



**Vogt Strategic
Insights**

Analysis of Housing Need for the Columbus Region

For:

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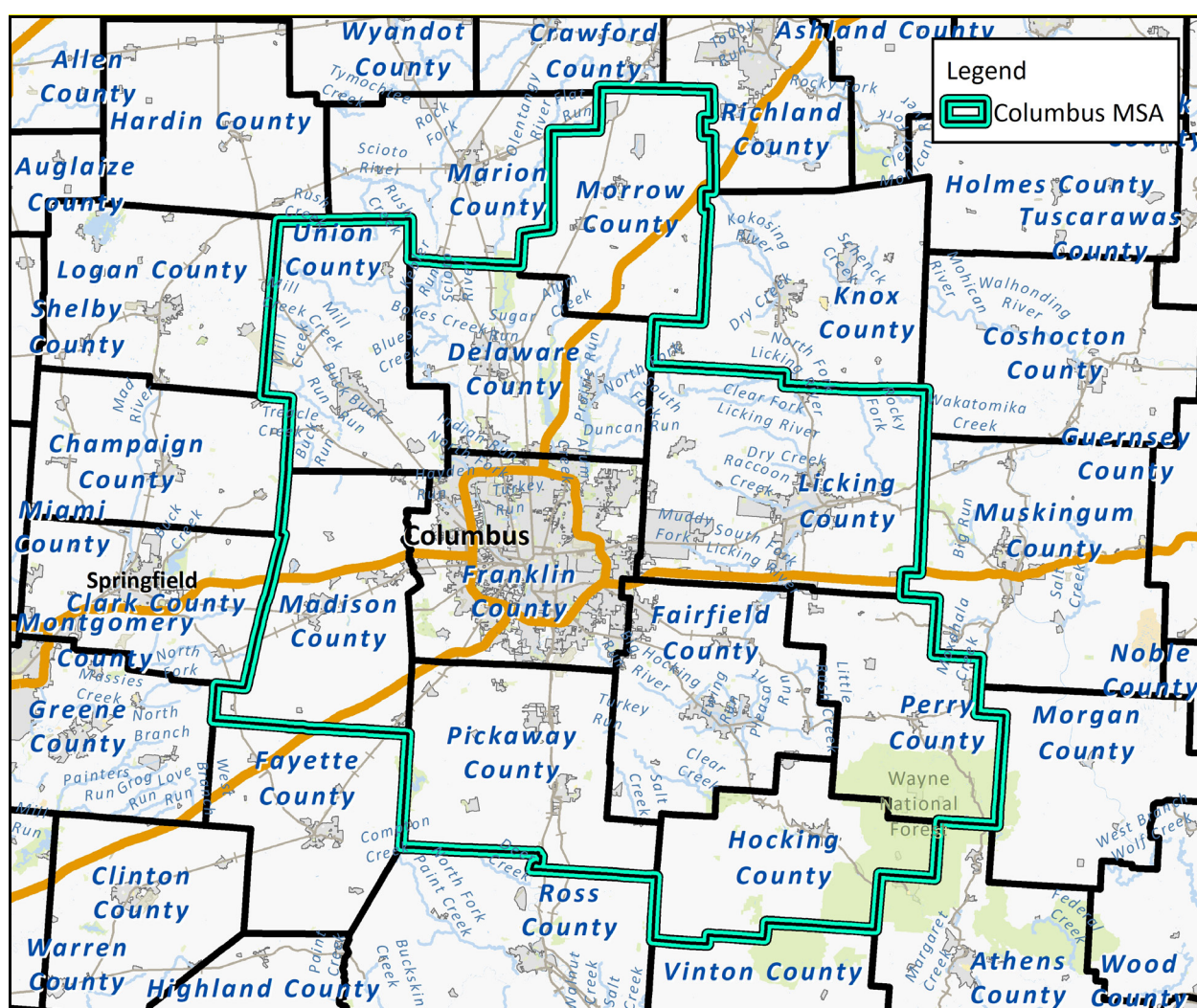
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I. Introduction

Purpose

The purpose of this report is to estimate the need for new residential housing in the 10-county Building Industry of Central Ohio (BIA) service area in Central Ohio based on the projected job growth in the region through year 2032.

This analysis forecasts housing need for the 10 counties that comprise the BIA's service area in Central Ohio. The housing need estimates are segmented by tenure and income cohort. The following map details the 10 counties that are the subject of this analysis.



For this analysis, VSI completed the following work elements:

Demographic and Economic Analysis

Demographic and economic characteristic trends will be collected for the BIA 10-county region and each of the 10 counties that comprise of this region. Demographic and economic variables that are documented in this report include the following:

- Population (2010 Census, 2022 Estimate and 2032 Projection)
- Population by Age (2022 Estimate)
- Households (2010 Census, 2022 Estimate and 2032 Projection)
- Households by Age (2022 Estimate)
- Household Tenure (2022 Estimate and 2032 Projection)
- Income Trends (2010 Census, 2022 Estimate and 2032 Projection)
- Employment Statistics
- Permitting Statistics
- Projected Employment Growth

Housing Inventory

Through access of national database providers and various third-party sources, VSI inventoried the current for-sale and rental housing environment within the 10 counties that comprise the BIA service area. The aggregation of data is limited to the geographies provided by these sources.

The residential housing analysis will provide (predicated on the availability of data) the following:

- Structure by Year Built
- Structure by Type
- Bedroom Composition
- Housing Cost as a Percentage of Income
- Monthly Housing Cost
- Distribution Monthly Gross Rent Expenditure
- Median Sale Price
- Median Sale Price Per Square Foot
- Building Permit Activity (Single-Family and Multifamily)

Housing Need Projections

Vogt Strategic Insights (VSI) has estimated the distribution of job growth by income segments projected in the Columbus MSA and each of the 10 counties that comprise the BIA service area using economic projections based on historical trends at various look-back periods. This allows VSI to estimate, in broad terms, the projected housing need by tenure and income segmentation in year 2032.

This analysis does not consider demand for various housing types in that consumer preferences, availability of current housing alternatives, demographic shifts and natural movement within the market (i.e. households moving from one dwelling to another) have not been taken into consideration.

Sources

Vogt Strategic Insights uses various sources to gather and confirm data used in this analysis. These sources include the following:

- The 2000, 2010 and 2020 Census
- American Community Survey
- ESRI
- Urban Decision Group
- Redfin.com
- Zillow.com
- Central Ohio Board of REALTORS
- Vogt Strategic Insight's Proprietary Data
- Bureau of Labor Statistics
- Ohio Department of Job and Family Services

Statement on the U.S. Census and the American Community Survey

Since 2005, the American Community Survey (ACS) has been a critical element of the U.S. Census Bureau's reengineered decennial census program. During previous decennial censuses, most households received a short-form questionnaire, while one household in six received a long form that contained additional questions and provided socioeconomic information about the population that is more detailed.

The 2010 Census was the first exclusively short-form census and it counted all residents living in the United States and asked for name, sex, age, date of birth, race, ethnicity, relationship and housing tenure, resulting in a total of seven variables.

The more detailed socioeconomic information, once collected via the long-form questionnaire, is now collected by the American Community Survey. The survey provides current data about all communities, every year, rather than once every 10 years. It is sent to a small percentage of the population on a rotating basis throughout the decade. No household will receive the survey more often than once every five years.

Each year, the Census Bureau releases three ACS datasets for certain geographic areas. The type of data that is available is dependent upon the total population residing within a geographic area. One-year estimates are available for the largest areas, which are defined as areas with populations of 65,000 or more. Three-year averages of estimates are available for areas with populations of 20,000 or more and five-year averages of estimates are available for all areas regardless of size. It should be noted that the five-year data set has a significantly smaller sample size than that used to compile the long form in previous censuses.

Since 2011, Vogt Strategic Insights (VSI) has included data in our reports from the most recent decennial census, as well as data available via the ACS that is more detailed. Currently, we are reporting data that is associated with the 2016-2020 ACS.

II. Executive Summary

The purpose of this report is to estimate the need for new residential housing in the 10-county Building Industry of America (BIA) service area in Central Ohio based on the projected job growth in the region through year 2032.

This report concluded that the BIA 10-County Region (see the table below for a list of counties that comprise the 10-County BIA Region) is projected to gain approximately 145,000 to 202,000 jobs through year 2032. There will be a corresponding need for additional housing units to accommodate and realize this job growth. This report also concludes that there are indicators that the Columbus region may not be positioned to address the housing need to accommodate the projected job growth. These indicators included current permitting activity and challenges to affordability.

National peer cities were profiled to provide context to the housing need challenges the Columbus region may face if development activity does not keep pace with job growth projections.

A summary of our findings is detailed as follows:

Housing Need Estimates

To estimate projected job growth to year 2032, two historical employment look-back periods were considered (years 1990 to 2019 and years 2010 to 2019). The employment disruption caused by the COVID-19 pandemic in the last two years substantially alters the trending data, even when considering a nearly 30-year look-back period. In most of the geographic areas of study, the employment totals for year 2021 returned to pre-pandemic levels.

The table below summarizes estimated housing need projections by tenure to year 2032 for all geographic areas of study. For detailed figures on projected housing need by income cohorts, see the individual county profiles detailed in Section VII.

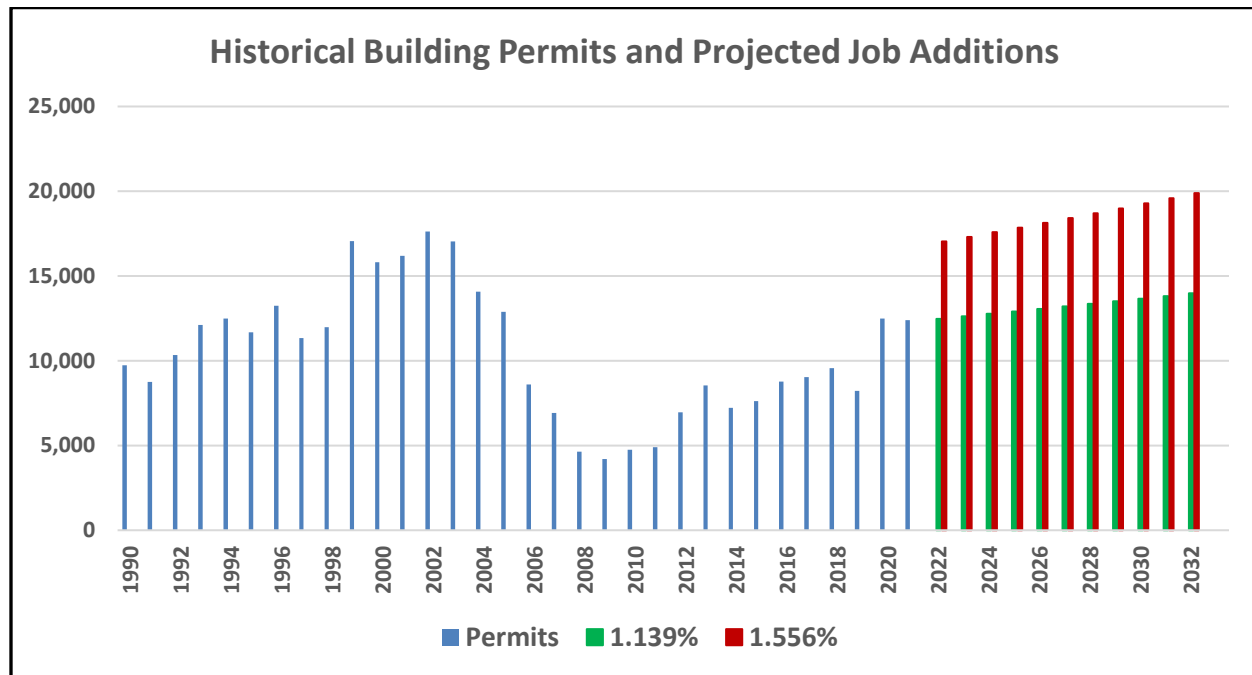
Housing Unit Need to Year 2032						
Geography	Renter		Owner		All	
	1990 to 2019 Historical Growth Trend	2010 to 2019 Historical Growth Trend	1990 to 2019 Historical Growth Trend	2010 to 2019 Historical Growth Trend	1990 to 2019 Historical Growth Trend	2010 to 2019 Historical Growth Trend
BIA Region	66,744	93,130	71,915	100,346	138,659	193,476
Delaware County	9,251	5,044	27,527	15,008	36,778	20,052
Fairfield County	2,758	2,455	6,712	5,973	9,470	8,428
Franklin County	45,522	90,515	33,616	66,842	79,138	157,356
Knox County	1,115	916	2,006	1,649	3,121	2,565
Licking County	3,038	2,743	6,511	5,879	9,549	8,622
Madison County	481	677	1,112	1,564	1,594	2,241
Marion County	533	N/A	867	N/A	1,400	N/A
Morrow County	220	164	712	531	932	695
Pickaway County	478	599	1,294	1,620	1,772	2,220
Union County	1,433	1,100	4,856	3,729	6,289	4,829

Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services, ESRI

N/A – Not Applicable (negative growth projected based on the respective historical look-back period)

Building Permit Trends

The following table details historical building permits from 1990 to 2021 and the yearly job additions projected in the BIA 10-County Region to year 2032 under two compounded annual job growth scenarios (see Section VII for each individual county):

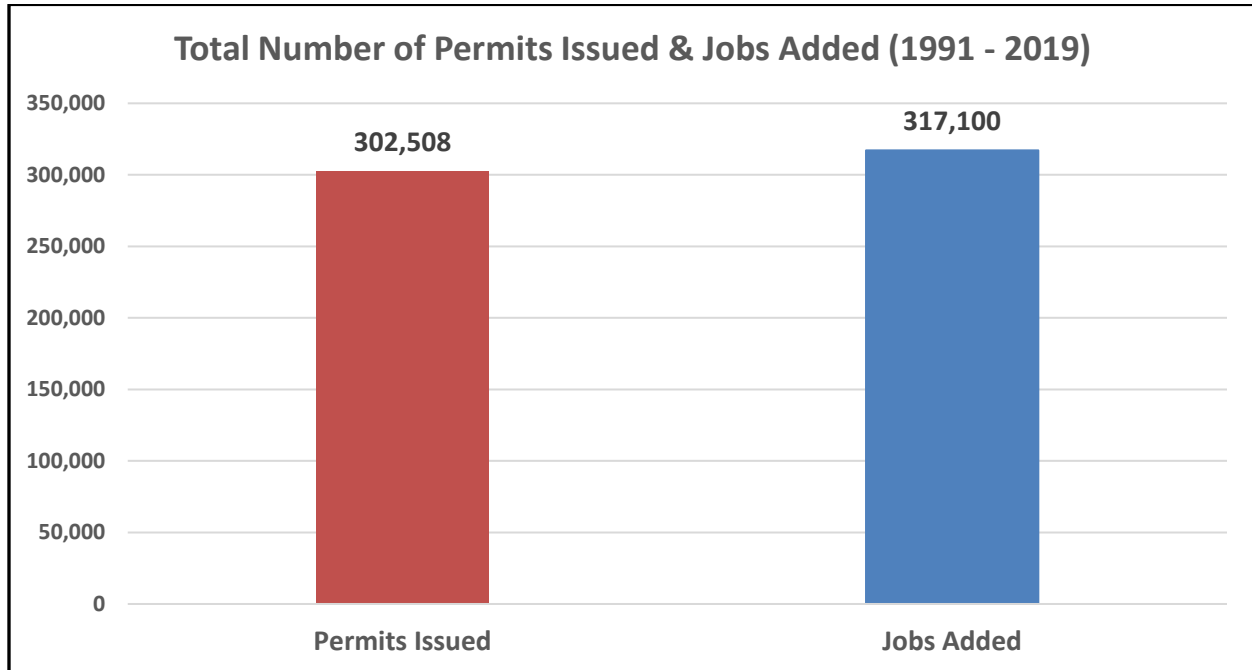


Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services; State of the Cities Data Systems (SOCDS)

In the preceding chart, the **green** growth trend bars assume a compounded annual job growth rate of 1.139%. This is the historical compounded annual job growth rate in the BIA Region from 1990 to 2019. The **red** growth trend bars assume a compounded annual job growth rate of 1.556%. This is the historical compounded annual job growth rate in the BIA Region from 2010 to 2019.

Clearly, if historical building permit activity continues, the region will **not** meet the housing need based on the anticipated job growth projections through year 2032. In the BIA 10-County Region, the yearly average number of building permits from 1990 to 2021 was 10,535 (single-family and multifamily permits). If considering the time period from 2010 to 2021, the region averaged 8,327 building permits per year. Based on our job growth projections, the 10-County BIA Region will average 14,535 to 20,281 new jobs every year through year 2032. This further highlights the inadequate housing development in the region to meet the housing need that will be generated by new jobs added to the region over the next decade. **Based on our estimates, permitting activity needs to increase by approximately two-fold from recent trends over the past decade to meet the projected housing need over the next decade.**

The following chart details the change in employment and reported permits issued in the BIA 10-County Region from 1990 to 2019.



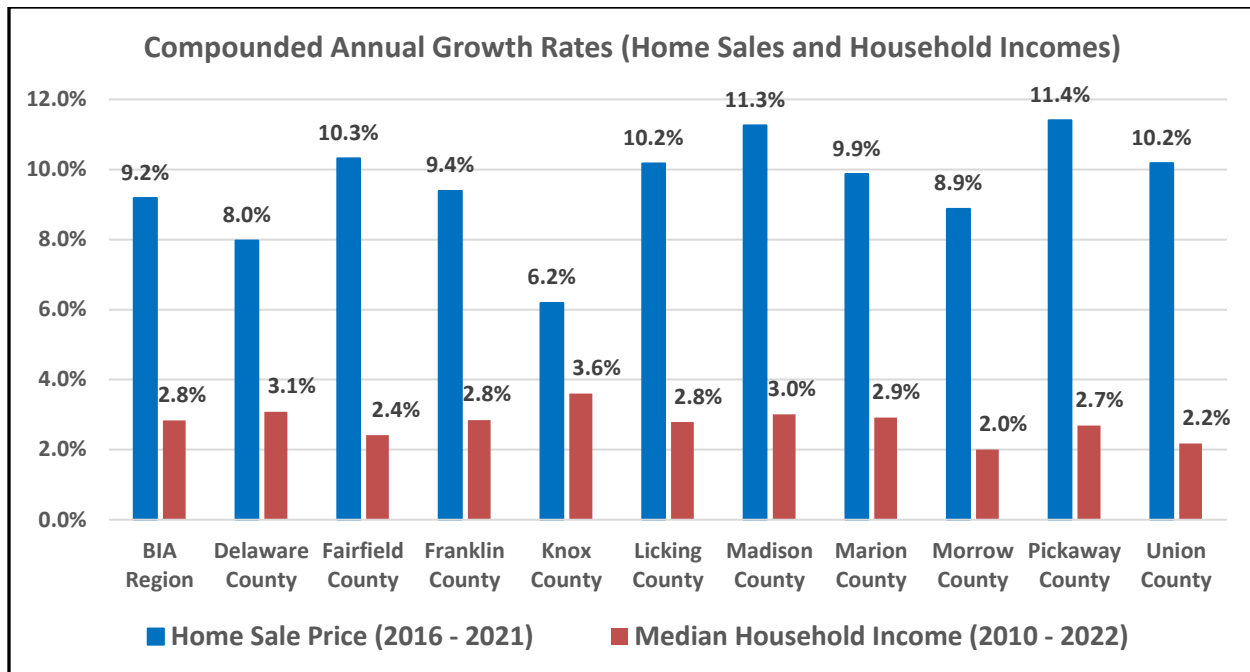
Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services; State of the Cities Data Systems (SOCDS)

Within the BIA 10-County Region, the aggregate change in employment from 1990 to 2019 was 317,100, different of approximately 4.6%. Based on the historical employment growth and permitting activity in the 10-county BIA Region from 1990 to 2019, the job growth to housing need ratio assumption to year 2032 is for every 100 new jobs added, 95 housing units need to be permitted to support the anticipated growth. Note the employment data from 2020 and 2021 was excluded as the V-shaped economic recovery from the recent pandemic skews the data, especially when evaluating for historical comparison.

Affordability

A factor that impacts a region's ability to provide the housing to meet job growth expectations is affordability.

The chart on the following page details the compounded annual growth rates for home sales (years 2016 to 2021) and median household incomes (years 2010 to 2022) for the respective geographic areas of study.



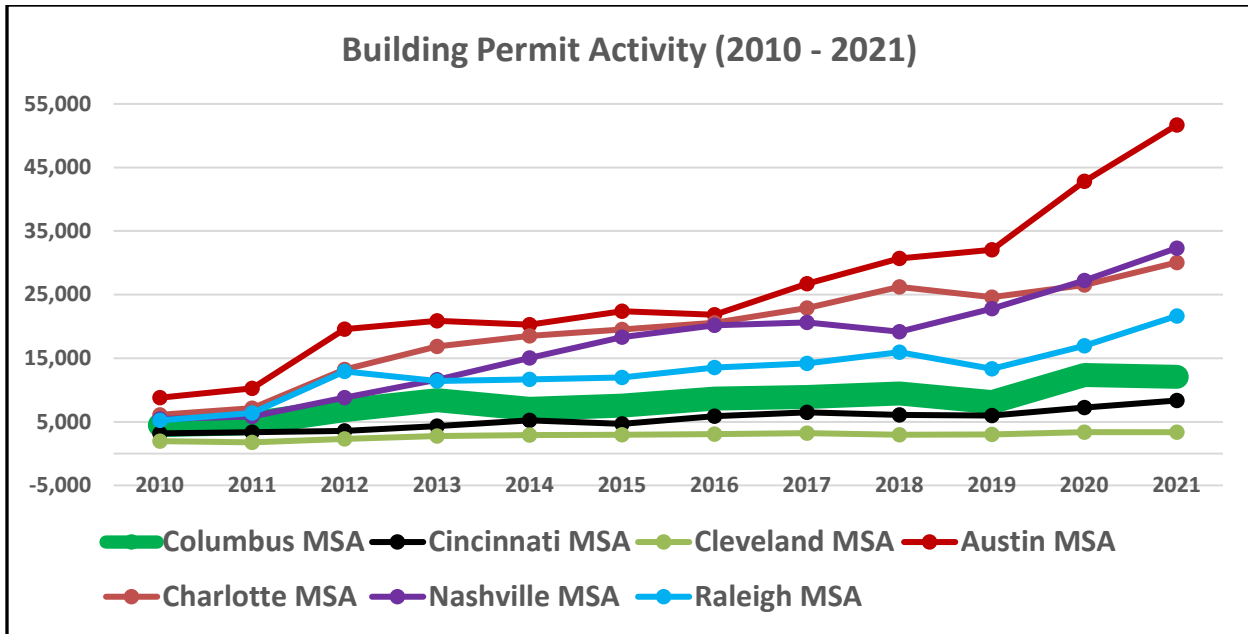
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group; Redfin

Within all geographic areas of study, the increase in median home sale prices has far outpaced the median household income growth. **In the BIA Region (aggregate of all 10 counties of study), the compounded annual growth rate in home price is more than three times the compounded annual growth rate in the median household income.** These trends will further exacerbate affordability housing challenges in the Columbus region and will limit the Columbus market from realizing job growth projections.

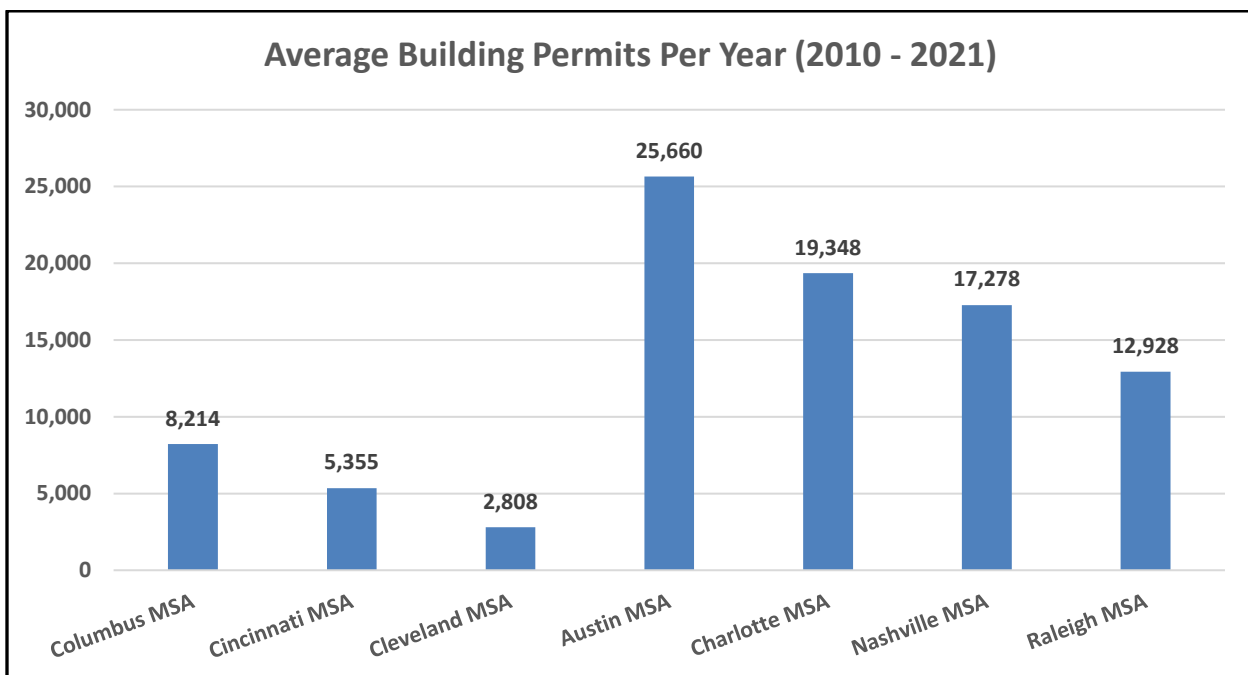
National Comparable Cities

We have compared Central Ohio permitting activity to other peer regions. VSI case studied two state and four national MSAs that have relative socioeconomic similarities to Central Ohio. The six comparable MSAs evaluated are Cincinnati, Cleveland, Austin, Charlotte, Nashville and Raleigh. Note that instead of evaluating the BIA 10-County Region in this portion of the analysis, the Columbus MSA was included. The 10-county Columbus MSA and the 10-County BIA Region share eight counties.

The following tables summarize building permit activity in the comparable MSAs and the Columbus MSA from 2010 to 2021.



Source: Vogt Strategic Insights; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights; State of the Cities Data Systems (SOCDS)

Since 2010, the Columbus MSA has averaged 8,214 permits per year (single-family and multifamily), whereas the national peers outside of the state of Ohio have averaged 50% to 300% greater permitting activity during the same time period. Clearly, the Columbus MSA (and the other Ohio MSAs) are not keeping pace with national peers. There are a multitude of factors that are contributing to this including, but not limited to zoning, land availability, regulatory guidelines, construction costs and availability of skilled workers. If permitting activity does not increase, Columbus will not realize its job growth projections, and housing affordability challenges will be exacerbated.

III. Demographic Trends

Population Trends

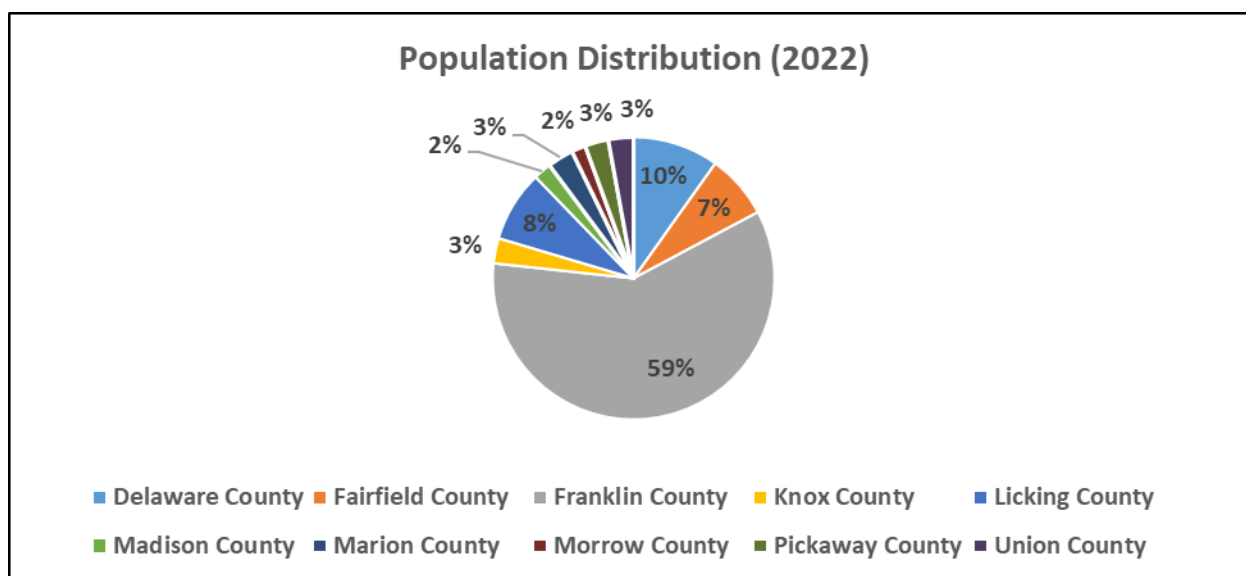
The following table details population trends for the BIA 10-County Region and the 10 counties that comprise the BIA Region for years 2010, 2022 and 2032.

Population							
Geography	2010 Census	2022 Estimated	2032 Projected	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
BIA Region	1,963,958	2,222,772	2,448,002	258,814	13.2%	225,230	10.1%
Delaware County	174,214	218,981	259,985	44,767	25.7%	41,004	18.7%
Fairfield County	146,156	164,038	179,056	17,882	12.2%	15,018	9.2%
Franklin County	1,163,414	1,321,947	1,461,059	158,533	13.6%	139,112	10.5%
Knox County	60,921	63,957	66,183	3,036	5.0%	2,226	3.5%
Licking County	166,492	181,384	194,402	14,892	8.9%	13,018	7.2%
Madison County	43,435	45,656	47,466	2,221	5.1%	1,810	4.0%
Marion County	66,501	66,425	64,535	-76	-0.1%	-1,890	-2.8%
Morrow County	34,827	35,972	37,216	1,145	3.3%	1,244	3.5%
Pickaway County	55,698	60,171	63,831	4,473	8.0%	3,660	6.1%
Union County	52,300	64,241	74,269	11,941	22.8%	10,028	15.6%

Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

*As reported by the Census and ACS, MSA figures deviate slightly from the aggregate of the individual counties

The following chart details the distribution of the population shares of each of the 10 counties that comprise the BIA Region.



Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

As the preceding table illustrates, all geographic areas of study, with the exception of Marion County, reported population growth from 2010 to 2022. Population growth is also projected in all counties, except Marion County, from 2022 to 2032. Delaware and Union counties are projected to have the most significant population growth from 2022 to 2032 at rates of 18.7% and 15.6%, respectively.

As detailed in the preceding pie chart, Franklin County represents 59% of the population base of the overall BIA study area in year 2022. Combined with Delaware, Licking and Fairfield counties, these four counties account for 84% of the population of the BIA study area.

The map on the following page details population growth trends by census tract within the BIA 10-County Region. Additional maps detailing population growth trends for the four counties that comprise the majority of the demographic size of the BIA study area (Franklin, Delaware, Licking and Fairfield counties) can be found in Addendum A of this report.

Columbus, OH 10-County BIA Region Population Growth 2010 - 2021

0 6.5 13 19.5 26 32.5 39 45.5 52 58.5 Miles

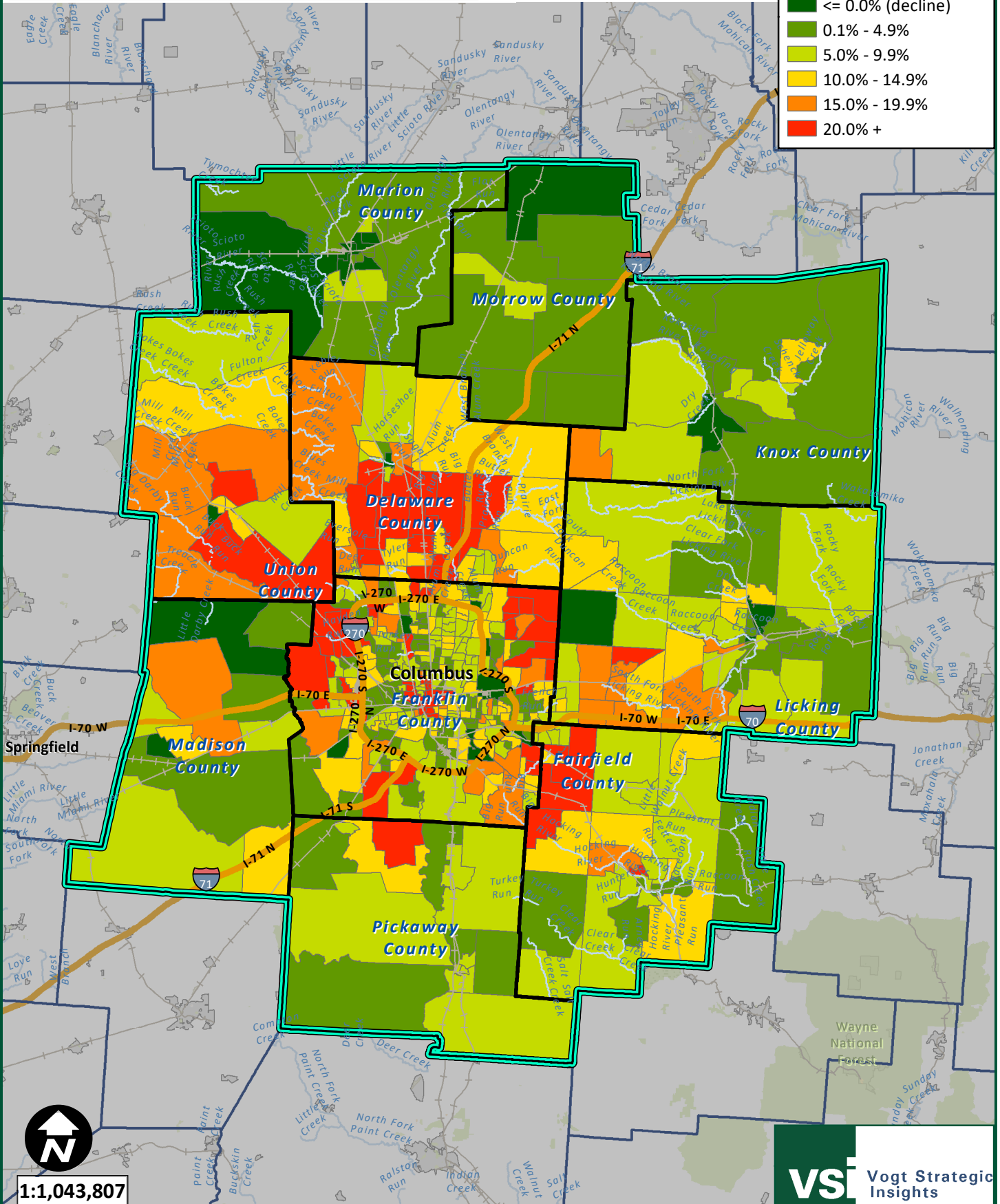
Legend

 10-County BIA Region

Census Tracts

Pop. Growth 2010-2021

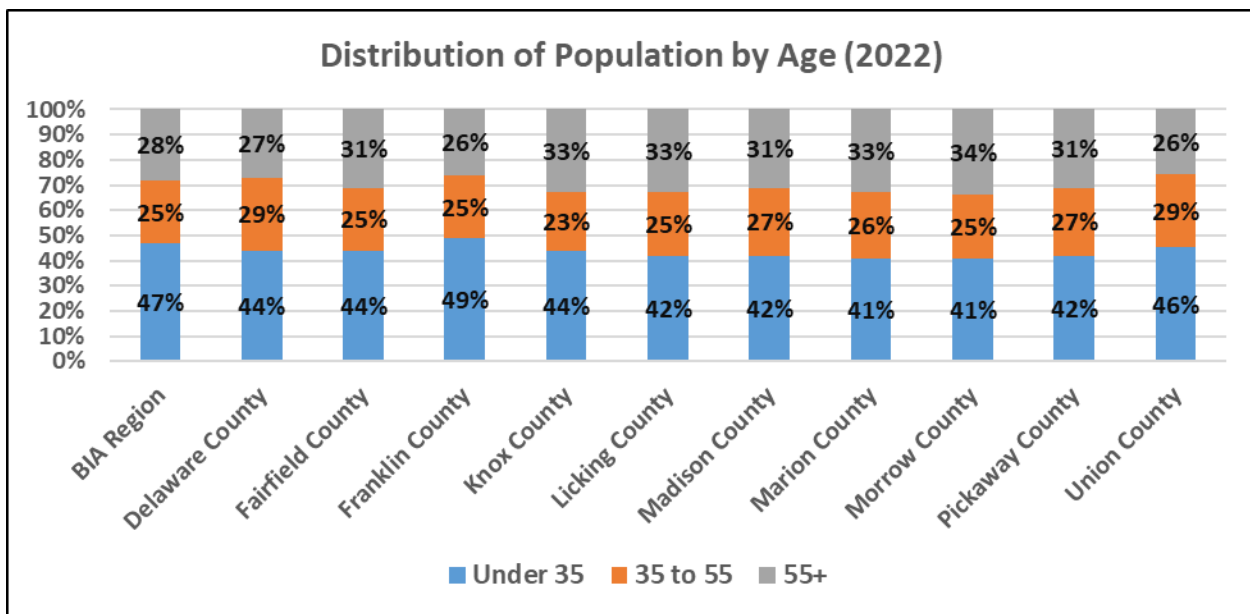
-  <= 0.0% (decline)
-  0.1% - 4.9%
-  5.0% - 9.9%
-  10.0% - 14.9%
-  15.0% - 19.9%
-  20.0% +



The summary of the population bases by age among the geographic areas of study is detailed in the table and chart below:

	Population by Age (Year 2022) (Share of Population)								
	< 19	20-24	25-34	35-44	45-54	55-64	65-74	75+	Total
Region	556,969 25.1%	165,395 7.4%	317,335 14.3%	296,299 13.3%	270,040 12.1%	272,612 12.3%	206,528 9.3%	137,594 6.2%	2,222,772 100.0%
Delaware County	63,341 28.9%	10,534 4.8%	23,401 10.7%	32,066 14.6%	30,653 14.0%	27,932 12.8%	19,623 9.0%	11,432 5.2%	218,981 100.0%
Fairfield County	40,294 24.6%	9,519 5.8%	21,519 13.1%	20,422 12.4%	21,168 12.9%	22,077 13.5%	17,425 10.6%	11,614 7.1%	164,038 100.0%
Franklin County	328,801 24.9%	114,824 8.7%	206,748 15.6%	177,587 13.4%	151,671 11.5%	151,798 11.5%	113,680 8.6%	76,837 5.8%	1,321,947 100.0%
Knox County	15,911 24.9%	4,910 7.7%	7,359 11.5%	7,094 11.1%	7,292 11.4%	8,664 13.5%	7,281 11.4%	5,446 8.5%	63,957 100.0%
Licking County	44,299 24.4%	10,413 5.7%	21,823 12.0%	21,998 12.1%	23,265 12.8%	25,617 14.1%	20,359 11.2%	13,610 7.5%	181,384 100.0%
Madison County	10,193 22.3%	2,500 5.5%	6,627 14.5%	6,135 13.4%	6,044 13.2%	6,230 13.6%	4,692 10.3%	3,234 7.1%	45,656 100.0%
Marion County	14,134 21.3%	3,995 6.0%	9,109 13.7%	8,633 13.0%	8,671 13.1%	9,064 13.6%	7,516 11.3%	5,303 8.0%	66,425 100.0%
Morrow County	8,707 24.2%	1,812 5.0%	4,168 11.6%	4,438 12.3%	4,674 13.0%	5,288 14.7%	4,246 11.8%	2,639 7.3%	35,972 100.0%
Pickaway County	13,876 23.1%	3,582 6.0%	7,914 13.2%	8,062 13.4%	8,131 13.5%	8,029 13.3%	6,350 10.6%	4,228 7.0%	60,171 100.0%
Union County	17,413 27.1%	3,306 5.1%	8,668 13.5%	9,863 15.4%	8,470 13.2%	7,914 12.3%	5,355 8.3%	3,251 5.1%	64,241 100.0%

Source: 2000, 2010 Census; ESRI; Urban Decision Group; VSI



Source: 2000, 2010 Census; ESRI; Urban Decision Group; VSI

A notable statistic in the preceding table is that Franklin County has a higher share of individuals under age 35 (49%) relative to the other nine counties (41% to 46%).

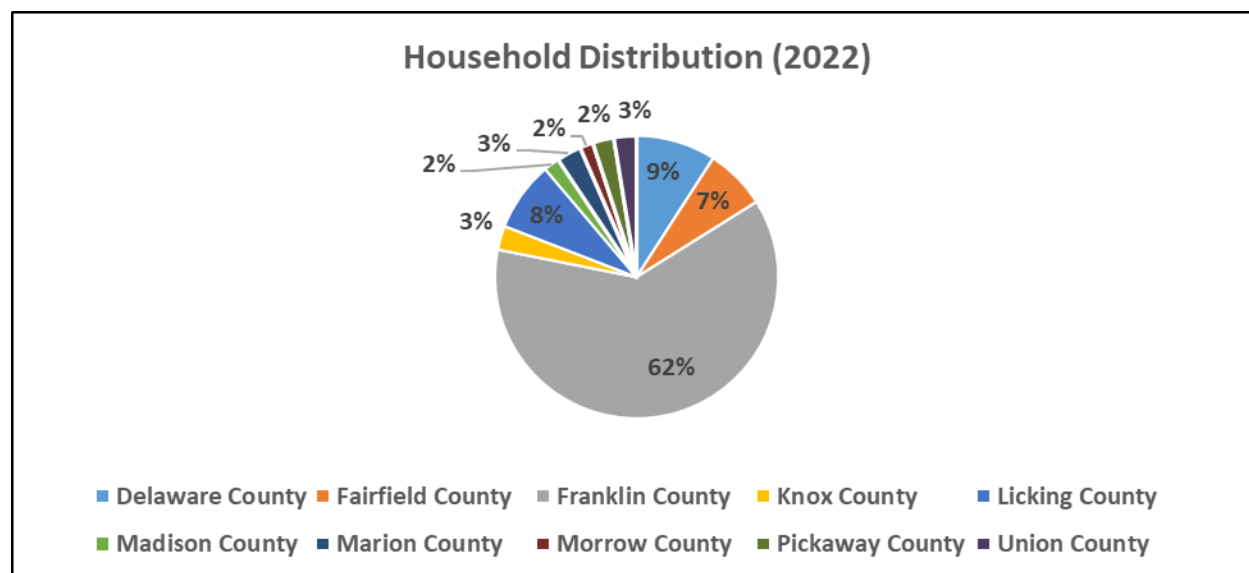
Household Trends

The following table details household trends for the BIA 10-County Region and the 10 counties that comprise the BIA region for years 2010, 2022 and 2032.

Geography	Households						
	2010 Census	2022 Estimated	2032 Projected	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
BIA Region	770,870	872,691	963,265	101,821	13.2%	90,574	10.4%
Delaware County	62,760	79,435	94,575	16,675	26.6%	15,140	19.1%
Fairfield County	54,310	60,869	66,423	6,559	12.1%	5,554	9.1%
Franklin County	477,235	541,385	599,713	64,150	13.4%	58,328	10.8%
Knox County	22,607	23,981	24,993	1,374	6.1%	1,012	4.2%
Licking County	63,989	69,482	74,412	5,493	8.6%	4,930	7.1%
Madison County	14,734	15,710	16,398	976	6.6%	688	4.4%
Marion County	24,691	24,715	24,053	24	0.1%	-662	-2.7%
Morrow County	12,855	13,368	13,882	513	4.0%	514	3.8%
Pickaway County	19,624	21,196	22,582	1,572	8.0%	1,386	6.5%
Union County	18,065	22,550	26,234	4,485	24.8%	3,684	16.3%

Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

The following chart details the distribution of the household shares of each of the 10 counties that comprise the BIA Region.



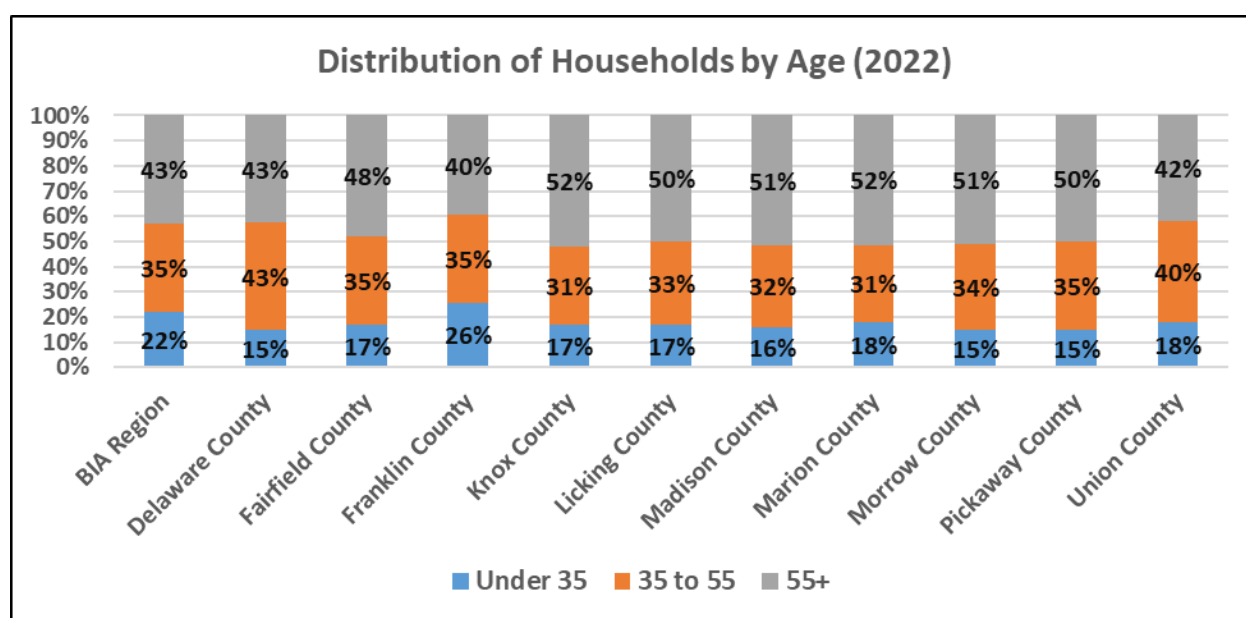
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

The four largest counties, with respect to demographic size, represent 86% of all households within the BIA study area.

The summary of the households by age among the geographic areas of study are detailed in the table and chart below:

	Households by Age (Year 2022) (Share of Households)								
	< 25	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
BIA Region	46,650	148,806	157,593	147,981	156,810	125,505	61,976	27,370	872,691
	5.3%	17.1%	18.1%	17.0%	18.0%	14.4%	7.1%	3.1%	100.0%
Delaware County	1,837	10,028	16,924	16,869	15,455	11,267	4,910	2,144	79,435
	2.3%	12.6%	21.3%	21.2%	19.5%	14.2%	6.2%	2.7%	100.0%
Fairfield County	1,779	8,778	10,179	10,896	11,836	10,054	5,448	1,899	60,869
	2.9%	14.4%	16.7%	17.9%	19.4%	16.5%	8.9%	3.1%	100.0%
Franklin County	37,392	103,885	99,495	87,038	91,290	71,473	34,162	16,649	541,385
	6.9%	19.2%	18.4%	16.1%	16.9%	13.2%	6.3%	3.1%	100.0%
Knox County	784	3,282	3,566	3,855	4,786	4,262	2,327	1,119	23,981
	3.3%	13.7%	14.9%	16.1%	20.0%	17.8%	9.7%	4.7%	100.0%
Licking County	2,163	9,414	10,989	12,137	14,035	12,028	6,228	2,488	69,482
	3.1%	13.5%	15.8%	17.5%	20.2%	17.3%	9.0%	3.6%	100.0%
Madison County	407	2,159	2,383	2,706	3,220	2,699	1,566	569	15,710
	2.6%	13.7%	15.2%	17.2%	20.5%	17.2%	10.0%	3.6%	100.0%
Marion County	862	3,460	3,725	3,884	4,785	4,461	2,459	1,078	24,715
	3.5%	14.0%	15.1%	15.7%	19.4%	18.0%	10.0%	4.4%	100.0%
Morrow County	303	1,666	2,123	2,413	2,821	2,456	1,204	382	13,368
	2.3%	12.5%	15.9%	18.1%	21.1%	18.4%	9.0%	2.9%	100.0%
Pickaway County	546	2,712	3,538	3,846	4,232	3,713	1,979	630	21,196
	2.6%	12.8%	16.7%	18.1%	20.0%	17.5%	9.3%	3.0%	100.0%
Union County	576	3,419	4,671	4,336	4,351	3,092	1,587	518	22,550
	2.6%	15.2%	20.7%	19.2%	19.3%	13.7%	7.0%	2.3%	100.0%

Source: 2010 Census; ESRI; Urban Decision Group; VSI



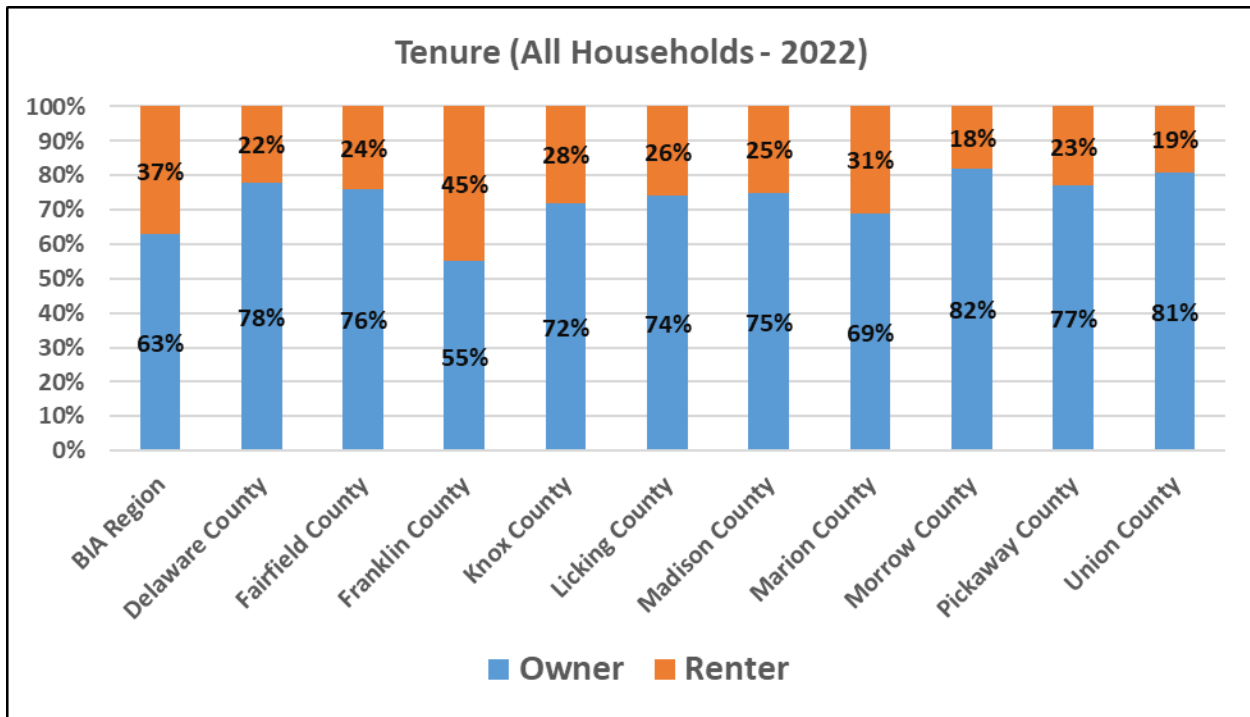
Source: 2000, 2010 Census; ESRI; Urban Decision Group; VSI

Note the younger household composition in Franklin County relative to the BIA study area and the other nine counties. This is to be expected considering the educational institutions and employment nodes in Franklin County.

The summary of tenure among the geographic areas of study for years 2022 and 2032 are detailed in the table below and the chart on the following page:

		Households by Tenure			
		2022 (Estimated)		2032 (Projected)	
BIA Region	Owner-Occupied	548,073	62.8%	612,607	63.6%
	Renter-Occupied	324,618	37.2%	350,658	36.4%
	Total	872,691	100.0%	963,265	100.0%
Delaware County	Owner-Occupied	62,117	78.2%	73,535	77.8%
	Renter-Occupied	17,318	21.8%	21,040	22.2%
	Total	79,435	100.0%	94,575	100.0%
Fairfield County	Owner-Occupied	46,397	76.2%	51,571	77.6%
	Renter-Occupied	14,472	23.8%	14,852	22.4%
	Total	60,869	100.0%	66,423	100.0%
Franklin County	Owner-Occupied	296,483	54.8%	332,729	55.5%
	Renter-Occupied	244,902	45.2%	266,984	44.5%
	Total	541,385	100.0%	599,713	100.0%
Knox County	Owner-Occupied	17,214	71.8%	18,336	73.4%
	Renter-Occupied	6,767	28.2%	6,657	26.6%
	Total	23,981	100.0%	24,993	100.0%
Licking County	Owner-Occupied	51,484	74.1%	56,268	75.6%
	Renter-Occupied	17,998	25.9%	18,144	24.4%
	Total	69,482	100.0%	74,412	100.0%
Madison County	Owner-Occupied	11,782	75.0%	12,536	76.5%
	Renter-Occupied	3,927	25.0%	3,861	23.5%
	Total	15,710	100.0%	16,398	100.0%
Marion County	Owner-Occupied	17,158	69.4%	17,128	71.2%
	Renter-Occupied	7,557	30.6%	6,925	28.8%
	Total	24,715	100.0%	24,053	100.0%
Morrow County	Owner-Occupied	10,930	81.8%	11,538	83.1%
	Renter-Occupied	2,439	18.2%	2,345	16.9%
	Total	13,368	100.0%	13,882	100.0%
Pickaway County	Owner-Occupied	16,280	76.8%	17,668	78.2%
	Renter-Occupied	4,916	23.2%	4,914	21.8%
	Total	21,196	100.0%	22,582	100.0%
Union County	Owner-Occupied	18,228	80.8%	21,298	81.2%
	Renter-Occupied	4,322	19.2%	4,936	18.8%
	Total	22,550	100.0%	26,234	100.0%

Source: 2000, 2010 Census; ESRI; Urban Decision Group; VSI



Source: 2000, 2010 Census; ESRI; Urban Decision Group; VSI

As detailed in the preceding chart, the renter share in Franklin County (45%) is substantially higher than the BIA study area and the other nine counties. The next highest renter share among the remaining nine counties is 31% in Marion County. The lowest renter share is in Morrow County at 18%.

