



**A**PARTMENT **M**ARKET**D**ATA, LLC

**Housing Demand Study  
for  
City of Fredericksburg  
Fredericksburg, Texas**

**Client:**

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Executive Director  
Gillespie County Economic Development  
Commission, Inc.  
302 E. Austin St.  
Fredericksburg, TX 78624**



**APARTMENT MARKETDATA REPORT**

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**HOUSING DEMAND STUDY  
FREDERISCKSBURG, TEXAS**

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# CHAPTER 1

## CONCLUSIVE STATEMENTS AND SUMMARY OF FINDINGS

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### 1.1 - PURPOSE OF THE STUDY

The purpose of this study was to perform a housing analysis for the City of Fredericksburg, Texas. The following study takes into consideration the current housing supply, both single and multi-family, forecast growth of the local demographics, and data supplied by local employers and officials.

### 1.2 – ASSUMPTIONS, CONTINGENCY & LIMITING CONDITIONS

The analysis of the data and the conclusions determined from such an analysis require the making of a number of assumptions and the conclusions drawn are limited by a number of conditions. The reader is strongly encouraged to read these assumptions and limiting conditions.

These conditions are a part of the report. They are preface to any certification, definition, fact or analysis, and are intended to establish as a matter of record that Apartment MarketData's function is to provide and present a housing analysis for the City of Fredericksburg, Texas.

Furthermore, numerous specific minor assumptions required for analysis of data can be found throughout this report. These assumptions and limiting conditions are critical to the study and should be clearly understood by the reader. Therefore, a user of this housing analysis is strongly encouraged to read this report in its entirety in order to fully understand the conclusions reached. All persons and firms reviewing, using or relying on this report in any manner bind themselves to accept these assumptions and limiting conditions.<sup>1</sup>

### 1.3 – SOURCES OF DEMOGRAPHIC DATA

Unless otherwise noted, all demographic data contained within this report were obtained and/or derived from the MapInfo Corporation ([www.mapinfo.com](http://www.mapinfo.com)) and from Ribbon Demographics (HISTA data).

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<sup>1</sup> The Appraisal Institute, Chicago, IL.

## 1.4 – HOUSING DEMAND

The city of Fredericksburg is forecast to continue growing at a moderate rate. Historically, an average of 56 new single family homes have been constructed (Jan. 2015 to June 2017). The forecast of demand based on employment growth suggests that 58 new single family homes and 26 new rental units will be needed to satisfy the anticipated annual growth. Based on the historic absorption of new single family homes, we believe the Employment Growth Methodology gives the most accurate forecast of household growth of the methodologies discussed herein.

### FORECAST HOUSEHOLD GROWTH 2018-2022

<b>Owners/Renters</b>	<b>2018</b>		<b>2019</b>		<b>2020</b>		<b>2021</b>		<b>2022</b>	
<b>Employment Growth</b>	58	26	58	26	58	26	58	26	58	26
<b>AnySite Demos.</b>	39	31	39	31	39	31	39	31	39	31
<b>HISTA Data</b>	41	18	41	18	41	18	41	18	41	18

At the same time, we opine that there is a significant amount of pent-up demand in the market today. Three of the largest area employers, Hill Country Memorial Hospital, Fredericksburg ISD, and HEB Foods have a combined total of 405 employees traveling a significant distance to work within the city. They and other employers report their employees have had a difficult time finding housing within the immediate area. Additionally, local officials report 400-500 jobs that today are unfilled, including 50+ at the hospital and 20+ at HEB Foods.

From the 2015 census data, we see that 67% of the people that work in Fredericksburg did not live within the city. While some of these employees may have chosen to live outside the city, 30% of these commuters traveled more than 25 miles to work in Fredericksburg (i.e. outside Gillespie County).

Given what we know, it is reasonable to expect that some portion of the population that commute to Fredericksburg for employment would choose to live within the city if housing was available that they could afford. However, with the information available, it is impossible to quantify the exact number of people that would make this choice.

## 1.5 – SINGLE AND MULTI-FAMILY PRICE POINTS

As a result of the following analysis, we opine the greatest need for new owner households will be in single family homes with a starting price of \$270,000 to \$280,000. This coincides with the historical average price of homes that will be discussed. At this price point, a household would need to earn an annual income of \$75,000 or greater.

At the same time, we found and significant pent-up demand, increasing home prices, and a decreasing number of days homes remain for sale. These factors are typically seen in a market that is under supplied. Add to this, a significant number of homes have been converted to short-term rental and second homes.

The analysis of renter households showed 64% of renters within the city would be considered low income (earning less than 60% of the Area Median Income). The demographics also revealed that 55% of renters and 23% of home owners spend more than 30% of their monthly income for rent and utilities. These households are considered to be “overburdened”.

The two tables below represent the amount a renter household can affordable to pay in rent, given the household size and annual income. The first table also shows the average rent paid to live in a market rate apartment community in Fredericksburg.

### REDUCED RENTAL RATE BASED ON INCOME OF HOUSEHOLD

<b>RENT</b>	<b>30%</b>	<b>40%</b>	<b>50%</b>	<b>60%</b>	<b>Fred. Avg.</b>
<b>Efficiency</b>	<b>\$314</b>	<b>\$434</b>	<b>\$553</b>	<b>\$673</b>	
<b>1 Bdrm</b>	<b>\$319</b>	<b>\$448</b>	<b>\$576</b>	<b>\$704</b>	<b>\$834</b>
<b>2 Bdrm</b>	<b>\$376</b>	<b>\$530</b>	<b>\$683</b>	<b>\$837</b>	<b>\$890</b>
<b>3 Bdrm</b>	<b>\$427</b>	<b>\$605</b>	<b>\$783</b>	<b>\$960</b>	<b>\$1,219</b>
<b>4 Bdrm</b>	<b>\$479</b>	<b>\$678</b>	<b>\$876</b>	<b>\$1,074</b>	

(Excluding Utilities)

**INCOME LIMITS BASED ON HOUSEHOLD SIZE  
AND AREA MEDIAN INCOME**

<b>INCOME LIMITS</b>	<b>30%</b>	<b>40%</b>	<b>50%</b>	<b>60%</b>
<b>1 Person</b>	<b>\$14,370</b>	<b>\$19,160</b>	<b>\$23,950</b>	<b>\$28,740</b>
<b>2 Person</b>	<b>\$16,410</b>	<b>\$21,880</b>	<b>\$27,350</b>	<b>\$32,820</b>
<b>3 Person</b>	<b>\$18,450</b>	<b>\$24,600</b>	<b>\$30,750</b>	<b>\$36,900</b>
<b>4 Person</b>	<b>\$20,490</b>	<b>\$27,320</b>	<b>\$34,150</b>	<b>\$40,980</b>
<b>5 Person</b>	<b>\$22,140</b>	<b>\$29,520</b>	<b>\$36,900</b>	<b>\$44,280</b>
<b>6 Person</b>	<b>\$23,790</b>	<b>\$31,720</b>	<b>\$39,650</b>	<b>\$47,580</b>
<b>7 Person</b>	<b>\$25,410</b>	<b>\$33,880</b>	<b>\$42,350</b>	<b>\$50,820</b>
<b>8 Person</b>	<b>\$27,060</b>	<b>\$36,080</b>	<b>\$45,100</b>	<b>\$54,120</b>

Given the design of a typical affordable rental community, we would opine that renters earning \$11,520 to \$47,580 would be income qualified to live at such a project. The demographics account for 798 households living within the city of Fredericksburg, and an additional 693 households living within Gillespie County that would be income qualified. An additional 191 renter households would need some other type of public assistance (Section 8 voucher) in order to qualify to live at an “affordable” project of this type. Finally, 559 renter households earn an income greater than the maximum allowed.

**1.6 - SUMMARY**

The need for additional housing is apparent. The difficulty is providing single family homes at a price that is economically feasible and at the same time affordable for area employees. Most working households earning less than \$75,000 will need two incomes to be able to purchase a typical single family home.

In the alternative, employees of the area may choose to rent rather than own. Today, rental households make up 32% of the households in Fredericksburg. The demographics report 1,647 renters in the market today. There are 629 units in buildings with 5 or more units. The remaining 1,000+ units are made up of single family homes (70%), duplexes/fourplexes (20%), and mobile homes (10%).

Our survey of 9 apartment communities reported an occupancy rate of 95.9%. Only 23 units were reported vacant in our survey. This limited supply of rental housing falls well short of meeting the need for affordably priced housing to meet the needs of the area’s workforce. With limited housing alternatives and growing employment opportunities elsewhere, area employers will find it ever more challenging to staff open positions.

# CHAPTER 2

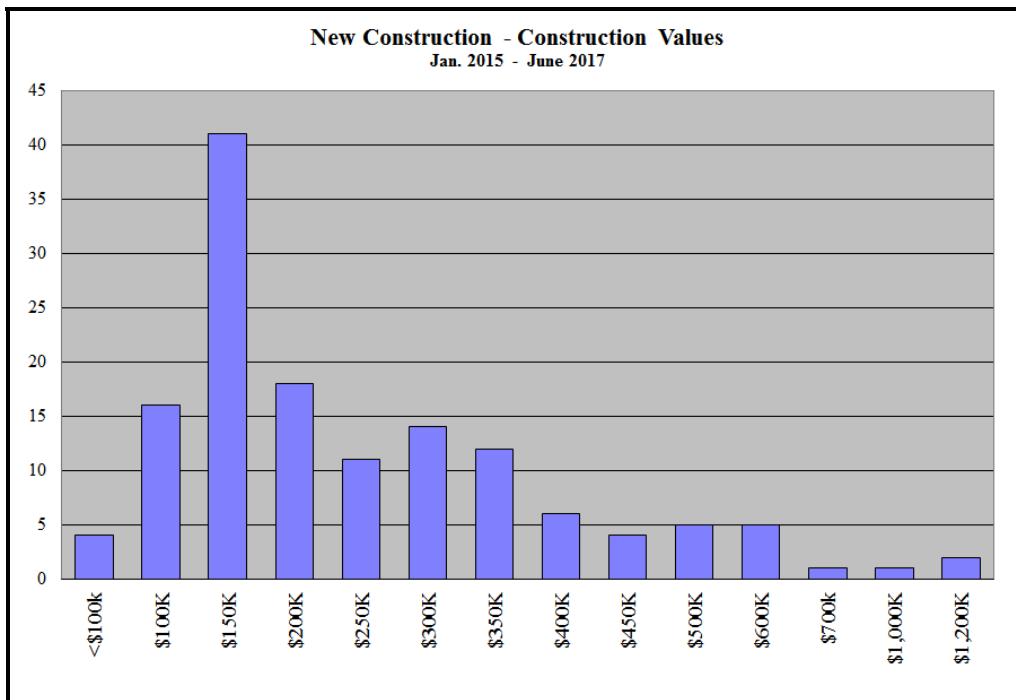
## HOUSING STOCK AND PRICE POINTS

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### 2.1 – HOME OWNERSHIP AND AREA WAGES

The greatest contributing factor to home ownership is household earnings. Building permit data provided by the City of Fredericksburg shows that 140 single family homes were permitted January 2015 to June 2017. Of these new homes, the median construction value was \$202,000; with the average value of \$280,000 (i.e. excluding lot value).

#### NEW SINGLE FAMILY CONSTRUCTION – CONSTRUCTION VALUES

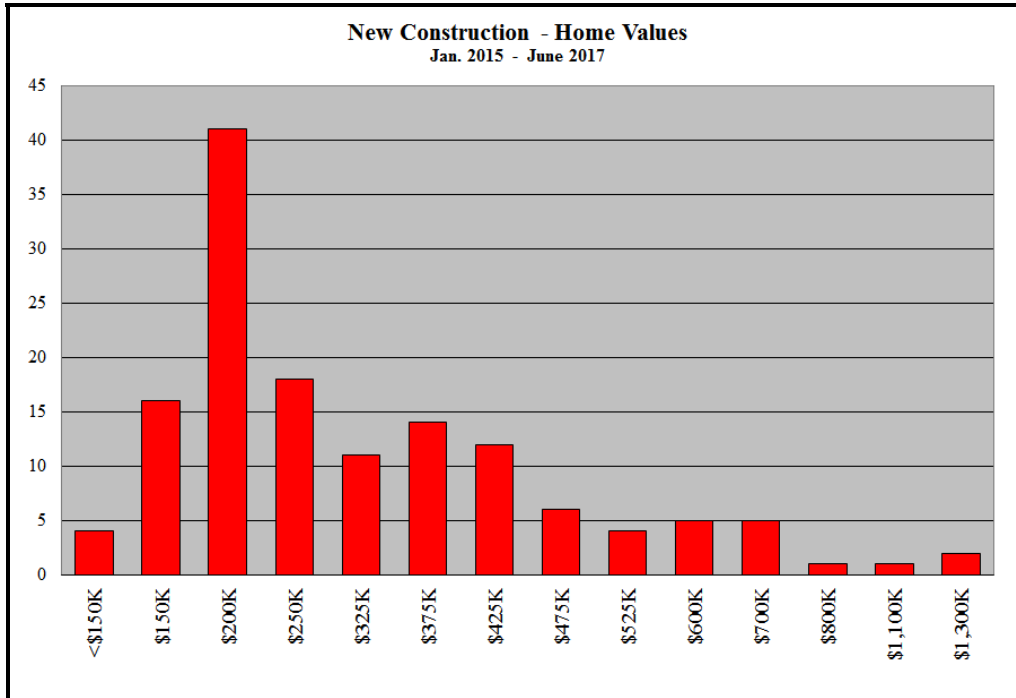


The total value for the homes would have to include the value of the lot under the structure. The chart below assumes a lot value of \$50,000 for structures costing less than \$200,000, \$75,000 for structures costing \$200,000 to \$450,000, and \$100,000 for structures costing over \$500,000.



