Innovative approaches
Practical results
Outstanding service

LEAGUE CITY ROADWAY CAPITAL RECOVERY FEE

LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN

FINAL REPORT

Prepared for:

City of League City

September 2018

Prepared by:

FREESE AND NICHOLS, INC.
2711 North Haskell Avenue, Suite 3300
Dallas, Texas 75204

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

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1.0 INTRODUCTION

Chapter 395 of the Texas Local Government Code prescribes the process by which cities in Texas must formulate impact fees, or capital recovery fees (CRFs). An initial step in the CRF development process is the establishment of land use assumptions that address growth and development for a ten-year planning period (TLGC Section 395.001(5)) for the years 2017-2027. The land use assumptions (LUA), which also include population and employment projections, will become the basis for the preparation of CRF capital improvement plans for roadway facilities. Legislative mandate requires that a capital improvements plan (CIP) be prepared that addresses long-term growth and that such plan be approved by the governing body prior to a public hearing for the consideration of imposing an impact fee. The purpose of this report is to detail the development of the land use assumptions and the CRF capital improvements plan.

To assist the City of League City in determining the need and timing of capital improvements to serve future development, a reasonable estimation of future growth is required. One purpose of this report is to summarize the growth and development projections formulated as part of the 2017 Land Use Assumptions Report, located in **Appendix D**. These growth projections are based upon assumptions pertaining to the type, location, quantity and timing of various future land uses within the community, and to establish and document the methodology used for preparing the growth and land use assumptions.

Additionally, this report describes the roadway improvements where costs will be recovered by new growth in order to serve this future development. Legislatively, roadway impact fees may consider arterial and collector status roads on the City's official Thoroughfare Plan. Statutory requirements mandate that impact fees be based on a specific list of improvements identified in the program and only the cost attributed (and necessitated) by new growth over a ten-year period may be considered. As projects in the program are completed, planned costs are updated with actual costs to more accurately reflect the capital expenditure of the program. Additionally, new capital improvement projects may be added to the program.

1.1 REPORT ELEMENTS

This report contains the following components:

- **Methodology** – Explanation of the general methodology used to prepare the CIP.
- **Land Use Assumptions**
    - ***Service Area*** – Explanation of division of the city into CRF service areas for roadway facilities.
    - ***Summary*** – Brief synopsis of the 2017 Land Use Assumptions Report.
- **Capital Improvements Plan**
    - ***Existing Conditions Analysis*** – Analysis of the existing roadway system; its carrying capacity, current utilization, and deficiencies.
    - ***Growth Projections*** – Development of growth projections to occur over the ten-year planning period by service area.
    - ***Capital Improvements Plan*** – Description of the capital improvements plan.

2.0 METHODOLOGY

Based upon the growth assumptions and the capital improvements needed to support growth, it is possible to develop a capital recovery fee (CRF) structure which fairly allocates improvement costs to growth areas in relationship to their impact upon the entire infrastructure system. The data in this report have been formulated using reasonable and generally accepted planning principles for the preparation of impact fee systems in Texas.

For the formulation of the LUA and CIP, a series of work tasks were undertaken and are described below.

1. A kick-off meeting was held to describe the general methodological approach in the study.
2. Roadway service areas were confirmed as to conform with those presented in the 2017 Land Use Assumptions Report as well as with legislative mandate.
3. Current and projected data of population, housing, and employment was gathered from the 2017 Land Use Assumptions Report for use in the development of CRFs to serve as a basis for future growth.
4. Vehicle-miles of travel (VMT) in the PM peak hour was identified as the service unit of measure for analyses and impact fee calculations.

5. A roadway inventory was conducted to document lane geometrics, roadway functional classification, and system capacity. Traffic volume count data was gathered from counts collected as part of the Master Mobility Plan update. This data was used to determine roadway utilization, and if any capacity deficiencies exist within each impact fee service area.

6. A base year (2017) estimate of population and employment was defined using the 2017 Land Use Assumptions Report. Growth projections determined as part of the 2017 Land Use Assumptions analysis were retained with a ten-year projection (2027) of population and employment defined in that Report. The base year demographics, growth rate, ten-year projection, and distribution of growth was presented to and approved by League City Council on November 28, 2017.

7. Projected 10-year growth for service areas (based on land use assumptions and projections of population and employment growth) was translated into residential, office, commercial and industrial VMT using service unit equivalencies. Trip rate data was obtained from *Trip Generation, Tenth Edition* by the Institute of Transportation Engineers, and trip length statistics for League City were obtained from the Houston-Galveston Area Council (H-GAC) travel demand model.
8. A capital improvements plan to address projected growth was developed by service area based upon discussions with City Staff.

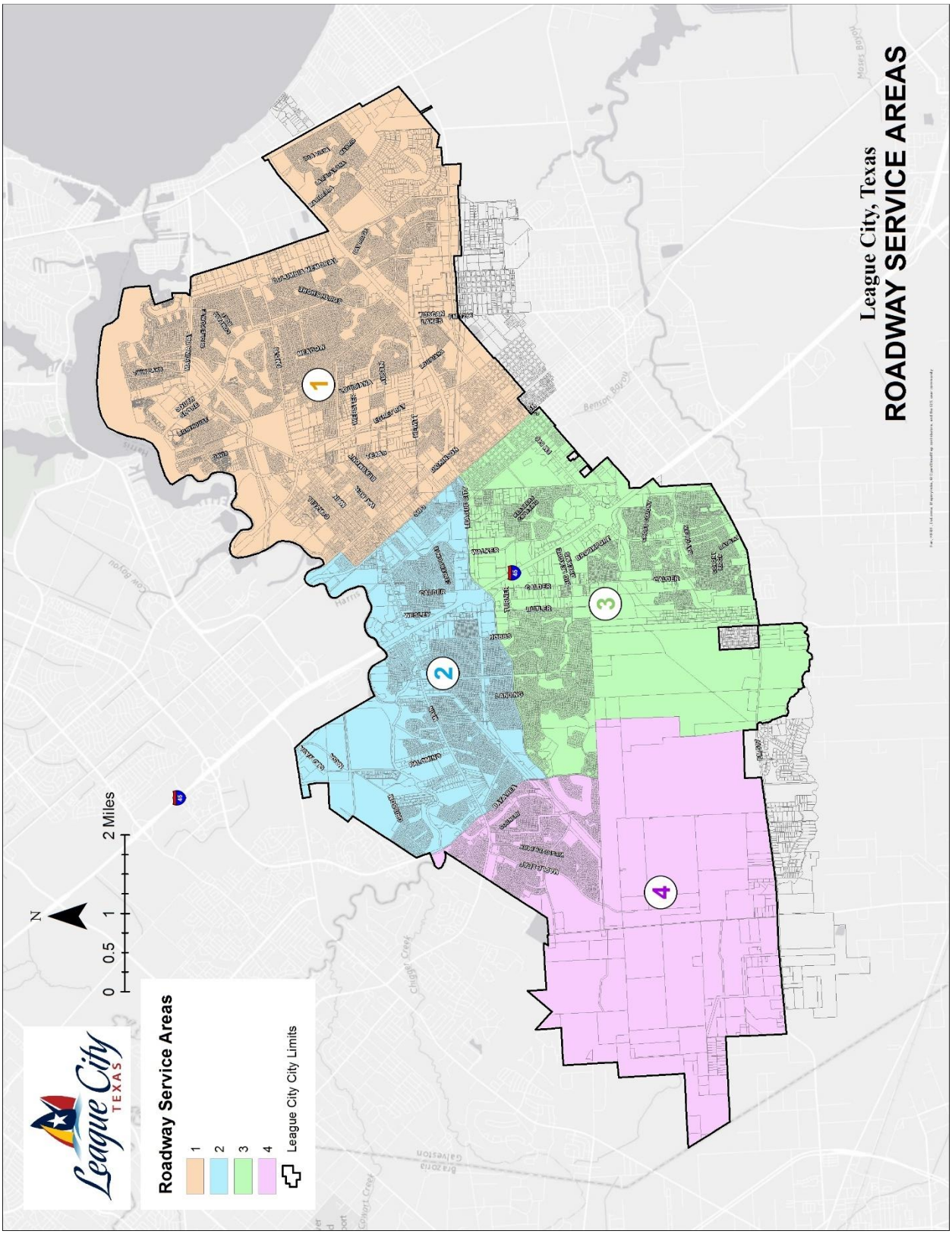
3.0 LAND USE ASSUMPTIONS

3.1 ROADWAY SERVICE AREAS

Chapter 395 requires that service areas be defined for capital recovery fees to ensure that facility improvements are located in close proximity to areas generating needs. Legislative requirements stipulate that roadway service areas be limited to a 6-mile maximum and must be located within the current City limits. Transportation service areas are different from water and wastewater systems, which can include the City limits and its extra-territorial jurisdiction (ETJ) or other defined service area. This is primarily because roadway systems are "open" to both local and regional (non-City) use as opposed to a defined level of utilization from residents within a water and wastewater system. The result is that new development can only be assessed a capital recovery fee based on the cost of necessary capital improvements within that service area.

A service area structure consisting of four (4) zones has been developed for League City and correlates with the current corporate boundaries, as depicted in **Figure 1**.

Figure 1. Roadway Service Areas



3.2 DATA FORMAT

The existing database, as well as the future projections, was formulated according to the following format and categories:

Service Area — Correlates to the proposed roadway, water, and wastewater service areas identified on the attached maps in Section 3.2.

Housing Units (2017) — All living units including single-family, duplex, multi-family and group quarters. The number of existing housing units has been shown for the base year (2017).

Housing Units (2027) — Projected housing units by service zone for 2027 (ten-year growth projections).

Population (2017) — Existing population for the base year (2017).

Population (2027) — Projected population by service zone for the year 2027 (ten-year growth projections).

Employment (2017, 2027) — Employment data is aggregated to three employment sectors and include Retail, Office and Industrial, as provided by the H-GAC. These service sectors serve as the basis for nonresidential trip generation. The following details which types of businesses fall within each of the three sectors.

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

Service (Office) -- Land use activities which provide personal and professional services such as financial, insurance, government, and other professional and administrative offices.

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, restaurants, etc.

3.3 LAND USE ASSUMPTION SUMMARY

The 2017 Land Use Assumptions Report, approved by City Council on November 28, 2017, documents the full formulation of base year demographics, growth rate, and projected ten-year demographics and is located in **Appendix D**. The following summarizes the contents of this report for use in projecting future demand as required by Chapter 395.

3.3.1 2017 Population and Employment

For the land use assumptions process, 2017 base population and employment data, seen in **Table 1**, was calculated using data from the Houston-Galveston Area Council (H-GAC) with verification of this data from City Staff. This information provided a breakdown of employment by traffic analysis zone (TAZ) for 2017, 2030, and 2040. It is important to note that the TSZs do not follow City limits in some locations, so adjustments were made based on the locations of existing land uses and upon the percentage of each TAZ located within City limits. Employment for each TAZ was broken down into basic, retail, and service uses as defined by H-GAC in the modeling demographics. This "benchmark" information provides a starting basis of data for the ten-year growth assumptions that will be presented within the following section.

Table 1: Summary of Base Year (2017) Population and Employment

Service Area	Housing Units	Population	Employment (Employees)			
			Basic	Retail	Service	Total
1	15,951	44,343	1,495	6,030	11,135	18,660
2	9,122	25,358	576	2,628	2,385	5,589
3	8,032	22,330	2,036	1,086	1,453	4,575
4	3,814	10,604	102	713	569	1,384
Total	36,919	102,635	4,209	10,457	15,542	30,208

3.3.2 Ten-Year Growth Assumptions

Projected growth has been characterized in two forms: population and employment. A series of assumptions were made to arrive at reasonable growth rates for population and employment. The following assumptions have been made as a basis from which ten-year projections could be initiated.

- Future land uses will occur based on similar trends of the past and consistent with the Future Land Use Plan,

- The City will be able to finance the necessary improvements to accommodate continued growth, and
- Densities will be as projected in the Future Land Use Plan.

A compound annual growth rate of **3.4%** was used for the planning period to track the Thoroughfare Plan update growth projections and other concurrent City studies. The ten-year projections are based upon this growth rate and considers past trends of the City and is in line with concurrent studies.

Using the previously mentioned data from H-GAC, linear interpolation was used to develop the interim year 2027 in the data for both population and employment. For population, adjustments were made to account for existing subdivisions with lots remaining and anticipated developments such as the Duncan Tract on the southwest quadrant of the City and the Coastal Point subdivision, located in the southeast quadrant of the city. For employment, adjustments were made to match growth trends anticipated by the City and modifications in the 2017 Future Land Use Plan with specific areas of growth for The University of Texas Medical Branch (UTMB) campus and Pinnacle Park. The population and employment projections (2027) for the roadway service areas are summarized in **Table 2**.

Table 2: Population and Employment Projections (2027) for Roadway Service Area

Service Area	Housing Units	Population	Employment (Employees)			
			Basic	Retail	Service	Total
1	18,431	51,238	1,805	8,625	12,897	23,327
2	9,940	27,634	595	2,830	2,462	5,887
3	13,804	38,374	2,909	2,807	4,044	9,760
4	9,403	26,140	159	1,541	1,028	2,728
Total	51,578	143,386	5,468	15,803	20,431	41,702

3.3.3 Summary of Growth

- From the 2017 Future Land Use Plan, approximately 44 percent of the total developable land within the City limits is developed, with the remaining land available for future development, where infrastructure and topography permit.
- The existing 2017 population for the City limits of League City is approximately 102,635 persons, with an existing estimated employment of around 30,208 jobs.
- An average annual growth rate of 3.4 percent was used to calculate the League City's ten-year growth projections as recommended by the Planning and Zoning Commission in the Future Land Use Plan Update process.

- The ten-year (2027) population growth projection of the Roadway Service Area is 143,386, employment is projected to be a total of 41,702 jobs by 2027 for the Roadway Service Area

Table 3. Land Use Assumption Summary (2017-2027)

	2017	2027	Total Increase	Percent Total Growth	Annual Growth Rate
Population (Persons)					
League City Total	**102,635**	**143,386**	**40,751**	**39.7%**	**3.4%**
Service Area 1	44,343	51,238	6,895	15.5%	1.5%
Service Area 2	25,358	27,634	2,276	9.0%	0.9%
Service Area 3	22,330	38,374	16,044	71.8%	5.6%
Service Area 4	10,604	26,140	15,536	146.5%	9.4%
Employment (Employees)					
League City Total	**30,208**	**41,702**	**6,529**	**21.6%**	**3.3%**
Service Area 1	18,660	23,327	4,667	25.0%	2.3%
Basic	1,495	1,805	310	20.7%	1.9%
Service	11,135	12,897	1,762	15.8%	1.5%
Retail	6,030	8,625	2,595	43.0%	3.6%
Service Area 2	5,589	5,887	298	5.3%	0.5%
Basic	576	595	19	3.3%	0.3%
Service	2,385	2,462	77	3.2%	0.3%
Retail	2,628	2,830	202	7.7%	0.7%
Service Area 3	4,575	9,760	5,185	113.3%	7.9%
Basic	2,036	2,909	873	42.9%	3.6%
Service	1,453	4,044	2,591	178.3%	10.8%
Retail	1,086	2,807	1,721	158.5%	10.0%
Service Area 4	1,384	2,728	1,344	97.1%	7.0%
Basic	102	159	57	55.9%	4.5%
Service	569	1,028	459	80.7%	6.1%
Retail	713	1,541	828	116.1%	8.0%

4.0 CAPITAL IMPROVEMENTS PLAN

4.1 EXISTING CONDITIONS ANALYSIS

An inventory of major roadways that are designated as arterial and/or collector facilities on the Master Mobility Plan was conducted to determine: 1) capacity provided by the existing roadway system, 2) the demand currently placed on the system, and 3) the potential existence of deficiencies on the system. Any deficiencies found to occur will be carried over in the impact fee calculations (netting out capacity made available by the CIP). Data for the inventory were obtained from the concurrent Master Mobility Plan study, field reconnaissance, and peak hour traffic volume count data.