The map on the following page details renter shares by census tract within the BIA study area. Additional maps detailing renter shares for the four counties that comprise the majority of the demographic size of the BIA study area can be found in Addendum A of this report.

Columbus, OH 10-County BIA Region 2021 Renter Share of Households

0 6.5 13 19.5 26 32.5 39 45.5 52 58.5 Miles

Legend

 10-County BIA Region

Census Tracts

2021 Renter Share

 <= 14.9%

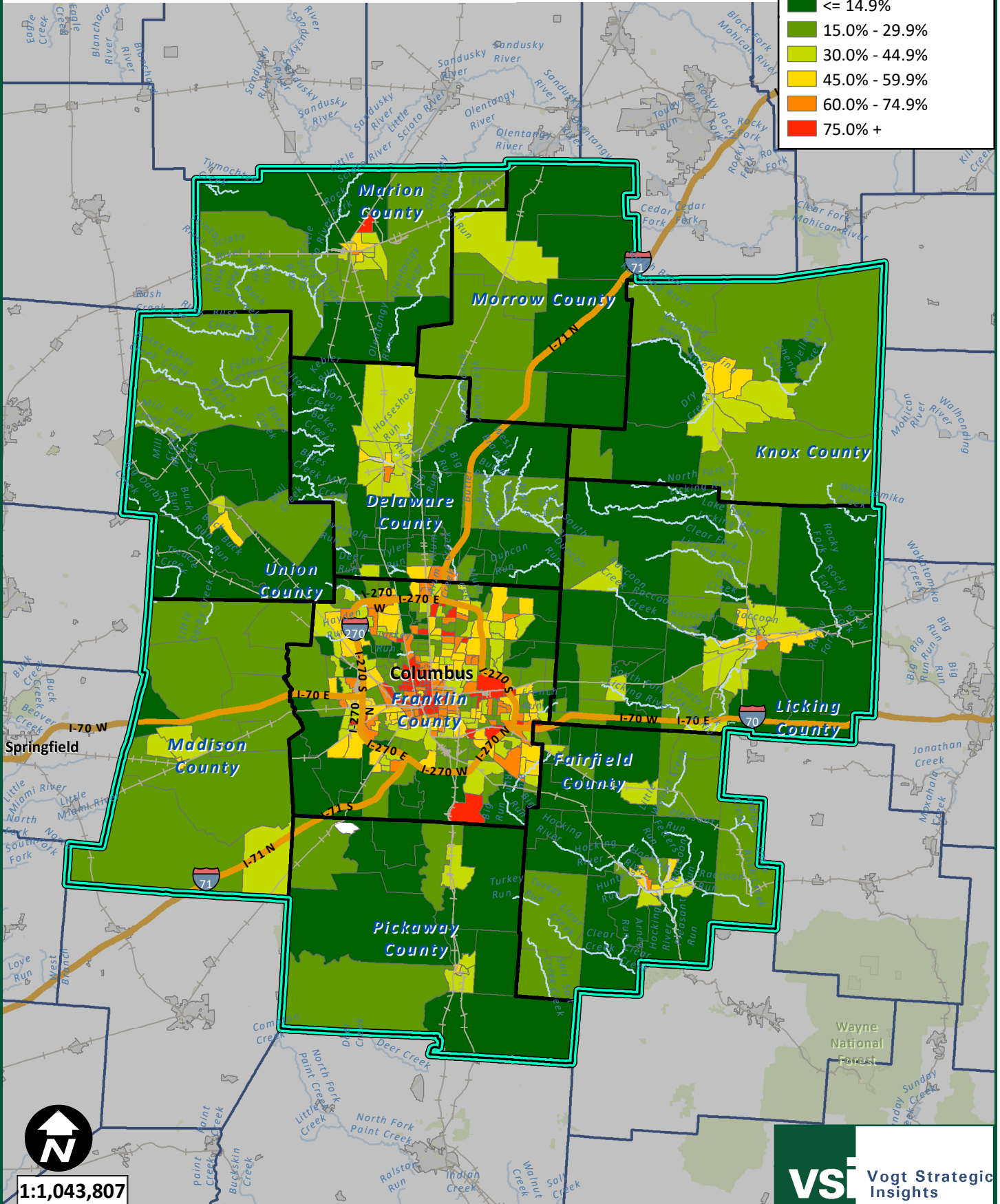
 15.0% - 29.9%

 30.0% - 44.9%

 45.0% - 59.9%

 60.0% - 74.9%

 75.0% +

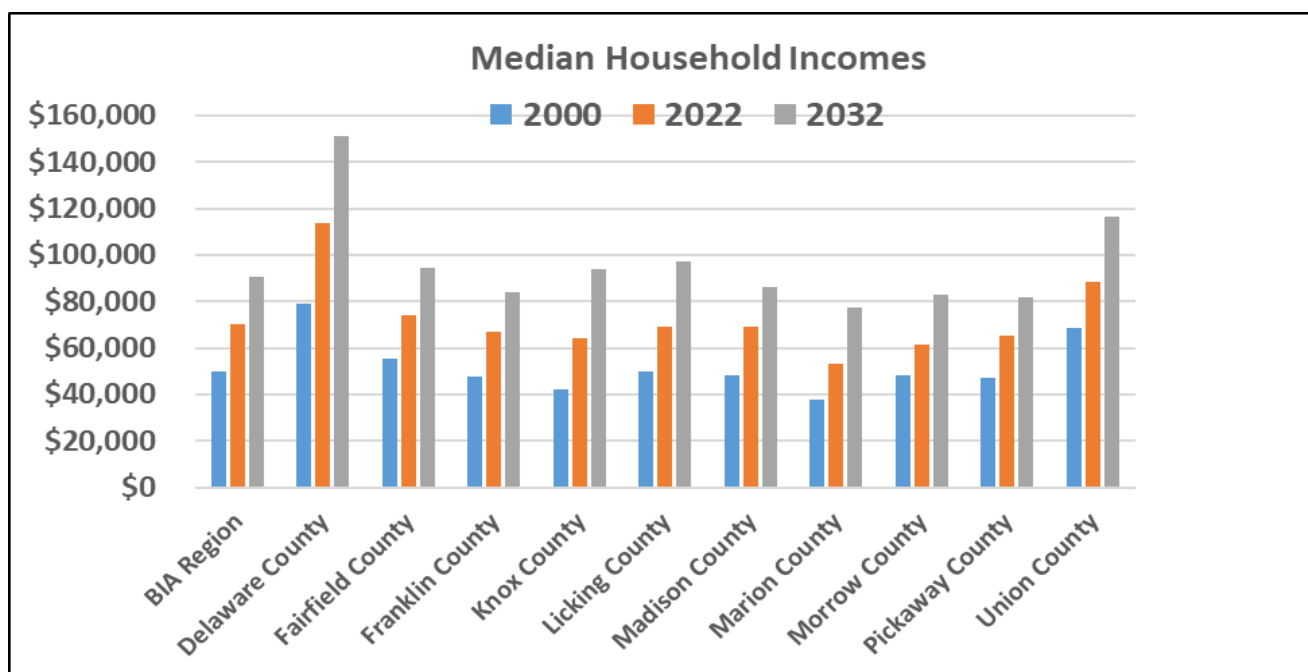


Income Trends

The summary of the median household income among the geographic areas of study for 2010, 2022 and 2032 is detailed in the table and chart below:

Median Household Incomes							
Geography	2010 Census	2022 Estimated	2032 Projected	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
BIA Region	\$50,152	\$70,147	\$90,661	\$19,995	39.9%	\$20,514	29.2%
Delaware County	\$79,146	\$113,942	\$151,477	\$34,796	44.0%	\$37,535	32.9%
Fairfield County	\$55,501	\$73,921	\$94,786	\$18,420	33.2%	\$20,865	28.2%
Franklin County	\$47,671	\$66,771	\$84,012	\$19,100	40.1%	\$17,241	25.8%
Knox County	\$42,094	\$64,342	\$93,784	\$22,248	52.9%	\$29,442	45.8%
Licking County	\$49,947	\$69,461	\$97,385	\$19,514	39.1%	\$27,924	40.2%
Madison County	\$48,436	\$69,089	\$86,409	\$20,653	42.6%	\$17,320	25.1%
Marion County	\$37,714	\$53,235	\$77,279	\$15,521	41.2%	\$24,044	45.2%
Morrow County	\$48,364	\$61,366	\$83,225	\$13,002	26.9%	\$21,859	35.6%
Pickaway County	\$47,462	\$65,233	\$82,004	\$17,771	37.4%	\$16,771	25.7%
Union County	\$68,464	\$88,654	\$116,450	\$20,190	29.5%	\$27,796	31.4%

Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

From 2010 to 2022, Knox County reported the greatest percentage increase in median household income at 52.9%. In spite of this strong growth from 2010 to 2022, Knox County is reporting the second lowest median household income at \$64,342 (year 2022). Delaware County is reporting the highest median household income in year 2022 at \$113,942.

The map on the following page details median household income trends by census tract within the BIA study area. Additional maps detailing median household income trends for the four counties that comprise the majority of the demographic size of the region can be found in Addendum A of this report.

Columbus, OH 10-County BIA Region 2021 Median Household Income

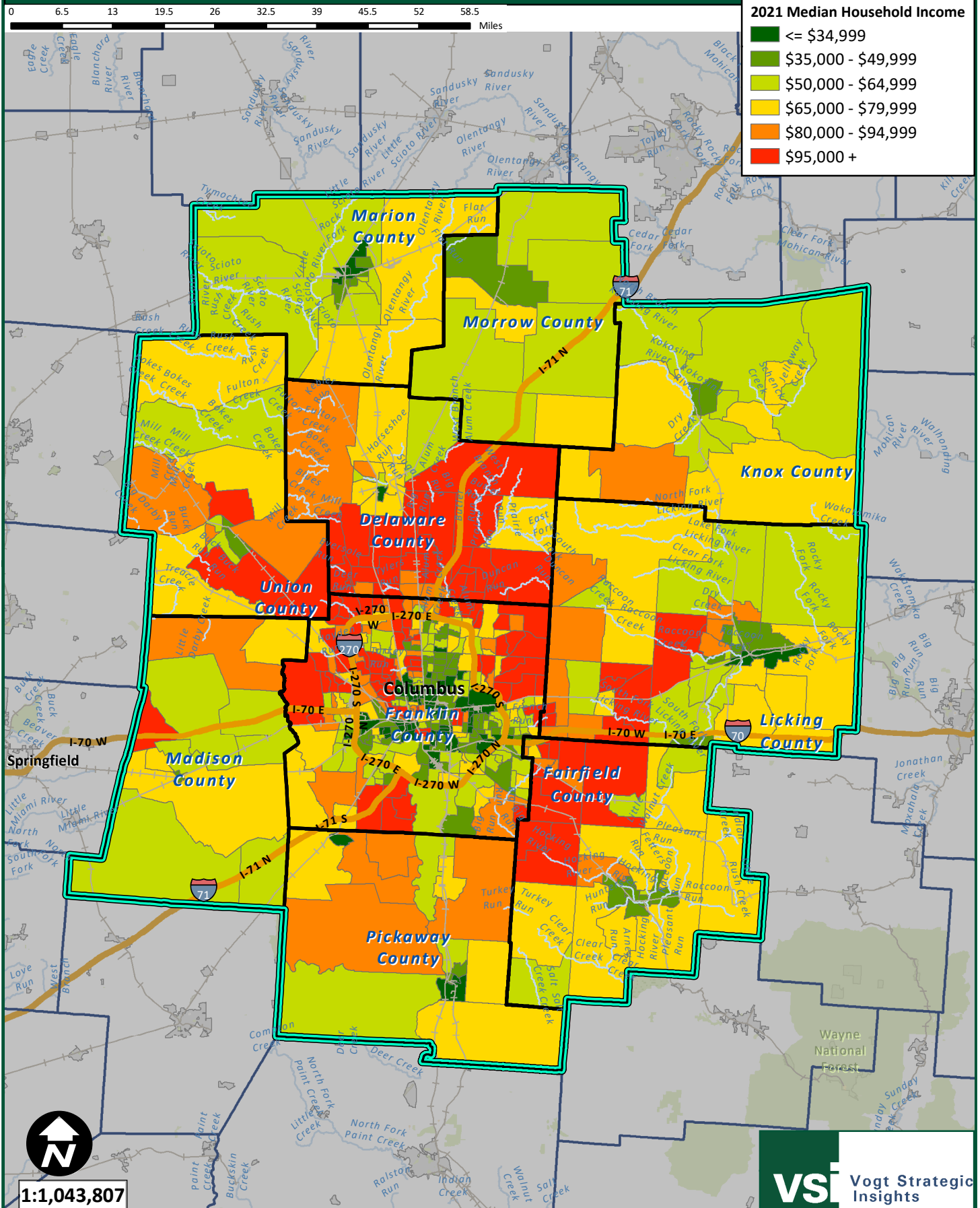
Legend

 10-County BIA Region

Census Tracts

2021 Median Household Income

-  <= \$34,999
-  \$35,000 - \$49,999
-  \$50,000 - \$64,999
-  \$65,000 - \$79,999
-  \$80,000 - \$94,999
-  \$95,000 +

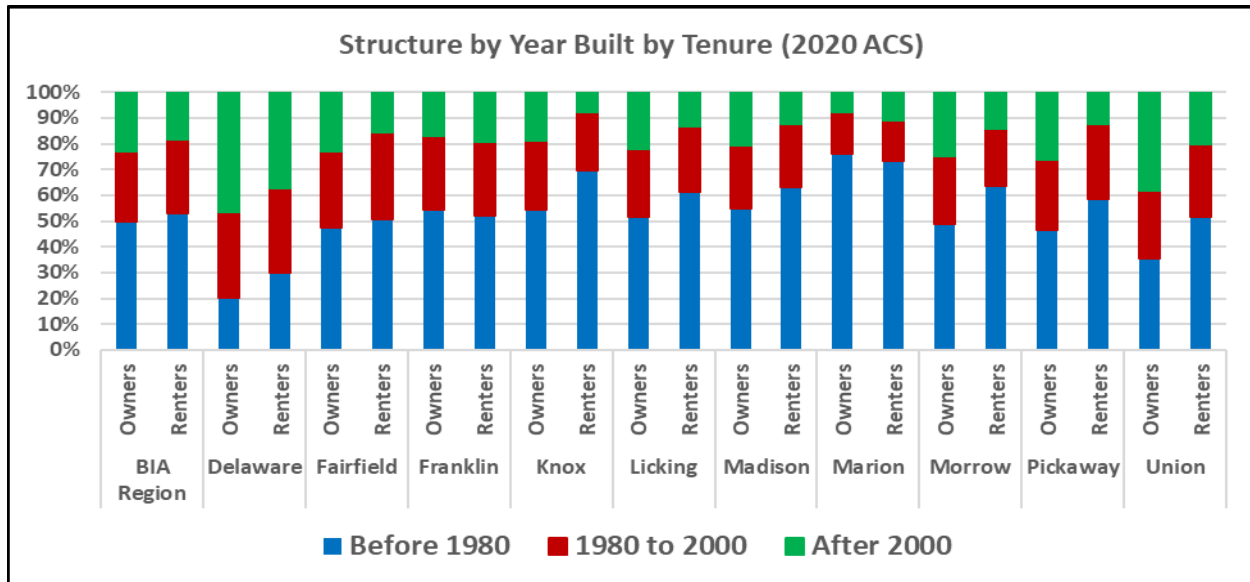


IV. Housing Supply Analysis

The existing housing market was evaluated to provide a benchmark from which housing need projections were made. This also provides context in comparing one county to another. The summary of the structure by year built by tenure among the geographic areas of study is detailed in the table and chart below:

	Tenure	Structure by Year Built by Tenure (2020 ACS) as a Percentage								Total
		Before 1960	1960 to 1969	1970 to 1979	1980 to 1989	1990 to 1999	2000 to 2009	2010 to 2014	After 2014	
BIA Region	Owners	26.3%	10.6%	12.8%	10.7%	17.4%	17.2%	2.3%	2.8%	100%
	Renters	25.6%	11.4%	16.1%	13.1%	15.2%	9.9%	3.9%	4.9%	100%
Delaware County	Owners	10.0%	3.8%	6.6%	9.3%	24.0%	34.7%	5.1%	6.5%	100%
	Renters	14.8%	4.8%	10.4%	8.0%	24.6%	17.5%	9.3%	10.5%	100%
Fairfield County	Owners	24.4%	7.7%	15.6%	9.7%	19.4%	17.4%	2.6%	3.2%	100%
	Renters	30.4%	8.0%	12.5%	12.2%	21.3%	11.2%	3.2%	1.2%	100%
Franklin County	Owners	28.4%	13.1%	13.1%	12.2%	16.1%	13.3%	2.0%	1.8%	100%
	Renters	23.7%	11.9%	16.7%	14.0%	14.6%	9.6%	4.1%	5.3%	100%
Knox County	Owners	35.1%	7.0%	12.4%	8.8%	17.9%	16.3%	1.5%	1.0%	100%
	Renters	47.4%	10.0%	12.4%	9.9%	12.5%	5.8%	0.7%	1.2%	100%
Licking County	Owners	26.0%	10.9%	14.8%	9.2%	17.1%	17.8%	1.8%	2.3%	100%
	Renters	30.6%	12.4%	18.2%	9.3%	16.4%	9.5%	1.9%	1.8%	100%
Madison County	Owners	31.1%	9.3%	14.5%	10.5%	14.0%	16.0%	1.9%	2.6%	100%
	Renters	36.0%	16.0%	11.3%	14.2%	10.3%	8.1%	2.0%	2.1%	100%
Marion County	Owners	48.2%	13.8%	14.3%	4.5%	11.4%	6.6%	0.3%	0.8%	100%
	Renters	43.3%	13.5%	16.5%	6.8%	8.8%	7.7%	1.8%	1.6%	100%
Morrow County	Owners	24.4%	5.7%	18.6%	9.5%	16.8%	19.8%	2.7%	2.4%	100%
	Renters	42.7%	7.7%	13.4%	12.9%	9.2%	13.1%	0.0%	1.0%	100%
Pickaway County	Owners	23.3%	9.4%	13.9%	10.0%	17.4%	21.0%	1.9%	3.0%	100%
	Renters	32.7%	9.2%	16.8%	14.1%	14.9%	9.2%	0.9%	2.2%	100%
Union County	Owners	22.6%	4.8%	8.3%	7.3%	19.0%	25.6%	3.4%	8.9%	100%
	Renters	33.5%	6.5%	11.7%	11.8%	16.2%	11.4%	0.6%	8.4%	100%

Source: 2020 American Community Survey; VSI



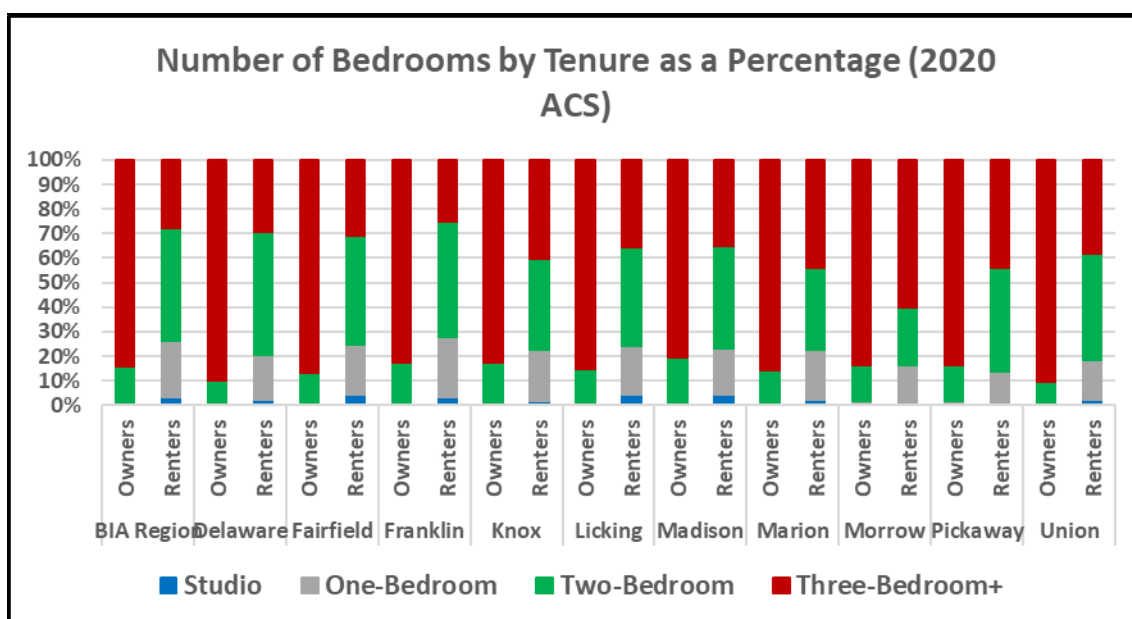
Source: 2020 American Community Survey; VSI

The notable variance in the preceding chart is that Delaware County is comprised of newer housing stock (both owner- and renter-occupied). This is to be expected considering the demographic growth in the county since 1980.

The summary of the number of bedrooms by tenure among the geographic areas of study is detailed in the table and chart below:

	Tenure	Number of Bedrooms by Tenure (2020 ACS) as a Percentage				
		Studio	One-Bedroom	Two-Bedroom	Three-Bedroom+	Total
BIA Region	Owners	0.1%	1.0%	14.6%	84.3%	100%
	Renters	3.3%	23.0%	45.9%	27.7%	100%
Delaware County	Owners	0.0%	0.7%	9.5%	89.8%	100%
	Renters	2.3%	18.1%	50.0%	29.5%	100%
Fairfield County	Owners	0.2%	1.0%	11.8%	87.1%	100%
	Renters	4.5%	20.3%	44.2%	31.0%	100%
Franklin County	Owners	0.2%	1.0%	16.4%	82.4%	100%
	Renters	3.4%	24.3%	47.3%	25.0%	100%
Knox County	Owners	0.3%	0.8%	16.1%	82.7%	100%
	Renters	1.8%	21.0%	36.7%	40.5%	100%
Licking County	Owners	0.0%	1.0%	13.7%	85.3%	100%
	Renters	4.5%	19.5%	40.4%	35.7%	100%
Madison County	Owners	0.1%	0.9%	18.5%	80.5%	100%
	Renters	4.2%	18.8%	42.1%	34.9%	100%
Marion County	Owners	0.0%	1.0%	13.1%	86.0%	100%
	Renters	2.4%	20.0%	33.7%	43.9%	100%
Morrow County	Owners	0.1%	1.4%	14.8%	83.7%	100%
	Renters	0.7%	15.9%	23.2%	60.2%	100%
Pickaway County	Owners	0.1%	1.6%	14.9%	83.4%	100%
	Renters	0.6%	13.1%	42.1%	44.2%	100%
Union County	Owners	0.1%	0.4%	9.0%	90.5%	100%
	Renters	2.0%	16.7%	43.3%	38.1%	100%

Source: 2020 American Community Survey; VSI



Source: 2020 American Community Survey; VSI

As expected, the majority of owner-occupied units are comprised of those with at least three bedrooms. Among renter-occupied units, two-bedroom units represent the highest share.

The summary of the housing cost as a percentage of income by tenure among the geographic areas of study is detailed in the table below:

	Tenure	Housing Cost as a Percentage of Income by Tenure (2020 ACS)				
		Less than 20%	20% to 29%	30% or More	Not Computed	Total
BIA Region	Owners	60.0%	21.8%	17.7%	0.5%	100%
	Renters	28.8%	25.9%	40.5%	4.9%	100%
Delaware County	Owners	59.2%	23.7%	16.9%	0.2%	100%
	Renters	37.3%	24.2%	34.1%	4.5%	100%
Fairfield County	Owners	62.1%	20.3%	17.3%	0.3%	100%
	Renters	23.9%	24.7%	47.4%	4.0%	100%
Franklin County	Owners	58.5%	22.0%	18.9%	0.6%	100%
	Renters	28.0%	26.6%	41.2%	4.2%	100%
Knox County	Owners	61.7%	24.0%	13.9%	0.3%	100%
	Renters	35.1%	14.2%	39.0%	11.6%	100%
Licking County	Owners	63.1%	20.6%	15.9%	0.4%	100%
	Renters	30.3%	25.0%	37.8%	6.8%	100%
Madison County	Owners	64.1%	19.8%	16.1%	0.1%	100%
	Renters	34.9%	31.4%	26.8%	6.9%	100%
Marion County	Owners	65.3%	19.6%	14.6%	0.6%	100%
	Renters	27.3%	19.1%	43.3%	10.4%	100%
Morrow County	Owners	65.1%	18.7%	15.6%	0.6%	100%
	Renters	29.2%	33.3%	25.7%	11.7%	100%
Pickaway County	Owners	61.4%	20.2%	18.0%	0.4%	100%
	Renters	29.3%	19.9%	35.9%	14.9%	100%
Union County	Owners	59.7%	24.6%	15.1%	0.6%	100%
	Renters	39.1%	26.0%	31.0%	3.9%	100%

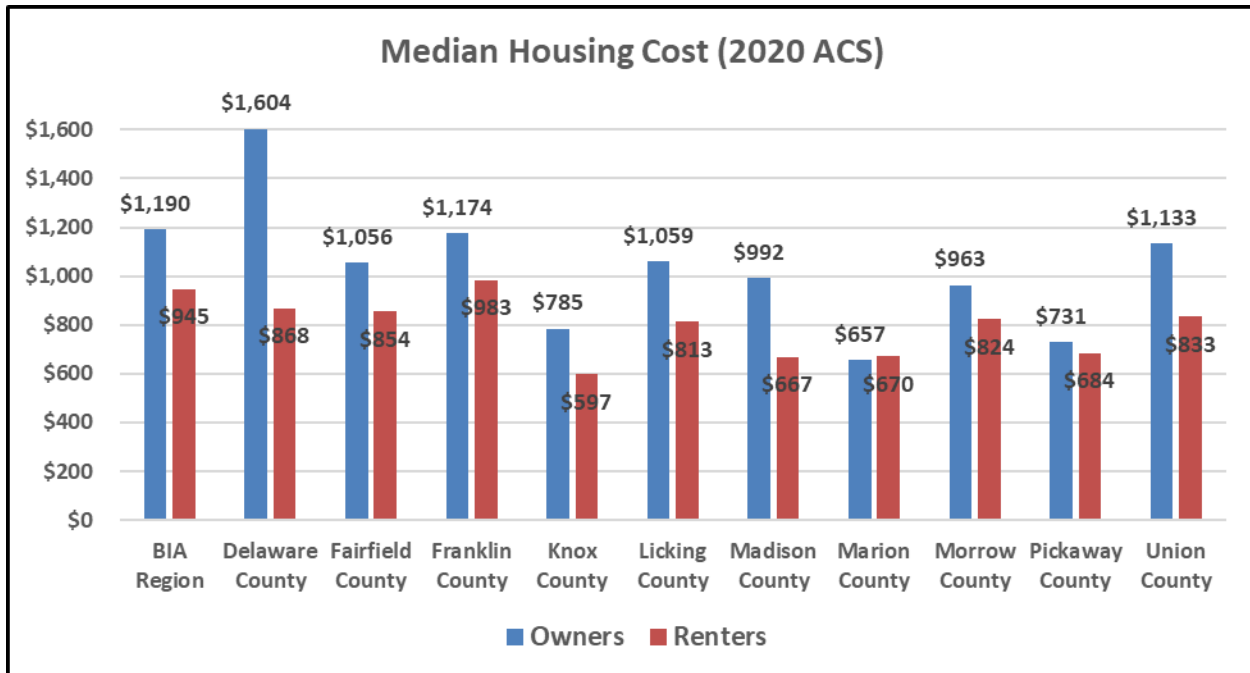
Source: 2020 American Community Survey; VSI

Generally, a household is considered to be cost overburdened if the household is paying more than 30% of their income for gross housing costs. Among owner-occupied housing units, the cost overburdened shares among the geographic areas of study deviate very little with overburdened shares ranging from 13.9% to 18.9%. The percentage of renter-occupied households that are cost overburdened is much higher ranging from 25.7% to 47.4%. In Franklin County, the largest county with respect to demographic size, 41.2% of renter-occupied households are cost overburdened. This reflects a significant housing affordability issue in the Columbus region.

The summary of the housing cost by tenure among the geographic areas is detailed in the table below and the chart on the following page:

Tenure	Monthly Cost by Tenure (2020 ACS)										
	BIA Region	Delaware County	Fairfield County	Franklin County	Knox County	Licking County	Madison County	Marion County	Morrow County	Pickaway County	Union County
Owners	\$1,190	\$1,604	\$1,056	\$1,174	\$785	\$1,059	\$992	\$657	\$963	\$731	\$1,133
Renters	\$945	\$868	\$854	\$983	\$597	\$813	\$667	\$670	\$824	\$684	\$833

Source: 2020 American Community Survey; VSI



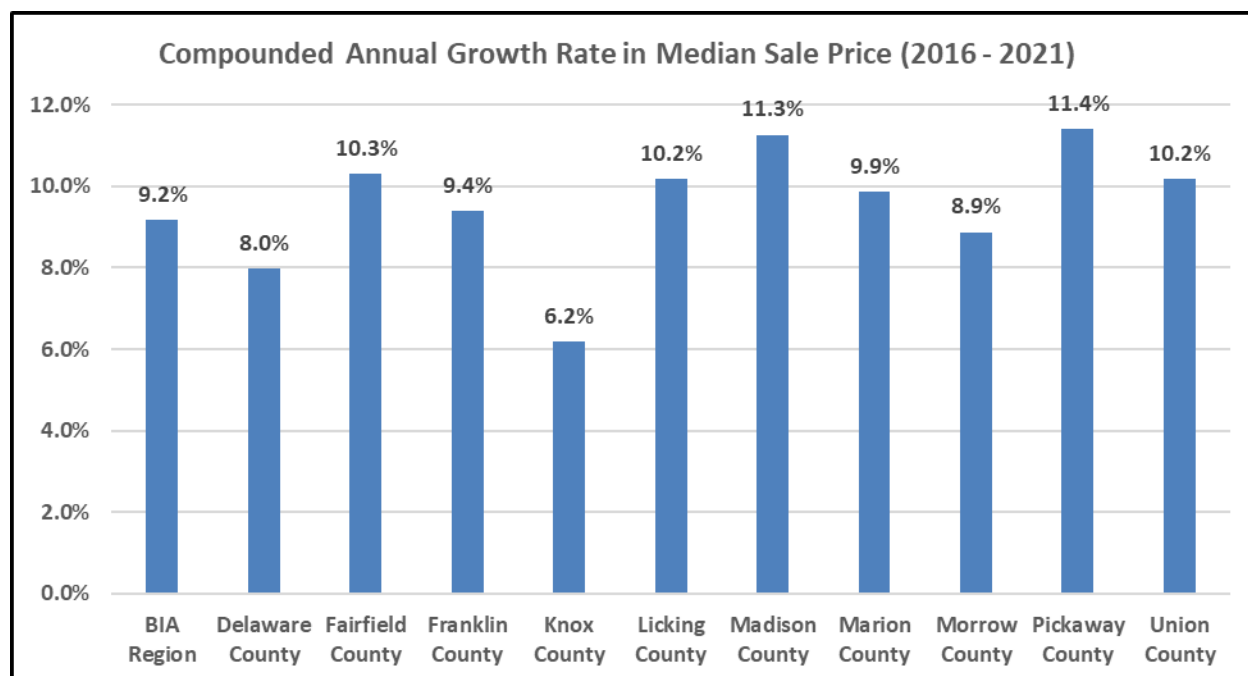
Source: 2020 American Community Survey; VSI

As detailed in the preceding chart and table, housing costs are highest in Delaware County while housing costs are generally lowest in Marion County. This is primarily a function of the housing that has been developed in Delaware County with much of that development occurring in the past 20 years.

The summaries of the annual median home sale prices (rounded to the nearest thousand), the percentage change from 2016 to 2021 and the compounded annual growth rates from 2016 to 2021 among the geographic areas of study are detailed in the table below and the chart on the following page.

Geography	Annual Median Sale Price							Compounded Annual Growth (2016 – 2021)
	2016	2017	2018	2019	2020	2021	Percent Change (2016 – 2021)	
BIA Region	\$176,532	\$189,170	\$202,782	\$216,906	\$240,470	\$273,882	55.1%	9.2%
Delaware County	\$280,783	\$307,905	\$324,466	\$336,468	\$366,366	\$411,991	46.7%	8.0%
Fairfield County	\$173,193	\$185,747	\$193,319	\$209,661	\$241,259	\$282,941	63.4%	10.3%
Franklin County	\$162,316	\$172,578	\$187,280	\$200,891	\$222,076	\$254,165	56.6%	9.4%
Knox County	\$154,416	\$156,566	\$155,290	\$152,277	\$181,251	\$208,519	35.0%	6.2%
Licking County	\$162,233	\$179,572	\$192,608	\$203,668	\$232,896	\$263,322	62.3%	10.2%
Madison County	\$145,356	\$152,887	\$171,345	\$186,568	\$202,570	\$247,825	70.5%	11.3%
Marion County	\$90,785	\$97,034	\$102,828	\$110,164	\$117,674	\$145,325	60.1%	9.9%
Morrow County	\$146,633	\$146,304	\$158,143	\$173,120	\$205,062	\$224,283	53.0%	8.9%
Pickaway County	\$149,921	\$166,544	\$175,471	\$190,766	\$218,022	\$257,226	71.6%	11.4%
Union County	\$216,387	\$232,547	\$253,499	\$276,126	\$286,205	\$351,318	62.4%	10.2%

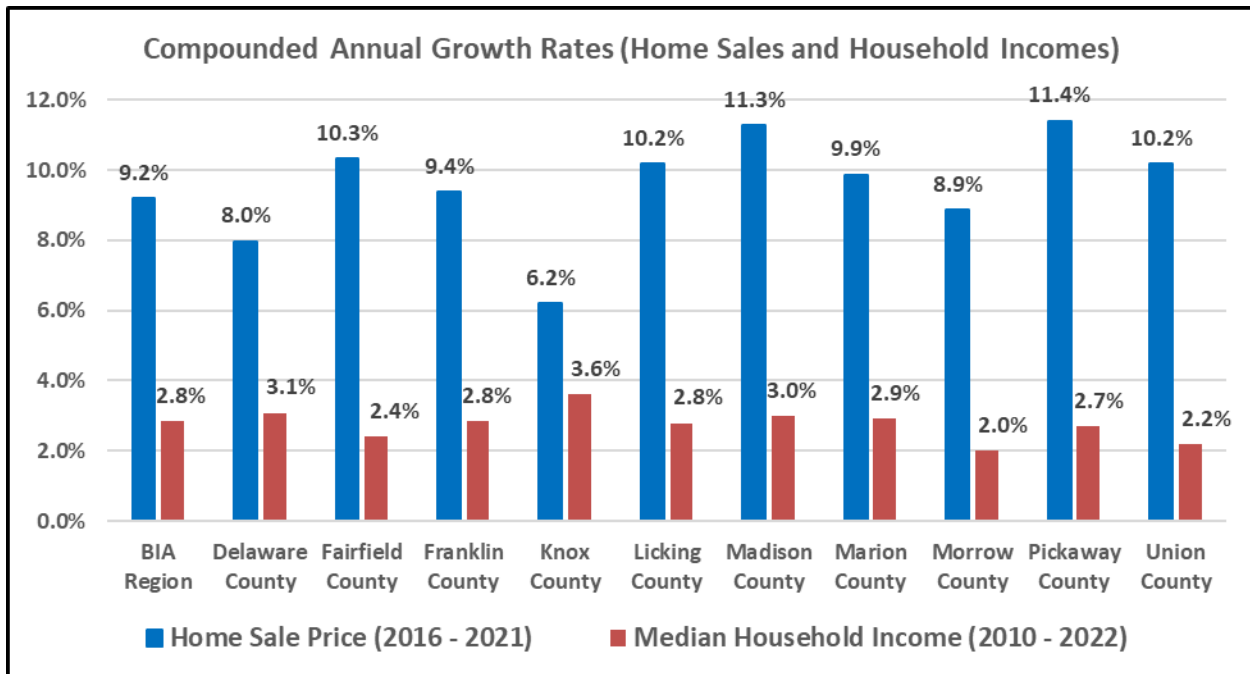
Source: Redfin; VSI



Source: Redfin; VSI

As detailed in the preceding chart and table, home prices have increased in all counties and the BIA Region over the past five years with compounded annual growth rates ranging from 6.2% to 11.4%. Delaware is reporting the highest median home sale price of \$411,991 (year 2021), while Marion County is reporting the lowest median home sale price of \$145,325 (year 2021). Note the median home sale prices include all home sales (resales and new construction).

The chart on the following page details the compounded annual growth rates for home sales (years 2016 to 2021) and median household incomes (years 2010 to 2022) for the respective geographic areas of study.



Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group; Redfin

Within all geographic areas of study, the increase in median home sale prices has far outpaced the median household income growth. In the BIA Region (aggregate of all 10 counties of study), the compounded annual growth rate in home price is more than three times the compounded annual growth rate in the median household income. These trends will further exacerbate affordability housing challenges in the Columbus region and will limit the Columbus market from realizing job growth projections.

The maps on the following pages detail median home values and median gross rents by census tract for the BIA 10-County Region. The source of this data is the American Community Survey (ACS). Additional maps detailing home value and rent trends for the four counties that comprise the majority of the demographic size of the region can be found in Addendum A of this report.

Columbus, OH 10-County BIA Region 2021 Median Home Value

0 6.5 13 19.5 26 32.5 39 45.5 52 58.5 Miles

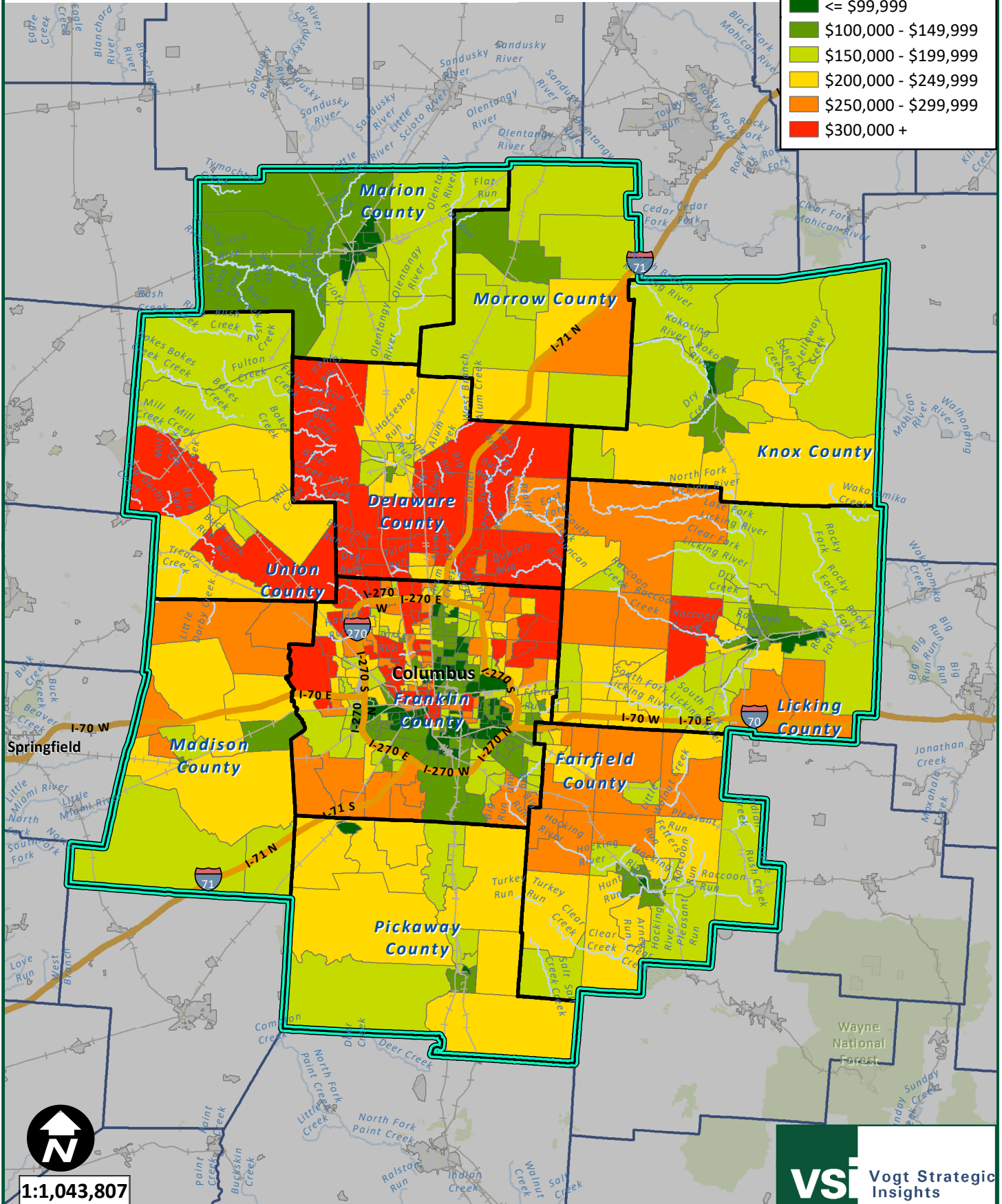
Legend

 10-County BIA Region

Census Tracts

2021 Median Home Value

-  <= \$99,999
-  \$100,000 - \$149,999
-  \$150,000 - \$199,999
-  \$200,000 - \$249,999
-  \$250,000 - \$299,999
-  \$300,000 +



Columbus, OH 10-County BIA Region ACS 2016-2020 Median Gross Rent

0 6.5 13 19.5 26 32.5 39 45.5 52 58.5 Miles

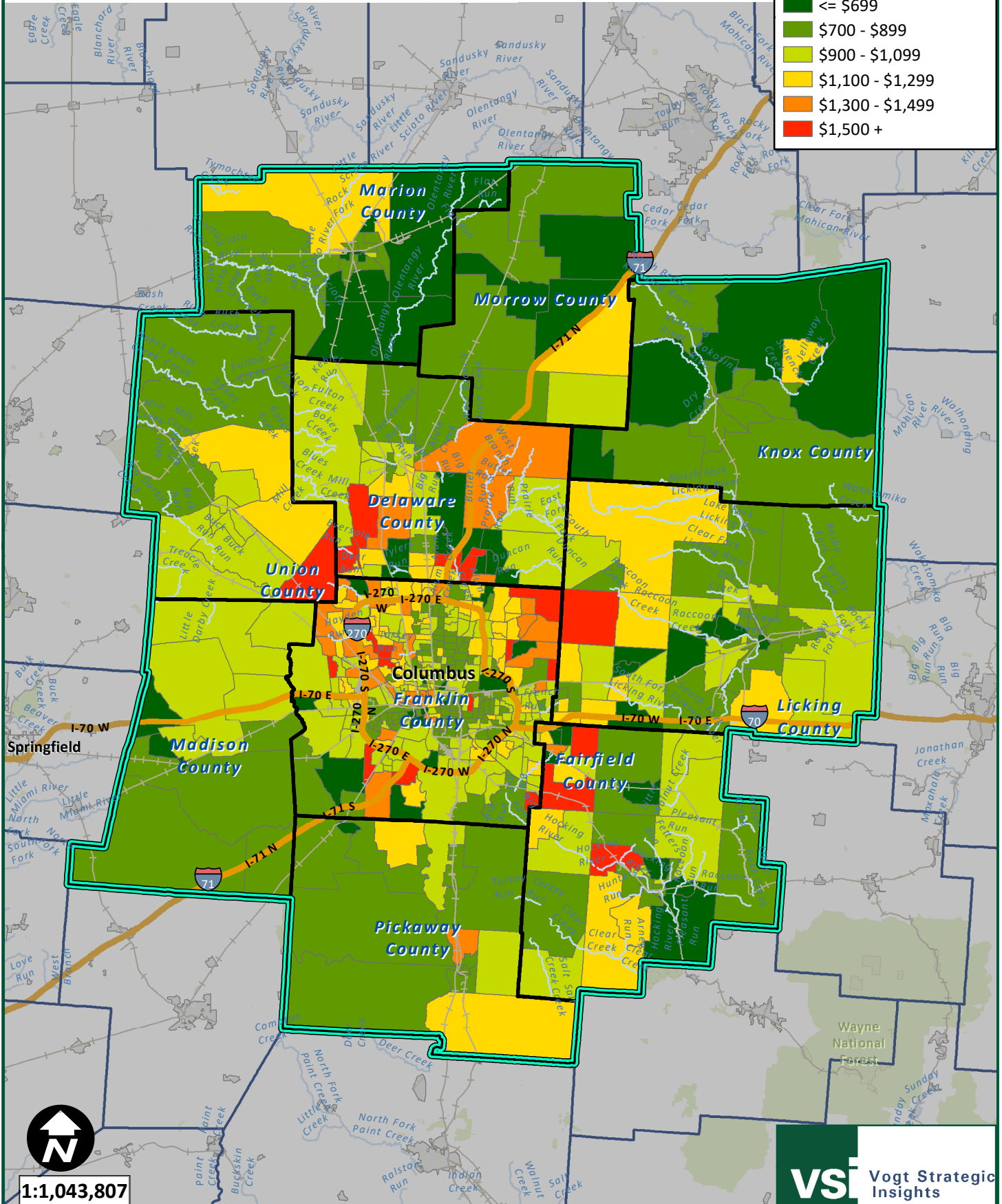
Legend

 10-County BIA Region

Census Tracts

2016-2020 Median Gross Rent

-  <= \$699
-  \$700 - \$899
-  \$900 - \$1,099
-  \$1,100 - \$1,299
-  \$1,300 - \$1,499
-  \$1,500 +



V. Housing Need Estimates

To estimate the incremental housing need by year 2032, an accepted methodology is to evaluate job growth projections. The methodology of evaluating job growth and its impact on housing need does not consider consumer preferences, availability of current housing alternatives, demographic shifts or migration within the market. It is a broad analysis to provide indications where housing need is most acute.

For this analysis, VSI evaluated historical employment trends within the 10 counties that comprise the BIA Central Ohio region and projected the number of jobs expected to be added to the respective geographic areas through to year 2032. The following table details the employed workforce for years 1990, 2000, 2010 and 2021.

Employed Workforce (Yearly Average)				
Geography	1990	2000	2010	2021
BIA Region	783,600	907,800	943,200	1,095,400
Delaware County	35,500	60,900	87,500	110,500
Fairfield County	50,800	63,300	67,500	76,300
Franklin County	518,200	573,800	571,900	674,000
Knox County	22,200	26,200	28,000	29,800
Licking County	62,300	74,400	79,200	87,600
Madison County	17,200	18,600	18,800	20,000
Marion County	28,100	30,400	27,000	26,700
Morrow County	13,000	15,800	15,400	16,100
Pickaway County	20,600	22,900	23,400	25,500
Union County	15,700	21,500	24,500	28,900

Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services

We have used historical performance of the region to anticipate the expected future job growth.

To estimate projected job growth to year 2032, two historical employment look-back periods were considered (years 1990 to 2019 and years 2010 to 2019). The employment disruption caused by the COVID-19 pandemic in the last two years substantially alters the trending data, even when considering a nearly 30-year look-back period. In most of the geographic areas of study, the employment totals for year 2021 returned to pre-pandemic levels. In the BIA Region, which is the aggregate of the 10 counties detailed in the preceding table, the 2019 employment total was 1,100,700 and the employment total in year 2021 was 1,095,400 (a deviation of less than one-half a percent). The 1990 to 2019 look-back period (29 years) includes the significant recessions of the early 2000s and 2008 to 2010.

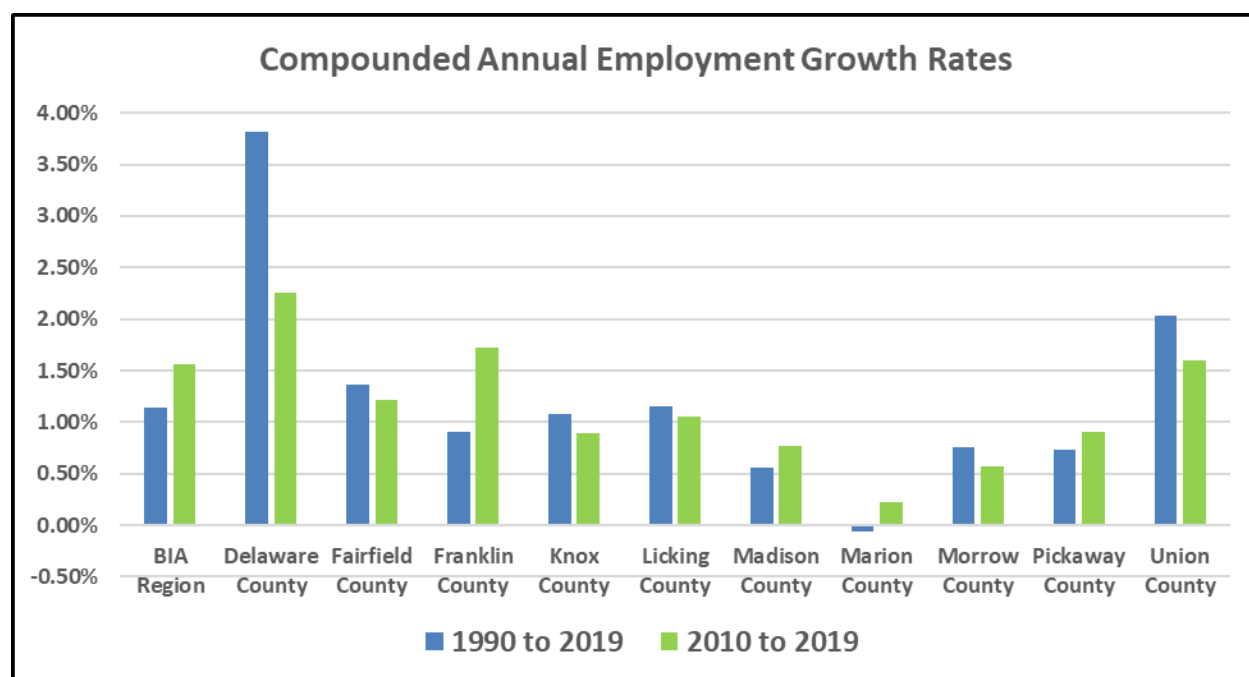
The second look-back period considers the much shorter and most recent period of 2010 to 2019. This period was considered to evaluate the most recent employment trends within the respective geographic areas of study and to capture some of the economic velocity occurring in select counties and throughout the region. In most of the geographic areas of study, this look-back period generates more robust projections since it does not include a recession.

When considering the BIA Region (aggregate of 10 counties), the change in employment from 1990 to 2019 was 317,100 ($317,100 = 1,100,700 - 783,600$). This yields a compounded annual employment growth rate of 1.139% from 1990 to 2019. In comparison, the compounded annual employment growth rate from 2010 to 2019 was 1.556%.

The following table and chart detail compounded annual employment growth rates for the two look-back periods of 1990 to 2019 and 2010 to 2019 for the BIA Region and the 10 counties that comprise of this region.

Compounded Annual Employment Growth Rates by Look-Back Period		
Geography	1990 to 2019	2010 to 2019
BIA Region	1.139%	1.556%
Delaware County	3.823%	2.259%
Fairfield County	1.361%	1.220%
Franklin County	0.900%	1.718%
Knox County	1.075%	0.892%
Licking County	1.154%	1.048%
Madison County	0.554%	0.771%
Marion County	-0.060%	0.220%
Morrow County	0.757%	0.570%
Pickaway County	0.727%	0.903%
Union County	2.031%	1.595%

Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services



Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services

As the preceding chart and table illustrate, the two counties reporting the most significant deviations in compounded annual employment growth rates between the two look-back periods are Delaware and Franklin counties. This is to be expected as growth in Delaware County during the 1990s and 2000s was significant as there was a general trend of business relocation and new establishments migrating out of the Columbus core. In recent years, there has been an increasing trend of businesses moving back to Columbus and suburban areas thereby resulting in higher compounded annual employment growth trends reported in Franklin County from 2010 to 2019 than the compounded annual employment growth trend reported from 1990 to 2019.