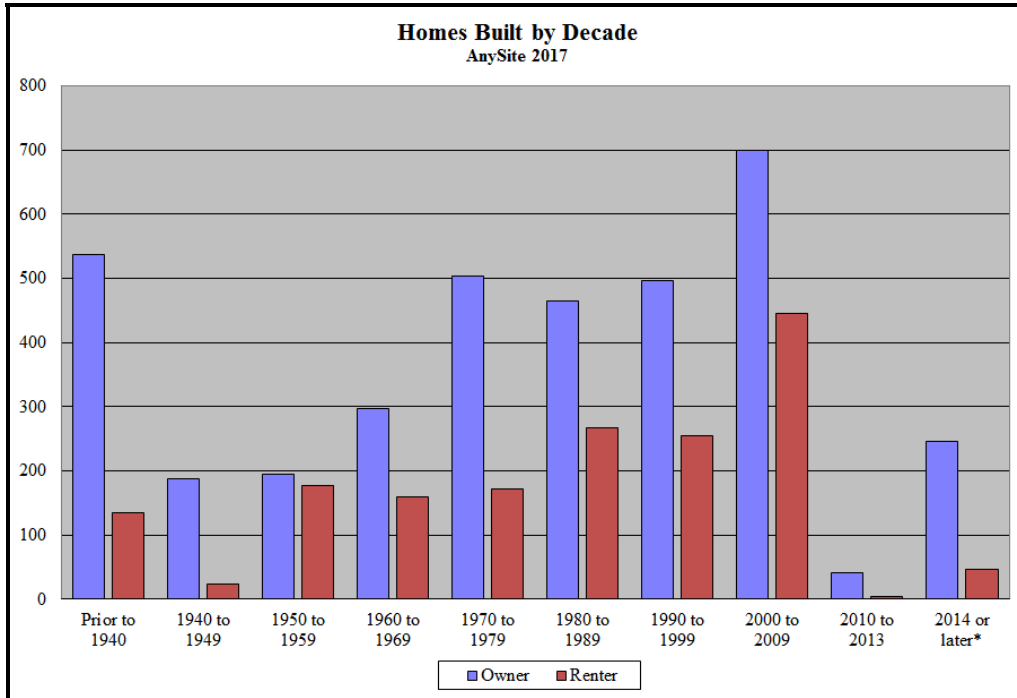
From the chart below, we can see greatest number of new homes constructed were valued from \$200,000 to \$249,000. An equal number of homes were valued from \$250,000 to \$475,000.

### NEW SINGLE FAMILY CONSTRUCTION – HOME VALUES



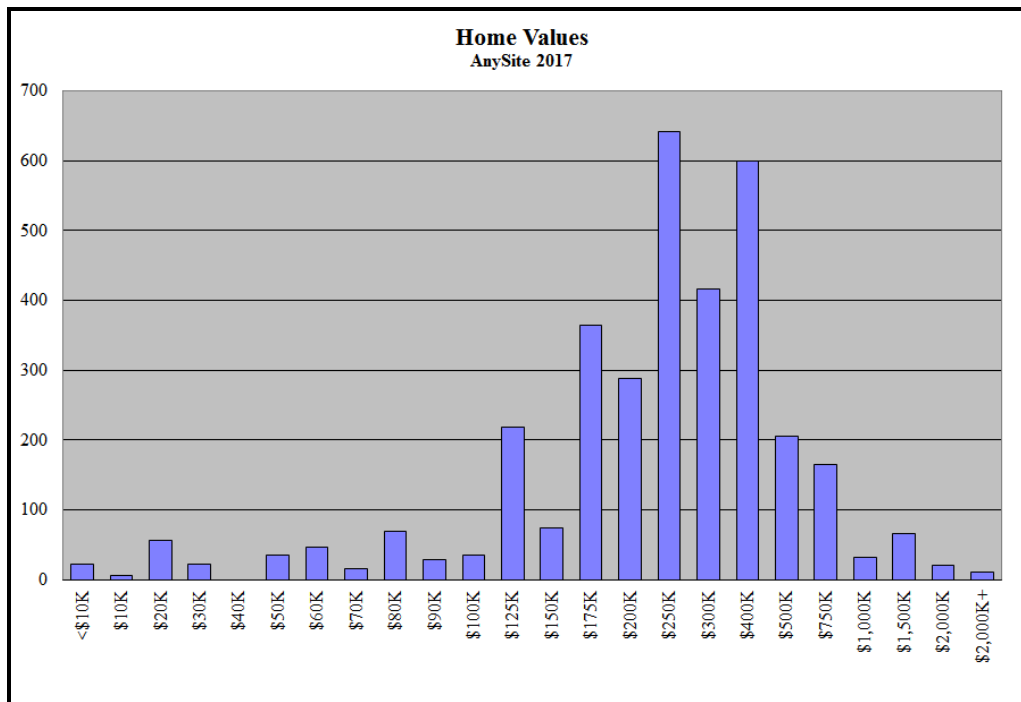
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## HOMES BUILT BY DECADE - DEMOGRAPHICS



\*Indicates USPS New Construction Data (2014-June 2017)

## REPORTED HOME VALUES – DEMOGRAPHICS



Mortgage companies apply a percentage of the annual household income to qualify a household for a home mortgage. This is called the “Mortgage to Income Ratio” (M/I). Depending on a client’s credit score and the lending program, the M/I can vary from 20% to 35%. What this ratio represents is the percentage of a household’s annual income that will be used to pay its mortgage.

Knowing this information can help with forecasting the demand for housing at different price points. By way of example, the table below shows various pay rates for industries in the Fredericksburg area.

	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Average Starting Wage</b>	<b>\$11.25</b>	<b>\$11.79</b>	<b>\$11.83</b>
<b>Average Hourly Wage</b>	<b>\$15.23</b>	<b>\$16.70</b>	<b>\$16.91</b>
<b>Construction Trades</b>	<b>\$19.05</b>	<b>\$19.07</b>	<b>\$21.45</b>
<b>Lodging</b>	<b>\$12.94</b>	<b>\$13.33</b>	<b>\$14.58</b>
<b>Manufacturing</b>	<b>\$13.32</b>	<b>\$13.38</b>	<b>\$13.73</b>
<b>Retail</b>	<b>\$13.04</b>	<b>\$13.33</b>	<b>\$14.52</b>
<b>Wine-Related</b>	<b>\$11.94</b>	<b>\$11.64</b>	<b>\$12.50</b>
<b>Food Service</b>	<b>\$11.95</b>	<b>\$10.17</b>	<b>\$13.25</b>
<b>Financial/Legal</b>	<b>No Data</b>	<b>No Data</b>	<b>\$25.62</b>
<b>Admin./Prof. Services</b>	<b>No Data</b>	<b>\$18.64</b>	<b>\$14.99</b>
<b>Non-Profit</b>	<b>No Data</b>	<b>\$23.08</b>	<b>\$18.05</b>

A monthly mortgage payment consists of four parts – Principal, Interest, Taxes & Insurance (PITI). For the purpose of the following discussion and tables below, the following assumptions have been made.

Interest Rate: 4.25%  
 Period or Term: 30 Years  
 Down Payment: 5%  
 Insurance: 1% of value  
 Taxes: 1.779 mil rate

If one knows the prevailing wages of an area, they can then begin calculating an assumed monthly mortgage payment based on the M/I ratio. The following table calculates the monthly mortgage payment based on an hourly wage and applying a variety of M/I ratios. For example, a household earning an hourly wage of \$15.00 per hour could qualify for a monthly mortgage payment (PITI) of \$780, applying a M/I ratio of 30%.

**MONTHLY (PITI) MORTGAGE PAYMENT  
BASED ON HOURLY WAGE**

<b>Annual</b>	<b>Monthly</b>	<b>Hourly</b>	<b>20%</b>	<b>25%</b>	<b>30%</b>	<b>35%</b>
<b>\$20,800</b>	<b>\$1,733</b>	<b>\$10.00</b>	<b>\$347</b>	<b>\$433</b>	<b>\$520</b>	<b>\$607</b>
<b>\$22,880</b>	<b>\$1,907</b>	<b>\$11.00</b>	<b>\$381</b>	<b>\$477</b>	<b>\$572</b>	<b>\$667</b>
<b>\$24,960</b>	<b>\$2,080</b>	<b>\$12.00</b>	<b>\$416</b>	<b>\$520</b>	<b>\$624</b>	<b>\$728</b>
<b>\$27,040</b>	<b>\$2,253</b>	<b>\$13.00</b>	<b>\$451</b>	<b>\$563</b>	<b>\$676</b>	<b>\$789</b>
<b>\$29,120</b>	<b>\$2,427</b>	<b>\$14.00</b>	<b>\$485</b>	<b>\$607</b>	<b>\$728</b>	<b>\$849</b>
<b>\$31,200</b>	<b>\$2,600</b>	<b>\$15.00</b>	<b>\$520</b>	<b>\$650</b>	<b>\$780</b>	<b>\$910</b>
<b>\$41,600</b>	<b>\$3,467</b>	<b>\$20.00</b>	<b>\$693</b>	<b>\$867</b>	<b>\$1,040</b>	<b>\$1,213</b>
<b>\$52,000</b>	<b>\$4,333</b>	<b>\$25.00</b>	<b>\$867</b>	<b>\$1,083</b>	<b>\$1,300</b>	<b>\$1,517</b>

With the information above, we can then convert a monthly mortgage payment into the present value of that mortgage. The following table calculates the mortgage amount based on an hourly wage and applying a M/I ratio. In the same example, a household earning an hourly wage of \$15.00 per hour would be able to qualify for a mortgage in the amount of \$115,149 applying a M/I ratio of 30%.

**HOME VALUE  
BASED ON HOURLY WAGE**

<b>Annual</b>	<b>Monthly</b>	<b>Hourly</b>	<b>20%</b>	<b>25%</b>	<b>30%</b>	<b>35%</b>
<b>\$20,800</b>	<b>\$1,733</b>	<b>\$10.00</b>	<b>\$51,168</b>	<b>\$63,960</b>	<b>\$76,752</b>	<b>\$89,543</b>
<b>\$22,880</b>	<b>\$1,907</b>	<b>\$11.00</b>	<b>\$56,305</b>	<b>\$70,381</b>	<b>\$84,458</b>	<b>\$98,534</b>
<b>\$24,960</b>	<b>\$2,080</b>	<b>\$12.00</b>	<b>\$61,413</b>	<b>\$76,766</b>	<b>\$92,120</b>	<b>\$107,473</b>
<b>\$27,040</b>	<b>\$2,253</b>	<b>\$13.00</b>	<b>\$66,521</b>	<b>\$83,151</b>	<b>\$99,781</b>	<b>\$116,412</b>
<b>\$29,120</b>	<b>\$2,427</b>	<b>\$14.00</b>	<b>\$71,658</b>	<b>\$89,573</b>	<b>\$107,488</b>	<b>\$125,402</b>
<b>\$31,200</b>	<b>\$2,600</b>	<b>\$15.00</b>	<b>\$76,766</b>	<b>\$95,958</b>	<b>\$115,149</b>	<b>\$134,341</b>
<b>\$41,600</b>	<b>\$3,467</b>	<b>\$20.00</b>	<b>\$102,365</b>	<b>\$127,956</b>	<b>\$153,547</b>	<b>\$179,139</b>
<b>\$52,000</b>	<b>\$4,333</b>	<b>\$25.00</b>	<b>\$127,934</b>	<b>\$159,917</b>	<b>\$191,901</b>	<b>\$223,884</b>

Because of land, construction, and other costs, it is nearly impossible to develop a conventional home at this price point. Market conditions dictate that there would have to be a second wage earner in the scenario described above.

## 2.2 – FORECAST OWNER HOUSEHOLD DEMAND

In section 3.3.1 of this report, the forecast number of new owner households is calculated and detailed by age and income. This forecast depicted in the table below predicts fewer households earning less than \$30,000 at all age levels. Fewer households are also forecast for households earning less than \$60,000 and under 62 years of age. Forecast growth of home owners is limited to households earning \$60,000+ at all age levels, and seniors (62+) earning over \$30,000 annually.

