Texas Quarterly Apartment Report

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Texas Real Estate Research Center

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Sources: CoStar and the Texas Real Estate Research Center at Texas A&M University

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About this Report

Texas Real Estate Research Center (TRERC) economists continuously monitor multiple facets of the global, national, and Texas economies. The *Texas Quarterly Apartment Report* summarizes important economic indicators that help discern apartment real estate trends in Texas' four major Metropolitan Statistical Areas (MSAs)—Austin, Dallas-Fort Worth, Houston, and San Antonio.

All quarterly measurements are calculated using seasonally adjusted and trend-cycled data, while percentage changes reflect nominal year-over-year estimates, unless stated otherwise. Seasonal adjustment smooths the quarterly fluctuations in the data. Graphs are also trend-cycle adjusted, which provides a clearer, less volatile view of upward and downward movements. Both enrich our analysis by producing a more accurate depiction of long-term movements in the data.

This report analyzes effective rents, as opposed to asking rents, to reflect rental concessions. This report utilizes data from ALN Apartment Data and CoStar. The time series varies by sector and geography, depending on the data available. Sectors with shorter time series limit the interpretation of the data. CoStar makes changes to its historical data series.

This quarterly publication provides data and insights on the Texas apartment real estate markets. We hope you find them useful. Your feedback is always appreciated. Please send comments and suggestions to info@recenter.tamu.edu.

Dr. Harold Hunt, Dr. Adam Perdue, Bryan Gilliland, Connor Harwell, and Rajendra Patidar

Texas Economic Overview

Employment growth continued through the first quarter of the year. Economic activity within Texas improved during 1Q2022, although joblessness in the Lone Star State was still higher than the national average. The variance in unemployment rate performance between the state and the nation is largely explained by the outsized recovery of Texas' labor force participation rate relative to the country's as a whole. Oil industry activity accelerated as oil prices increased, and global economic recovery continued. The large wave of COVID cases throughout the country didn't translate to a similar wave of illness or deaths and appeared to have a minimal impact on consumer behavior and the continued return to pre-pandemic conditions.

Texas nonfarm employment added 166,300 jobs through the first quarter. Total nonfarm employment in Texas has now continued well past the pre-COVID peak of just under 13 million jobs to just over 13.2 million jobs.

Austin added 12,900 employees, continuing a strong recovery as the metro benefits from its substantial high-tech sector, which can socially distance and has prospered during the pandemic.

Employment increased in Dallas and Fort Worth, gaining 56,700 and 16,600 jobs, respectively.

Hiring in Houston again saw strong growth, adding 32,400 jobs during the first quarter. However, payrolls remain below pre-pandemic levels.

San Antonio registered a quarterly increase of 5,300 workers.

Texas' goods-producing sector gained 38,900 jobs during the fourth quarter following a gain of 26,500 positions in the previous quarter. Amid increasing oil prices, energy-related employment rose by 8,900 jobs. Recovering global economic conditions supported the state's manufacturing industry, which added 13,800 employees, while durable-goods payrolls recorded an 8,400-job gain. Construction payrolls expanded this quarter, adding 16,200 jobs.

Texas' service-providing sector added 166,500 workers. Leisure/hospitality recouped 44,500 jobs, but arts/entertainment/recreation payrolls remained almost 10 percent below pre-pandemic levels. On the other hand, the transportation/warehousing/utilities industry added 29,800 positions, with total employment now surpassing pre-pandemic employment by 4 percent.

As it has become increasingly clear that inflation is not so transitory and the Federal Reserve has continued raising rates, the costs of capital has begun to rise. The ten-year U.S. Treasury bond yield quarterly average increased to 1.95 percent through the first quarter, up from 4Q2021's 1.53 percent and 4Q2019's 1.7 percent. The spread between apartment capitalization

rates and the ten-year Treasury yield decreased through the quarter. This was due to an increase in the yield for the ten-year Treasury bill. Overall apartment cap rates for Houston and San Antonio remain the highest, followed by DFW and Austin.

Texas' unemployment rate decreased to 4.6 percent, still greater than the national rate of 3.8 percent. The size of the state's labor force expanded while the labor force participation rate reached 63.4 percent. Texas' major metros reported lower unemployment rates than the statewide average, except in Houston where joblessness fell to 5.1 percent. Unemployment fell to 3.8 percent in DFW and to 4 percent in San Antonio. Joblessness remained lowest in Austin, where unemployment slid to 3.1 percent.

The longer unemployment rates remain elevated, the more they negatively impact multifamily vacancies and rents. As expected, the increase in unemployment with the recession pushed up vacancy rates in the major metros. Declining unemployment rates have been associated with falling vacancy rates (Figures 5-8). The reopening of the economy, accompanied by strong job growth, has contributed to decreasing vacancy rates. Going forward, the forecast calls for continued decreases in vacancy and increases in rent.

TRERC estimated 2022 and 2023 apartment vacancy rates and effective rent percent changes for the major MSAs (Tables 1 and 2).

Table 1. Forecasted Overall Apartment Vacancy Rates and Effective Rents

MSA	Natural Apartment Vacancy Rate	Vacancy Rates (%)					Effective Rents (y-o-y %)				
		2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Austin	8.3	8.0	9.9	8.6	8.2	7.9	4.5	-0.9	10.5	5.8	2.1
Dallas-Fort Worth	8.5	8.2	8.6	7.8	7.6	7.8	3.2	1.3	7.1	2.1	2.0
Houston	9.2	9.3	10.2	8.6	8.3	8.4	1.9	-0.3	4.8	2.5	2.0
San Antonio	8.5	9.4	9.5	8.0	7.9	8.0	3.1	0.7	6.3	2.2	2.0

Note: Annual numbers are the four-quarter average of the seasonally adjusted data. The rent growth is nominal and estimated from the previous year's average.
Source: Texas Real Estate Research Center at Texas A&M University

Table 2. Forecasted Class A Apartment Vacancy Rates and Effective Rents

MSA	Natural Apartment Vacancy Rate	Vacancy Rates (%)					Effective Rents (y-o-y %)				
		2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Austin	9.0	10.7	12.0	8.2	7.9	7.9	4.5	-1.2	11.5	3.4	2.3
Dallas-Fort Worth	9.1	12.3	12.7	10.0	9.9	9.7	2.4	-0.2	9.0	2.3	2.1
Houston	9.7	10.2	12.9	10.1	9.9	9.8	1.4	-2.9	6.2	2.2	2.0
San Antonio	10.0	11.0	10.8	7.3	7.2	7.2	2.8	-1.0	9.8	2.1	2.0

Note: Annual numbers are the four-quarter average of the seasonally adjusted data. The rent growth is nominal and estimated from the previous year's average.
Source: Texas Real Estate Research Center at Texas A&M University

Overall Apartment Sector

Austin (Figures 7 - 10)

The actual vacancy rate in Austin's overall apartment market rose to 6.7 percent in 1Q2022. Effective rent per unit was up 18 percent from 1Q2021. Effective rent continues to rise from an all-time high, representing more than a simple recovery from a pandemic-burdened economy.

According to data from Real Page Inc., 98.3 percent of multifamily renters made full or partial rent payments in the Austin-Round Rock MSA, increasing slightly from 4Q2021. Austin still has the highest proportion of rent payments of all major Texas MSAs and is still higher than both the state and national averages. In fact, three major MSA averages fell this quarter with only Houston showing improvement.

Net absorption continues its decline from 2Q2021, representing a 61.7 percent increase over net absorption in 1Q2021. Meanwhile, units delivered declined slightly this quarter, the first such decline since 3Q2020. Additionally, units under construction and construction values declined slightly but remained high.

In national quarterly rankings of 5+ unit multifamily housing building permits submitted, Austin climbed to third place, remaining in the top five for seven of the previous eight quarters. The number of permits declined by 12 percent from 4Q2021 to 1Q2022.

Steady occupancy and net absorption signal consistent demand for multifamily housing in Austin-Round Rock. Units delivered and under construction have declined slightly but remain steady, signaling a potential lull in building after a few fiery quarters. This is the first quarter since 3Q2020 that net absorption has failed to outpace deliveries; coupled with a slight increase in vacancy, effective rents may eventually decline.

Dallas-Fort Worth (Figures 11 - 14)

Actual vacancy in the DFW's overall apartment market rose from 4Q2021 to 1Q2022. Vacancy was at 5.9 percent, only 2.6 percent lower than the natural vacancy rate. Effective rent reached a new all-time high for the third quarter in a row. The yearly growth in effective rent was 15.4 percent.

Net absorption declined sharply this quarter, representing a 78 percent decline from 1Q2021. Units delivered declined slightly from last quarter and are 53 percent lower than a year ago. This is likely because of paused building projects from the early days of the COVID-19 pandemic catching up with the housing market. Units under construction and construction values declined slightly after the burst of growth in 2Q2021. Construction start values began to decline after a long period of growth.

U.S. Census Bureau data rank DFW second in terms of 5+ unit multifamily housing building permits submitted, placing them back in the top five. The number of permits submitted increased from their 4Q2021 lull in 4Q2021. The same was true in Houston and San Antonio.

RealPage Inc. data show 97.2 percent of multifamily renters in the Dallas-Plano-Irving and Fort Worth-Arlington areas made full or partial rental payments in 1Q2022. This was about a 1 percent decline for the MSA as a whole. Dallas-Fort Worth rental payments are still proportionally higher than the national and state averages. However, the MSA trails Austin in terms of rental payments.

Houston (Figures 15 - 18)

Houston's vacancy rate increased to 7.5 percent after four consecutive quarters of decline. It remains below the 9.2 percent natural vacancy rate. Effective rent per unit increased marginally while annual effective rent growth per unit improved to 10 percent, signaling continued recovery in the Houston market.

Houston's proportion of full or partial rental payments, as collected by RealPage Inc., fell slightly to 96.4 percent for the quarter. This is virtually unchanged from 4Q2021. Houston remains above the national average, but within Texas, it is ahead of only the San Antonio-New Braunfels MSA.

In the Census Bureau's tally of 5+ unit multifamily housing permits, Houston ranked fourth overall. Net absorption declined for the third consecutive quarter. Given the historic high reached in this metric in 2Q2021, this does not necessarily indicate a downturn. However, net absorption is at the lowest level recorded since 3Q2018. Units delivered decreased slightly this quarter while construction start values increased. Units delivered remains high, signaling the previous slump from the pausing of building projects last year is ending. Construction start values were the highest since 2Q2020.

San Antonio (Figures 19 - 22)

Vacancy in San Antonio continues to fall and now sits at 6.1 percent, the MSA's lowest vacancy rate since 2000. This remains well below the natural vacancy rate of 8.5 percent. RealPage Inc. reports 96.1 percent of area renters made payments, a 1.1 percent decrease from 3Q2021. This is the largest decrease among the four major MSAs. San Antonio is now the lowest rent-paying Texas MSA.

Yearly effective rent growth was 13.1 percent, the highest on record since 2001. This marked improvement over the decline in effective rents from 3Q2020 points to a market that has not only recovered from the pandemic-inflicted recession but has exceeded pre-pandemic measures. Effective rents are at their highest level since the Great Recession.

Net absorption shrank for the third consecutive quarter following record highs in 2Q2021. This is the first time since 2Q2020 that net absorption has been outpaced by units delivered. Units under construction increased slightly as construction start values receded following a strong

showing in 4Q2021. The index has decreased but remains comparable to its 2010-19 average. Construction starts may grow soon. According to Census Bureau data from the U.S. Census Bureau, the San Antonio-New Braunfels MSA rose from 24th to 15th in national rankings of 5+ family unit building permits submitted over the quarter. The number of permits submitted increased by roughly 77 percent from 4Q2021 to 1Q2022.

After a strong fourth quarter, the San Antonio market remains consistent and continues to grow. Given the future outlook for building, this trend may slow in the coming year.

*Note: RealPage, Inc. rent payment percentages data is based on the number of renters who paid their rent in full or in partial payments.

Class A Apartment Sector

Austin-Round Rock (Figures 23 - 26)

The Austin-Round Rock Class A apartment market's actual vacancy rate rose for the first time since 2Q2020. Now at 7.1 percent, the vacancy rate has begun to approach the natural vacancy rate of 9 percent. Congruent with overall Austin data, effective rents have presented a strong growth trend for Class A apartments this year. They are the highest they've been in over two decades and are 18.2 percent higher than last year. It remains the city with the largest effective rent growth rate among the four MSAs.

After the construction starts values index posted record highs in the final three quarters of 2021, it declined by 43.6 percent in 1Q2022. Units delivered declined in 1Q2022 but were still up 17.9 percent from 1Q2021. Net absorption fell for the second consecutive quarter, declining by 70.9 percent from 1Q2021. A slight decline in construction starts indicates investor awareness to the slowing of Austin's housing demand. A continuation of this building lull may not support recent effective rent trends.

Dallas-Fort Worth (Figures 27 - 30)

Actual vacancy in the DFW Class A apartment market marginally increased in 1Q2022, rising to 6.9 percent. This remains below the natural vacancy rate of 9.1 percent. Another increase in effective rents juxtaposed this decrease in occupancy, with annual effective rent growth equaling to 17.3 percent. Effective rents are the highest in the last two decades.