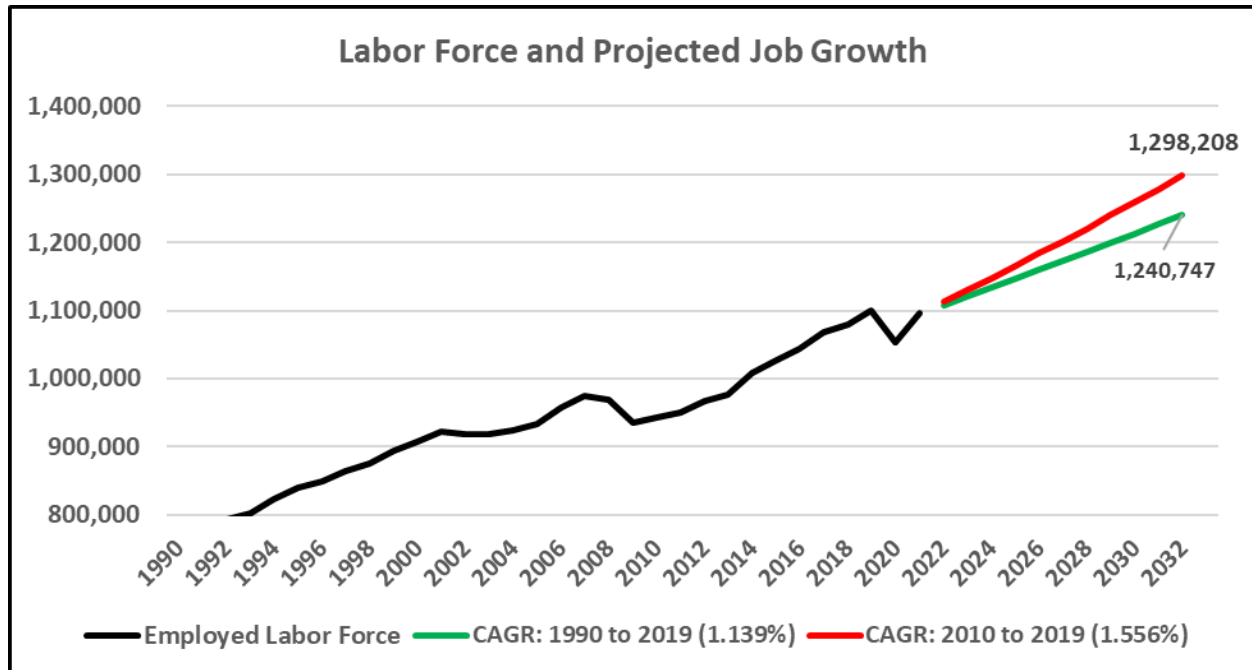
Applying the historical compounded annual employment growth trends to the most recently reported year 2021 employment totals yields a projected workforce within the geographic area of study during a particular year. In this analysis, we selected a projected year of 2032. In the case of the BIA Region, the derived compounded annual growth rates for the two look-back periods are 1.139% and 1.556%, respectively. Applying these rates to the year 2021 employed workforce (1,095,400) yields projected year 2032 workforces of 1,240,747 (compounded annual growth rate of 1.139%) and 1,298,208 (compounded annual growth rate of 1.556%). Subtracting the year 2021 workforce totals (1,095,400) yields job growth projections of 145,347 ($145,347 = 1,240,747 - 1,095,400$) and 202,808 ($202,808 = 1,298,208 - 1,095,400$).

The following table summarizes job growth projections for the geographic areas of study under the compounded annual employment growth scenarios. Note the figures in the table below represent the projected number of jobs to be added rather than the actual number of jobs in 2032.

Job Growth Projections to Year 2032		
Geography	1990 to 2019 Growth Trend	2010 to 2019 Growth Trend
BIA Region	145,347	202,808
Delaware County	56,449	30,777
Fairfield County	12,230	10,885
Franklin County	69,850	138,888
Knox County	3,721	3,058
Licking County	11,785	10,641
Madison County	1,253	1,762
Marion County	-175	653
Morrow County	1,392	1,038
Pickaway County	2,115	2,649
Union County	7,154	5,494

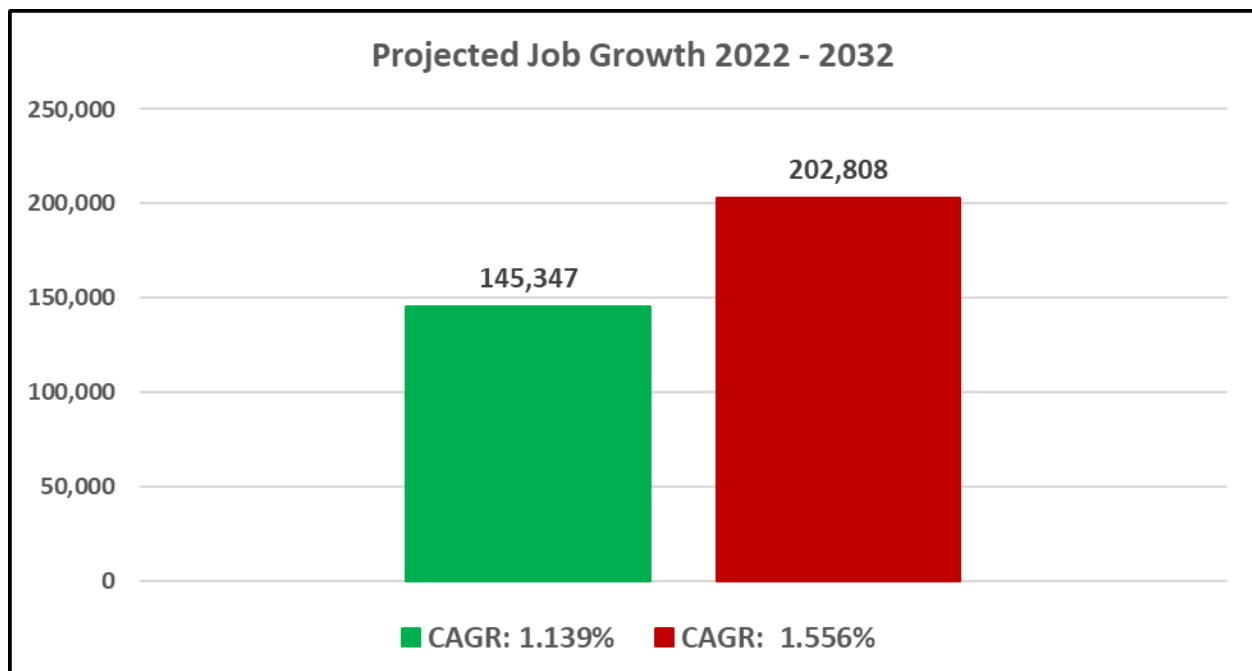
Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services

For reference, the chart on the following page details yearly employment from 1990 to 2021 (**black line**) and projected yearly average employment to year 2032 under the two compounded annual employment growth scenarios (**red** and **green** lines) for the BIA 10-County Region. For brevity, the following table is only detailed for the BIA 10-County Region in this section of the report. A similar table for each of the 10 counties that comprise the BIA Region can be found in Section VII.



Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services

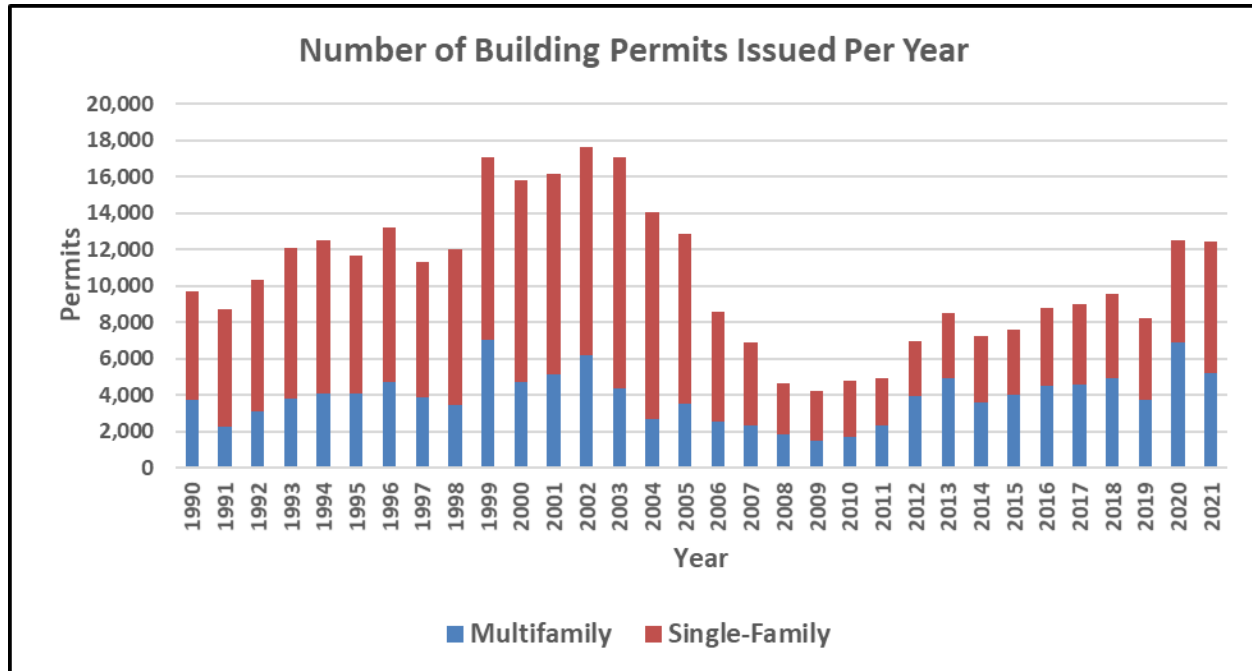
To reiterate, the projected job growth in the BIA 10-County Region from 2022 to 2032 is projected to be 145,347 under the compounded annual growth rate of 1.139% (based on the look-back period from 1990 to 2019) or 202,808 under the compounded annual growth rate of 1.556% (based on the look-back period from 2010 to 2019). These figures are summarized in the following chart. Again, for brevity, the following chart is presented only for the BIA Region in this section of the report.



Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services

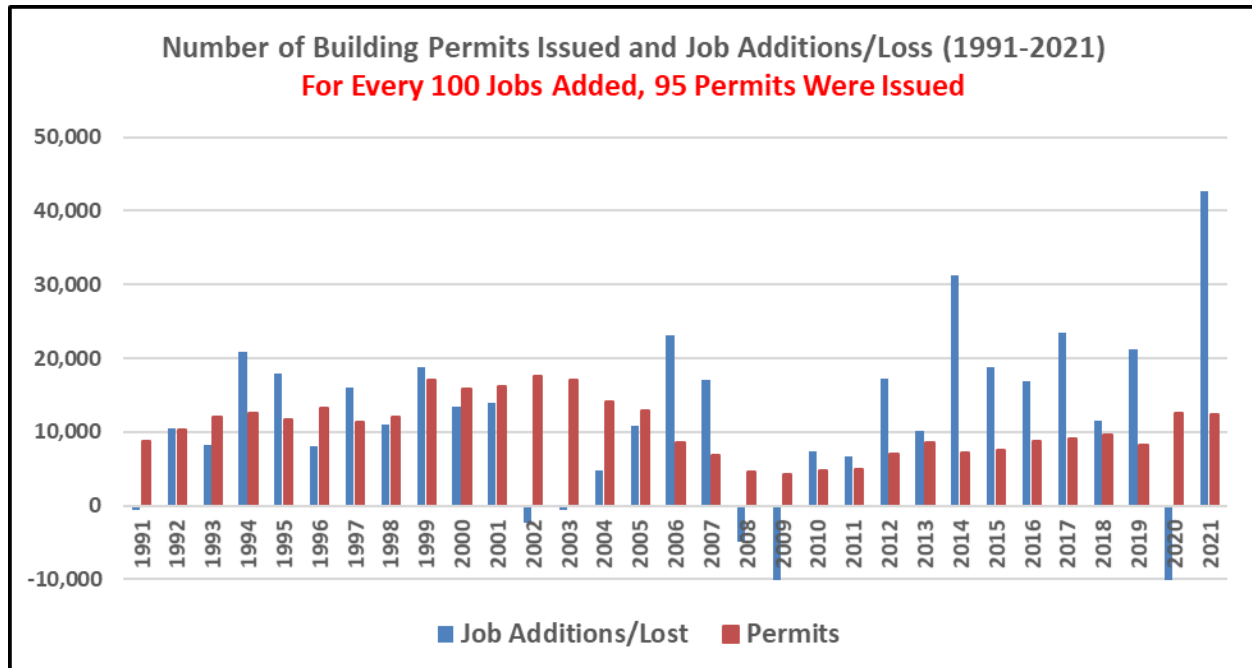
In estimating the projected housing need based solely on job growth, VSI considered the relationship between historical job growth and building permit activity. The thesis being that evaluating the ratio of job growth to permitting activity yields a reasonable estimate of the housing need within a geographic area.

The following table details single-family and multifamily permitting within the BIA 10-County Region from 1990 to 2021 (see Section VII for each county):



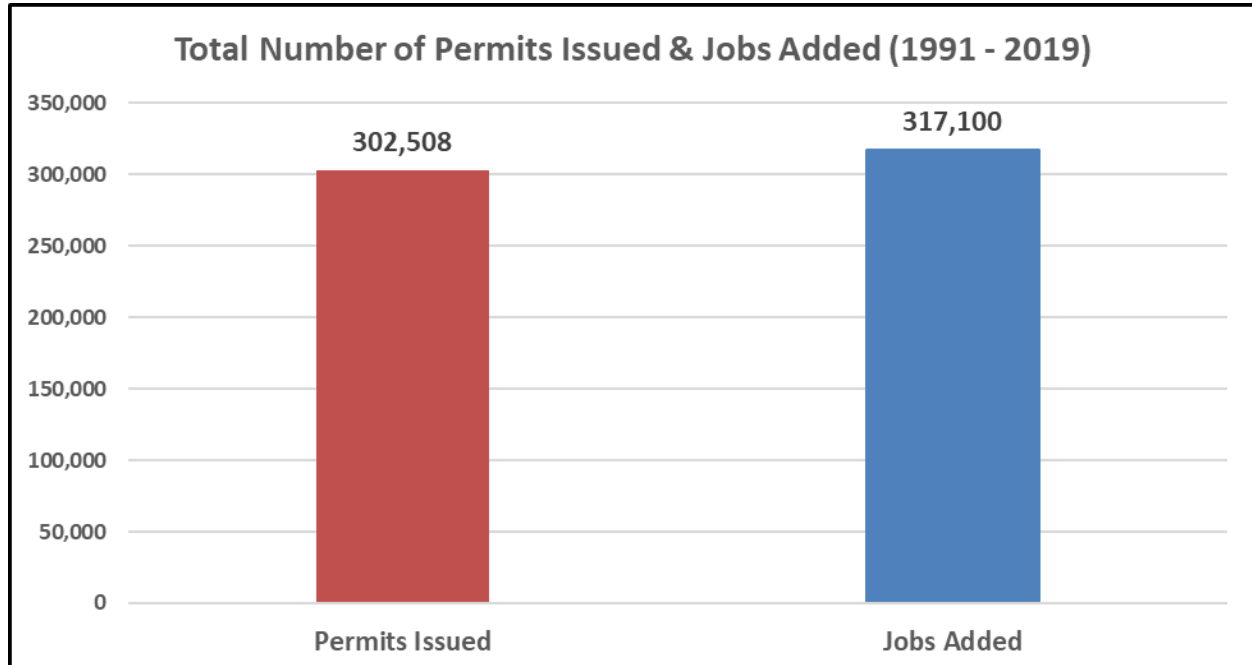
Source: Vogt Strategic Insights; State of the Cities Data Systems (SOCDS)

The table on the following page details total permitting (single-family and multifamily) and job loss/additions by year for years 1991 to 2021 within the BIA 10-County Region.



Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services; State of the Cities Data Systems (SOCDS)

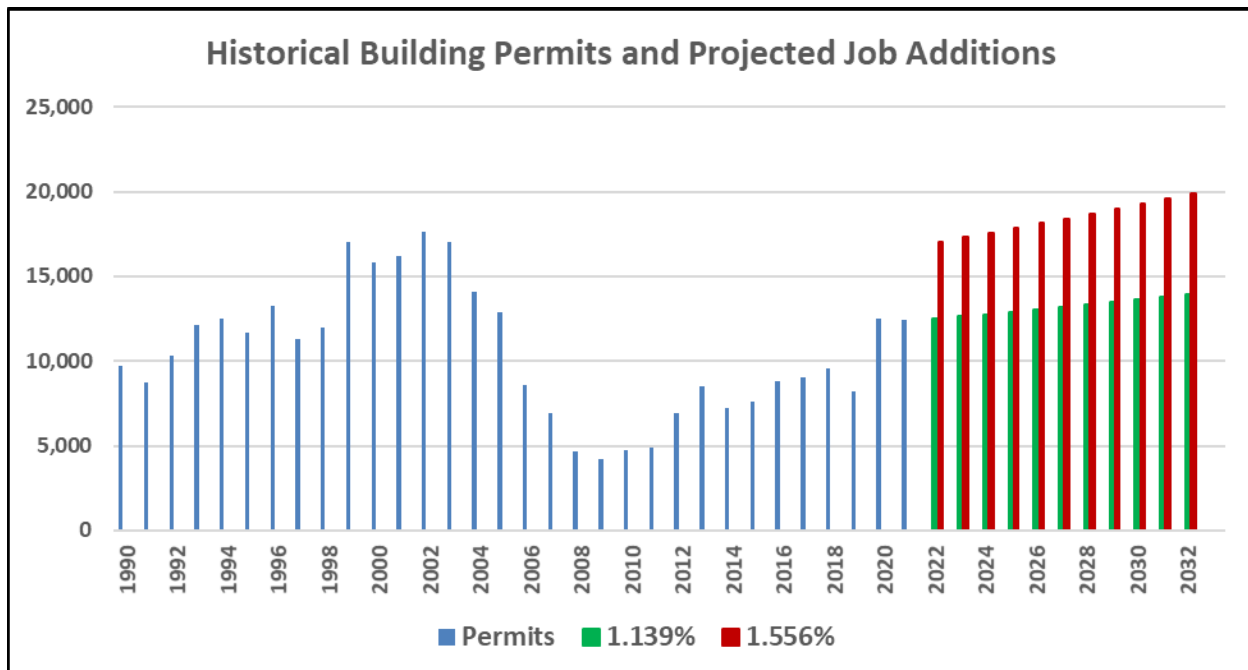
The following chart details the change in employment and reported permits issued in the BIA 10-County Region from 1990 to 2019.



Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services; State of the Cities Data Systems (SOCDS)

Within the BIA 10-County Region, the aggregate change in employment from 1990 to 2019 was 317,100, different of approximately 4.6%. Based on the historical employment growth and permitting activity in the 10-county BIA Region from 1990 to 2019, the job growth to housing need ratio assumption to year 2032 is for every 100 new jobs added, 95 housing units need to be permitted to support the anticipated growth. Note the employment data from 2020 and 2021 was excluded as the V-shaped economic recovery from the recent pandemic skews the data, especially when evaluating for historical comparison.

The following table details historical building permits from 1990 to 2021 and the yearly job additions projected in the BIA 10-County Region to year 2032 under two compounded annual job growth scenarios (see Section VII for each individual county):



Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services; State of the Cities Data Systems (SOCDS)

In the preceding chart, the green growth trend bars assume a compounded annual job growth rate of 1.139%. The red growth trend bars assume a compounded annual job growth rate of 1.556%.

Clearly, if historical building permit activity continues, the region will **not** meet the housing need based on the anticipated job growth projections through year 2032. In the 10-county region, the yearly average number of building permits from 1990 to 2021 was 10,535 (single-family and multifamily permits). If considering the time period from 2010 to 2021, the 10-county region averaged 8,372 building permits per year. Based on our job growth projections, the 10-county region will average 14,535 to 20,281 new jobs every year through year 2032 yielding an estimated yearly demand for 13,866 to 19,348 new housing units through year 2032 (based on a job growth to permitting ratio of 95.4%). This further highlights the inadequate housing development that is occurring to meet the housing need that will be generated by new jobs added to the region over the next decade.

Based on our estimates, permitting activity needs to increase by approximately two-fold from recent trends over the past decade to meet the projected housing need over the next decade.

The following table summarizes yearly average permitting (four different time periods) and average yearly job growth within the geographic areas of study.

Geography	Average Yearly Building Permits Issued				Average Annual Jobs Added to Year 2032	
	1990 to 1999	2000 to 2009	2010 to 2021	1990 to 2021	Based on 1990 to 2019 Job Growth Trends	Based on 2010 to 2019 Job Growth Trends
BIA Region	11,869	11,797	8,372	10,535	14,535	20,281
Delaware County	1,743	1,977	1,320	1,658	5,645	3,078
Fairfield County	793	825	495	691	1,223	1,089
Franklin County	7,113	6,755	5,348	6,339	6,985	13,889
Knox County	294	292	152	240	372	306
Licking County	906	940	292	686	1,179	1,064
Madison County	204	142	72	135	125	176
Marion County	146	207	52	130	-18	65
Morrow County	54	128	59	79	139	104
Pickaway County	202	153	103	149	212	265
Union County	415	379	480	428	715	549

Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services; State of the Cities Data Systems (SOCDS)

The following table summarizes the ratio of net jobs added in the respective geographic areas from 1991 to 2019 and the number of building permits issued. Note the data from the past two years was excluded as the V-shaped economic recovery from the recent pandemic would skew the historical lookback periods.

Geography	Ratio of Jobs Added to Permits Issued 1991 - 2019		
	Permits Issued	Jobs Added	Ratio
BIA Region	302,508	317,100	95.4%
Delaware County	48,147	73,900	65.2%
Fairfield County	19,667	25,400	77.4%
Franklin County	181,162	159,900	113.3%
Knox County	7,026	8,400	83.6%
Licking County	20,743	25,600	81.0%
Madison County	3,943	3,100	127.2%
Marion County	3,997	-500	N/A*
Morrow County	2,207	3,300	66.9%
Pickaway County	4,189	5,000	83.8%
Union County	11,427	13,000	87.9%

Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services; State of the Cities Data Systems (SOCDS)

*Marion County experienced substantial employment decline from 2008 to 2013. To forecast the projected housing demand through year 2032, the most recent lookback reference period was considered.

Two of the counties in the preceding table (Franklin and Madison) are reporting ratios of greater permits issued to the number of jobs added. Relative to its overall employment and demographic bases, Madison County experienced substantial employment decline from 1999 to 2000 and had corresponding low permitting activity. Single-year employment anomalies in Madison County is contributing to the

higher permitting to job addition ratio. The higher permitting to job addition ratio in Franklin County is due to the permitting in the county to accommodate the jobs that have been added in surrounding counties. Also contributing to this higher ratio is the permitting of multifamily units targeting students in which a housing unit is added to the county but not necessarily a new job.

The following table summarizes the projected housing needs within the geographic areas of study to year 2032 under two compounded annual growth trend scenarios (considers the specific ratios of permitting activity to job additions).

Housing Unit Need to Year 2032		
Geography	1990 to 2019 Growth Trend	2010 to 2019 Growth Trend
BIA Region	138,659	193,476
Delaware County	36,778	20,052
Fairfield County	9,470	8,428
Franklin County	79,138	157,356
Knox County	3,112	2,557
Licking County	9,549	8,622
Madison County	1,594	2,241
Marion County	-	1,400
Morrow County	931	694
Pickaway County	1,772	2,220
Union County	6,289	4,829

Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services

Housing Need by Tenure and Income

To further segment the projected housing need estimates, VSI evaluated tenure by various income bands. For this analysis, VSI considered tenure by income segmentation among those households under the age of 55. The rationale for considering this age segmentation is that most job growth in the region over the next decade will likely be among those under age 55 since those older are mostly retired and outside the workforce or in stable careers. Tenure statistics specific to each county were used to derive the housing need estimates by tenure and income.

Note that all housing need estimate projections by income segmentation assume year 2022 dollars. For this analysis, seven income segments are considered, which are summarized as follows:

Income Band Considerations
\$0 - \$29,999
\$30,000 - \$49,999
\$50,000 - \$74,999
\$75,000 - \$99,999
\$100,000 - \$124,999
\$125,000 - \$149,999
\$150,000+

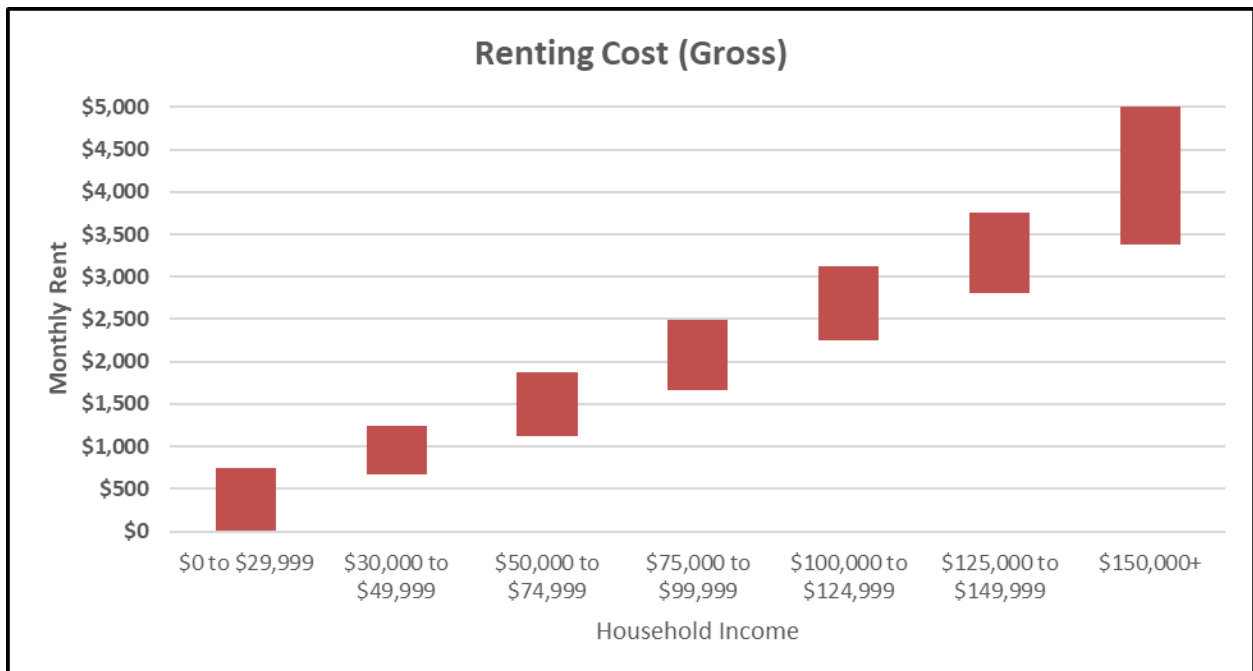
Source: Vogt Strategic Insights

To estimate what the preceding income bands equate to in actual housing cost dollars (monthly rent and for-sale home cost), VSI considered two scenarios for both owner and renter housing need estimates. For renter housing need, monthly rental housing cost was based on rent-to-income ratios of 27% and 30%. For for-sale housing cost, yearly household incomes at 3X and 3.5X multipliers were considered. The reasons the different income-qualification scenarios is to account for different underwriting qualifications. Of course, the preceding assumptions are rather broad and will fluctuate depending on interest rates, taxes and other variables. Even a household's willingness to take on additional debt and/or pay higher rents than what is generally accepted will impact these projections.

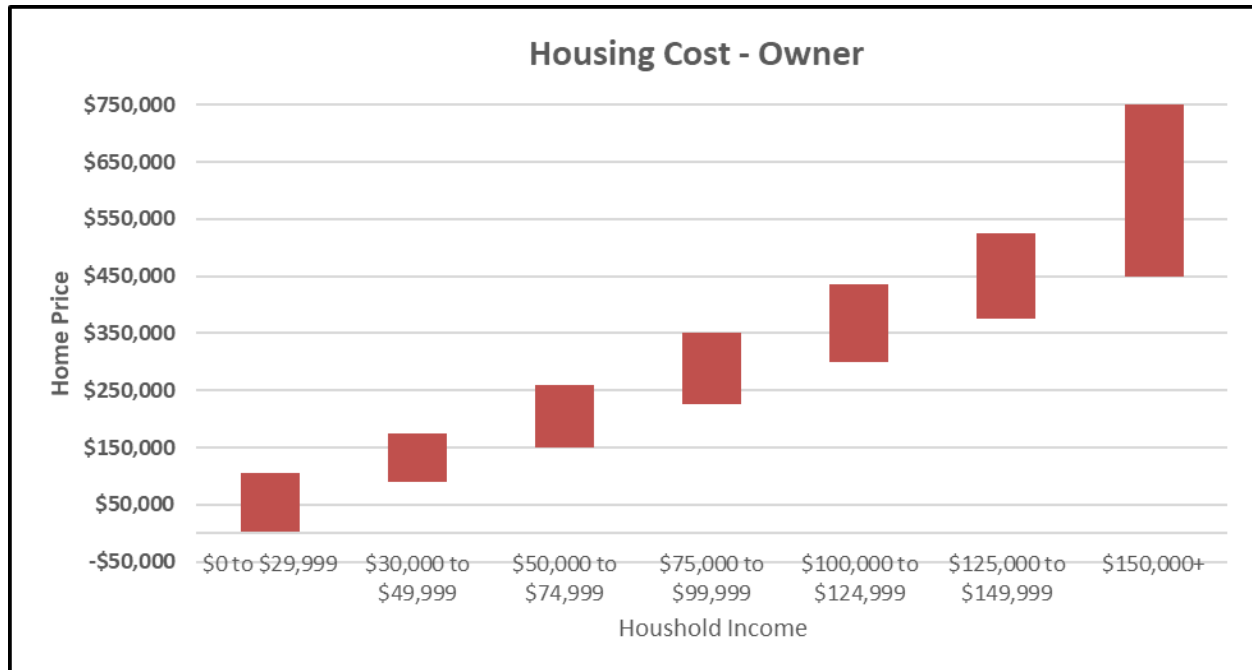
The rental rate and home cost ranges under the various scenarios for the seven income bands being considered are summarized in the table and charts below (for presentation, a maximum monthly rent of \$5,000 and home price of \$750,000 were considered):

Income Bands	Renter (Monthly Rent)		Owner (For-Sale Price)	
	27% RTI	30% RTI	3X Yearly Income	3.5X Yearly Income
\$0 - \$29,999	\$0 - \$674	\$0 - \$749	\$0 - \$89,999	\$0 - \$104,999
\$30,000 - \$49,999	\$675 - \$1,124	\$750 - \$1,249	\$90,000 - \$149,999	\$105,000 - \$174,999
\$50,000 - \$74,999	\$1,125 - \$1,689	\$1,250 - \$1,874	\$150,000 - \$224,999	\$175,000 - \$259,999
\$75,000 - \$99,999	\$1,670 - \$2,249	\$1,875 - \$2,499	\$225,000 - \$299,999	\$260,000 - \$349,999
\$100,000 - \$124,999	\$2,250 - \$2,799	\$2,500 - \$3,124	\$300,000 - \$374,999	\$350,000 - \$434,999
\$125,000 - \$149,999	\$2,800 - \$3,374	\$3,125 - \$3,749	\$375,000 - \$449,999	\$435,000 - \$524,999
\$150,000+	\$3,375+	\$3,750+	\$450,000+	\$525,000+

Source: Vogt Strategic Insights
RTI – Rent-To Income Ratio

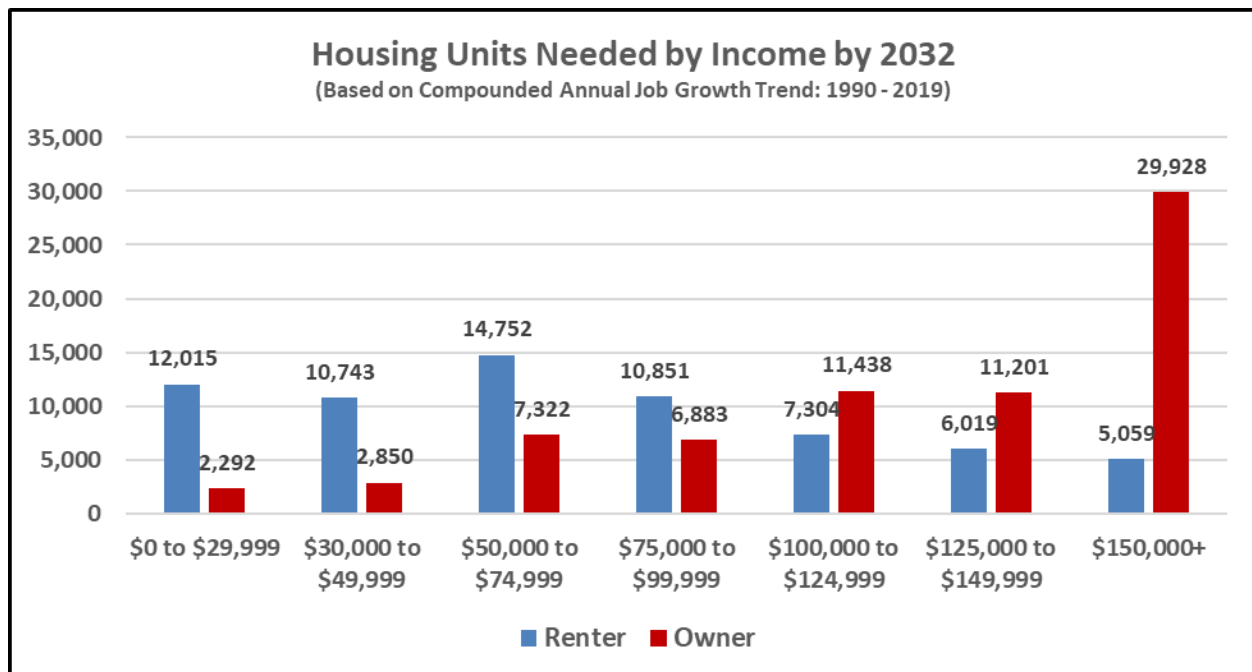


Source: Vogt Strategic Insights

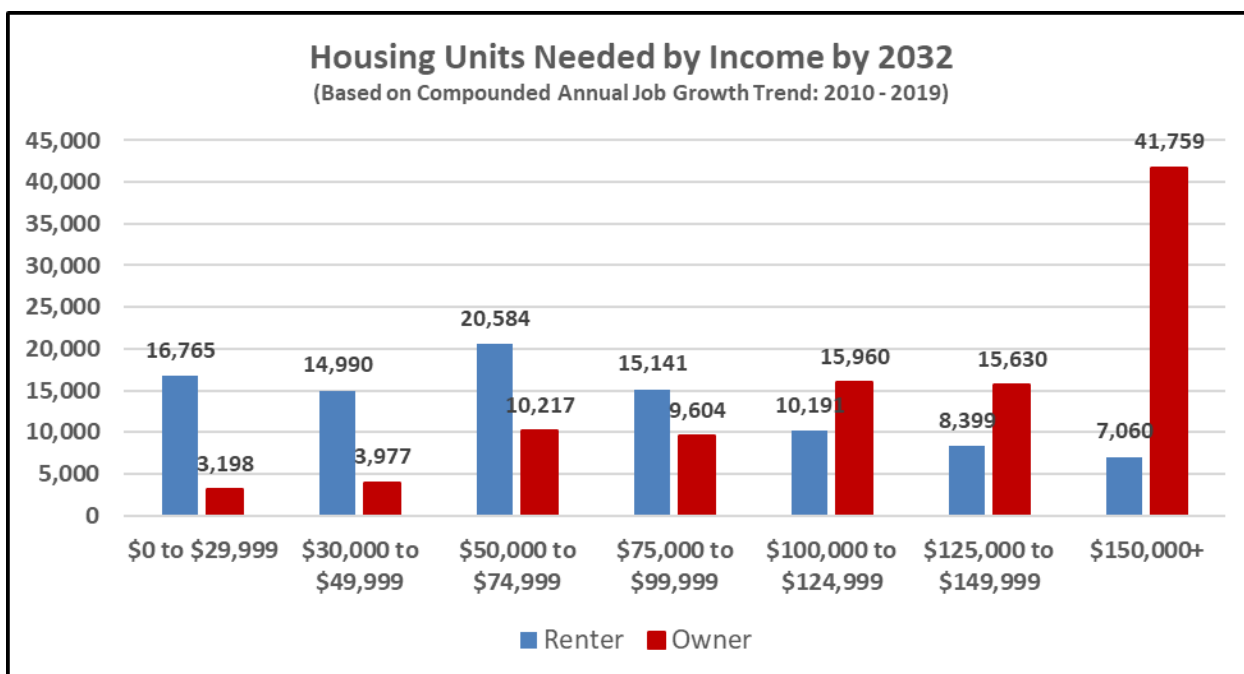


Source: Vogt Strategic Insights

Applying the tenure shares by various income brackets for the BIA 10-County Region to the projected total housing need estimates yield the following housing need estimates by tenure and income by year 2032 (see Section VII for each individual county):



Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services; ESRI



Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services; ESRI

As expected, the housing need for rental housing units is highest among the lower income-earning cohorts, while the housing need for owner-occupied housing units is highest among the higher income-earning cohorts. Note, however, the estimated need for owner-occupied housing units at mid-tier income cohorts is still substantial at approximately 60,000 to 80,000 housing units targeting households earning between \$50,000 and \$125,000 (year 2022 dollars).

The table on the following page summarizes estimated housing need projections by tenure to year 2032 for all geographic areas of study. For detailed figures on projected housing need by income cohorts, see the individual county profiles detailed in Section VII.

Housing Unit Need to Year 2032						
Geography	Renter		Owner		All	
	1990 to 2019 Historical Growth Trend	2010 to 2019 Historical Growth Trend	1990 to 2019 Historical Growth Trend	2010 to 2019 Historical Growth Trend	1990 to 2019 Historical Growth Trend	2010 to 2019 Historical Growth Trend
BIA Region	66,744	93,130	71,915	100,346	138,659	193,476
Delaware County	9,251	5,044	27,527	15,008	36,778	20,052
Fairfield County	2,758	2,455	6,712	5,973	9,470	8,428
Franklin County	45,522	90,515	33,616	66,842	79,138	157,356
Knox County	1,115	916	2,006	1,649	3,121	2,565
Licking County	3,038	2,743	6,511	5,879	9,549	8,622
Madison County	481	677	1,112	1,564	1,594	2,241
Marion County	533	N/A	867	N/A	1,400	N/A
Morrow County	220	164	712	531	932	695
Pickaway County	478	599	1,294	1,620	1,772	2,220
Union County	1,433	1,100	4,856	3,729	6,289	4,829

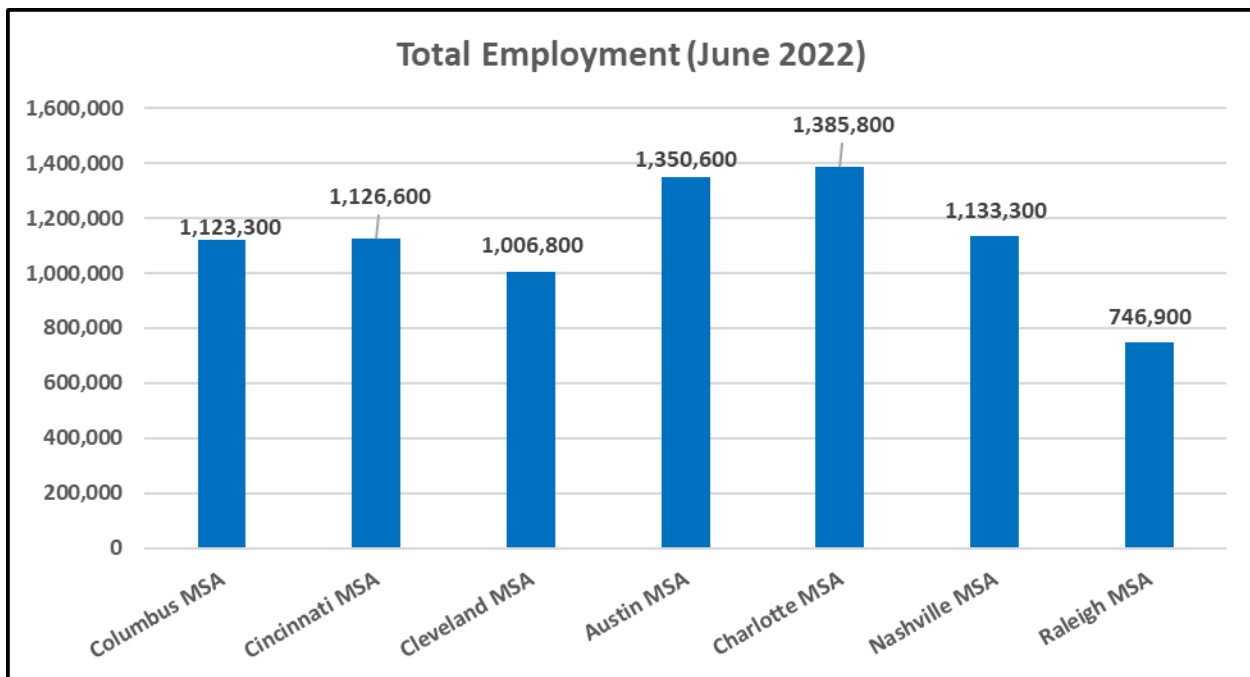
Source: Vogt Strategic Insights; Department of Labor Statistics; Ohio Department of Job and Family Services, ESRI

N/A – Not Applicable (negative growth projected based on the respective historical look-back period)

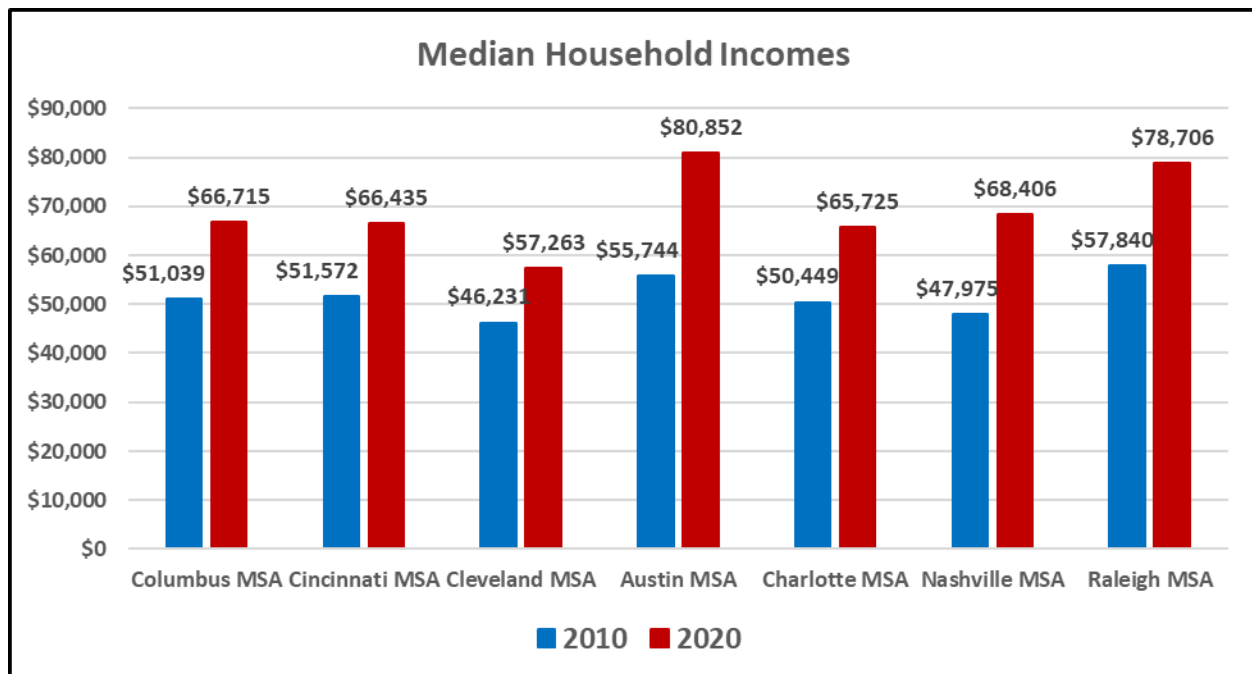
VI. Peer Regions

We have compared Central Ohio employment and housing need performance relative to other peer regions. VSI case studied two state and four national Metropolitan Statistical Areas (MSAs) that have relative socioeconomic similarities to Central Ohio. The six comparable MSAs evaluated are Cincinnati, Cleveland, Austin, Charlotte, Nashville and Raleigh. Note that instead of evaluating the BIA 10-Country Region in this portion of the analysis, the Columbus MSA was included. The 10-county Columbus MSA and the 10-County BIA Region share eight counties.

The following two charts detail total employment (June 2022) and the median household incomes for the MSA regions of study.



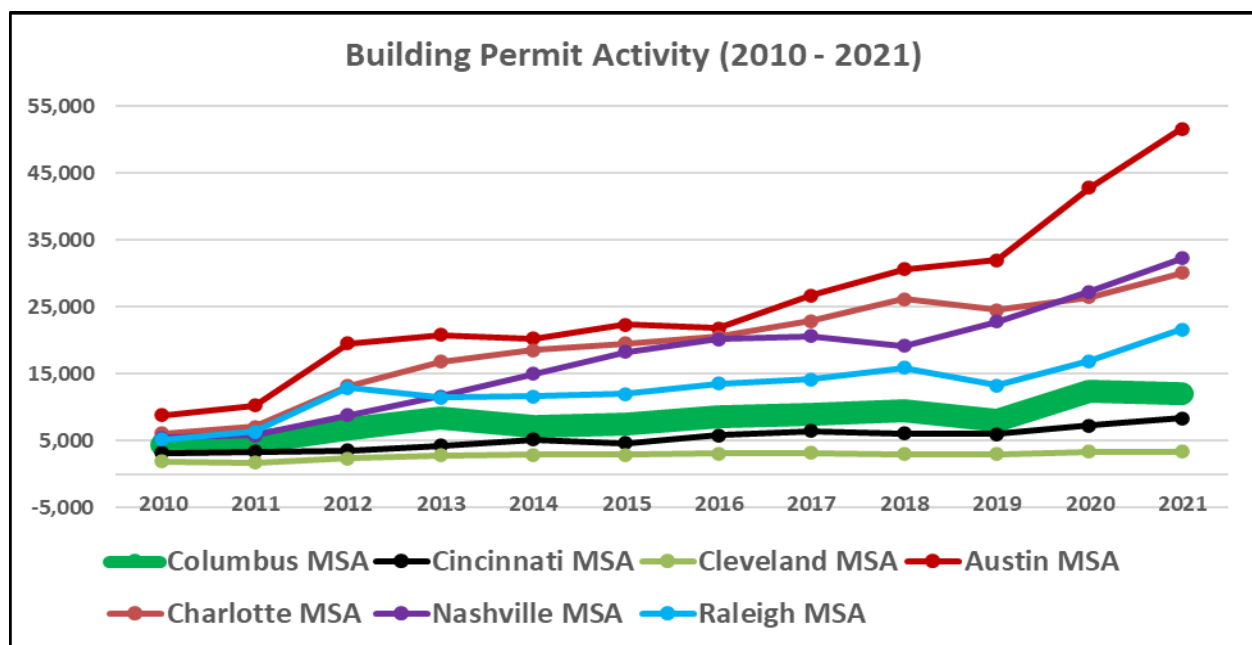
Source: Vogt Strategic Insights; Department of Labor Statistics



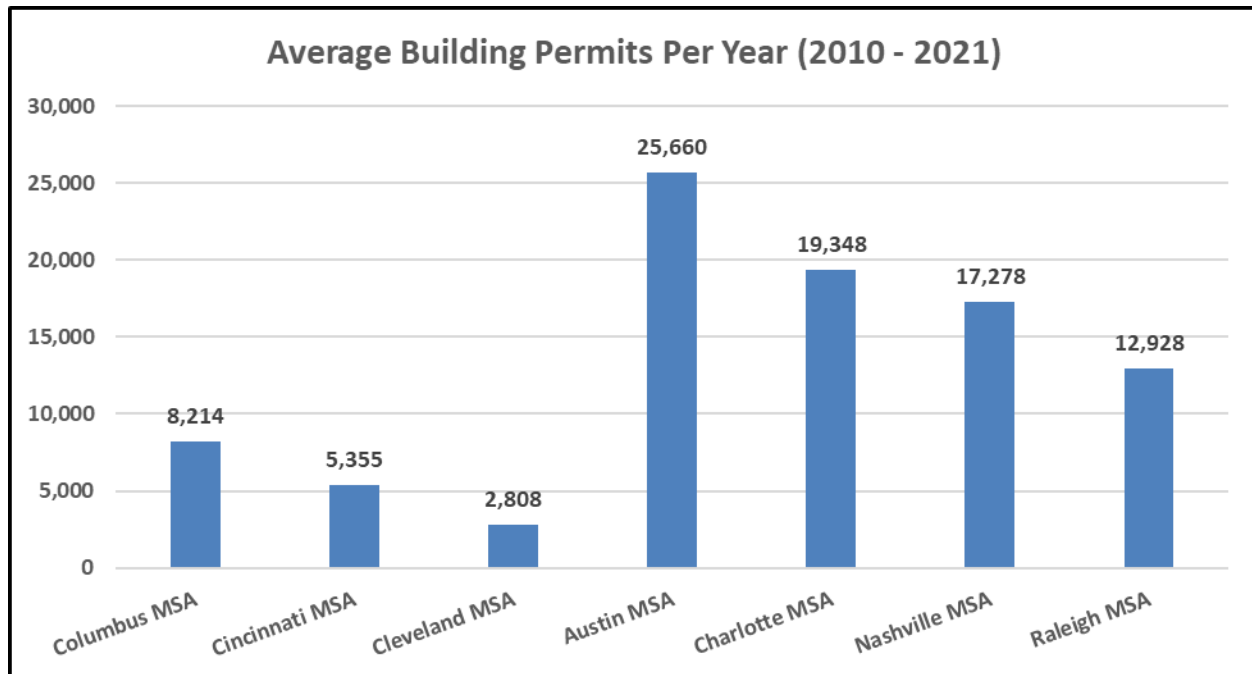
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

As the preceding tables illustrate, the Columbus MSA is relatively similar to the other MSAs with respect to total employment and median household incomes. The Austin and Raleigh MSAs experienced greater growth in median household incomes from 2010 to 2020. With the exception of the Raleigh MSA, all other MSAs reported total employment in excess of one million in June 2022.

The following tables summarize building permit activity in the comparable MSAs and the Columbus MSA from 2010 to 2021.



Source: Vogt Strategic Insights; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights; State of the Cities Data Systems (SOCDS)

Since 2010, the Columbus MSA has averaged 8,214 permits per year (single-family and multifamily), whereas the national peers outside of the state of Ohio have averaged 50% to 300% greater permitting activity during the same time period. Clearly, the Columbus MSA (and the other Ohio MSAs) are not keeping pace with national peers. There are a multitude of factors that are contributing to this including, but not limited to zoning, land availability, regulatory guidelines, construction costs and availability of skilled workers. If permitting activity does not increase, Columbus will not realize its job growth projections, and housing affordability challenges will be exacerbated.