### OWNER HOUSEHOLD GROWTH – 2018 to 2022

OWNER HH 2018 - 2022	TOTAL			
	Age <55	Age 55-61	Age 62+	TOTAL
< \$ 10,000	-2	-3	-2	-8
\$ 10,000 - \$ 19,999	-7	-7	-16	-30
\$ 20,000 - \$ 29,999	-13	-6	7	-11
\$ 30,000 - \$ 39,999	0	0	26	26
\$ 40,000 - \$ 49,999	-7	-4	13	2
\$ 50,000 - \$ 59,999	-4	-2	8	2
\$ 60,000+	50	13	160	223
<b>TOTAL</b>	<b>17</b>	<b>-10</b>	<b>198</b>	<b>205</b>

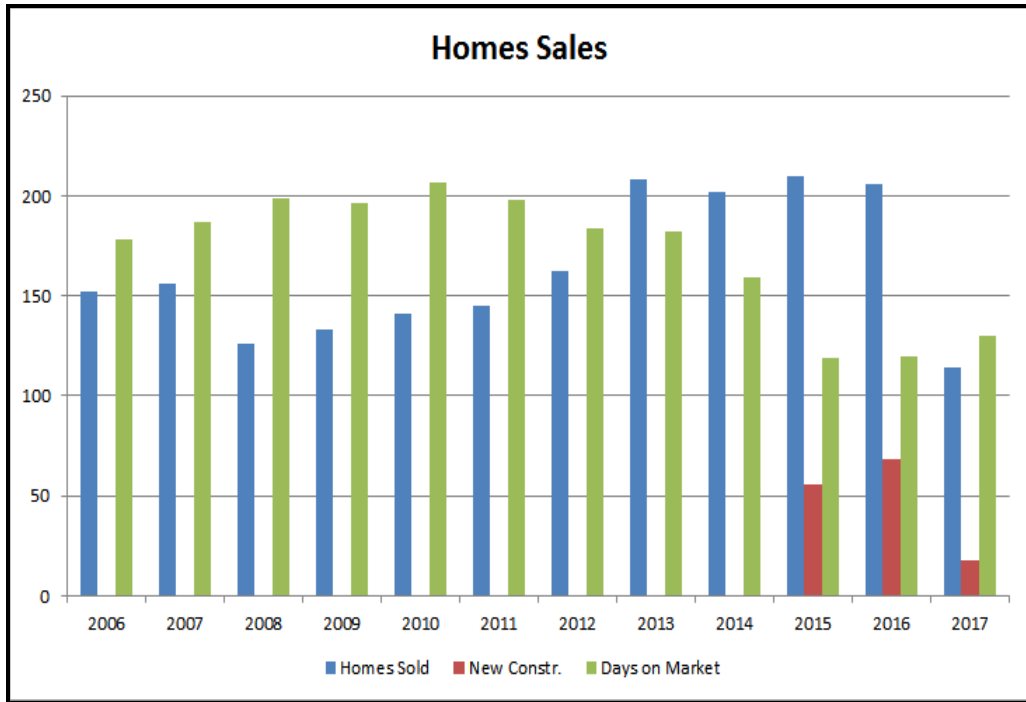
As a result of this forecast, we opine the greatest need for new owner households will be in single family homes with a starting price of \$270,000 to \$280,000. This coincides with the historical average price of homes discussed previously. At this price point, a household would need to earn an annual income of \$75,000 or greater.

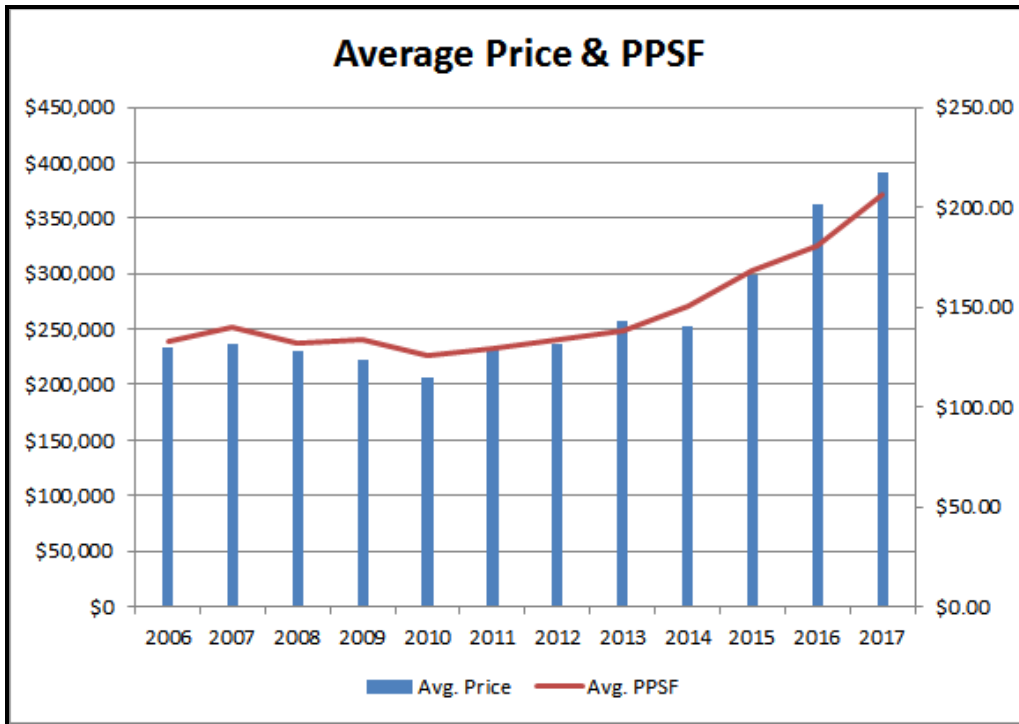
### HOME VALUE BASED ON HOURLY WAGE

Annual	Monthly	Hourly	20%	25%	30%	35%
\$ 60,000	\$5,000	\$28.85	\$147,627	\$184,534	\$221,441	\$258,348
\$ 65,000	\$5,417	\$31.25	\$159,930	\$199,912	\$239,895	\$279,877
\$ 70,000	\$5,833	\$33.65	\$172,232	\$215,290	\$258,348	\$301,406
\$ 75,000	\$6,250	\$36.06	\$184,534	\$230,668	\$276,802	\$322,935
\$ 80,000	\$6,667	\$38.46	\$196,837	\$246,046	\$295,255	\$344,464

### 2.3 – WORKFORCE HOUSING DEMAND

While the demographic forecast suggests that the greatest home owner need will be age 62 and greater, there is no denying the need for workforce housing. Of the three forecast methodologies that will be discussed in this study, the Employment Growth Methodology forecast most closely resembles the historical single family absorption. With this in mind, the U.S Department of Labor reports that Fredericksburg added 932 jobs (2013 to Sept 2017), averaging 186 jobs annually. With new home construction averaging 56.8 annually, this job growth has put upward pressure on home prices and rental rates.





The charts above show graphically the effects job growth has had on the home ownership market, with increasing home sales, decreasing days on the market, and increasing sales prices as well as price per square foot (PPSF). These factors are typically seen in a market that is under supplied.

*An additional factor adding to the upward pressure of home prices are the number of single family homes that have been converted to short-term rental and second homes. These property owners contribute more to the local tax base as homestead exemptions are removed, but drive the overall price of homes in the market up.*

## 2.4 – RENTAL HOUSING FOR LOWER WAGE EARNERS

Every community has residents at the low end of the economic scale. These people serve a vital part of the community filling low skill and low paying jobs that are critical to area employers and others that rely on the services they provide.

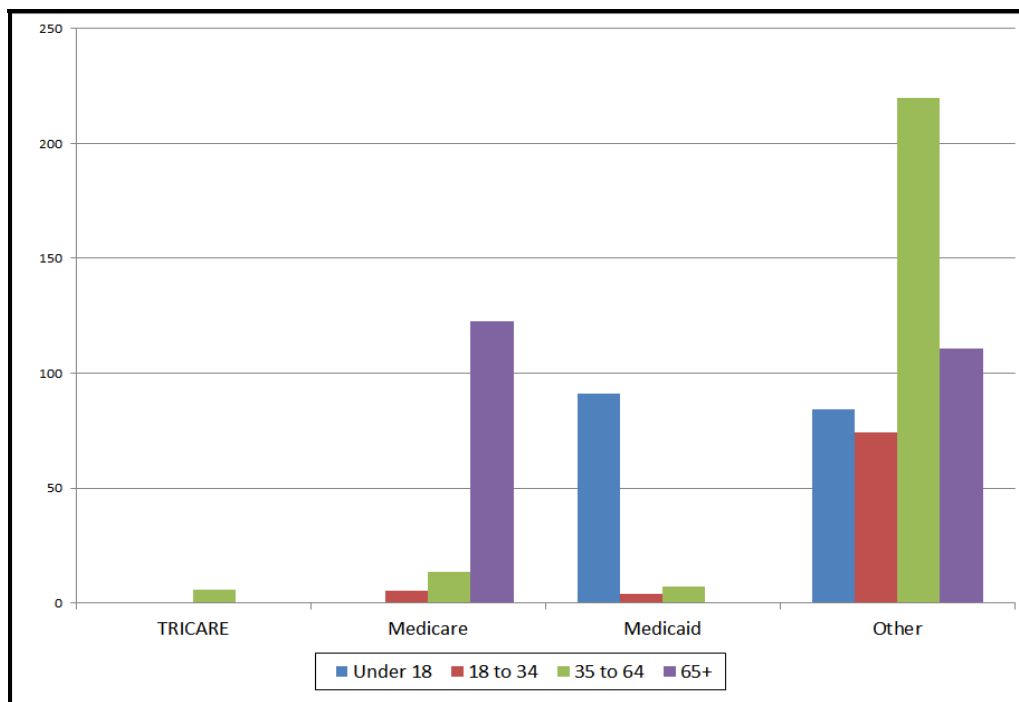
The U.S. Department of Housing and Urban Affairs (HUD) defines low income as a household earning less than 60% of the area median income (AMI). This income is on a sliding scale based on the number of people within the household. The following table depicts the income levels based on the household size. Anyone earning less than the income shown in the table would be considered low income by HUD. These incomes are based on the area median income of Gillespie County (\$68,300).

	1-Person	2-Person	3-Person	4-Person	5-Person	6-Person
<b>60% AMI</b>	<b>\$28,740</b>	<b>\$32,820</b>	<b>\$36,900</b>	<b>\$40,980</b>	<b>\$44,280</b>	<b>\$47,580</b>

Based on the definition above, there are 1,171 owner and 989 renter households within the city of Fredericksburg that would be considered low income. Of these households, 34% are senior households (age 55+).

One of the federal programs designed to assist low income households uses low income housing tax credit (LIHTC) as part of its financing structure. Within the city of Fredericksburg, there are three senior (175 units) and two family (132 units) rental communities that serve these low income wage earners. In total, these five communities account for 307 rental units.

Another way of understanding the depth of a community's low income wage earners is to study the providers of health insurance. The table below shows more than 50% of the children reported qualify for Medicaid benefits. Seniors age 65+ also report more than 50% qualifying for Medicare benefits.





### 2.4.1 – Rental Housing Stock

Households that rent, rather than own, make up 32% of the households in Fredericksburg. The demographics report 1,647 renters in the market today. There are 629 units in buildings with 5 or more units; of which AMD surveys 566 units (90%). The remaining 1,000+ units are made up of single family homes (70%), duplexes/fourplexes (20%), and mobile homes (10%).

Our survey of 9 apartment communities reported an occupancy rate of 95.9%. Only 23 units were reported vacant in this survey.

### 2.5 – RENTAL RATES FOR LOW WAGE EARNERS

For the purpose of this discussion, the following refers to households earning less than 60% of the Area Median Income (AMI). For a family of four, this would calculate to an annual household income of \$40,980, or a combined hourly wage of \$19.70.

In the world of “affordable” rental housing (aka workforce housing), developers agree to subscribe to a reduced rental rate based on the county AMI. For Gillespie County, these are based on an area median income of \$68,300.