Units under construction continued the fall that began in 1Q2020. The yearly change represents a 14 percent decline. Units delivered decreased by several hundred from 4Q2021 but declined by 55.4 percent from 1Q2021. Net absorption fell sharply over the quarter and by 77.5 percent over the year. Construction starts values fell slightly but are up 17.5 percent from 1Q2021. The decline in deliveries and net absorption is likely attributable to paused construction projects in 2020 and rising effective rents. These factors may signal slowing demand for Class A apartment demand in Dallas-Fort Worth following the boom seen across Texas in 2021.

Houston (Figures 31 - 34)

Houston's Class A apartment vacancy rose slightly this quarter, the first increase since 3Q2020. Vacancy is now at 8.9 percent, just below the natural vacancy rate of 9.7 percent. Effective rents are the highest they've been since 2000, and they continue to grow. Year-over-year effective rent growth totaled 11.7 percent, one of the highest growth rates for Houston in decades but still the lowest of Texas' four major MSAs.

Under-construction units declined this quarter, falling by 47.7 percent from 1Q2021. Net absorption fell from 4Q2021 and decreased by 79.5 percent from 1Q2021. Units delivered decreased in 1Q2022 but increased by 4.4 percent over the year. The lower construction values

suggest real estate investors see a decrease in future demand, a notion supported by the significant decline in net absorption.

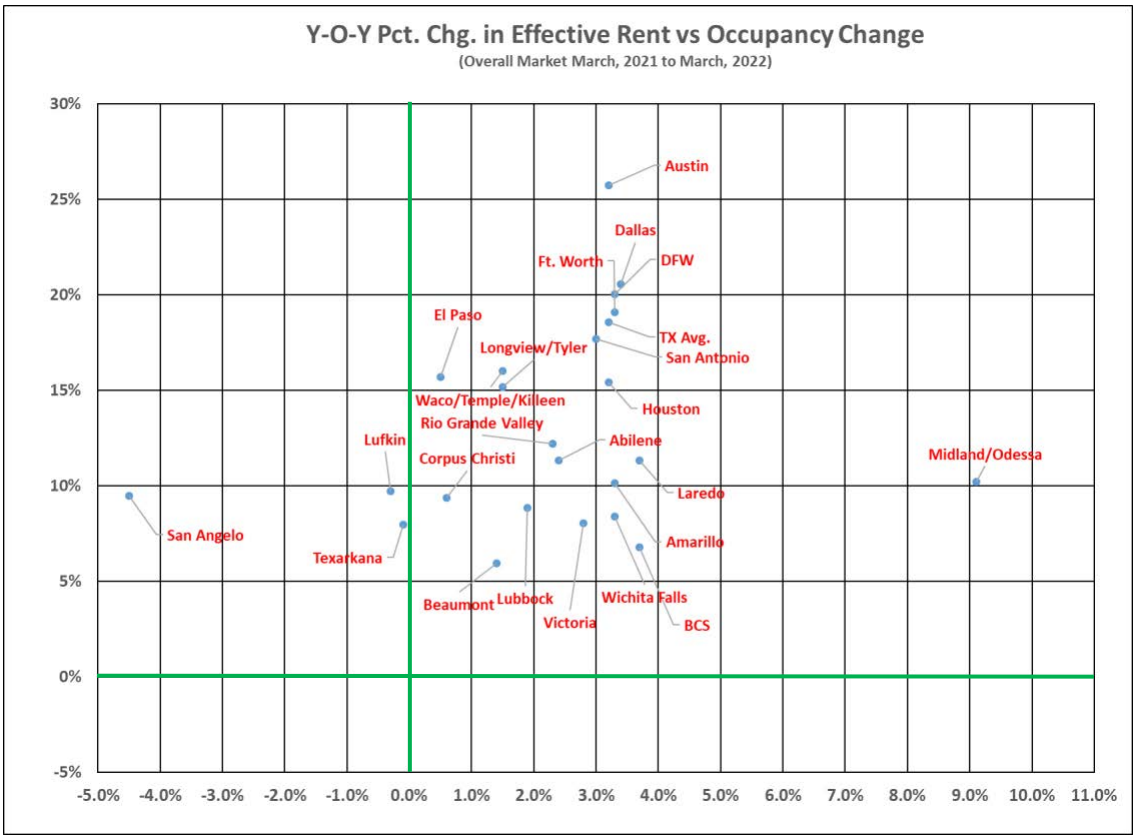
San Antonio (Figures 35 - 38)

San Antonio's Class A apartment market vacancy rate was 5.4 percent during 1Q2022, declining slightly from last quarter. This remains well below the natural vacancy rate of 10 percent for Class A apartments in the San Antonio MSA. Effective rents per unit from 1Q2021 grew substantially by 15.4 percent. As record-high rents per unit continue to prevail, this MSA shows constant growth in the Class A market.

Net absorption declined slightly from 4Q2021 and is at the lowest level seen since 4Q2011. Units delivered decreased for the second consecutive quarter, following a skyrocket during 2021, and showed a 33.9 percent decrease from 1Q2021. Units under construction rose by 17.6 percent, rebounding from previous historic lows. Despite declines across the board, net absorption continues to outpace units delivered. Construction start values have declined, indicating a leveling-off of demand after a sharp increase in 4Q2021. This could mean investors are seeing evidence of overbuilding in the San Antonio MSA.

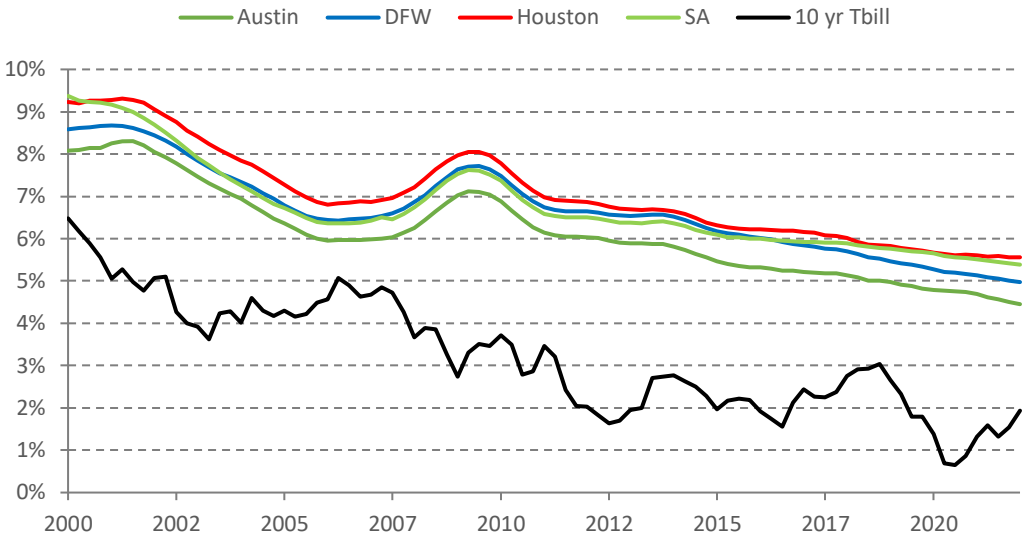
Figures

Figure 1. Overall Apartment Market Y-O-Y Percent Changes in Effective Rent and Occupancy as of December 2021



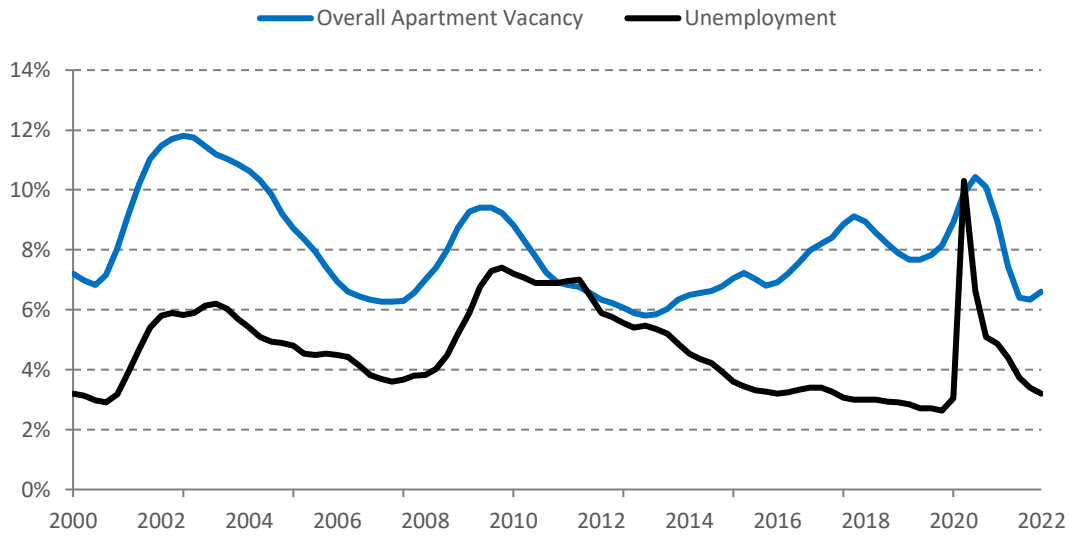
Sources: ALN Apartment Data and Real Estate Center at Texas A&M University

Figure 2. Capitalization Rates v. Ten-year Treasury Bills



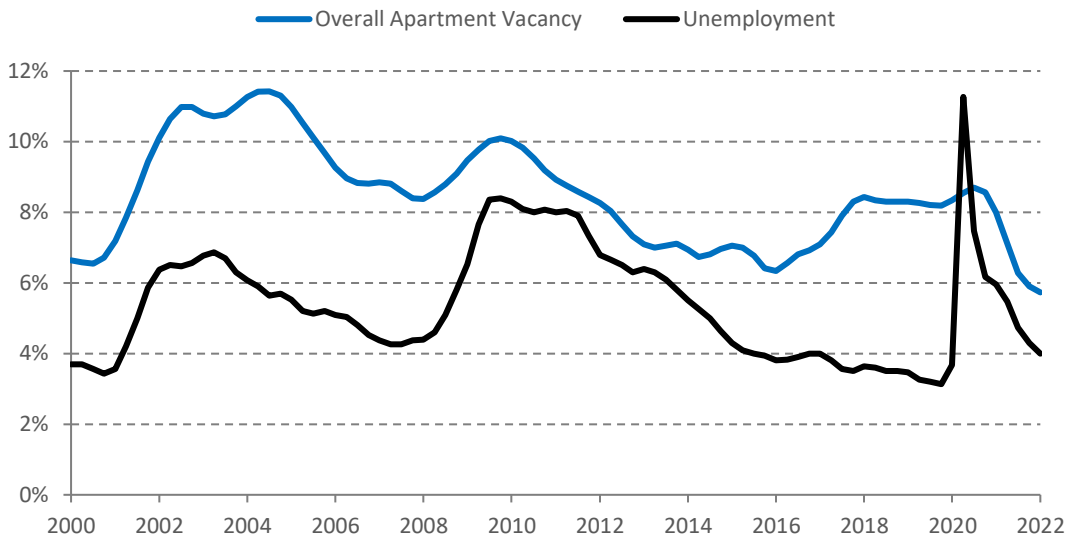
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 3. Austin Apartment Vacancy Rates and Unemployment (SA and TC)*



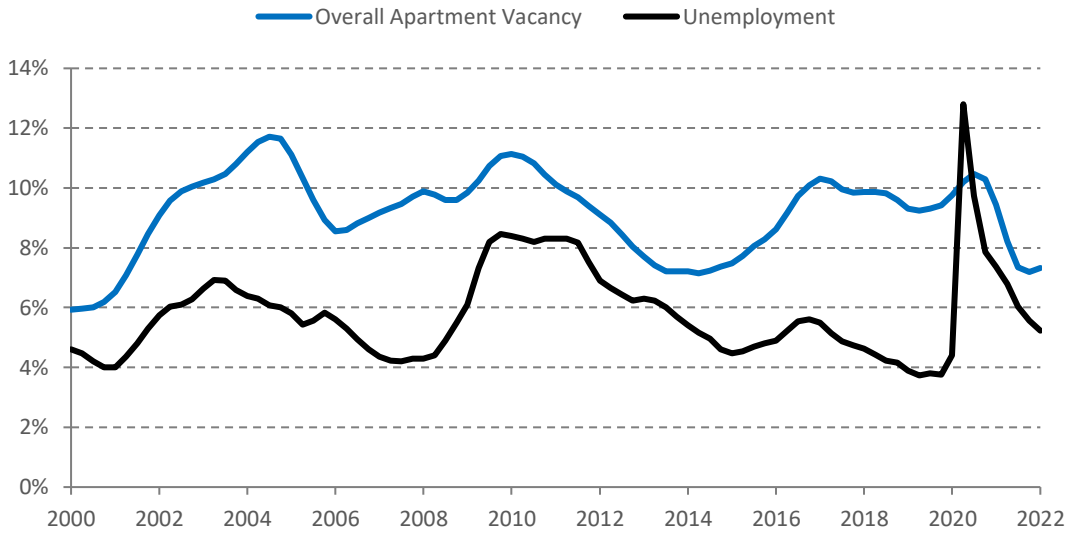
*Note: Vacancy rates seasonally adjusted and trend cycled, unemployment seasonally adjusted.
Sources: Bureau of Labor Statistics, CoStar, and Real Estate Center at Texas A&M University