VII. MSA and County Profiles

The following pages contain profiles for the BIA Region and all 10 counties with “high level” summary data presented for each area. The profiles are organized as follows:

- A. BIA 10-County Region
- B. Delaware County
- C. Fairfield County
- D. Franklin County
- E. Knox County
- F. Licking County
- G. Madison County
- H. Marion County
- I. Morrow County
- J. Pickaway County
- K. Union County

A: BIA 10-County Region

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 1.139%)	66,744	71,915	138,659
Compounded Yearly Growth Rate (2010 to 2019: 1.556%)	93,130	100,346	193,476
Average Yearly Housing Need (2022 to 2032)	13,866 to 19,348		
Average Yearly Permits Issued (1990 to 2021)	10,535		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
BIA Region	1,963,958	2,222,772	2,448,002	258,814	13.2%	225,230	10.1%

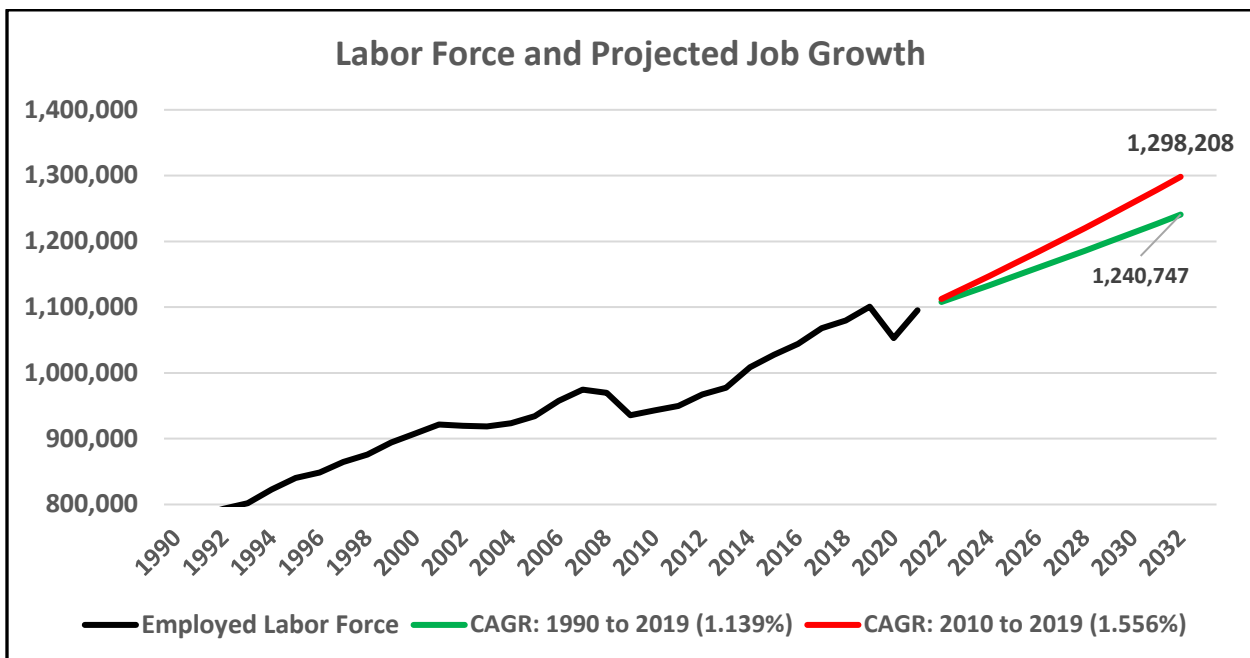
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
BIA Region	770,870	872,691	963,265	101,821	13.2%	90,574	10.4%

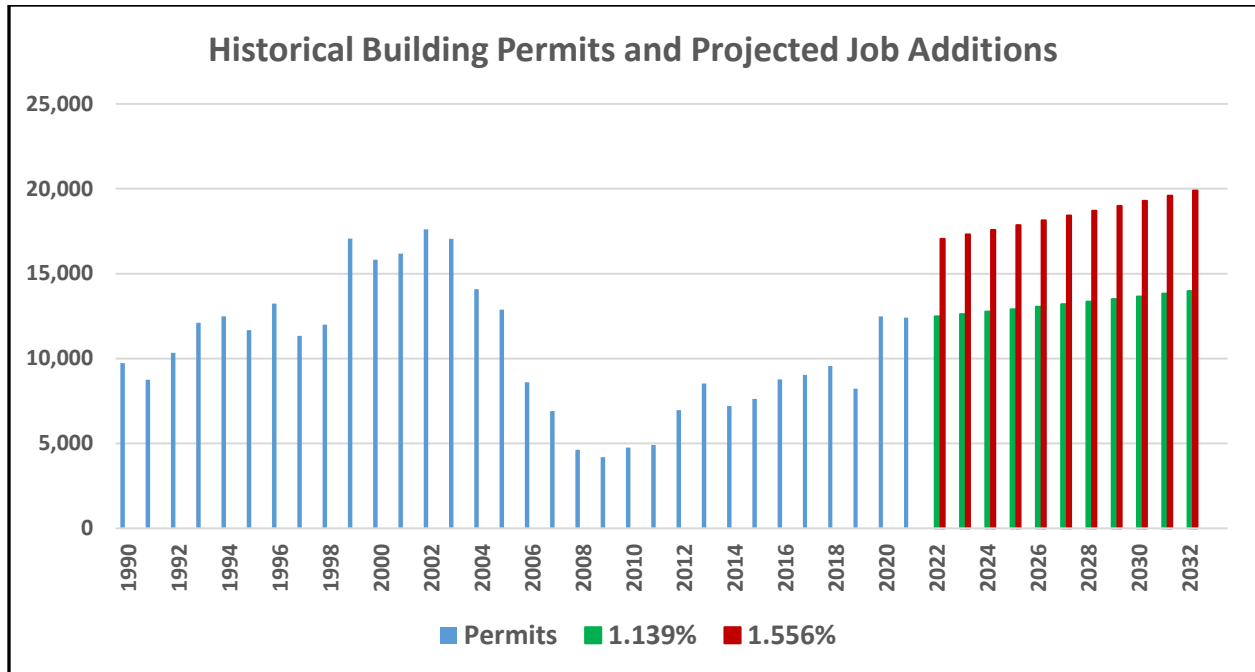
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
BIA Region	\$50,152	\$70,147	\$90,661	\$19,995	39.9%	\$20,514	29.2%

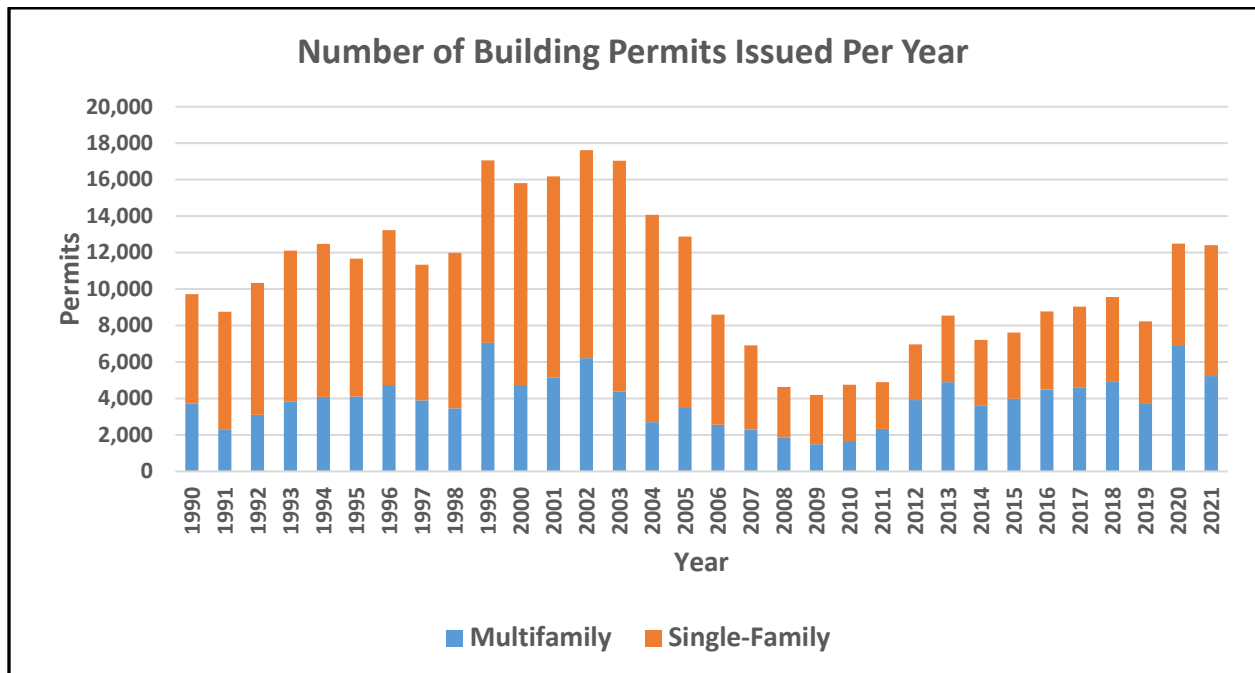
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



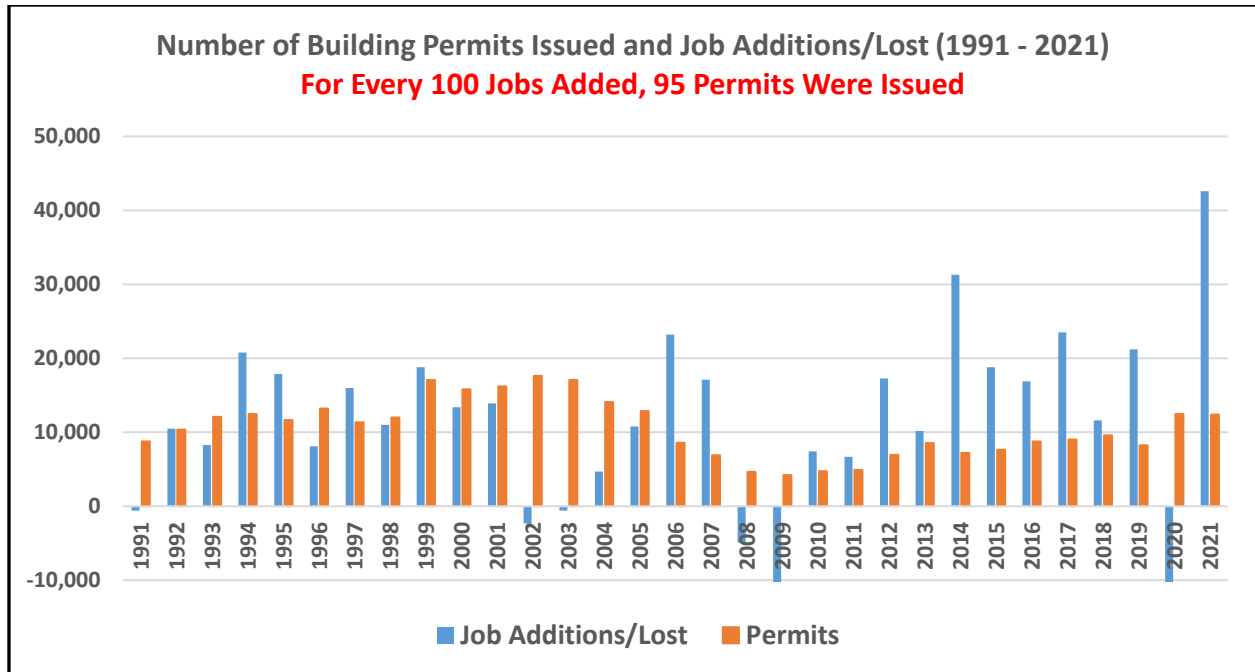
Source: Vogt Strategic Insights; Department of Labor Statistics



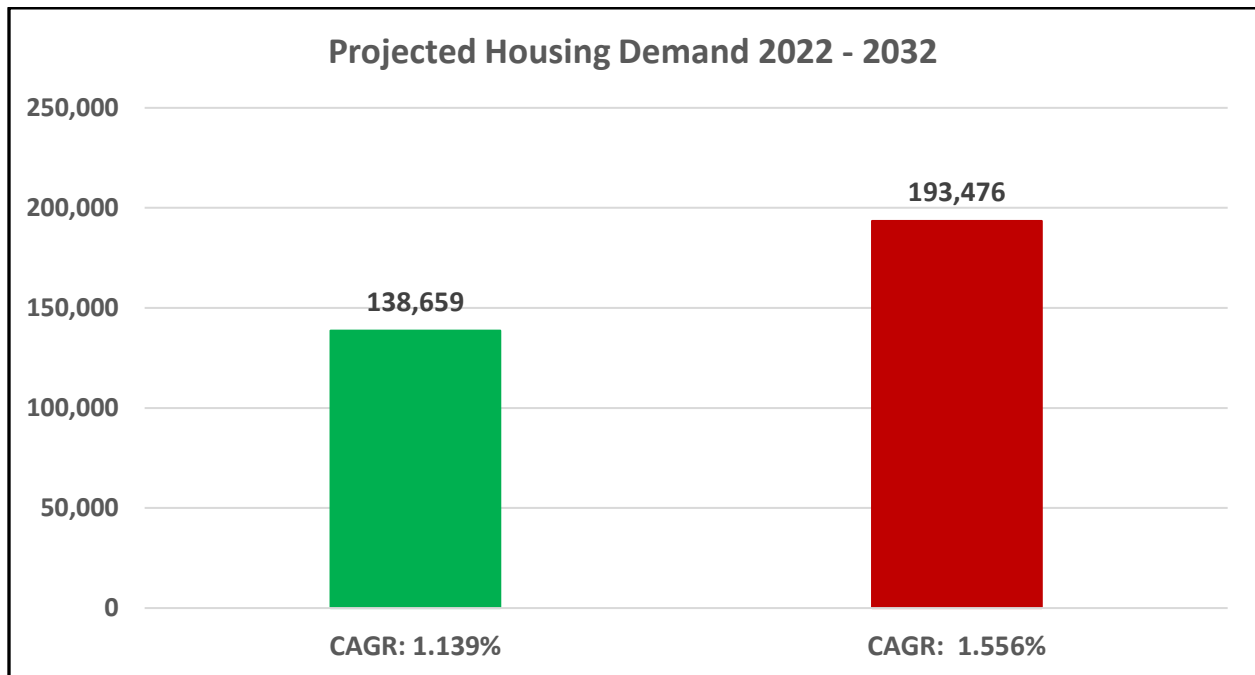
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



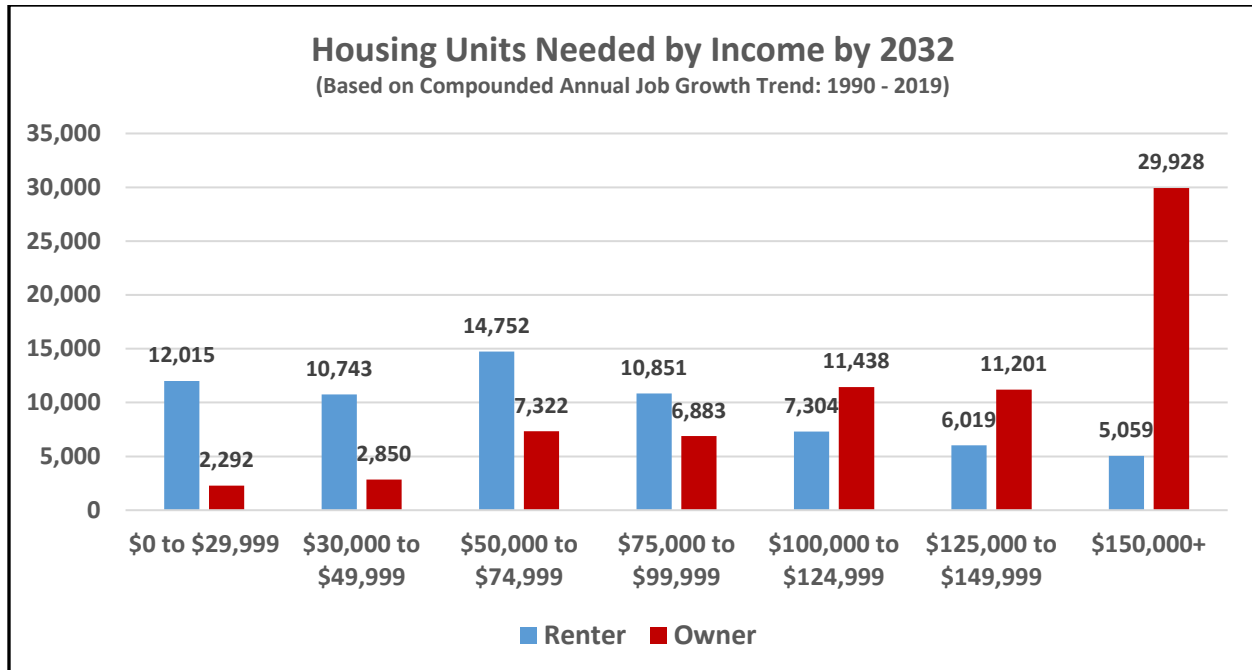
Source: State of the Cities Data Systems (SOCDS)



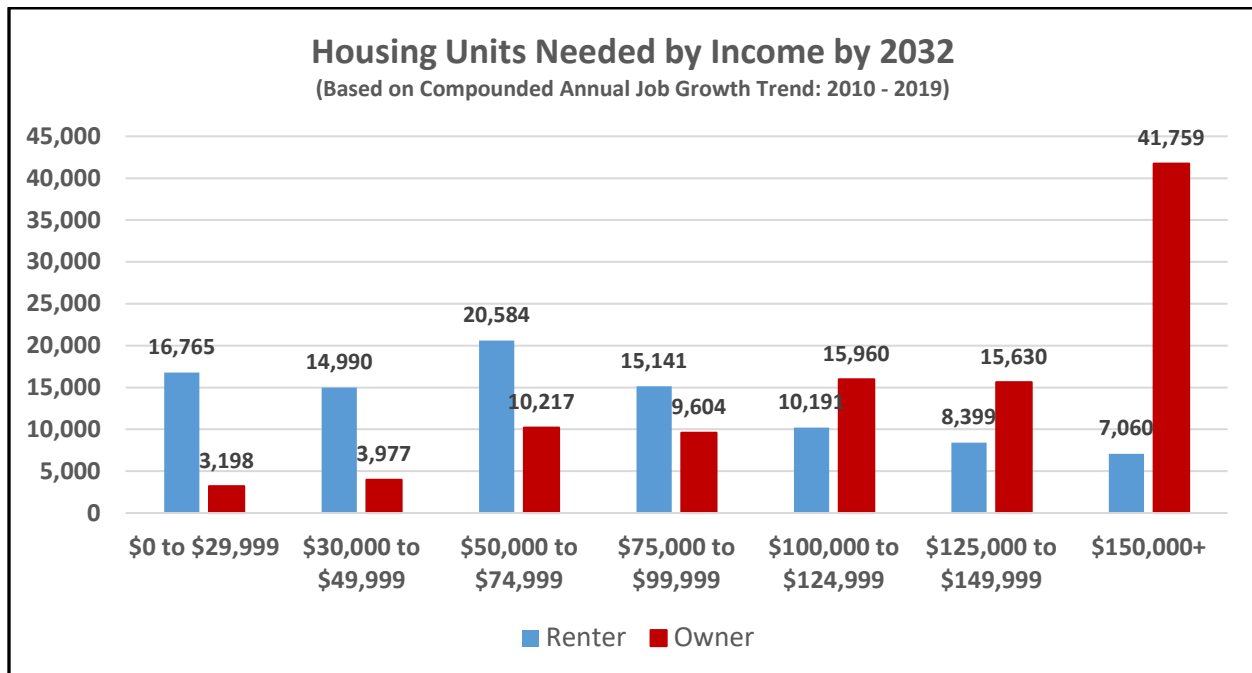
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

B: Delaware County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 3.823%)	9,251	27,527	36,778
Compounded Yearly Growth Rate (2010 to 2019: 2.259%)	5,044	15,008	20,052
Average Yearly Housing Need (2022 to 2032)	2,005 to 3,678		
Average Yearly Permits Issued (1990 to 2021)	1,658		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Delaware County	174,214	218,981	259,985	44,767	25.7%	41,004	18.7%

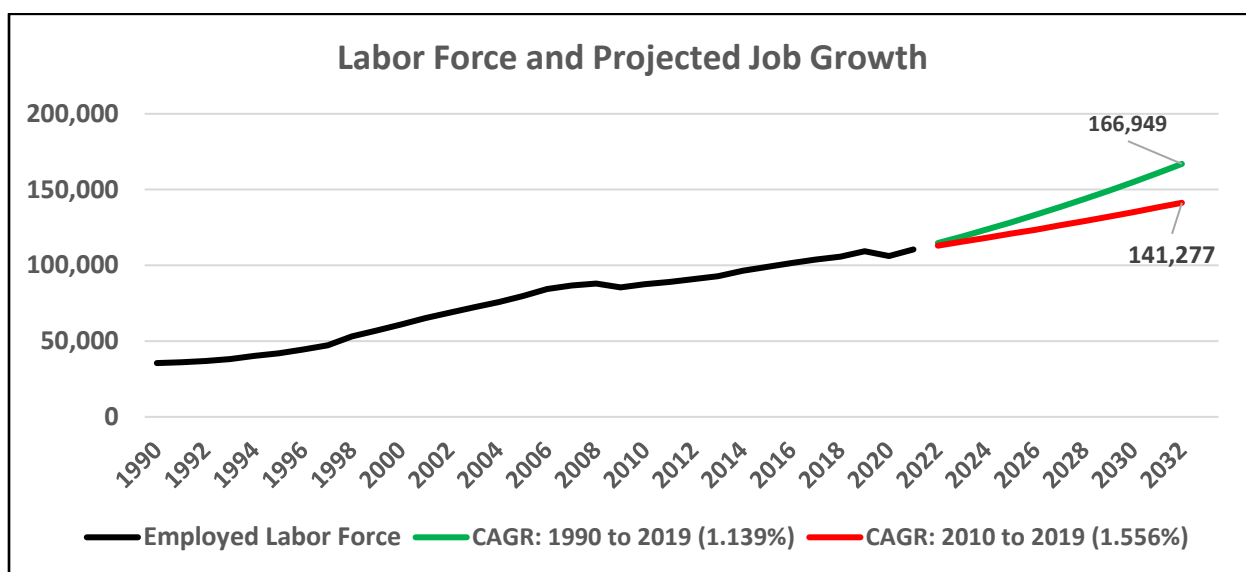
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Delaware County	62,760	79,435	94,575	16,675	26.6%	13,626	16.8%

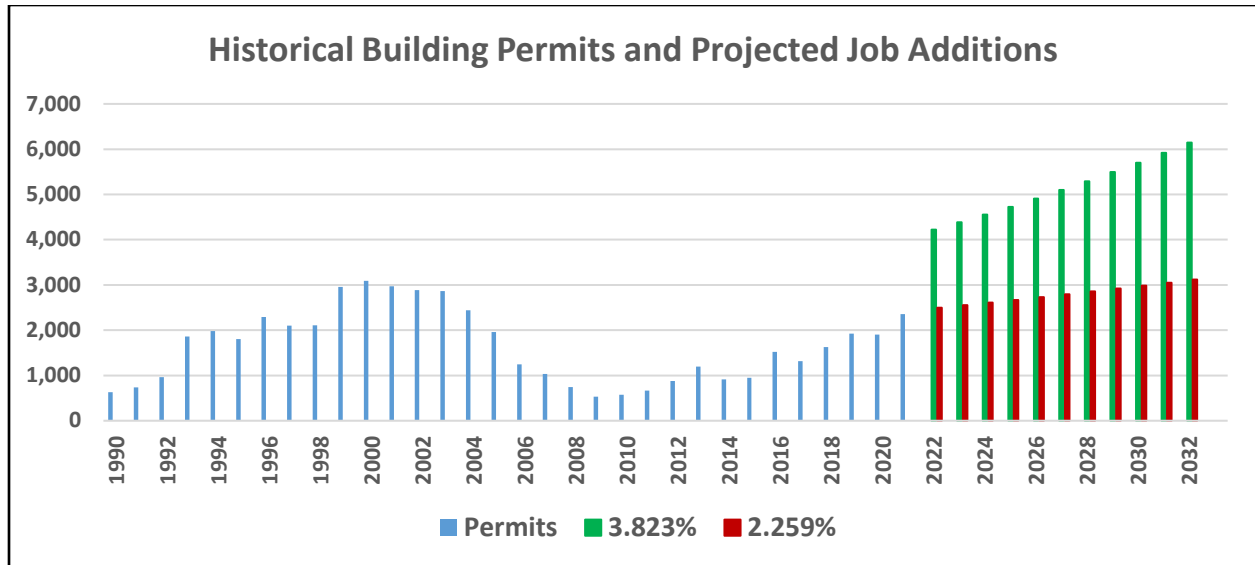
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Delaware County	\$87,908	\$109,487	\$127,972	\$21,579	24.5%	\$18,485	16.9%

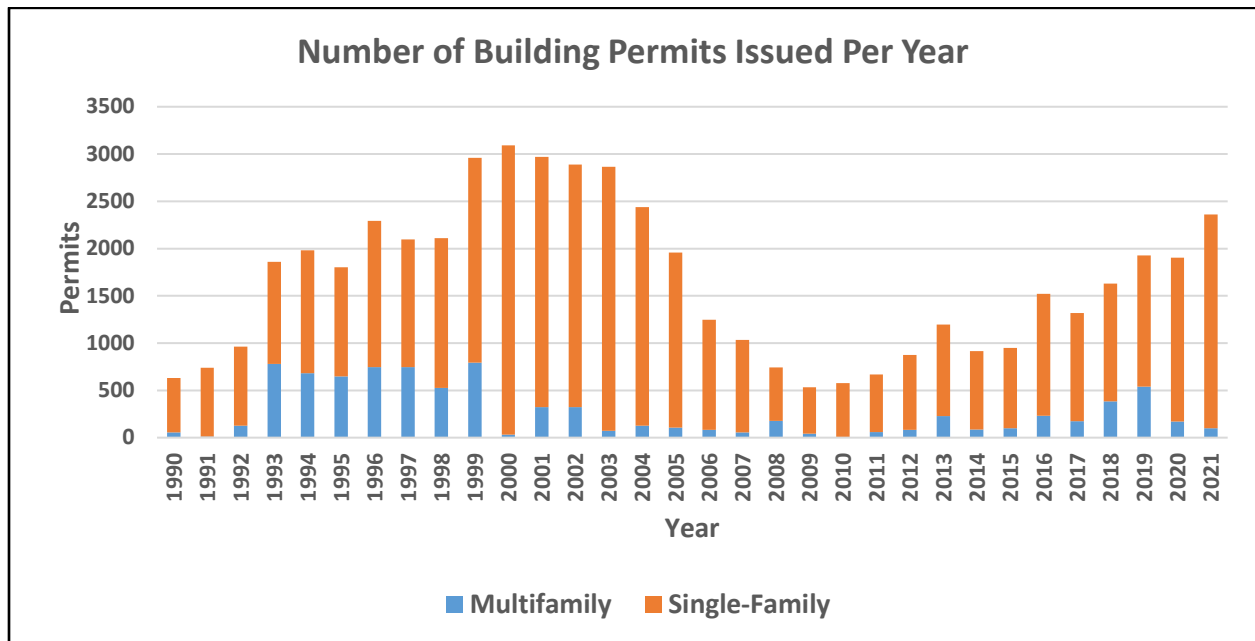
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



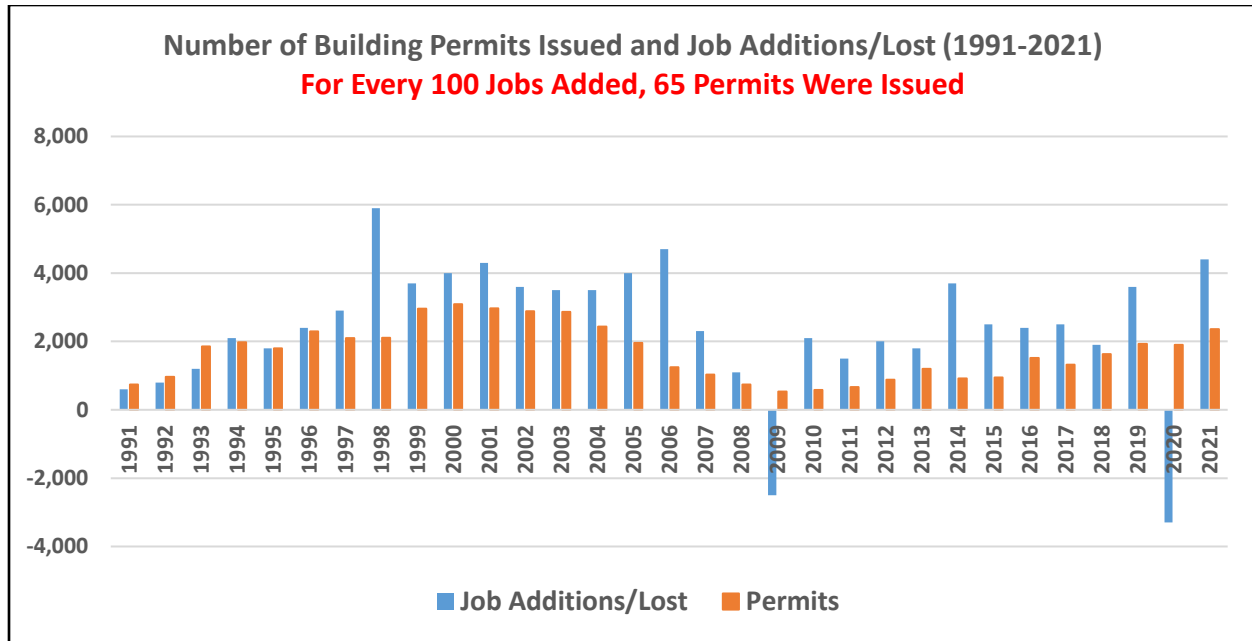
Source: Vogt Strategic Insights; Department of Labor Statistics



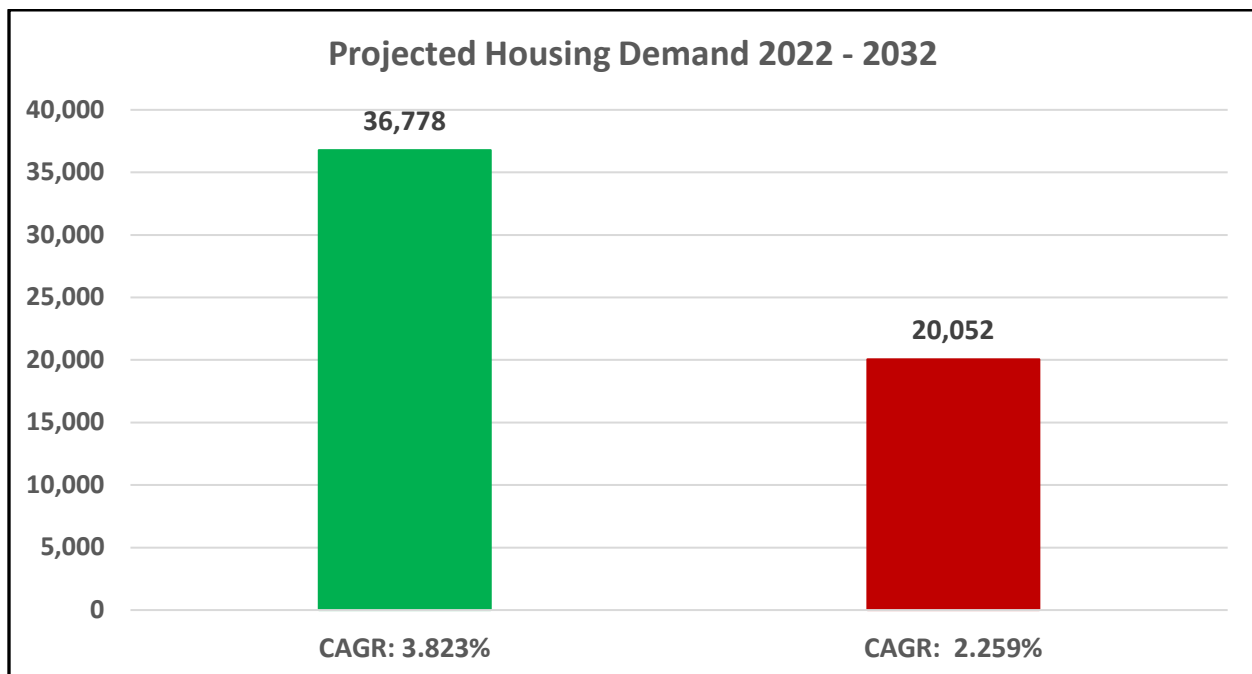
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



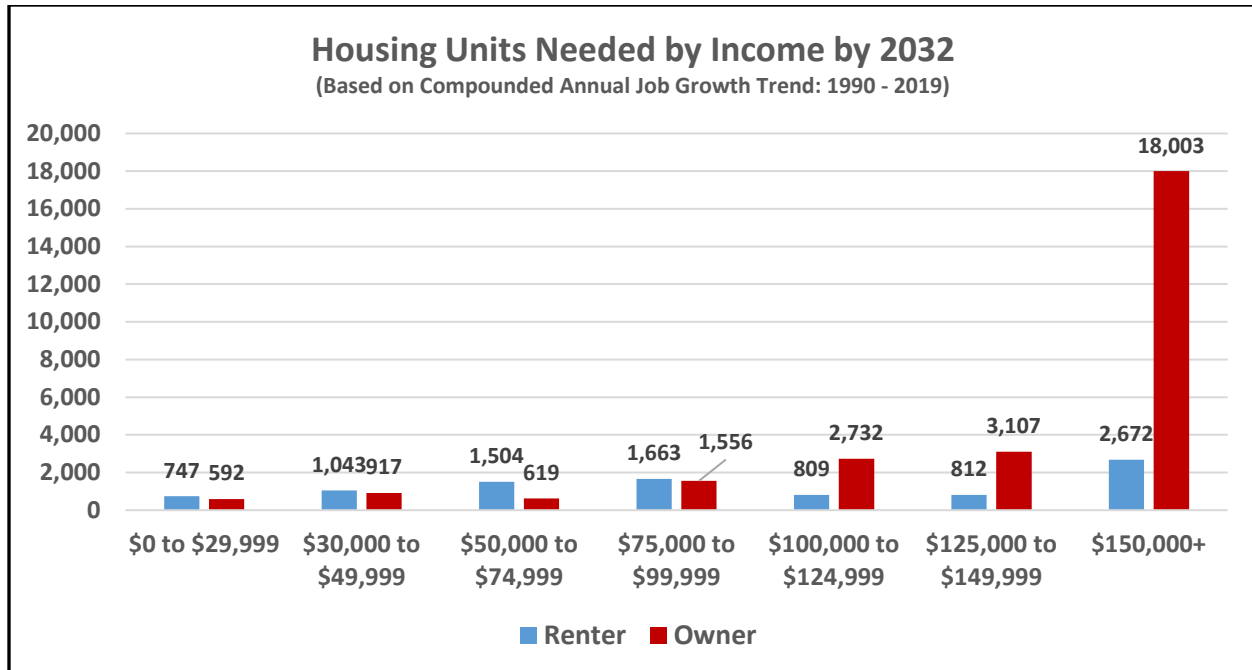
Source: State of the Cities Data Systems (SOCDS)



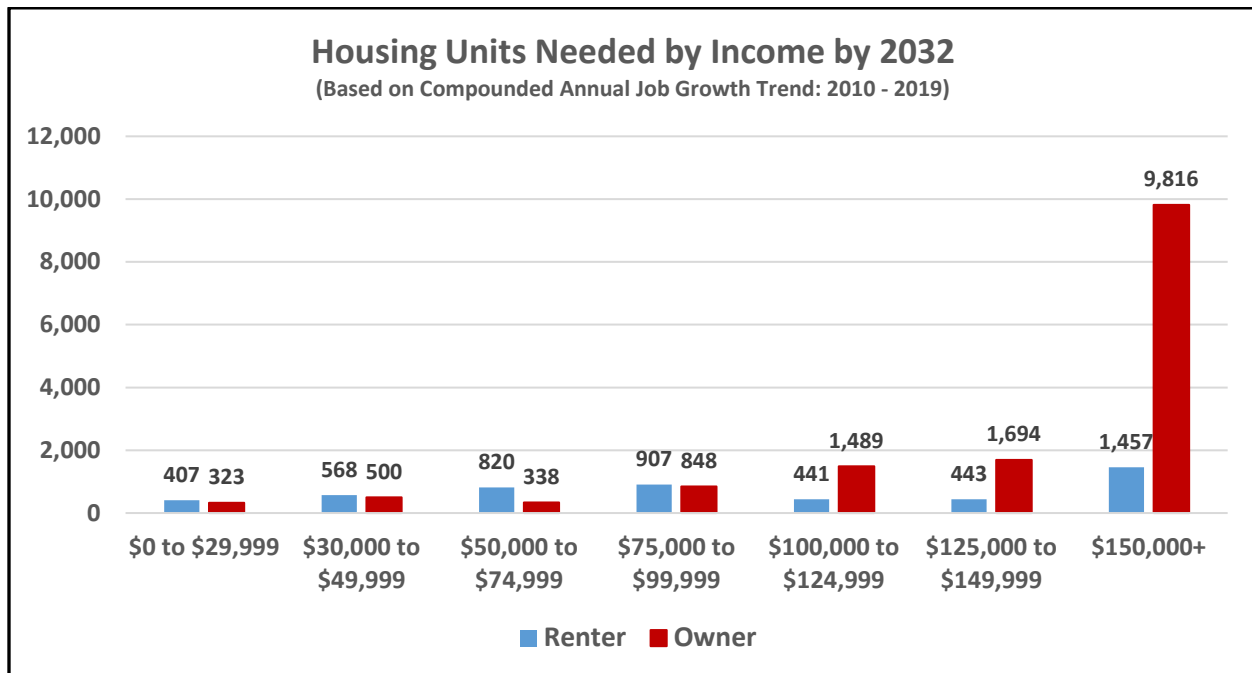
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

C: Fairfield County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 1.361%)	2,758	6,712	9,470
Compounded Yearly Growth Rate (2010 to 2019: 1.220%)	2,455	5,973	8,428
Average Yearly Housing Need (2022 to 2032)	843 to 947		
Average Yearly Permits Issued (1990 to 2021)	691		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Fairfield County	146,156	164,038	179,056	17,882	12.2%	15,018	9.2%

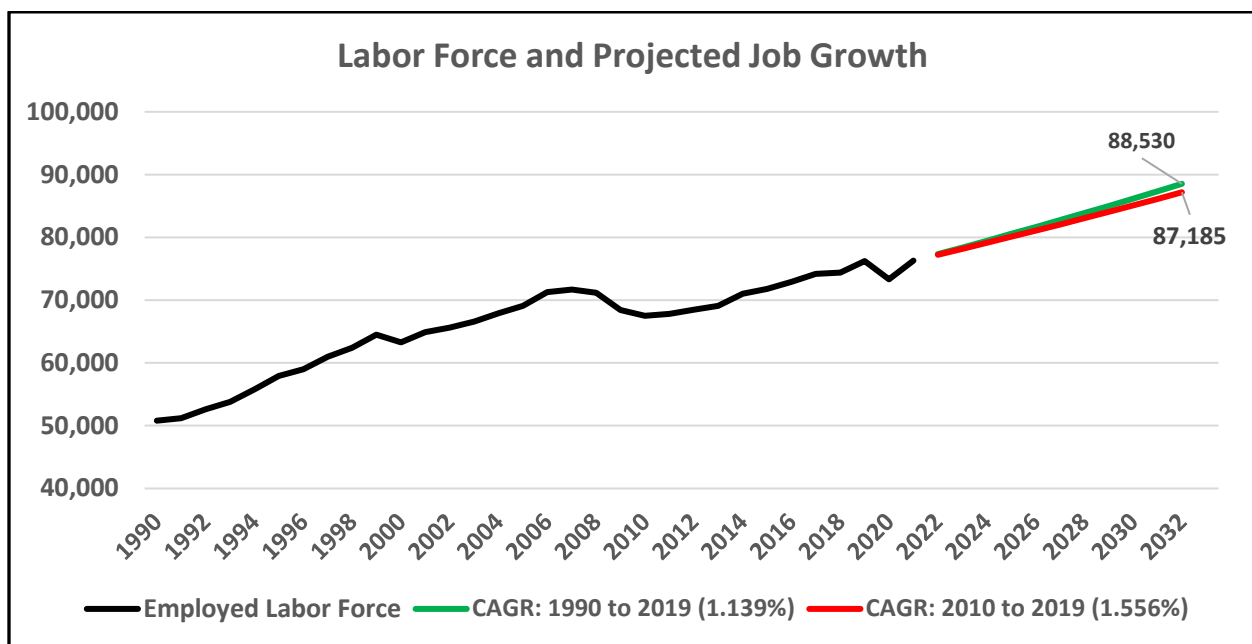
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Fairfield County	54,310	60,869	66,423	6,559	12.1%	5,554	9.1%

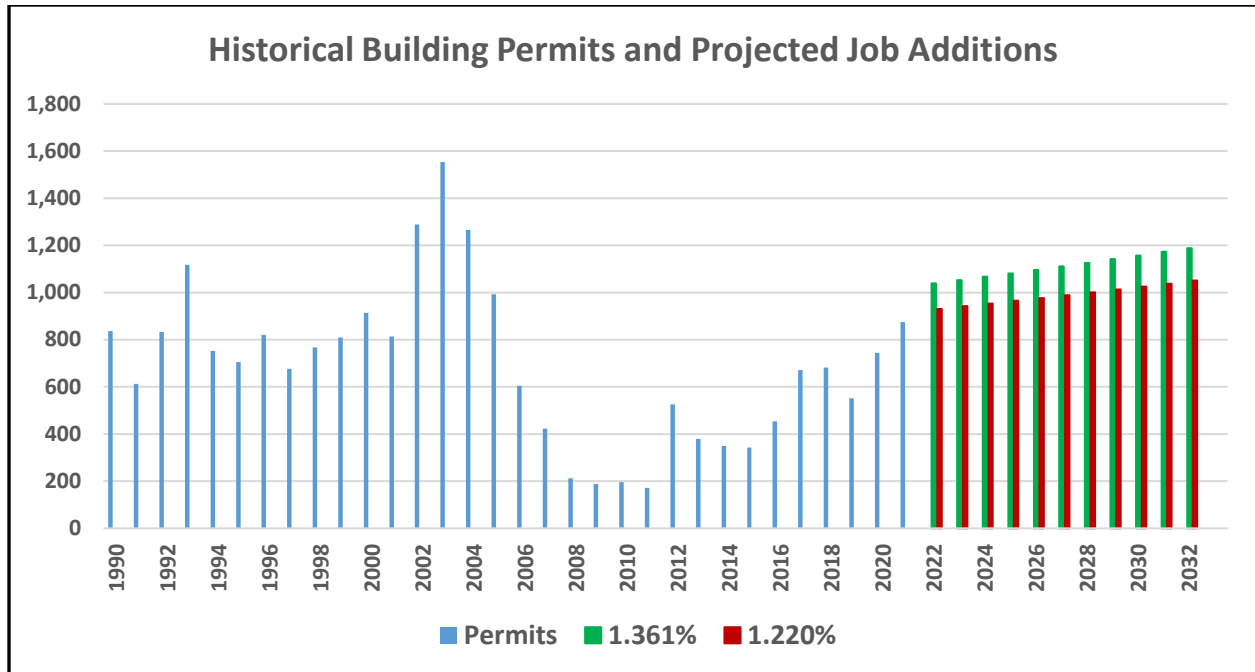
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Fairfield County	\$55,501	\$73,921	\$94,786	\$18,420	33.2%	\$20,865	28.2%

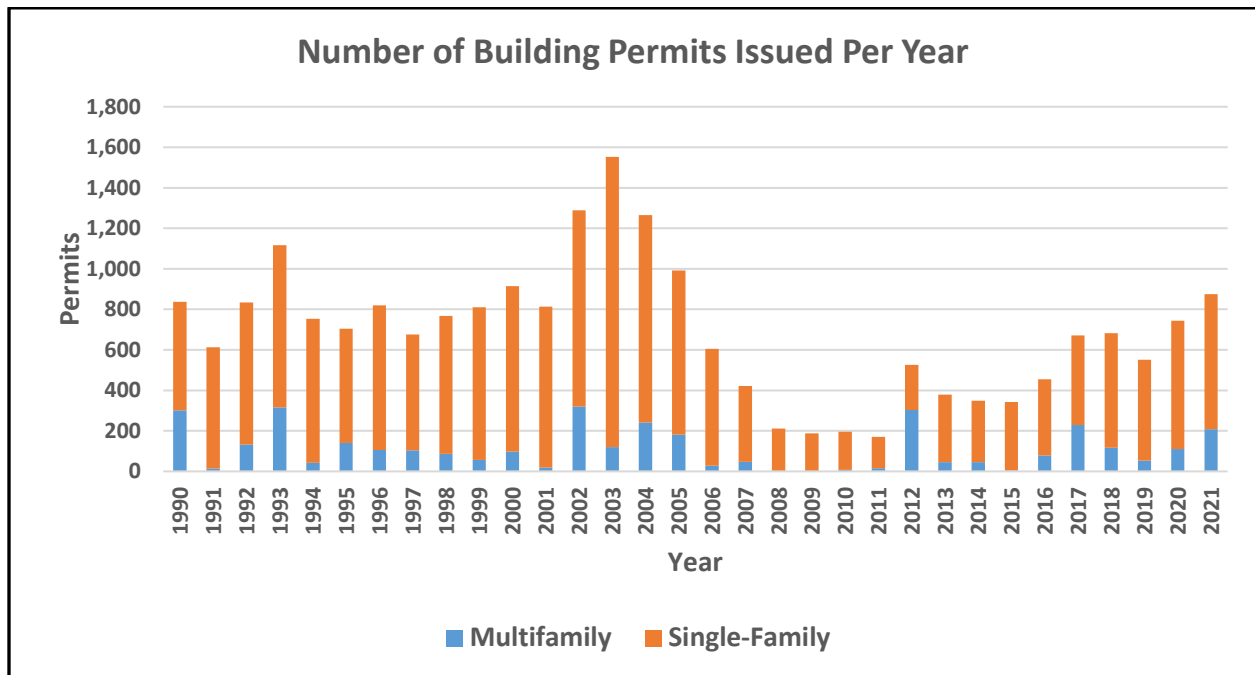
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



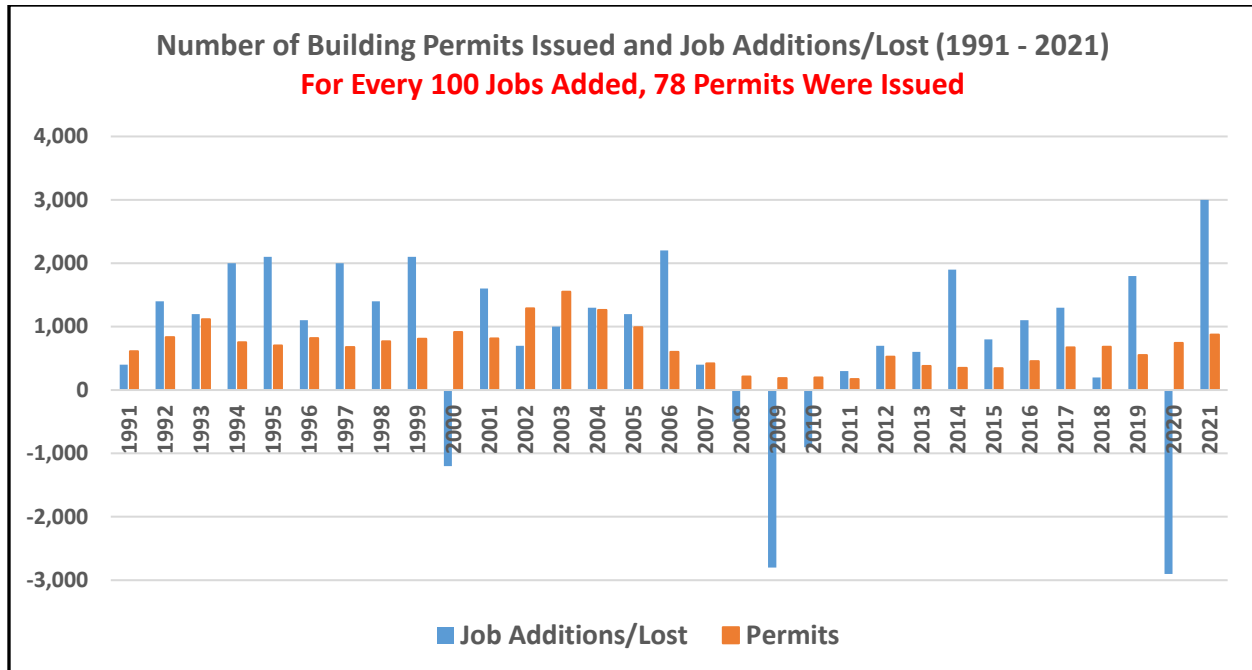
Source: Vogt Strategic Insights; Department of Labor Statistics



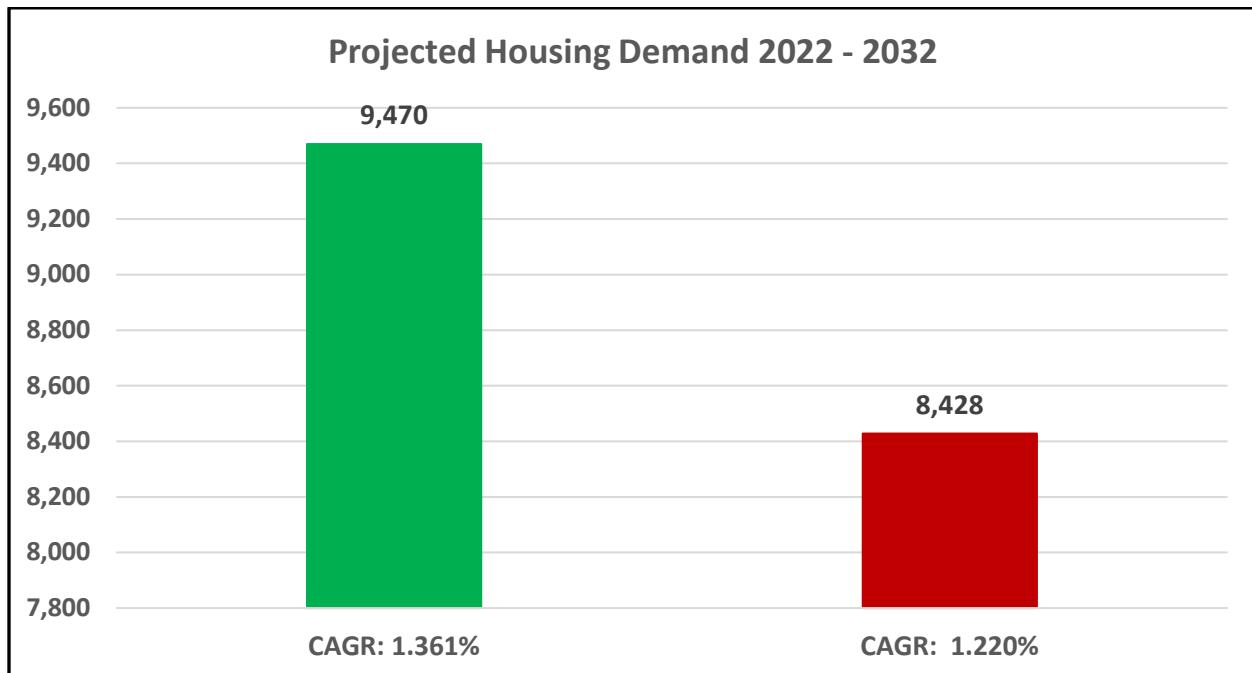
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



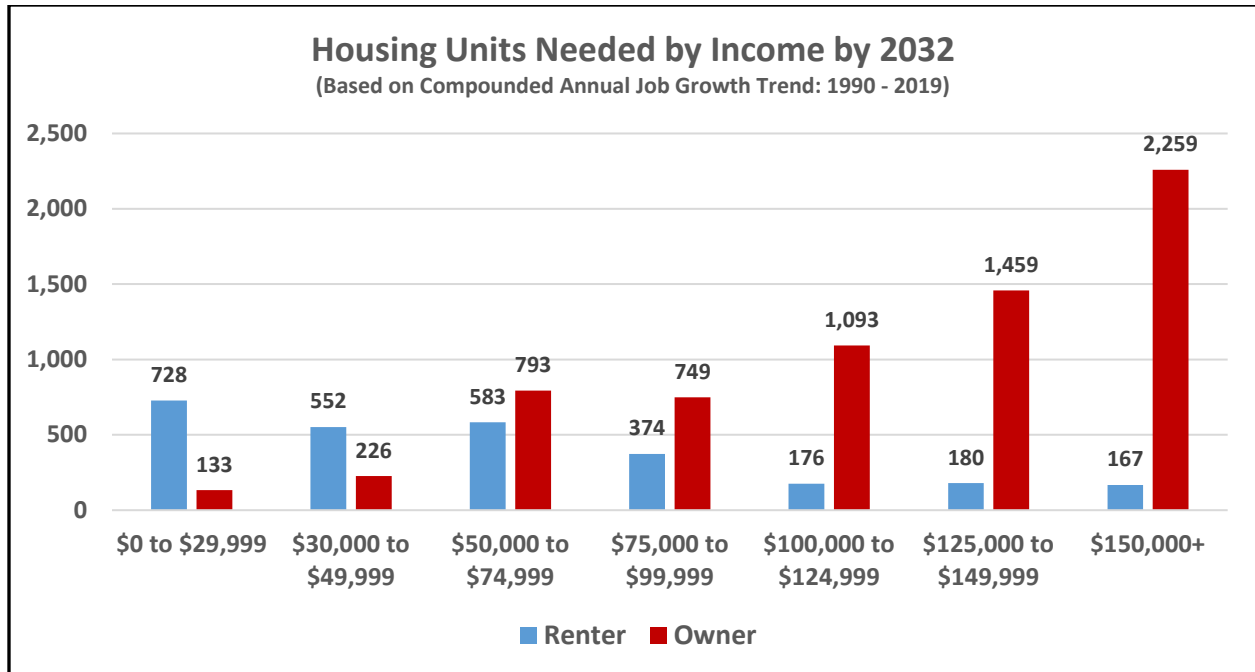
Source: State of the Cities Data Systems (SOCDS)



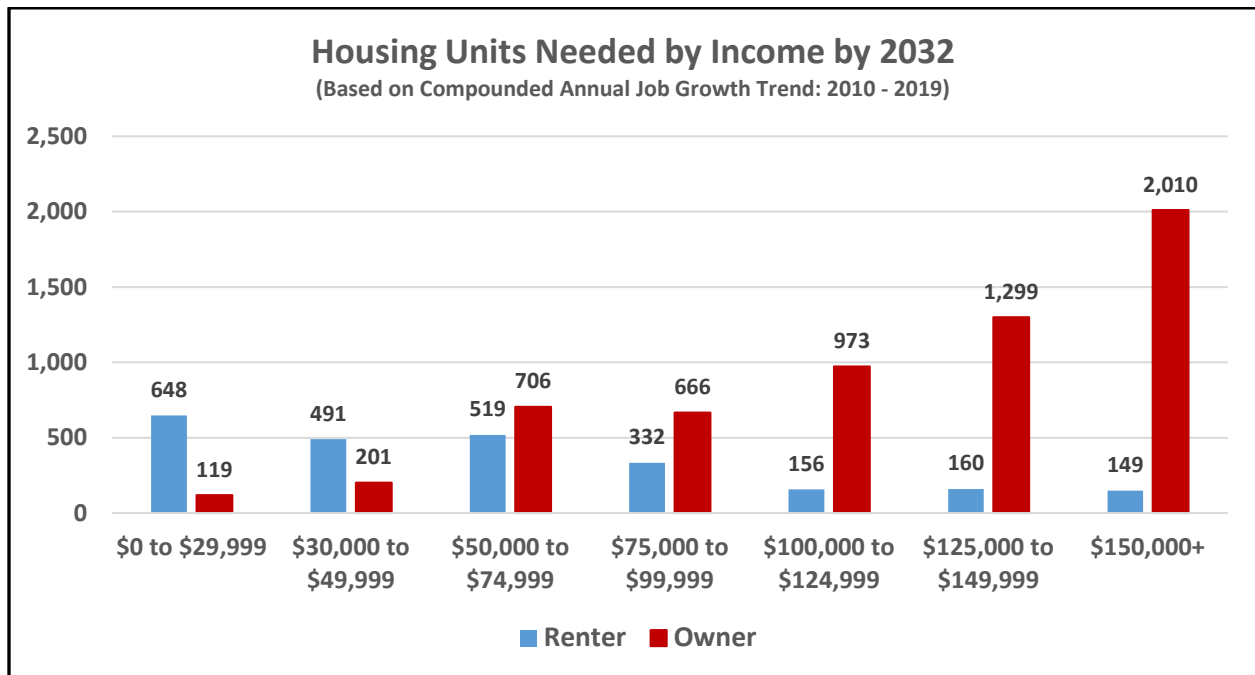
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

D: Franklin County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 0.900%)	45,522	33,616	79,138
Compounded Yearly Growth Rate (2010 to 2019: 1.718%)	90,515	66,842	157,356
Average Yearly Housing Need (2022 to 2032)	7,914 to 15,736		
Average Yearly Permits Issued (1990 to 2021)	6,339		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Franklin County	1,163,414	1,321,947	1,461,059	158,533	13.6%	139,112	10.5%

