016 Roadway Impact Fee Update

CIP Service Units of Supply

SH 121 Corridor Service Area

6/24/2016

Project ID #	ROADWAY	LIMITS	LENGTH (MI)	LANES	IMPACT FEE CLASSIFICATION	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL	VEH-MI TOTAL DEMAND PK-HR	EXCESS CAPACITY PK-HR VEH-MI	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
1	Paige Rd.	SH 121 to S. Colony Blvd.	0.84	6	6D-B & 8D-A	2,216	100%	700	3,528	1,861	1,667	\$ 3,560,302	\$ 3,560,302
2	S. Colony Blvd. (1)	Lakeshore Dr. to 165' E. of Ridgecrest Dr.	0.08	4	4U-B (1/2)	86	100%	475	152	7	145	\$ 152,000	\$ 152,000
3	S. Colony Blvd. (2)	Paige Rd. to Bear Run Rd.	0.15	4	4D-C	803	100%	650	390	120	270	\$ 393,553	\$ 393,553
4	Memorial Dr. (1)	Standridge Dr. to 575' W. of Main St.	0.66	4	4D-C	680	100%	650	1,716	449	1,267	\$ 1,730,726	\$ 1,730,726
5	Memorial Dr. (2)	575' W. of Main St. to Main St.	0.12	4	4D-C	680	100%	650	312	82	230	\$ 370,009	\$ 370,009
6	Memorial Dr. (3)	Blair Oaks Dr. to Paige Rd.	0.62	4	4D-C (1/2)	1,092	100%	650	1,612	677	935	\$ 136,971	\$ 136,971
7	Memorial Dr. (4)	Paige Rd. to 790' E. of Paige Rd.	0.15	4	4D-C (1/2)	625	100%	650	390	94	296	\$ 121,706	\$ 121,706
8	Memorial Dr. (5)	Worley Dr. to S. Colony Blvd.	0.29	4	4D-C (1/2)	539	100%	650	754	156	598	\$ 664,000	\$ 664,000
9	Memorial Dr. (6)	Standridge Dr. to City Limits	3.22	2	6D (1/3)	0	100%	700	4,508	0	4,508	\$ 5,266,000	\$ 5,266,000
10	S. Colony Blvd. Overpass	SH 121 SBFR to SH 121 NBFR	0.32	4	4D-C	483	100%	650	832	155	677	\$ 5,132,914	\$ 5,132,914
11	Morningstar Dr.	200' S. of Baker Dr. to N. Colony Blvd.	0.24	4	4U-A (1/2)	822	100%	475	456	197	259	\$ 615,000	\$ 615,000

Intersection Improvements

I-1	SH 121 Deceleration Lanes (1)	Paige Rd. / Plano Pkwy. - NB and SB	-	-	-	-	100%	-	-	-	-	\$ 550,000	\$ 550,000
I-2	SH 121 Deceleration Lanes (2)	Morning Star Dr. - SB	-	-	-	-	100%	-	-	-	-	\$ 275,000	\$ 275,000
I-3	SH 121 Deceleration Lanes (3)	Blair Oaks Dr. - SB	-	-	-	-	100%	-	-	-	-	\$ 275,000	\$ 275,000
I-4	SH 121 Deceleration Lanes (4)	Market St. - SB	-	-	-	-	100%	-	-	-	-	\$ 275,000	\$ 275,000
I-5	Paige Rd./Nash Dr. & Paige Rd./Norris	Nash Drive to Norris	-	-	-	-	100%	-	-	-	-	\$ 451,000	\$ 451,000

SUBTOTAL													
									14,650	3,798	10,852	\$ 19,969,181	\$ 19,969,181
												Roadway Impact Fee Study Cost \$ 35,500	
												TOTAL COST IN SH121 CORRIDOR SERVICE AREA \$ 20,004,681	