Figure 4. DFW Apartment Vacancy Rates and Unemployment (SA and TC)*



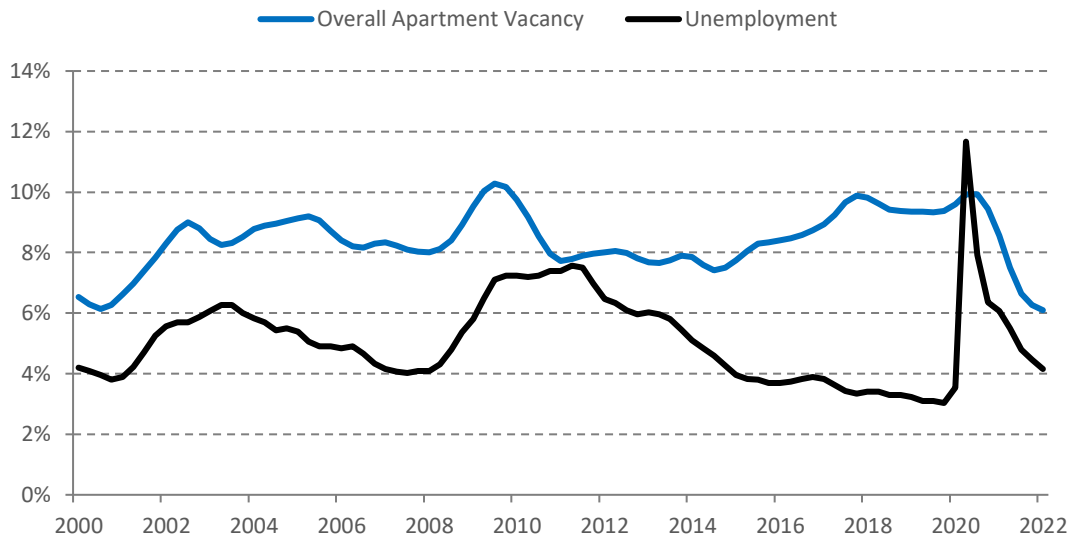
*Note: Vacancy rates seasonally adjusted and trend cycled, unemployment seasonally adjusted.
Sources: Bureau of Labor Statistics, CoStar, and Real Estate Center at Texas A&M University

Figure 5. Houston Apartment Vacancy Rates and Unemployment (SA and TC)*



*Note: Vacancy rates seasonally adjusted and trend cycled, unemployment seasonally adjusted.
Sources: Bureau of Labor Statistics, CoStar, and Real Estate Center at Texas A&M University

Figure 6. San Antonio Apartment Vacancy Rates and Unemployment (SA and TC)*



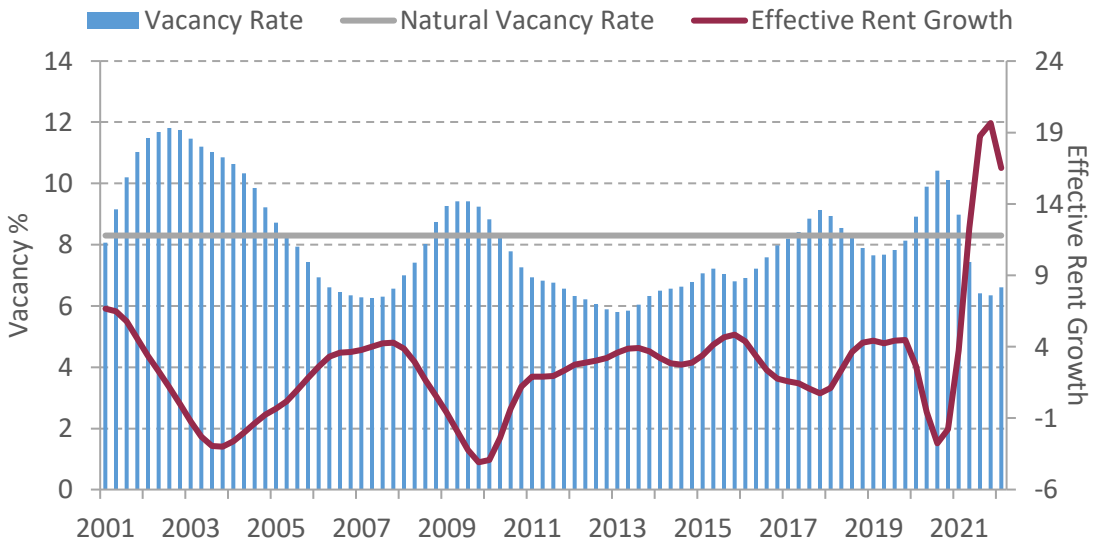
*Note: Vacancy rates seasonally adjusted and trend cycled, unemployment seasonally adjusted.
Sources: Bureau of Labor Statistics, CoStar, and Real Estate Center at Texas A&M University

Austin Overall

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▲ 93.3%	▼ 17.5%	▼ 2,235	▼

Note: Arrows indicate change from previous quarter with the exception of asking rent growth (change from previous year). Seasonally adjusted data.
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

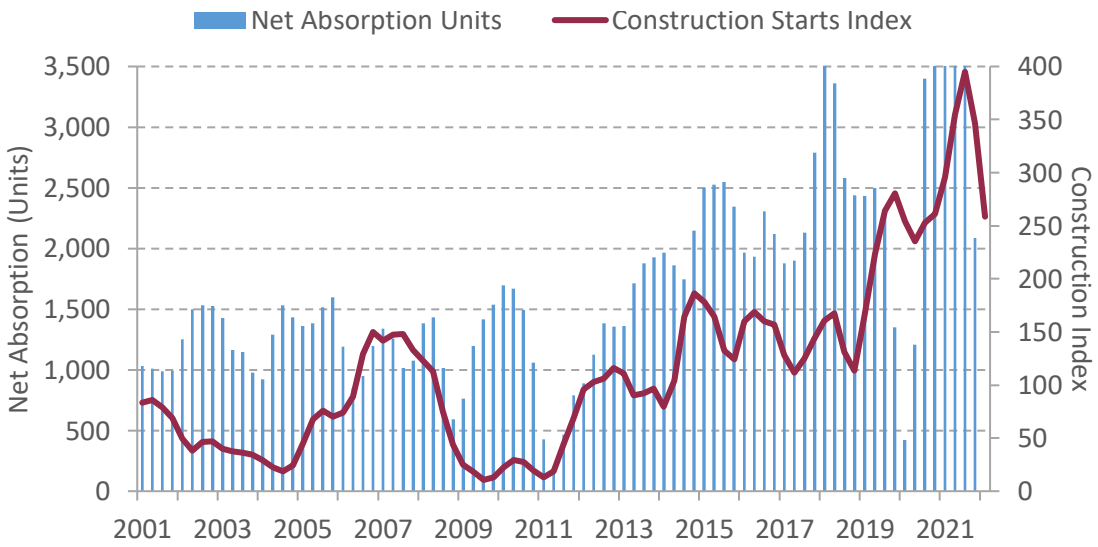
Figure 7. Austin Overall Vacancy and Effective Rent Growth (SA and TC)*



*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

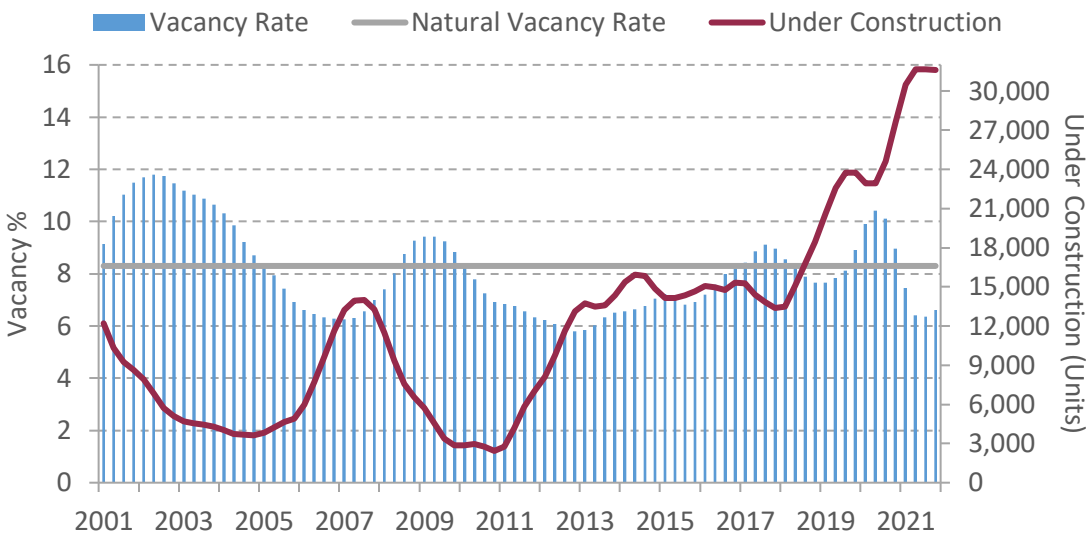
Figure 8. Austin Overall Net Absorption and Construction Starts Index (SA and TC)*

(Index 2000 Q1 = 100)



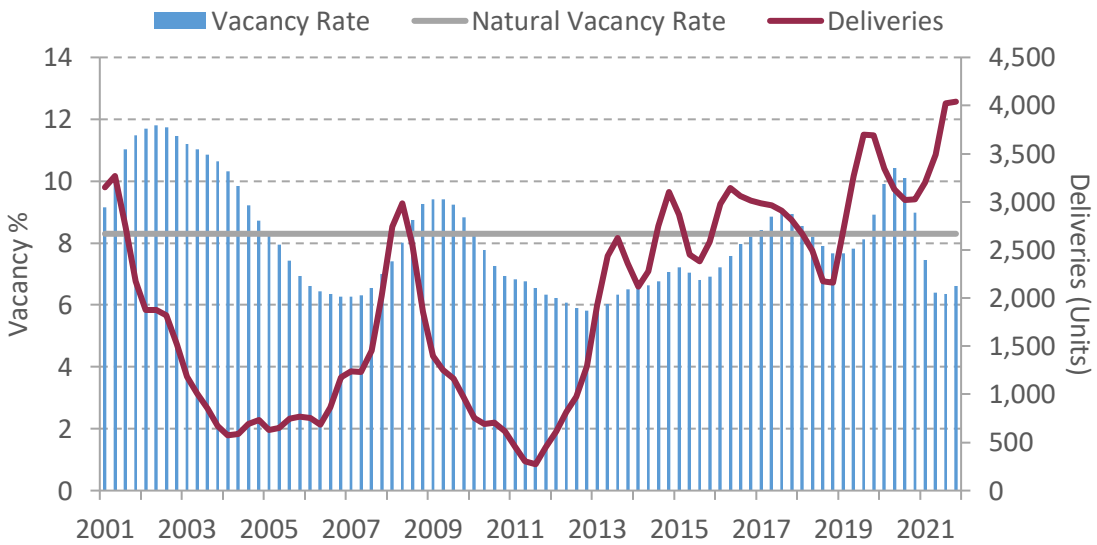
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar, Dodge Analytics, and Real Estate Center at Texas A&M University

Figure 9. Austin Overall Vacancy and Units Under Construction (SA and TC)*



*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 10. Austin Overall Vacancy and Deliveries in Units (SA and TC)*



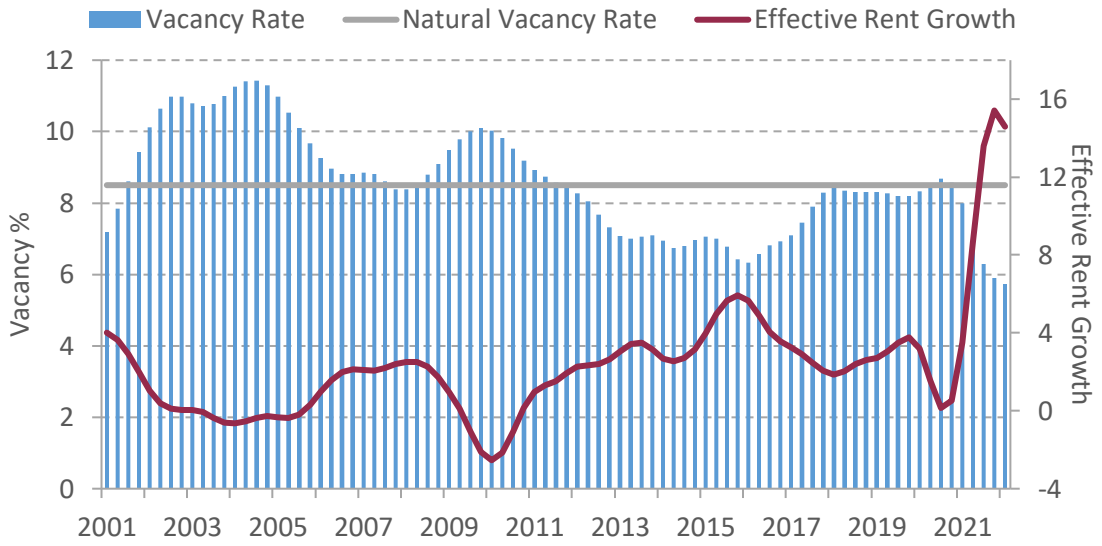
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Dallas-Fort Worth Overall

