

## II. LAND USE ASSUMPTIONS

### A. Purpose and Overview

In order to assess an impact fee, Land Use Assumptions must be developed to provide the basis for residential 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, and development in the service area. The land use assumptions are then used in determining the need and timing of transportation improvements to serve future development.

In accordance with Chapter 395, information from the following sources was compiled to complete the land use assumptions:

- City of Fort Worth 2013 Transportation Impact Fee Study
- City of Fort Worth Comprehensive Plan
- Tarrant County Appraisal District (TAD)
- Denton County Appraisal District (DCAD)
- Parker County Appraisal District (PCAD)
- North Central Texas Council of Governments (NCTCOG)
- City of Fort Worth staff

The Land Use Assumptions include the following components:

- **Land Use Assumptions Methodology** – An overview of the general methodology used to generate the land use assumptions.
- **Transportation Impact Fee Service Areas** – Explanation of the division of Fort Worth into service areas for transportation facilities.
- **Residential and Employment**– Data on residential and employment growth within the service area over the next ten years (2017 – 2027).
- **Land Use Assumptions Summary** – A synopsis of the land use assumptions.

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

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

*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 which 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 offices.

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

The above categories are used in the development of the assumptions for impact fees; however, expanded classifications used in the assessment of impact fees are found in the Land Use / Vehicle-Mile Equivalency Table.

## **B. Land Use Assumptions Methodology**

The residential and non-residential growth projections formulated in this report were performed 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);
- Growth trends;
- Location of vacant land;
- Physical restrictions (i.e. flood plains, railroads); and
- Physical carrying capacity of Fort Worth.

The following was the process used to develop the land use assumptions:

**Step 1: Determine Base Year (2017)**

Existing residential and employment estimates were obtained using the 2013 Transportation Impact Fee Study, recent building permit data (2012 – 2017), and an aerial survey of existing development. For single-family and multi-family residential units, the number of units were simply counted from the building permit data. However, if the number of multi-family units was not available through the inventory, a density calculation was performed based on the building permit's livable building square footage. A conversion of square footage per unit was utilized to determine the number of units.

To estimate employment square footage, the livable building square footage data were utilized. Building footprint data and aeriels were utilized to supplement the building square footage if the building permit data lacked square footage information.

**Step 2. Determine Carry Capacity (Growth Potential)**

For the remaining undeveloped areas, assumptions based upon the City's Future Land Use Map (**Exhibit 2**) were used to estimate the carrying capacity or growth potential of land within the Transportation Impact Fee study area for both residential and employment land uses. The carrying capacity was calculated in three basic steps.

- 1) Determine the future land use for study area parcels based on previous planning efforts completed by the City.
- 2) Determine the amount of dwelling units and employment building space that could occupy every parcel – i.e. the parcel's "Carrying Capacity" – based on the future land use development types.
- 3) Identify parcels that are either vacant aggregate those parcels' carrying capacity with the existing dwelling units and employment space on the remaining parcels to generate an estimated growth potential to compare to the 10-year growth forecast.

### **Step 3. Determine 10-Year Growth Projections**

As a basis for determining the 10-year growth projections, recent plats (preliminary and final) and Pre-Development Conferences (PDCs) were obtained from City staff. This information was used to identify areas of growth in each service area. The Fort Worth Comprehensive Plan land use in the identified growth areas was used in combination with the plats, PDCs and reasonable density estimates to determine the number of dwelling units and square feet of employment over the next ten years. Following completion of the 10-year growth projections, discussions were held with representatives from involved City departments (Planning and Development & Transportation and Public Works) to verify the identified growth areas and to refine future land use categories in each service area. In some service areas where rapid growth is anticipated, residential projections were adjusted to reflect growth similar to or slightly more aggressive than the growth trend over the previous ten years (2007-2017).

### **Step 4. Compare to Historic Growth and Regional Growth Projections**

Research of historical building permits was performed to compare the projected ten-year growth to the year 2027 with previous growth trends in the City of Fort Worth over the last ten years. During the last ten years, approximately 48,097 residential units and 48.7 million square feet of employment were developed. In addition, regional growth projections show an estimated ten-year growth of 50,926 residential units by 2027. It is projected that the next ten years of development will be reasonably close to these estimates.