#### REDUCED RENTAL RATE BASED ON INCOME OF HOUSEHOLD

<b>RENT</b>	<b>30%</b>	<b>40%</b>	<b>50%</b>	<b>60%</b>	<b>Fred. Avg.</b>
<b>Efficiency</b>	<b>\$314</b>	<b>\$434</b>	<b>\$553</b>	<b>\$673</b>	
<b>1 Bdrm</b>	<b>\$319</b>	<b>\$448</b>	<b>\$576</b>	<b>\$704</b>	<b>\$834</b>
<b>2 Bdrm</b>	<b>\$376</b>	<b>\$530</b>	<b>\$683</b>	<b>\$837</b>	<b>\$890</b>
<b>3 Bdrm</b>	<b>\$427</b>	<b>\$605</b>	<b>\$783</b>	<b>\$960</b>	<b>\$1,219</b>
<b>4 Bdrm</b>	<b>\$479</b>	<b>\$678</b>	<b>\$876</b>	<b>\$1,074</b>	

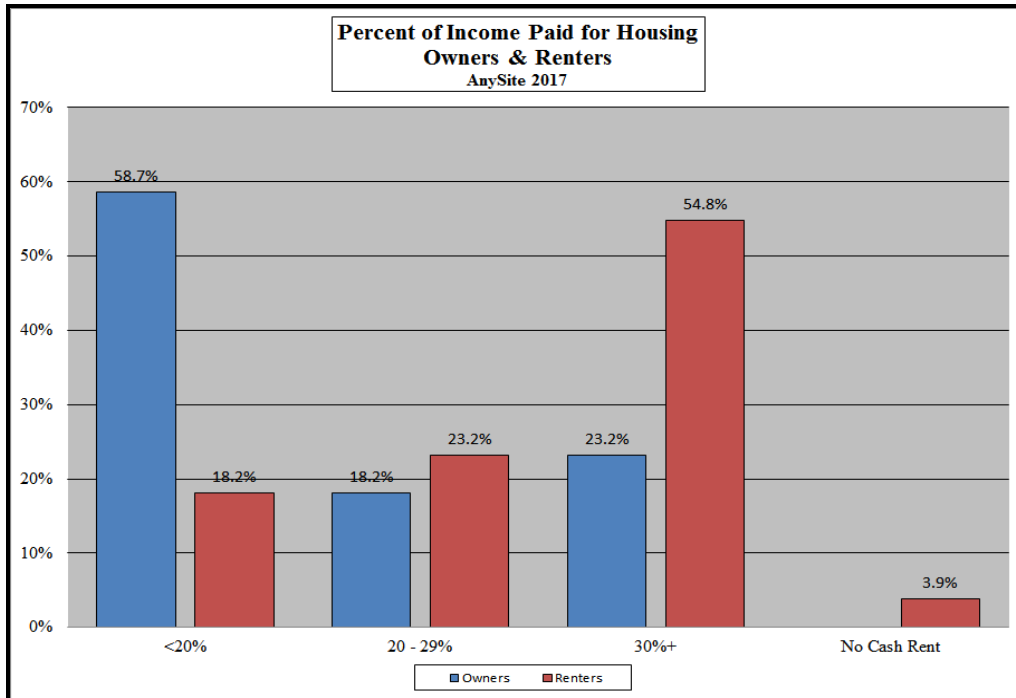
(Excluding Utilities)

Developers also agree that the residents living at their development will not earn more than 60% of the AMI. A sliding income range is applied based on the number of people in the household. The following table shows the maximum incomes based on household size and Area Median Income.

**INCOME LIMITS BASED ON HOUSHOLD SIZE  
AND AREA MEDIAN INCOME**

<b>INCOME LIMITS</b>	<b>30%</b>	<b>40%</b>	<b>50%</b>	<b>60%</b>
<b>1 Person</b>	<b>\$14,370</b>	<b>\$19,160</b>	<b>\$23,950</b>	<b>\$28,740</b>
<b>2 Person</b>	<b>\$16,410</b>	<b>\$21,880</b>	<b>\$27,350</b>	<b>\$32,820</b>
<b>3 Person</b>	<b>\$18,450</b>	<b>\$24,600</b>	<b>\$30,750</b>	<b>\$36,900</b>
<b>4 Person</b>	<b>\$20,490</b>	<b>\$27,320</b>	<b>\$34,150</b>	<b>\$40,980</b>
<b>5 Person</b>	<b>\$22,140</b>	<b>\$29,520</b>	<b>\$36,900</b>	<b>\$44,280</b>
<b>6 Person</b>	<b>\$23,790</b>	<b>\$31,720</b>	<b>\$39,650</b>	<b>\$47,580</b>
<b>7 Person</b>	<b>\$25,410</b>	<b>\$33,880</b>	<b>\$42,350</b>	<b>\$50,820</b>
<b>8 Person</b>	<b>\$27,060</b>	<b>\$36,080</b>	<b>\$45,100</b>	<b>\$54,120</b>

The two tables above represent the amount a renter household can affordable to pay in rent, given the household size and annual income. The mission of the affordable housing program is to provide rental opportunities where residents of the community will not pay more than 30% of their monthly income for rent and utilities. Households paying more than 30% of their monthly income for these are considered to be “overburdened”. Currently, 55% of renters and 23% of home owners living within the city of Fredericksburg are considered to be overburdened.



### **2.5.1 – Income Qualified Renter Households**

Based on the previous discussion and the design of a typical affordable rental community, we would opine that renters earning \$11,520 to \$47,580 would be income qualified to live at such a project. The demographics account for 798 households living within the city of Fredericksburg, and an additional 693 households living within Gillespie County that would be income qualified. An additional 191 renter households would need some other type of public assistance (Section 8 voucher) in order to qualify to live at an “affordable” project of this type. Finally, 559 renter households earn an income greater than the maximum allowed.

Later in Section 4.2 of this report, we will discuss that as many as 5,143 workers commute to Fredericksburg for employment.

# CHAPTER 3

## HOUSEHOLD GROWTH BASED DEMAND

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### 3.1 – AREA POPULATION & DEMOGRAPHICS

The U.S. Census has the population of Fredericksburg growing by 15.2% (2000 to 2010). At the same time, the number of households increased by 20.6%. The population is projected to continue to increase through the year 2022. At that time, the population is expected to be 12,656. This represents an overall increase of 1,076 people, or 348 households (2017-2022).

For our first demand analysis, we will use population and household formation to project future housing demand. This is based on the fact, that in estimating housing, the unit of demand is households. The U.S. Census defines a household as a person or group of persons who occupy a dwelling unit and constitute a single economic unit for the purposes of meeting household expenses. The household may or may not consist of a family. Households are distinguished from groups or individuals who occupy group quarters such as hospitals, military bases, retirement homes, prisons, and dormitories, where individuals are not directly involved in economic decisions for the dwelling unit. Each household, by definition, occupies or needs one housing unit, the basic unit of supply. Therefore, if we know the number of households, we have a measure of aggregate demand for all housing types.

In analyzing housing supply, demand will rarely if ever exceed total supply. When the rate at which the new supply is added slows down or stops, as was the case in Texas for most of the early 1990's, there is a chance to add and absorb new supply. If the "pipeline" for adding residential income properties to a market is twelve months or more, and the demand will consume the supply in a six to twelve month period, a window of time opens to exploit the opportunity of the demand. This is known as a "Gap" in supply and demand.

### 3.2 – POPULATION & HOUSEHOLD GROWTH – Anysite

The Household Growth demand analysis predicts future growth using a statistical analysis from previous census surveys. To determine the future demand for rental housing, we use the following calculations:

$$\frac{\text{Forecast Population}}{\text{Forecast average household size}} = \text{Forecast Number of Households} = \text{Forecast Units of Demand}$$

$$\frac{\text{Forecast Units of Demand}}{\text{x Percentage of Tenure Owner}} = \text{Single Family Housing}$$

$$\frac{\text{Forecast Units of Demand}}{\text{x Percentage of Tenure Renter}} = \text{Multiple Unit Housing}$$

#### 3.2.1 - Estimate of Population and Household Growth

The following table represents the population growth and projections from 2000 through the year 2022.

**ANYSITE FORECAST POPULATION CHANGE  
2000-2022**

<b>YEAR</b>	<b>POPULATION</b>	<b>% Chg.</b>	<b>Annual</b>
<b>2022 Projection</b>	<b>12,656</b>	<b>3.5%</b>	<b>1.8%</b>
<b>2020 Estimate</b>	<b>12,226</b>	<b>5.6%</b>	<b>1.9%</b>
<b>2017 Estimate</b>	<b>11,580</b>	<b>8.6%</b>	<b>1.2%</b>
<b>2010 Census</b>	<b>10,662</b>	<b>15.2%</b>	<b>1.5%</b>
<b>2000 Census</b>	<b>9,259</b>		

### 3.2.2 - Forecasting Owner and Renter Household Demand

The preceding tables delineate the makeup of the households within city of Fredericksburg. By juxtaposing the information with the changes in the forecast population, we can forecast the overall household demand, and finally, the demand that is expected to indicate both owner and renter households. On the household table below, it can be seen that the housing in the sub-market has experienced a growth commensurate with the population. By dividing by the population by the average household size, we derive the number of future households.

The table below shows that as the population has increased, there has been a corresponding increase in demand for housing. This results in further demand for new housing within this sub-market. The household growth analysis is consistent with the information derived from the employment base analysis performed in the following chapter of this report. Thus, by analyzing the trends gleaned from the population and data, we can project the need for additional housing.

#### “HOUSEHOLD FORMATION” 2000 to 2022

<b>YEAR</b>	<b>HOUSEHOLDS</b>	<b>% Chg.</b>	<b>Annual</b>	<b>Avg. Size</b>
<b>2022 Projection</b>	<b>5,436</b>	<b>2.6%</b>	<b>1.3%</b>	<b>2.34</b>
<b>2020 Estimate</b>	<b>5,297</b>	<b>4.1%</b>	<b>1.4%</b>	<b>2.31</b>
<b>2017 Estimate</b>	<b>5,088</b>	<b>6.9%</b>	<b>1.0%</b>	<b>2.28</b>
<b>2010 Census</b>	<b>4,758</b>	<b>20.6%</b>	<b>2.1%</b>	<b>2.24</b>
<b>2000 Census</b>	<b>3,946</b>			<b>2.30</b>

#### OWNER VS. RENTER OCCUPIED HOUSEHOLDS 2000 to 2022

	<b>2000</b>	<b>2010</b>	<b>2017</b>	<b>2022</b>
<b>Owner</b>	<b>2,850</b>	<b>3,209</b>	<b>3,441</b>	<b>3,635</b>
<b>Renter</b>	<b>1,096</b>	<b>1,549</b>	<b>1,647</b>	<b>1,801</b>
<b>Total</b>	<b>3,946</b>	<b>4,758</b>	<b>5,088</b>	<b>5,436</b>
<b>Change in HH</b>		<b>812</b>	<b>330</b>	<b>348</b>

**FORECAST HOUSEHOLD DEMAND CHANGES  
WITHIN THE PRIMARY MARKET AREA**

	<b>2000-2010</b>	<b>2010-2017</b>	<b>2018-2022</b>
<b># Owner Change</b>	<b>360</b>	<b>232</b>	<b>194</b>
<b>% Change</b>	<b>12.6%</b>	<b>7.2%</b>	<b>5.6%</b>
<b># Renter Change</b>	<b>452</b>	<b>98</b>	<b>154</b>
<b>% Change</b>	<b>41.3%</b>	<b>6.3%</b>	<b>9.4%</b>

Based on straight-line delineation of the household growth alone between the years of 2018 to 2022, it can be assessed that Fredericksburg will need an additional 348 housing units.

Thus, our estimate of the growth of the households per year for the trade area, based on the Anysite straight-line forecast delineation and our assessment of the new households in the area, is as follows:

**FORECAST HOUSEHOLD DEMAND TABLE**

<b>YEAR</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>OWNERS</b>	<b>39</b>	<b>39</b>	<b>39</b>	<b>39</b>	<b>39</b>
<b>RENTERS</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>31</b>

**3.3 – POPULATION & HOUSEHOLD GROWTH – HISTA Data**

HISTA demographics provide another source for comparison. The difference between the Anysite and HISTA demographics comes from the end user’s application. The data provided by Anysite includes a variety of general demographic datasets. HISTA data is different in that it was created to provide an additional level of detail not found in the U.S. Census data.

HISTA data comes from a custom four-way cross tabulation of household data designed specifically for housing analysts. It contains actual Census cross tabulations – not extrapolations of SF3 data. The key to this data is that it gives us the number of households by household size by income by age grouping (i.e. <55, 55-62, and 62+ years of age). This breakout is very useful in arriving at a demand by age and income.

### 3.3.1 – Owner Demand Tables

The following tables represent the current number of owner households with the city of Fredericksburg, the forecast growth (2022), and finally the difference between the two.

#### HISTA DATA OWNER HOUSEHOLDS - 2017

OWNER HH 2017	TOTAL			TOTAL
	Age <55	Age 55-61	Age 62+	
< \$ 10,000	2	24	109	135
\$ 10,000 - \$ 19,999	34	20	171	225
\$ 20,000 - \$ 29,999	36	19	280	336
\$ 30,000 - \$ 39,999	9	90	142	241
\$ 40,000 - \$ 49,999	56	50	202	308
\$ 50,000 - \$ 59,999	46	8	115	169
\$ 60,000+	843	287	931	2,061
<b>TOTAL</b>	<b>1,026</b>	<b>499</b>	<b>1,951</b>	<b>3,475</b>

#### HISTA DATA OWNER HOUSEHOLDS - 2022

OWNER HH 2022	TOTAL			TOTAL
	Age <55	Age 55-61	Age 62+	
< \$ 10,000	0	21	107	127
\$ 10,000 - \$ 19,999	27	13	156	196
\$ 20,000 - \$ 29,999	23	14	288	325
\$ 30,000 - \$ 39,999	9	90	169	267
\$ 40,000 - \$ 49,999	49	46	215	310
\$ 50,000 - \$ 59,999	41	6	124	171
\$ 60,000+	893	300	1,091	2,284
<b>TOTAL</b>	<b>1,042</b>	<b>489</b>	<b>2,148</b>	<b>3,680</b>



**OWNER HOUSEHOLD GROWTH – 2018 to 2022**

<b>OWNER HH</b>	<b>TOTAL</b>			
	<b>2018 - 2022</b>	<b>Age &lt;55</b>	<b>Age 55-61</b>	<b>Age 62+</b>
< \$ 10,000	-2	-3	-2	-8
\$ 10,000 - \$ 19,999	-7	-7	-16	-30
\$ 20,000 - \$ 29,999	-13	-6	7	-11
\$ 30,000 - \$ 39,999	0	0	26	26
\$ 40,000 - \$ 49,999	-7	-4	13	2
\$ 50,000 - \$ 59,999	-4	-2	8	2
\$ 60,000+	50	13	160	223
<b>TOTAL</b>	<b>17</b>	<b>-10</b>	<b>198</b>	<b>205</b>

The forecast above predicts a loss of households earning less than \$30,000 at all age levels. This loss continues for households earning less than \$60,000 for households under 62 years of age. The forecast growth is limited to households earning \$60,000+ at all age levels, and seniors (62+) earning over \$30,000 annually.