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
94.1%	15.4%	2,857	

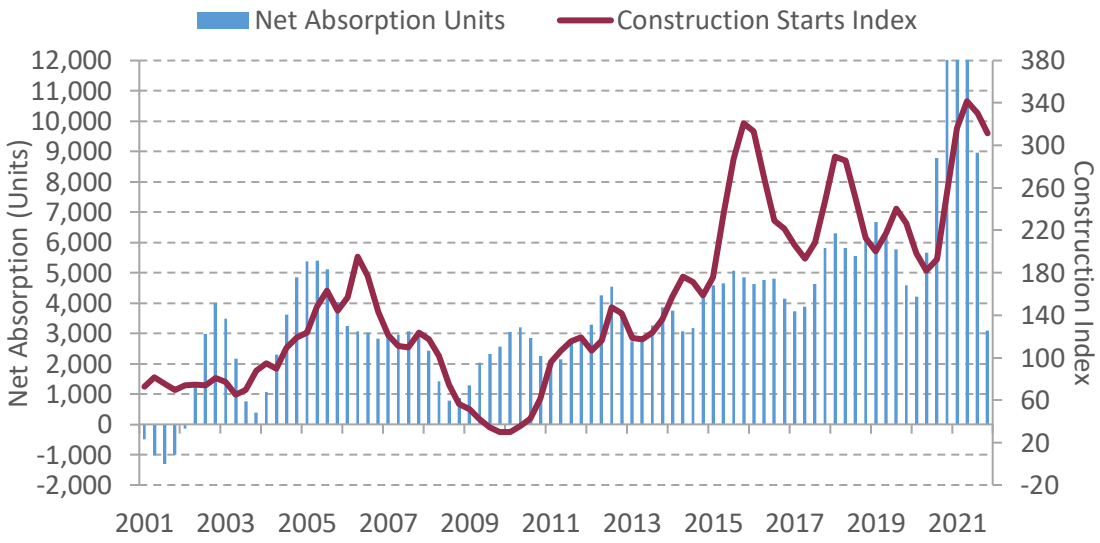
Note: Arrows indicate change from previous quarter with the exception of asking rent growth (change from previous year). Seasonally adjusted data.
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 11. DFW Overall Vacancy and Effective Rent Growth (SA and TC)*



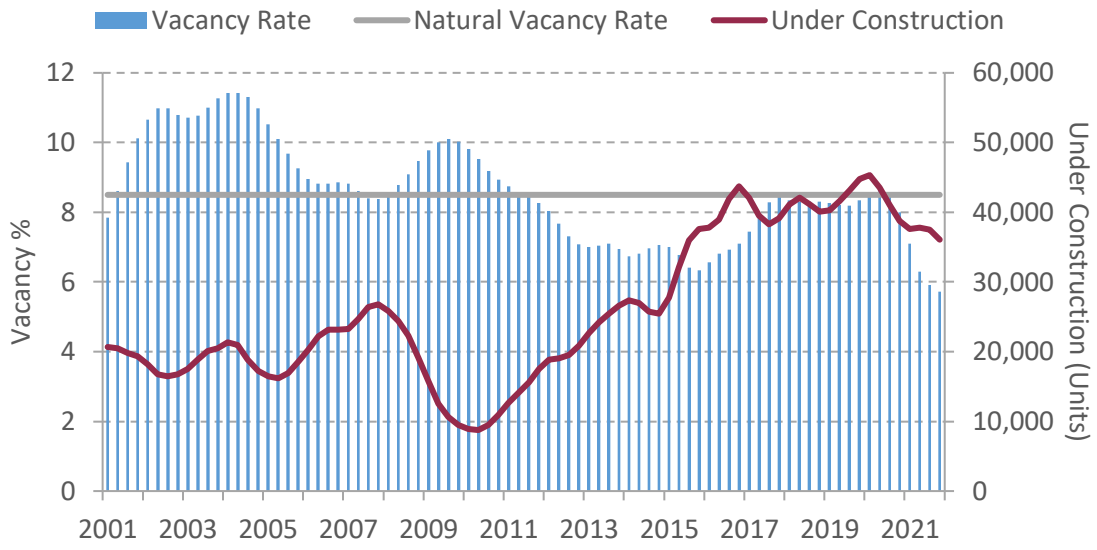
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 12. DFW Overall Net Absorption and Construction Starts Index (SA and TC)*
(Index 2000 Q1 = 100)



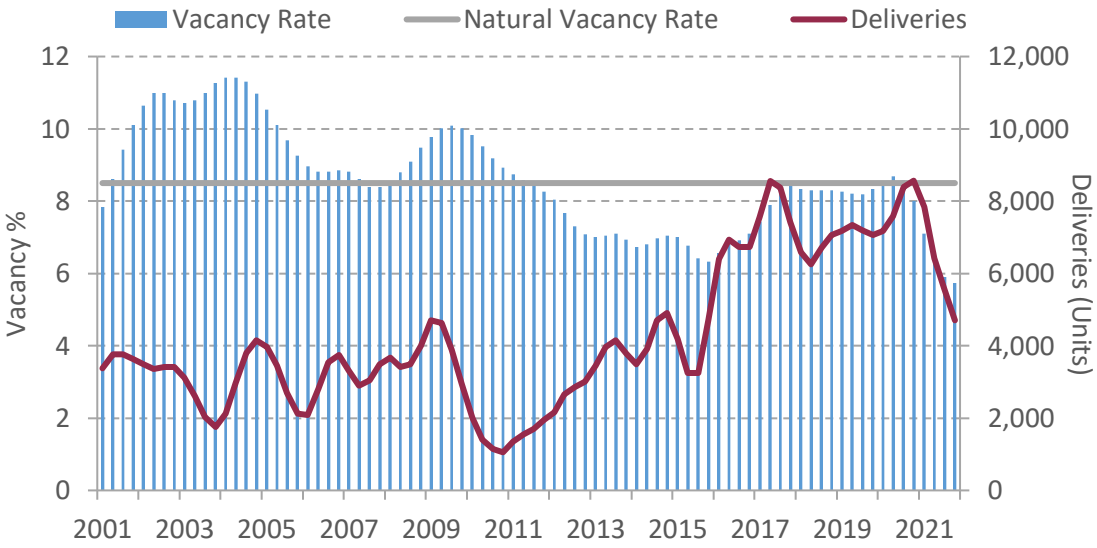
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar, Dodge Analytics, and Real Estate Center at Texas A&M University

Figure 13. DFW Overall Vacancy and Units Under Construction (SA and TC)*



*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 14. DFW Overall Vacancy and Deliveries in Units (SA and TC)*



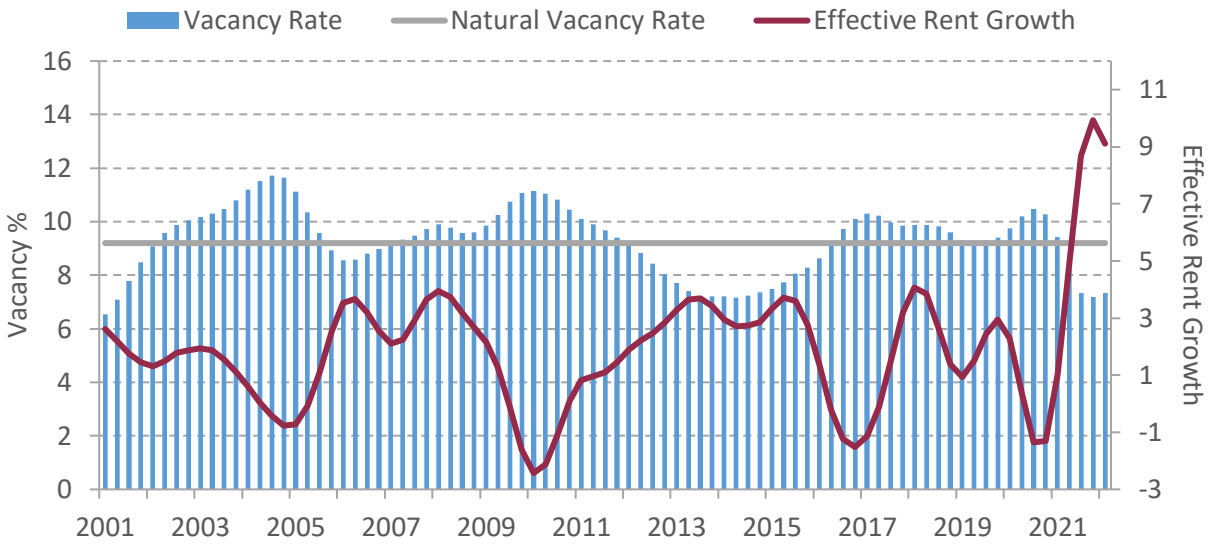
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Houston Overall

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▼ 92.5%	= 9.9%	▼ 1,623	▲

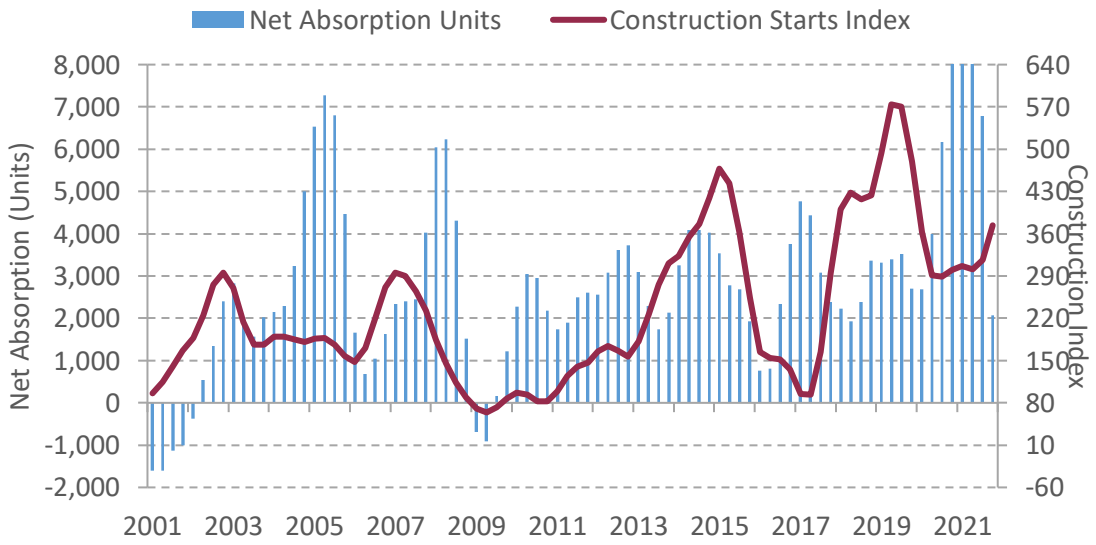
Note: Arrows indicate change from previous quarter with the exception of asking rent growth (change from previous year). Seasonally adjusted data.
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 15. Houston Overall Vacancy and Effective Rent Growth (SA and TC)*



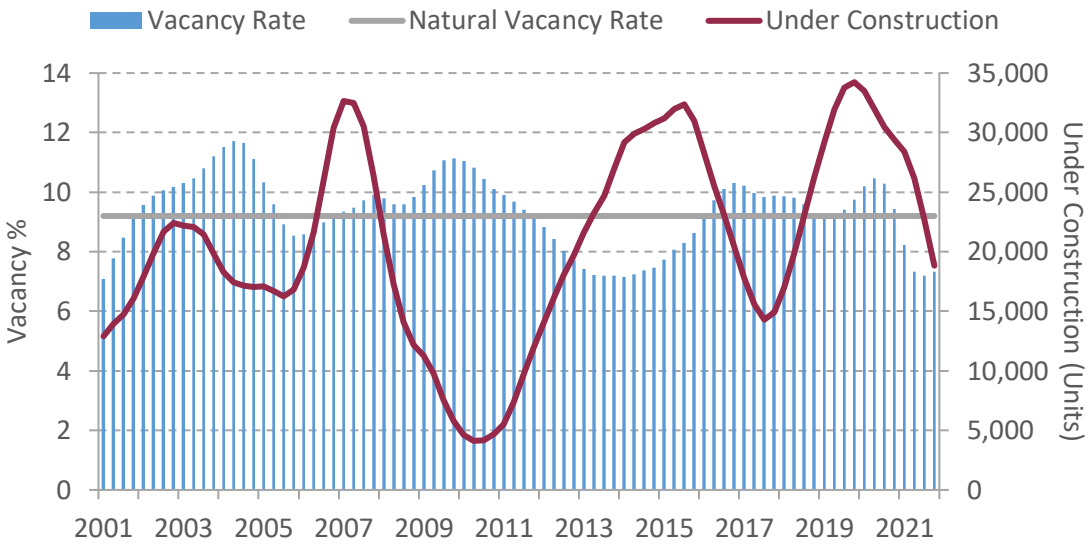
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 16. Houston Overall Net Absorption and Construction Starts Index (SA and TC)*
(Index 2000 Q1 = 100)