## **C. Transportation Impact Fee Service Areas**

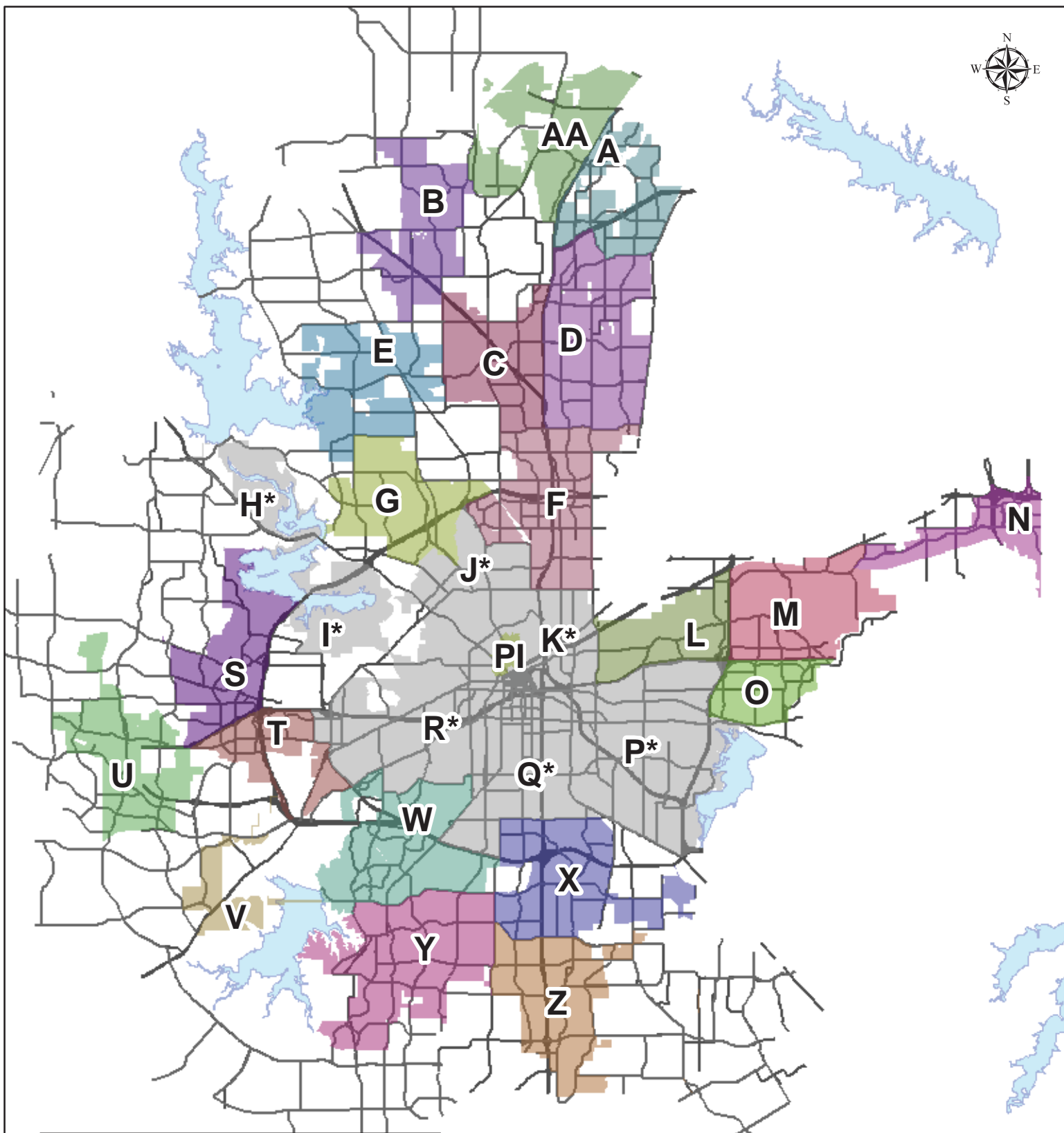
The geographic boundary of the proposed impact fee service areas for transportation facilities is shown in **Exhibit 1**. The service areas in the 2017 Transportation Impact Fee Study are consistent with those in the previous Transportation Impact Fee Study, with only slight modifications necessary in order to include annexations occurring since the previous study. The City of Fort Worth is divided into twenty-seven (28) service areas, each based upon the six (6) mile limit as required in Chapter 395. For transportation facilities, the service areas are limited to those areas within the current corporate limits. Therefore, areas within the extraterritorial jurisdiction (ETJ) (as of January 31, 2017) are excluded from this study. No impact fees may be collected in seven (7) of these Service Areas because no

capacity related transportation improvement projects have been designated. These seven (7) service areas were not analyzed in the 2017 Transportation Impact Fee Study.