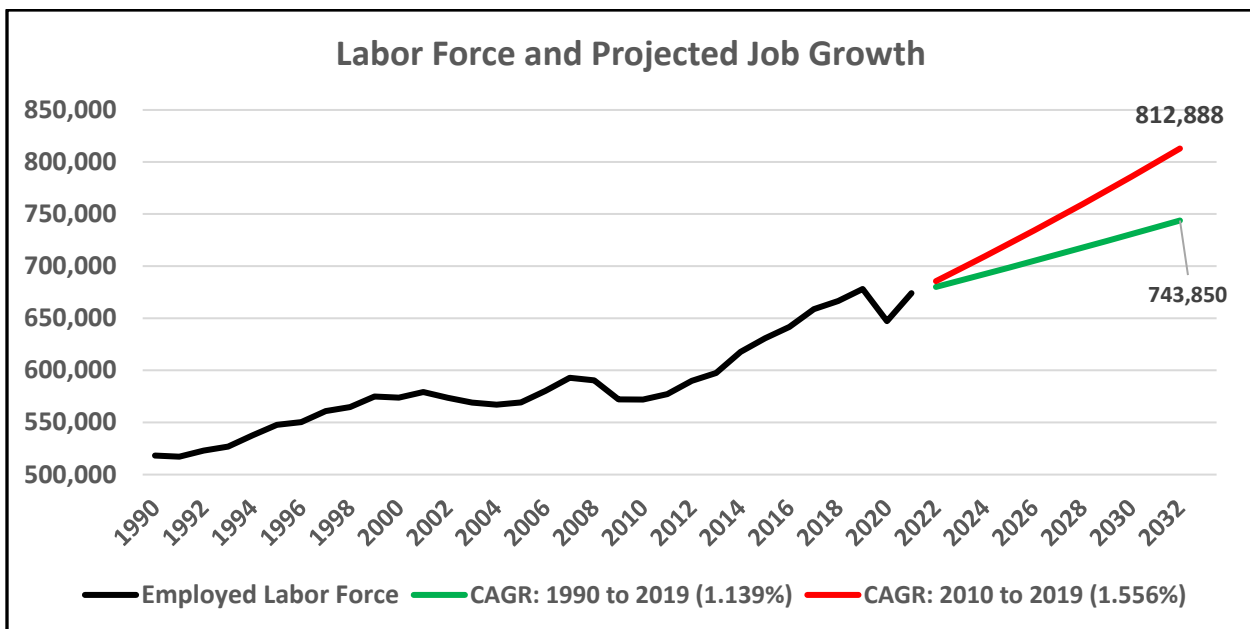
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Franklin County	477,235	541,385	599,713	64,150	13.4%	58,328	10.8%

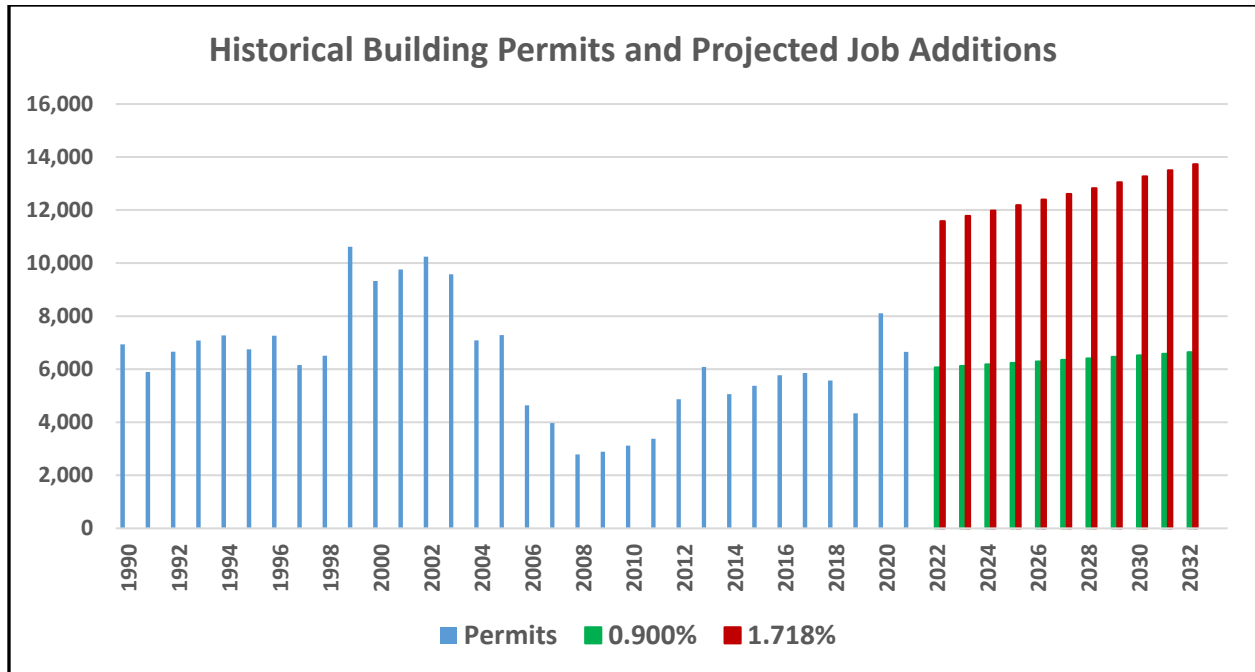
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Franklin County	\$47,671	\$66,771	\$84,012	\$19,100	40.1%	\$17,241	25.8%

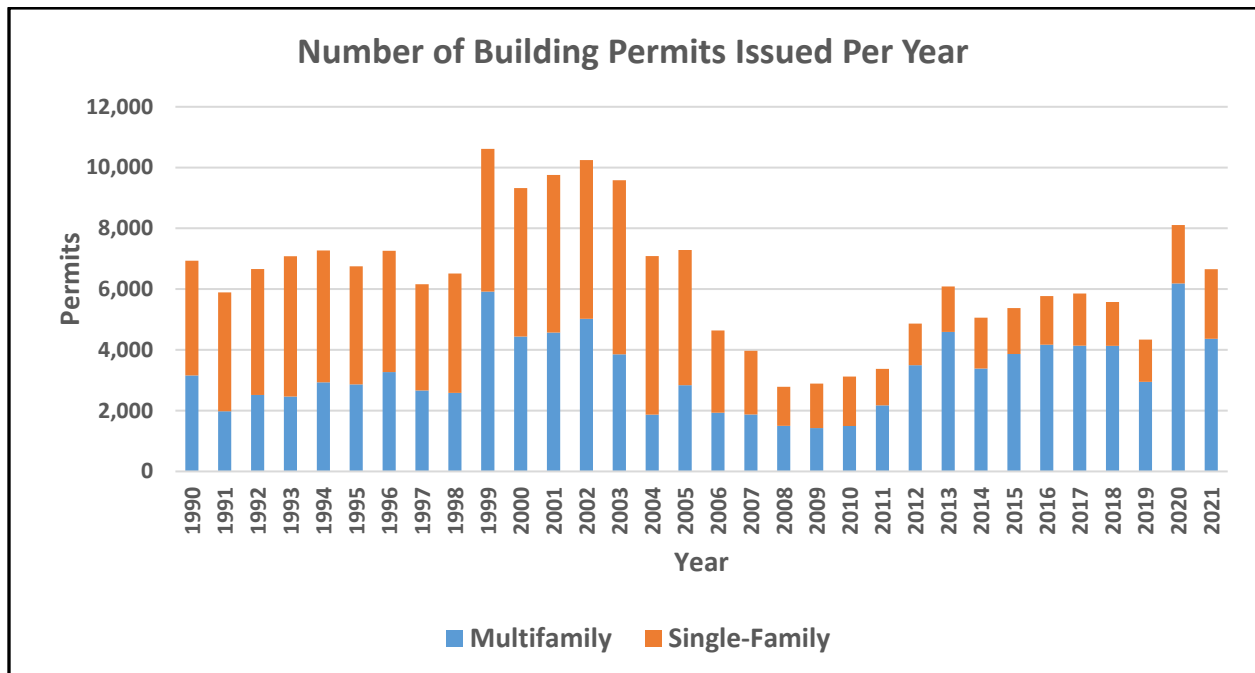
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



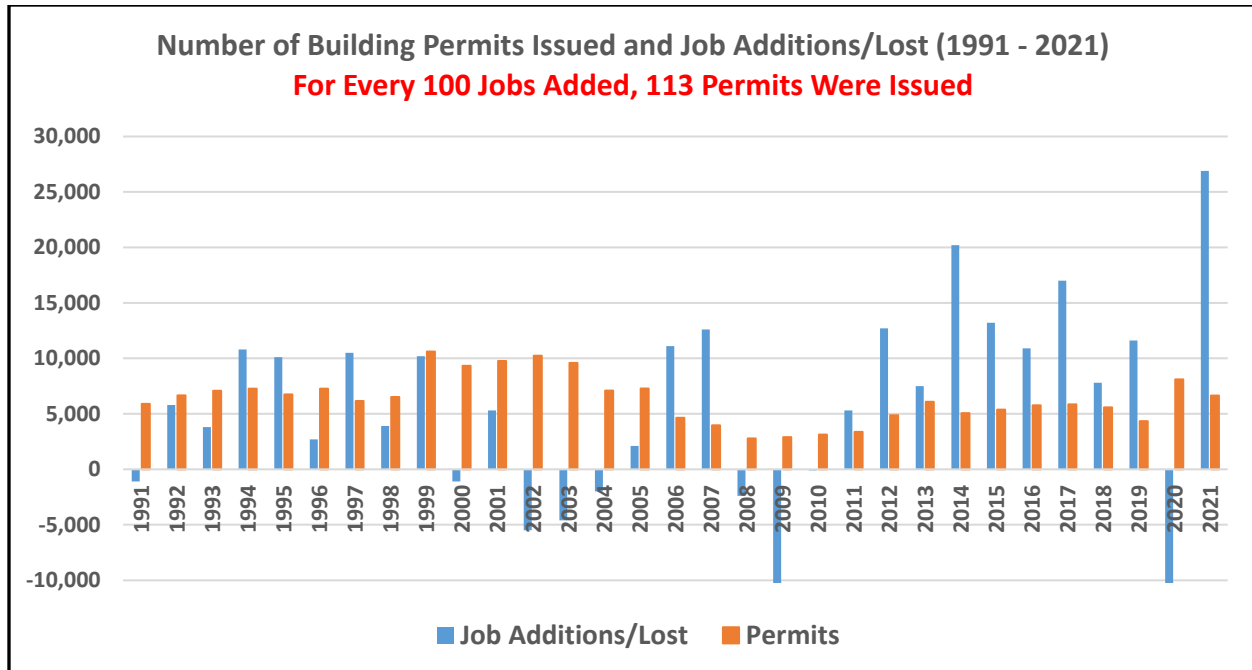
Source: Vogt Strategic Insights; Department of Labor Statistics



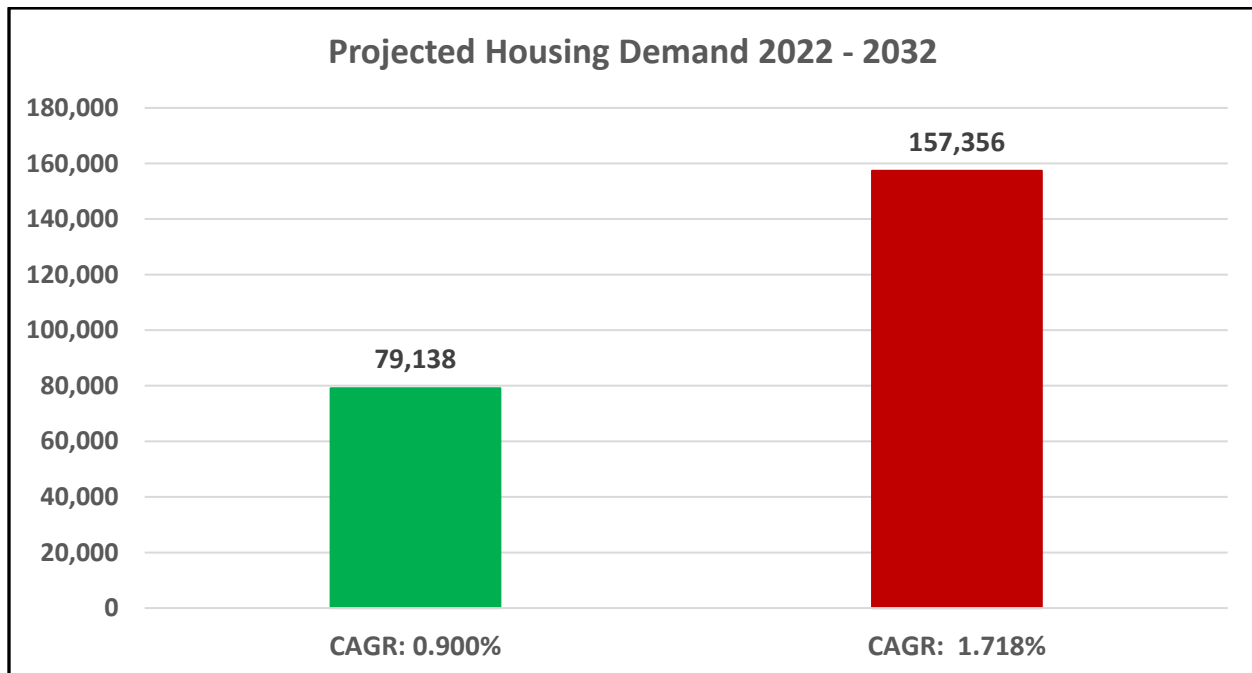
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



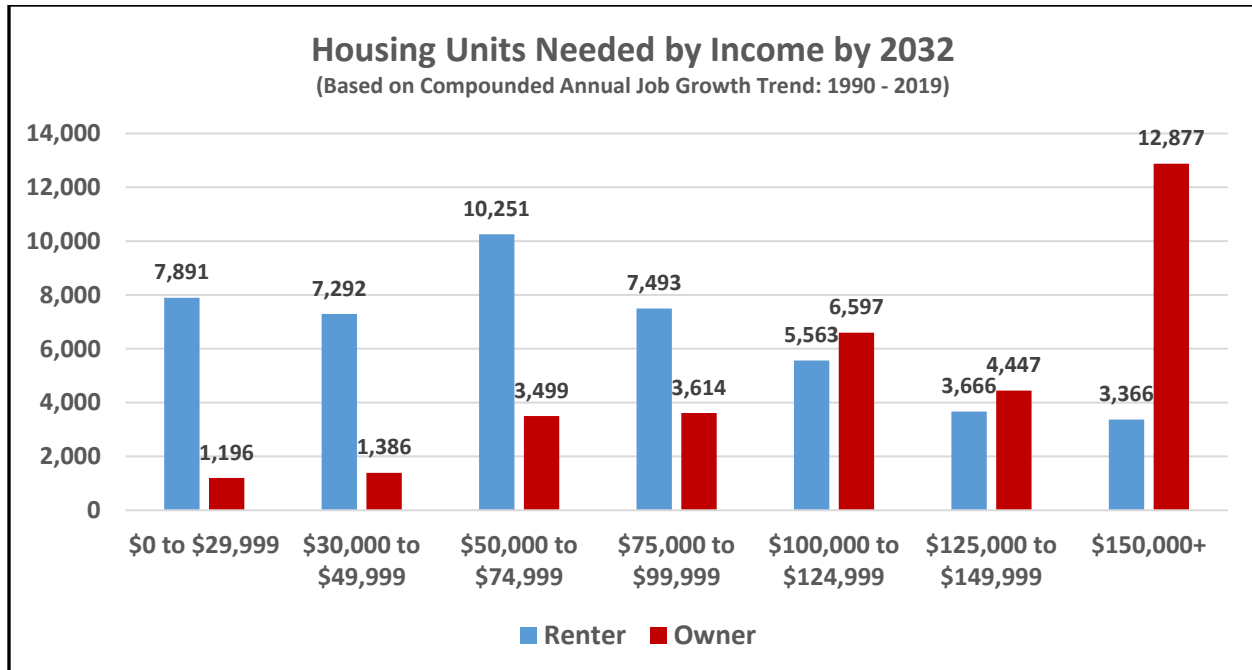
Source: State of the Cities Data Systems (SOCDS)



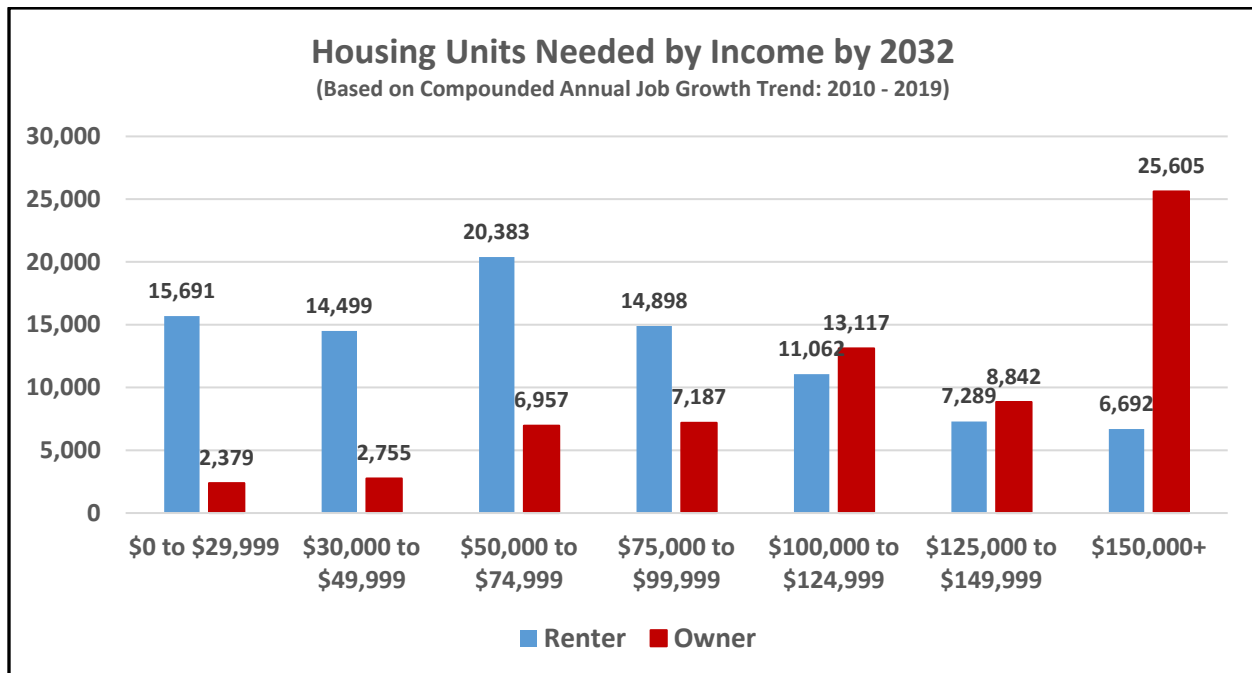
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

E: Knox County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 1.075%)	1,115	2,006	3,121
Compounded Yearly Growth Rate (2010 to 2019: 0.892%)	916	1,649	2,565
Average Yearly Housing Need (2022 to 2032)	256 to 312		
Average Yearly Permits Issued (1990 to 2021)	240		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Knox County	60,921	63,957	66,183	3,036	5.0%	2,226	3.5%

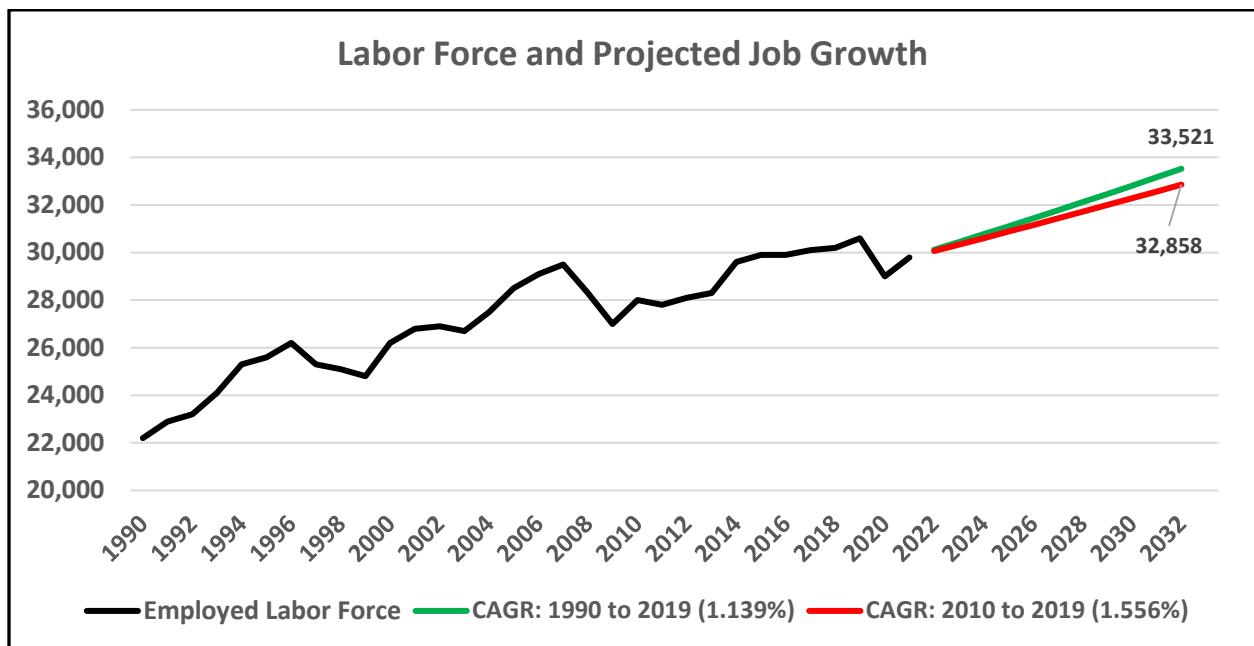
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Knox County	22,607	23,981	24,993	1,374	6.1%	1,012	4.2%

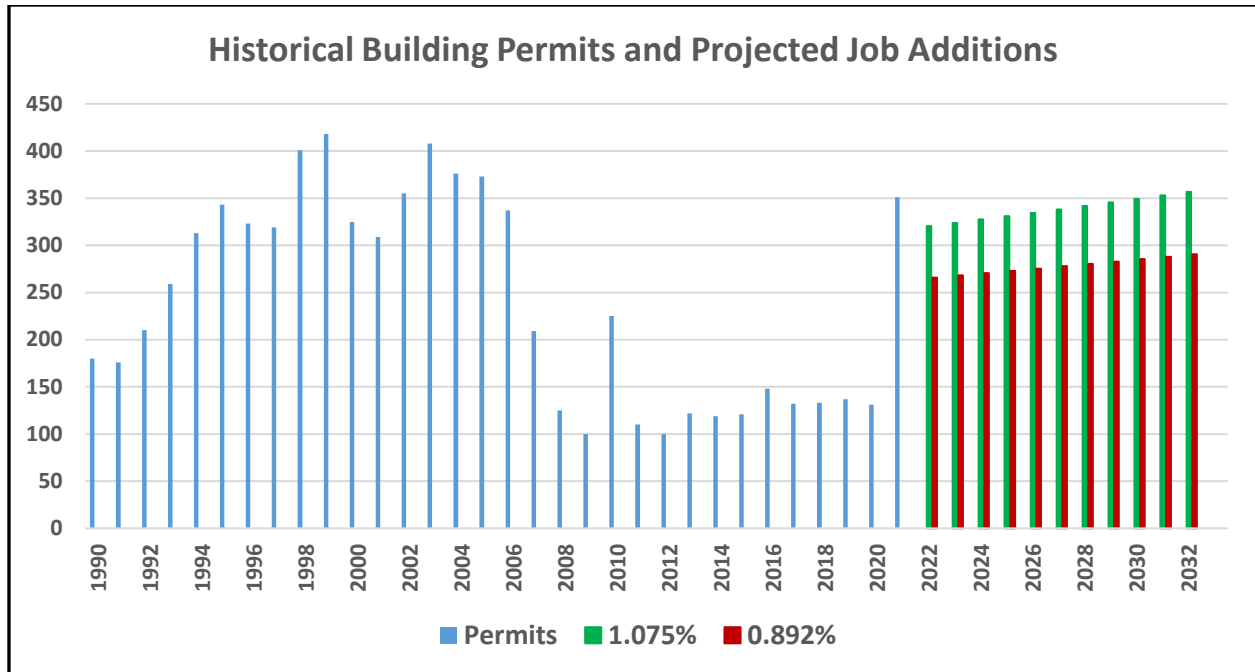
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Knox County	\$42,094	\$64,342	\$93,784	\$22,248	52.9%	\$29,442	45.8%

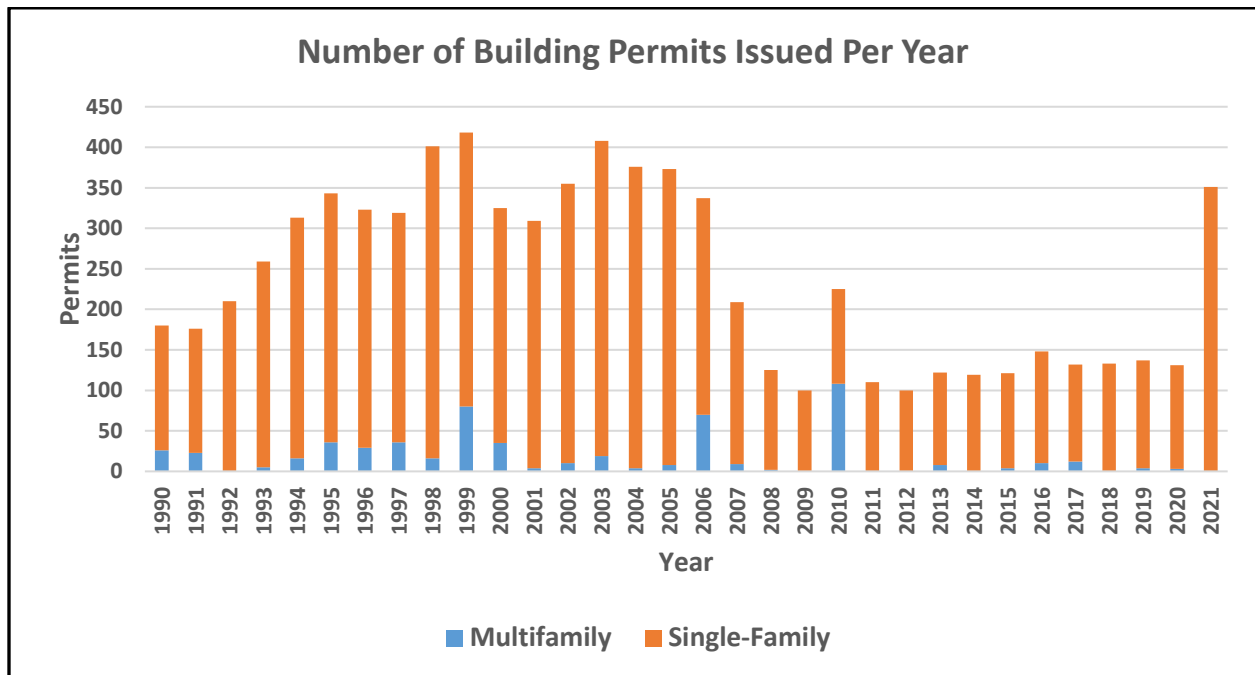
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



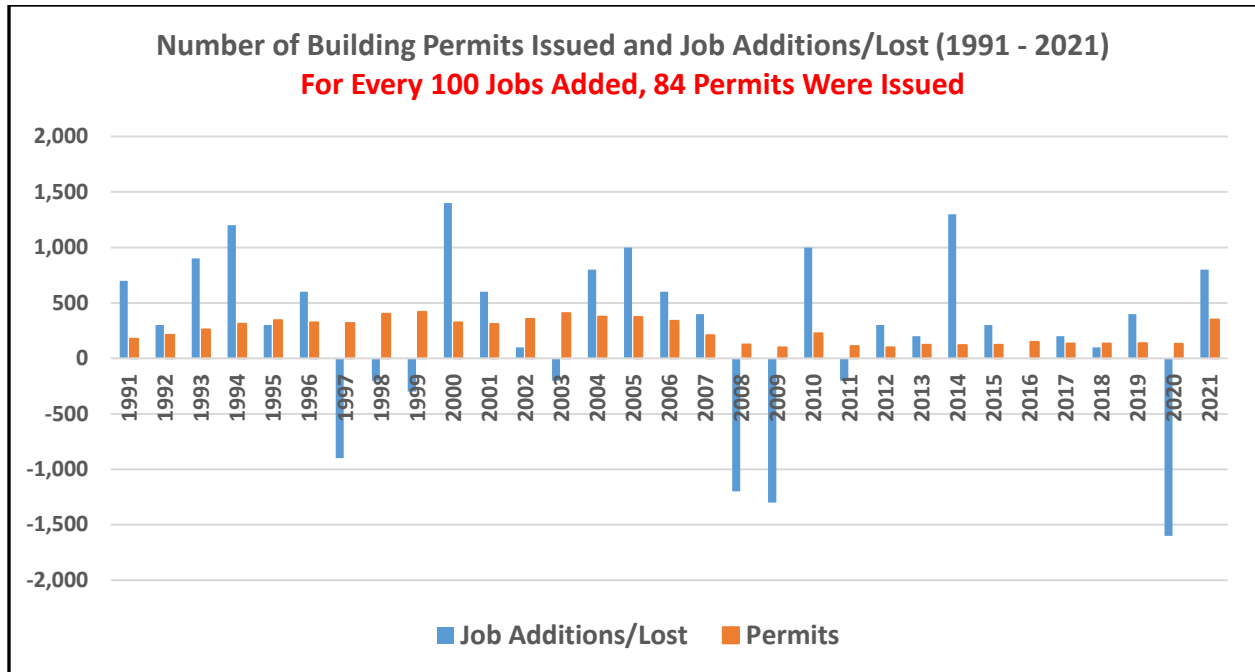
Source: Vogt Strategic Insights; Department of Labor Statistics



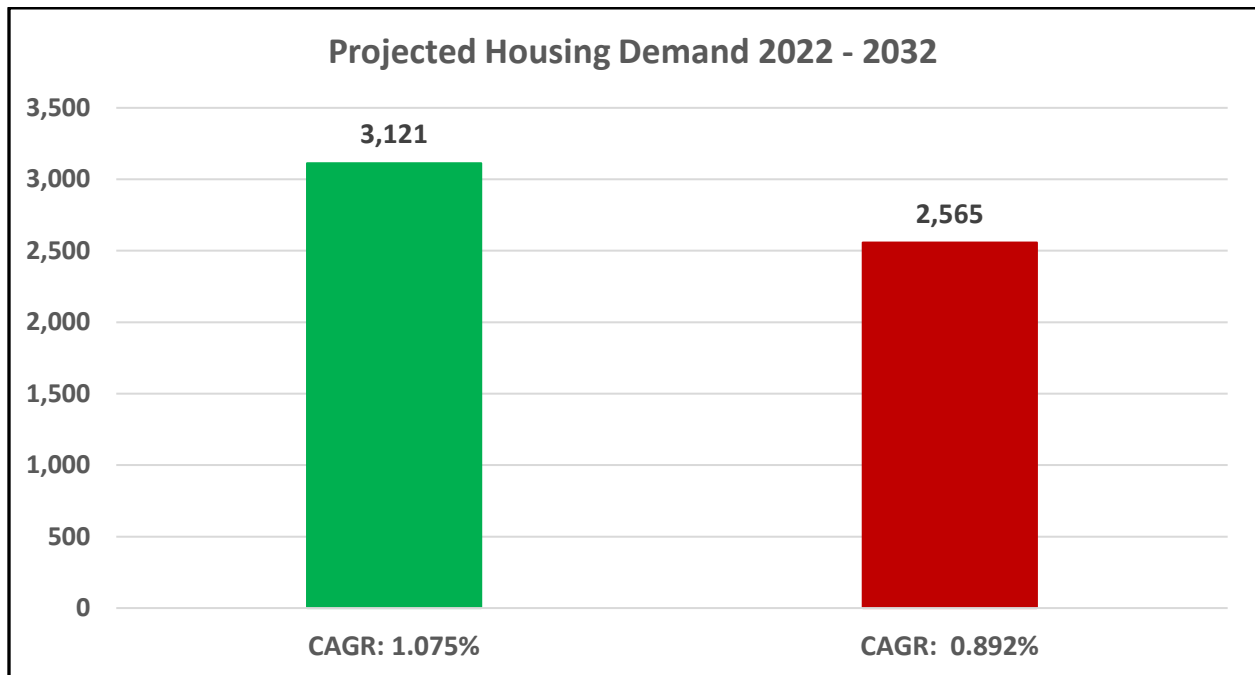
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



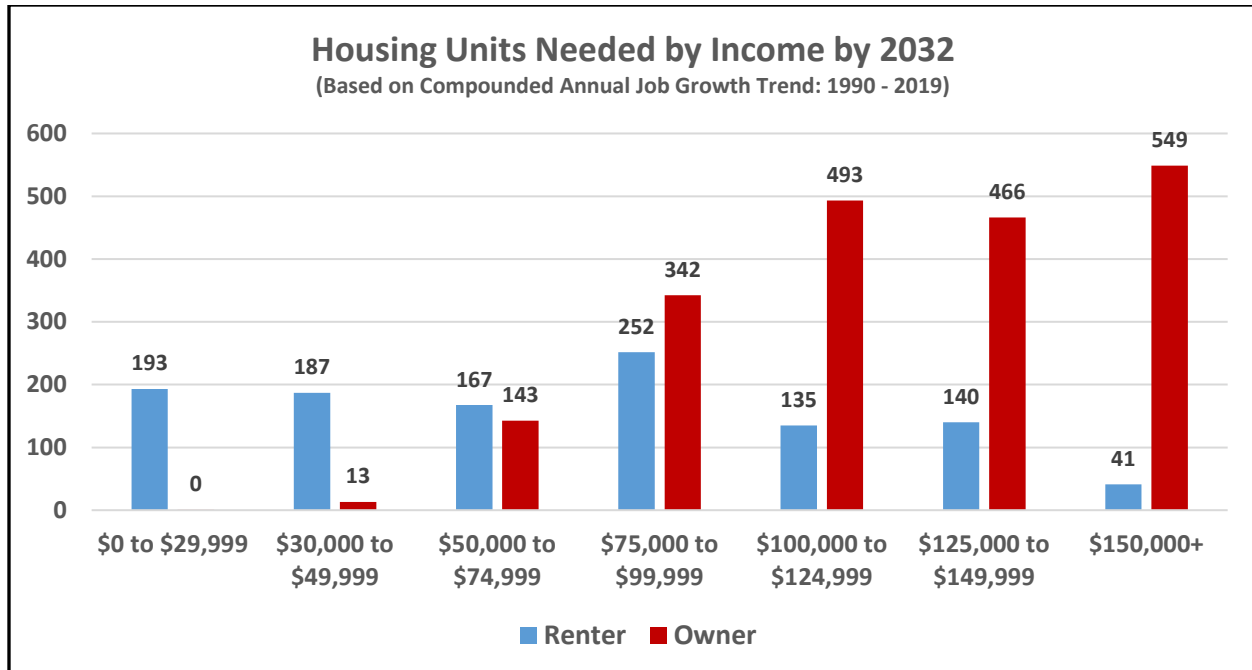
Source: State of the Cities Data Systems (SOCDS)



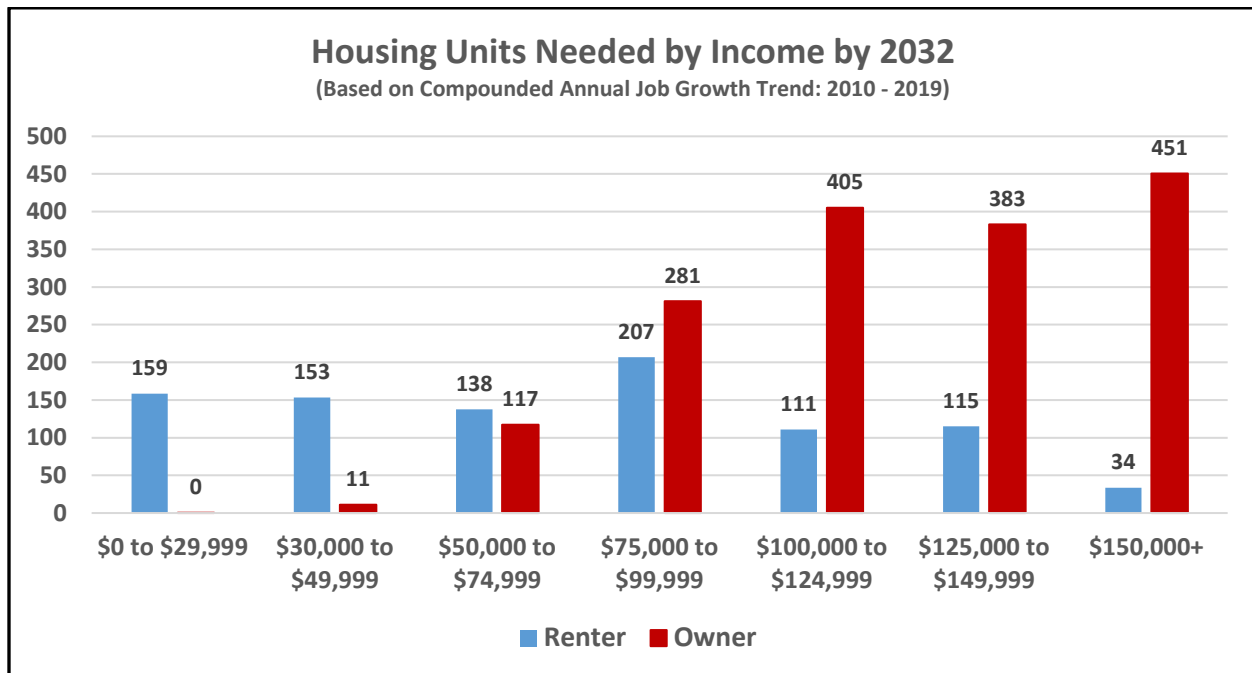
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

F: Licking County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 1.154%)	3,038	6,511	9,549
Compounded Yearly Growth Rate (2010 to 2019: 1.048%)	2,743	5,879	8,622
Average Yearly Housing Need (2022 to 2032)	862 to 955		
Average Yearly Permits Issued (1990 to 2021)	686		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Licking County	166,492	181,384	194,402	14,892	8.9%	13,018	7.2%

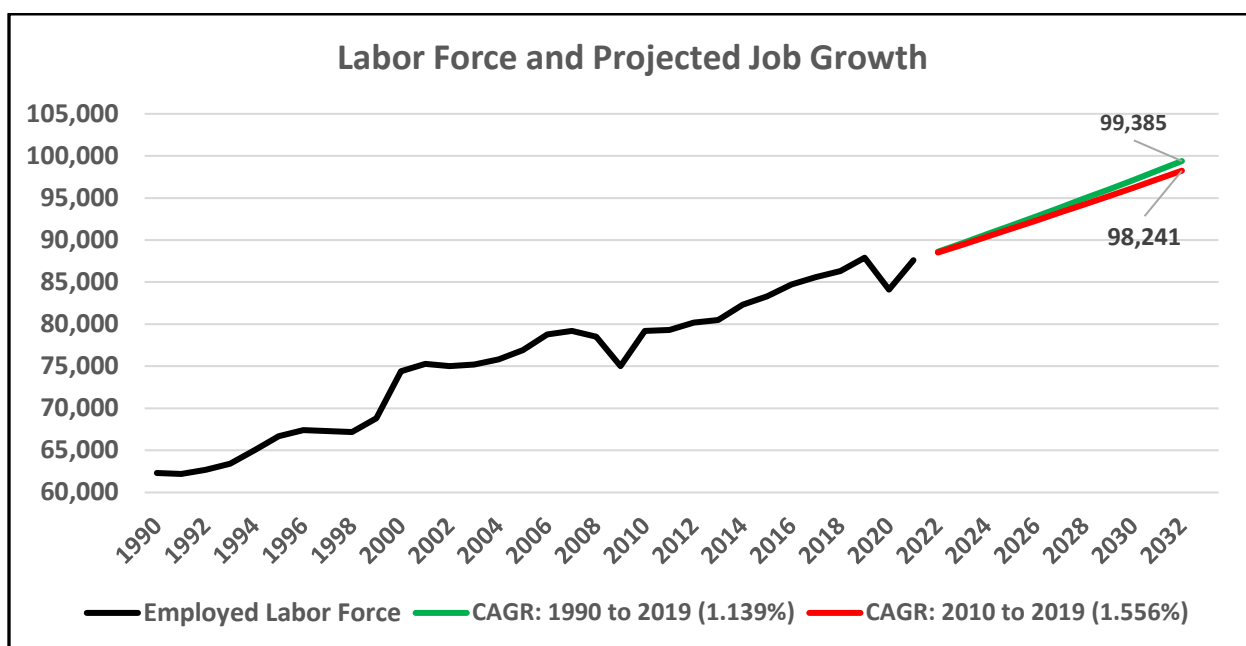
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Licking County	63,989	69,482	74,412	5,493	8.6%	4,930	7.1%

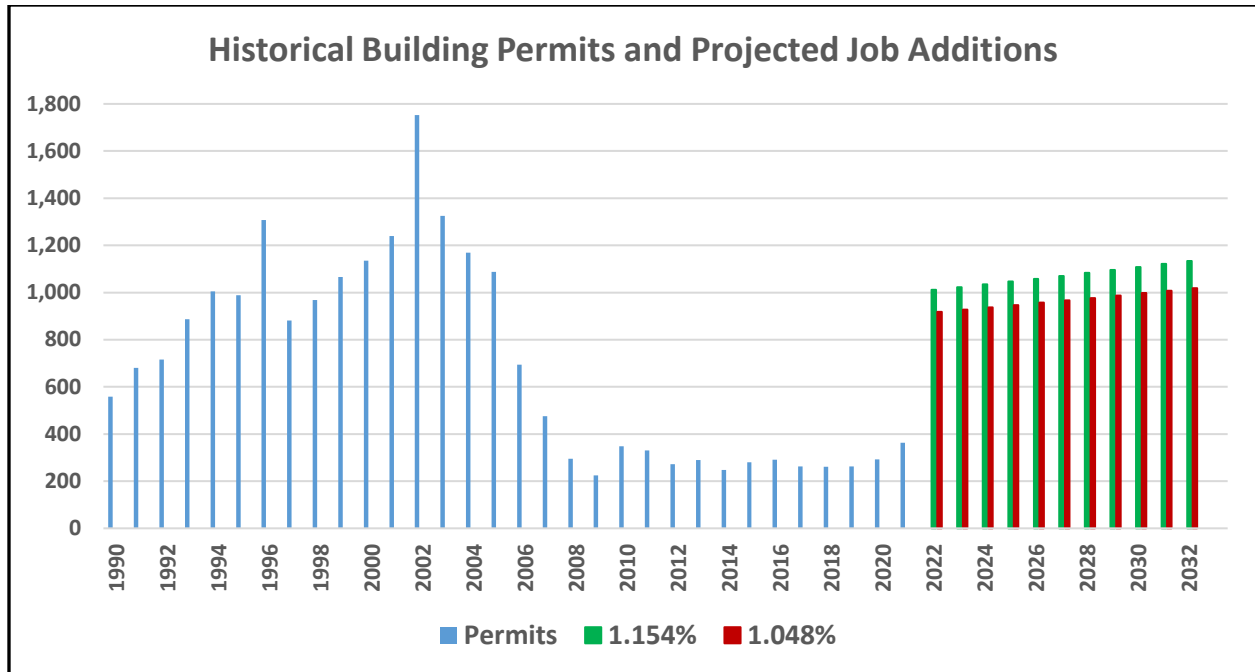
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Licking County	\$49,947	\$69,461	\$97,385	\$19,514	39.1%	\$27,924	40.2%

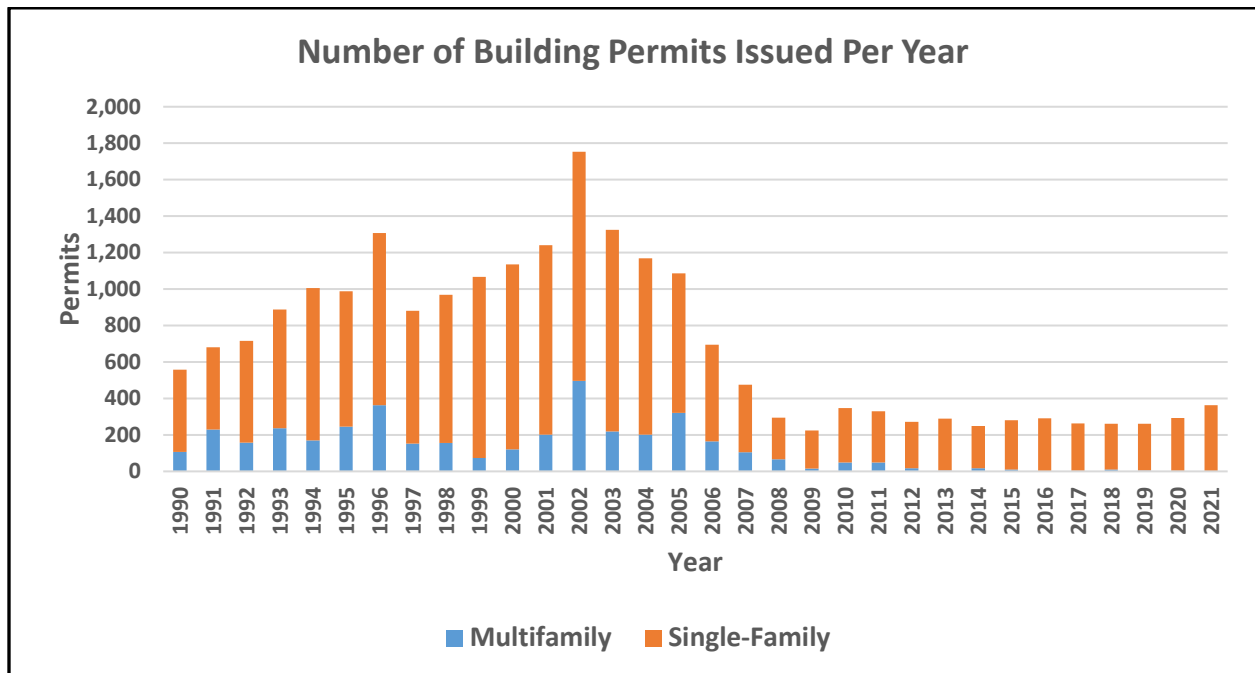
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



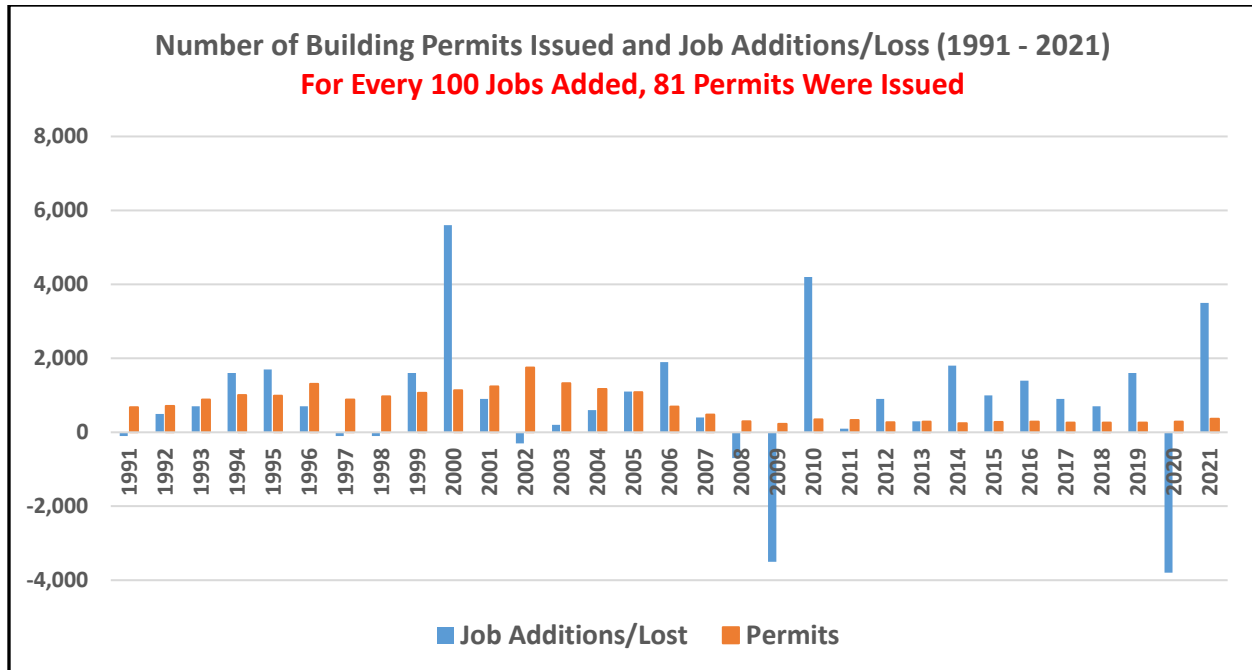
Source: Vogt Strategic Insights; Department of Labor Statistics



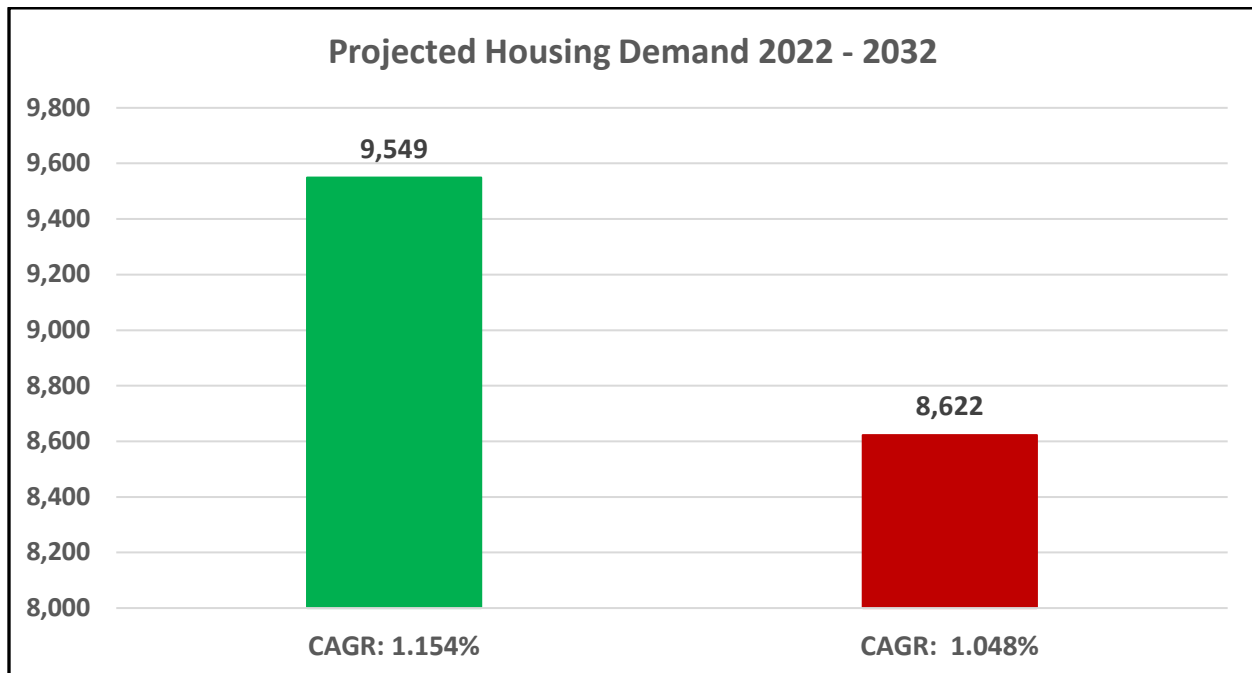
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



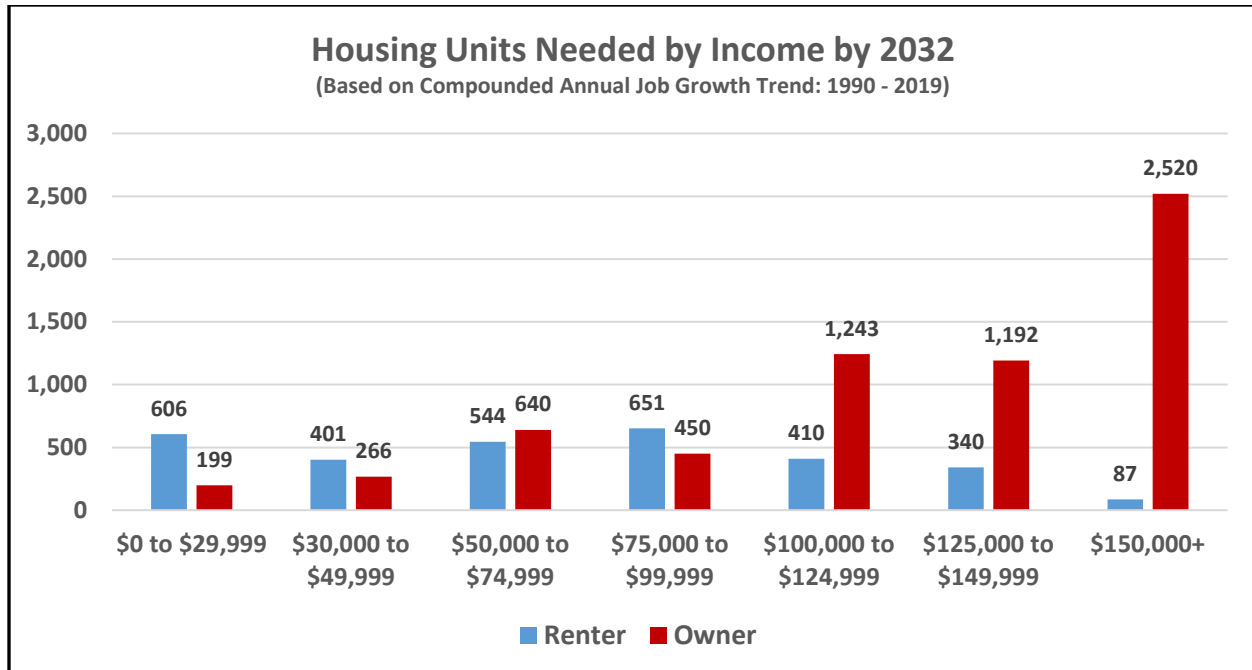
Source: State of the Cities Data Systems (SOCDS)