**3.3.2 – Renter Demand Tables**

The following tables represent the current number of renter households with the city of Fredericksburg, the forecast growth (2022), and finally the difference between the two. The shaded income bands are indicative of the renter households that earn from \$11,520 to \$54,120. As discussed in Section 2.5.1, these renters households would be considered to be income qualified to live at an “affordable” rental community with income and rent restrictions.

**HISTA DATA  
RENTER HOUSEHOLDS - 2017**

<b>RENTER HH</b>	<b>TOTAL</b>			
	<b>2017</b>	<b>Age &lt;55</b>	<b>Age 55-61</b>	<b>Age 62+</b>
< \$ 10,000	76	2	75	154
\$ 10,000 - \$ 19,999	135	30	81	247
\$ 20,000 - \$ 29,999	213	61	13	288
\$ 30,000 - \$ 39,999	155	4	81	240
\$ 40,000 - \$ 49,999	49	1	35	84
\$ 50,000 - \$ 59,999	137	24	8	170
\$ 60,000+	185	67	127	378
<b>TOTAL</b>	<b>951</b>	<b>188</b>	<b>421</b>	<b>1,560</b>

**HISTA DATA  
RENTER HOUSEHOLDS - 2022**

<b>RENTER HH</b>	<b>TOTAL</b>				
	<b>2022</b>	<b>Age &lt;55</b>	<b>Age 55-61</b>	<b>Age 62+</b>	<b>TOTAL</b>
<b>&lt; \$ 10,000</b>	72	2	82	155	
<b>\$ 10,000 - \$ 19,999</b>	126	28	84	238	
<b>\$ 20,000 - \$ 29,999</b>	204	57	14	274	
<b>\$ 30,000 - \$ 39,999</b>	165	3	95	262	
<b>\$ 40,000 - \$ 49,999</b>	49	1	38	87	
<b>\$ 50,000 - \$ 59,999</b>	141	24	9	174	
<b>\$ 60,000+</b>	211	84	165	459	
<b>TOTAL</b>	966	198	486	1,650	

**RENTER HOUSEHOLD GROWTH – 2018 to 2022**

<b>RENTER HH</b>	<b>TOTAL</b>				
	<b>2018 - 2022</b>	<b>Age &lt;55</b>	<b>Age 55-61</b>	<b>Age 62+</b>	<b>TOTAL</b>
<b>&lt; \$ 10,000</b>	-5	0	6	1	
<b>\$ 10,000 - \$ 19,999</b>	-9	-2	3	-8	
<b>\$ 20,000 - \$ 29,999</b>	-10	-4	1	-13	
<b>\$ 30,000 - \$ 39,999</b>	10	-1	14	23	
<b>\$ 40,000 - \$ 49,999</b>	0	0	3	3	
<b>\$ 50,000 - \$ 59,999</b>	3	0	1	4	
<b>\$ 60,000+</b>	26	17	38	80	
<b>TOTAL</b>	15	9	65	90	

The forecast above predicts a loss of households earning less than \$30,000 for ages under 62 years of age. Modest growth is expected in households earning more than \$50,000 annually and seniors (62+) at all income levels.

### 3.3.3 - HISTA Demand Summary

The preceding tables give the current number of owners and renters, forecast of the same to 2022, including a detail by age and income. Based on straight-line delineation of these forecasts, the HISTA data estimates the number of households will grow by 295.

Thus, our estimate of the growth of the households per year for the trade area, based on the HISTA data straight-line forecast delineation and our assessment of the new households in the area, is as follows:

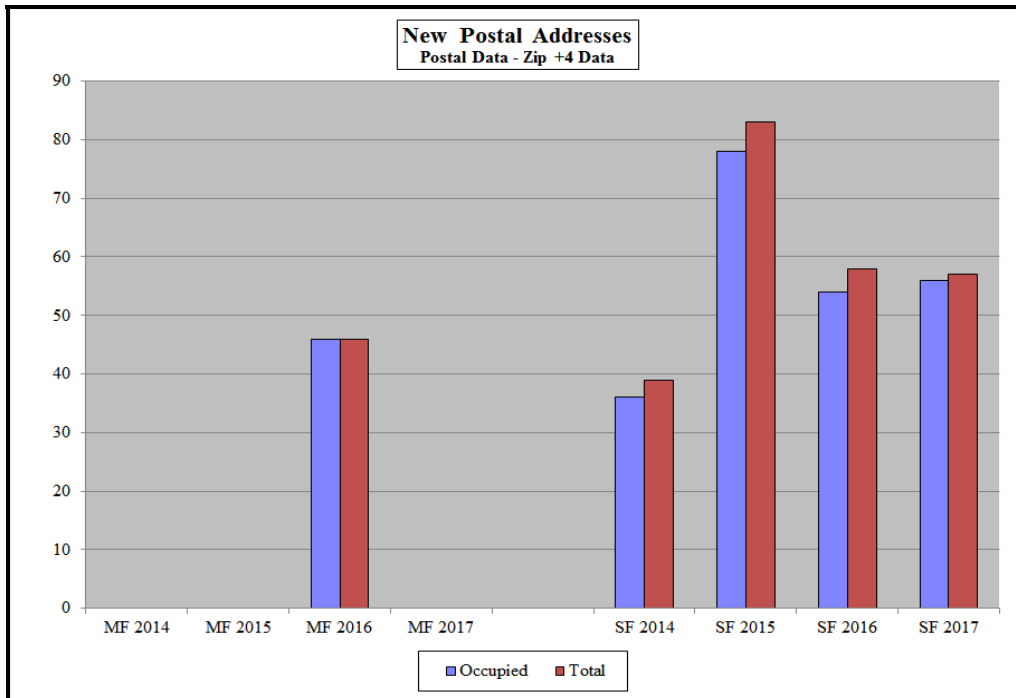
**FORECAST HOUSEHOLD DEMAND TABLE**

<b>YEAR</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>OWNERS</b>	<b>41</b>	<b>41</b>	<b>41</b>	<b>41</b>	<b>41</b>
<b>RENTERS</b>	<b>18</b>	<b>18</b>	<b>18</b>	<b>18</b>	<b>18</b>

### 3.4 – HISTORICAL ABSORPTION - U.S. POSTAL DATA

The U.S. Post Office is another source for new construction data. As each new unit is constructed and assigned a mailing address, the Postal Service reports the address as either a single or multi-unit address; and as occupied or vacant. As a snapshot in time, the information is useful in understanding the new construction velocity and absorption within the PMA.

	<b>Multi-Unit</b>	<b>Multi-Unit</b>	<b>Single-Unit</b>	<b>Single-Unit</b>
<b>2014</b>	<b>0</b>	<b>0</b>	<b>36</b>	<b>39</b>
<b>2015</b>	<b>0</b>	<b>0</b>	<b>78</b>	<b>83</b>
<b>2016</b>	<b>46</b>	<b>46</b>	<b>54</b>	<b>58</b>
<b>2017</b>	<b>0</b>	<b>0</b>	<b>56</b>	<b>57</b>
<b>TOTAL</b>	<b>46</b>	<b>46</b>	<b>224</b>	<b>237</b>



Over the past 4 years, absorption of single family homes has averaged 56 homes per year. In most cases, these new housing units are being absorbed as fast as the units receive a postal address from the U.S. Postal Service. Would be absorption of rental units for this time period is impossible to calculate because so few units were constructed. The 46 rental units constructed were fully absorbed.

### 3.5 - SUMMARY

The historical accounting of single family building permits (Jan. 2015 to June 2017) and the data from the USPS indicate a higher absorption rate of single family homes than the demographics forecasts anticipate. Most of these were custom homes pre-sold prior to construction.

Based on this information, we opine the demographic forecasting models previously discussed report numbers less than what is likely to occur. The following Employment Growth Methodology results in a forecast that resembles the historical count of new single family households.

# CHAPTER 4

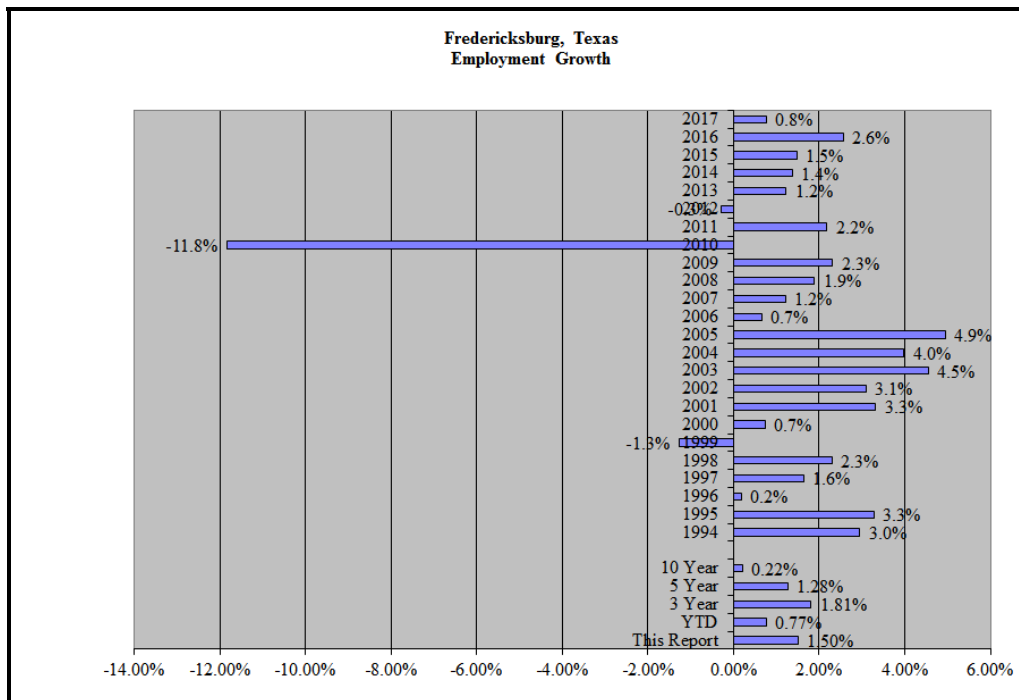
## EMPLOYMENT GROWTH BASED DEMAND

### 4.1 - FREDERICKSBURG ECONOMY

The City of Fredericksburg has a robust economy for a city with a population of 11,580 (2017). The largest number of private industry jobs fall into the category of “Education, Health and Social Assistance”. The largest employers that fit within this category is the Hill Country Memorial Hospital. Other large non-private employers include the Fredericksburg ISD, the City of Fredericksburg and Gillespie County.

The second largest category of jobs fall into the “Arts, Entertainment, Accommodations and Food Service” category. Jobs within this category are represented by the hotel and food service industries. Finally, Retail Trade fills the third largest category of jobs in the city.

Today, the current unemployment rate for Gillespie County is 2.2%. This is significantly less than the state average of 3.7% and the national average of 3.9%<sup>2</sup>.