The roadways were divided into segments based on changes in lane configuration, major intersections, city limits or area development that may influence roadway characteristics. For the assessment of individual segments, lane capacities were assigned to each segment based on roadway functional class defined by the City's Master Mobility Plan and type of existing cross-section, as listed in **Table 4**. Roadway hourly volume capacities are defined by link-level carrying capacity values based upon generally accepted capacities defined by the H-GAC travel demand modeling description for the suburban context. The H-GAC modeling capacities describe a level-of-service (LOS) "E/F" operation which has been tailored to the context of League City and reduced by a factor of 20% to reflect minimum acceptable traffic operational condition by the city of LOS "D/E" operation.

Table 4. Roadway Facility Vehicle-Mile Lane Capacities

Roadway Facility Functional Classification	Designation	Hourly Vehicle-mile Capacity per Lane Mile of Roadway Facility
Divided Arterial*	DA/SA*	665
Divided Collector*	DC/SC*	565
Undivided Arterial	UA	590
Undivided Collector	UC	510
*Facilities with a two-way left turn lane (TWLTL) treated as a divided facility and marked with a Special Arterial (SA) or Special Collector (SC) designation.		

4.1.1 Existing Volumes

Existing directional PM peak hour volumes were obtained from traffic counts in 2016 or 2017 and utilized in the City's Master Mobility Plan process on major roadways throughout the city. This information was supplemented with data from TxDOT's traffic count system.

These data were compiled for roadway segments throughout the City and entered into the database for use in calculations. A summary of volumes by roadway segment is included in the **Appendix A** as part of the existing capital improvements database.

4.1.2 Vehicle-Miles of Existing Capacity Supply

An analysis of the total capacity for each service area was performed. For each roadway segment, the existing vehicle-miles of capacity supplied were calculated using the following:

Vehicle-Miles of Capacity = Link capacity per peak hour per lane x No. of Lanes x Length of segment (miles)

A summary of the current capacity available on the roadway system by service area is detailed in **Table 5**.

4.1.3 Vehicle-Miles of Existing Demand

The level of current usage in terms of vehicle-miles was calculated for each roadway segment. The vehicle-miles of existing demand were calculated by the following equation:

Vehicle-Miles of Demand = PM peak hour volume x Length of segment (miles)

The total vehicle-miles of demand by service area is also listed in **Table 5**.

4.1.4 Vehicle-Miles of Existing Excess Capacity and Deficiencies

For each roadway segment, the existing vehicle-miles of excess capacity and/or deficiencies were calculated and are listed in **Table 5**. Each direction was evaluated to determine if vehicle demands (volumes) exceeded the available capacity. If demand in either direction exceeded capacity, this deficiency in the roadway network was documented as the excess demand over available capacity in that segment. The total deficiencies in the network is deducted from the capacity supply associated with the impact fee capital improvement plan in order to account for excess demand in the network from existing development. A summary of peak hour excess capacity and deficiencies is also shown in **Table 5**. Any deficiencies identified under current operations will be carried over to the impact fee calculation. A detailed listing of existing excess capacity and deficiencies by roadway segment is also located in the **Appendix A**.

Table 5. Peak Hour Vehicle-Miles of Existing Capacity, Demand, Excess Capacity, and Deficiencies

Service Area	Capacity	Demand	Excess Capacity	Existing Deficiencies
1	80,109	50,252	32,291	723
2	34,330	21,842	12,993	505
3	34,514	23,168	13,106	386
4	12,805	8,890	4,140	224
Total	161,758	104,152	62,530	1,838

4.2 GROWTH PROJECTIONS

The projected growth for the roadway service areas is represented by the increase in the number of new vehicle-miles of demand generated over the 10-year planning period. The basis for the calculation of new demand is the population and employment projections that were described in the previous Section 3.0.

Population growth in dwelling units will be used to calculate vehicle-miles of demand from this demographic type. Using estimated employees per square foot for the employment classes based on a range of values commonly found in modeling, employment growth data presented in the LUA were converted to square feet of development. The conversion of population to dwelling units and employment to square feet of development aligns the growth assumptions with the service unit equivalencies for each demographic allowing for the calculation of a total projected vehicle-miles of new demand in this 10-year planning period.

4.2.1 Projected Vehicle-Miles of New Demand

Projected vehicle-miles of demand were calculated based on the net growth expected to occur over the 10-year planning period, and on the associated service unit generation for each of the population and employment data components (basic, service and retail). Separate calculations were performed for each data component and were then aggregated for each service area. Vehicle-miles of demand for population growth were based on dwelling units (residential). Vehicle-miles of demand for employment were based on square footage of building space.

These growth assumptions were then multiplied by the service unit equivalency for vehicle-mile generation based on trip rates in the Institute for Transportation Engineer's (ITE) *Trip Generation, 10th Edition* and trip lengths from the H-GAC travel demand model, tailored to the City of League City.

The 10-year projected vehicle-miles of demand by service area are summarized in **Table 6**. **Appendix B** details the derivation of the projected demand calculations.

Table 6. 10-Year Projected Service Units of Demand

Service Area	Projected 10-Year Growth (Vehicle-Miles)
1	29,116
2	4,563
3	43,676
4	27,991
Total	105,346

4.3 CAPITAL IMPROVEMENTS PLAN

The impact fee CIP is aimed at facilitating long-term growth in League City. The City has identified the City-funded transportation projects needed to accommodate the projected growth within the City. The City's Master Mobility Plan identified short-, mid-, and long-term project needs which served as a basis for incorporating projects into this CRF program. Other considerations for which the CIP for Roadway CRFs includes:

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

Arterial and collector class facilities in the current adopted Thoroughfare Plan were included in the impact fee CIP to provide flexibility in the development of the community due to the anticipated rates of development.

4.3.1 Eligible Projects

Legislative mandate stipulates that the impact fee CIP contain only those roadways classified as *arterial* or *collector* status facilities that are included in the City's adopted Thoroughfare Plan. Impact fee legislation also allows for the recoupment of costs for previously constructed facilities and projects currently under construction. All these projects conform to the Master Mobility Plan requirements and will consider only the costs incurred by the City for facility implementation. Standalone traffic signal projects were omitted from the CIP to focus on major "facility expansions" and avoid potential "modernization" projects which are not allowed per LGC Chapter 395.

4.3.2 Impact Fee CIP

The proposed CIP consists of 42 project segments over the four (4) service areas and advance the implementation of the Master Mobility Plan network, as seen in **Figure 2**. The capacity and net capacity provided by the proposed CIP is summarized in **Table 7**. Net capacity provided by the proposed CIP takes into consideration current traffic on CIP roads and any deficiencies from the existing conditions analysis described in **Section 4.1** of this report. A detailed listing by project of capacity supplied can be found in **Appendix C**.

Table 7. Capacity and Net Capacity Provided by the Proposed CIP

	A	B	C = A – B	D	E = C – D
Service Area	Capacity Supplied by CIP (veh-mi)	Existing Utilization (veh-mi)	Excess Capacity (veh-mi)	Existing Deficiencies (veh-mi)	Net Capacity Supplied by CIP (veh-mi)
1	24,164	8,668	15,496	723	14,773
2	10,192	702	9,490	505	8,985
3	43,674	5,880	37,794	386	37,408
4	59,181	20	59,161	224	58,937
Total	137,211	15,270	121,941	1,838	120,103

A comparison of net capacity provided by the proposed CIP relative to 10-year needs (developed in **Section 4.2**) is listed in **Table 9**. The percent attributable to new growth is a direct result of the land use assumptions described earlier in the report. Based on the defined capital improvements plan, some service areas have projected growth exceeding the capacity supplied by the CIP. The resultant cost per service unit is calculated as the CIP cost attributed to growth (full cost of net capacity in this case) divided by the projected growth. The cost attributed to growth is limited by the projected growth, so because the capacity supplied by CIP is less than the projected growth there is the potential for more cost to be attributed to growth. The net effect is that the cost per service unit will be lower than a scenario where capacity supplied by the CIP meets or exceeds the projected growth.

Figure 2 and **Table 10** illustrate and list the capital improvement projects for the impact fee program.

Table 8. Projected Demand and Net Capacity Provided by the Proposed CIP

Service Area	A Net Capacity Supplied by CIP (veh-mi)	B Projected 10-Year Growth (Vehicle-Miles)	B / A (Max 100%) Pcnt. Of CIP Attributable to New Dev. (10-Yr.)
1	14,773	29,116	100.0
2	8,985	4,563	50.8
3	37,408	43,676	100.0
4	58,937	27,991	47.5
Total	120,103	105,346	87.7

Figure 2. Roadway Impact Fee Capital Improvements Plan Projects

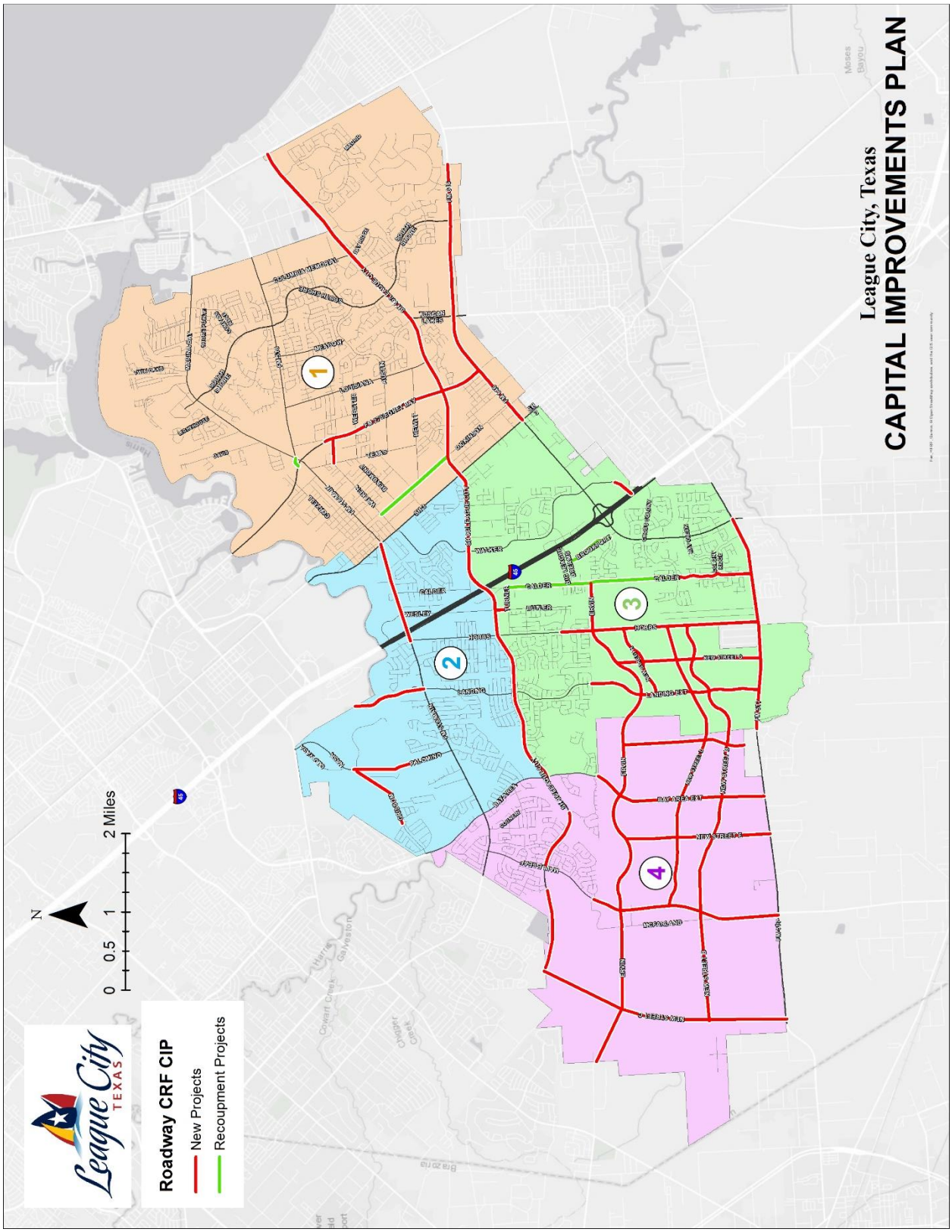


Table 9. Roadway Impact Fee Capital Improvements Plan Projects

Proj No.	Serv Area	Shared Svc Area	Project Type	Roadway	From	To	Length (mi)	No. of Lanes	Type
1	1		R	FM 518/Deke Slayton Hwy	FM 2094/Main St	FM 270/Egret Bay Blvd	0.14	4	DA
2	1		N	FM 270/Egret Bay Blvd	Abilene St	FM 646	2.18	4	DA
3	1		N	FM 646	SH 3	E City Limits	3.58	5	SA
4	1		R	Dickinson	Walker St	SH 96/League City Pkwy	1.12	3	SC
5	1		N	Walker St	Texas Ave	FM 270/Egret Bay Blvd	0.31	2	UC
6	1		R	SH 96/League City Pkwy	@ South Shore Turn Lanes		0.28	2	UC
7	1		N	SH 96/League City Pkwy	SH 3	E City Limits (SH 146)	4.95	2	DA
	Sub-Total Service Area 1						**12.57**		
8	2		N	Grissom Rd	Abigail Ln	W NASA Blvd.	1.01	4	DC
9	2		N	Palomino Ln Extension	Clear Creek	Grissom Rd	0.84	2	DC
10	2		N	Landing Blvd Extension	N End of Landing Blvd	N City Limits	0.93	4	DA
11	2	3	N	SH 96/League City Pkwy	Bay Area	Hobbs Rd	1.98	2	DA
12	2	3	N	SH 96/League City Pkwy	Hobbs Rd	IH-45	0.62	2	DA
13	2	3	N	SH 96/League City Pkwy	IH-45	SH 3	1.55	2	DA
14	2		N	FM 518/Main St	Hobbs Rd	SH 3	1.29	2	DA
	Sub-Total Service Area 2						**8.23**		
15	3		R	Calder Rd	Turner St	Cross Colony	2.20	3	SC
16	3		N	Calder Rd	Cross Colony	FM 517	0.97	3	SC
17	3		R	Brookport Extension	Big League Dreams	Marble Cove Dr	0.61	4	DC
18	3		N	Turner-Butler	SH 96/League City Pkwy	Calder Dr	0.42	3	SC
11	3	2	N	SH 96/League City Pkwy	Bay Area	Hobbs Rd	1.98	2	DA
12	3	2	N	SH 96/League City Pkwy	Hobbs Rd	IH-45	0.62	2	DA
13	3	2	N	SH 96/League City Pkwy	IH-45	SH 3	1.55	2	DA
19	3		N	Ervin Ave	Calder Rd	Hobbs Rd	0.60	4	DA
20	3		N	Ervin Ave	Hobbs Rd	Landing Blvd	1.08	4	DA
21	3		N	Ervin Ave	Landing Blvd	Service Area Limit	0.33	4	DA
22	3		N	Hobbs Rd Extension	Ervin Ave	FM 517	2.12	2	DA
23	3		N	Landing Blvd Extension	Sandvalley Way	Ervin Ave	0.67	4	DA
24	3		N	Landing Blvd Extension	Ervin Ave	FM 517	1.52	4	DA
25	3		N	Walker St Extension	S. End of Walker St	IH-45 Frontage Rd	0.25	2	UA
26	3		N	New Street B	Landing Blvd	Hobbs Rd	0.94	4	DA
27	3		N	New Street B	SA Limit	Landing Blvd	0.64	4	DA
28	3		N	New Street D	SA Limit	Hobbs Rd	1.48	4	DC
29	3		N	New Street G	Ervin Ave	FM 517	1.84	4	DC
30	3		N	New Street H	Landing Blvd	Hobbs Rd	0.97	4	DC
31	3		N	FM 517	W City Limits	FM 646/16th St	2.74	5	SA
	Sub-Total Service Area 3						**23.53**		
32	4		N	League City Pkwy Extension	1,600' W of Maple Leaf	McFarland Rd	0.30	4	DA
33	4		N	League City Pkwy	Misty Trails	New Street C	1.00	2	DA
34	4		N	Ervin Ave	W City Limits	Service Area Limit	4.64	4	DA
35	4		N	Maple Leaf Extension	N. Side of American Canal	New Street B	1.41	4	DA
36	4		N	Maple Leaf Ext/McFarland	New Street B	FM 517	1.02	4	DA
37	4		N	Bay Area Blvd Extension	N. Side of American Canal	FM 517	2.24	4	DA
38	4		N	New Street B	New Street C	Service Area Limit	3.78	4	DA
39	4		N	New Street C	League City Pkwy Ext	FM 517	3.23	4	DA
40	4		N	New Street D	Maple Leaf Ext	Service Area Limit	2.30	4	DC
41	4		N	New Street E	Ervin Ave	FM 517	1.85	4	DA
42	4		N	New Street F	Ervin Ave	S City Limits	1.56	4	DC
	Sub-Total Service Area 4						**23.33**		