C. Existing Roadway Facilities Inventory

**The Colony - 2016 Roadway Impact Fee Update
Existing Roadway Facilities Inventory**

6/24/2016

SH 121 Corridor Service Area

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXISTING LANES		TYPE	Built Out to Ultimate Configuration	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Main St.	SH 121	Memorial Dr.	1,086	0.21	2	2	4U-A	Under Construction	1710	1679	100%	475	475	195	195	352	345	-156	-150	156	150
Main St.	Memorial Dr.	S. Colony Blvd.	4,312	0.82	2	2	4U-A	Under Construction	1683	1785	100%	475	475	776	776	1,374	1,458	-599	-682	599	682
Blair Oaks Dr.	SH 121	Memorial Dr.	835	0.16	1	1	2U-C	Yes	138	136	100%	425	425	67	67	22	22	45	46		
Blair Oaks Dr.	Memorial Dr.	S. Colony Blvd.	4,088	0.77	1	1	2U-C	Yes	610	226	100%	425	425	329	329	472	175	-143	154	143	
Blair Oaks Dr.	S. Colony Blvd.	N. Colony Blvd.	5,662	1.07	1	1	2U-C	Yes	610	226	100%	425	425	456	456	654	242	-198	213	198	
Plano Pkwy.	S. Service Area Limits	SH 121	2,138	0.40	3	3	6D-A	Yes	701	683	100%	700	700	850	850	284	277	566	574		
Paige Rd.	SH 121	Memorial Dr.	1,069	0.20	4	4	8D-A	Yes	1028	1188	100%	700	700	567	567	208	241	359	326		
Paige Rd.	Memorial Dr.	S. Colony Blvd.	3,298	0.62	3	3	6D-B	Yes	818	818	100%	700	700	1,312	1,312	511	511	801	801		
Paige Rd.	S. Colony Blvd.	N. Colony Blvd.	5,401	1.02	3	3	6D-B	Yes	818	818	100%	700	700	2,148	2,148	837	837	1,311	1,311		
Morning Star Dr.	SH 121	Memorial Dr.	1,944	0.37	2	2	4D-C	Yes	286	340	100%	650	650	479	479	105	125	373	353		
Morning Star Dr.	Memorial Dr.	350' N. of Memorial Dr.	351	0.07	2	2	4D-C	Yes	725	317	100%	650	650	86	86	48	21	38	65		
Morning Star Dr.	350' N. of Memorial Dr.	1255' S. of N. Colony Blvd.	2,786	0.53	2	2	4U-A	Yes	725	317	100%	475	475	501	501	383	167	119	334		
Morning Star Dr.	1255' S. of N. Colony Blvd.	N. Colony Blvd.	1,253	0.24	1	1	2U-C	No	561	261	100%	425	425	101	101	133	62	-32	39	32	
Standridge Dr.	SH 121	Memorial Dr.	1,205	0.23	3	3	6D-B	Yes	400	419	100%	700	700	479	479	91	96	388	384		
Standridge Dr.	Memorial Dr.	500' N. of Memorial Dr.	500	0.09	2	2	4D-C	Partial	400	419	100%	650	650	123	123	38	40	85	83		
Standridge Dr.	500' N. of Memorial Dr.	300' S. of Cedar Ridge Ct.	1,175	0.22	1	1	2U-C	Partial	400	419	100%	425	425	95	95	89	93	6	1		