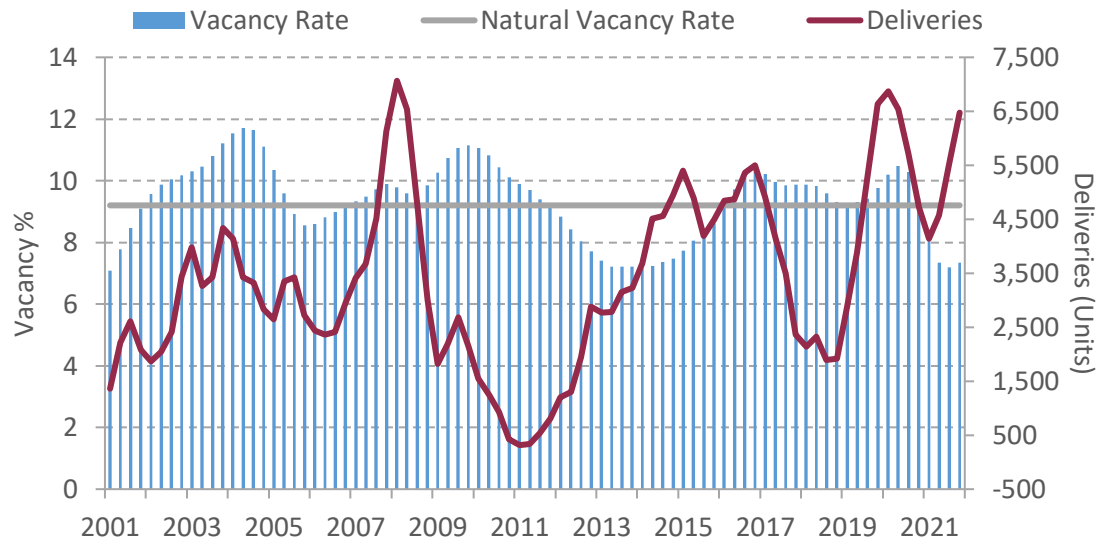
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar, Dodge Analytics, and Real Estate Center at Texas A&M University

Figure 17. Houston Overall Vacancy and Units Under Construction (SA and TC)*



*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 18. Houston Overall Vacancy and Deliveries in Units (SA and TC)*



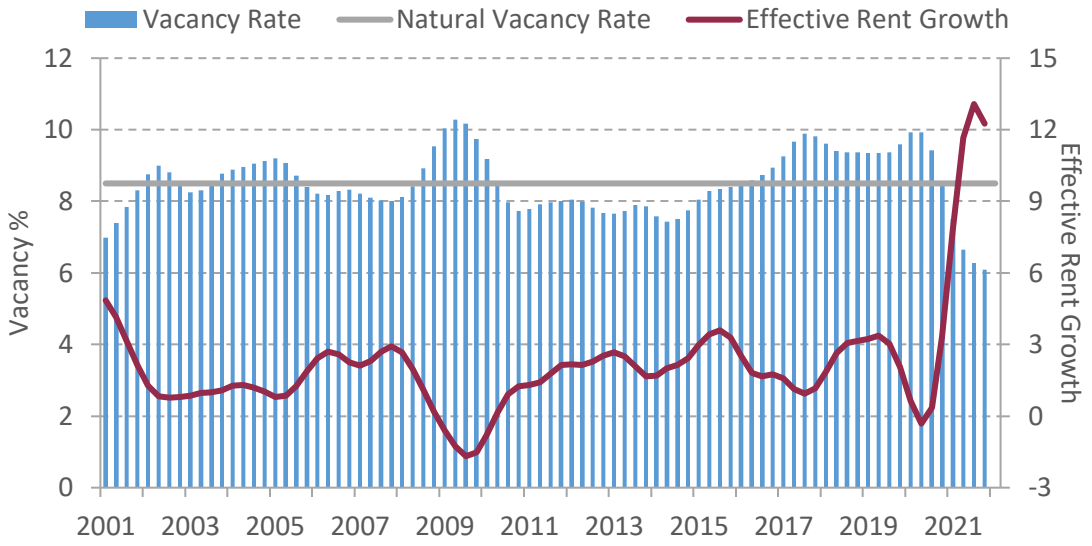
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

San Antonio Overall

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▼ 93.8%	▲ 13.1%	▼ 1,277	▼

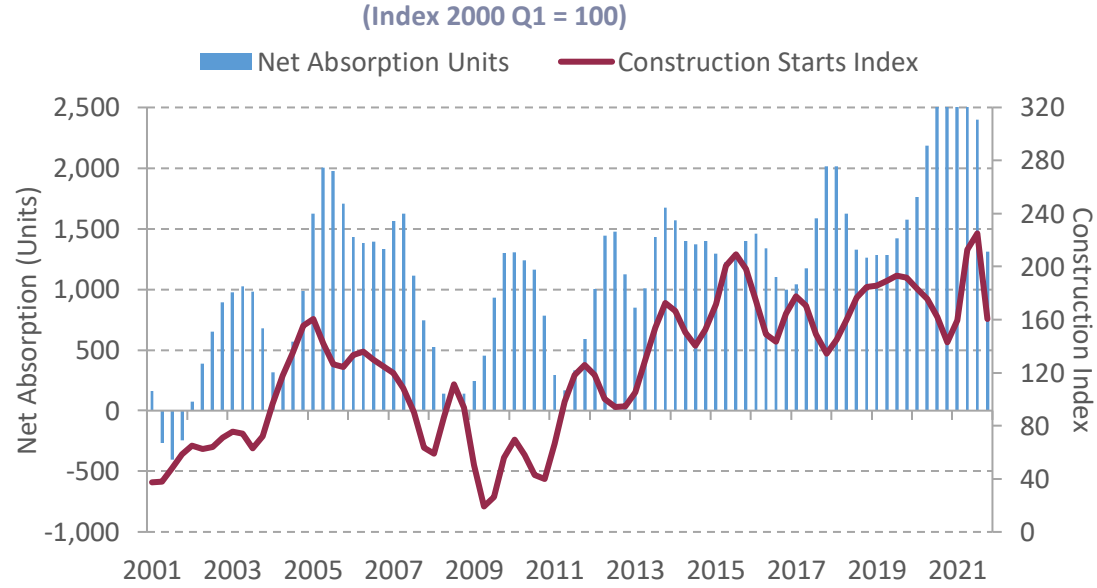
Note: Arrows indicate change from previous quarter with the exception of asking rent growth (change from previous year). Seasonally adjusted data.
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 19. San Antonio Overall Vacancy and Effective Rent Growth (SA and TC)*



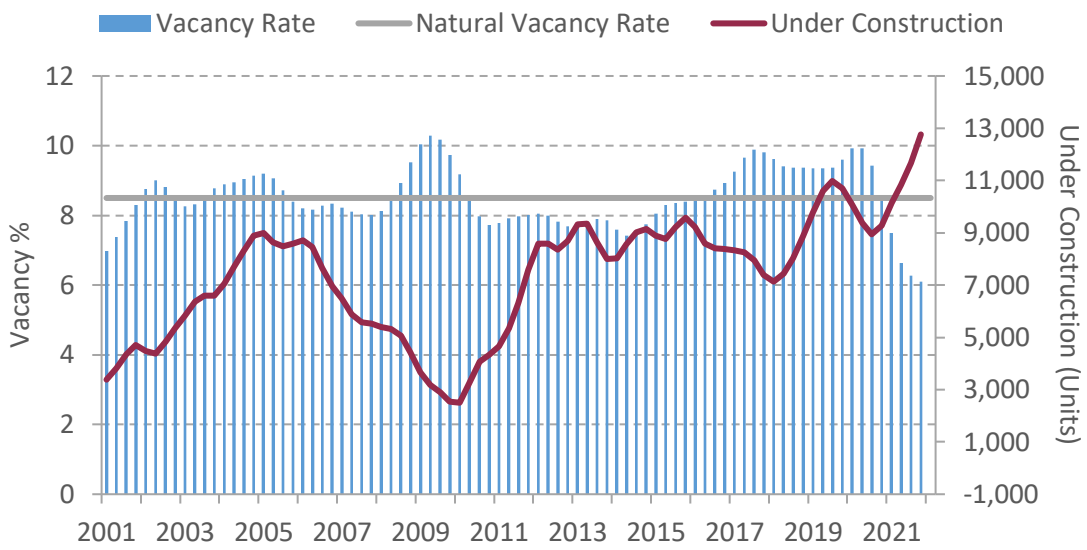
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 20. San Antonio Overall Net Absorption and Construction Starts Index (SA and TC)*



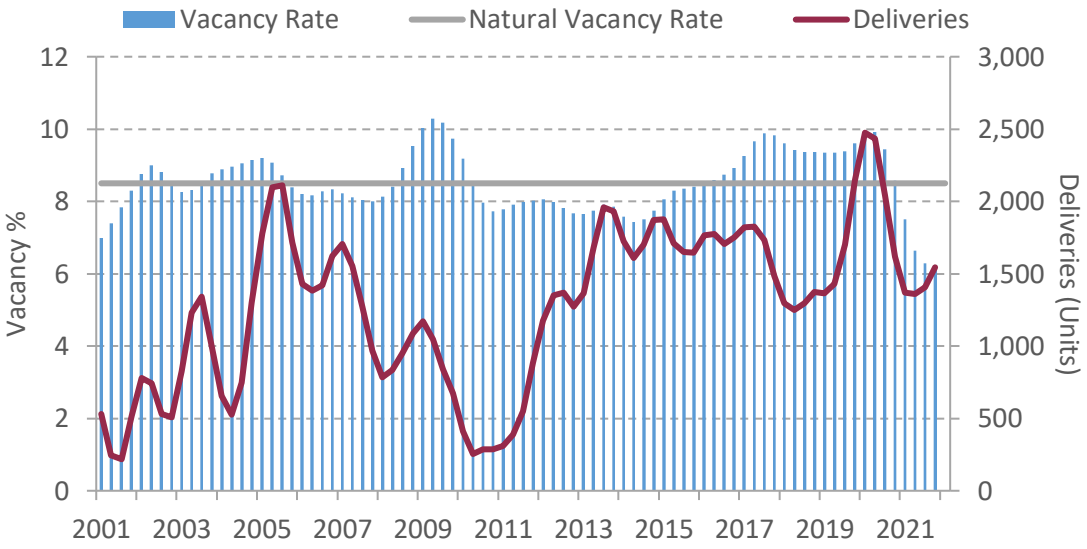
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar, Dodge Analytics, and Real Estate Center at Texas A&M University

Figure 21. San Antonio Overall Vacancy and Units Under Construction (SA and TC)*

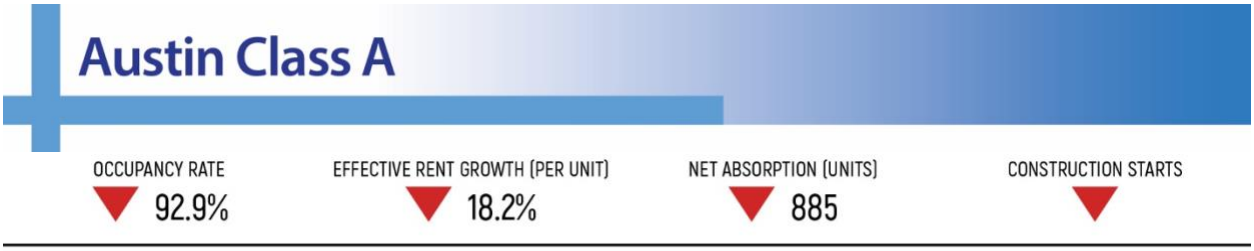


*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 22. San Antonio Overall Vacancy and Deliveries in Units (SA and TC)*