Notes:

DA - Divided Arterial
UA - Undivided Arterial
SA - Special Arterial with two-way left turn lane (TWLTL)
DC - Divided collector
UC - Undivided Collector
SC - Special Collector with two-way left turn lane (TWLTL)

N - New Project
R - Recoupment Project

APPENDIX

Appendix A:
Existing Conditions Analysis

League City Roadway Capital Recovery Fee Study
Existing Capital Improvements Analysis

Serv Area	Shared Svc Area	Roadway	From	To	Length (mi)	No. of Lanes	Type	PM Peak Hr Capacity/Lane	Pct. in Serv. Area	Peak Hour Volume A	B	Total	VMT Supply Pk Hr Total	VMT Demand Pk Hr Total	Excess VMT Capacity	Exist. VMT Deficiency
1		FM 2094/Marina Bay Dr.	E City Limits	Compass Rose Blvd.	0.41	4	DA	665	100%	832	860	1,692	1,091	694	397	0
1		FM 2094/Marina Bay Dr.	Compass Rose Blvd.	South Shore Blvd.	1.22	4	DA	665	100%	962	885	1,847	3,245	2,253	992	0
1		FM 2094/Marina Bay Dr.	South Shore Blvd.	Lighthouse Blvd.	0.30	4	DA	665	100%	1,092	910	2,002	798	601	197	0
1		FM 2094/Marina Bay Dr.	Lighthouse Blvd.	Davis Rd.	0.66	4	DA	665	100%	1,224	930	2,154	1,756	1,422	334	0
1		FM 2094/Marina Bay Dr.	Davis Rd.	FM 518/Deke Slayton Hw	0.50	4	DA	665	100%	1,964	951	2,915	1,330	1,458	190	317
1		FM 518/Main St.	FM 2094/Marina Bay Dr.	FM 270/Egret Bay Blvd.	0.10	5	SA	665	100%	1,070	1,392	2,462	266	246	26	6
1		FM 518/Main St.	FM 270/Egret Bay Blvd.	Texas Ave.	0.16	5	SA	665	100%	1,042	1,126	2,168	426	347	79	0
1		FM 518/Main St.	Texas Ave.	Iowa Ave.	0.77	5	SA	665	100%	1,118	1,089	2,207	2,048	1,699	349	0
1		FM 518/Main St.	Iowa Ave.	SH 3	0.56	4	UA	590	100%	1,060	1,050	2,110	1,322	1,182	140	0
1		FM 518/Deke Slayton Hwy.	E City Limits	Columbia Mem. Pkwy.	0.37	4	DA	665	100%	641	731	1,372	984	508	477	0
1		FM 518/Deke Slayton Hwy.	Columbia Mem. Pkwy.	South Shore Blvd.	0.55	4	DA	665	100%	740	630	1,370	1,463	754	710	0
1		FM 518/Deke Slayton Hwy.	South Shore Blvd.	Meadow Pkwy.	0.40	4	DA	665	100%	808	756	1,564	1,064	626	438	0
1		FM 518/Deke Slayton Hwy.	Meadow Pkwy.	Louisiana Ave.	0.66	4	DA	665	100%	760	875	1,635	1,756	1,079	677	0
1		FM 518/Deke Slayton Hwy.	Louisiana Ave.	FM 2094/Main St.	0.65	4	DA	665	100%	786	904	1,690	1,729	1,099	631	0
1		SH 96/League City Pkwy.	E City Limits	Columbia Mem. Pkwy.	1.12	4	DA	665	100%	801	709	1,510	2,979	1,691	1,288	0
1		SH 96/League City Pkwy.	Columbia Mem. Pkwy.	South Shore Blvd.	0.67	4	DA	665	100%	1,140	1,080	2,220	1,782	1,487	295	0
1		SH 96/League City Pkwy.	South Shore Blvd.	Tuscan Lakes Blvd.	0.47	4	DA	665	100%	1,480	1,452	2,932	1,250	1,378	0	128
1		SH 96/League City Pkwy.	Tuscan Lakes Blvd.	FM 270/Egret Bay Blvd.	0.99	4	DA	665	100%	1,421	1,514	2,935	2,633	2,906	0	272
1		SH 96/League City Pkwy.	FM 270/Egret Bay Blvd.	SH 3	1.12	4	DA	665	100%	1,300	1,300	2,600	2,979	2,912	67	0
1		FM 646/16th St.	E City Limits	Tuscan Lakes Blvd.	1.91	2	UA	590	100%	454	680	1,134	2,254	2,166	260	*
1		FM 646/16th St.	Tuscan Lakes Blvd.	FM 270/Egret Bay Blvd.	0.79	2	UA	590	100%	1,039	693	1,732	932	1,368	0	*
1		FM 646/16th St.	FM 270/Egret Bay Blvd.	SH 3	0.85	2	UA	590	100%	1,049	1,000	2,049	1,003	1,742	0	*
1		Columbia Mem. Pkwy.	FM 518/Deke Slayton Hw	SH 96/League City Pkwy.	1.19	2	UC	510	100%	267	273	540	1,214	643	571	0
1		South Shore Blvd.	Harbor	FM 2094/Marina Bay Dr.	0.19	4	DA	665	100%	86	340	426	505	81	424	0
1		South Shore Blvd.	FM 2094/Marina Bay Dr.	Compass Rose Blvd.	0.99	4	DA	665	100%	463	366	829	2,633	821	1,813	0
1		South Shore Blvd.	Compass Rose Blvd.	FM 518/Deke Slayton Hw	0.47	4	DA	665	100%	299	550	849	1,250	399	851	0
1		South Shore Blvd.	FM 518/Deke Slayton Hw	Austin St.	1.46	4	DA	665	100%	336	329	665	3,880	970	2,910	0
1		South Shore Blvd.	Austin St.	SH 96/League City Pkwy.	0.49	4	DA	665	100%	719	735	1,454	1,297	709	588	0
1		South Shore Blvd.	SH 96/League City Pkwy.	FM 646/16th St.	1.47	4	DA	665	100%	576	609	1,185	3,918	1,746	2,173	0
1		South Shore Blvd.	FM 646/16th St.	S City Limits	0.12	4	DA	665	100%	297	308	605	324	74	250	0
1		Meadow Pkwy.	FM 518/Deke Slayton Hw	Austin St.	0.88	2	UC	510	100%	213	235	448	898	394	503	0
1		Austin St.	South Shore Blvd.	Meadow Pkwy.	0.55	2	UC	510	100%	308	198	506	561	278	283	0
1		Austin St.	Meadow Pkwy.	Louisiana Ave.	0.82	2	UC	510	100%	308	198	506	836	415	421	0
1		Austin St.	Louisiana Ave.	FM 270/Egret Bay Blvd.	0.48	2	UC	510	100%	231	149	380	490	182	307	0
1		Austin St.	FM 270/Egret Bay Blvd.	Texas Ave.	0.47	2	UC	510	100%	149	231	380	479	179	301	0
1		Tuscan Lakes Blvd.	Austin St.	SH 96/League City Pkwy.	0.73	2	UC	510	100%	278	302	580	745	423	321	0
1		Tuscan Lakes Blvd.	SH 96/League City Pkwy.	FM 646/16th St.	0.54	2	UC	510	100%	465	380	845	551	456	95	0
1		Tuscan Lakes Blvd.	FM 646/16th St.	S City Limits	0.14	2	UC	510	100%	418	342	760	143	106	36	0
1		Louisiana Ave.	FM 518/Deke Slayton Hw	Webster St.	0.91	3	SC	565	100%	150	216	366	1,028	333	695	0
1		Louisiana Ave.	Webster St.	SH 96/League City Pkwy.	1.00	3	SC	565	100%	193	250	443	1,130	443	687	0
1		Webster St.	Louisiana Ave.	FM 270/Egret Bay Blvd.	0.57	3	SC	565	100%	102	120	222	644	127	518	0
1		Webster St.	FM 270/Egret Bay Blvd.	Texas Ave.	0.35	2	UC	510	100%	112	127	239	357	84	273	0
1		Hewitt St.	Louisiana Ave.	FM 270/Egret Bay Blvd..	0.41	2	UC	510	100%	23	20	43	418	18	401	0
1		Hewitt St.	FM 270/Egret Bay Blvd..	Dickinson Ave.	1.05	2	UC	510	100%	23	20	43	1,071	45	1,026	0

Serv Area	Shared Svc Area	Roadway	From	To	Length (mi)	No. of Lanes	Type	PM Peak Hr Capacity/Lane	Pct. in Serv. Area	Peak Hour Volume A	B	Total	VMT Supply Pk Hr Total	VMT Demand Pk Hr Total	Excess VMT Capacity	Exist. VMT Deficiency
1		FM 270/Egret Bay Blvd.	N City Limits	FM 518/Main St.	1.51	7	SA	665	100%	1,483	1,627	3,110	6,025	4,696	1,329	0
1		FM 270/Egret Bay Blvd.	FM 518/Main St.	Abilene St.	0.40	5	SA	665	100%	1,001	946	1,947	1,064	779	285	0
1		FM 270/Egret Bay Blvd.	Abilene St.	Webster St.	0.42	3	SA	665	100%	834	770	1,604	559	674	0	*
1		FM 270/Egret Bay Blvd.	Webster St.	Austin St.	0.44	2	UA	590	100%	775	715	1,490	519	656	0	*
1		FM 270/Egret Bay Blvd.	Austin St.	Hewitt St.	0.40	2	UA	590	100%	715	660	1,375	472	550	0	*
1		FM 270/Egret Bay Blvd.	Hewitt St.	SH 96/League City Pkwy.	0.38	2	UA	590	100%	656	605	1,261	448	479	0	*
1		FM 270/Egret Bay Blvd.	SH 96/League City Pkwy.	FM 646/16th St.	0.56	2	UA	590	100%	596	550	1,146	661	642	22	*
1		Texas Ave.	FM 518/Main St.	Hewitt St.	1.39	2	UC	510	100%	122	133	255	1,418	354	1,063	0
1		Coryell St.	FM 270/Egret Bay Blvd.	Wisconsin Ave.	0.62	2	UC	510	100%	50	45	95	632	59	574	0
1		Walker St.	Texas Ave.	SH 3	1.18	2	UC	510	100%	143	143	286	1,204	337	866	0
1		Beaumont St.	Texas Ave.	Dickinson Ave.	0.77	2	UC	510	100%	83	83	166	785	128	658	0
1		Dickinson Ave.	Walker St.	SH 96/League City Pkwy.	1.13	2	UC	510	100%	104	104	208	1,153	235	918	0
1		Dickinson Ave.	SH 96/League City Pkwy.	FM 646/16th St.	1.00	2	UC	510	100%	90	90	180	1,020	180	840	0
1		Houston St.	SH 3	FM 518/Main St.	0.67	2	UC	510	100%	90	56	146	683	98	586	0
1	2	SH 3	Byron St	FM 518/Main St.	0.42	4	DA	665	50%	809	0	809	559	340	219	0
1	2	SH 3	FM 518/Main St.	SH 96/League City Pkwy.	1.35	5	SA	665	50%	656	0	656	1,796	886	910	0
1	3	SH 3	SH 96/League City Pkwy.	FM 646/16th St.	1.10	5	SA	665	50%	504	0	504	1,463	554	909	0
1	3	SH 3	FM 646/16th St.	City Limits	0.14	5	SA	665	50%	461	0	461	186	65	122	0
Sub-Total Service Area 1					**44.39**								**80,109**	**50,252**	**32,291**	**723**
2		SH 3	City Limits	Byron St	0.68	4	DA	665	100%	809	1,072	1,881	1,809	1,279	530	0
2	1	SH 3	Byron St	FM 518/Main St.	0.42	4	DA	665	50%	0	1,291	1,291	559	542	16	0
2	1	SH 3	FM 518/Main St.	SH 96/League City Pkwy.	1.35	5	SA	665	50%	0	957	957	1,796	1,292	504	0
2		FM 518/Main St.	SH 3	IH-45	1.18	5	SA	665	100%	1,111	1,213	2,324	3,139	2,742	396	0
2		FM 518/Main St.	IH-45	Landing Blvd.	0.76	5	SA	665	100%	1,132	1,840	2,972	2,022	2,259	150	388
2		FM 518/Main St.	Landing Blvd.	Bay Area Blvd.	1.76	5	SA	665	100%	985	1,345	2,330	4,682	4,101	607	26
2	3	League City Pkwy.	SH 3	Walker St.	1.00	4	DA	665	50%	0	1,421	1,421	1,330	1,421	0	91
2	3	League City Pkwy.	Walker St.	IH-45	0.55	4	DA	665	50%	0	1,295	1,295	732	712	19	0
2	3	League City Pkwy.	IH-45	Hobbs Rd.	0.66	4	DA	665	50%	0	1,169	1,169	878	772	106	0
2	3	League City Pkwy.	Hobbs Rd.	Landing Blvd.	0.79	4	DA	665	50%	0	1,044	1,044	1,051	825	226	0
2	3	League City Pkwy.	Landing Blvd.	Bay Area Blvd.	1.20	4	DA	665	50%	0	604	604	1,596	725	871	0
2		Walker St.	SH 3	League City Pkwy.	1.18	2	UA	590	100%	355	340	695	1,392	820	572	0
2		Calder Dr.	FM 518/Main St.	Link Rd.	0.96	3	SC	565	100%	221	218	439	1,085	421	663	0
2		Wesley Dr.	IH-45	FM 518/Main St.	0.51	2	UC	510	100%	100	99	199	520	101	419	0
2		Wesley St.	FM 518/Main St.	IH-45	0.46	2	UC	510	100%	117	153	270	469	124	345	0
2		Butler Rd	IH-45	League City Pkwy.	0.57	2	UC	510	100%	40	40	80	581	46	536	0
2		Hobbs Rd.	FM 518/Main St.	League City Pkwy.	1.12	2	UA	590	100%	313	282	595	1,322	666	655	0
2		Landing Blvd.	FM 518/Main St.	Jeb Stuart Dr.	0.86	4	DC	565	100%	324	498	822	1,944	707	1,237	0
2		Landing Blvd.	Jeb Stuart Dr.	League City Pkwy.	0.32	4	UC	510	100%	324	498	822	653	263	390	0
2		Nasa Rd.	FM 528	Grissom Rd.	0.91	4	DC	565	100%	271	241	512	2,057	466	1,591	0
2		Grissom Rd.	Nasa Rd.	Abigail Ln.	1.01	2	UC	510	100%	150	153	303	1,030	306	724	0
2		Grissom Rd.	Abigail Ln.	Bay Area Blvd.	0.46	4	DC	565	100%	150	153	303	1,040	139	900	0
2	4	Bay Area Blvd.	City Limits	FM 518/Main St.	1.00	4	DA	665	50%	653	0	653	1,330	653	677	0
2	4	Bay Area Blvd.	FM 518/Main St.	League City Pkwy.	0.99	4	DA	665	50%	464	0	464	1,317	459	857	0
Sub-Total Service Area 2					**20.70**								**34,330**	**21,842**	**12,993**	**505**