Standridge Dr.	300' S. of Cedar Ridge Ct.	Sarasota Dr.	3,346	0.63	1	1	2U-C	Yes	400	419	100%	425	425	269	269	253	266	16	4		
N. Colony Blvd.	255' W. of Paige Rd.	Paige Rd.	255	0.05	2	2	4D-C	Yes	572	592	100%	650	650	63	63	28	29	35	34		
N. Colony Blvd.	Paige Rd.	705' E of Paige Rd.	705	0.13	2	2	4D-C	Yes	379	380	100%	650	650	174	174	51	51	123	123		
N. Colony Blvd.	705' E of Paige Rd.	335' W. of Morning Star Dr.	2,498	0.47	2	2	4U-A	No	379	380	100%	475	475	449	449	179	180	270	270		
N. Colony Blvd.	335' W. of Morning Star Dr.	Morning Star Dr.	335	0.06	2	2	4D-C	Yes	379	380	100%	650	650	82	82	24	24	58	58		
N. Colony Blvd.	Morning Star Dr.	BNSF RR	2,170	0.41	2	2	4D-C	Yes	30	22	100%	650	650	534	534	12	9	522	525		
Nash Dr.	Main St.	Paige Rd.	5,246	0.99	1	1	2U-C	Yes	28	28	100%	425	425	422	422	28	28	394	394		
Srickland Ave.	Main St.	Paige Rd.	4,958	0.94	1	1	2U-C	Yes	56	56	100%	425	425	399	399	53	53	346	346		
S. Colony Blvd.	Lakeshore Blvd.	580' W. of Main St.	407	0.08	1	1	2U-C	Partial	33	53	100%	425	425	33	33	3	4	30	29		
S. Colony Blvd.	580' W. of Main St.	Main St.	580	0.11	2	2	4D-C	Under Construction	33	53	100%	650	650	143	143	4	6	139	137		
S. Colony Blvd.	Main St.	Paige Rd.	5,165	0.98	2	2	4D-C	No	379	394	100%	650	650	1,272	1,272	371	385	901	886		
S. Colony Blvd.	Paige Rd.	Memorial Dr.	2,675	0.51	2	2	4D-C	No	418	385	100%	650	650	659	659	212	195	447	464		
S. Colony Blvd.	Memorial Dr.	SH 121	1,928	0.37	2	2	4D-C	Yes	246	237	100%	650	650	475	475	90	87	385	388		
Memorial Dr.	Standridge Dr.	Main St.	4,003	0.76	2	2	4D-C	No	396	284	100%	650	650	986	986	300	215	685	770		
Memorial Dr.	Main St.	Paige Rd.	5,105	0.97	2	2	4D-C	No	811	281	100%	650	650	1,257	1,257	784	272	473	985		
Memorial Dr.	Paige Rd.	Worley Dr.	1,745	0.33	2	2	4D-C	No	386	239	100%	650	650	430	430	128	79	302	351		
Memorial Dr.	Worley Dr.	290' W. of S. Colony Blvd.	1,246	0.24	1	1	2U-C	No	296	243	100%	425	425	100	100	70	57	30	43		
Memorial Dr.	290' W. of S. Colony Blvd.	S. Colony Blvd.	290	0.05	2	2	4D-C	No	296	243	100%	650	650	71	71	16	13	55	58		
Memorial Dr.	S. Colony Blvd.	Morning Star Dr.	1,806	0.34	2	2	4D-C	No	304	284	100%	650	650	445	445	104	97	341	348		
Memorial Dr.	Morning Star Dr.	BNSF RR	2,566	0.49	2	2	4D-C	No	304	284	100%	650	650	632	632	148	138	484	494		
SUBTOTAL			84,132	15.93											32,421		14,711		17,709		1,961