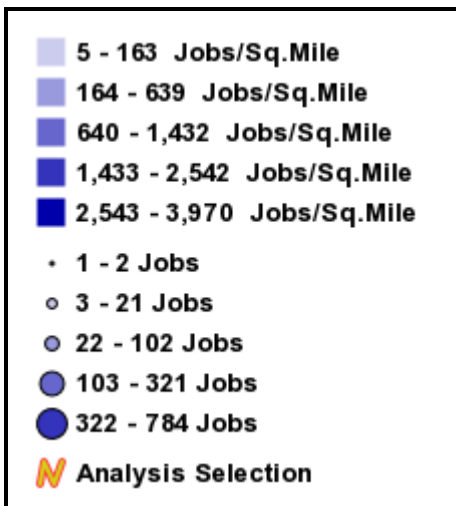
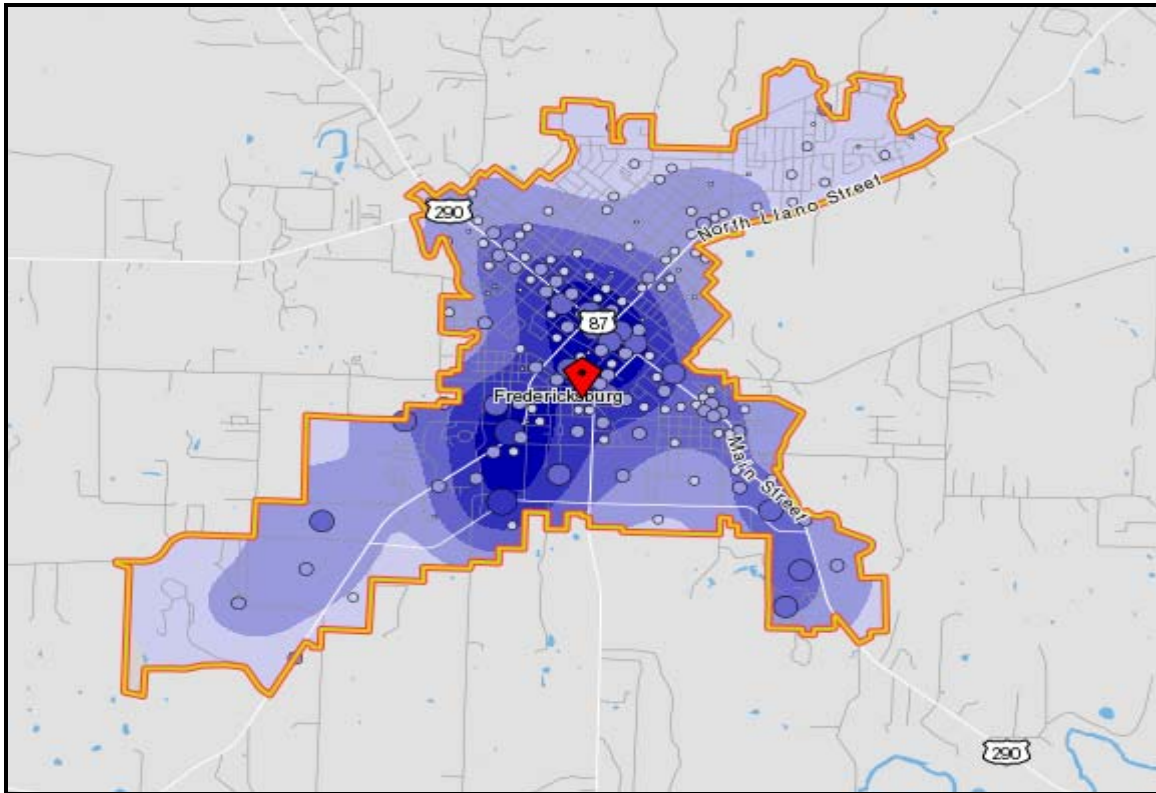
<sup>2</sup> U.S. Department of Labor (Dec. 2017)

#### 4.1.1 - Major Employers

According to the InfoUSA Business Listing database of area employers, there are more than 11,400 jobs within 5.0 miles of Fredericksburg. The following table lists some of the larger employers within that radius.

<b>Company</b>	<b># Employees</b>
<b>Hill Country Memorial Hospital</b>	<b>700</b>
<b>Fredericksburg ISD</b>	<b>500</b>
<b>H-E-B Foods</b>	<b>250</b>
<b>City of Fredericksburg</b>	<b>160</b>
<b>Gillespie County</b>	<b>160</b>
<b>Central Texas Electric Co-op</b>	<b>124</b>
<b>Walmart Supercenter</b>	<b>120</b>
<b>Knopp Healthcare &amp; Rehab Center</b>	<b>104</b>
<b>Windcrest Nursing Home</b>	<b>91</b>
<b>Fischer &amp; Wieser Spec Foods</b>	<b>80</b>
<b>Mamacita's</b>	<b>75</b>
<b>Allen Keller Co</b>	<b>75</b>
<b>James Avery</b>	<b>75</b>
<b>Gillespie County Sheriff's Office</b>	<b>75</b>
<b>Security State Bank &amp; Trust</b>	<b>64</b>
<b>McDonald's</b>	<b>53</b>
<b>First Baptist Church</b>	<b>52</b>
<b>Fredericksburg Brewing Co</b>	<b>50</b>
<b>Opa's Smoked Meats</b>	<b>50</b>
<b>St Vincent De Paul Society</b>	<b>50</b>
<b>Fredericksburg Nursing &amp; Rehab</b>	<b>50</b>
<b>Knopp Assisted Living Center</b>	<b>50</b>
<b>Admiral Nimitz Foundation</b>	<b>49</b>
<b>St Mary's School</b>	<b>47</b>
<b>Fredericksburg Clinic PA</b>	<b>42</b>
<b>Peach Tree Gift Gallery</b>	<b>40</b>
<b>Gillespie Livestock Co Inc</b>	<b>40</b>
<b>Wellness Center</b>	<b>40</b>
<b>Primary School</b>	<b>40</b>
<b>Kneese Metal Buildings</b>	<b>36</b>

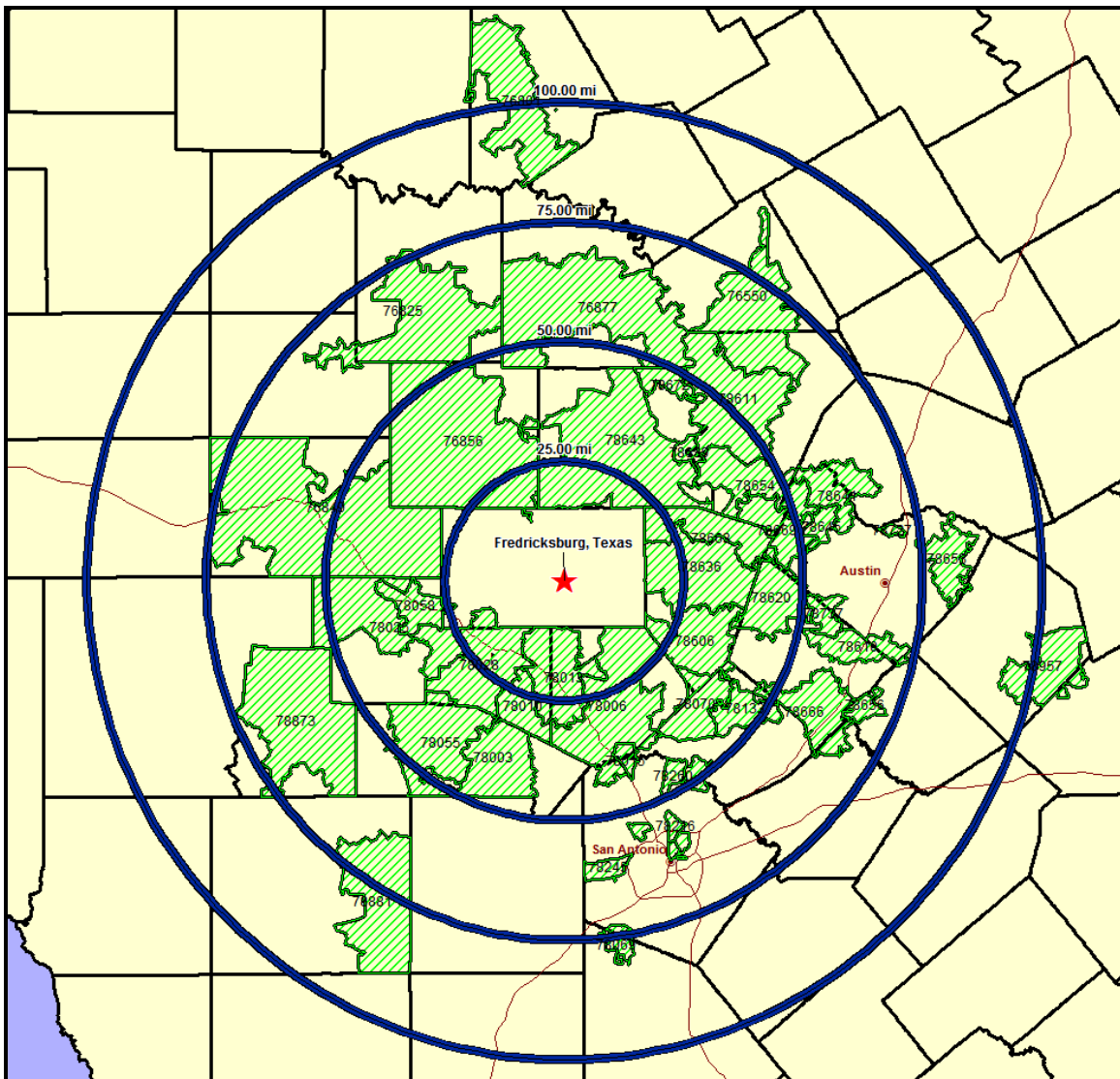
**U.S. CENSUS  
ON THE MAP - 2015**



#### 4.1.2 – Hill Country Memorial Hospital

Hill County Memorial Hospital is the largest employer in Gillespie County. The hospital employs approximately 700 people. The average full-time employee earns \$61,020 annually.

Today, approximately 33% (233) of the staff commute from outside the county. While some of these employees are only called up to fill scheduling holes, others report difficulty finding housing within the city of Fredericksburg. The map below shows graphically the home zip codes of employees currently traveling to staff the hospital. These staff members earn a reported average annual income of \$50,306. With only one income, these staff would qualify for a home priced \$160,000 to \$190,000.