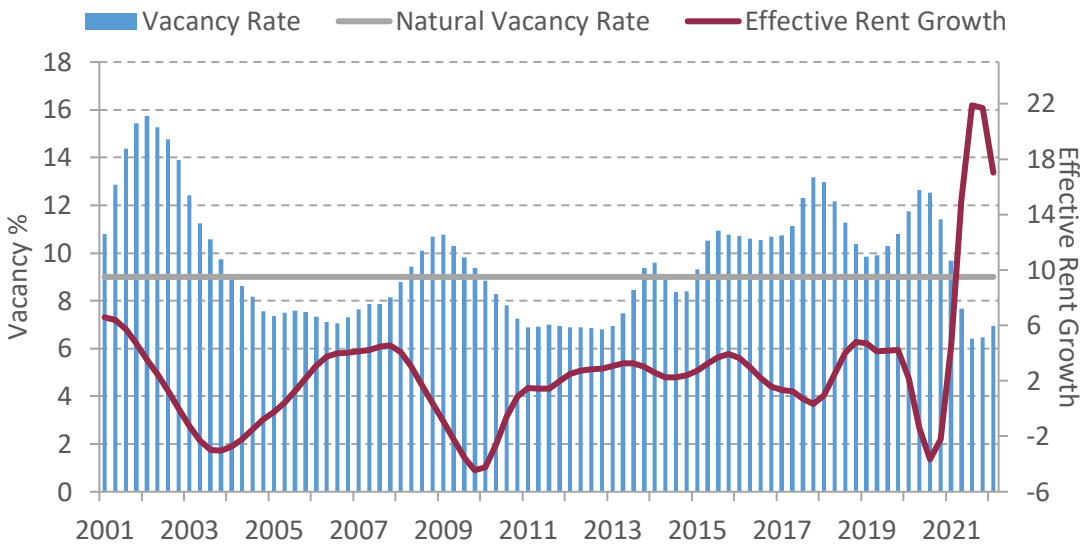


*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University



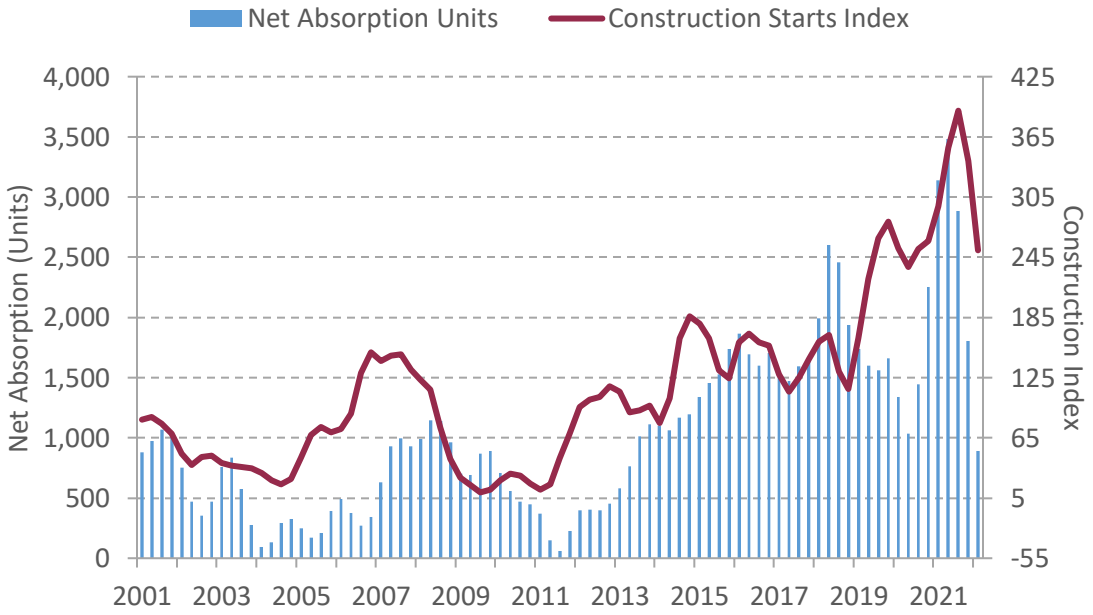
Note: Arrows indicate change from previous quarter with the exception of asking rent growth (change from previous year). Seasonally adjusted data.
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 23. Austin Class A Vacancy and Effective Rent Growth (SA and TC)*



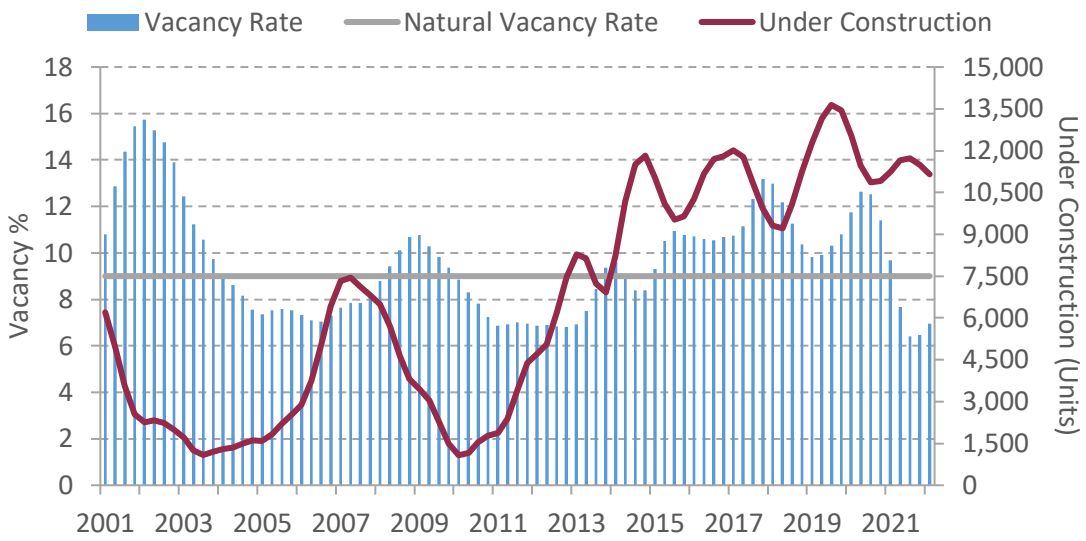
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 24. Austin Class A Net Absorption and Construction Starts Index (SA and TC)*
(Index 2000 Q1 = 100)



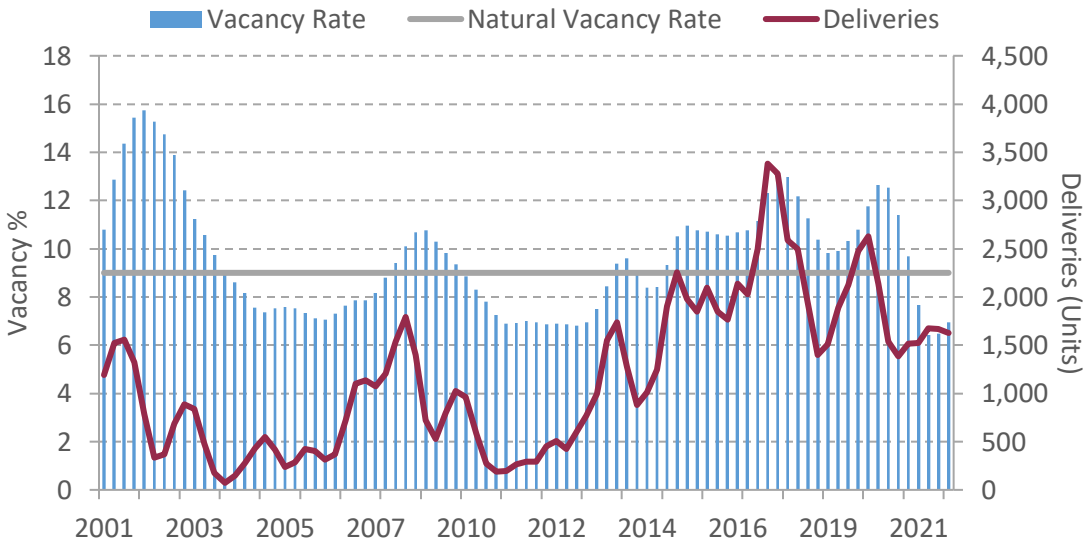
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar, Dodge Analytics, and Real Estate Center at Texas A&M University

Figure 25. Austin Class A Vacancy and Units Under Construction (SA and TC)*



*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 26. Austin Class A Vacancy and Deliveries in Units (SA and TC)*



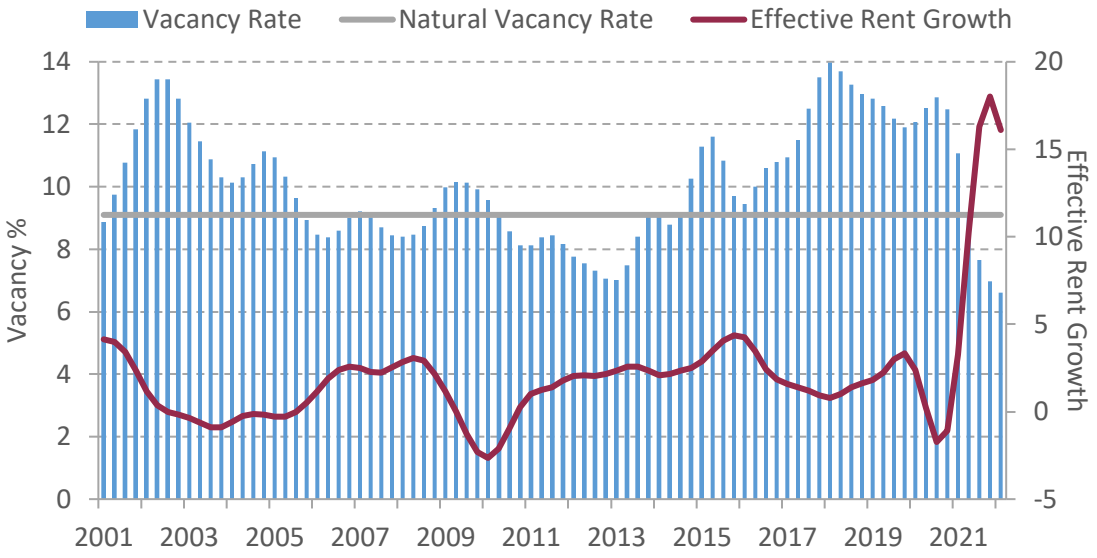
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Dallas-Fort Worth Class A

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
93.1%	17.3%	1,950	

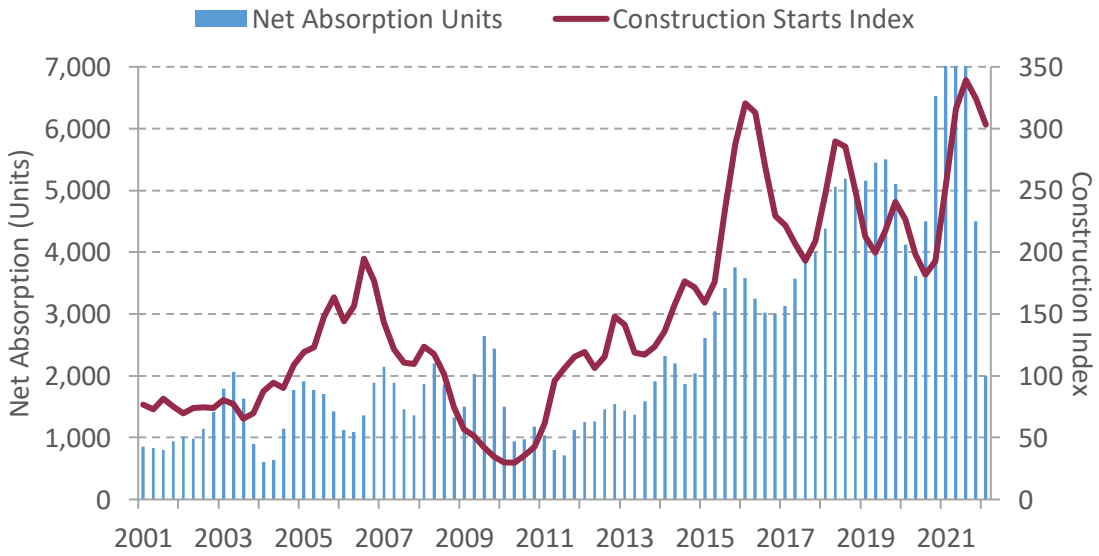
Note: Arrows indicate change from previous quarter with the exception of asking rent growth (change from previous year). Seasonally adjusted data.
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 27. DFW Class A Vacancy and Effective Rent Growth (SA and TC)*



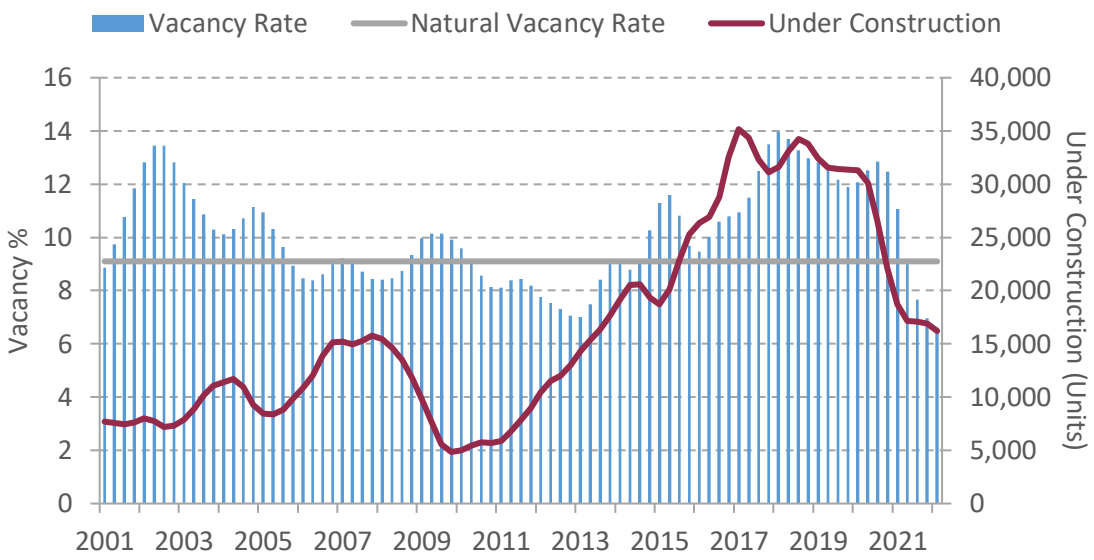
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 28. DFW Class A Net Absorption and Construction Starts Index (SA and TC)*
(Index 2000 Q1 = 100)