Serv Area	Shared Svc Area	Roadway	From	To	Length (mi)	No. of Lanes	Type	PM Peak Hr Capacity/Lane	Pct. in Serv. Area	Peak Hour Volume A	B	Total	VMT Supply Pk Hr Total	VMT Demand Pk Hr Total	Excess VMT Capacity	Exist. VMT Deficiency
3	1	SH 3	SH 96/League City Pkwy.	FM 646/16th St.	1.10	5	SA	665	50%	0	674	674	1,463	741	722	0
3	1	SH 3	FM 646/16th St.	City Limits	0.14	5	SA	665	50%	0	428	428	186	60	126	0
3		FM 646/16th St.	SH 3	Walker St.	1.20	5	SA	665	100%	1,140	1,124	2,264	3,192	2,717	475	0
3		FM 646/16th St.	Walker St.	IH-45	0.41	5	SA	665	100%	1,600	1,470	3,070	1,091	1,259	0	168
3		FM 646/16th St.	IH-45	Cross Colony Dr.	0.64	4	DA	665	100%	935	1,459	2,394	1,702	1,532	253	83
3		FM 646/16th St.	Cross Colony Dr.	FM 517	1.18	4	DA	665	100%	756	1,291	2,047	3,139	2,415	723	0
3		FM 517	West City Limit	Calder Rd	1.91	3	SA	665	100%	588	882	1,470	2,540	2,808	147	*
3		FM 517	Calder Rd	FM 646/16th St.	0.74	3	SA	665	100%	1,389	1,232	2,621	989	1,948	0	*
3		FM 517	FM 646/16th St.	East City Limits	0.53	5	SA	665	100%	1,557	1,357	2,914	1,418	1,554	0	135
3		Walker St.	League City Pkwy.	FM 646/16th St.	1.95	4	DA	665	100%	478	693	1,171	5,187	2,283	2,904	0
3	2	League City Pkwy.	SH 3	Walker St.	1.00	4	DA	665	50%	1,263	0	1,263	1,330	1,263	67	0
3	2	League City Pkwy.	Walker St.	IH-45	0.55	4	DA	665	50%	1,133	0	1,133	732	623	108	0
3	2	League City Pkwy.	IH-45	Hobbs Rd.	0.66	4	DA	665	50%	1,003	0	1,003	878	662	216	0
3	2	League City Pkwy.	Hobbs Rd.	Landing Blvd.	0.79	4	DA	665	50%	873	0	873	1,051	690	361	0
3	2	League City Pkwy.	Landing Blvd.	Bay Area Blvd.	1.20	4	DA	665	50%	597	0	597	1,596	716	880	0
3		Calder Dr.	League City Pkwy.	Ervin St.	1.28	2	UC	510	100%	153	110	263	1,306	337	969	0
3		Calder Dr.	Ervin St.	FM 517	2.08	2	UC	510	100%	141	102	243	2,122	505	1,616	0
3		Butler Rd.	League City Pkwy.	Turner St.	0.15	2	UC	510	100%	127	100	227	153	34	119	0
3		Butler Rd.	Turner St.	Sedona Dr.	0.75	2	UC	510	100%	127	100	227	765	170	595	0
3		Hobbs Rd.	League City Pkwy.	Sedona Dr.	0.81	4	DA	665	100%	254	254	508	2,155	411	1,743	0
3		Landing Blvd.	League City Pkwy.	Sandvalley Way	1.10	2	UC	510	100%	121	201	322	1,122	354	768	0
3	4	Bay Area Blvd.	League City Pkwy.	Magnolia Greens Ln.	0.60	2	DA	665	50%	140	0	140	399	84	315	0
Sub-Total Service Area 3					**20.78**								**34,514**	**23,168**	**13,106**	**386**
4		FM 517	W City Limits	McFarland Rd	1.51	2	UA	590	100%	611	661	1,272	1,777	1,916	0	139
4		FM 517	McFarland Rd	E City Limits	1.65	3	SA	665	100%	656	711	1,367	2,195	2,256	15	76
4	2	Bay Area Blvd.	City Limits	FM 518/Main St.	1.00	4	DA	665	50%	0	819	819	1,330	819	511	0
4	2	Bay Area Blvd.	FM 518/Main St.	League City Pkwy.	0.99	4	DA	665	50%	0	603	603	1,317	597	720	0
4	3	Bay Area Blvd.	League City Pkwy.	Magnolia Greens Ln.	0.60	2	UC	510	50%	0	447	447	306	268	38	0
4		FM 518/Main St.	Bay Area Blvd.	City Limits	0.81	5	SA	665	100%	1,049	1,342	2,391	2,155	1,937	228	10
4		League City Pkwy.	Bay Area Blvd.	Misty Trails Ln.	0.55	4	DA	665	100%	211	271	482	1,463	265	1,198	0
4		League City Pkwy.	Misty Trails Ln.	Westover Park Ave.	0.52	2	UA	590	100%	211	271	482	614	251	363	0
4		League City Pkwy.	Westover Park Ave.	Maple Leaf Dr.	0.27	2	UA	590	100%	211	271	482	319	130	188	0
4		Maple Leaf Dr.	FM 518/Main St.	Westwood Dr.	0.22	2	DA	665	100%	256	232	488	293	107	185	0
4		Maple Leaf Dr.	Westwood Dr.	League City Pkwy.	0.53	2	UA	590	100%	256	232	488	625	259	367	0
4		Maple Leaf Dr.	League City Pkwy.	Westover Park Ave.	0.35	2	UA	590	100%	128	116	244	413	85	328	0
Sub-Total Service Area 4					**9.00**								**12,805**	**8,890**	**4,140**	**224**
Total													***161,758***	***104,152***	***62,530***	***1,838***

Notes:

* denotes deficiencies absorbed through CRF CIP

DA - Divided Arterial

UA - Undivided Arterial

SA - Special Arterial with two-way left turn lane (TWLTL)

DC - Divided collector

UC - Undivided Collector

SC - Special Collector with two-way left turn lane (TWLTL)

Appendix B:
Projected 10-Year Growth
(Vehicle-Miles of New Demand)

Vehicle-Mile Trip Generation by Service Area, League City Capital Recovery Fee

Based on 2017-2027 Land Use Assumptions dated October 2017

Service Unit Equivalency

Residential	4.01	Service Emp	6.21
Basic Emp	3.40	Retail Emp	4.67

Estimated Residential Growth Vehicle-Mile Trip Generation

Conversion Factor: 2.78 persons/dwelling unit

Service Area	Added Population	Added Dwelling Units	Vehicle-Miles per DU	Total Vehicle-Miles
1	6,895	2,480	4.01	9,945
2	2,276	819	4.01	3,284
3	16,044	5,771	4.01	23,142
4	15,536	5,588	4.01	22,408
Total	40,751	14,658		58,779

Estimated Basic Employment Growth Vehicle-Mile Trip Generation

Conversion Factor: 1,500 square feet/employee

Service Area	Added Employees	Total Square Feet	Vehicle-Miles per 1,000 Sq Ft	Total Vehicle-Miles
1	310	465,000	3.40	1,581
2	19	28,500	3.40	97
3	873	1,309,500	3.40	4,452
4	57	85,500	3.40	291
Total	1,259	1,888,500		6,421

Estimated Service Employment Growth Vehicle-Mile Trip Generation

Conversion Factor: 500 square feet/employee

Service Area	Added Employees	Total Square Feet	Vehicle-Miles per 1,000 Sq Ft	Total Vehicle-Miles
1	1,762	881,000	6.21	5,471
2	77	38,500	6.21	239
3	2,591	1,295,500	6.21	8,045
4	459	229,500	6.21	1,425
Total	4,889	2,444,500		15,180

Estimated Retail Employment Growth Vehicle-Mile Trip Generation

Conversion Factor: 1,000 square feet/employee

Service Area	Added Employees	Total Square Feet	Vehicle-Miles per 1,000 Sq Ft	Total Vehicle-Miles
1	2,595	2,595,000	4.67	12,119
2	202	202,000	4.67	943
3	1,721	1,721,000	4.67	8,037
4	828	828,000	4.67	3,867
Total	5,346	5,346,000		24,966

Total Vehicle-Mile Generation Summary

Service Area	Residential Growth Vehicle-Miles	Basic Emp Growth Vehicle-Miles	Service Emp Growth Vehicle-Miles	Retail Emp Growth Vehicle-Miles	**Total Growth Vehicle-Miles**
1	9,945	1,581	5,471	12,119	**29,116**
2	3,284	97	239	943	**4,563**
3	23,142	4,452	8,045	8,037	**43,676**
4	22,408	291	1,425	3,867	**27,991**
Total	58,779	6,421	15,180	24,966	**105,346**

Appendix C:
Roadway Capital Improvements Plan

ROADWAY IMPROVEMENTS PLAN PROJECTS

Definitions

LANES	The total number of lanes in both directions available for travel.
TYPE	The type of roadway (used in determining capacity): DA = divided arterial UA = undivided arterial SA = special arterial (arterial with continuous left turn) DC = divided collector UC = undivided collector SC = special collector (arterial with continuous left turn)
PK-HR VOLUME	The existing volumes of cars on the roadway segment traveling during the afternoon (P.M.) peak hour of travel.
% IN SERVICE AREA	If the roadway is located on the boundary of the service area (with the city limits running along the centerline of the roadway), then half of the roadway is inventoried in the service area and the other half is not. This value is either 50% or 100%.
VEH-MI SUPPLY PK-HR TOTAL	The number of total service units (vehicle-miles) supplied within the service area, based on the length and established capacity of the roadway type.
VEH-MI TOTAL DEMAND PK-HR	The total service unit (vehicle-mile) demand created by existing traffic on the roadway segment in the afternoon peak hour.
EXCESS CAPACITY PK-HR VEH-MI	The number of service units supplied but unused by existing traffic in the afternoon peak hour.
CIP VEH-MI DEFICIENCY	The number of service units used by existing traffic in excess of the available service units supplied by the roadway in the afternoon peak hour.

Proj No.	Serv Area	Shared Svc Area	Project Type	Roadway	From	To	Length (mi)	No. of Lanes	Type	Pct. in Serv. Area	Peak Hour Volume A	B	Total	VMT Supply Pk Hr Total	VMT Demand Pk Hr Total	Excess VMT Capacity	CIP VMT Deficiency
1	1		R	FM 518/Deke Slayton Hwy	FM 2094/Main St	FM 270/Egret Bay Blvd	0.14	4	DA	100%	0	0	0	378	0	378	0
2	1		N	FM 270/Egret Bay Blvd	Abilene St	FM 646	2.18	4	DA	100%	715	660	1375	5,799	2,998	2,801	0
3	1		N	FM 646	SH 3	E City Limits	3.58	5	SA	100%	749	763	1512	9,526	5,414	4,112	0
4	1		R	Dickinson	Walker St	SH 96/League City Pkwy	1.12	3	SC	100%	104	104	208	1,267	234	1,033	0
5	1		N	Walker St	Texas Ave	FM 270/Egret Bay Blvd	0.31	2	UC	100%	0	0	0	320	0	320	0
6	1		R	SH 96/League City Pkwy	@ South Shore Turn Lanes		0.28	2	UC	100%	40	40	80	290	22	268	0
7	1		N	SH 96/League City Pkwy	SH 3	E City Limits (SH 146)	4.95	2	DA	100%	0	0	0	6,584	0	6,584	0
	Sub-Total Service Area 1						**12.57**							**24,164**	**8,668**	**15,495**	**0**
8	2		N	Grissom Rd	Abigail Ln	W NASA Blvd.	1.01	4	DC	100%	297	395	692	2,292	702	1,590	0
9	2		N	Palomino Ln Extension	Clear Creek	Grissom Rd	0.84	2	DC	100%	0	0	0	954	0	954	0
10	2		N	Landing Blvd Extension	N End of Landing Blvd	N City Limits	0.93	4	DA	100%	0	0	0	2,465	0	2,465	0
11	2	3	N	SH 96/League City Pkwy	Bay Area	Hobbs Rd	1.98	2	DA	50%	0	0	0	1,316	0	1,316	0
12	2	3	N	SH 96/League City Pkwy	Hobbs Rd	IH-45	0.62	2	DA	50%	0	0	0	415	0	415	0
13	2	3	N	SH 96/League City Pkwy	IH-45	SH 3	1.55	2	DA	50%	0	0	0	1,031	0	1,031	0
14	2		N	FM 518/Main St	Hobbs Rd	SH 3	1.29	2	DA	100%	0	0	0	1,719	0	1,719	0
	Sub-Total Service Area 2						**8.23**							**10,192**	**702**	**9,490**	**0**
15	3		R	Calder Rd	Turner St	Cross Colony	2.20	3	SC	100%	153	110	263	2,484	578	1,906	0
16	3		N	Calder Rd	Cross Colony	FM 517	0.97	3	SC	100%	141	102	243	1,094	236	858	0
17	3		R	Brookport Extension	Big League Dreams	Marble Cove Dr	0.61	4	DC	100%	50	50	100	1,370	60	1,310	0
18	3		N	Turner-Butler	SH 96/League City Pkwy	Calder Dr	0.42	3	SC	100%	127	100	227	475	95	380	0
11	3	2	N	SH 96/League City Pkwy	Bay Area	Hobbs Rd	1.98	2	DA	50%	0	0	0	1,316	0	1,316	0
12	3	2	N	SH 96/League City Pkwy	Hobbs Rd	IH-45	0.62	2	DA	50%	0	0	0	415	0	415	0
13	3	2	N	SH 96/League City Pkwy	IH-45	SH 3	1.55	2	DA	50%	0	0	0	1,031	0	1,031	0
19	3		N	Ervin Ave	Calder Rd	Hobbs Rd	0.60	4	DA	100%	0	0	0	1,601	0	1,601	0
20	3		N	Ervin Ave	Hobbs Rd	Landing Blvd	1.08	4	DA	100%	0	0	0	2,879	0	2,879	0
21	3		N	Ervin Ave	Landing Blvd	Service Area Limit	0.33	4	DA	100%	0	0	0	887	0	887	0
22	3		N	Hobbs Rd Extension	Ervin Ave	FM 517	2.12	2	DA	100%	0	0	0	2,814	0	2,814	0
23	3		N	Landing Blvd Extension	Sandvalley Way	Ervin Ave	0.67	4	DA	100%	0	0	0	1,774	0	1,774	0
24	3		N	Landing Blvd Extension	Ervin Ave	FM 517	1.52	4	DA	100%	0	0	0	4,053	0	4,053	0
25	3		N	Walker St Extension	S. End of Walker St	IH-45 Frontage Rd	0.25	2	UA	100%	0	0	0	292	0	292	0
26	3		N	New Street B	Landing Blvd	Hobbs Rd	0.94	4	DA	100%	0	0	0	2,499	0	2,499	0
27	3		N	New Street B	SA Limit	Landing Blvd	0.64	4	DA	100%	0	0	0	1,703	0	1,703	0
28	3		N	New Street D	SA Limit	Hobbs Rd	1.48	4	DC	100%	0	0	0	3,345	0	3,345	0
29	3		N	New Street G	Ervin Ave	FM 517	1.84	4	DC	100%	0	0	0	4,154	0	4,154	0
30	3		N	New Street H	Landing Blvd	Hobbs Rd	0.97	4	DC	100%	0	0	0	2,198	0	2,198	0
31	3		N	FM 517	W City Limits	FM 646/16th St	2.74	5	SA	100%	812	980	1792	7,290	4,911	2,379	0
	Sub-Total Service Area 3						**23.53**							**43,674**	**5,880**	**37,795**	**0**