It should be noted that at locations where service area boundaries follow a City thoroughfare facility, the proposed boundary is intended to follow the centerline of the roadway, unless otherwise noted. In cases where a service area boundary follows the City Limits, only those portions of the transportation facility within the City Limits are included in the service area.

#### **D. Residential and Employment**

Population and employment estimates for the base year (2017) were performed based upon the existing estimates in the 2013 Transportation Impact Fee Study, recent building permit data, and aerial verification. Build-out projections were prepared by combining the existing land uses within the service area with reasonable density assumptions for undeveloped land based upon the currently adopted Future Land Use Plan. Ten-year growth projections were prepared based upon consultation with City staff and analysis of submitted plat information regarding the approximate portion of currently vacant property that will be developed by 2027. **Exhibit 2** presents the existing City limits and the proposed service areas, combined with the Future Land Use Plan (as currently adopted). **Table 1** summarizes the residential and employment projections within the City of Fort Worth for 2017, 2027, and the physical Carrying Capacity of Fort Worth.



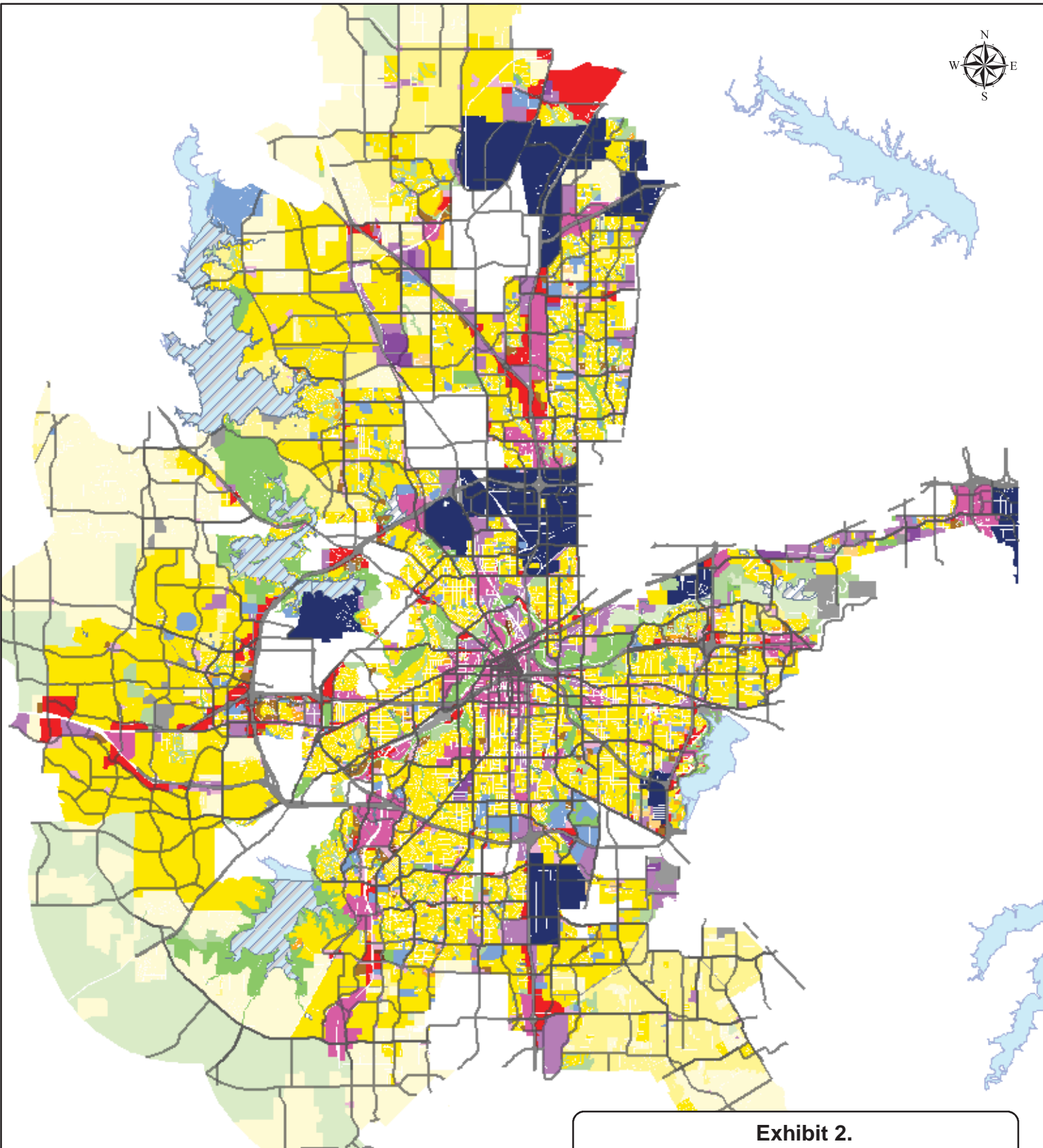
**Legend**

A	G	T	*Non-Impact Fee Eligible
AA	L	U	
B	M	V	
C	N	W	
D	O	X	
E	PI	Y	
F	S	Z	

**Exhibit 1.**  
**2017 Transportation Impact Fee Study**  
**Service Areas**

0 2 4 6  
Miles

November 2017



Legend					
	Vacant, Undeveloped, Agricultural		Medium Density Residential		Mixed-Use Growth Center
	Rural Residential		High Density Residential		Industrial Growth Center
	Urban Residential		Institutional		Infrastructure
	Suburban Residential		Neighborhood Commercial		100 Year Flood Plain
	Single Family Residential		General Commercial		Public Park, Recreation, Open Space