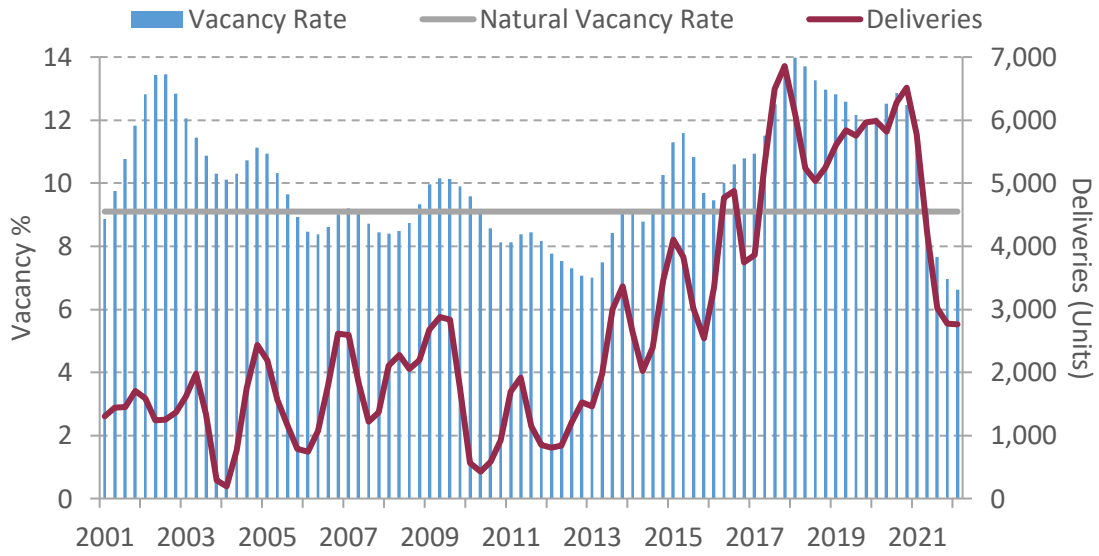
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar, Dodge Analytics, and Real Estate Center at Texas A&M University

Figure 29. DFW Class A Vacancy and Units Under Construction (SA and TC)*



*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 30. DFW Class A Vacancy and Deliveries in Units (SA and TC)*



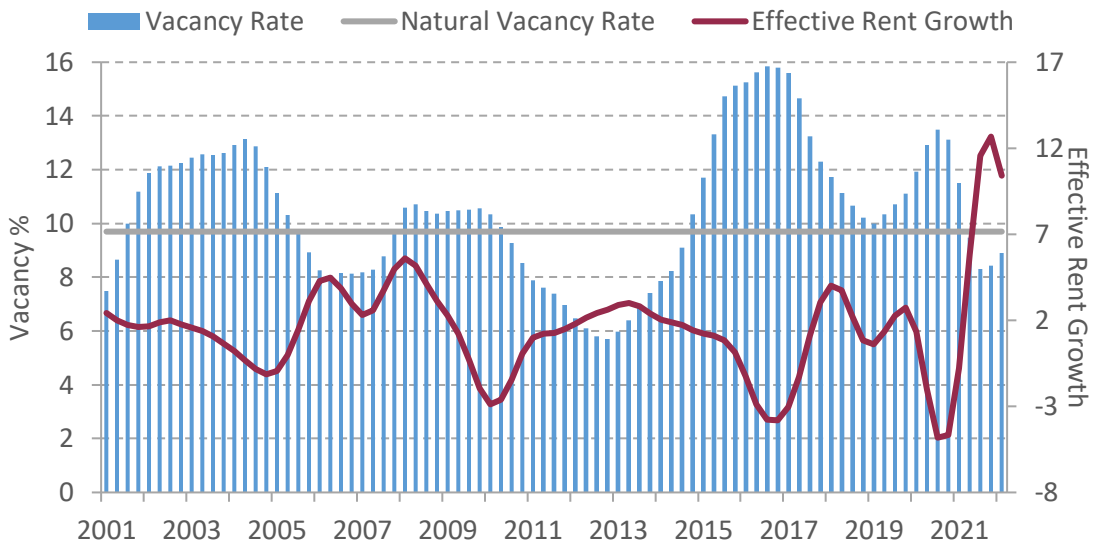
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Houston Class A

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▼ 91.0%	▼ 11.7%	▼ 1,106	▲

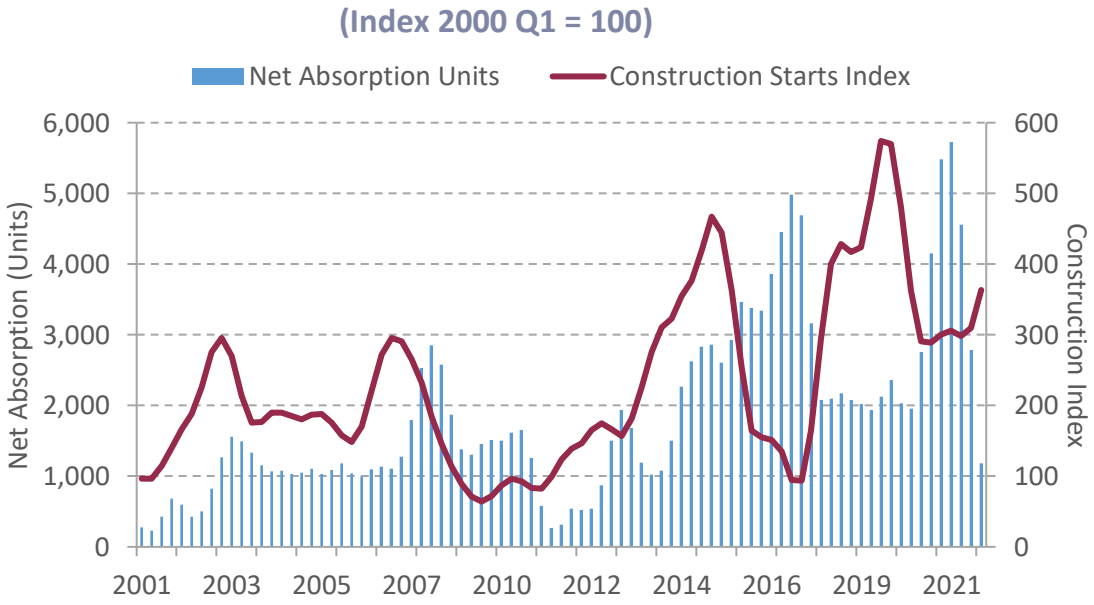
Note: Arrows indicate change from previous quarter with the exception of asking rent growth (change from previous year). Seasonally adjusted data.
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 31. Houston Class A Vacancy and Effective Rent Growth (SA and TC)*



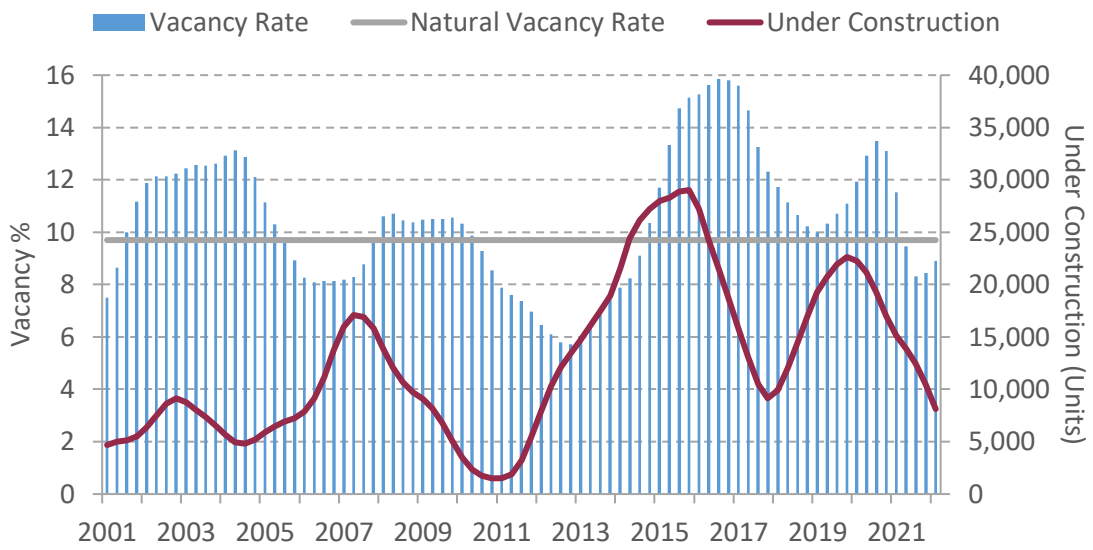
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 32. Houston Class A Net Absorption and Construction Starts Index (SA and TC)*



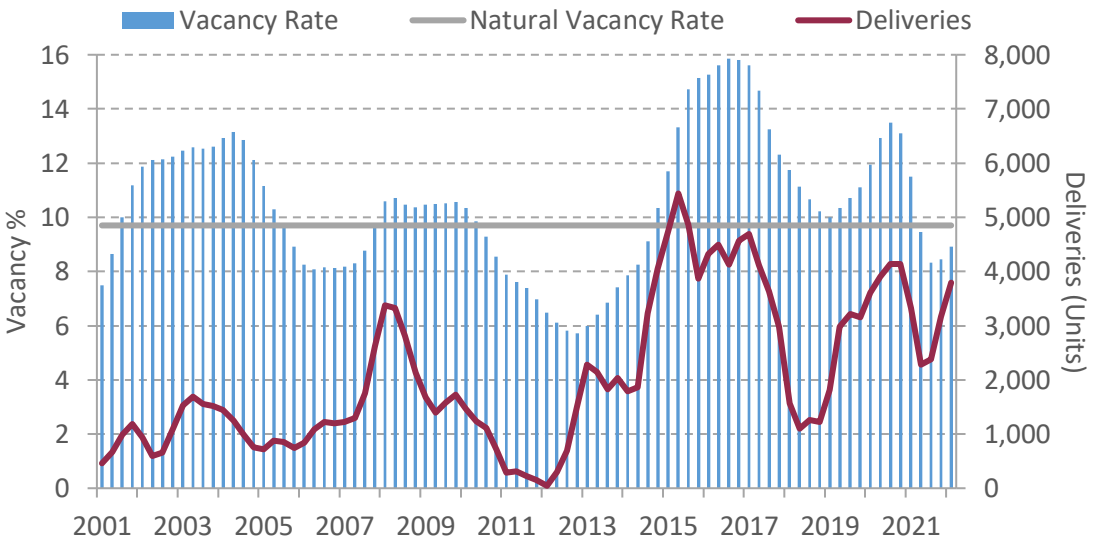
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar, Dodge Analytics, and Real Estate Center at Texas A&M University

Figure 33. Houston Class A Vacancy and Units Under Construction (SA and TC)*



*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 34. Houston Class A Vacancy and Deliveries in Units (SA and TC)*



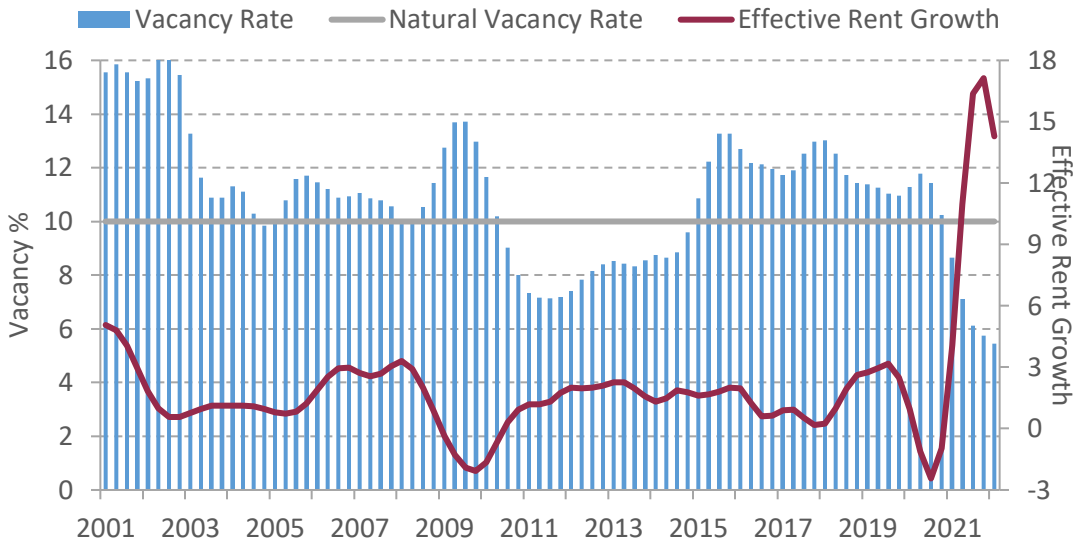
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

San Antonio Class A

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▲ 94.6%	▼ 15.4%	▼ 722	▼

Note: Arrows indicate change from previous quarter with the exception of asking rent growth (change from previous year). Seasonally adjusted data.
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