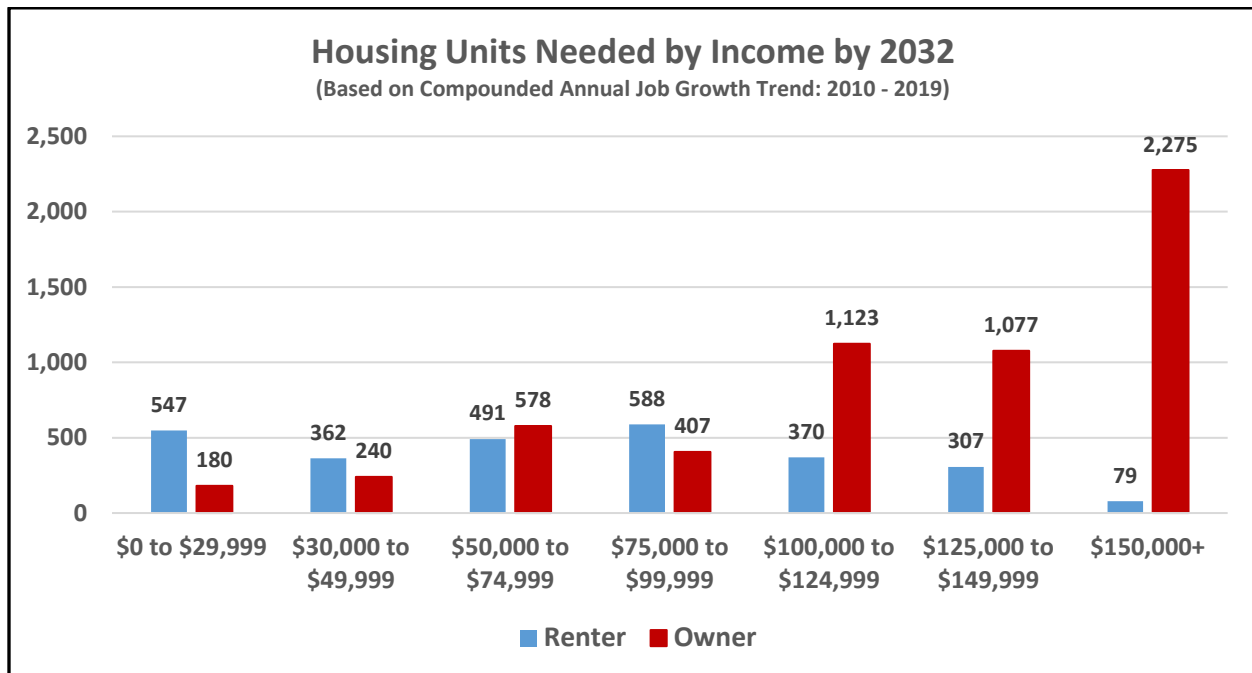
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

G: Madison County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 0.554%)	481	1,112	1,594
Compounded Yearly Growth Rate (2010 to 2019: 0.771%)	677	1,564	2,241
Average Yearly Housing Need (2022 to 2032)	159 to 224		
Average Yearly Permits Issued (1990 to 2021)	135		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Madison County	43,435	45,656	47,466	2,221	5.1%	1,810	4.0%

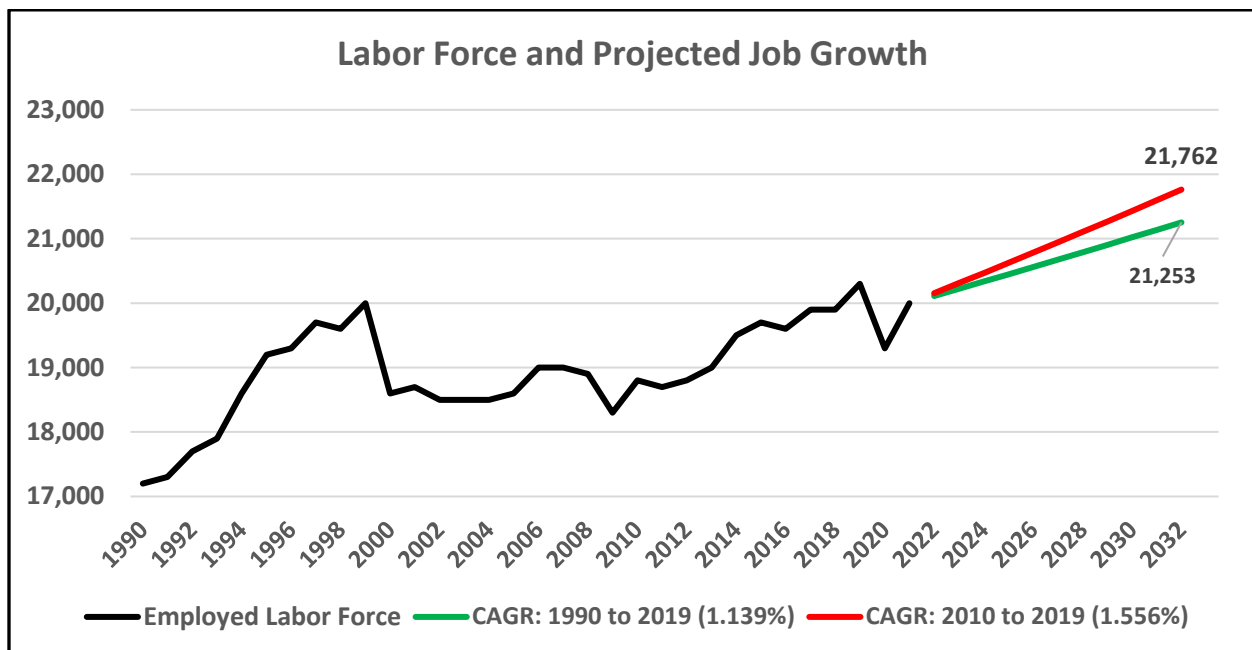
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Madison County	14,734	15,710	16,398	976	6.6%	688	4.4%

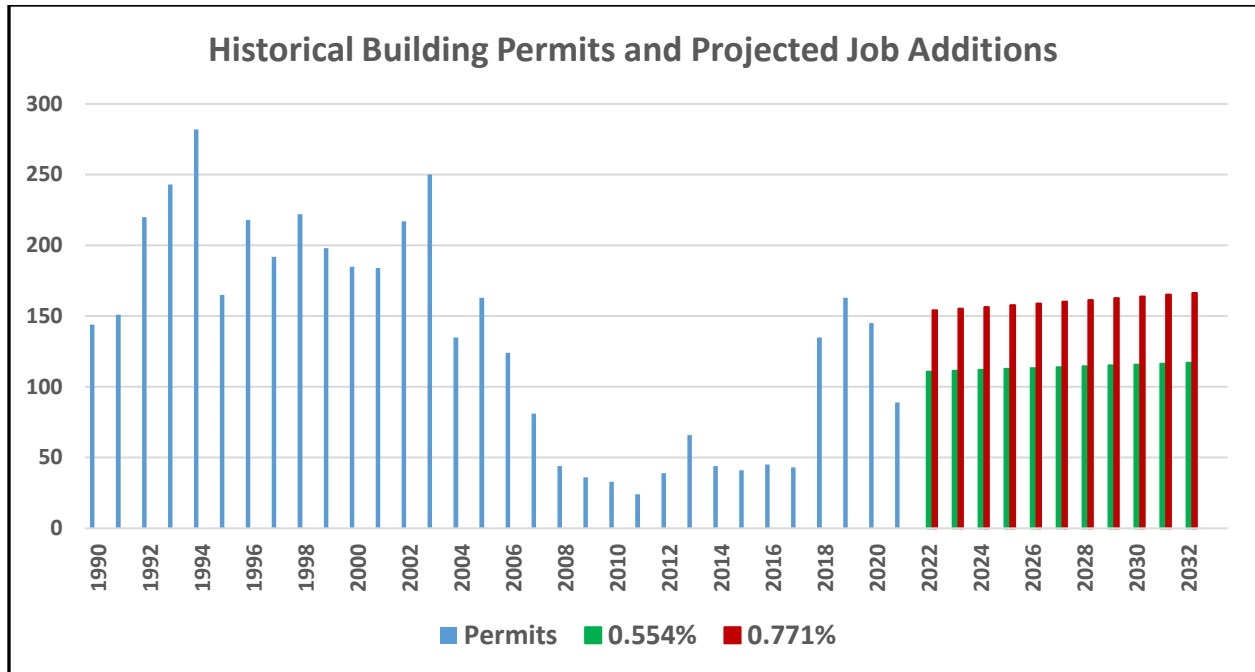
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Madison County	\$48,436	\$69,089	\$86,409	\$20,653	42.6%	\$17,320	25.1%

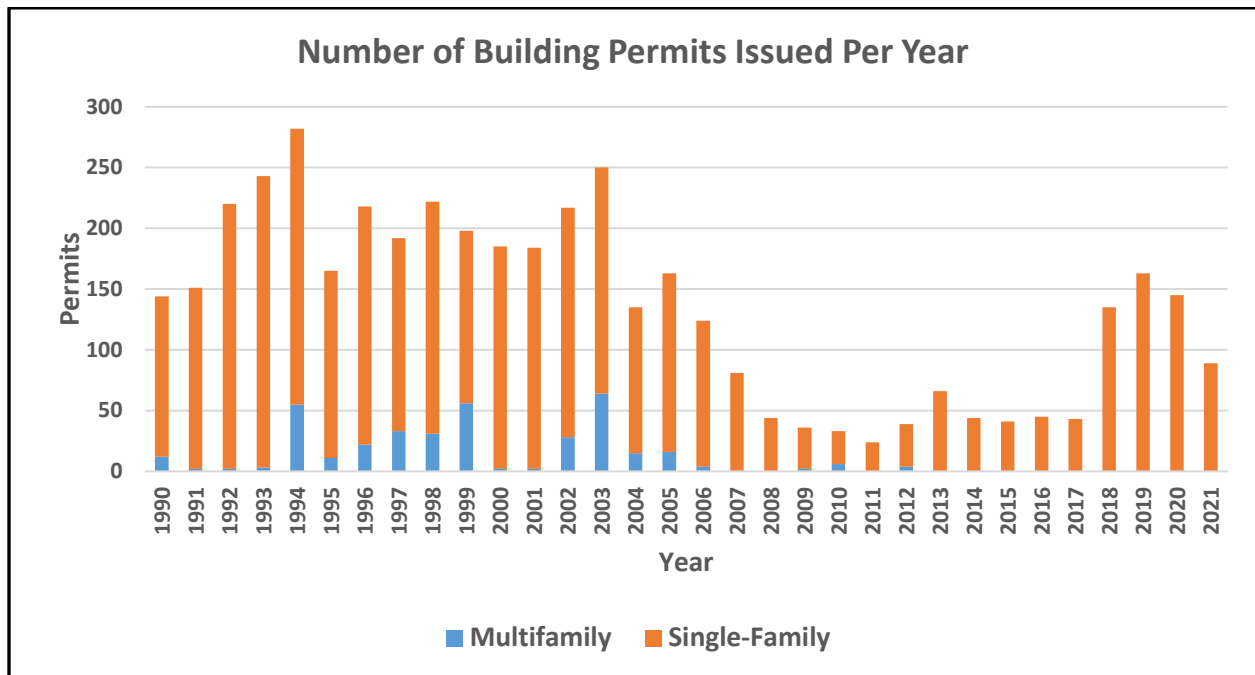
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



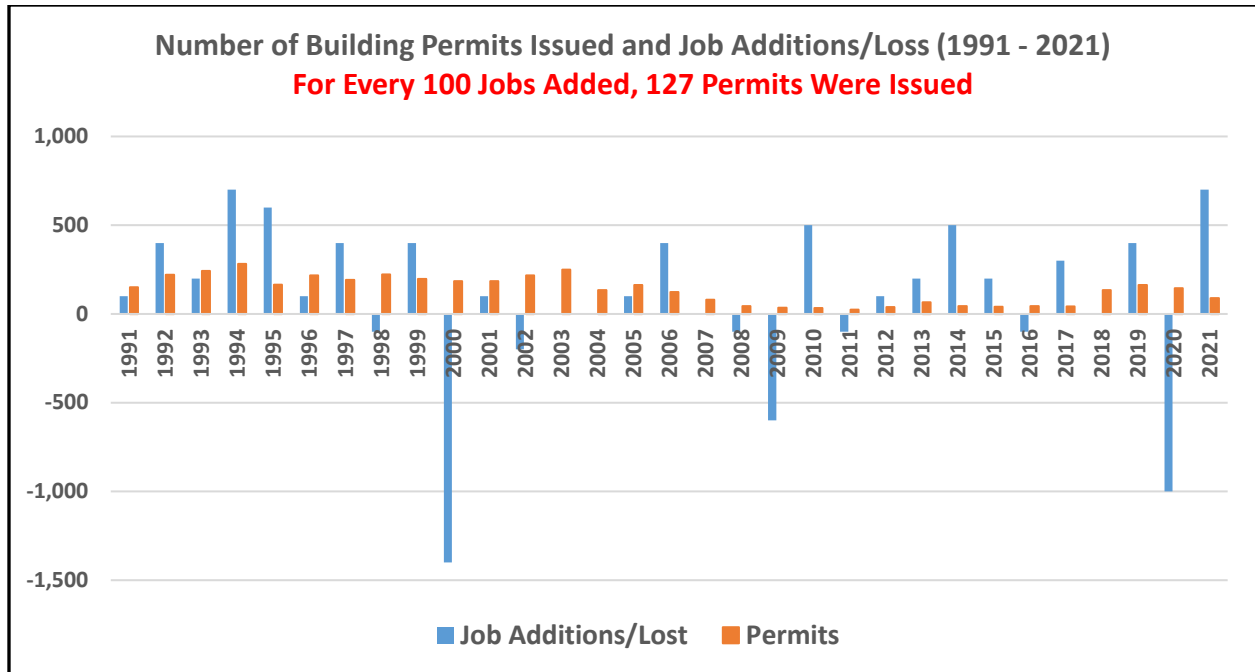
Source: Vogt Strategic Insights; Department of Labor Statistics



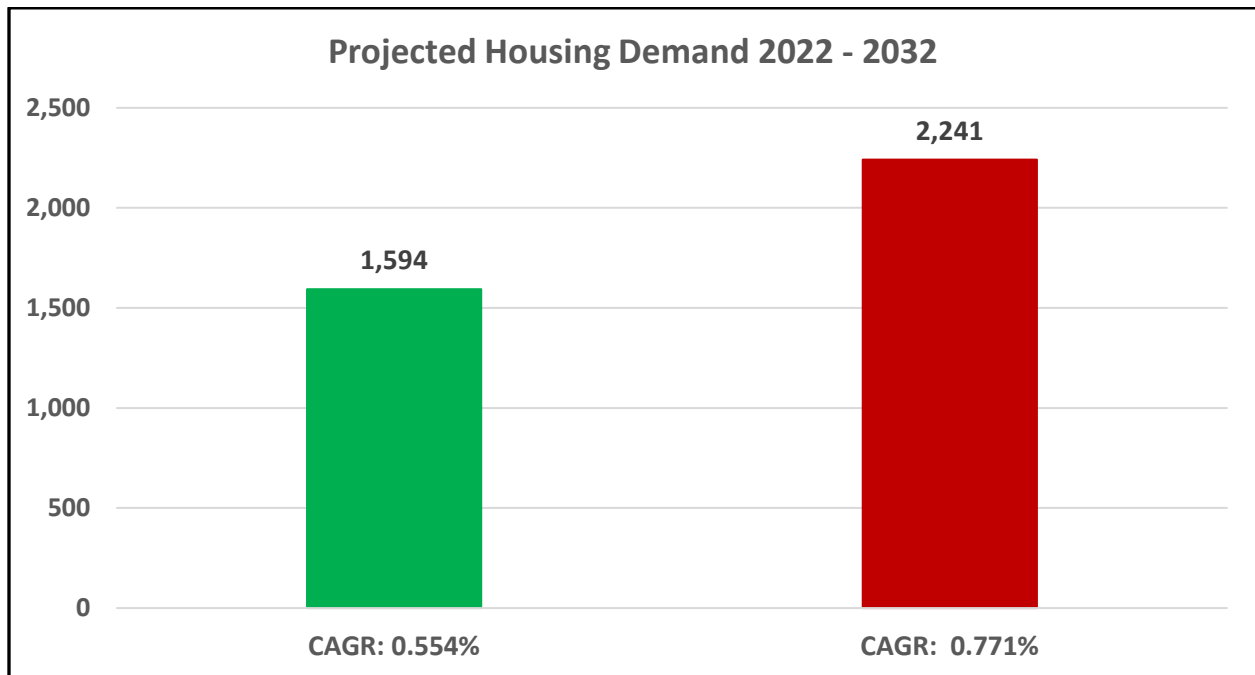
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



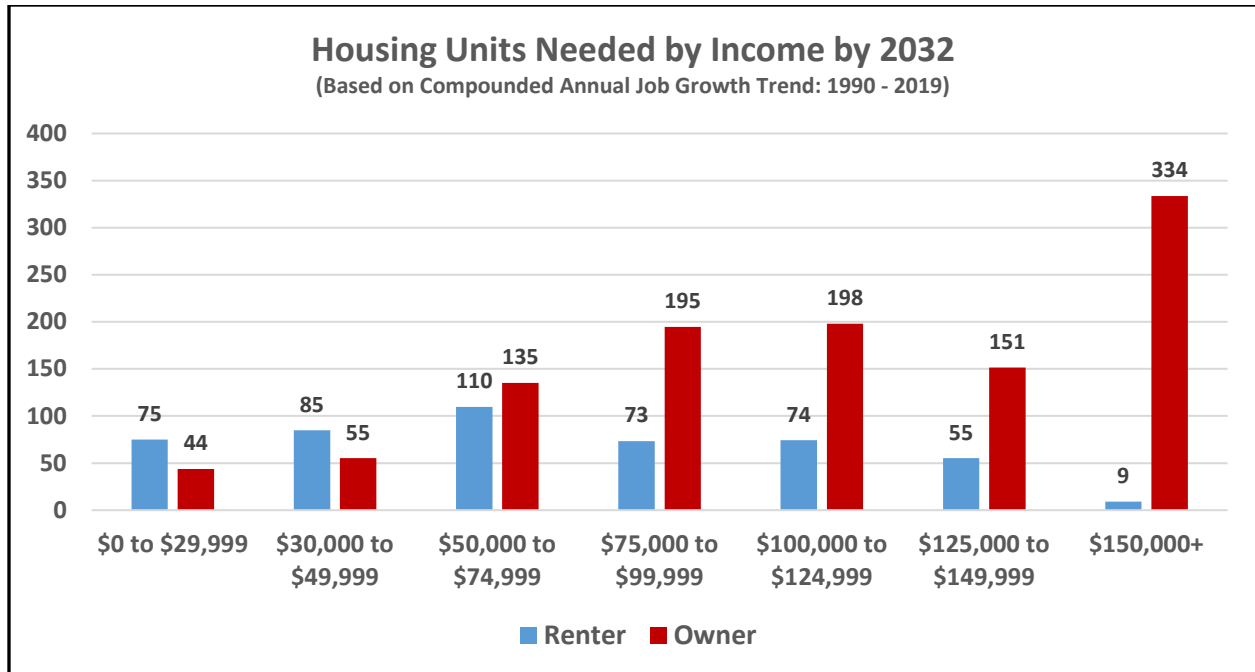
Source: State of the Cities Data Systems (SOCDS)



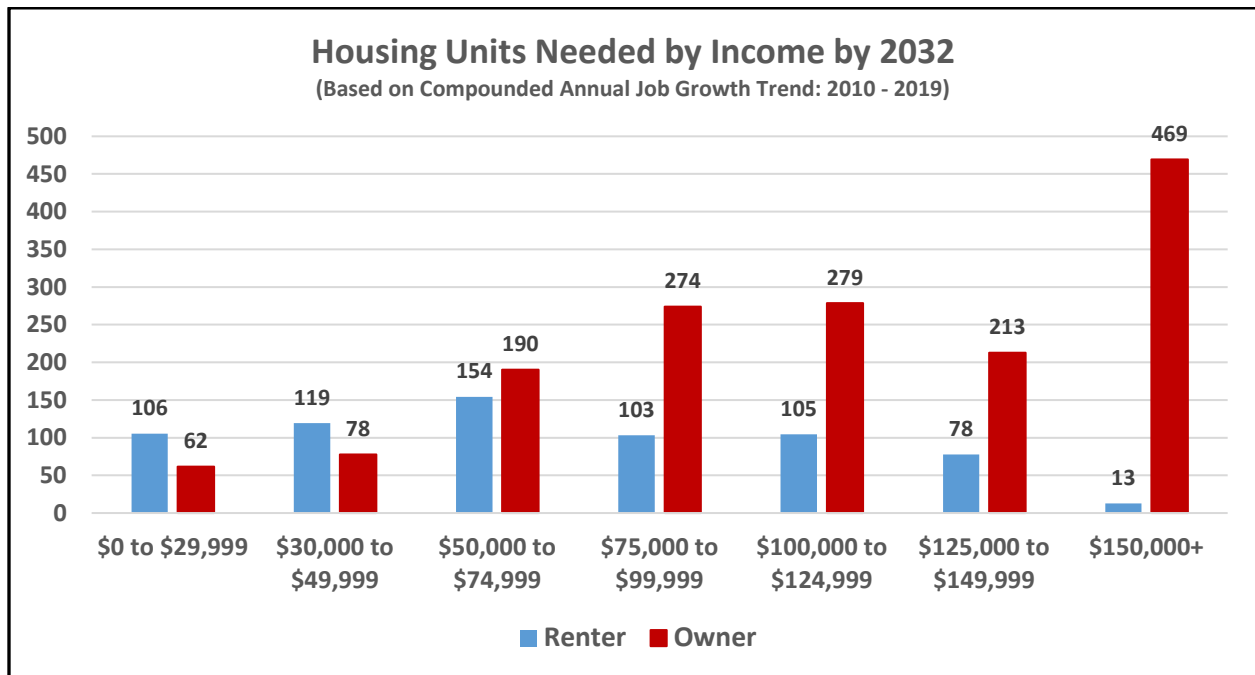
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

H: Marion County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: Negative)	-	-	-
Compounded Yearly Growth Rate (2010 to 2019: 0.220%)	533	867	1,400
Average Yearly Housing Need (2022 to 2032)	140		
Average Yearly Permits Issued (1990 to 2021)	130		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Marion County	66,501	66,425	64,535	-76	-0.1%	-1,890	-2.8%

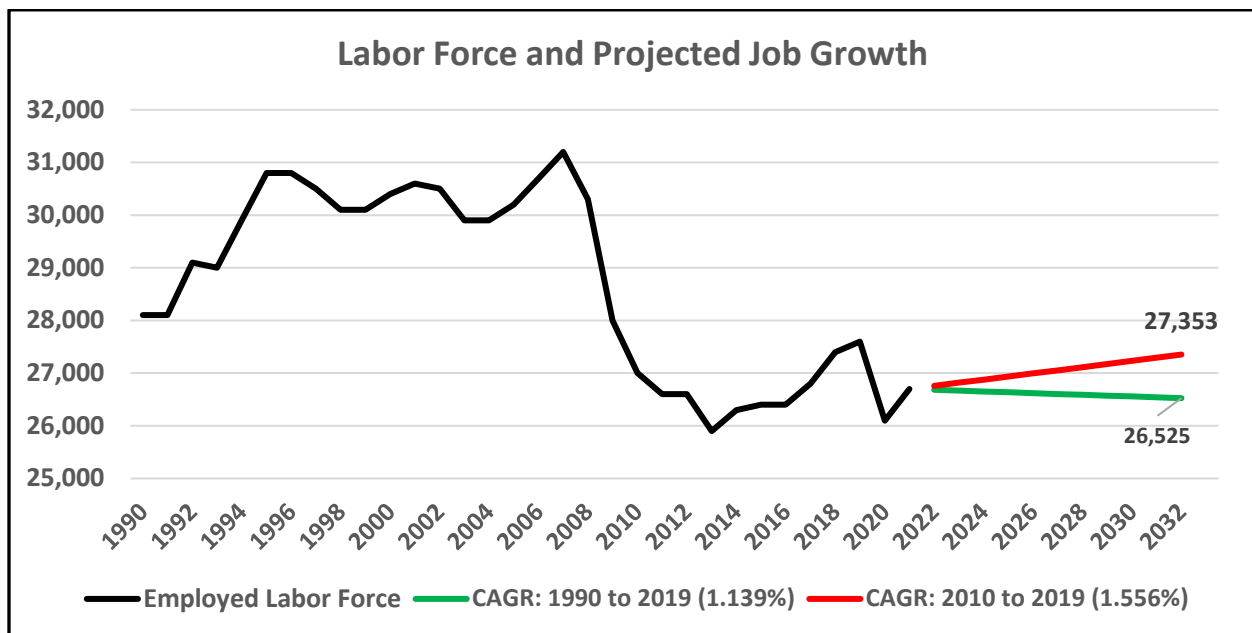
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Marion County	24,691	24,715	24,053	24	0.1%	-662	-2.7%

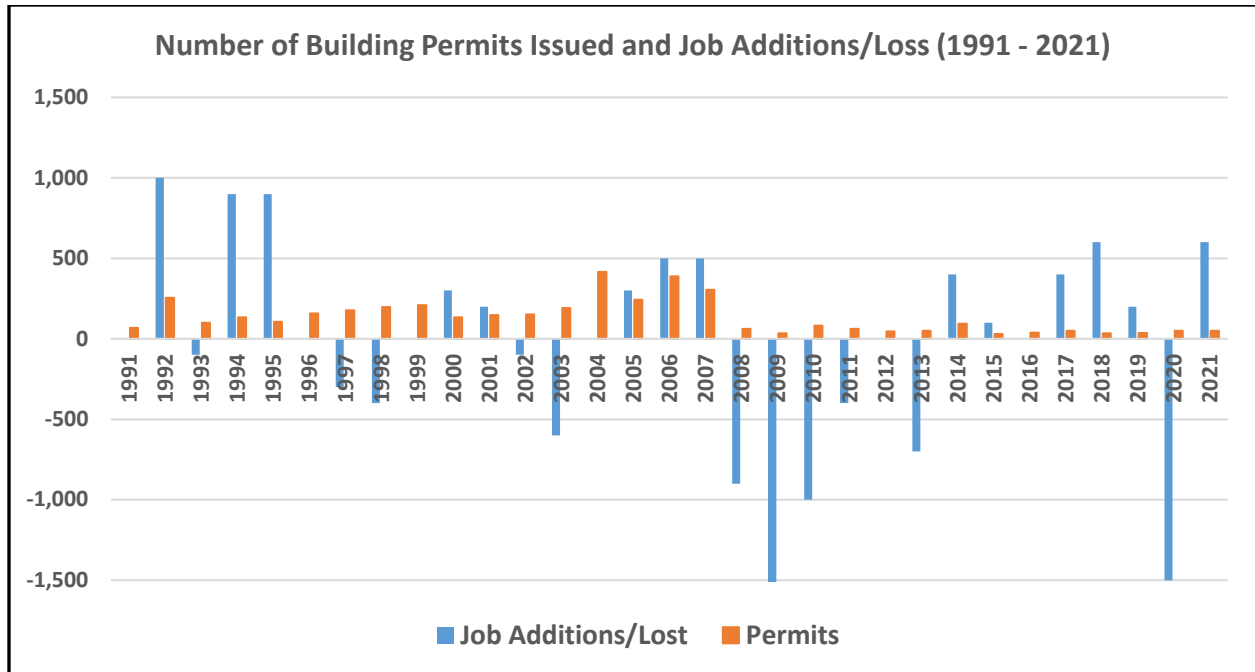
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Marion County	\$37,714	\$53,235	\$77,279	\$15,521	41.2%	\$24,044	45.2%

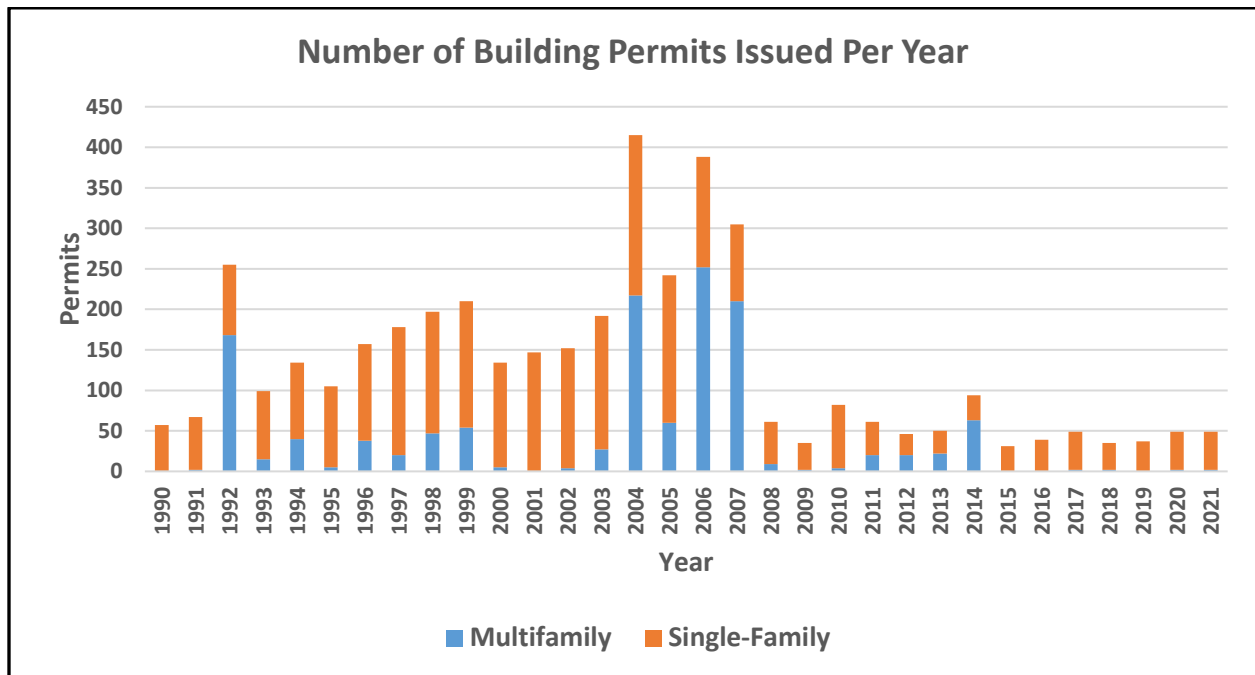
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



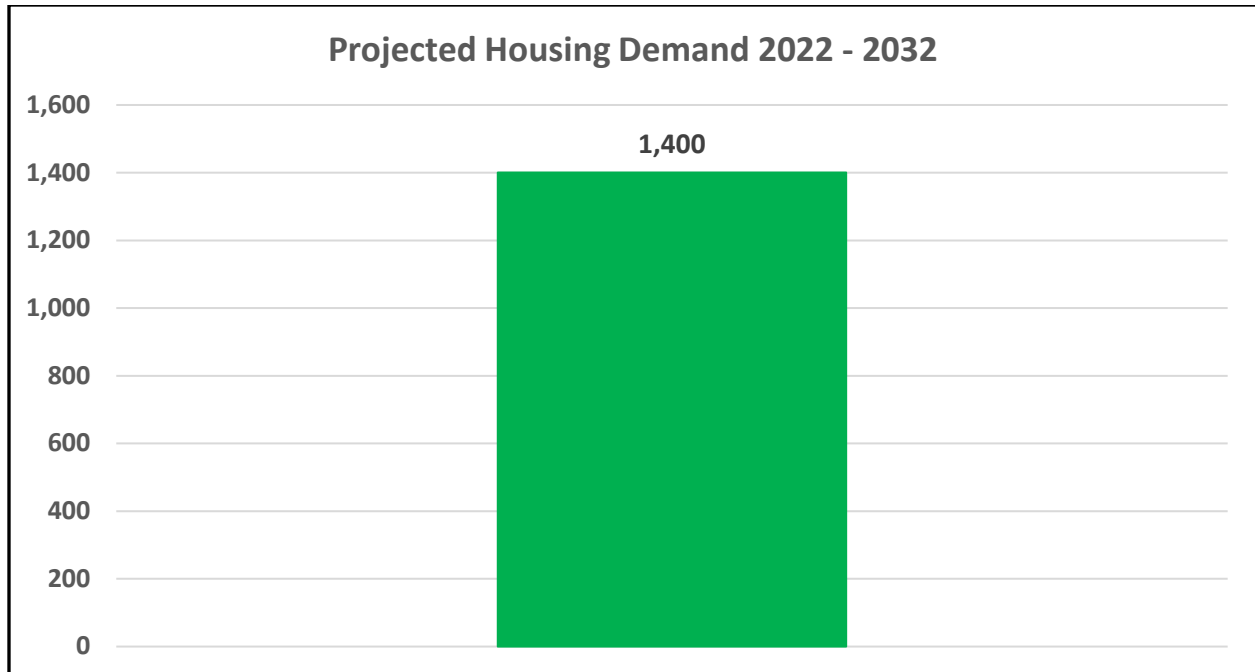
Source: Vogt Strategic Insights; Department of Labor Statistics



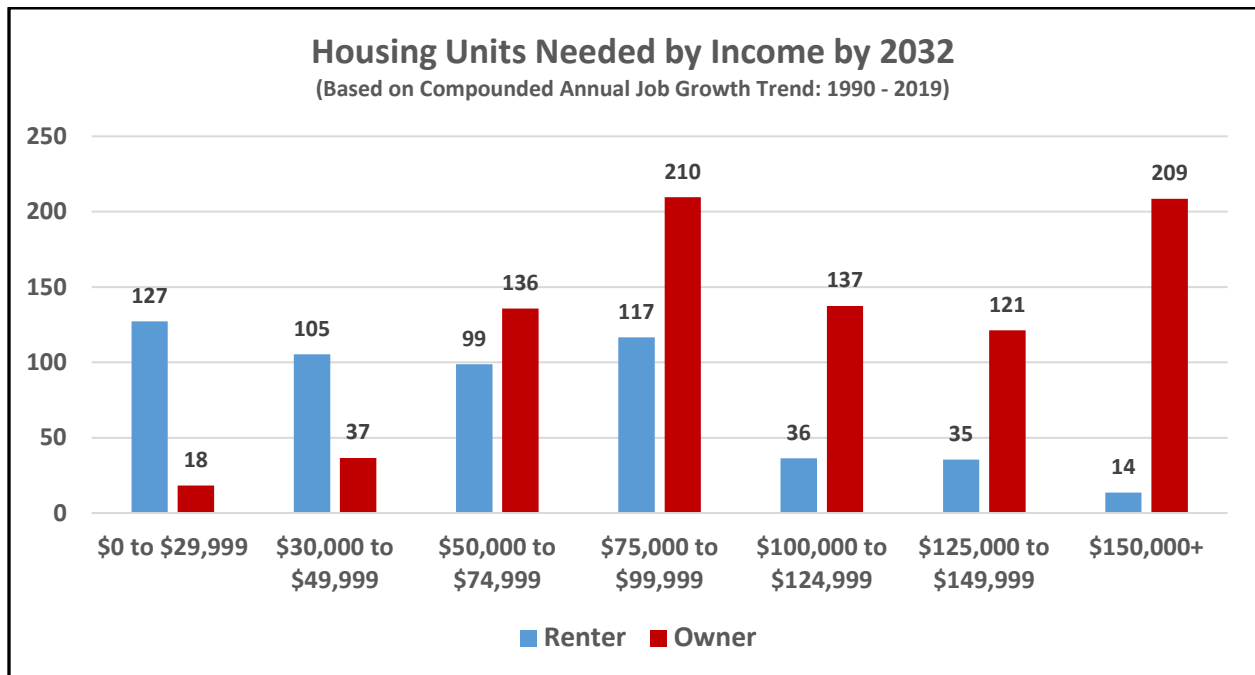
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

I: Morrow County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 0.757%)	220	712	932
Compounded Yearly Growth Rate (2010 to 2019: 0.570%)	164	521	695
Average Yearly Housing Need (2022 to 2032)	70 to 93		
Average Yearly Permits Issued (1990 to 2021)	79		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Morrow County	34,827	35,972	37,216	1,145	3.3%	1,244	3.5%

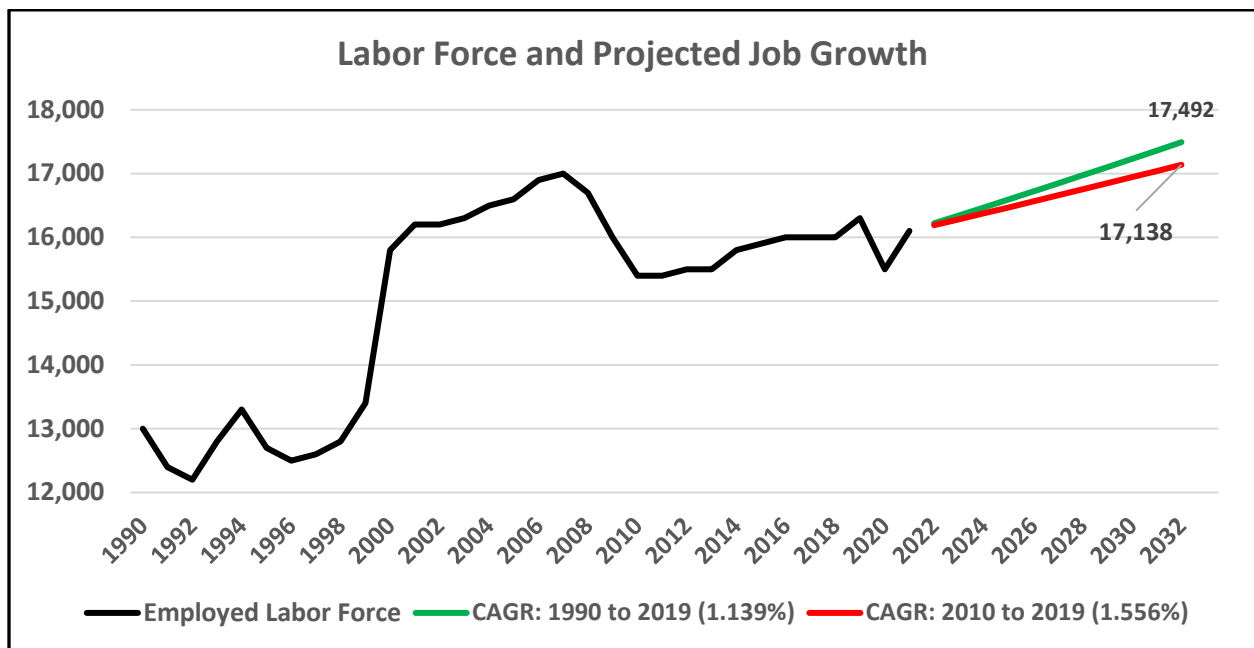
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Morrow County	12,855	13,368	13,882	513	4.0%	514	3.8%

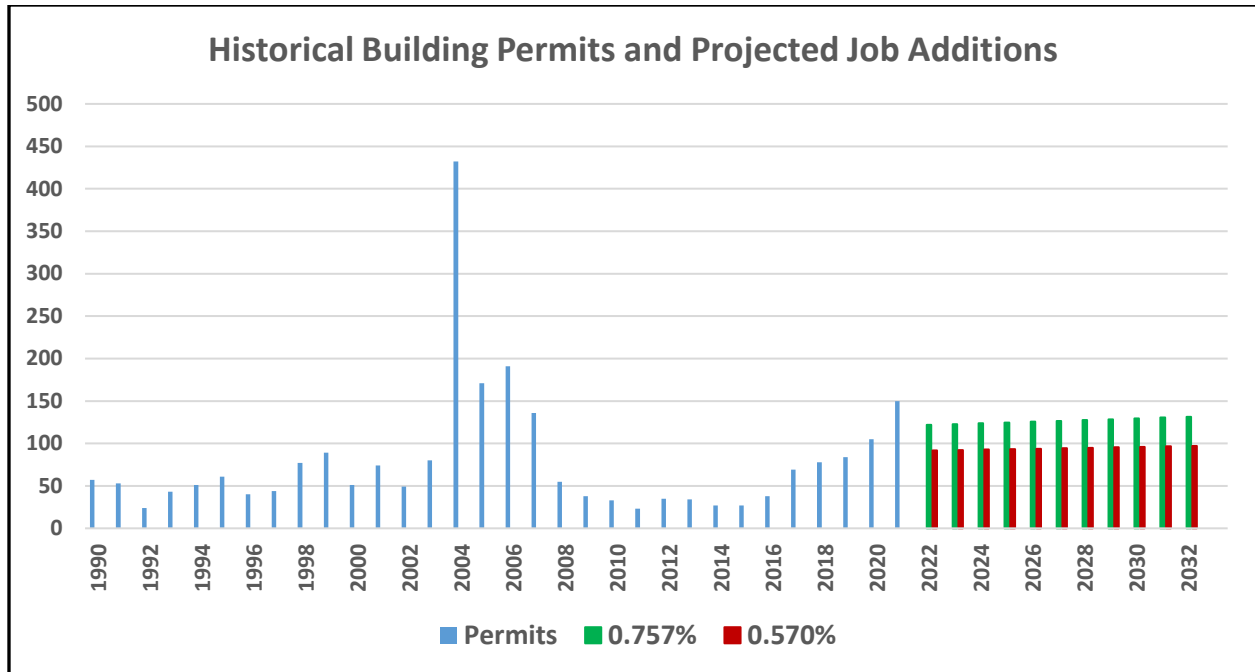
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Morrow County	\$48,364	\$61,366	\$83,225	\$13,002	26.9%	\$21,859	35.6%

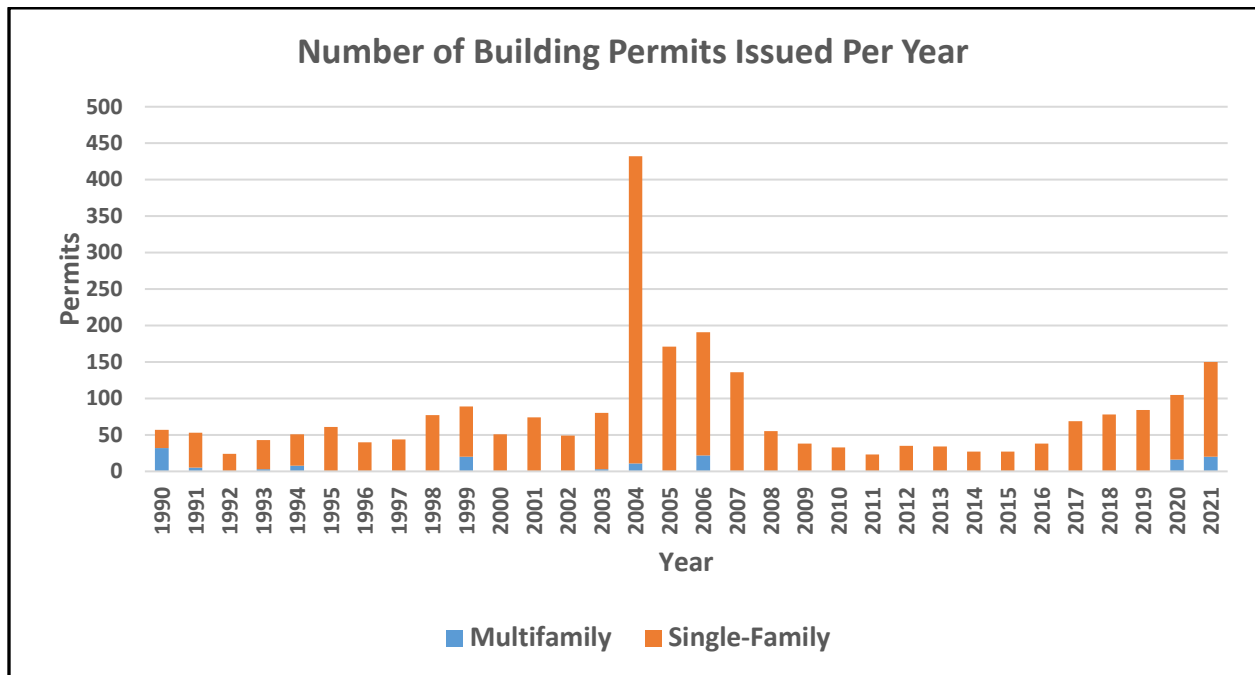
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



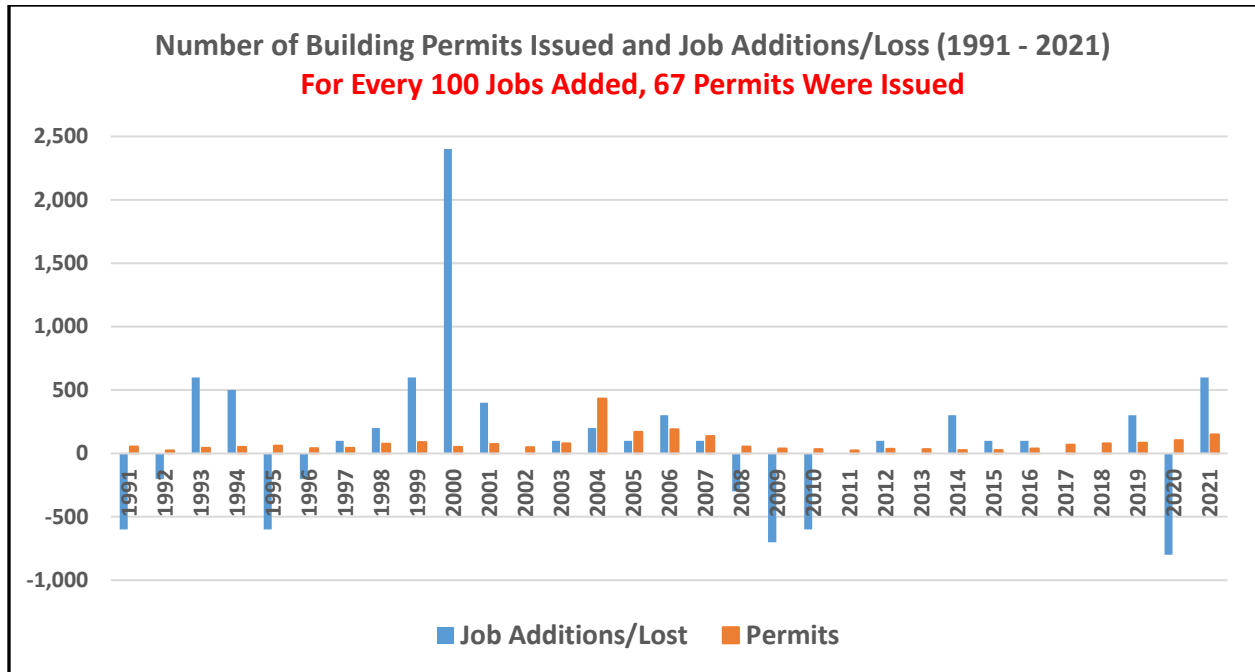
Source: Vogt Strategic Insights; Department of Labor Statistics



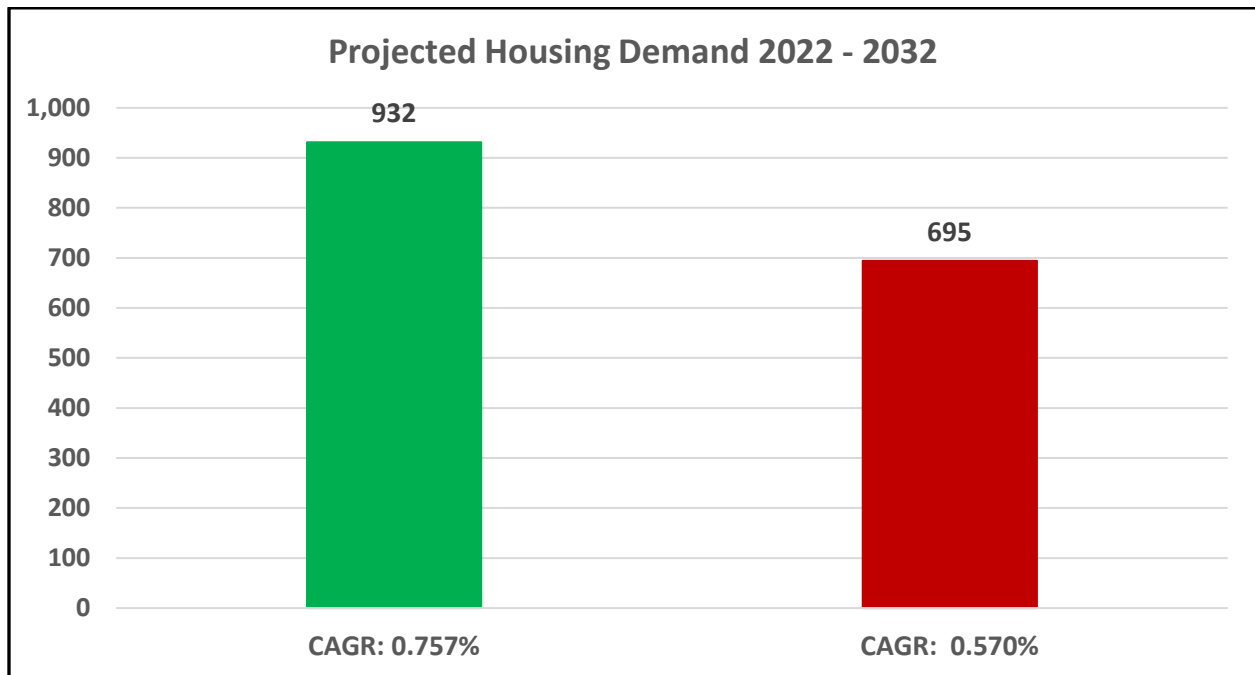
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



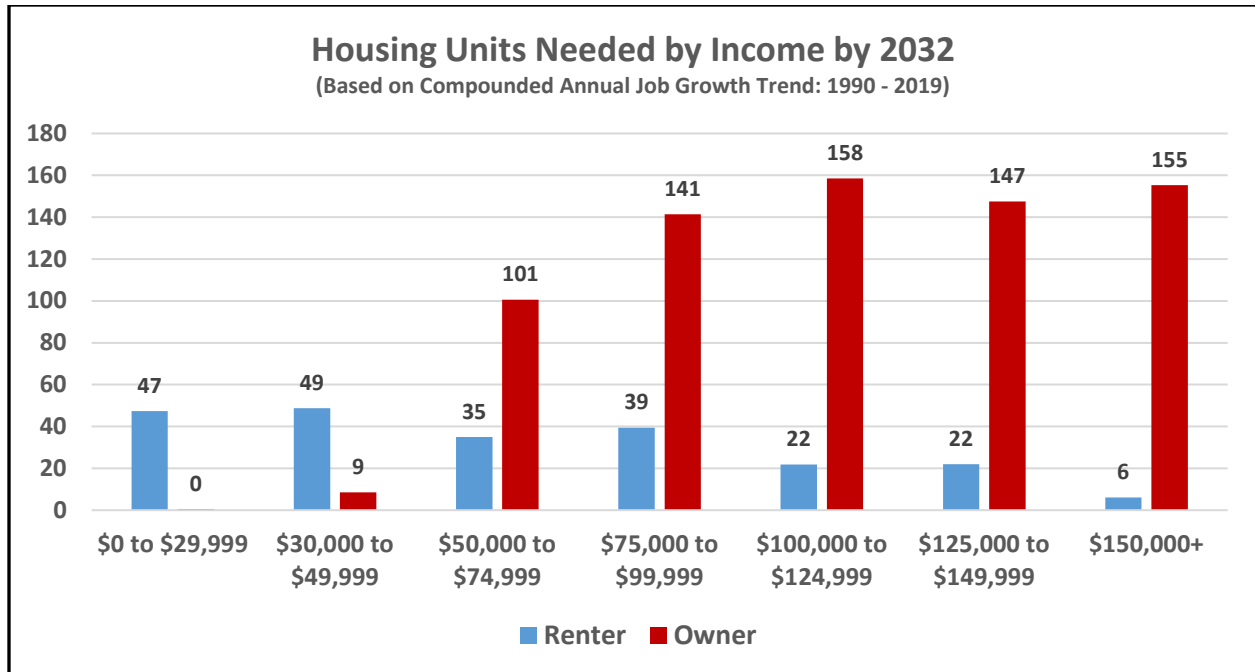
Source: State of the Cities Data Systems (SOCDS)



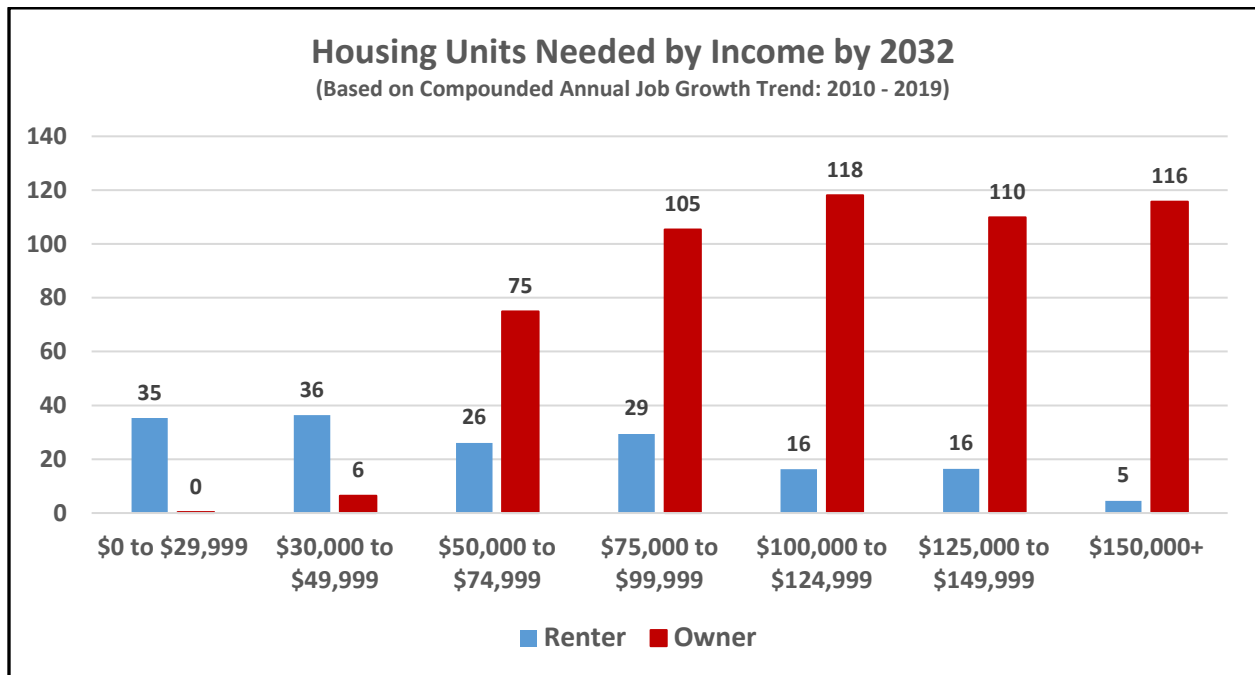
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