	Manufactured Housing		Light Industrial		Private Park, Recreation, Open Space
	Low Density Residential		Heavy Industrial		

**Exhibit 2.**  
**2017 Transportation Impact Fee Study**  
**Future Land Use Plan**

0 2 4 6  
Miles

**FORT WORTH**

**November 2017** **Kimley»Horn**

**Table 1. Residential and Employment 10-Year Projections**

Service Area	Year	Dwelling Units	Employment (Square Feet)			
			Basic	Service	Retail	Total
A	2017	10,618	7,325,000	1,163,000	59,000	8,547,000
		77%	46%	26%	3%	38%
	2027	12,274	9,800,000	2,523,000	1,369,000	13,691,000
		90%	62%	56%	67%	61%
Carrying Capacity	13,701	15,818,000	4,480,000	2,055,000	22,354,000	
AA	2017	2,411	10,262,000	3,019,000	8,428,000	21,710,000
		37%	45%	45%	80%	54%
	2027	4,204	16,264,000	4,808,000	9,852,000	30,924,000
		97%	71%	72%	93%	77%
Carrying Capacity	6,509	22,993,000	6,648,000	10,564,000	40,205,000	
B	2017	3,535	1,608,000	1,013,000	389,000	3,011,000
		12%	36%	37%	15%	31%
	2027	6,643	3,210,000	1,483,000	779,000	5,472,000
		37%	73%	54%	30%	56%
Carrying Capacity	30,444	4,416,000	2,745,000	2,571,000	9,732,000	
C	2017	10,130	1,505,000	636,000	1,034,000	3,175,000
		51%	40%	32%	18%	28%
	2027	19,218	3,076,000	1,634,000	5,231,000	9,941,000
		97%	82%	81%	91%	87%
Carrying Capacity	19,752	3,735,000	2,010,000	5,731,000	11,476,000	
D	2017	53,664	1,768,000	2,823,000	2,700,000	7,291,000
		82%	48%	55%	41%	47%
	2027	65,061	3,108,000	4,745,000	6,126,000	13,979,000
		99%	85%	93%	92%	91%
Carrying Capacity	65,672	3,670,000	5,092,000	6,652,000	15,414,000	
E	2017	5,074	901,000	202,000	305,000	1,408,000
		17%	21%	20%	27%	22%
	2027	8,415	1,189,000	505,000	908,000	2,602,000
		54%	28%	50%	80%	41%
Carrying Capacity	29,968	4,230,000	1,017,000	1,128,000	6,375,000	
F	2017	16,929	17,232,000	4,371,000	2,551,000	24,155,000
		92%	64%	60%	70%	63%
	2027	17,854	21,076,000	5,612,000	3,192,000	29,880,000
		98%	78%	76%	88%	78%
Carrying Capacity	18,302	27,105,000	7,338,000	3,622,000	38,065,000	