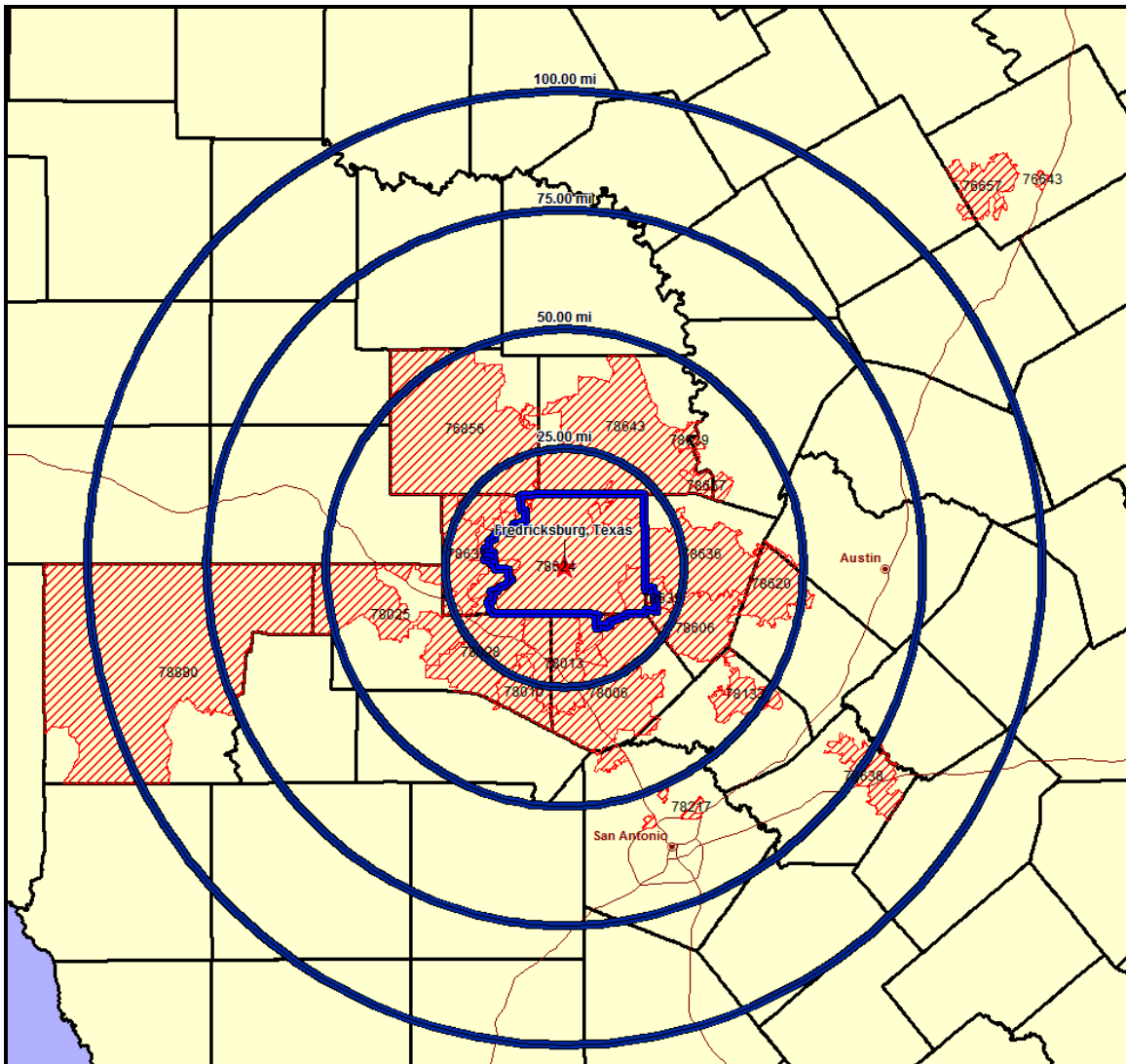


### 4.1.3 - Fredericksburg ISD

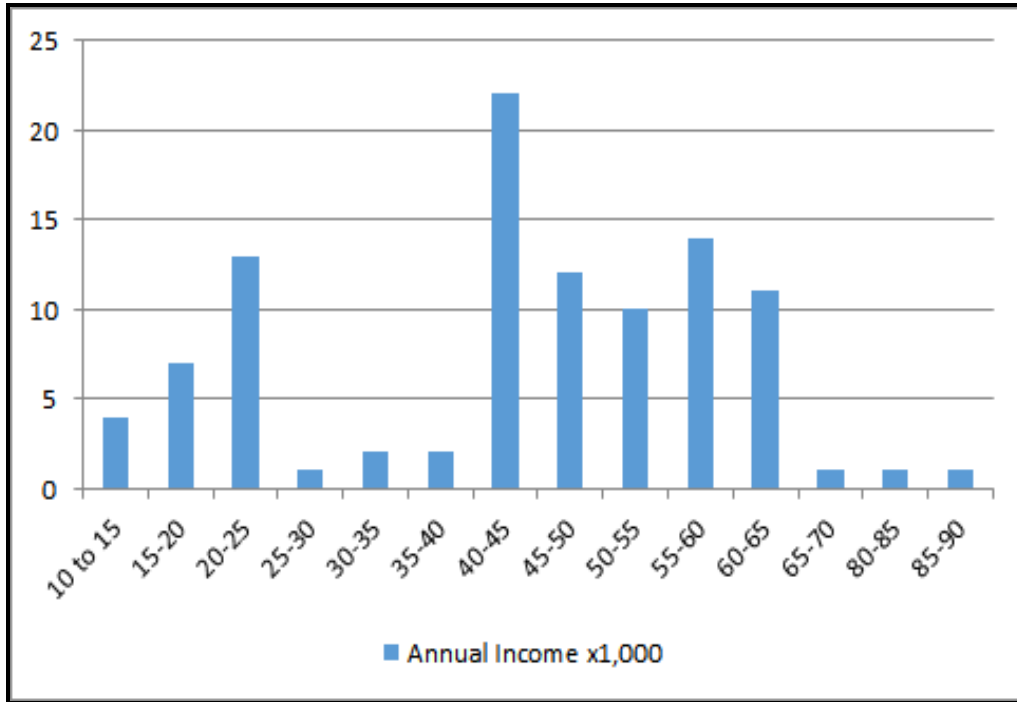
Fredericksburg ISD employs approximately 500 people across six campuses and other administrative offices. The school district reports that 102 people live outside the 78624 zip code. Of these 102 employees, 70% earn over \$40,000 annually. And while not all employees may elect to living locally, many would likely move closer to their source of employment rather than travel great distances every day.

The map below shows graphically the home zip codes of employees currently traveling to staff positions within the schools district.

#### FREDERICKSBURG ISD EMPLOYEES LIVING OUTSIDE 78624



### ANNUAL INCOME OF EMPLOYEES LIVING OUTSIDE 78624

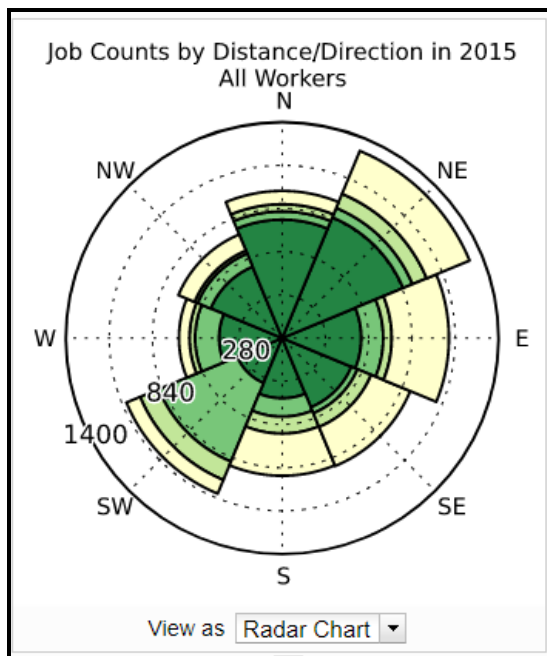
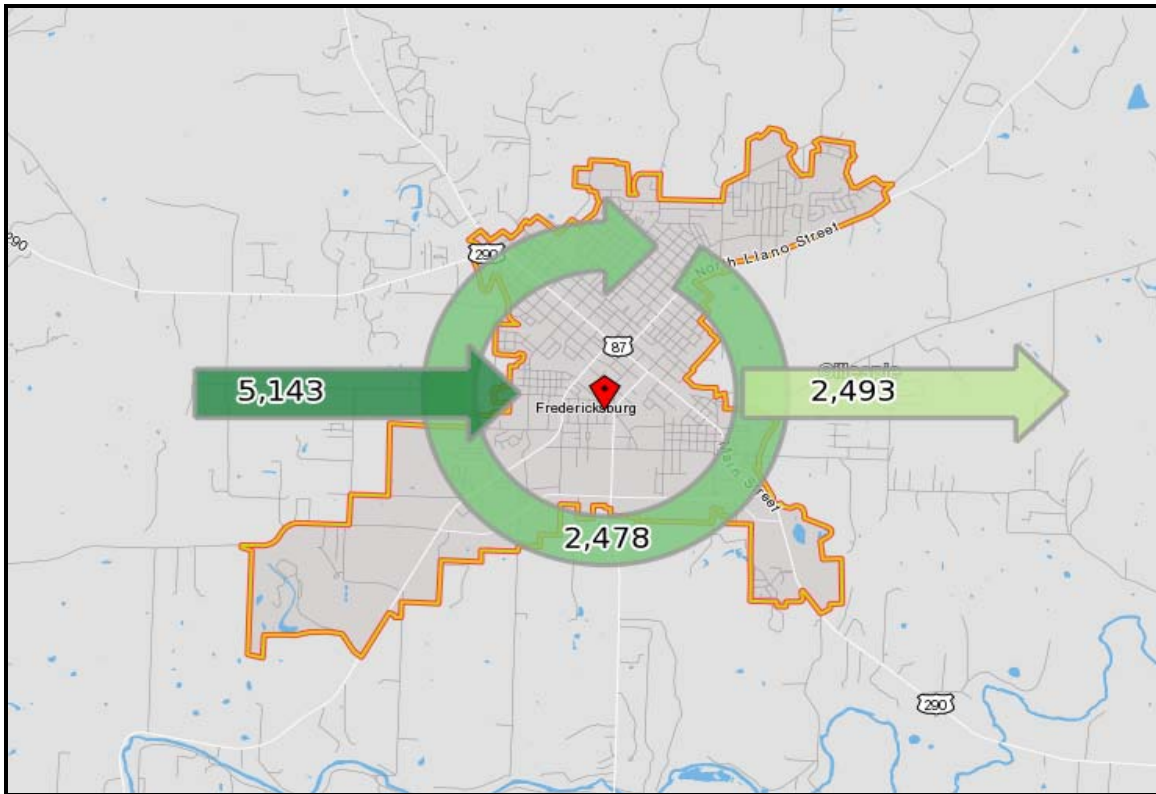


#### 4.1.4 – Other Employers

Other employers report similar statistics. HEB Foods reports that 70 of its 250 employees (28%) live outside the 78624 zip code. Local officials report 400-500 jobs that today are unfilled, including 50+ at the hospital and 20+ at HEB Foods.

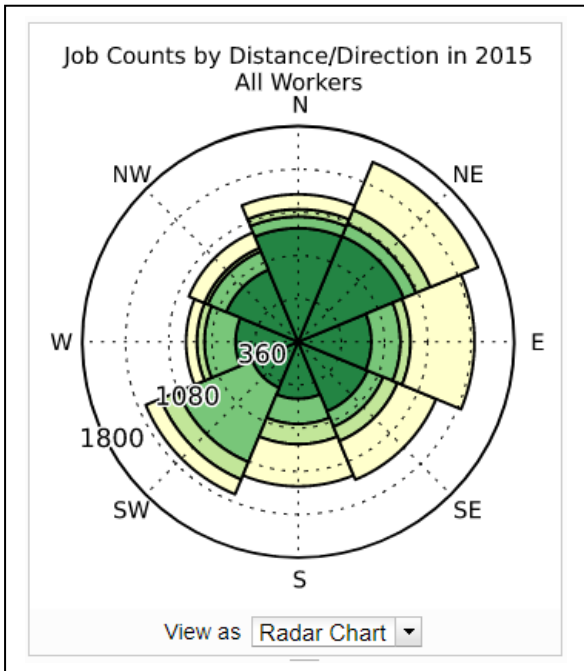
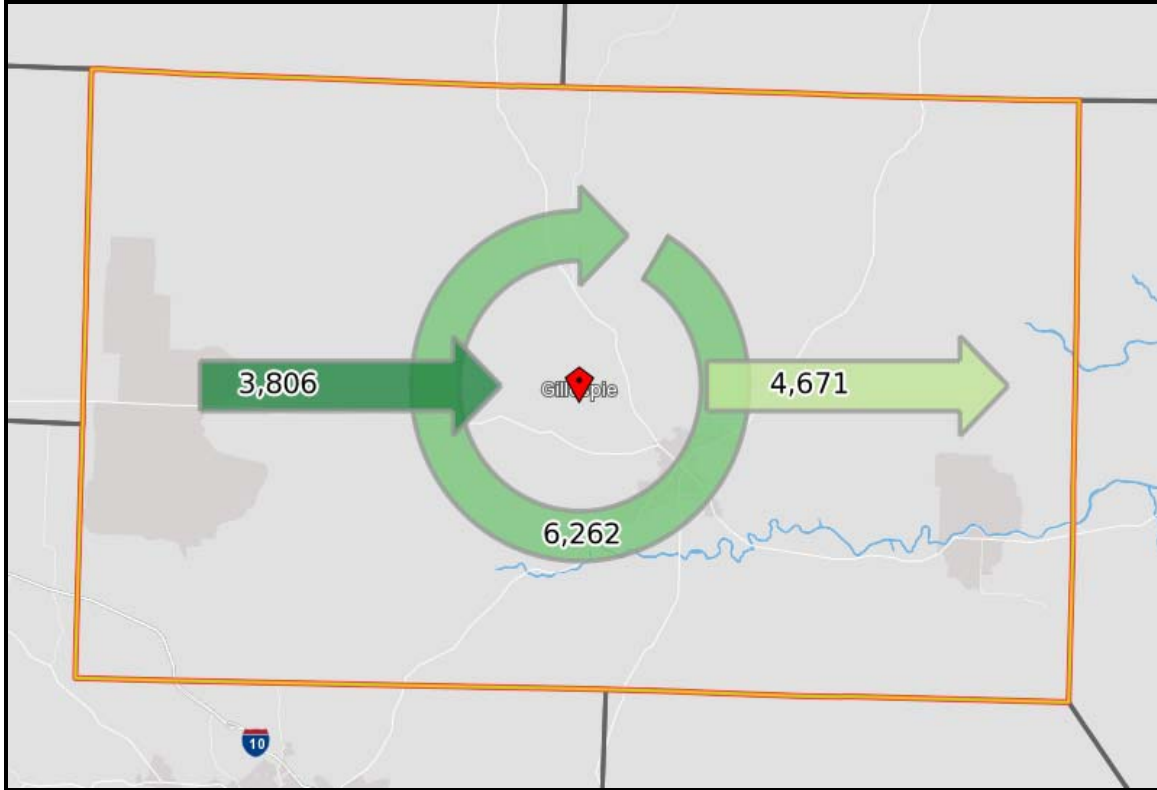
## 4.2 - AREA COMMUTERS

Data from the U.S. Census Bureau shows a significant number of people commuting for employment for both the city of Fredericksburg and Gillespie County overall. Data from 2015 shows 5,100+ employees came from outside the city of Fredericksburg. Another 2,500 residents traveled from Fredericksburg to their jobs outside the city. More than 1,500 of these traveled more than 50 miles. This indicates significant pent-up demand.



Jobs by Distance - Work Census Block to Home Census Block

	2015	
	Count	Share
Total All Jobs	7,621	100.0%
Less than 10 miles	4,227	55.5%
10 to 24 miles	1,220	16.0%
25 to 50 miles	593	7.8%
Greater than 50 miles	1,581	20.7%



Jobs by Distance - Work Census Block to Home Census Block

	2015	
	Count	Share
Total All Jobs	10,068	100.0%
<span style="color: green;">■</span> Less than 10 miles	5,201	51.7%
<span style="color: lightgreen;">■</span> 10 to 24 miles	1,894	18.8%
<span style="color: yellow;">■</span> 25 to 50 miles	825	8.2%
<span style="color: orange;">■</span> Greater than 50 miles	2,148	21.3%

### 4.3 - FORECAST OF FUTURE DEMAND

For our second demand analysis, we delineate a community's commercial employment sectors into two categories – “basic” and “non-basic” employment. Basic activities are those that sell (export) a large portion of their products and services to non-local customers, thereby bringing new dollars into the local economy. Non-basic firms sell primarily to local customers and the money generated is kept within the local economy. The non-basic sector re-circulates dollars which are already within the community.