Proj No.	Serv Area	Shared Svc Area	Project Type	Roadway	From	To	Length (mi)	No. of Lanes	Type	Pct. in Serv. Area	Peak Hour Volume A	B	Total	VMT Supply Pk Hr Total	VMT Demand Pk Hr Total	Excess VMT Capacity	CIP VMT Deficiency
32	4		N	League City Pkwy Extension	1,600' W of Maple Leaf	McFarland Rd	0.30	4	DA	100%	0	0	0	806	0	806	0
33	4		N	League City Pkwy	Misty Trails	New Street C	1.00	2	DA	100%	0	0	0	1,335	0	1,335	0
34	4		N	Ervin Ave	W City Limits	Service Area Limit	4.64	4	DA	100%	0	0	0	12,342	0	12,342	0
35	4		N	Maple Leaf Extension	N. Side of American Canal	New Street B	1.41	4	DA	100%	0	0	0	3,740	0	3,740	0
36	4		N	Maple Leaf Ext/McFarland	New Street B	FM 517	1.02	4	DA	100%	10	10	20	2,709	20	2,689	0
37	4		N	Bay Area Blvd Extension	N. Side of American Canal	FM 517	2.24	4	DA	100%	0	0	0	5,952	0	5,952	0
38	4		N	New Street B	New Street C	Service Area Limit	3.78	4	DA	100%	0	0	0	10,057	0	10,057	0
39	4		N	New Street C	League City Pkwy Ext	FM 517	3.23	4	DA	100%	0	0	0	8,601	0	8,601	0
40	4		N	New Street D	Maple Leaf Ext	Service Area Limit	2.30	4	DC	100%	0	0	0	5,193	0	5,193	0
41	4		N	New Street E	Ervin Ave	FM 517	1.85	4	DA	100%	0	0	0	4,915	0	4,915	0
42	4		N	New Street F	Ervin Ave	S City Limits	1.56	4	DC	100%	0	0	0	3,531	0	3,531	0
	Sub-Total Service Area 4						**23.33**							**59,181**	**20**	**59,160**	**0**
	Totals:													***137,211***	***15,270***	***121,940***	***0***

Notes:

DA - Divided Arterial

UA - Undivided Arterial

SA - Special Arterial with two-way left turn lane (TWLTL)

DC - Divided collector

UC - Undivided Collector

SC - Special Collector with two-way left turn lane (TWLTL)

N - New Project

R - Recoupment Project

Appendix D:
2017 Land Use Assumptions Report

(Adopted by City Council on November 28, 2017)

Innovative approaches
Practical results
Outstanding service

FINAL

LAND USE ASSUMPTIONS REPORT

FOR CAPITAL RECOVERY FEES

Prepared for:

City of League City

October 2017

Prepared by:

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APPENDIX

1.0 PURPOSE

Chapter 395 of the Texas Local Government Code prescribes the process by which cities in Texas must formulate capital recovery fees. An initial step in the update process is the establishment of land use assumptions that address growth and development for a ten-year planning period (TLGC Section 395.001(5)) for the years 2017-2027. These land use assumptions, which also include population and employment projections, will become the basis for the preparation of capital recovery fee capital improvement plans for water, wastewater, and roadway facilities.

Statutory requirements mandate that capital recovery fees be updated (at least) every five years. This report, in conjunction with the water and wastewater capital improvements plans, forms the initial key components for the update of League City's capital recovery fee program. This LUA Report would also be considered for a possible roadway capital recovery fee program.

To assist the City of League City in determining the need and timing of capital improvements to serve future development, a reasonable estimation of future growth is required. The purpose of this report is to formulate growth and development projections based upon assumptions pertaining to the type, location, quantity and timing of various future land uses within the community and to establish and document the methodology used for preparing the growth and land use assumptions.

1.1 LAND USE ASSUMPTIONS REPORT ELEMENTS

This report contains the following components:

- **Methodology** - Explanation of the general methodology used to prepare the land use assumptions.
- **Data Collection Zones and Service Areas** - Explanation of data collection zones (traffic analysis zones), and division of the City into capital recovery fee service areas for roadway, water and wastewater facilities.
- **Base Year Data** – Historical population trends for League City and information on population, employment, and land use for League City as of 2017 for each capital service area.
- **Ten-Year Growth Assumptions** - Population and employment growth assumptions for ten years by service areas.
- **Summary** - Brief synopsis of the land use assumptions report.

2.0 METHODOLOGY

Based upon the growth assumptions and the capital improvements needed to support growth, it is possible to develop a capital recovery fee structure that fairly allocates improvement costs to growth areas in relation to their impact upon the entire infrastructure system. The data in this report has been formulated using reasonable and generally accepted planning principles for the preparation of capital recovery fee systems in Texas.

These land use assumptions and future growth projections take into consideration several factors influencing development patterns, including the following:

- The character, type, density, and quantity of existing development,
- Anticipated future land use based on the City's recently approved update to the Future Land Use Plan (FLUP),
- Availability of land for future expansion,
- Current and historical growth trends of population and development within the City,
- Location and configuration of vacant land,
- Growth of employment (per the Houston-Galveston Area Council, H-GAC), and
- Known or anticipated development projects as defined by City Staff. Key development plans include the Duncan Tract, Lakes of Quail Pointe, Westwood, and UTMB to name a few.

A series of work tasks were undertaken in the development of this report and are described below:

1. A kick-off meeting was held to describe the general methodological approach in the study. Service areas were defined for roadway, water, and wastewater capital recovery fee systems.
2. Current and historic data of population, housing, and employment was collected from the City and other acceptable sources to serve as a basis for future growth.
3. A base year (2017) estimate was developed using population and employment data from H-GAC and the City.
4. A growth rate was determined based upon an analysis of data from recent building permit data, past growth trends, and anticipated development to occur over the next ten-year planning period. A compound annual growth rate of **3.4%** was used for the planning period to track the Thoroughfare Plan update growth projections and other concurrent City studies.
5. A ten-year projection (2027) was prepared using the approved growth rate and the FLUP for allocations of population and employment data. Adjustments were then made to consider known or anticipated development activity within the ten-year planning period.

6. Base and ten-year demographics were prepared for the respective service areas for water, wastewater, and roads. Build-out demographics were also prepared for water and wastewater service areas based on the FLUP.

3.0 DATA COLLECTION ZONES & SERVICE AREA MAPS

3.1 DATA COLLECTION ZONES

Data collection zones used for land use assumptions are based upon small geographic areas known as traffic analysis zones (TAZs). These zones, established by the Houston-Galveston Area Council (H-GAC), cover the Metropolitan Planning Organization's (MPO) planning area and serve as the basis for socio-demographic data used in the regional travel forecast model. TAZs were originally formulated based on homogeneity and traffic generation potential using major arterials, creeks, railroad lines and other physical boundaries for delineation.

Population and employment demographics were compiled by these H-GAC TAZs and then aggregated into larger areas to form the service areas for capital recovery fees. Adjustments were made based on City Staff input to account for recent or upcoming known developments affecting these demographics.

3.2 SERVICE AREAS

Chapter 395 requires that service areas be defined for capital recovery fees to ensure that facility improvements are located in close proximity to areas generating needs. Legislative requirements stipulate that roadway service areas be limited to a 6-mile maximum and must be located within the current City limits. Transportation service areas are different from water and wastewater systems, which can include the City limits and its extra-territorial jurisdiction (ETJ) or other defined service area. This is primarily because roadway systems are "open" to both local and regional (non-City) use as opposed to a defined level of utilization from residents within a water and wastewater system. The result is that new development can only be assessed a capital recovery fee based on the cost of necessary capital improvements within that service area.

For roadways, the entirety of the City limits is divided into four service areas. For water and wastewater, a single service area encompasses the City limits as well as Water Control and Improvement District #1 (WCID-1). **Figures 1 and 2** illustrate service areas for Road, Water and Wastewater capital recovery fees. The roadway, water and wastewater service areas with TAZ boundaries can be found in the **Appendix**, respectively.

FIGURE 1: ROADWAY SERVICE AREA

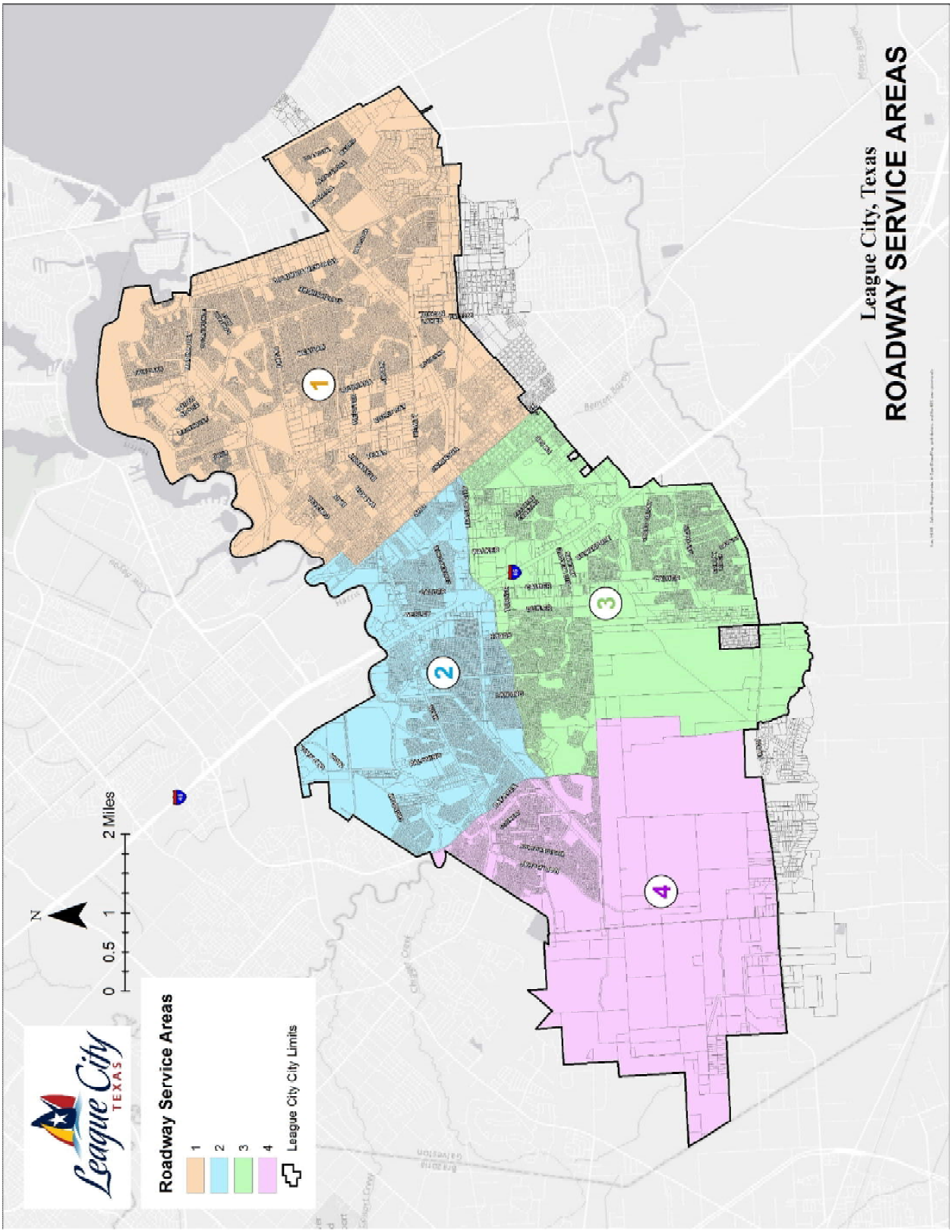
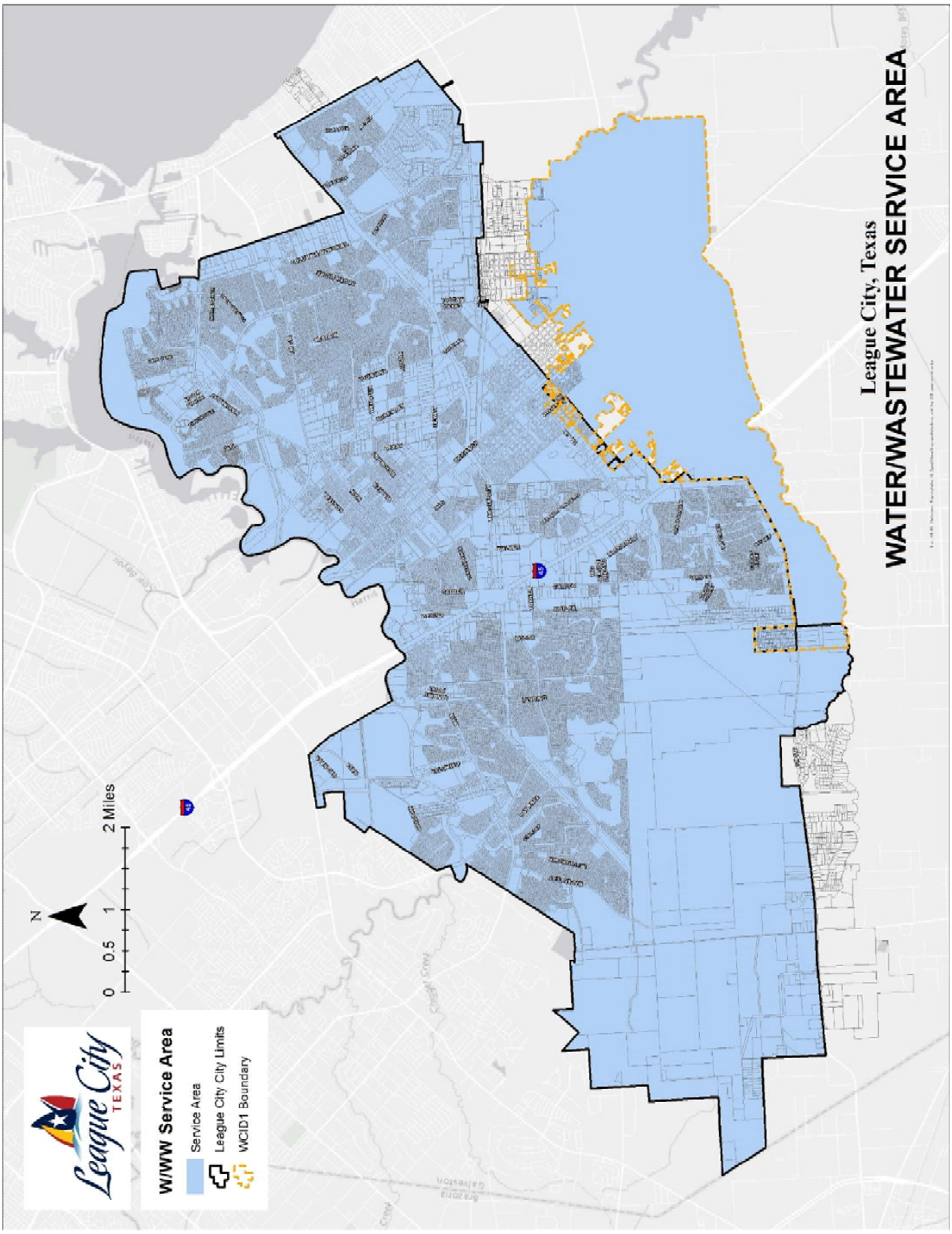


FIGURE 2: WATER AND WASTEWATER SERVICE AREA



3.3 DATA FORMAT

The existing database, as well as the future projections, were formulated according to the following format and categories:

Service Area — Correlates to the proposed roadway, water, and wastewater service areas identified on the attached maps in Section 3.2.

Traffic Analysis Zone (TAZ) — Geographic areas established by the H-GAC Traffic Model which are used for data collection purposes and termed TAZs within this report.

Housing Units (2017) — All living units including single-family, duplex, multi-family and group quarters. The number of existing housing units has been shown for the base year (2017).

Housing Units (2027) — Projected housing units by service zone for 2027 (ten-year growth projections).

Population (2017) — Existing population for the base year (2017).

Population (2027) — Projected population by service zone for the year 2027 (ten-year growth projections).

Employment (2017, 2027) — Employment data is aggregated to three employment sectors and include Retail, Office and Industrial, as provided by the H-GAC. These service sectors serve as the basis for nonresidential trip generation. The following details which types of businesses fall within each of the three sectors.

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

Service (Office) -- Land use activities which provide personal and professional services such as financial, insurance, government, and other professional and administrative offices.

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, restaurants, etc.

4.0 BASE YEAR DATA

H-GAC's demographics by TAZ serve as a basis for the base year data analysis of the Land Use Assumption process. This section documents the City's historical growth trends and data used to derive the 2017 base year population estimate for the City of League City. This "benchmark" information provides a starting basis of data for the ten-year growth assumptions that will be presented within the following section.