J: Pickaway County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 0.727%)	478	1,294	1,772
Compounded Yearly Growth Rate (2010 to 2019: 0.903%)	599	1,620	2,220
Average Yearly Housing Need (2022 to 2032)	177 to 222		
Average Yearly Permits Issued (1990 to 2021)	149		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Pickaway County	55,698	60,171	63,831	4,473	8.0%	3,660	6.1%

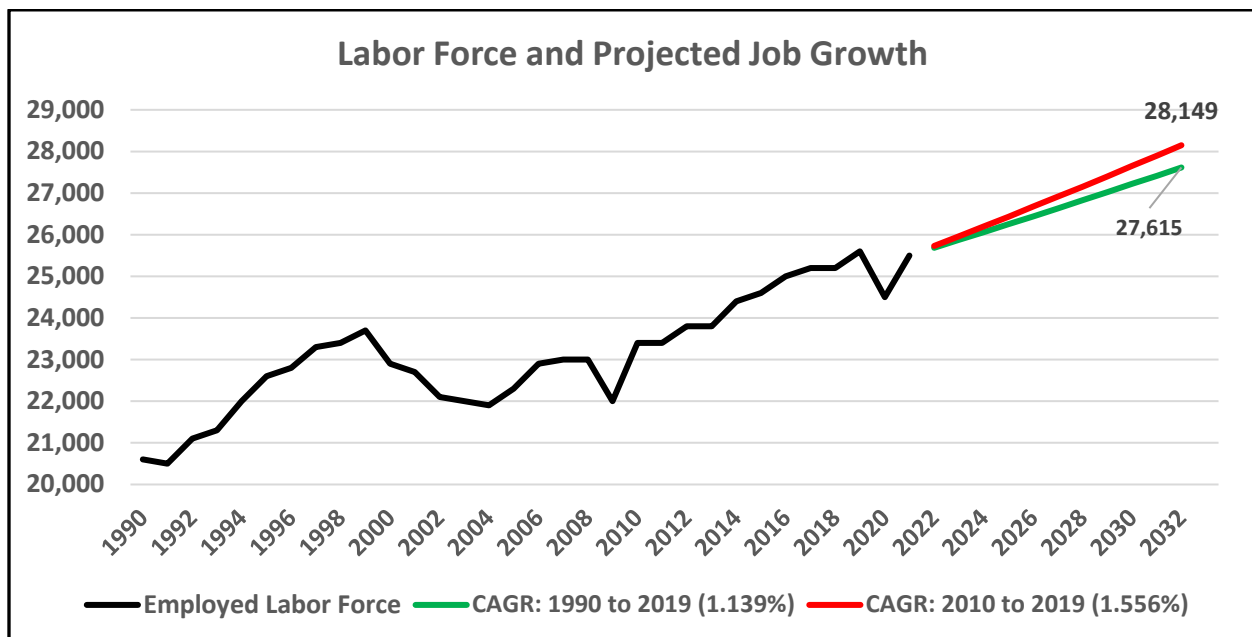
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Pickaway County	19,624	21,196	22,582	1,572	8.0%	1,386	6.5%

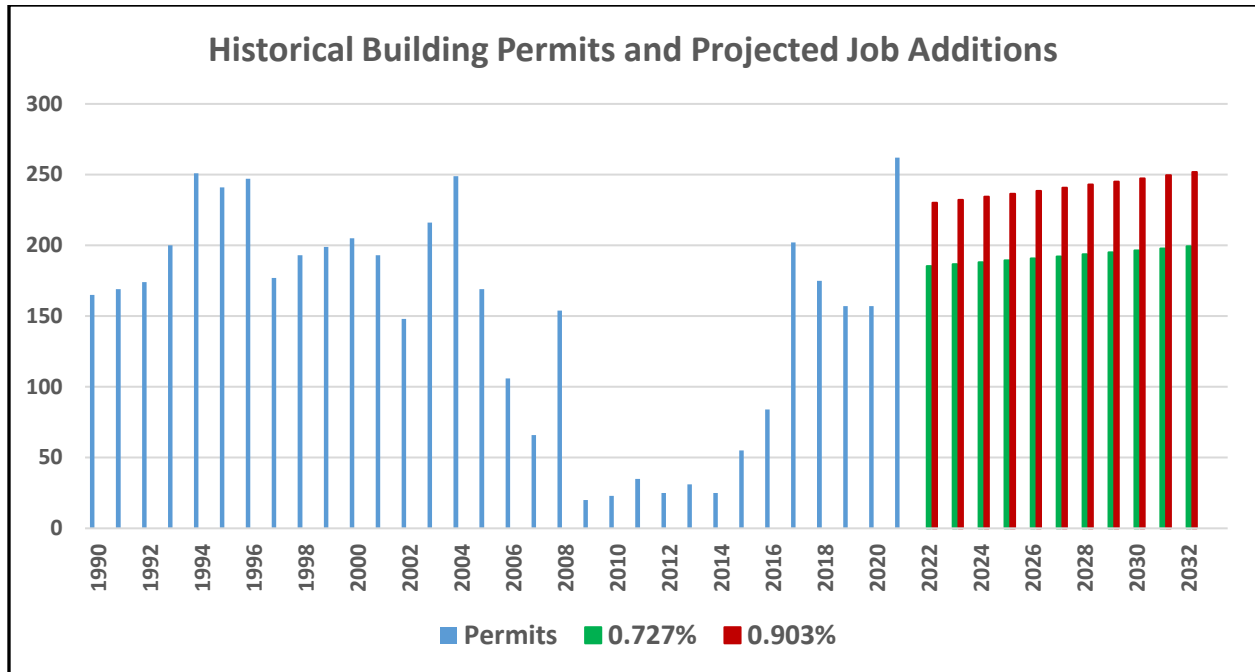
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Pickaway County	\$47,462	\$65,233	\$82,004	\$17,771	37.4%	\$16,771	25.7%

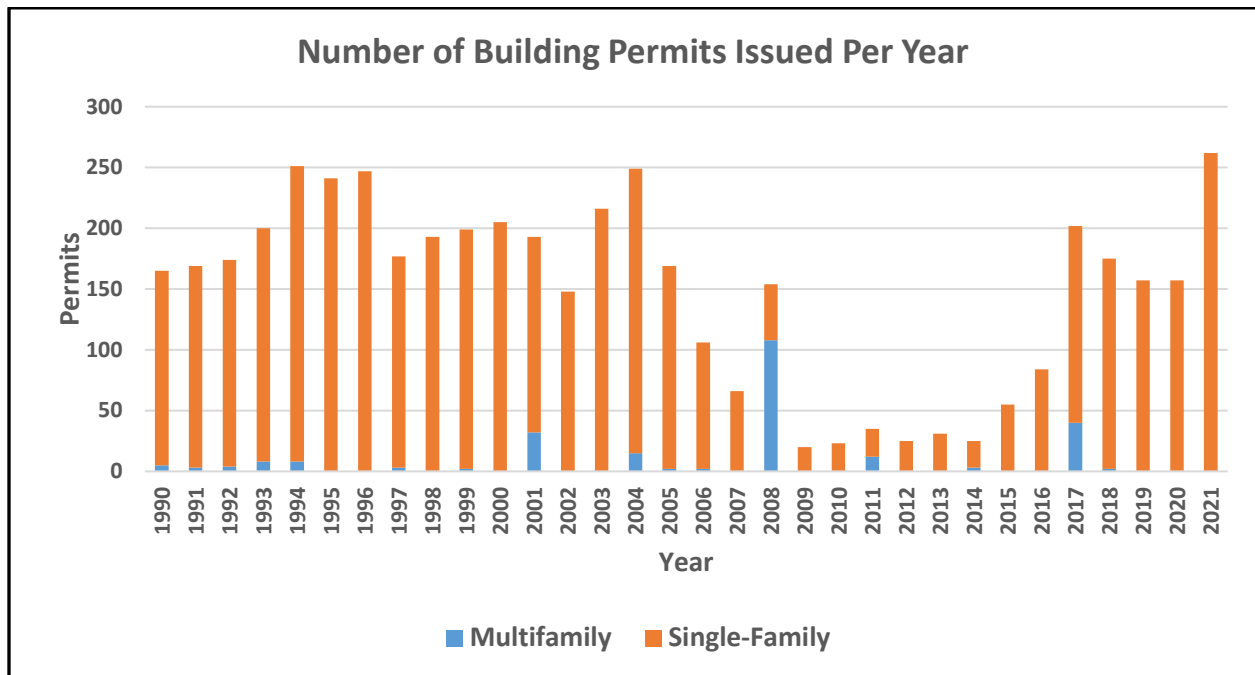
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



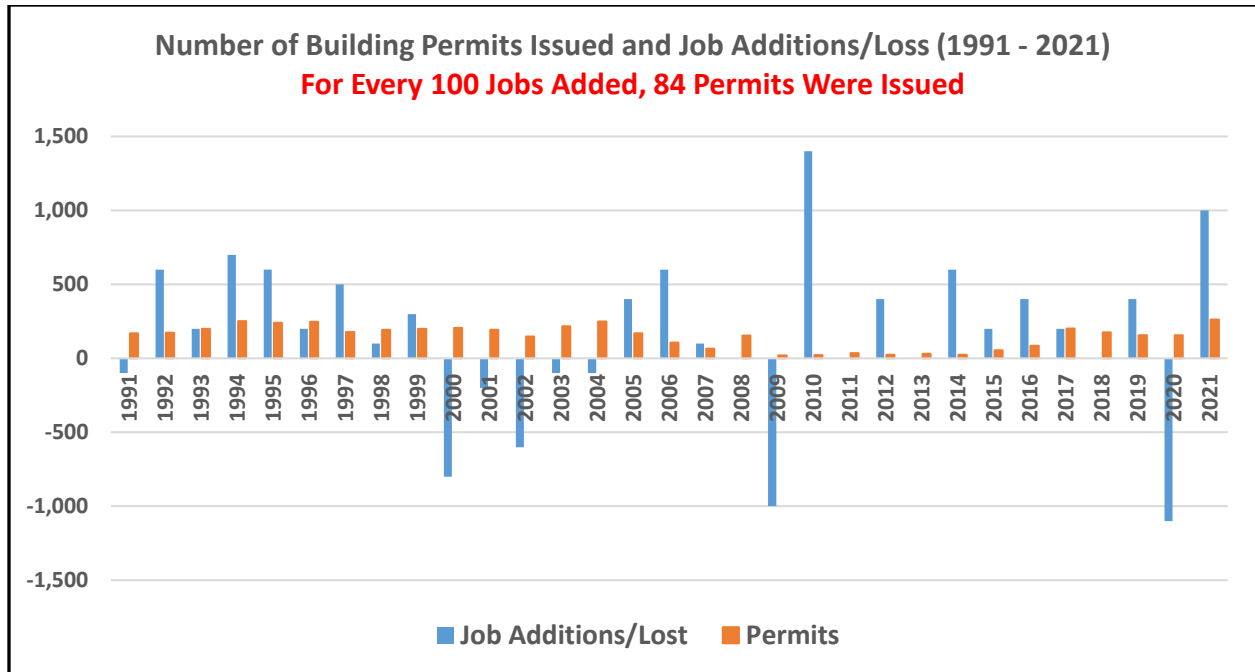
Source: Vogt Strategic Insights; Department of Labor Statistics



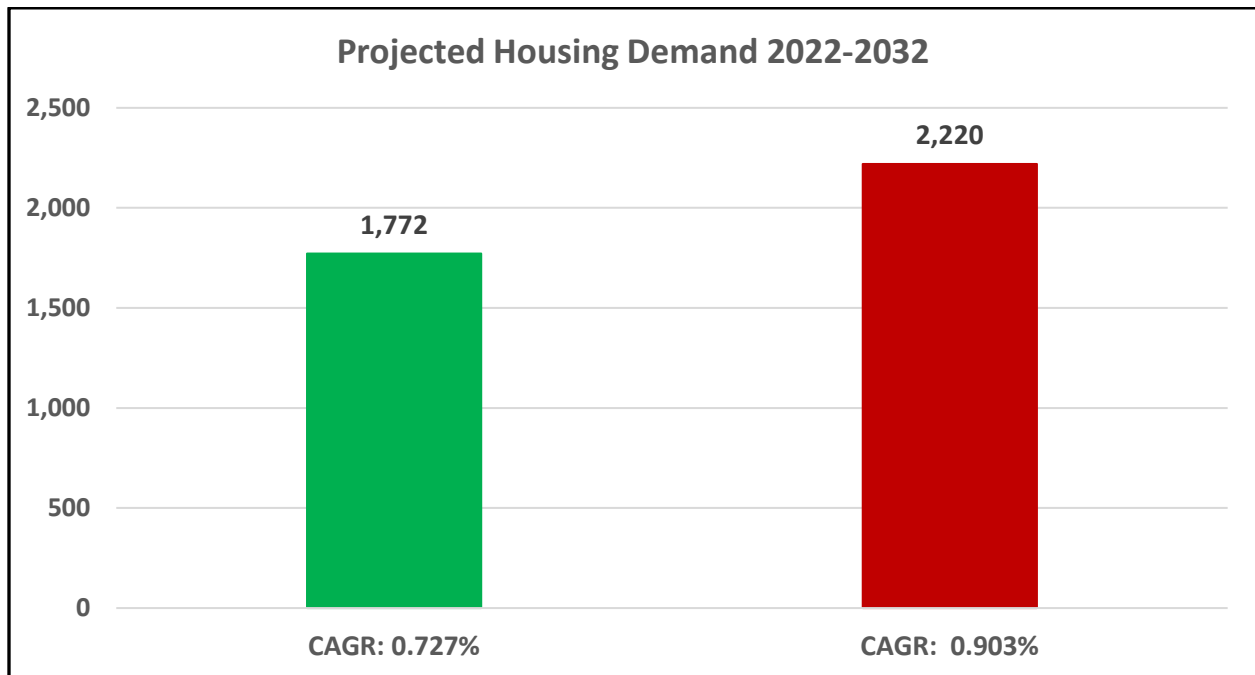
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



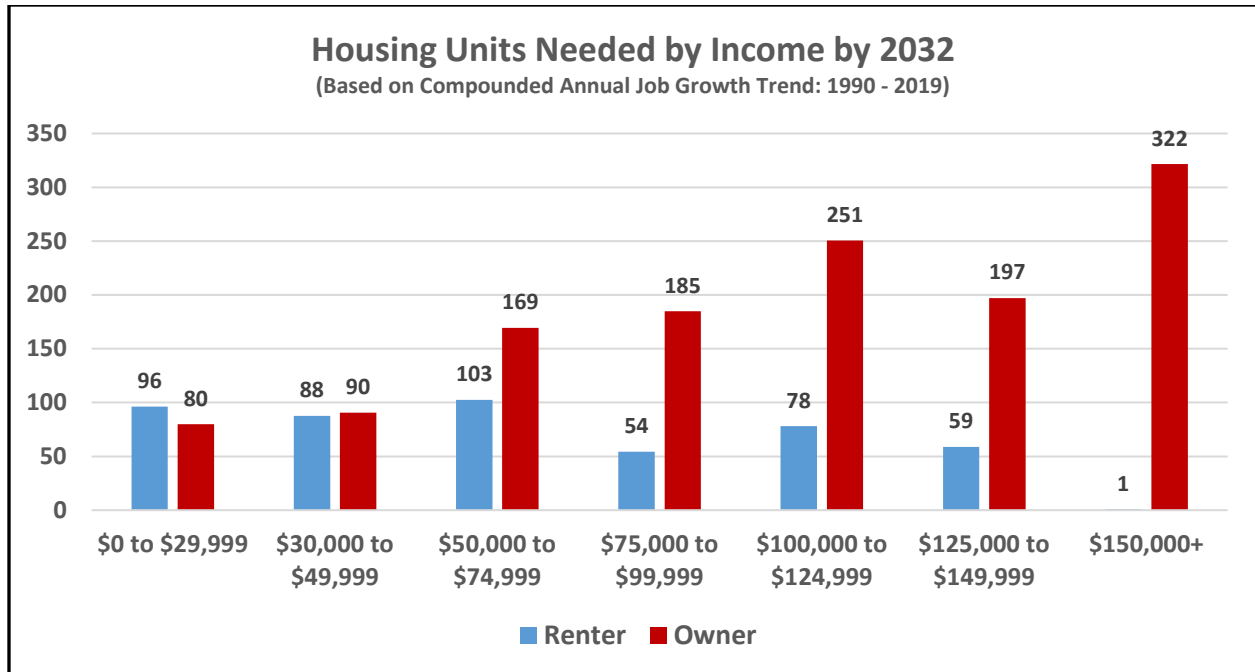
Source: State of the Cities Data Systems (SOCDS)



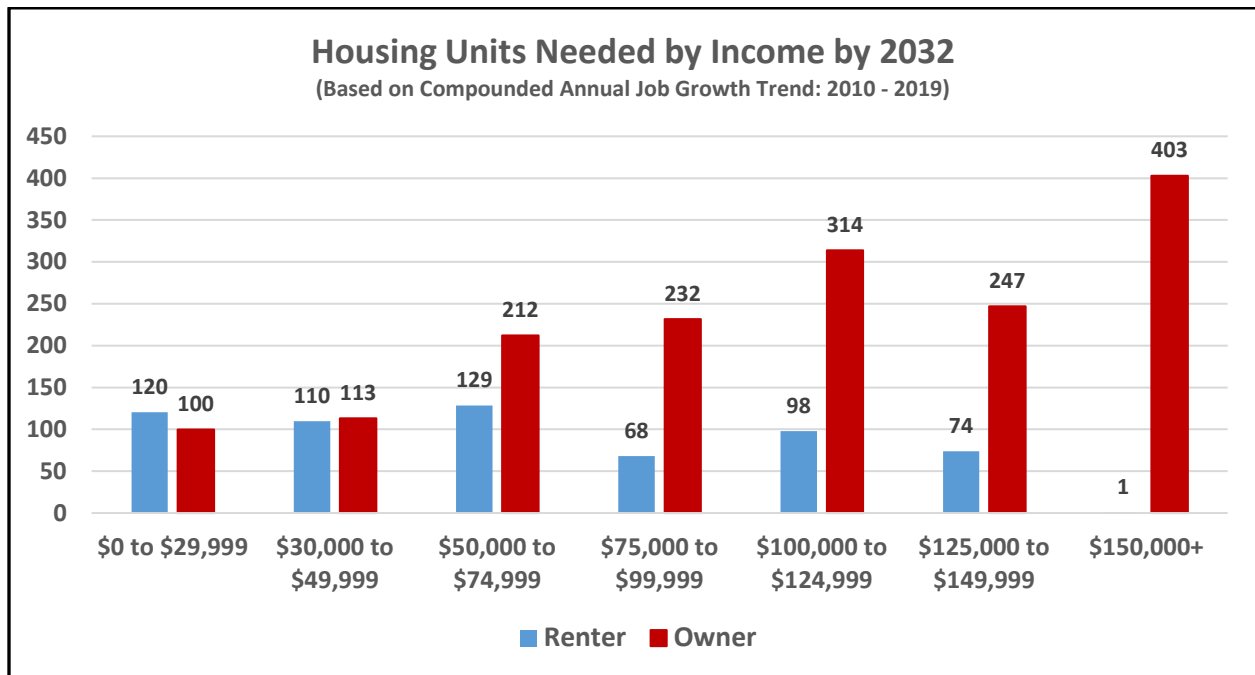
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

K: Union County

Housing Need Demand Summary (2032)			
	Renter	Owner	All
Compounded Yearly Growth Rate (1990 to 2019: 2.031%)	1,433	4,856	6,289
Compounded Yearly Growth Rate (2010 to 2019: 1.595%)	1,100	3,729	4,829
Average Yearly Housing Need (2022 to 2032)	483 to 629		
Average Yearly Permits Issued (1990 to 2021)	428		

Population							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Union County	52,300	64,241	74,269	11,941	22.8%	10,028	15.6%

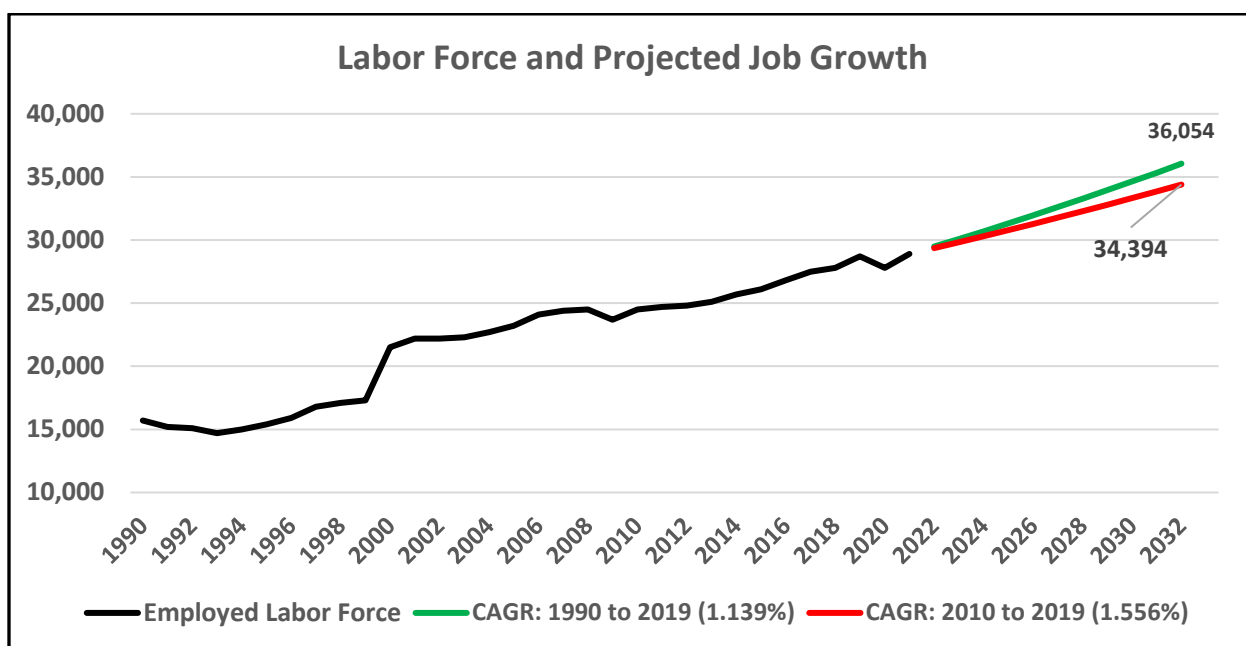
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Households							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Union County	18,065	22,550	26,234	4,485	24.8%	3,684	16.3%

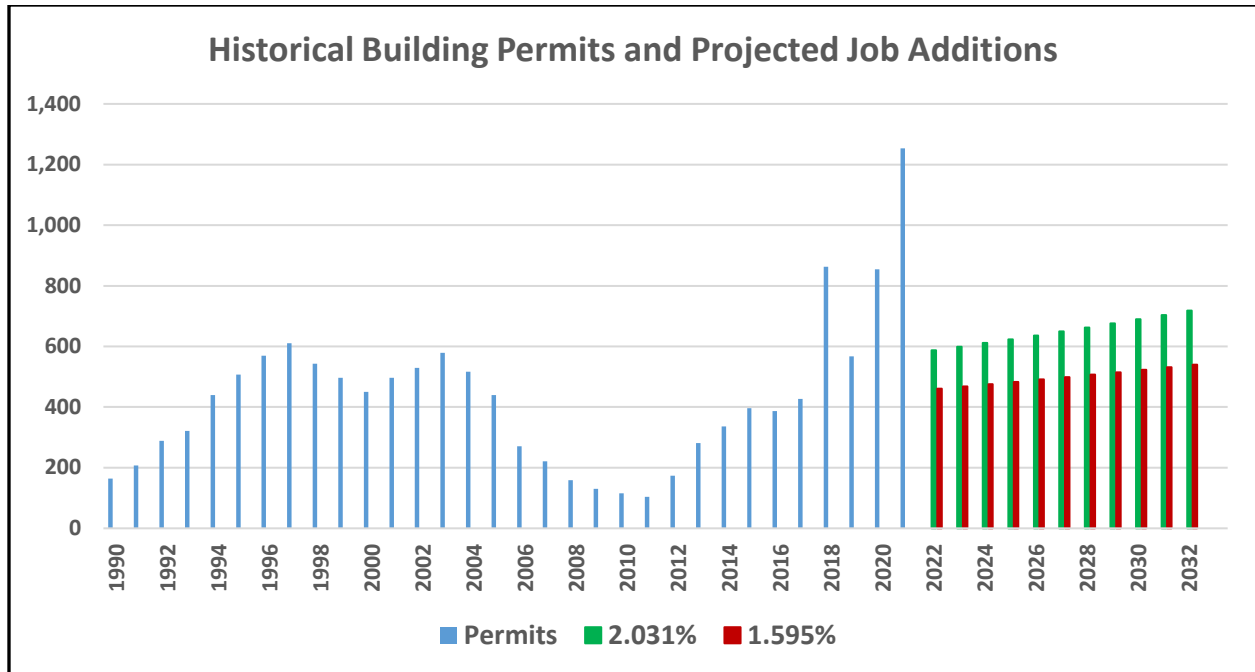
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group

Median Household Incomes							
Geography	2010 (Census)	2022 (Estimated)	2032 (Projected)	Change from 2010 - 2022		Change from 2022 - 2032	
				Number	Percent	Number	Percent
Union County	\$68,464	\$88,654	\$116,450	\$20,190	29.5%	\$27,796	31.4%

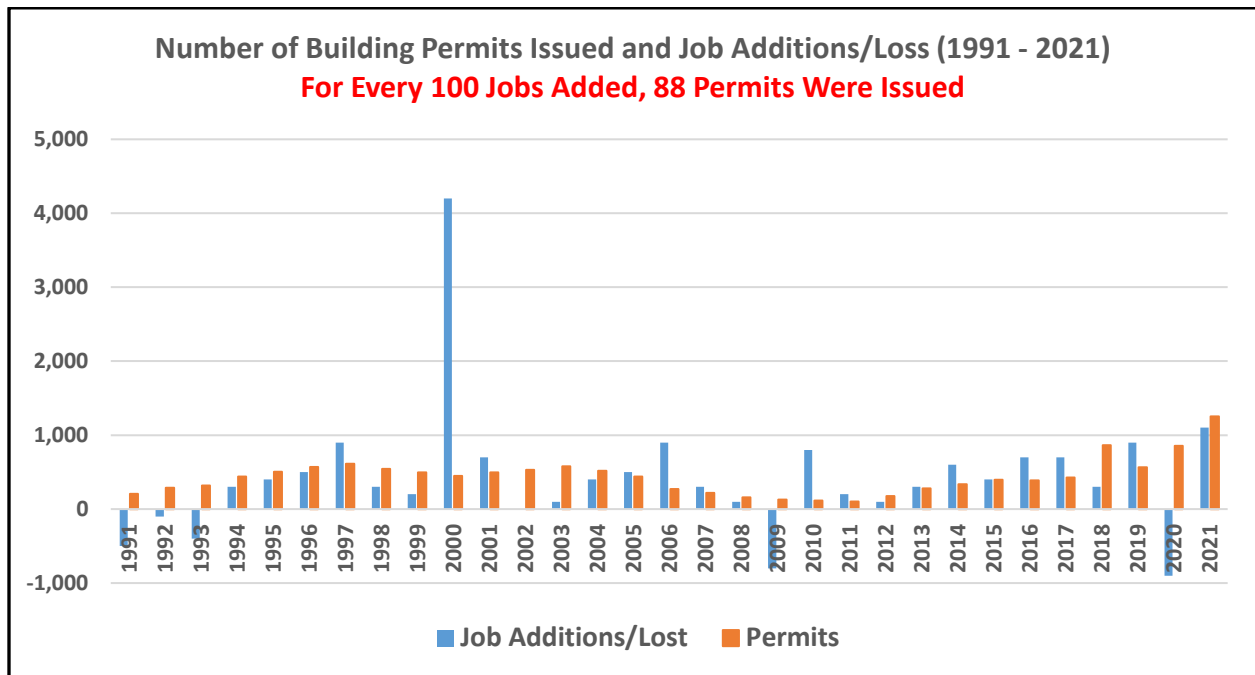
Source: U.S. Census; Vogt Strategic Insights; American Community Survey (ACS); ESRI; Urban Decision Group



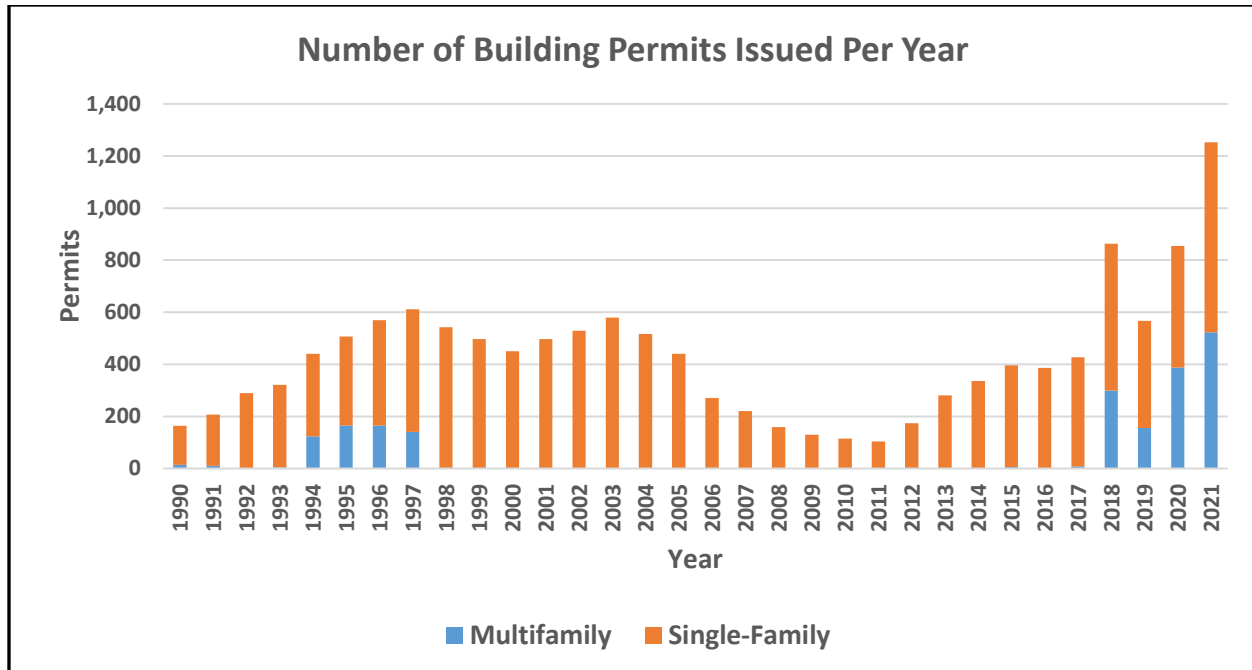
Source: Vogt Strategic Insights; Department of Labor Statistics



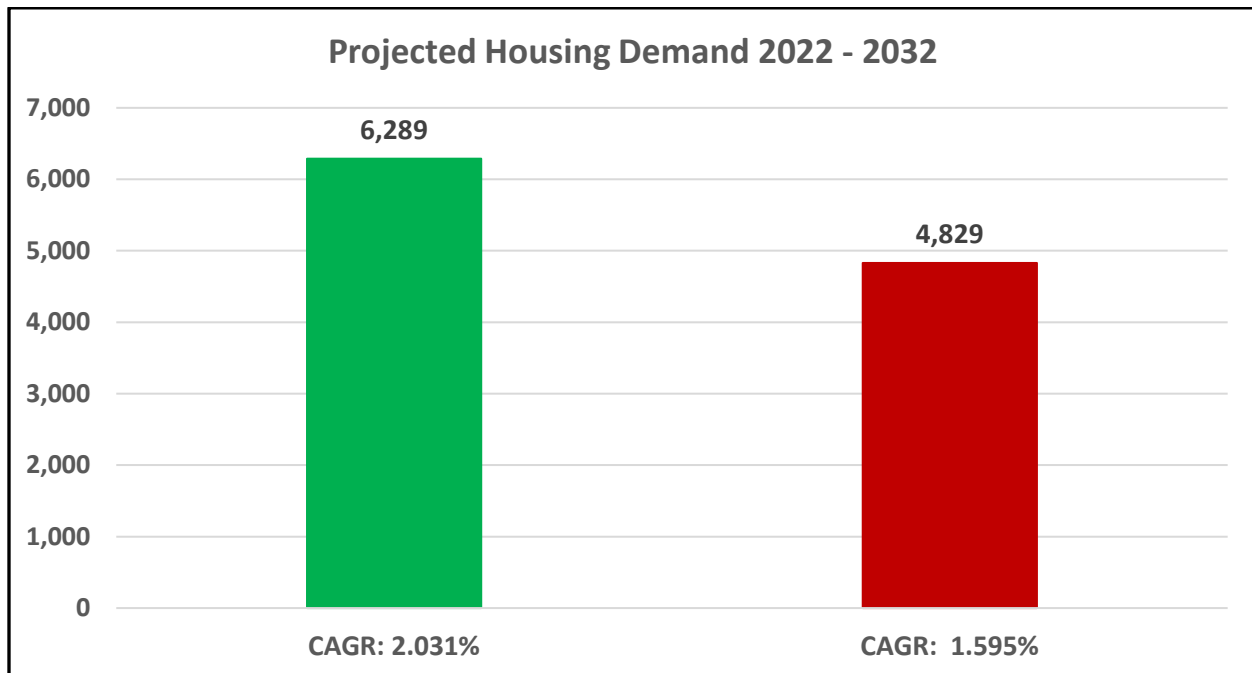
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



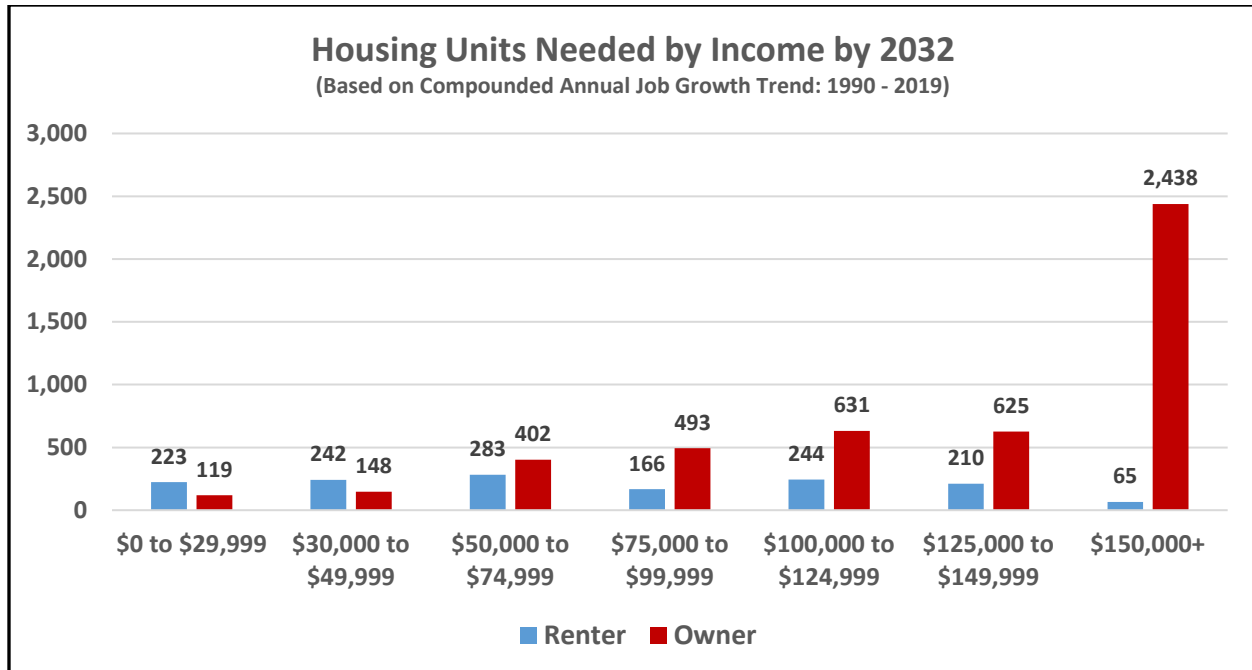
Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



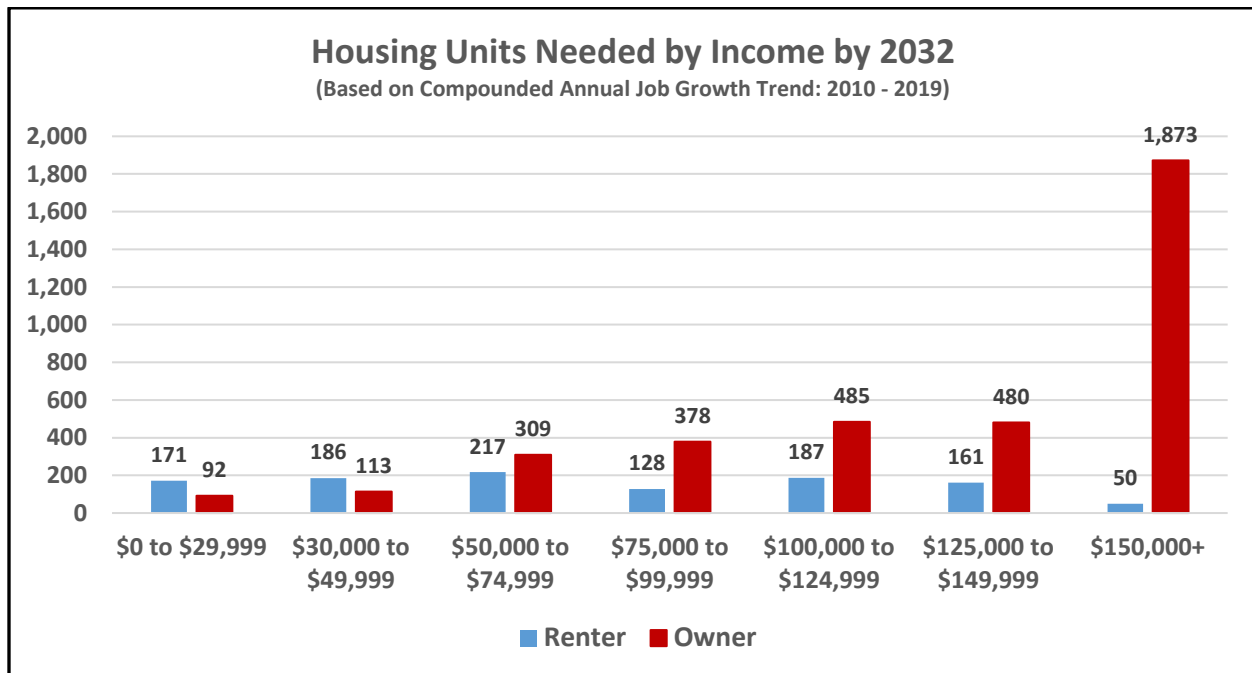
Source: State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights; Department of Labor Statistics; State of the Cities Data Systems (SOCDS)



Source: Vogt Strategic Insights



Source: Vogt Strategic Insights

VIII. Qualifications

The Company

Vogt Strategic Insights is a real estate research firm established to provide accurate and insightful market forecasts for a broad range client base. The principal of the firm, Robert Vogt, has more than 40 years of real estate market feasibility experience throughout the United States.

Serving real estate developers, syndicators, lenders, state housing finance agencies and the U.S. Department of Housing and Urban Development (HUD), the firm provides market feasibility studies for affordable housing, market-rate apartments, condominiums, senior housing, student housing and single-family developments.

The Staff

Robert Vogt has conducted and reviewed more than 8,000 market analyses over the past 40 years for market-rate and Low-Income Housing Tax Credit apartments as well as studies for single-family, golf course/residential, office, retail and elderly housing throughout the United States. Mr. Vogt is a founding member and the past chairman of the National Council of Housing Market Analysts (formerly known as the National Council of Affordable Housing Market Analysts), a group formed to bring standards and professional practices to market feasibility. He is a frequent speaker at many real estate and state housing conferences. Mr. Vogt has a bachelor's degree in finance, real estate and urban land economics from The Ohio State University.

Andrew W. Mazak has more than 19 years of experience in the real estate market research field. He has personally written thousands of market feasibility studies in markets throughout the United States, Canada, Puerto Rico and the U.S. Virgin Islands. These studies include the analysis of Low-Income Housing Tax Credit, market-rate and government-subsidized apartments, student housing developments, farmworker housing projects, condominium communities, single-family subdivisions and senior-living developments, as well as overall community, city, county and statewide housing needs assessments. Mr. Mazak has a bachelor's degree in Business Management and Marketing from Capital University in Columbus, Ohio.

Nathan Young has more than 16 years of experience in the real estate profession. He has conducted field research and written market studies in hundreds of rural and urban markets throughout the United States. Mr. Young's real estate experience includes analysis of apartment (subsidized, Tax Credit and market-rate), senior housing (i.e. nursing homes, assisted living, etc.), student housing, condominium, retail, office, self-storage facilities and repositioning of assets to optimize feasibility. Mr. Young has experience in working with the U.S. Department of Housing and Urban Development and has FHA LEAN program training. Mr. Young has a bachelor's degree in Engineering (Civil) from The Ohio State University and a Master of Business Administration from Ohio Dominican University.

Jim Beery has more than 30 years of experience in the real estate market feasibility profession. He has written market studies for a variety of development projects, including multifamily apartments (market-rate, affordable housing, and government-subsidized), residential condominiums, hotels, office developments, retail centers, recreational facilities, commercial developments, single-family developments and assisted living properties for older adults. Other consulting assignments include numerous community redevelopment and commercial revitalization projects. Mr. Beery has attended the HUD MAP Training for industry partners and received continuing education certification from the Lender Qualification and Monitoring Division. Mr. Beery has a bachelor's degree in Business Administration (Finance major) from The Ohio State University.

Jennifer Tristano has been involved in the production of more than 2,000 market feasibility studies during the last several years. While working as an editor, Ms. Tristano became well acquainted with the market study guidelines and requirements of state finance agencies as well as various U.S. Department of Housing and Urban Development programs. In addition, Ms. Tristano has researched market conditions for a variety of project types, including apartments (Tax Credit, subsidized and market-rate), senior residential care, student housing and condominium communities. Ms. Tristano graduated *summa cum laude* from The Ohio State University.

Jimmy Beery has analyzed real estate markets across the country over the past 13+ years. In this time, Mr. Beery has conducted a broad range of studies, including Low-Income Housing Tax Credit apartments, luxury market-rate apartments, student housing analysis, rent comparability studies, condominium and single-family home communities, mixed-use developments, lodging, retail and commercial space. Mr. Beery has a bachelor's degree in Human Ecology from The Ohio State University.

Tom Mowery has more than 30 years of experience in the housing industry in both the public and private sectors. Prior to joining VSI, Mr. Mowery served as a Vice President at JPMorgan Chase where he analyzed and reviewed market risk and advised on economic results and long-term viability for the national Underwriting effort within Community Development Banking (CDB). He supported \$2.5 billion within four regional portfolios of real estate properties, primarily affordable multifamily. Mr. Mowery has also worked for Arizona Department of Housing and The Danter Company. He is skilled at Market Risk Analysis, Market Study/Appraisal Review, Portfolio Monitoring, Pipeline Management, Affordable/Market-Rate Housing, Underwriting, Community Development and Market Development. Mr. Mowery holds a bachelor's degree in Business Administration and Accounting from Ohio Dominican University.

Eric Pacella has conducted real estate market research in more than 300 markets in more than 40 states since 2014. Mr. Pacella has experience evaluating a broad range of product types, including senior housing, Low-Income Housing Tax Credit apartments, market-rate apartments, subsidized housing, student housing, homeless supportive housing, single-family housing, condominium housing, mixed-use developments and commercial space. Mr. Pacella holds a Bachelor of Arts degree in Journalism from The Ohio State University.

Kyle Reiff has conducted market studies in over 40 states since joining VSI in 2012. Mr. Reiff has evaluated market conditions for a variety of project types, including Low-Income Housing Tax Credit apartments, homeless supportive housing analysis, student housing analysis, rent comparability studies, condominium and single-family home communities, mixed-use developments, lodging, citywide analysis and workforce housing analysis. Mr. Reiff has a bachelor's degree in Economics from The Ohio State University.

Lewis Burrowes has conducted real estate market research in more than 250 markets in over 40 states and Puerto Rico since 2016. Mr. Burrowes has evaluated a wide range of product types, including Low-Incomes Housing Tax Credit and market-rate apartments; government-subsidized, senior and homeless supportive housing; comparable properties for rent comparability studies; single-family homes; condominiums; mixed-use projects; and commercial space. Mr. Burrowes holds bachelor's degrees in Business, Accountancy and Finance from Wright State University.

Field Staff – Vogt Strategic Insights maintains a field staff of professionals experienced at collecting critical on-site real estate data. Each member has been fully trained to evaluate site attributes, area competitors, market trends, economic characteristics and a wide range of issues influencing the viability of real estate development.

Addendum A. Supplemental Thematic Maps

The following pages contain thematic maps for the four largest counties in the 10-County BIA Region with respect to demographic size (Delaware, Fairfield, Franklin and Licking).

The maps are presented in the following order:

1. Population Growth – Delaware County
2. Population Growth – Fairfield County
3. Population Growth – Franklin County
4. Population Growth – Licking County

5. Renter Share – Delaware County
6. Renter Share – Fairfield County
7. Renter Share – Franklin County
8. Renter Share – Licking County

9. Median Household Income – Delaware County
10. Median Household Income – Fairfield County
11. Median Household Income – Franklin County
12. Median Household Income – Licking County

13. Median Home Value – Delaware County
14. Median Home Value – Fairfield County
15. Median Home Value – Franklin County
16. Median Home Value – Licking County

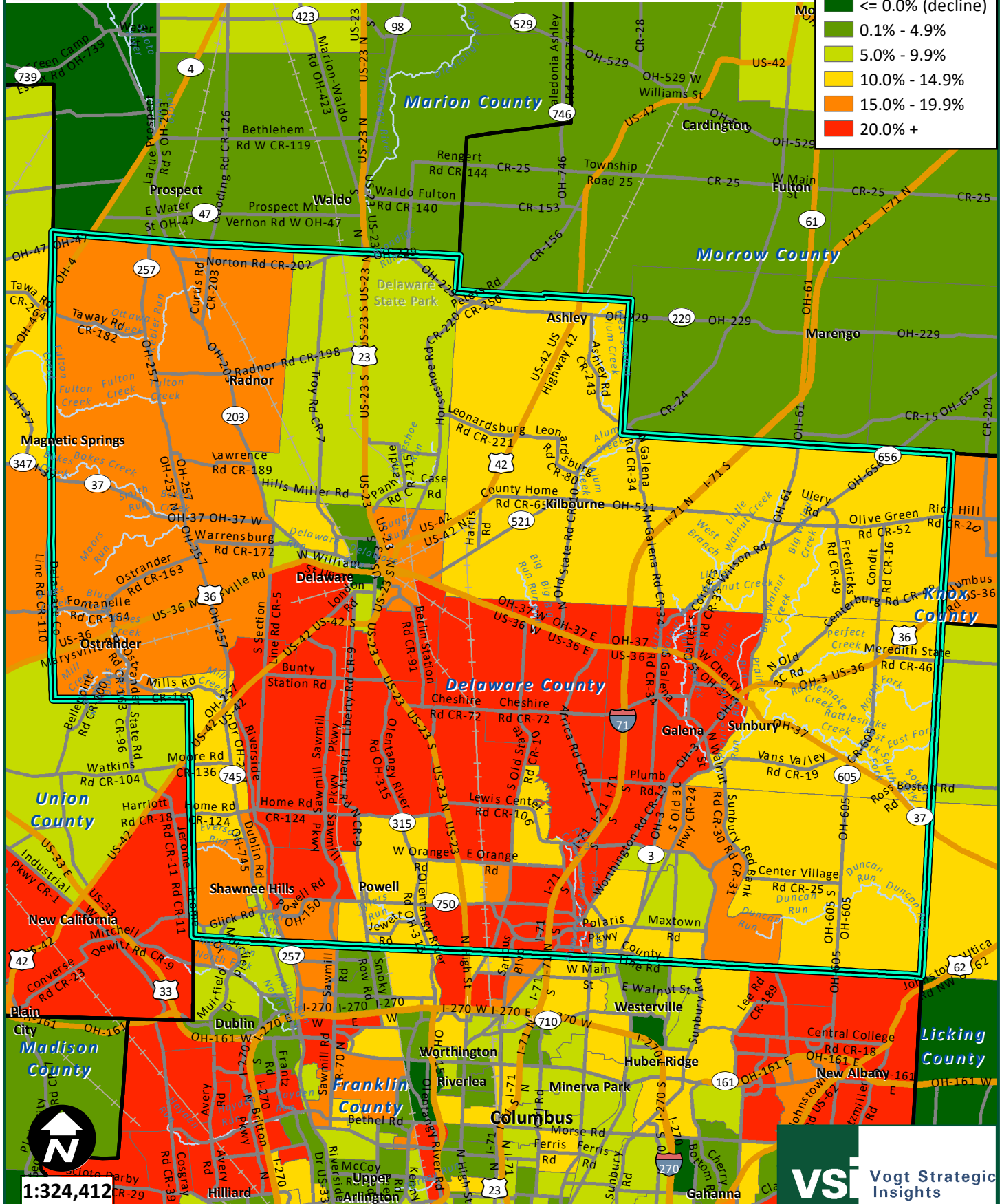
17. Median Gross Rent – Delaware County
18. Median Gross Rent – Fairfield County
19. Median Gross Rent – Franklin County
20. Median Gross Rent – Licking County

Delaware County, OH Population Growth 2010 - 2021

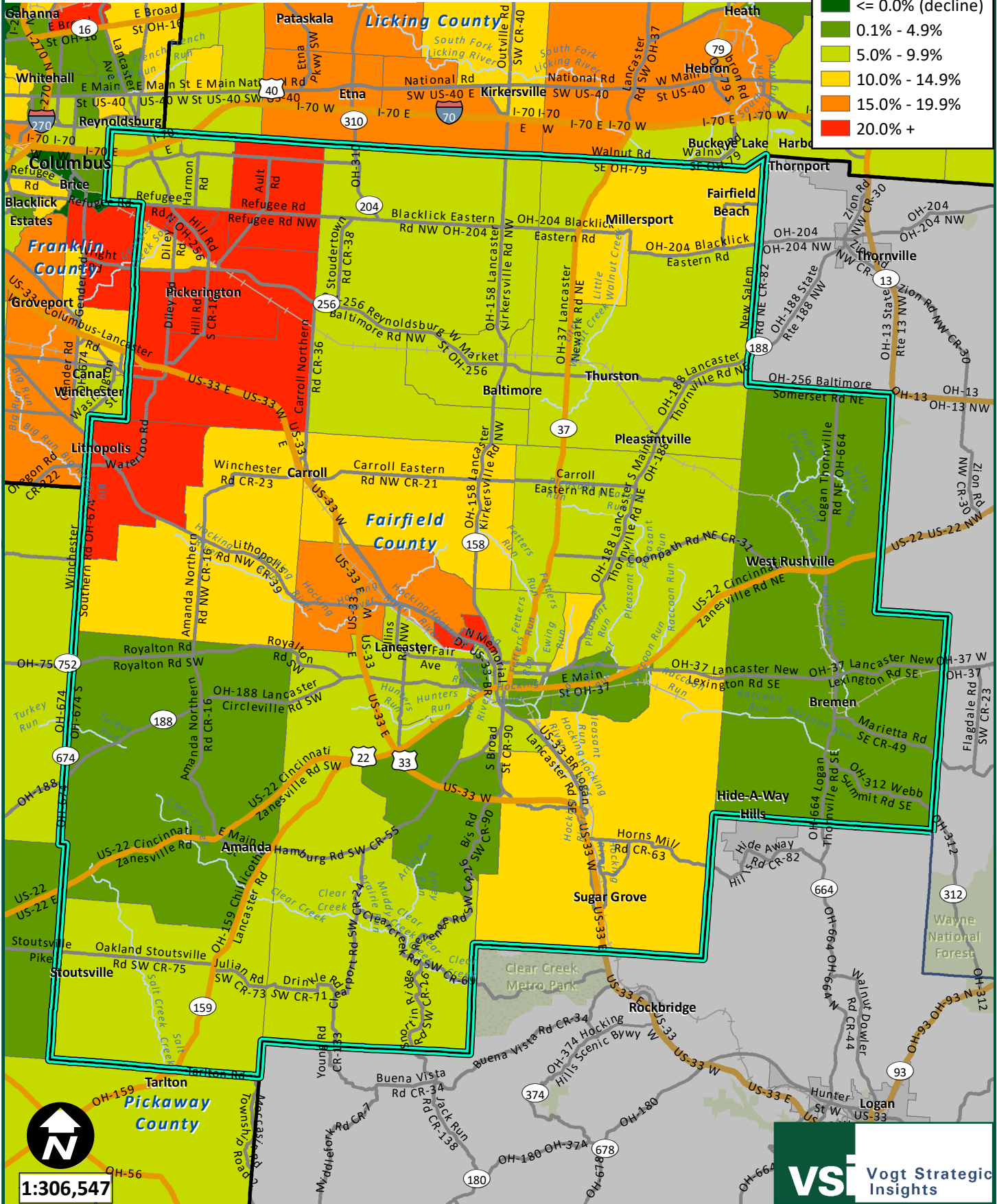
0 2 4 6 8 10 12 14 16 18 Miles

Legend

-  Delaware County
- Census Tracts**
- Pop. Growth 2010-2021**
-  ≤ 0.0% (decline)
-  0.1% - 4.9%
-  5.0% - 9.9%
-  10.0% - 14.9%
-  15.0% - 19.9%
-  20.0% +