D. Actual Impact Fees to be Assessed by Land Use

Land Use Category	ITE Land Use Code	Development Unit	Veh-Mi Per Dev-Unit	2016 Rates
PORT AND TERMINAL				
Truck Terminal	030	Acre	26.20	\$ 6,183
INDUSTRIAL				
General Light Industrial	110	1,000 SF GFA	3.88	\$ 915.68
General Heavy Industrial	120	1,000 SF GFA	2.72	\$ 642
Industrial Park	130	1,000 SF GFA	3.40	\$ 802
Warehousing	150	1,000 SF GFA	1.28	\$ 302
Mini-Warehouse	151	1,000 SF GFA	1.04	\$ 245
RESIDENTIAL				
Single-Family Detached Housing	210	Dwelling Unit	4.00	\$ 944
Apartment/Multi-family	220	Dwelling Unit	2.48	\$ 585
Residential Condominium/Townhome	230	Dwelling Unit	2.08	\$ 491
Mobile Home Park / Manufactured Housing	240	Dwelling Unit	2.36	\$ 557
Senior Adult Housing-Detached	251	Dwelling Unit	1.08	\$ 255
Senior Adult Housing-Attached	252	Dwelling Unit	1.00	\$ 236
Assisted Living	254	Beds	0.88	\$ 208
LODGING				
Hotel	310	Room	1.93	\$ 455
Motel / Other Lodging Facilities	320	Room	1.51	\$ 356
RECREATIONAL				
Golf Driving Range	432	Tee	4.02	\$ 949
Golf Course	430	Acre	0.96	\$ 227
Recreational Community Center	495	1,000 SF GFA	8.81	\$ 1,452
Ice Skating Rink	465	1,000 SF GFA	7.59	\$ 1,791
Miniature Golf Course	431	Hole	1.06	\$ 250
Multiplex Movie Theater	445	Screens	43.85	\$ 2,061
Racquet / Tennis Club	491	Court	10.77	\$ 2,542
INSTITUTIONAL				
Church	560	1,000 SF GFA	1.16	\$ 274
Day Care Center	565	1,000 SF GFA	14.51	\$ 3,424
Primary/Middle School (1-8)	522	Students	0.34	\$ 80
High School	530	Students	0.27	\$ 64
Junior / Community College	540	Students	0.25	\$ 59
University / College	550	Students	0.36	\$ 85
MEDICAL				
Clinic	630	1,000 SF GFA	19.55	\$ 2,694
Hospital	610	Beds	5.36	\$ 677
Nursing Home	620	Beds	0.83	\$ 114
Animal Hospital/Veterinary Clinic	640	1,000 SF GFA	12.46	\$ 1,711
OFFICE				
Corporate Headquarters Building	714	1,000 SF GFA	5.64	\$ 772
General Office Building	710	1,000 SF GFA	5.96	\$ 821
Medical-Dental Office Building	720	1,000 SF GFA	14.28	\$ 2,050
Single Tenant Office Building	715	1,000 SF GFA	6.96	\$ 954
Office Park	750	1,000 SF GFA	5.92	\$ 827
COMMERCIAL				
Automobile Related				
Automobile Care Center	942	1,000 SF Occ. GLA	5.22	\$ 898
Automobile Parts Sales	843	1,000 SF GFA	9.54	\$ 1,510
Gasoline/Service Station	944	Vehicle Fueling Position	4.83	\$ 664
Gasoline/Service Station w/ Conv Market	945	Vehicle Fueling Position	3.57	\$ 486
Gasoline/Service Station w/ Conv Market and Car Wash	946	Vehicle Fueling Position	3.66	\$ 485
New Car Sales	841	1,000 SF GFA	5.87	\$ 936
Quick Lubrication Vehicle Shop	941	Service Positions	8.72	\$ 1,379
Self-Service Car Wash	947	Stall	1.99	\$ 274
Tire Store	848	1,000 SF GFA	8.37	\$ 1,604
Dining				
Fast Food Restaurant with Drive-Thru Window	934	1,000 SF GFA	39.10	\$ 5,716
Fast Food Restaurant without Drive-Thru Window	933	1,000 SF GFA	31.31	\$ 4,315
High Turnover (Sit-Down) Restaurant	932	1,000 SF GFA	13.45	\$ 2,055
Quality Restaurant	931	1,000 SF GFA	10.05	\$ 1,385
Coffee/Donut Shop with Drive-Thru Window	937	1,000 SF GFA	30.75	\$ 4,251
Other Retail				
Free-Standing Discount Store	815	1,000 SF GFA	11.21	\$ 1,570
Nursery (Garden Center)	817	1,000 SF GFA	15.62	\$ 1,178
Home Improvement Superstore	862	1,000 SF GFA	3.90	\$ 759
Pharmacy/Drugstore w/o Drive-Thru Window	880	1,000 SF GFA	12.69	\$ 1,947
Pharmacy/Drugstore w/ Drive-Thru Window	881	1,000 SF GFA	16.25	\$ 1,947
Shopping Center	820	1,000 SF GFA	7.87	\$ 1,097
Supermarket	850	1,000 SF GFA	19.51	\$ 2,963
Toy/Children's Superstore	864	1,000 SF GFA	11.23	\$ 1,547
Department Store	875	1,000 SF GFA	4.21	\$ 552
Video Rental Store	896	1,000 SF GFA	21.86	\$ 3,012
SERVICES				
Walk-In Bank	911	1,000 SF GFA	12.34	\$ 2,912
Drive-In Bank	912	Drive-in Lanes	29.86	\$ 5,662
Hair Salon	918	1,000 SF GLA	1.72	\$ 406