4.1 HISTORICAL GROWTH

A City's past growth rates are often a good indicator of future growth rates. **Table 1** and **Table 2** show League City's population, numerical change, and compound annual growth rate of recent years and by decade.

From 2010 to 2017, League City has grown consistently, having a peak in the last 2-3 years around 4 percent. Between 2010 and 2017, the compound annual growth rate (CAGR) is 2.9%.

TABLE 1: POPULATION DATA IN RECENT YEARS

Year	Population	Population Change	Percent Change	CAGR
2010	84,088	-	-	
2011	86,278	2,190	2.6%	
2012	88,244	1,966	2.3%	
2013	90,828	2,584	2.9%	2.9%
2014	94,264	3,436	3.8%	
2015	98,149	3,885	4.1%	
2016	100,053	1,904	1.9%	
2017	102,635	2,582	2.6%	

Source: US Census Bureau

Analysis of growth rates since 1970 reveals League City to have had periods of phenomenal growth. Between the years of 2000 and 2010, League City has grown over 80 percent. The 40-year (1970-2010) CAGR is 5.2% and listed in **Table 2**.

TABLE 2: POPULATION DATA BY DECADE

Year	Population	Population Change	Percent Change	CAGR
1970	10,818	-	-	
1980	16,578	5,760	53.2%	
1990	29,903	13,325	80.4%	5.2%
2000	45,327	15,424	51.6%	
2010	83,560	38,233	84.3%	

Source: US Census Bureau

4.2 EXISTING LAND USE

The largest use of developed land within the City limits is single family residential, which alone accounts for approximately 59 percent of all developed land. All residential uses collectively comprise of around 63 percent of the total developed land, which makes League City stand out as a primarily residential community. And are detailed in **Table 3**, **Figure 3**, and **Figure 4**.

TABLE 3: EXISTING LAND USE

Category	Acres	% of Developed	% of Total
Single Family	7,509	59.0%	26.1%
Condominiums	28	0.2%	0.1%
Multi-Family	343	2.7%	1.2%
Mobile Homes	124	1.0%	0.4%
Residential Sub-Total	**8,004**	**62.9%**	**27.8%**
Commercial	3,638	28.6%	12.6%
Industrial	43	0.3%	0.1%
O1	75	0.6%	0.3%
Non-Residential Sub-Total	**3,756**	**29.5%**	**13.0%**
Other or Not Assigned	971	7.6%	3.4%
Total Developed Land	**12,731**	**100.0%**	**44.2%**
Vacant/Ag	**16,085**	**-**	**55.8%**
Total Developable Land	**28,816**	**-**	**100.0%**

FIGURE 3: EXISTING LAND USE

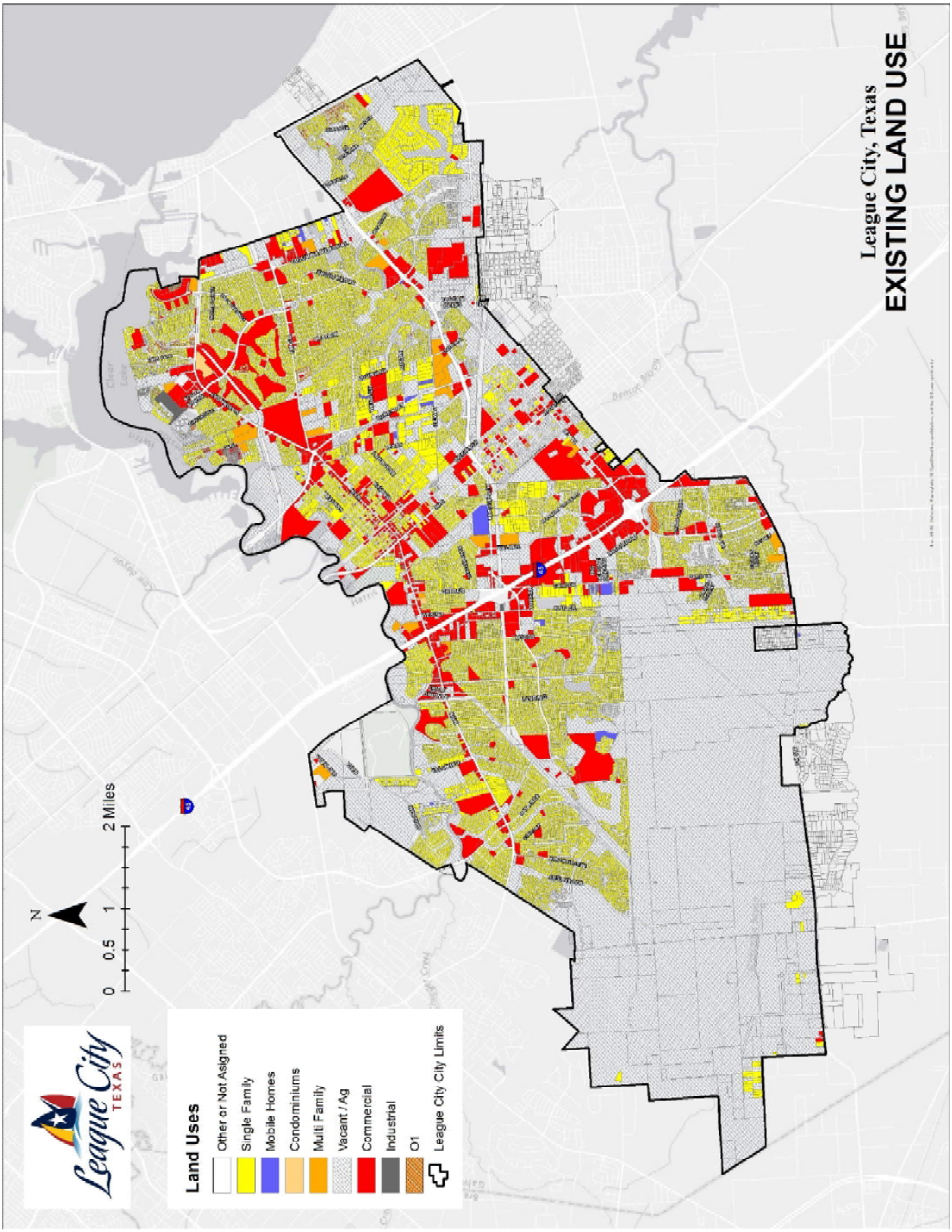
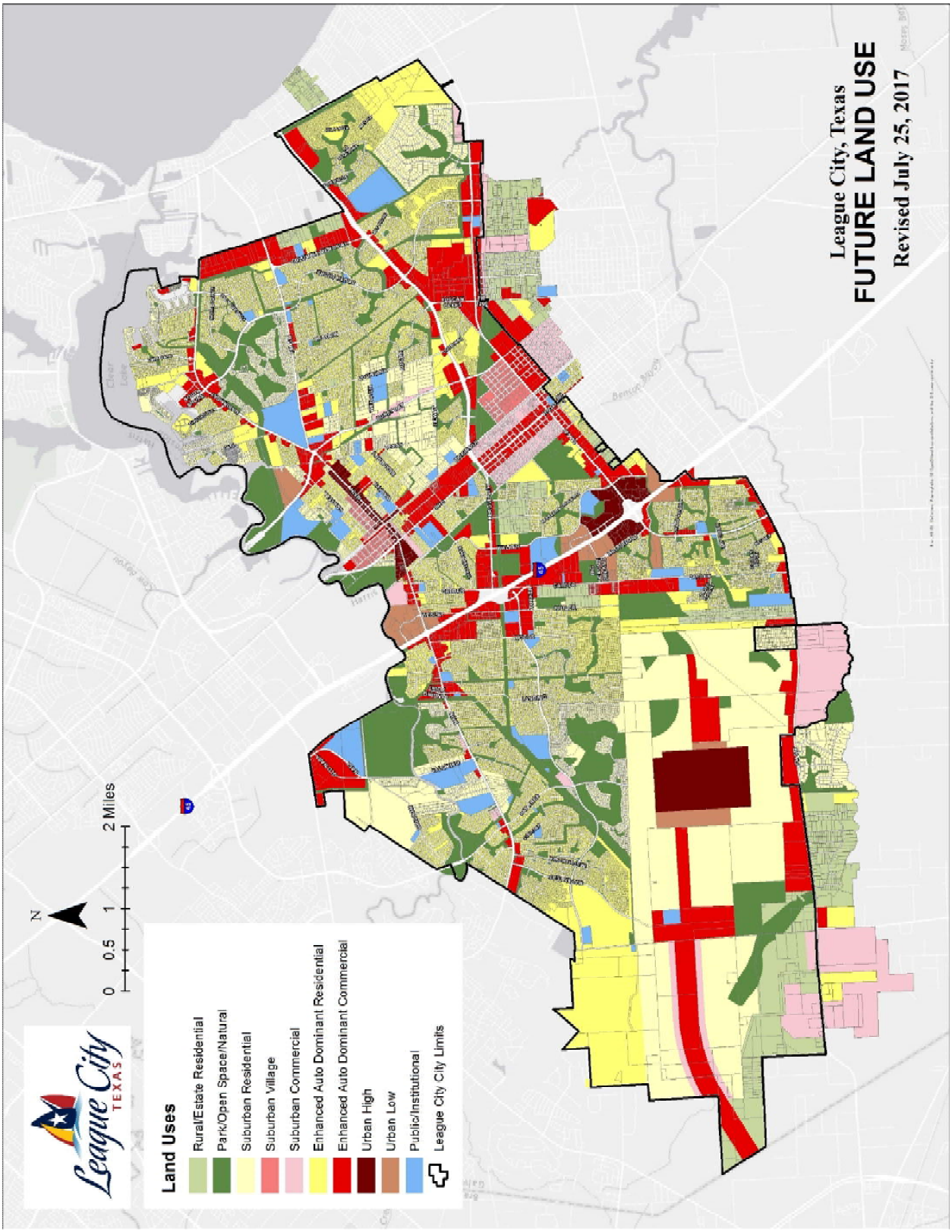


FIGURE 4: FUTURE LAND USE



4.3 2017 POPULATION AND EMPLOYMENT IN LAND USE ASSUMPTIONS PROCESS

For the land use assumptions process, 2017 base population and employment data was calculated using data from the Houston-Galveston Area Council (H-GAC) with verification of this data from City Staff. This information provided a breakdown of employment by traffic analysis zone (TAZ) for 2017, 2030, and 2040. It is important to note that the TSZs do not follow City limits in some locations, so adjustments were made based on the locations of existing land uses and upon the percentage of each TAZ located within City limits. Employment for each TAZ was broken down into basic, retail, and service uses as defined by H-GAC in the modeling demographics. Since Roadway and Water and Wastewater have different service areas, two sets of assumptions has been conducted, each tailored to its own service area.

TABLE 6: SUMMARY OF BASE YEAR (2017) POPULATION AND EMPLOYMENT FOR ROADWAY CAPITAL RECOVERY FEE

Roadway Service Area 2017 Population & Employment	
Population	102,635
Housing Units	36,919
Total Employment	31,133
Basic Employment	*4,219*
Service Employment	*16,125*
Retail Employment	*10,789*
Source: Freese and Nichols, Inc., H-GAC	

TABLE 7: SUMMARY OF BASE YEAR (2017) POPULATION AND EMPLOYMENT FOR WATER AND WASTEWATER CAPITAL RECOVERY FEE

Water and Wastewater Service Area 2017 Population & Employment	
Population	129,234
Housing Units	46,487
Total Employment	36,082
Basic Employment	*5,217*
Service Employment	*18,540*
Retail Employment	*12,325*
Source: Freese and Nichols, Inc., H-GAC	

5.0 TEN-YEAR GROWTH ASSUMPTIONS

Projected growth has been characterized in two forms: population and employment. A series of assumptions were made to arrive at reasonable growth rates for population and employment. The following assumptions have been made as a basis from which ten-year projections could be initiated.

- Future land uses will occur based on similar trends of the past and consistent with the Future Land Use Plan,
- The City will be able to finance the necessary improvements to accommodate continued growth, and
- Densities will be as projected in the Future Land Use Plan.

The ten-year projections are based upon the growth rate that was discussed earlier (**3.4%**) and considers past trends of the City and is in line with concurrent studies.

Both of the assumptions for Roadway Service Area and Water and Wastewater Service Area are presented with 2017 and 2027 population and employment information. However, Water and Wastewater Capital Recovery Fee studies require the build-out population and employment information for that service area, which is why it has been included in the Water and Wastewater Capital Recovery Fee section.

Using the previously mentioned data from H-GAC, linear interpolation was used to develop the interim year 2027 in the data for both population and employment. For population, adjustments were made to account for existing subdivisions with lots remaining and anticipated developments such as the Duncan Tract on the southwest quadrant of the City and the Lakes of Quail Pointe subdivision. For employment, adjustments were made to match growth trends anticipated by the City and modifications in the 2017 Future Land Use Plan with specific areas of growth for The University of Texas Medical Branch (UTMB) campus and Pinnacle Park. **Figure 5** and **Figure 6** depict a distribution map of the 10-year growth for population and employment, respectively.

The build-out demographics were calculated using the H-GAC data by TAZ complemented with an evaluation of existing vacant property in the City to the Future Land Use Plan. The Southwest Side PUD Concept Plan was analyzed to produce a detailed estimate of population and employment at build-out for this large sector of the City.

Tables 8-13 summarize the population and employment demographics for base year (2017), projected year (2027), and build-out for the roadway and water/wastewater service areas.