Table 1 (Continued). Residential and Employment 10-Year Projections

Service Area	Year	Dwelling Units	Employment (Square Feet)			
			Basic	Service	Retail	Total
G	2017	9,727	1,321,000	1,288,000	1,240,000	3,850,000
		40%	36%	43%	36%	38%
	2027	14,526	1,966,000	1,657,000	1,837,000	5,460,000
		61%	54%	55%	53%	54%
Carrying Capacity	24,533	3,647,000	3,000,000	3,466,000	10,114,000	
L	2017	4,820	3,284,000	1,346,000	1,181,000	5,811,000
		84%	80%	72%	56%	72%
	2027	4,939	3,438,000	1,441,000	1,318,000	6,197,000
		88%	84%	77%	63%	77%
Carrying Capacity	5,721	4,104,000	1,870,000	2,107,000	8,081,000	
M	2017	10,517	1,193,000	1,279,000	1,754,000	4,226,000
		63%	70%	53%	55%	58%
	2027	13,460	1,295,000	1,542,000	2,233,000	5,069,000
		87%	76%	64%	71%	70%
Carrying Capacity	16,763	1,695,000	2,396,000	3,162,000	7,254,000	
N	2017	4,428	6,957,000	3,084,000	1,821,000	11,862,000
		67%	76%	74%	64%	73%
	2027	5,597	7,791,000	3,702,000	2,488,000	13,981,000
		85%	85%	88%	87%	86%
Carrying Capacity	6,573	9,144,000	4,189,000	2,851,000	16,185,000	
O	2017	6,079	251,000	387,000	588,000	1,225,000
		70%	90%	49%	40%	48%
	2027	6,472	251,000	436,000	767,000	1,454,000
		77%	90%	56%	52%	58%
Carrying Capacity	8,644	278,000	785,000	1,464,000	2,527,000	
PI	2017	18	1,534,174	0	128,203	1,662,376
		0%	438%	0%	4%	38%
	2027	2,643	1,202,605	228,620	1,036,383	2,467,607
		28%	344%	28%	32%	56%
Carrying Capacity	9,374	350,000	816,500	3,243,500	4,410,000	
S	2017	6,790	17,000	252,000	1,550,000	1,819,000
		32%	9%	31%	34%	32%
	2027	9,140	17,000	482,000	2,743,000	3,242,000
		73%	9%	60%	60%	58%
Carrying Capacity	21,153	189,000	804,000	4,610,000	5,603,000	

Table 1 (Continued). Residential and Employment 10-Year Projections

Service Area	Year	Dwelling Units	Employment (Square Feet)			
			Basic	Service	Retail	Total
T	2017	5,415	495,000	634,000	1,726,000	2,854,000
		76%	38%	56%	52%	50%
	2027	6,127	753,000	794,000	2,253,000	3,800,000
		86%	58%	70%	68%	66%
Carrying Capacity	7,134	1,301,000	1,133,000	3,317,000	5,751,000	
U	2017	3,817	0	0	0	0
		9%	0%	0%	0%	0%
	2027	8,608	470,000	253,000	1,217,000	1,941,000
		21%	30%	41%	60%	46%
Carrying Capacity	41,503	1,552,000	612,000	2,017,000	4,181,000	
V	2017	120	0	0	0	0
		1%	0%	0%	0%	0%
	2027	513	0	3,000	8,000	11,000
		4%	0%	100%	100%	100%
Carrying Capacity	14,140	0	3,000	8,000	11,000	
W	2017	15,244	0	3,519,000	5,560,000	9,079,000
		77%	0%	74%	73%	73%
	2027	15,837	0	3,704,000	5,955,000	9,659,000
		80%	0%	78%	78%	78%
Carrying Capacity	19,808	0	4,766,000	7,619,000	12,384,000	
X	2017	8,328	6,951,000	2,300,000	1,539,000	10,790,000
		64%	54%	55%	53%	54%
	2027	9,526	8,385,000	2,711,000	1,751,000	12,846,000
		73%	66%	64%	60%	65%
Carrying Capacity	13,046	12,759,000	4,205,000	2,930,000	19,894,000	
Y	2017	18,696	344,000	585,000	1,029,000	1,958,000
		41%	73%	24%	11%	16%
	2027	22,531	355,000	1,457,000	7,004,000	8,816,000
		50%	75%	59%	74%	71%
Carrying Capacity	45,172	472,000	2,483,000	9,422,000	12,377,000	
Z	2017	6,185	5,866,000	2,198,000	1,152,000	9,216,000
		31%	61%	52%	23%	49%
	2027	9,730	7,355,000	3,095,000	2,755,000	13,205,000
		49%	76%	73%	56%	70%
Carrying Capacity	19,994	9,632,000	4,241,000	4,947,000	18,820,000	