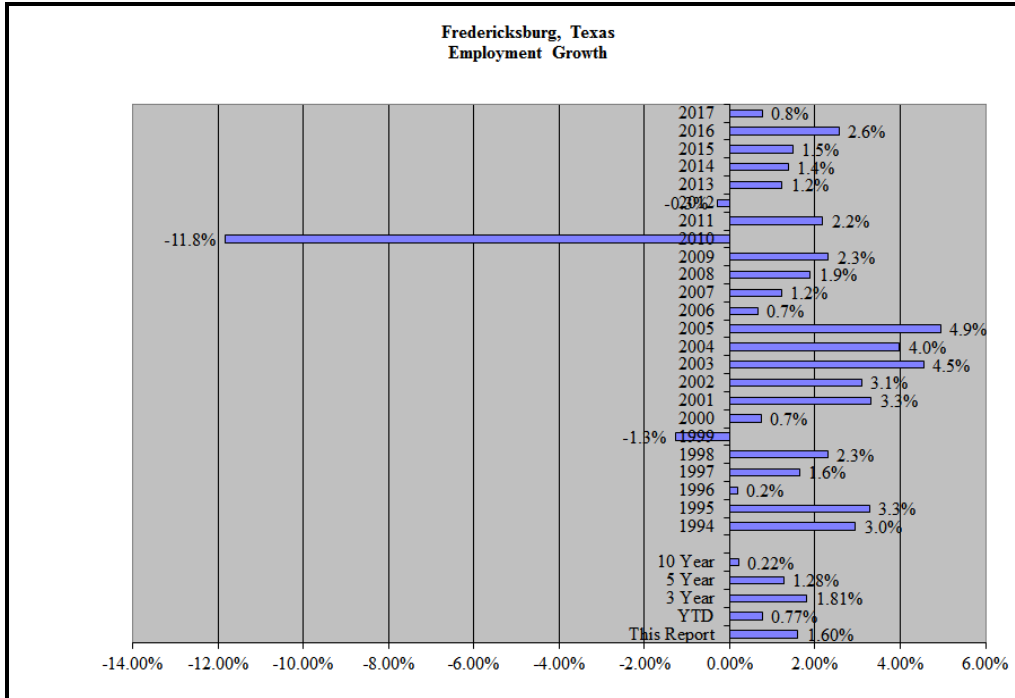
Theory we use within our analysis holds that increases in demand for the products and services of the basic sector cause the basic industries to employ more people. When this happens, the non-basic sector must expand to meet the needs of the expanded labor force in the basic industries. Thus occurs an increase in demand for housing units, retail, and office space, resulting from the increase in the number of employed persons. The resultant is an increase of the general population, employment and economic wealth of the macro-market area. Therefore local buying power increases.

Here we will use the economic base analysis methodology to determine population growth and therefore demand for rental housing. The objectives of the economic base analysis are:

- To identify businesses that bring new dollars into the local economy and measure employment in these businesses.
- To forecast growth of employment in the basic industries.
- To forecast growth of total employment (and income).
- To forecast growth of the population in the local market area.

Our methodology utilized to identify the economic base of the market area is to use an indirect analysis of identifying base employment through calculating the location quotient. This is a quick method for judging which industries are basic locally when compared to the state economy. The quotient represents the ratio of local employment percentage in certain industries to the state percentage in the same industries. If the local percentage is greater than the state percentage, that portion of the industry's employment that exceeds the state percentage is likely to be basic in the local economy. A basic employment industry in a community will create population growth which will then create a need for housing units.

For the purposes of the following employment based forecast, we have used a conservative annual growth rate of 1.6%. This represents approximately 200 new jobs annually. We feel that this rate is appropriate, without being exceedingly optimistic.



Historical employment growth is a leading indicator of population and household growth, and housing demand increases. This indicator is more reliable than others in areas that are experiencing significant growth. This is because other projections typically utilize straight-line estimates, based on prior historical data, rather than current employment information.

The formulation used to determine the demand for housing using the basic employment forecast technique is as follows:

**(A)**

$$\frac{\text{Forecast of Basic Employment}}{1} \times \frac{\text{Total Employment}}{\text{Basic Employment}} \times \frac{\text{Total Population}}{\text{Total Employment}} = \text{Forecast Pop.}$$

**(B)**

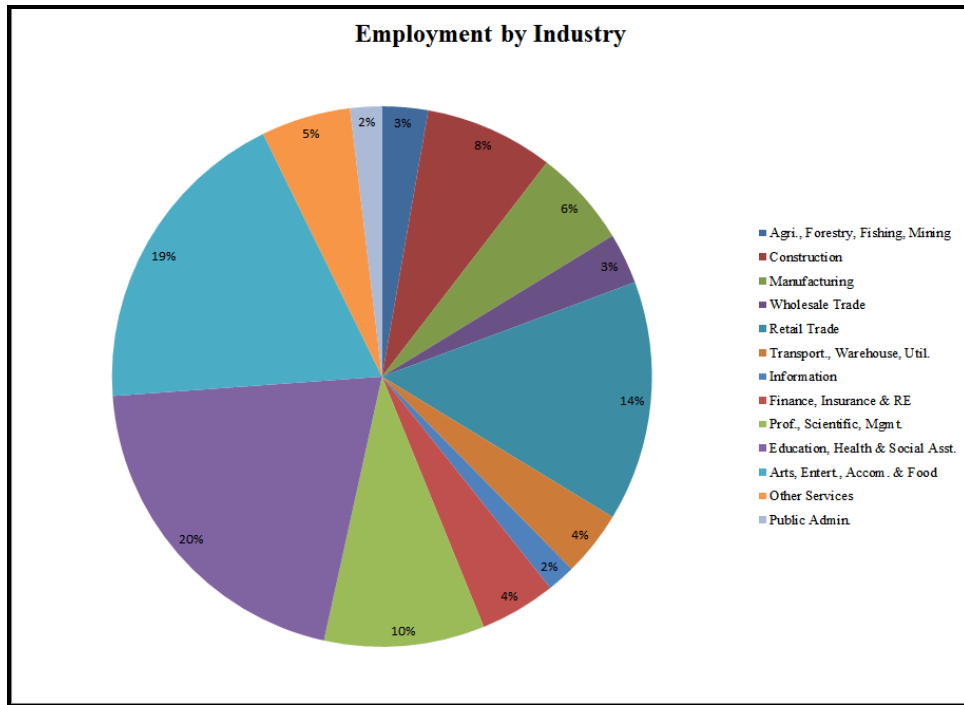
$$\frac{\text{Forecast Population}}{\text{Forecast Household Size}} = \text{Forecast Households}$$

### 4.3.1 - Determining the Location Quotient

The following represents the employment base of the sub-market by category, and is used to analyze the non-basic and basic employment of the sub-market in comparison to the Texas averages. It represents the profile in relation to the type of employment. The table identifies the employment industries that represent basic employment to the primary market area. Further analysis of the relative concentration in each industry will in turn help identify future growth and the requirements for additional housing.

Employment By Industry 2017	Primary Market		Texas		Location Quotient
	# of Employees	Percent	# of Employees	Percent	
Agriculture, Forestry, Fishing	139	2.7%	436,063	3.3%	0.82
Construction	391	7.7%	1,009,137	7.7%	1.00
Manufacturing	295	5.8%	1,194,968	9.2%	0.64
Wholesale Trade	154	3.0%	397,145	3.0%	1.00
Retail Trade	729	14.4%	1,502,104	11.5%	1.25
Transport., Warehouse, Util.	198	3.9%	710,531	5.4%	0.72
Information	85	1.7%	236,427	1.8%	0.93
Finance, Insurance & RE	231	4.6%	870,314	6.7%	0.68
Prof., Scientific, Mgmt.	487	9.6%	1,460,015	11.2%	0.86
Education, Health & Social Asst.	1,034	20.4%	2,832,987	21.7%	0.94
Arts, Entert., Accom. & Food	957	18.9%	1,140,343	8.7%	2.16
Other Services	272	5.4%	690,186	5.3%	1.01
Public Admin.	96	1.9%	565,010	4.3%	0.44

The industries which are basic to the economy are those that have a location quotient greater than 1.0. If the location quotient of the industry is 1.0 or less, it is assumed that 1) the production of goods or services from that industry is sufficient to meet the needs of the area, and 2) the number of employees that are employed is also adequate to meet the demand for the goods and services. These are, by definition, non-basic employees and employers. In that the location quotient helps identify the basic industries in the local economy, the above table reflects the following in regard to basic employment within the sub-market area:



There is a positive “Location Quotient” in **Retail Trade, Arts, Entert., Accom. & Food, and Other Services** jobs. All of these categories have a location quotient greater than 1.0, indicating these industries are basic to this sub-market, and that these industries, and their size, relative to state averages, will drive the population growth of the primary market area.

#### 4.3.2 - Determining the Number of Basic Employees

The portion of the location quotient that exceeds 1.0 represents the proportion of employees who are engaged in producing that excess. These are considered the basic employees; the employees that serve as a base for future tenancy to the proposed project. The following formula calculates the number of basic employees:

$$\frac{\text{Location Quotient} - 1.0}{\text{Location Quotient}} = \text{Percent of Basic Employees In Industry}$$

$$\begin{aligned} & \text{Total Employees in Industry} \\ & \times \frac{\text{Percent of Basic Employees}}{100} \\ & = \text{Number of Basic Employees} \end{aligned}$$



Utilizing the above formula, we can calculate the total number of basic employees in the area.

<b>Basic Industries</b>	<b># of Basic Employees</b>
<b>Retail Trade</b>	<b>145</b>
<b>Arts, Entert., Accom. &amp; Food</b>	<b>514</b>
<b>Public Admin.</b>	<b>4</b>
<b>Total</b>	<b>663</b>

#### **4.3.3 - Determining the Economic Base Multiplier**

It is estimated that an increase in basic employment will cause an increase in total employment, with attending growth in population and disposable income. Therefore, we can forecast growth in basic employment to forecast the changes in population and the changes in household demand using a technique known as the economic base multiplier. The “Economic Base Multiplier” is the ratio of total employment to “basic employment”. Thus, we calculate the Economic Base Multiplier to forecast future employment growth and the resulting demand for housing.

<b>Economic Base Multiplier</b>	
<b>Total Population in the Market Area</b>	<b>11,580</b>
<b>Total Employment in the Market Area</b>	<b>5,068</b>
<b>Total Basic Employment</b>	<b>663</b>
<b>5 Year Adjusted Forecast of Basic Employment</b>	<b>718</b>
<b>The EB Multiplier</b>	<b>7.641</b>

#### 4.3.4 - Forecasting Total Employment

Utilizing the economic base multiplier, we are able to calculate the total future employment for the target market area.

**Forecast of Basic Employment x EB multiplier = Forecast of Total Employment**

$$718 \quad \times \quad 7.641 \quad = \quad 5,487$$

#### 4.3.5 - Forecasting Total Population

Because we have an estimation of the total employment for this area, we can proceed to develop a forecast for the total population based on employment growth. This can then be used to extract household formation estimation as an indication of additional demand for housing.

The population/employment ratio (PE) is used to determine the ratio of total population to total employment in the market area.

$$\text{PE Ratio} = \frac{\text{Total Population}}{\text{Total Employment}} = \frac{11,580}{5,068} = 2.285$$

We utilize this PE ratio to obtain a forecast of the total population as follows:

**Forecast Total Employment x PE ratio = Forecast Population**

$$5,487 \quad \times \quad 2.285 \quad = \quad 12,537$$

#### 4.3.6 - Forecasting Housing Demand

**2022 Population Projection - 2017 Population Estimate = Change In Population**

$$12,537 \quad - \quad 11,580 \quad = \quad 857$$

Average household size = 2.28

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$$\text{Change In \# of Households 2018 to 2022} = 419$$

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Tenure	Owner Total	x	=	69.0%
	Additional Single Family Needed	or	=	289

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Change In # of Households 2018 to 2022 = 419

---

Tenure	Renter Total	x	=	31.0%
	Additional Rental Units Needed	or	=	130

Based on straight-line delineation of the household growth alone between the years of 2018 to 2022, it can be assessed that Fredericksburg will need an additional 419 housing units.

Thus, our estimate of the growth of the households per year for the trade area, based on the Anysite straight-line forecast delineation and our assessment of the new households in the area, is as follows:

#### FORECAST HOUSEHOLD DEMAND TABLE

YEAR	2018	2019	2020	2021	2022
<b>OWNER HH's</b>	<b>58</b>	<b>58</b>	<b>58</b>	<b>58</b>	<b>58</b>
<b>RENTER HH's</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>26</b>

#### 4.4 - CONCLUSIONS

Based on our analysis, it can be seen that the city of Fredericksburg continues to grow at a moderate rate. The forecast demand for home ownership is comparable to the historical supply of new home construction (56.8 annually).

At the same time, the three largest employers - Hill Country Memorial Hospital, Fredericksburg ISD, HEB Foods, as well as others report employees having a difficult time finding housing within the immediate area. Combined, these three employers report 405 employees traveling a significant distance to work within the city.

Additionally, local officials report 400-500 jobs that today are unfilled, including 50+ at the hospital and 20+ at HEB Foods. From the 2015 census data, we see that 67% of the people that work in Fredericksburg did not live within the city. While some of these employees may have chosen to live outside the city, 30% of these commuters traveled more than 25 miles to work in Fredericksburg (i.e. outside Gillespie County).

Given what we know, it is reasonable to expect that some portion of the population that commute to Fredericksburg for employment would choose to live within the city if housing was available that they could afford. However, with the information available, it is impossible to quantify the exact number of people that would make this choice.