FIGURE 5: POPULATION GROWTH DISTRIBUTION

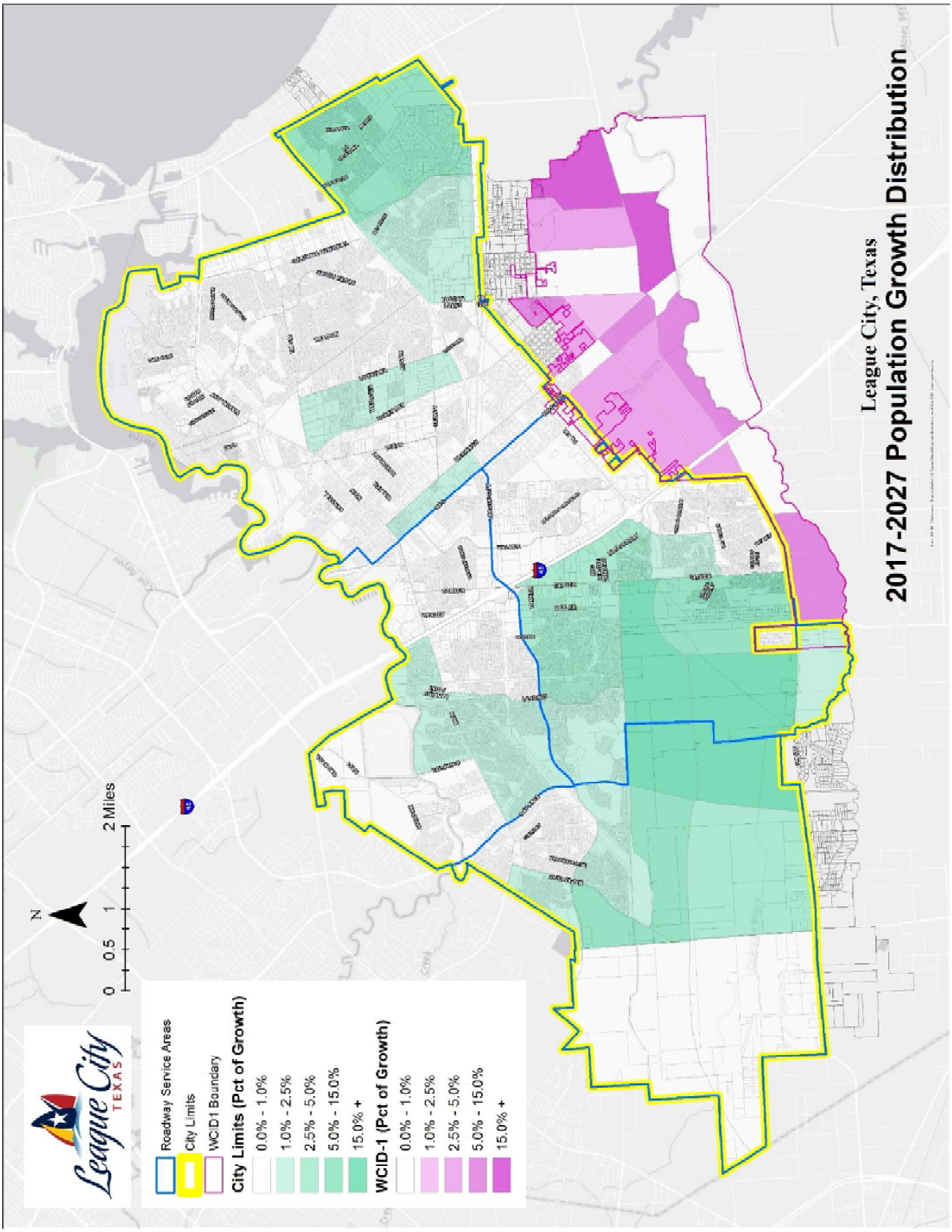
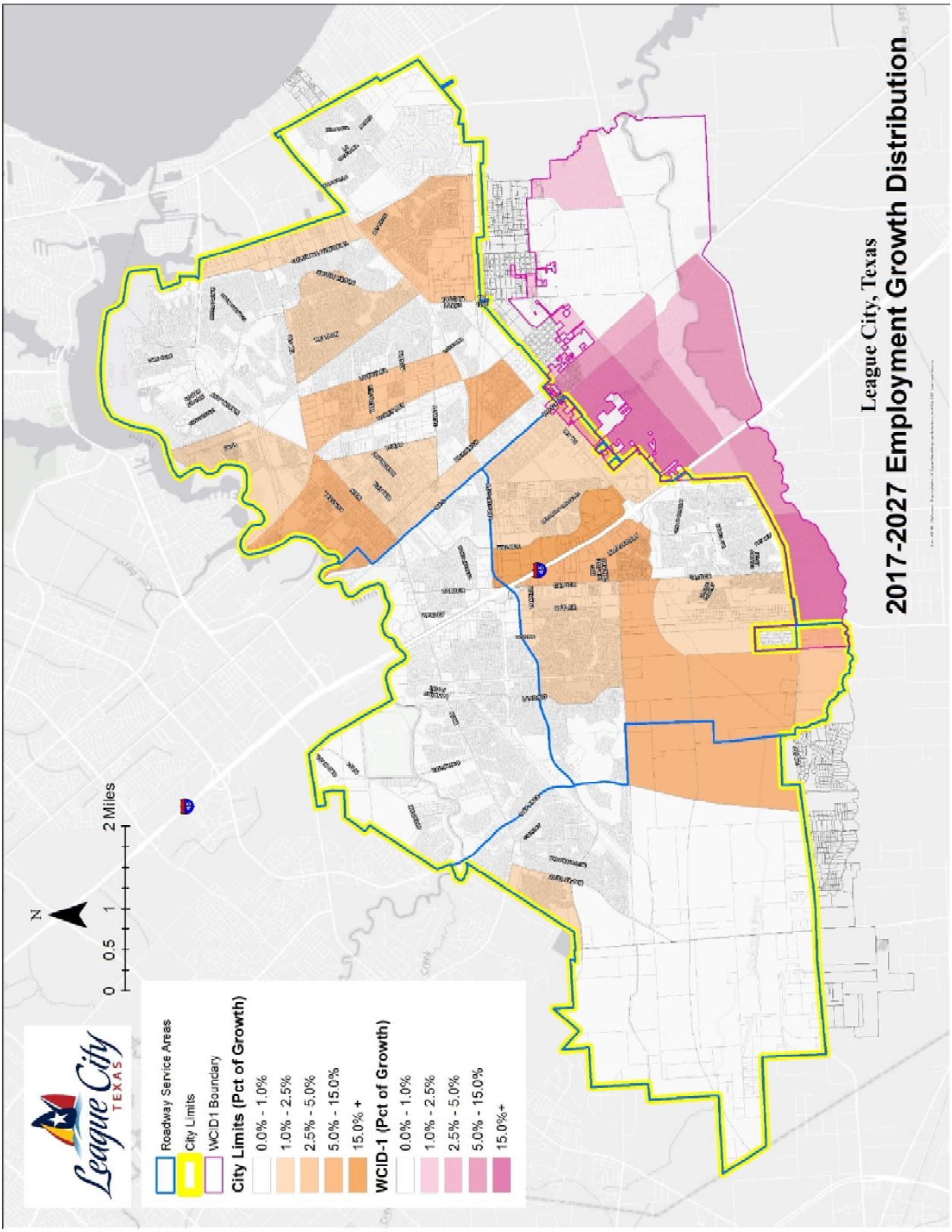


FIGURE 6: EMPLOYMENT GROWTH DISTRIBUTION



Roadway Capital Recovery Fee

TABLE 8: POPULATION AND DWELLING UNIT PROJECTION FOR ROADWAY SERVICE AREA

Ten-Year Population Projection for Roadway Service Area				
Roadway Service Areas	2017		2027	
	Housing Units	Population	Housing Units	Population
Service Area 1	15,951	44,343	18,431	51,238
Service Area 2	9,122	25,358	9,940	27,634
Service Area 3	8,032	22,330	13,804	38,374
Service Area 4	3,814	10,604	9,403	26,140
Total	**36,919**	**102,635**	**51,578**	**143,386**

TABLE 9: POPULATION AND DWELLING UNITS ADDED FOR ROADWAY SERVICE AREA

Added Population and Percentage Growth for Roadway Service Area 2017 to 2027			
Roadway Service Areas	Units Added	Population Added	Pct. Change
Service Area 1	2,480	6,895	16%
Service Area 2	819	2,276	9%
Service Area 3	5,771	16,044	72%
Service Area 4	5,588	15,536	147%
Total	**10,340**	**40,751**	**40%**

TABLE 10: EMPLOYMENT PROJECTIONS FOR ROADWAY SERVICE AREA

Ten-Year Employment Projection for Roadway Service Area								
Roadway Service Areas	Basic		Service		Retail		Total	
	2017	2027	2017	2027	2017	2027	2017	2027
Service Area 1	1,495	1,805	11,135	12,897	6,030	8,625	18,660	23,327
Service Area 2	576	595	2,385	2,462	2,628	2,830	5,589	5,887
Service Area 3	2,036	2,909	1,453	4,044	1,086	2,807	4,575	9,760
Service Area 4	102	159	569	1,028	713	1,541	1,384	2,728
Total	**4,209**	**5,468**	**15,542**	**20,431**	**10,457**	**15,803**	**30,208**	**41,702**

Water and Wastewater Capital Recovery Fee

TABLE 11: POPULATION AND DWELLING UNIT PROJECTION FOR W/WW SERVICE AREA

Ten-Year Population Projection for Water and Wastewater Service Area					
2017		2027		Build-out	
Housing Units	Population	Housing Units	Population	Housing Units	Population
46,487	129,234	62,411	173,503	87,643	243,647

TABLE 12: POPULATION AND DWELLING UNITS ADDED FOR W/WW SERVICE AREA

Added Population and Percentage Growth for Water and Wastewater Service Area 2017 to 2027		
Units Added	Population Added	Pct. Change
15,924	44,269	34%

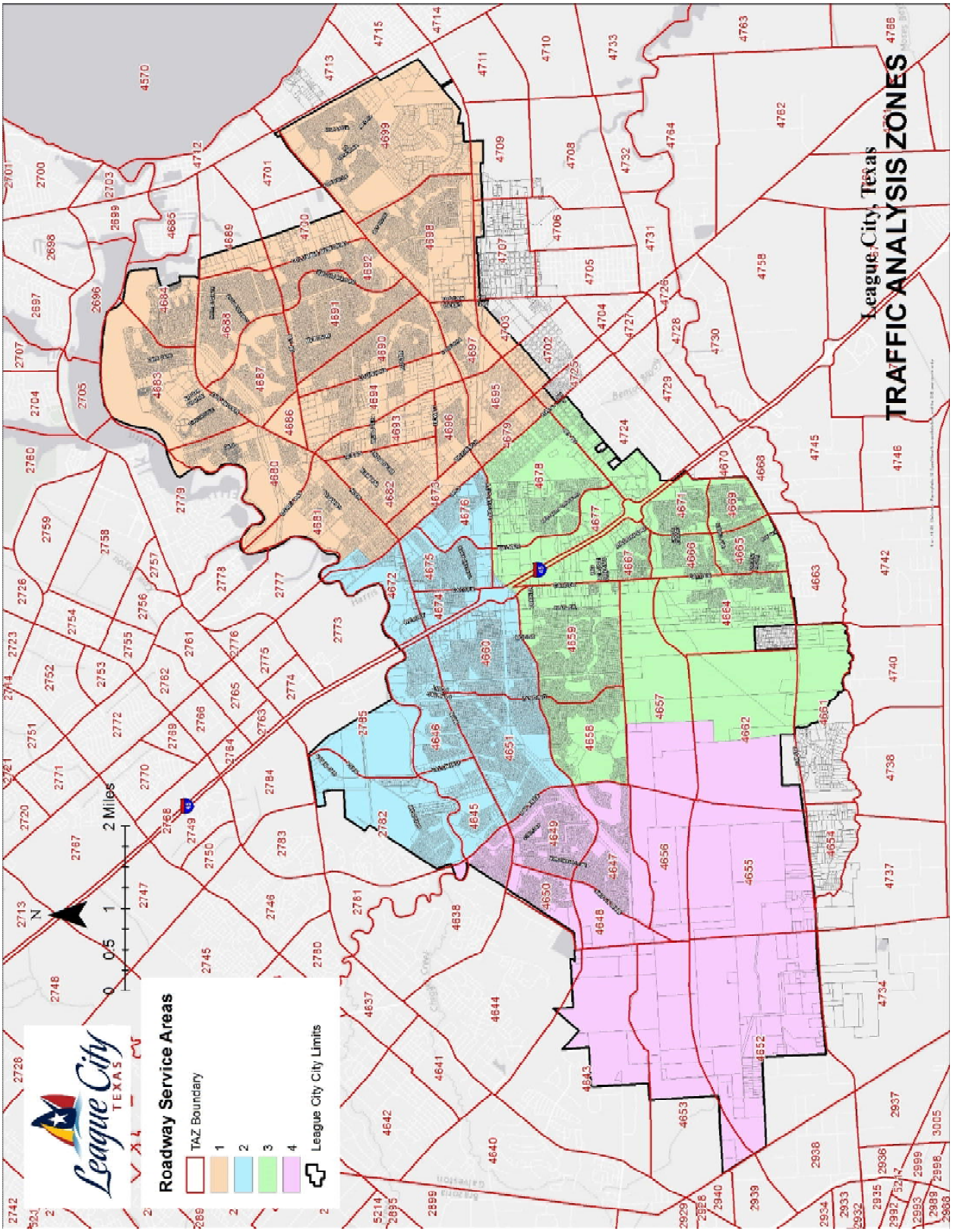
TABLE 13: EMPLOYMENT PROJECTIONS FOR W/WW SERVICE AREA

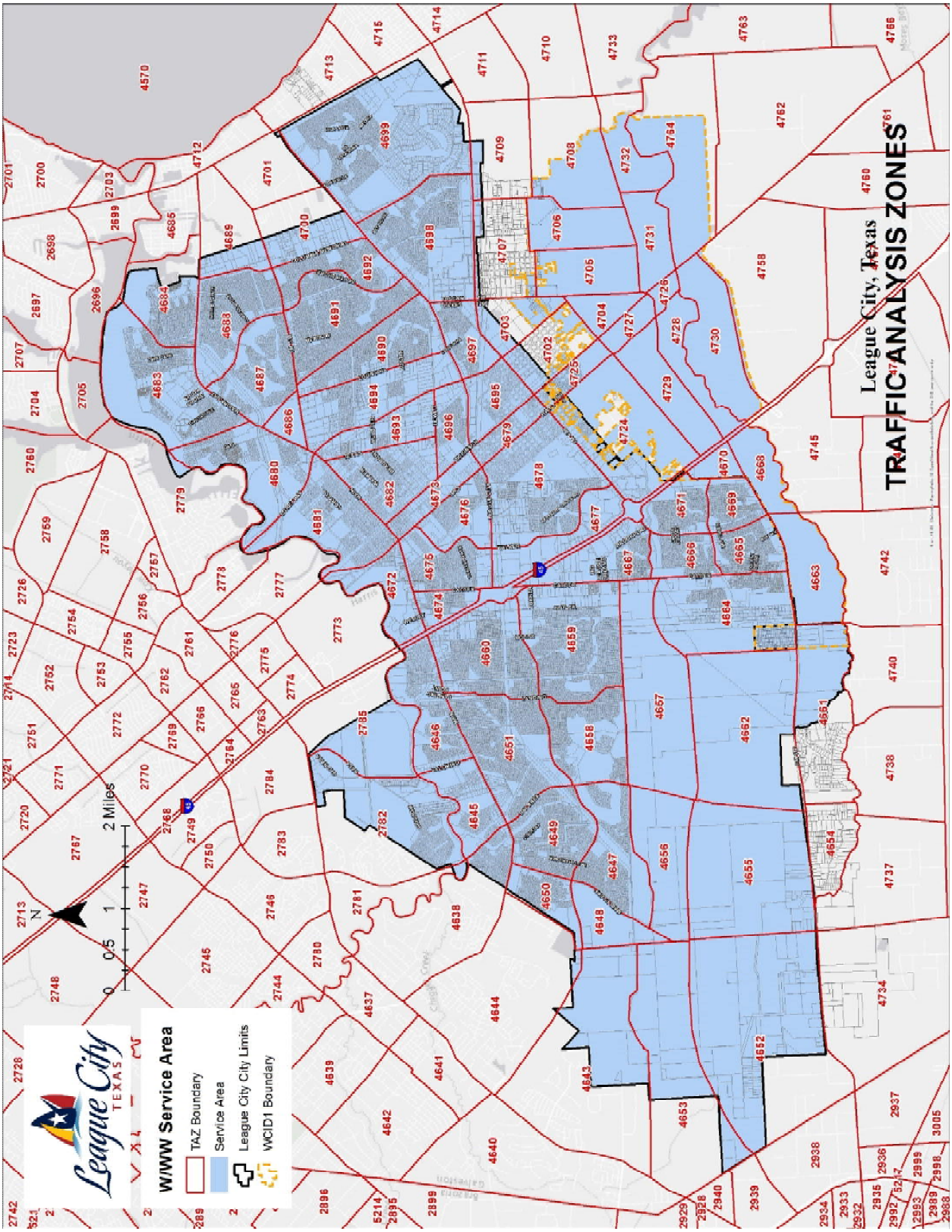
Ten-Year Employment Projection for Water and Wastewater Service Area											
Basic			Service			Retail			Total		
2017	2027	Build-out	2017	2027	Build-out	2017	2027	Build-out	2017	2027	Build-out
5,207	6,873	10,959	17,957	23,498	47,015	11,993	17,703	32,382	35,157	48,074	90,356

6.0 SUMMARY

- From the 2017 Future Land Use Plan, approximately 44 percent of the total developable land within the City limits is developed, with the remaining land available for future development, where infrastructure and topography permit.
- The existing 2017 population for the City limits of League City is approximately 102,635 persons, with an existing estimated employment of around 30,208 jobs.
- An average annual growth rate of 3.4 percent was used to calculate the League City's ten-year growth projections as recommended by the Planning and Zoning Commission in the Future Land Use Plan Update process.
- The ten-year (2027) population growth projection of the Roadway Service Area is 143,386, employment is projected to be a total of 41,702 jobs by 2027 for the Roadway Service Area
- The ten-year (2027) population growth projection of the Water and Wastewater Service Area is 173,503; employment is projected to be a total of 48,074 jobs by 2027 for the Water and Wastewater Service Area. Build-out population is 242,488 and build-out employment is 90,356 for Water and Wastewater Service Area.
- A summary of the 2017 and 2027 demographics broken down by TSZs can be found in the Appendix.