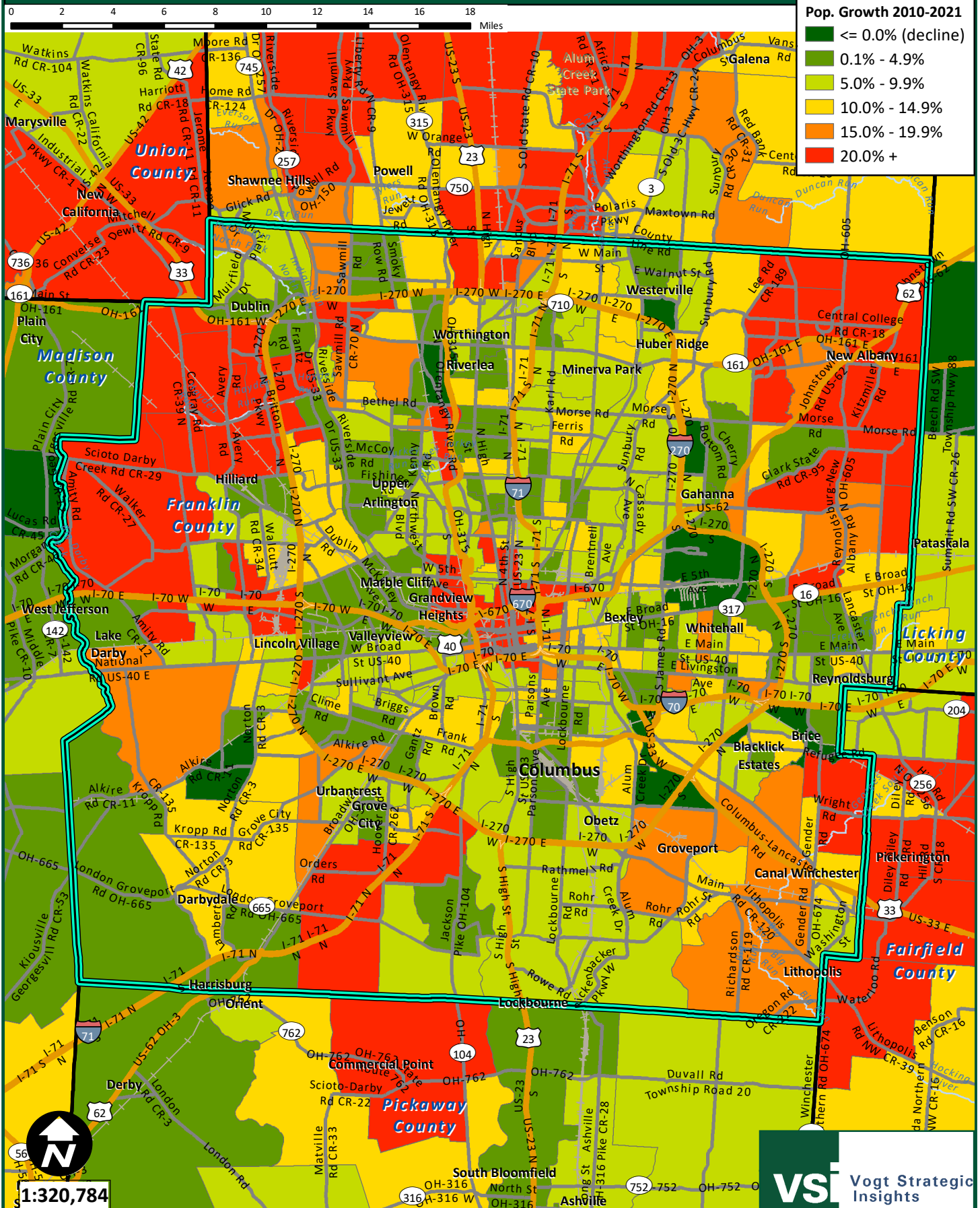


0 1.5 3 4.5 6 7.5 9 10.5 12 13.5 Miles

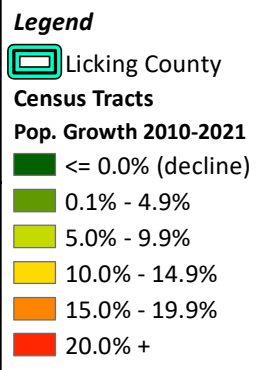


Franklin County, OH

Population Growth 2010 - 2021



0 2 4 6 8 10 12 14 16 18 Miles



Delaware County, OH 2021 Renter Share of Households

0 2 4 6 8 10 12 14 16 18 Miles

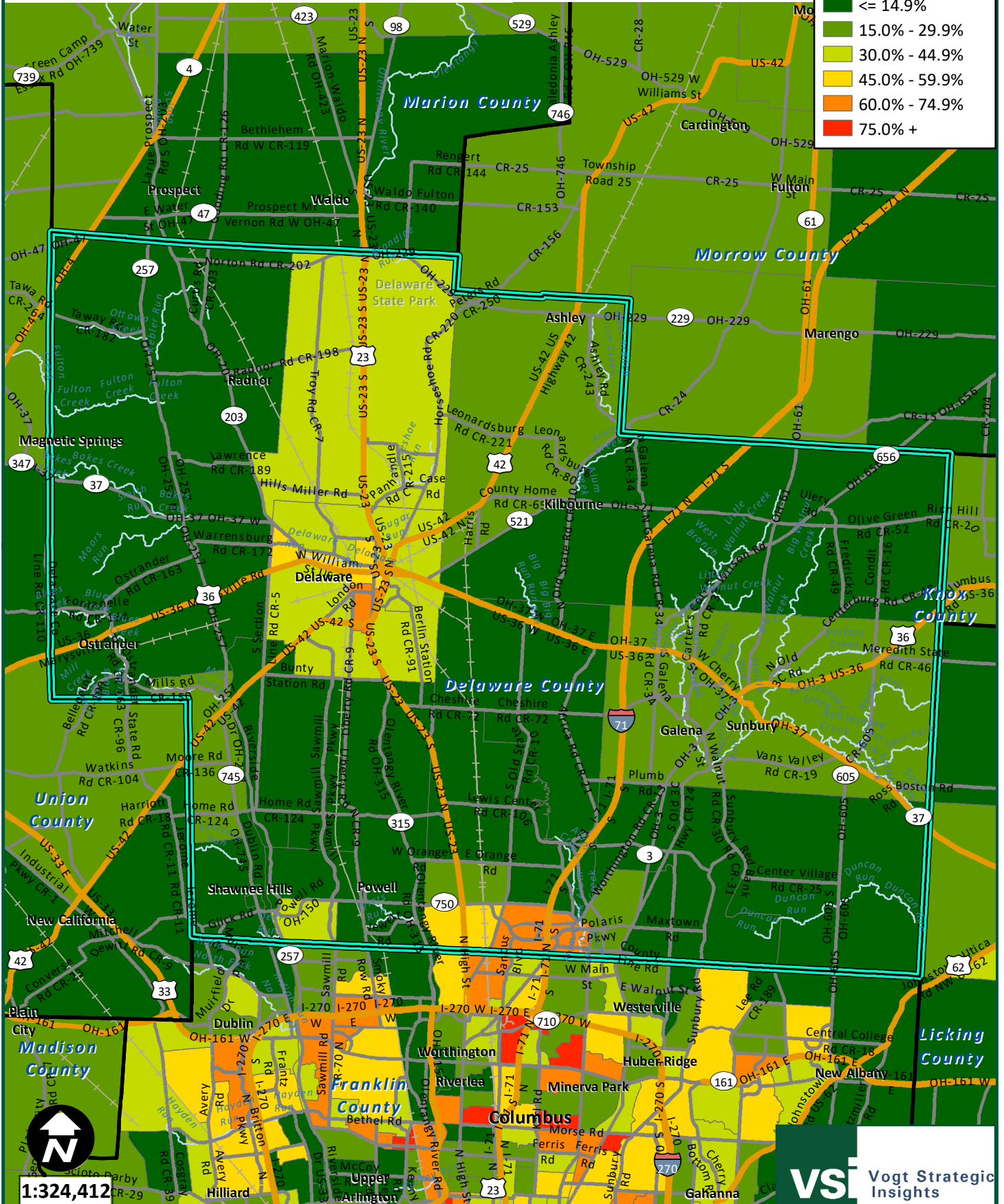
Legend

 Delaware County

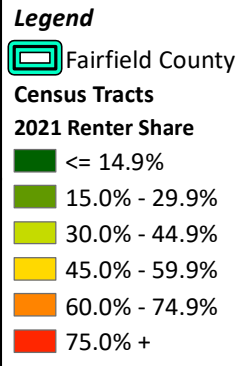
Census Tracts

2021 Renter Share

-  ≤ 14.9%
-  15.0% - 29.9%
-  30.0% - 44.9%
-  45.0% - 59.9%
-  60.0% - 74.9%
-  75.0% +



0 1.5 3 4.5 6 7.5 9 10.5 12 13.5 Miles



Franklin County, OH 2021 Renter Share of Households

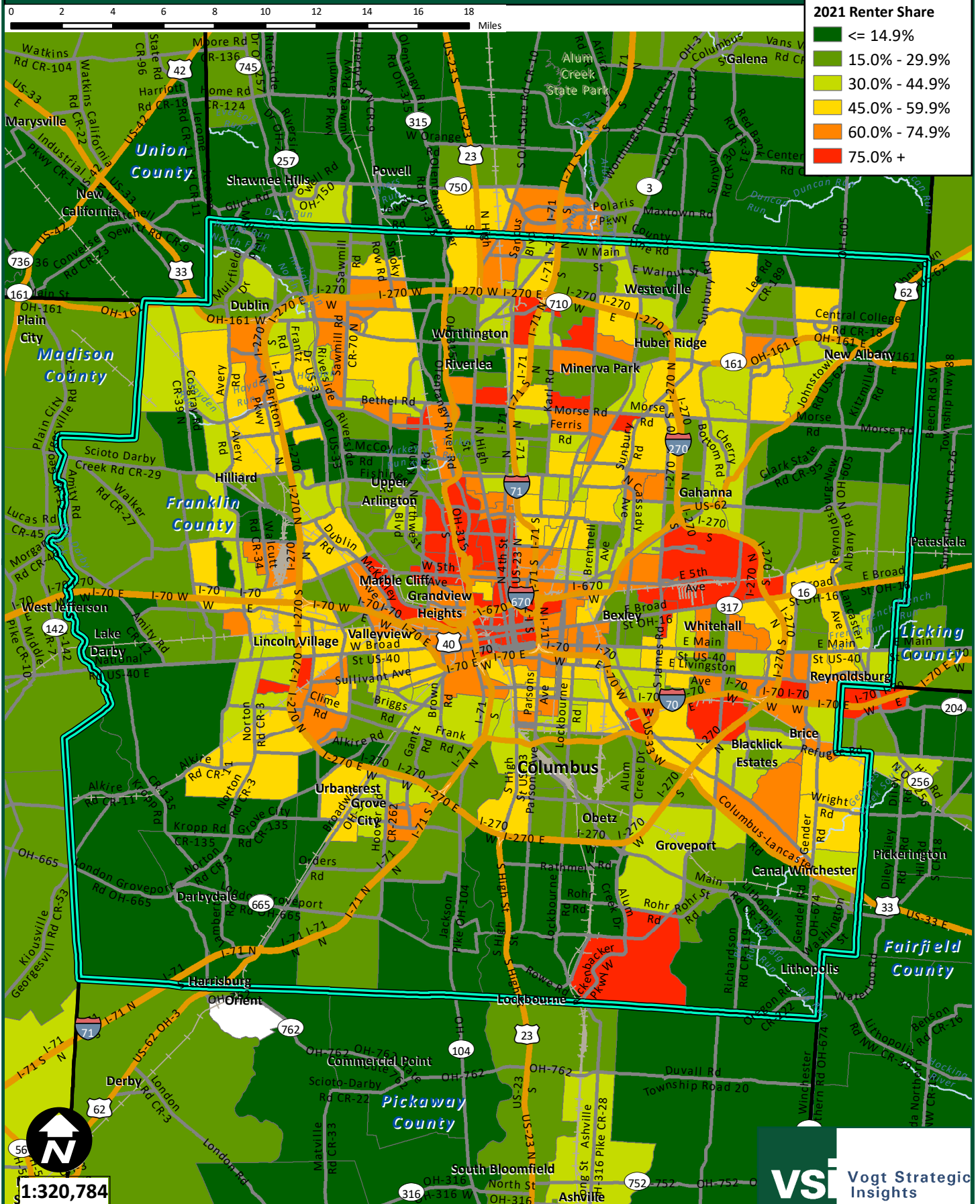
Legend

 Fairfield County

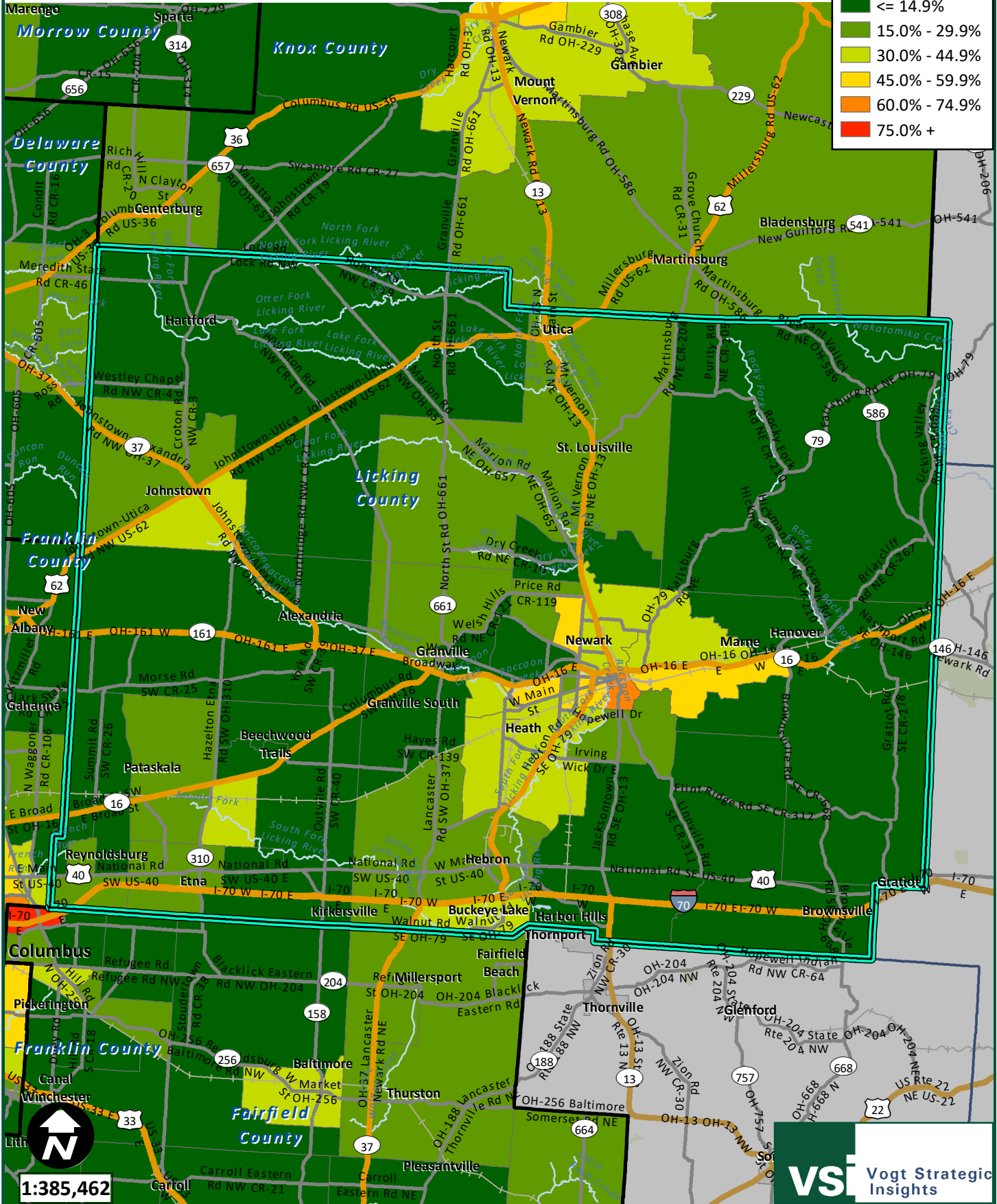
Census Tracts

2021 Renter Share

-  ≤ 14.9%
-  15.0% - 29.9%
-  30.0% - 44.9%
-  45.0% - 59.9%
-  60.0% - 74.9%
-  75.0% +



0 2 4 6 8 10 12 14 16 18 Miles



Delaware County, OH 2021 Median Household Income

0 2 4 6 8 10 12 14 16 18 Miles

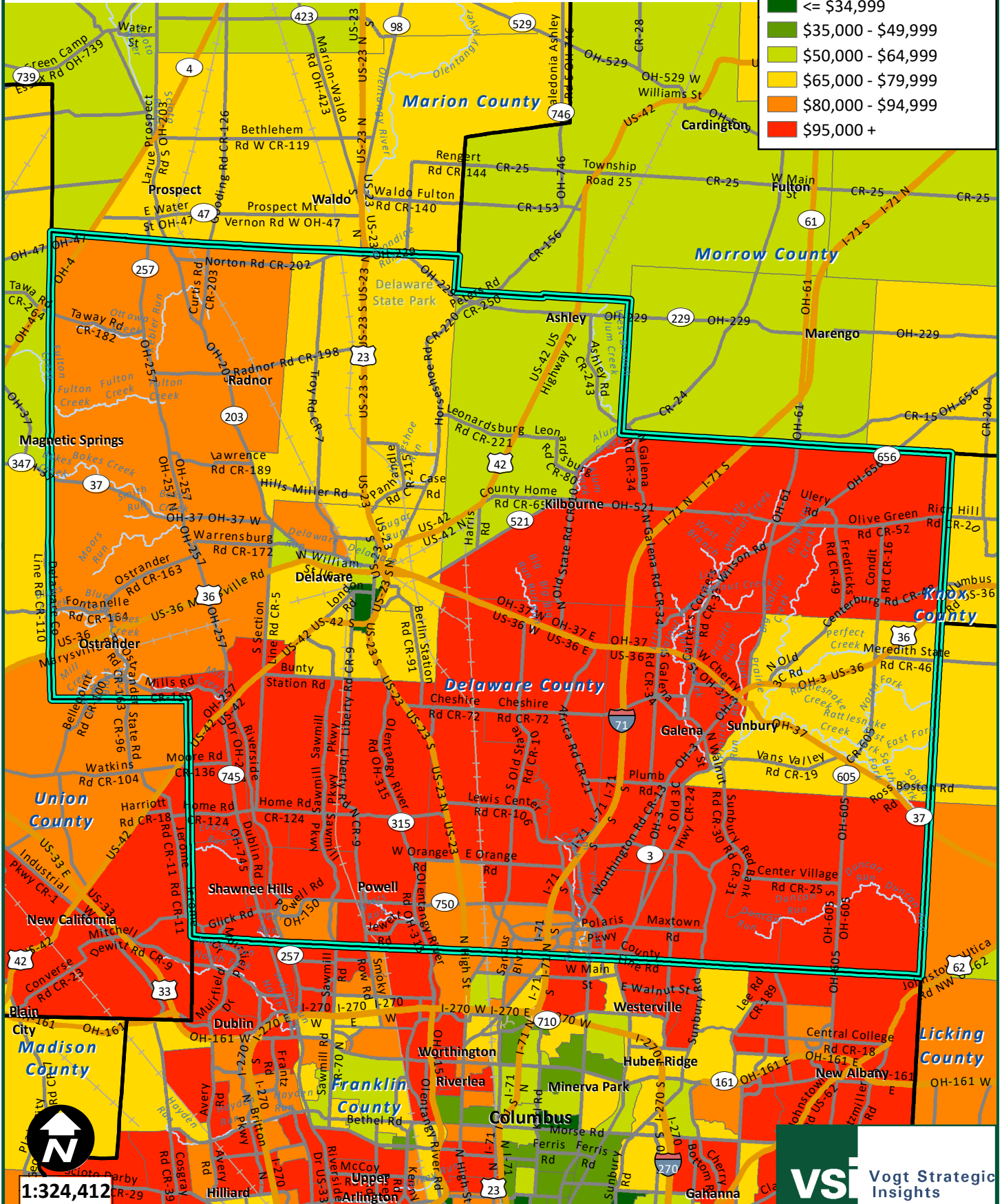
Legend

 Delaware County

Census Tracts

2021 Median Household Income

-  ≤ \$34,999
-  \$35,000 - \$49,999
-  \$50,000 - \$64,999
-  \$65,000 - \$79,999
-  \$80,000 - \$94,999
-  \$95,000 +

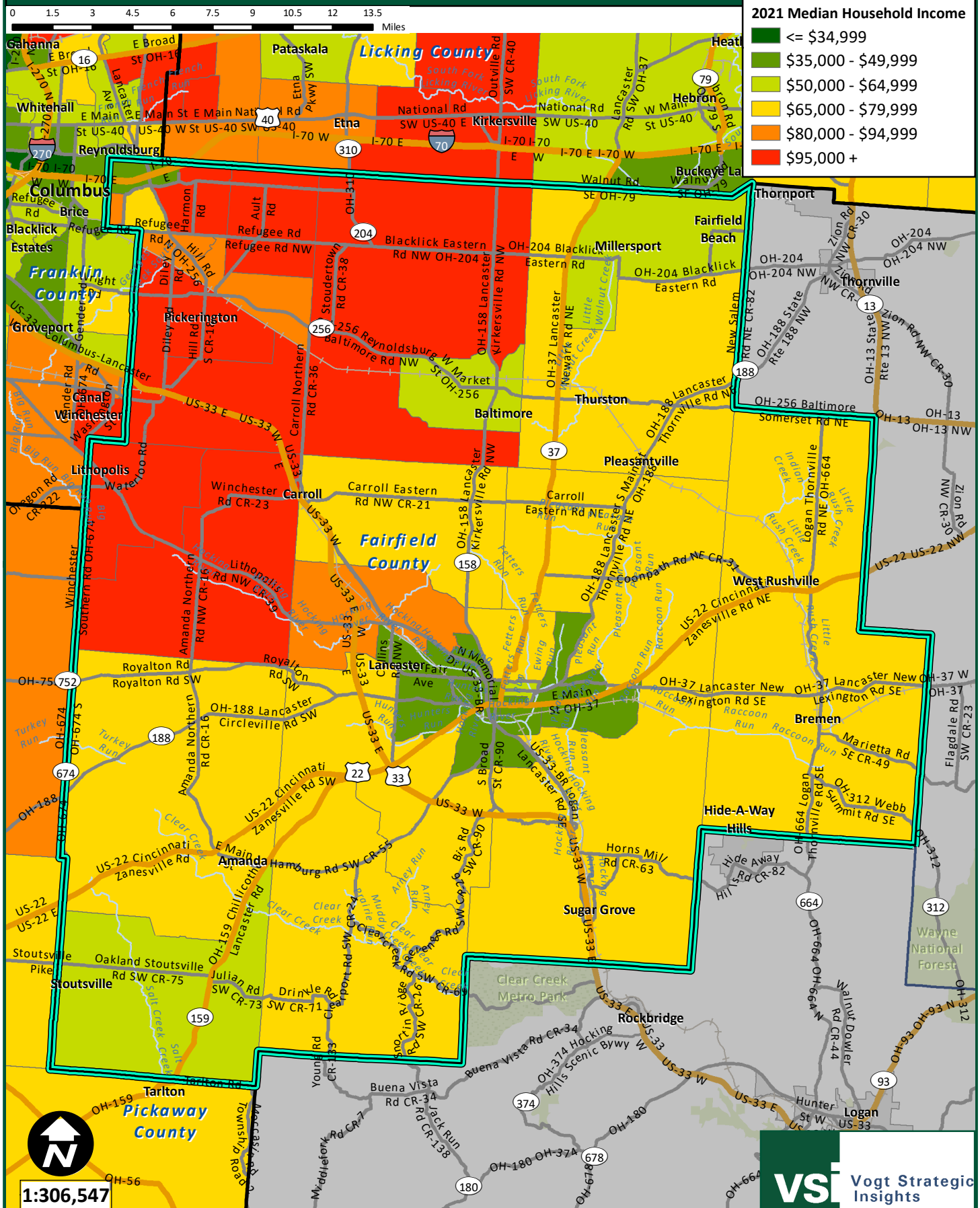


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Fairfield County, OH 2021 Median Household Income



Franklin County, OH

2021 Median Household Income

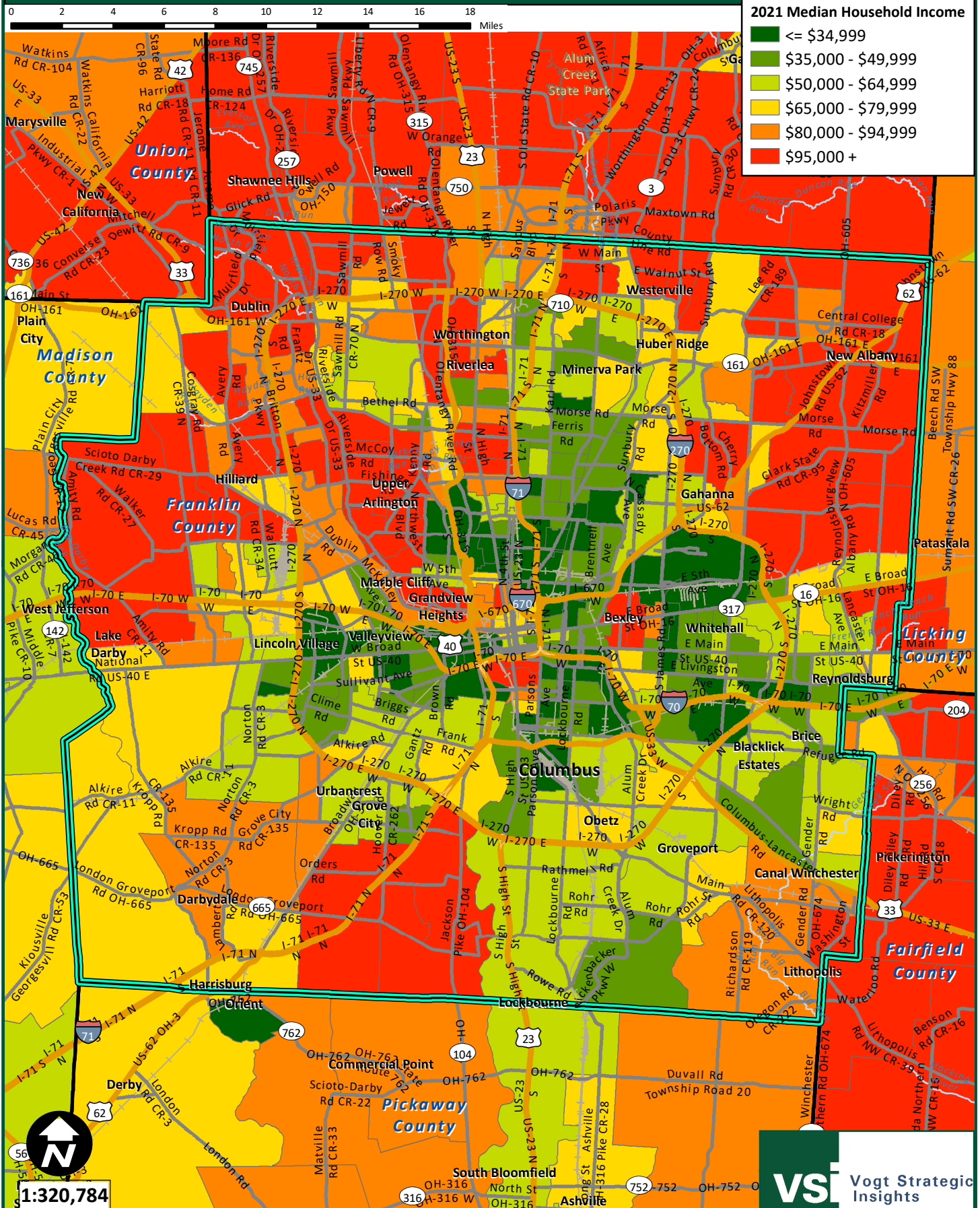
Legend

 Franklin County

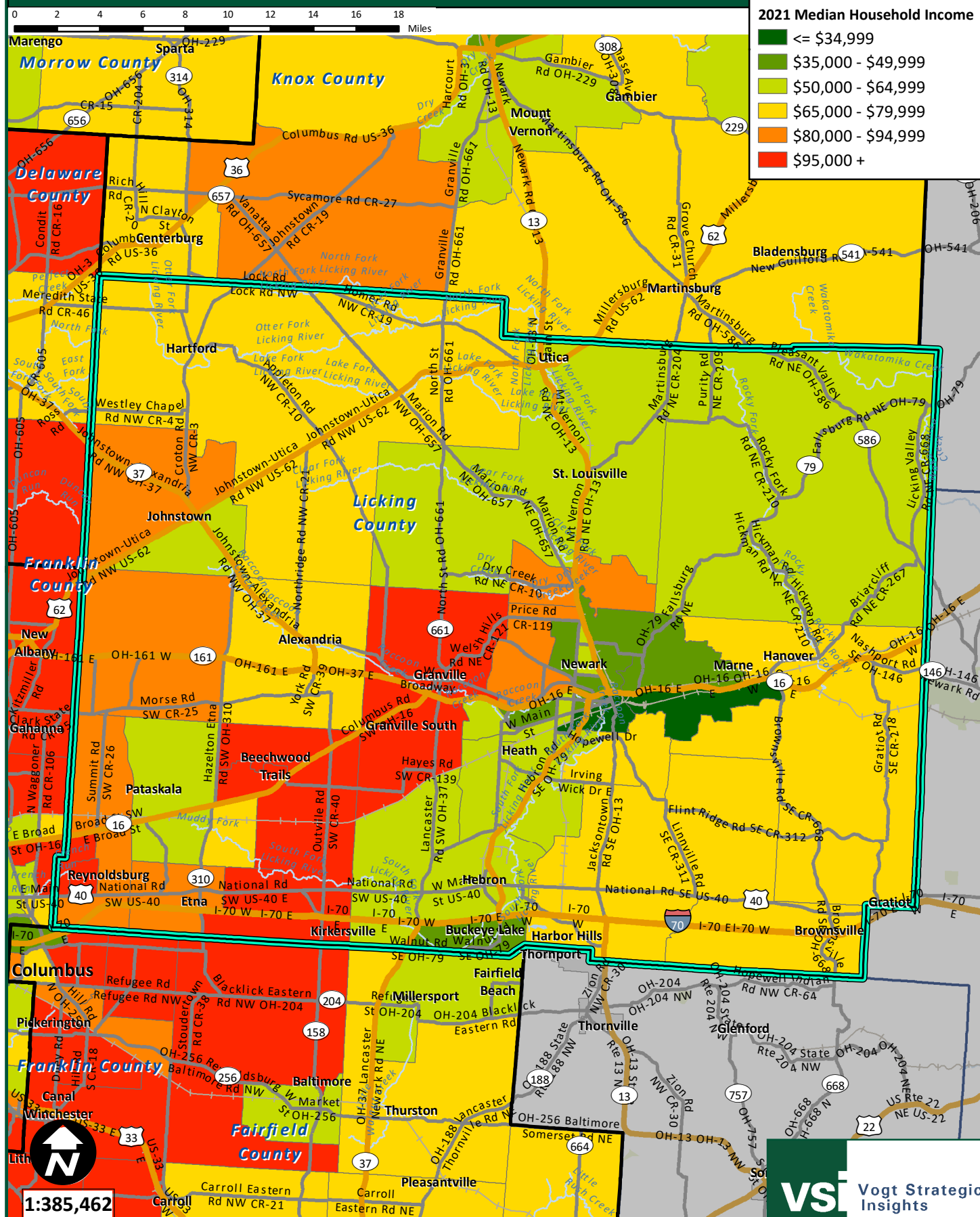
Census Tracts

2021 Median Household Income

-  ≤ \$34,999
-  \$35,000 - \$49,999
-  \$50,000 - \$64,999
-  \$65,000 - \$79,999
-  \$80,000 - \$94,999
-  \$95,000 +



0 2 4 6 8 10 12 14 16 18 Miles



Delaware County, OH 2021 Median Home Value

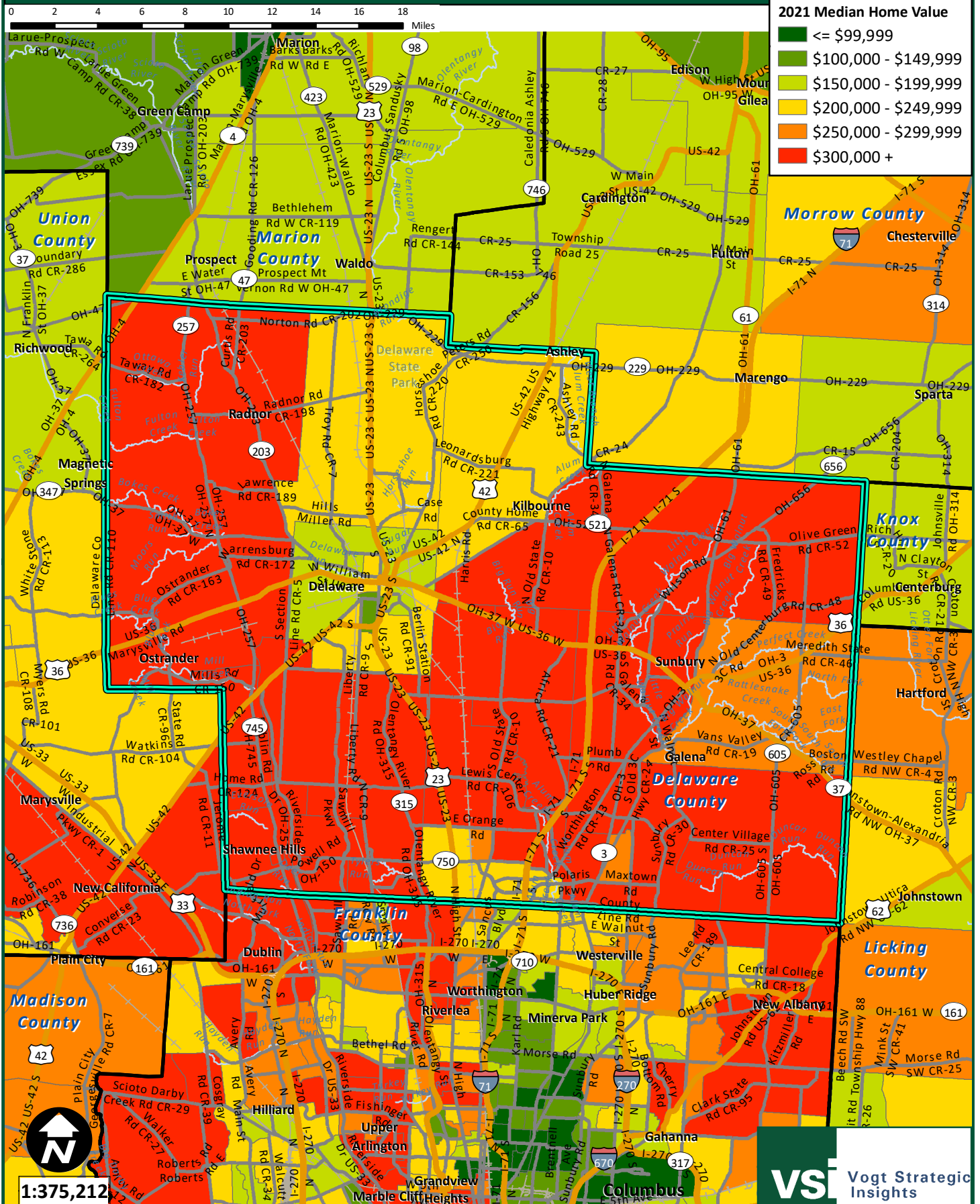
Legend

 Delaware County

Census Tracts

2021 Median Home Value

-  <= \$99,999
-  \$100,000 - \$149,999
-  \$150,000 - \$199,999
-  \$200,000 - \$249,999
-  \$250,000 - \$299,999
-  \$300,000 +



Fairfield County, OH 2021 Median Home Value

0 2 4 6 8 10 12 14 16 18 Miles

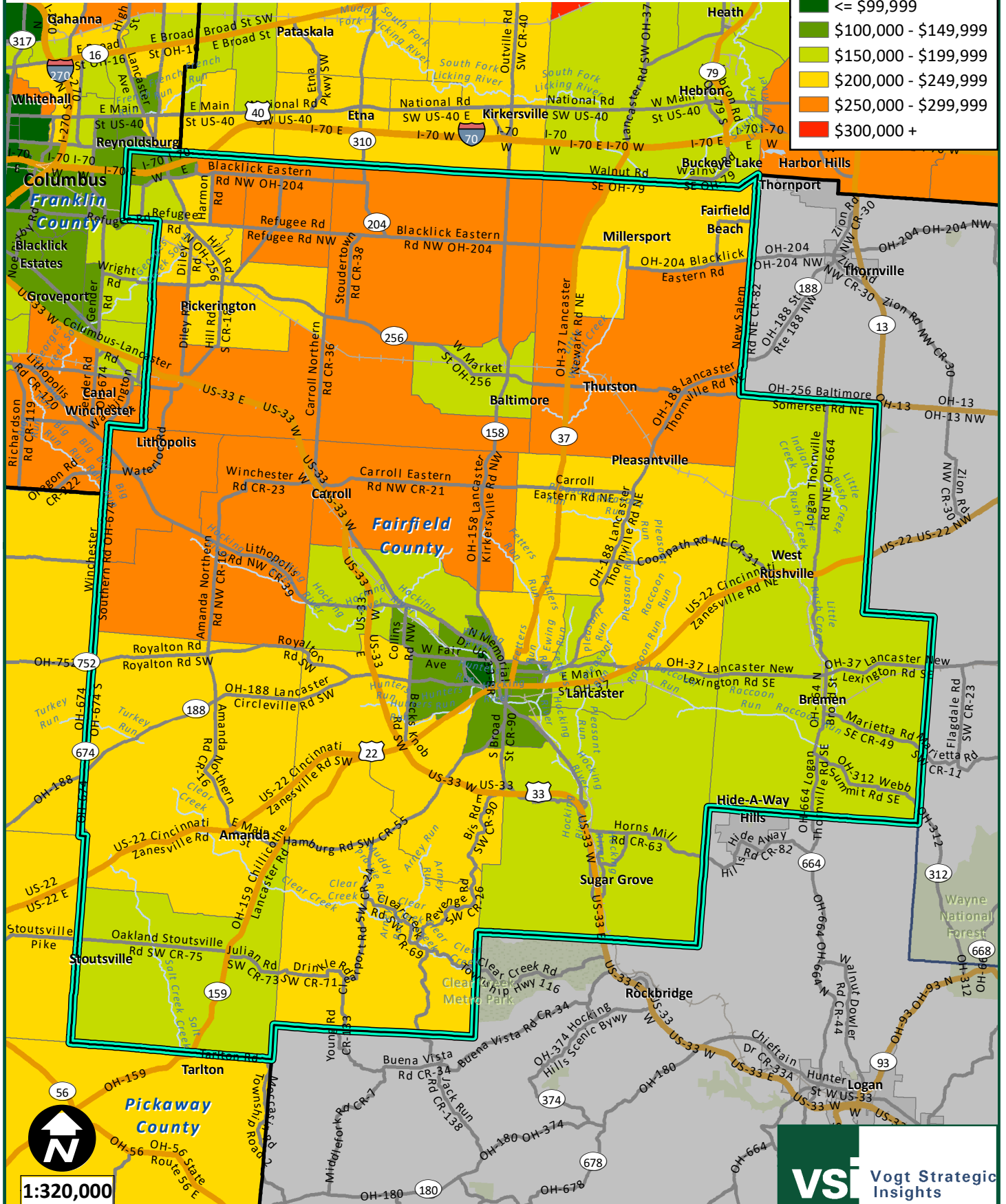
Legend

 Fairfield County

Census Tracts

2021 Median Home Value

-  <= \$99,999
-  \$100,000 - \$149,999
-  \$150,000 - \$199,999
-  \$200,000 - \$249,999
-  \$250,000 - \$299,999
-  \$300,000 +



Franklin County, OH 2021 Median Home Value

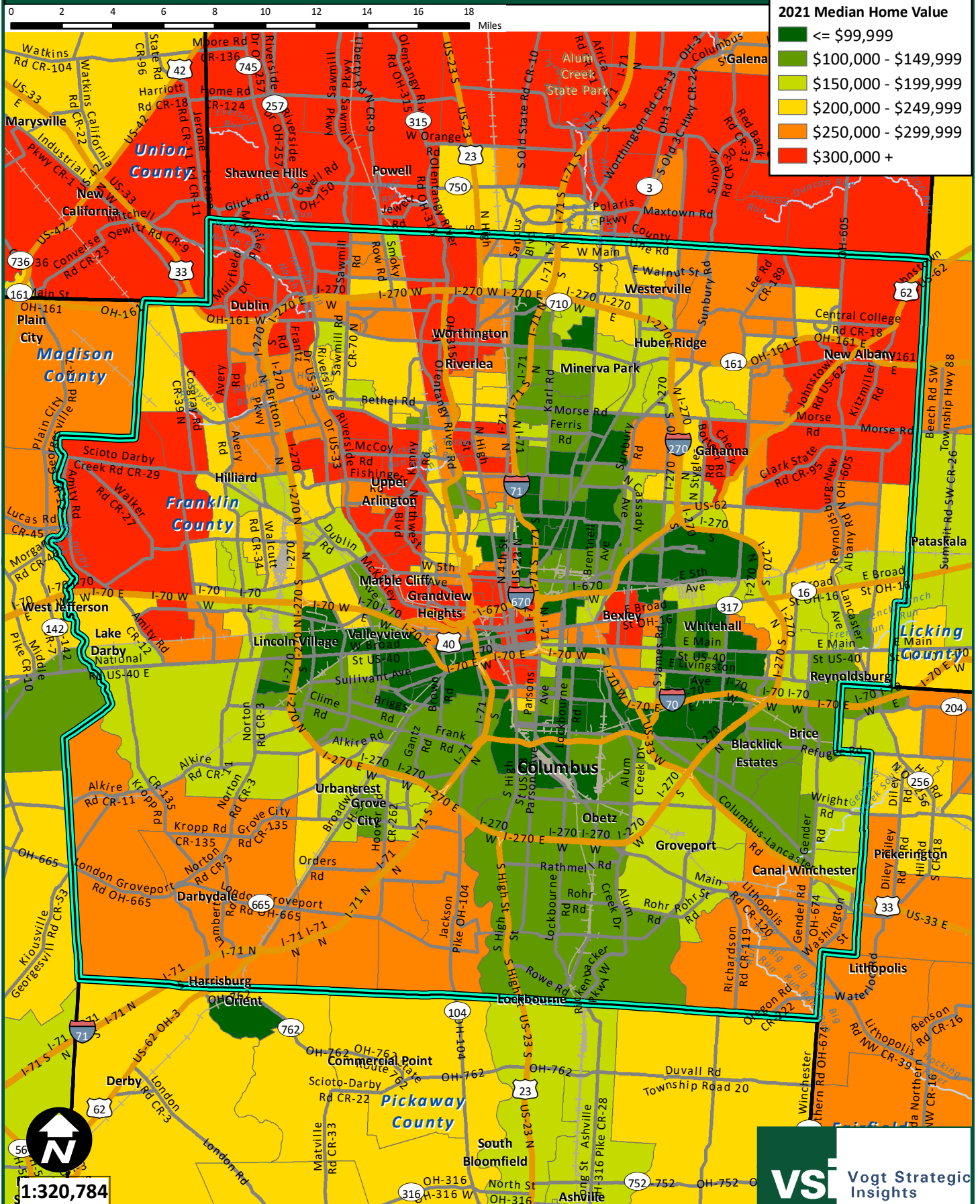
Legend

 Franklin County

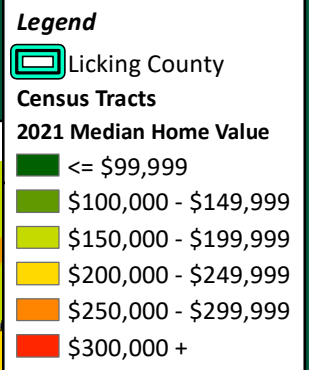
Census Tracts

2021 Median Home Value

-  <= \$99,999
-  \$100,000 - \$149,999
-  \$150,000 - \$199,999
-  \$200,000 - \$249,999
-  \$250,000 - \$299,999
-  \$300,000 +



0 2 4 6 8 10 12 14 16 18 Miles



Delaware County, OH

ACS 2016-2020 Median Gross Rent

0 2 4 6 8 10 12 14 16 18 Miles

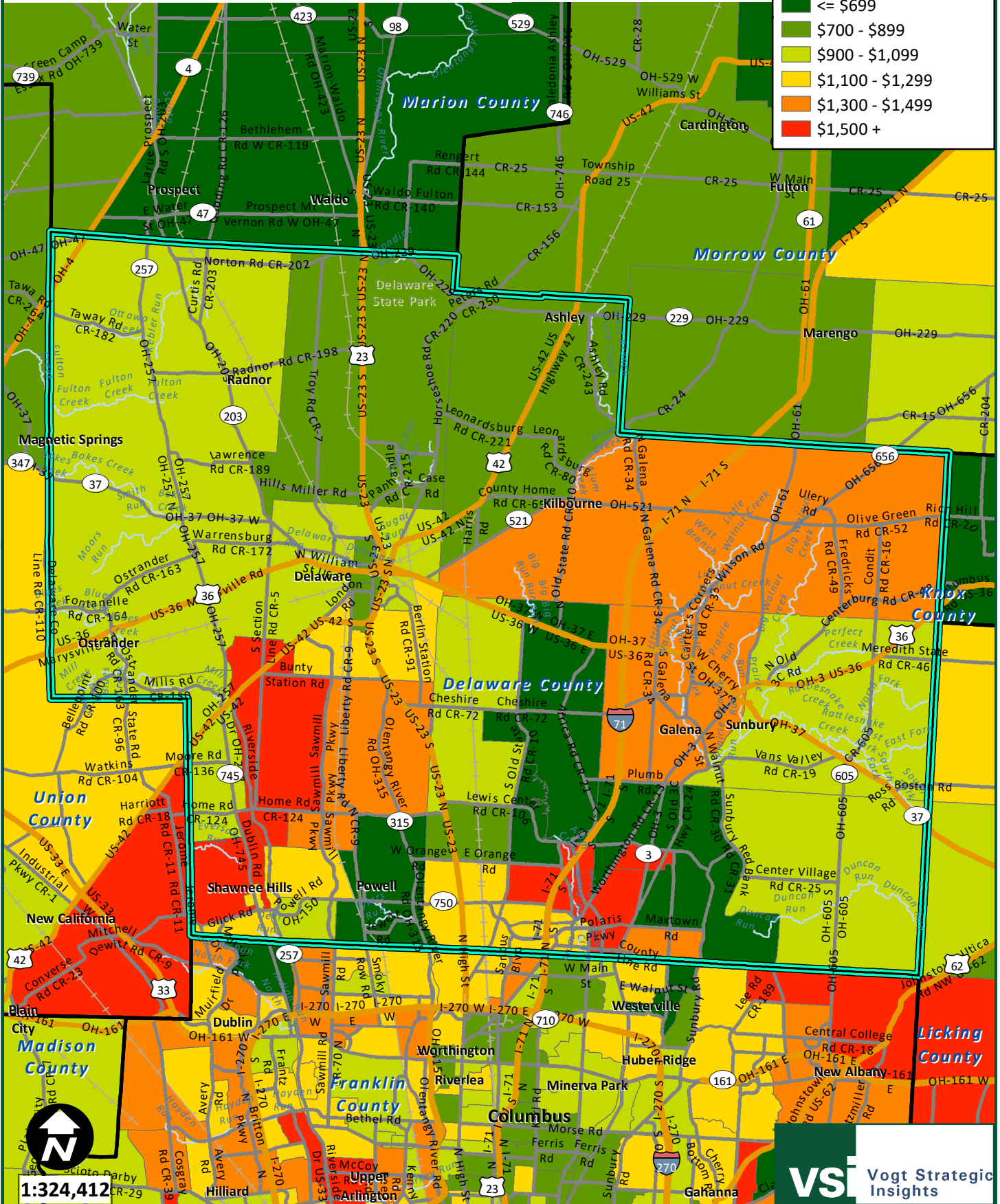
Legend

 Delaware County

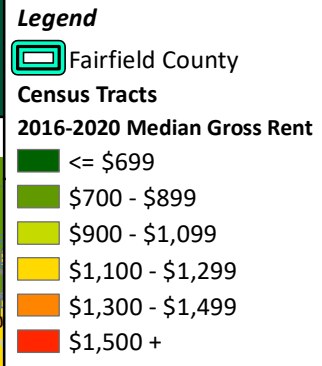
Census Tracts

2016-2020 Median Gross Rent

-  <= \$699
-  \$700 - \$899
-  \$900 - \$1,099
-  \$1,100 - \$1,299
-  \$1,300 - \$1,499
-  \$1,500 +



0 1.5 3 4.5 6 7.5 9 10.5 12 13.5 Miles



Franklin County, OH

ACS 2016-2020 Median Gross Rent

0 2 4 6 8 10 12 14 16 18 Miles

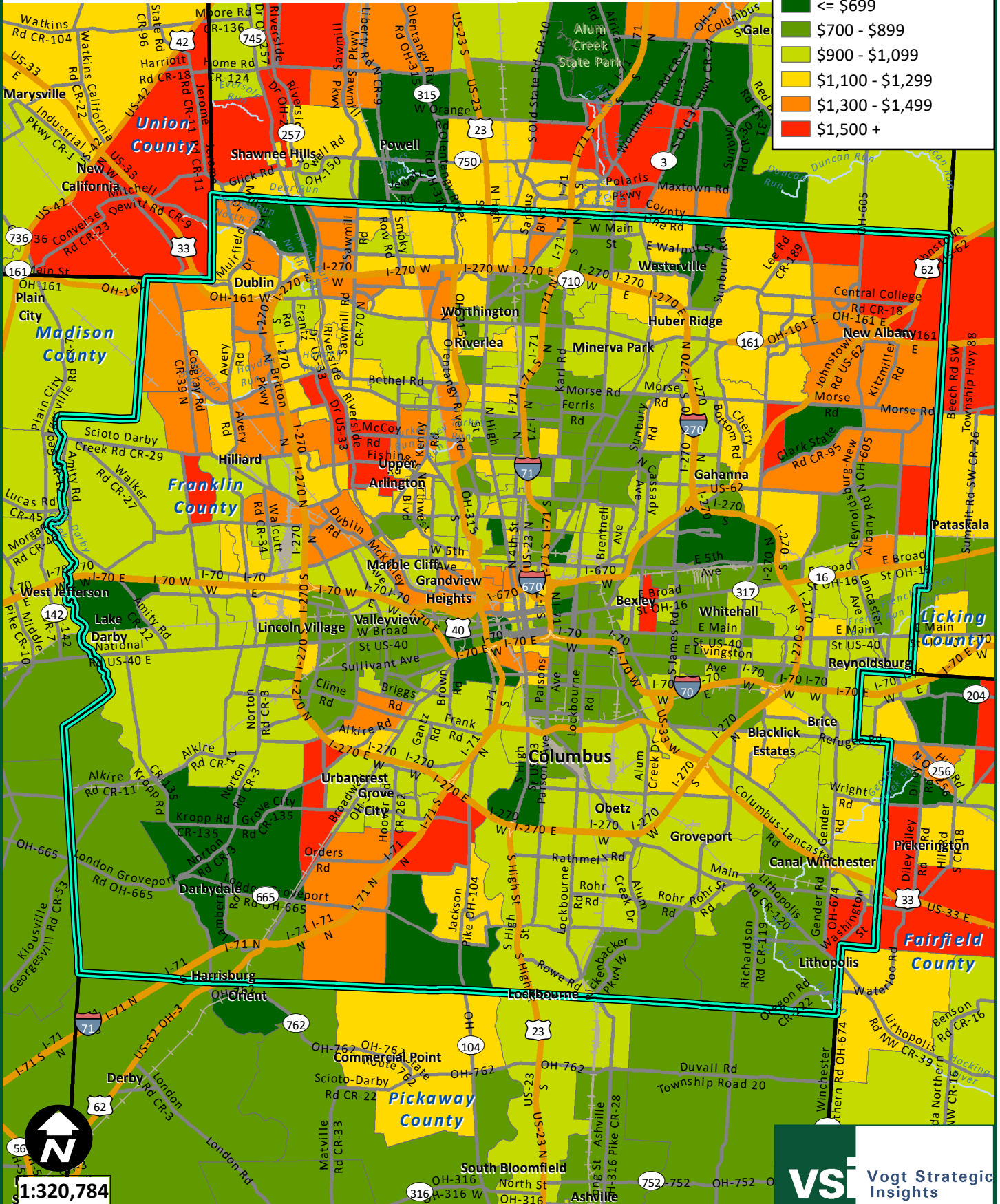
Legend

 Franklin County

Census Tracts

2016-2020 Median Gross Rent

-  <= \$699
-  \$700 - \$899
-  \$900 - \$1,099
-  \$1,100 - \$1,299
-  \$1,300 - \$1,499
-  \$1,500 +



Licking County, OH

ACS 2016-2020 Median Gross Rent

0 2 4 6 8 10 12 14 16 18 Miles

Legend

 Licking County

Census Tracts

2016-2020 Median Gross Rent

 <= \$699

 \$700 - \$899

 \$900 - \$1,099

 \$1,100 - \$1,299

 \$1,300 - \$1,499

 \$1,500 +