APPENDIX


TRAFFIC ANALYSIS ZONES
League City, Texas
Roadway Service Areas
TAZ Boundary
1
2
3
4
League City City Limits
League City
TEXAS
2 Miles
0
0.5
1
N


League City, Texas
TRAFFIC ANALYSIS ZONES
W/WW Service Area
TAZ Boundary
Service Area
League City City Limits
WCID1 Boundary
League City
TEXAS
2 Miles
0
0.5
1
N

Roadway Population Demographic Summary (persons)

Service Area 1			
TAZ ID	2017	2027	Build-out
4673	502	1,009	1,129
4679	142	142	194
4680	2,492	2,808	3,289
4681	1,654	1,654	2,914
4682	1,943	1,943	3,050
4683	3,307	3,486	3,770
4684	1,082	1,132	1,213
4687	2,171	2,193	2,494
4688	3,913	4,175	4,456
4689	60	96	1,369
4690	3,742	3,852	4,782
4691	6,684	6,926	7,027
4692	3,197	3,400	3,638
4693	738	988	2,222
4694	4,341	4,789	6,279
4695	324	335	560
4696	1,161	1,363	1,626
4697	496	664	1,480
4698	2,312	3,312	6,360
4699	3,343	5,833	8,331
4700	719	1,069	1,469
4702	10	41	427
4703	10	28	410
4725	0	0	88
Total	44,343	51,238	68,577

Service Area 2			
TAZ ID	2017	2027	Build-out
2782	1,368	1,464	3,246
2785	10	65	796
4645	1,276	1,598	1,598
4646	2,477	2,942	3,411
4651	7,147	7,608	7,631
4660	6,587	6,980	7,405
4672	1,393	1,580	1,777
4674	974	974	1,065
4675	1,750	1,750	2,129
4676	2,336	2,633	3,155
4681	40	40	90
Total	25,358	27,634	32,303

Service Area 3			
TAZ ID	2017	2027	Build-out
4657	0	3,382	3,382
4658	2,599	3,547	3,547
4659	5,772	6,866	6,866
4661	10	490	490
4662	0	4,200	4,200
4664	1,775	4,756	4,756
4665	3,978	4,011	4,599
4666	770	1,357	1,357
4667	576	1,881	2,331
4669	2,153	2,247	2,395
4671	1,573	1,648	2,256
4677	32	248	248
4678	2,981	3,310	4,987
4724	111	431	1,423
Total	22,330	38,374	42,837

Service Area 4			
TAZ ID	2017	2027	Build-out
4638	932	1,053	1,169
4643	0	116	7,776
4647	3,482	3,999	4,616
4648	0	2,320	2,830
4649	4,559	4,648	4,729
4650	1,575	2,410	2,410
4652	56	383	8,680
4653	0	402	6,022
4655	0	1,269	6,381
4656	0	2,200	2,727
4657	0	3,800	7,010
4662	0	3,540	8,760
Total	10,604	26,140	63,110

Roadway Employment Demographic Summary (employees)

Service Area 1								
	2017				2027			
TAZ ID	Basic	Service	Retail	Total	Basic	Service	Retail	Total
2779	37	5,093	919	6,049	37	5,093	919	6,049
4673	87	144	442	673	112	186	571	869
4679	0	2	93	95	0	3	157	160
4680	6	102	330	438	9	150	487	646
4681	5	653	407	1,065	12	1,574	981	2,567
4682	10	503	249	762	12	608	301	921
4683	30	1,868	977	2,875	31	1,920	1,004	2,955
4684	17	152	74	243	21	191	93	305
4686	0	580	0	580	0	611	0	611
4687	0	139	348	487	0	140	350	490
4688	19	639	159	817	21	702	175	898
4689	582	266	787	1,635	635	290	859	1,784
4690	88	26	65	179	100	30	74	204
4691	0	29	128	157	0	58	256	314
4692	0	182	338	520	0	182	338	520
4693	135	27	66	228	167	33	82	282
4694	235	221	97	553	368	346	152	866
4695	0	1	14	15	0	57	799	856
4696	0	0	67	67	0	0	73	73
4697	0	0	17	17	0	0	60	60
4698	0	16	172	188	0	45	485	530
4699	0	9	47	56	0	20	105	125
4700	7	289	103	399	11	434	155	600
4702	151	3	27	181	181	4	32	217
4703	86	11	7	104	88	11	7	106
4707	0	84	13	97	0	103	16	119
4709	0	9	56	65	0	10	63	73
4725	0	87	28	115	0	96	31	127
Total	**1,495**	**11,135**	**6,030**	**18,660**	**1,805**	**12,897**	**8,625**	**23,327**

Service Area 2								
	2017				2027			
TAZ ID	Basic	Service	Retail	Total	Basic	Service	Retail	Total
2782	13	31	289	333	13	31	289	333
2785	0	6	24	30	0	19	78	97
4645	0	472	14	486	0	488	14	502
4646	15	104	323	442	15	106	330	451
4651	0	244	141	385	0	259	181	440
4660	46	607	747	1,400	48	617	793	1,458
4672	81	146	520	747	83	150	534	767
4674	0	51	151	202	0	52	153	205
4675	251	703	378	1,332	264	719	417	1,400
4676	170	21	41	232	172	21	41	234
Total	**576**	**2,385**	**2,628**	**5,589**	**595**	**2,462**	**2,830**	**5,887**

Roadway Employment Demographic Summary (employees)

Service Area 3								
	2017				2027			
TAZ ID	Basic	Service	Retail	Total	Basic	Service	Retail	Total
4657	63	1	2	66	179	277	103	559
4658	6	87	3	96	6	87	3	96
4659	162	180	73	415	230	255	104	589
4661	74	0	0	74	373	0	0	373
4662	0	0	0	0	0	298	616	914
4664	0	15	78	93	0	40	208	248
4665	0	34	57	91	0	42	70	112
4666	146	0	35	181	223	0	53	276
4667	674	162	302	1,138	730	345	783	1,858
4669	0	60	59	119	0	69	68	137
4671	71	151	86	308	90	192	109	391
4677	127	468	132	727	153	2,063	359	2,575
4678	293	202	158	653	366	252	197	815
4724	420	93	101	614	559	124	134	817
Total	2,036	1,453	1,086	4,575	2,909	4,044	2,807	9,760

Service Area 4								
	2017				2027			
TAZ ID	Basic	Service	Retail	Total	Basic	Service	Retail	Total
2781	0	145	48	193	0	145	48	193
4638	0	20	80	100	0	20	80	100
4643	15	82	84	181	15	82	84	181
4644	56	161	428	645	56	161	428	645
4647	0	0	0	0	0	0	0	0
4648	0	0	0	0	0	0	0	0
4649	0	130	47	177	0	131	47	178
4650	0	0	0	0	0	0	209	209
4652	0	30	25	55	0	30	25	55
4653	0	0	0	0	0	0	0	0
4655	0	0	0	0	0	0	0	0
4656	0	0	0	0	0	0	0	0
4657	31	1	1	33	88	2	391	481
4662	0	0	0	0	0	457	229	686
Total	102	569	713	1,384	159	1,028	1,541	2,728

Water/Wastewater Population Demographic Summary (persons)

TAZ ID	2017	2027	Buildout
2782	1,368	1,464	3,246
2785	10	65	796
4638	932	1,053	1,169
4643	0	116	7,776
4645	1,276	1,598	1,598
4646	2,477	2,942	3,411
4647	3,482	3,999	4,616
4648	0	2,320	2,830
4649	4,559	4,648	4,729
4650	1,575	2,410	2,410
4651	7,147	7,608	7,631
4652	56	383	8,680
4653	0	402	6,022
4655	0	1,269	6,381
4656	0	2,200	2,727
4657	0	7,182	10,392
4658	2,599	3,547	3,547
4659	5,772	6,866	6,866
4660	6,587	6,980	7,405
4661	10	490	490
4662	0	7,740	12,960
4663	1,158	1,438	1,956
4664	2,105	5,086	5,086
4665	3,978	4,011	4,599
4666	770	1,357	1,357
4667	576	1,881	2,331
4668	1,026	1,026	1,049
4669	2,153	2,247	2,395
4670	552	690	1,015
4671	1,573	1,648	2,256
4672	1,393	1,580	1,777
4673	502	1,009	1,129
4674	974	974	1,065
4675	1,750	1,750	2,129
4676	2,336	2,633	3,155
4677	32	248	248
4678	2,981	3,310	4,987

TAZ ID	2017	2027	Buildout
4679	142	142	194
4680	2,492	2,808	3,289
4681	1,694	1,694	3,004
4682	1,943	1,943	3,050
4683	3,307	3,486	3,770
4684	1,082	1,132	1,213
4687	2,171	2,193	2,494
4688	3,913	4,175	4,456
4689	60	96	1,369
4690	3,742	3,852	4,782
4691	6,684	6,926	7,027
4692	3,197	3,400	3,638
4693	738	988	2,222
4694	4,341	4,789	6,279
4695	324	335	560
4696	1,161	1,363	1,626
4697	496	664	1,480
4698	2,312	3,312	6,360
4699	3,343	5,833	8,331
4700	719	1,069	1,469
4702	397	571	1,707
4703	471	769	1,639
4704	1,539	1,624	1,761
4705	3,350	3,367	3,162
4706	2,457	2,588	3,295
4707	49	71	227
4708	3,836	4,817	6,219
4724	2,179	2,644	4,743
4725	791	793	878
4726	197	207	191
4727	842	1,023	1,000
4728	980	1,248	1,451
4729	2,623	2,732	2,695
4730	1,262	1,289	1,667
4731	1,488	2,153	2,597
4732	473	478	468
4764	730	759	1,118
Total	**129,234**	**173,503**	**243,647**

Water/Wastewater Employment Demographic Summary (employees)

	2017				2027				Build-out			
TAZ ID	Basic	Service	Retail	Total	Basic	Service	Retail	Total	Basic	Service	Retail	Total
2779	37	5,093	919	6,049	37	5,093	919	6,049	40	5,363	919	6,322
2781	0	145	48	193	0	145	48	193	0	152	48	200
2782	13	31	289	333	13	31	289	333	13	31	289	333
2785	0	6	24	30	0	19	78	97	0	19	334	353
4638	0	20	80	100	0	20	80	100	0	20	80	100
4643	15	82	84	181	15	82	84	181	15	82	84	181
4644	56	161	428	645	56	161	428	645	56	161	428	645
4645	0	472	14	486	0	488	14	502	0	507	16	523
4646	15	104	323	442	15	106	330	451	39	106	330	475
4647	0	0	0	0	0	0	0	0	0	35	77	112
4648	0	0	0	0	0	0	0	0	361	0	0	361
4649	0	130	47	177	0	131	47	178	0	132	47	179
4650	0	0	0	0	0	0	209	209	0	0	209	209
4651	0	244	141	385	0	259	181	440	102	270	181	553
4652	0	30	25	55	0	30	25	55	7	283	2,790	3,080
4653	0	0	0	0	0	0	0	0	0	0	2,620	2,620
4655	0	0	0	0	0	0	0	0	365	634	479	1,478
4656	0	0	0	0	0	0	0	0	192	247	0	439
4657	94	2	3	99	267	279	494	1,040	273	556	1,172	2,001
4658	6	87	3	96	6	87	3	96	6	87	3	96
4659	162	180	73	415	230	255	104	589	236	276	303	815
4660	46	607	747	1,400	48	617	793	1,458	157	630	793	1,580
4661	148	0	0	148	487	0	0	487	684	1,896	380	2,960
4662	0	0	0	0	0	755	845	1,600	0	2,457	1,924	4,381
4663	9	203	39	251	17	393	76	486	17	494	554	1,065
4664	0	30	156	186	0	57	296	353	0	180	796	976
4665	0	34	57	91	0	42	70	112	47	42	70	159
4666	146	0	35	181	223	0	53	276	223	168	53	444
4667	674	162	302	1,138	730	345	783	1,858	730	781	1,436	2,947
4668	0	148	192	340	0	212	275	487	83	323	443	849
4669	0	60	59	119	0	69	68	137	39	69	68	176
4670	6	59	85	150	9	85	123	217	68	223	123	414
4671	71	151	86	308	90	192	109	391	90	326	109	525
4672	81	146	520	747	83	150	534	767	127	150	534	811
4673	87	144	442	673	112	186	571	869	531	186	571	1,288
4674	0	51	151	202	0	52	153	205	7	52	153	212
4675	251	703	378	1,332	264	719	417	1,400	405	719	417	1,541
4676	170	21	41	232	172	21	41	234	177	21	41	239
4677	127	468	132	727	153	2,063	359	2,575	383	8,363	759	9,505
4678	293	202	158	653	366	252	197	815	535	301	197	1,033
4679	0	2	93	95	0	3	157	160	71	864	1,008	1,943
4680	6	102	330	438	9	150	487	646	19	500	487	1,006
4681	5	653	407	1,065	12	1,574	981	2,567	260	3,778	981	5,019

Water/Wastewater Employment Demographic Summary (employees)

	2017				2027				Build-out			
TAZ ID	Basic	Service	Retail	Total	Basic	Service	Retail	Total	Basic	Service	Retail	Total
4682	10	503	249	762	12	608	301	921	333	608	301	1,242
4683	30	1,868	977	2,875	31	1,920	1,004	2,955	31	2,045	1,004	3,080
4684	17	152	74	243	21	191	93	305	21	191	236	448
4686	0	580	0	580	0	611	0	611	11	635	5	651
4687	0	139	348	487	0	140	350	490	6	140	350	496
4688	19	639	159	817	21	702	175	898	21	702	315	1,038
4689	582	266	787	1,635	635	290	859	1,784	635	290	859	1,784
4690	88	26	65	179	100	30	74	204	100	30	121	251
4691	0	29	128	157	0	58	256	314	6	223	290	519
4692	0	182	338	520	0	182	338	520	0	182	338	520
4693	135	27	66	228	167	33	82	282	246	33	82	361
4694	235	221	97	553	368	346	152	866	581	424	268	1,273
4695	0	1	14	15	0	57	799	856	0	1,880	799	2,679
4696	0	0	67	67	0	0	73	73	14	0	73	87
4697	0	0	17	17	0	0	60	60	49	4	64	117
4698	0	16	172	188	0	45	485	530	11	397	568	976
4699	0	9	47	56	0	20	105	125	3	162	105	270
4700	7	289	103	399	11	434	155	600	15	661	644	1,320
4702	302	6	54	362	352	7	63	422	408	452	160	1,020
4703	172	22	14	208	175	22	14	211	206	22	14	242
4704	48	3	70	121	49	3	72	124	58	3	72	133
4705	0	115	64	179	0	117	65	182	0	128	65	193
4706	0	260	0	260	0	267	0	267	0	283	0	283
4707	0	168	26	194	0	200	31	231	24	868	328	1,220
4708	0	71	69	140	0	85	83	168	5	252	83	340
4709	0	9	56	65	0	10	63	73	0	36	218	254
4724	840	186	202	1,228	1,257	278	302	1,837	1,280	2,276	1,526	5,082
4725	0	174	56	230	0	238	77	315	8	672	110	790
4726	0	78	41	119	0	78	41	119	0	78	41	119
4727	10	210	114	334	12	243	132	387	15	381	132	528
4728	8	143	214	365	9	155	232	396	114	155	232	501
4729	35	534	284	853	38	585	311	934	145	694	311	1,150
4730	101	247	51	399	151	369	76	596	205	573	303	1,081
4731	50	51	59	160	50	51	59	160	50	51	59	160
4732	0	0	0	0	0	0	0	0	0	0	0	0
4764	0	0	0	0	0	0	0	0	0	0	0	0
Total	**5,207**	**17,957**	**11,993**	**35,157**	**6,873**	**23,498**	**17,703**	**48,074**	**10,959**	**47,015**	**32,382**	**90,356**