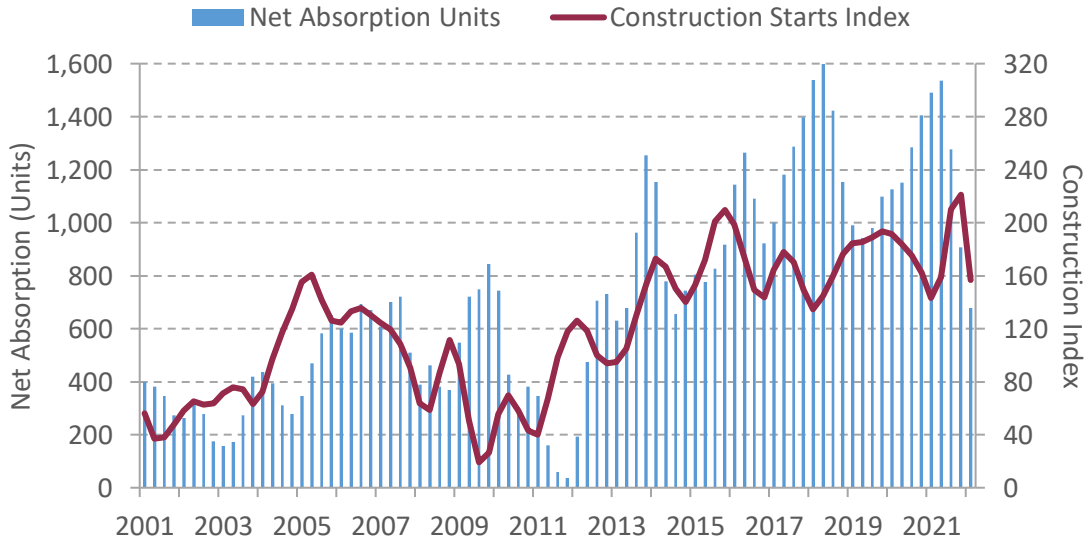
Figure 35. San Antonio Class A Vacancy and Effective Rent Growth (SA and TC)*



*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

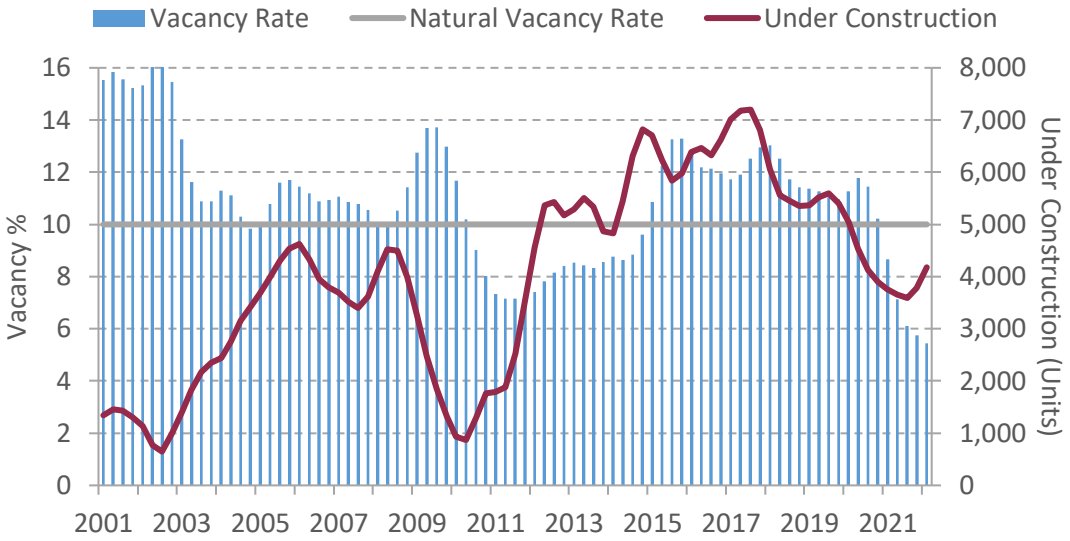
Figure 36. San Antonio Class A Net Absorption and Construction Starts Index (SA and TC)*

(Index 2000 Q1 = 100)



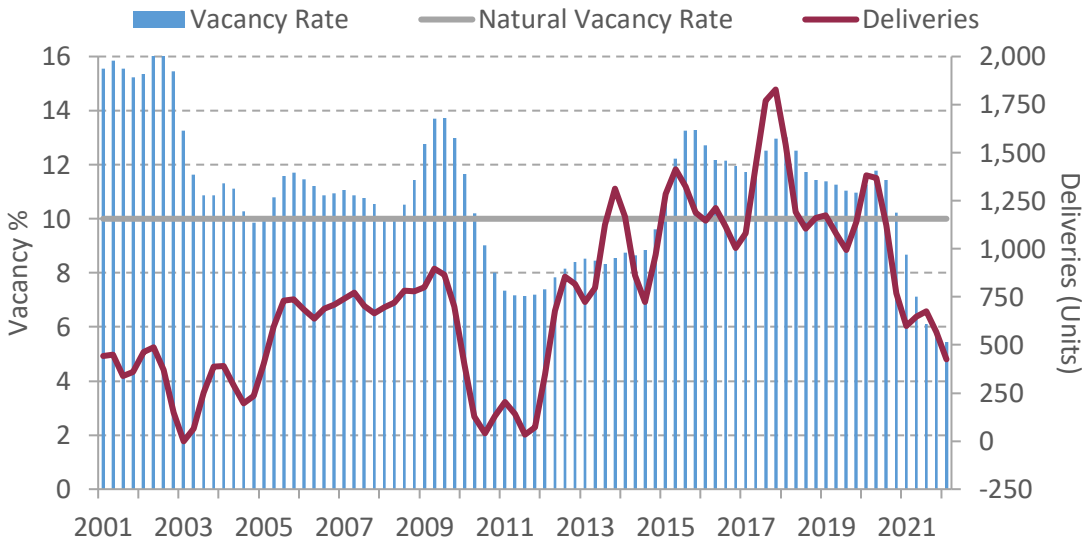
*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar, Dodge Analytics, and Real Estate Center at Texas A&M University

Figure 37. San Antonio Class A Vacancy and Units Under Construction (SA and TC)*



*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Figure 38. San Antonio Class A Vacancy and Deliveries in Units (SA and TC)*

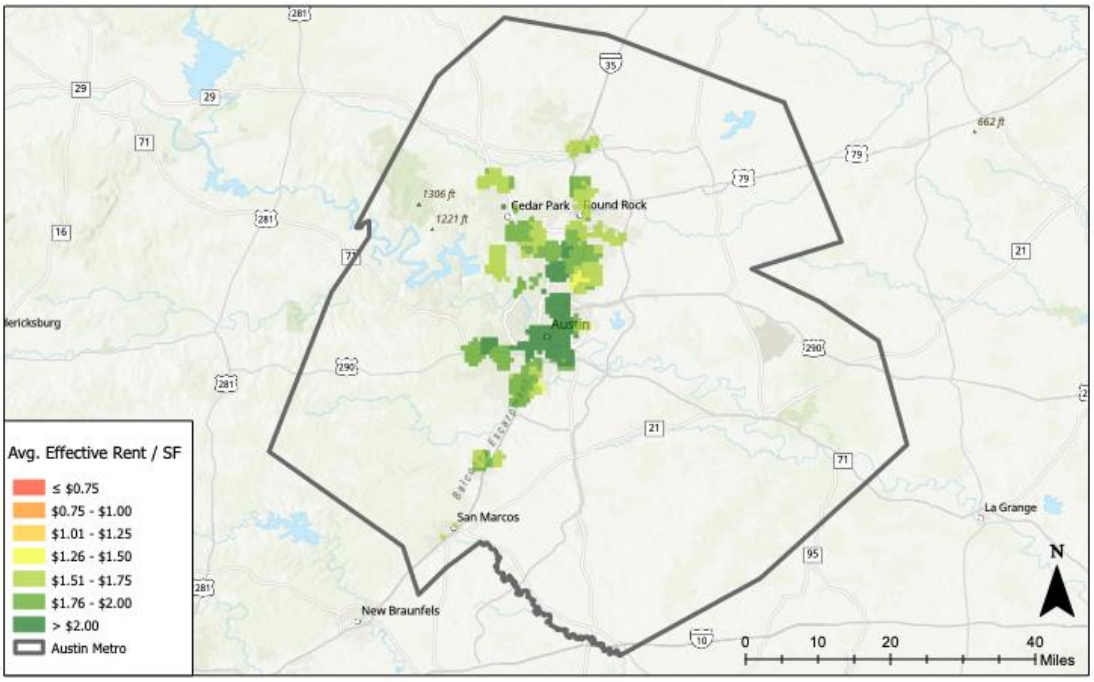


*Note: Seasonally adjusted and trend-cycle component.
Sources: CoStar and Real Estate Center at Texas A&M University

Maps

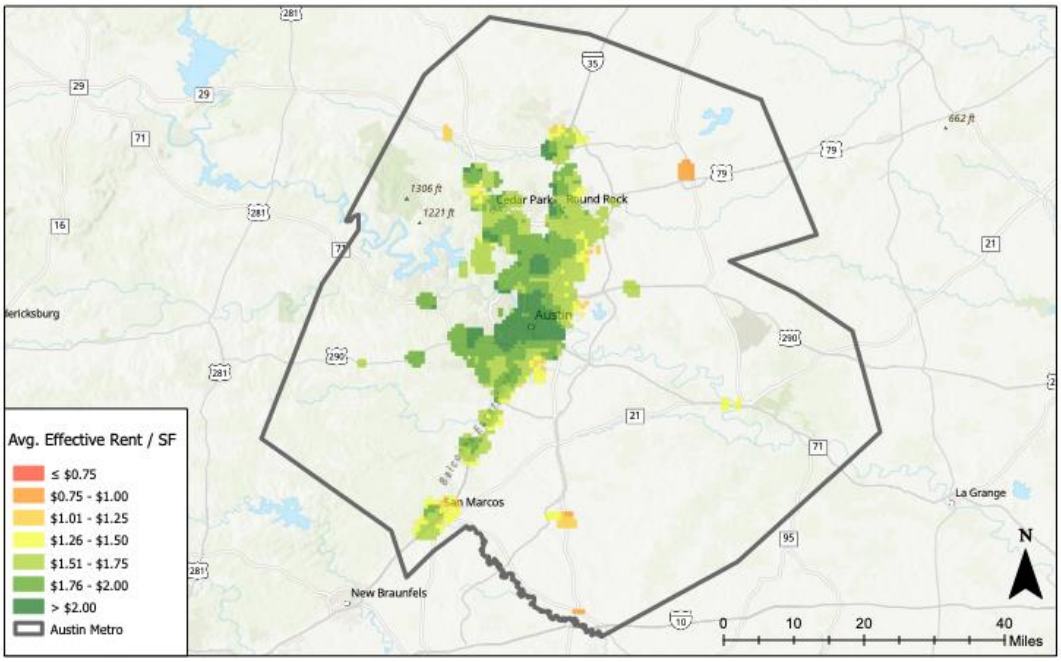
For technical details of Texas metropolitan area apartment mapping project, click here.

Average Effective Rent / SF of Austin Class A Multifamily Buildings



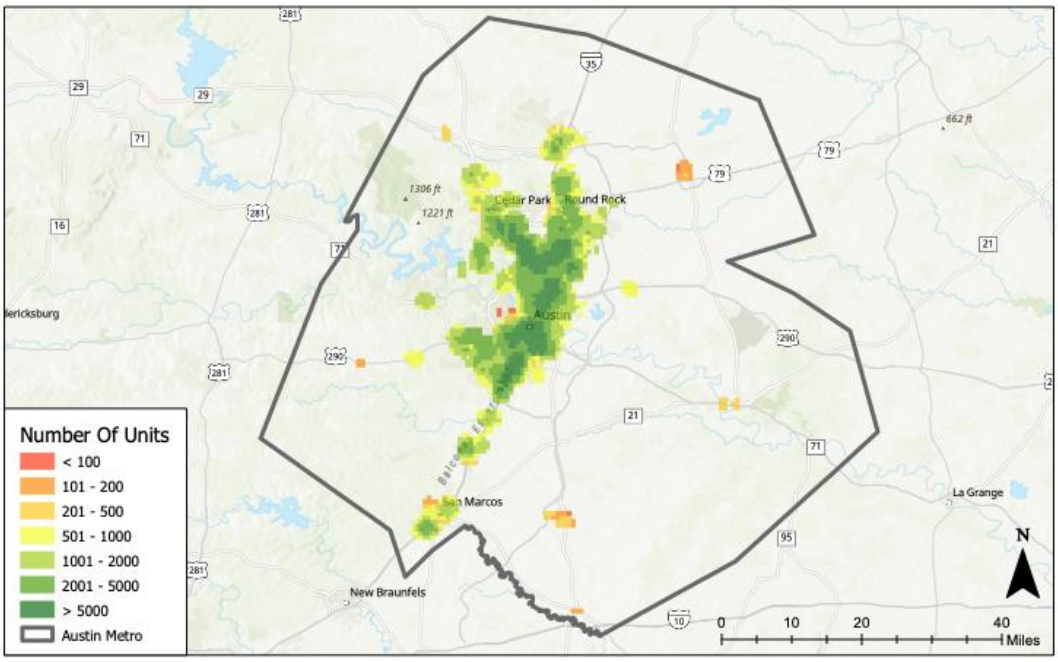
Sources: CoStar, U.S. Census Bureau, Austin Community College, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, NGA

Average Effective Rent / SF of Austin Multifamily Buildings



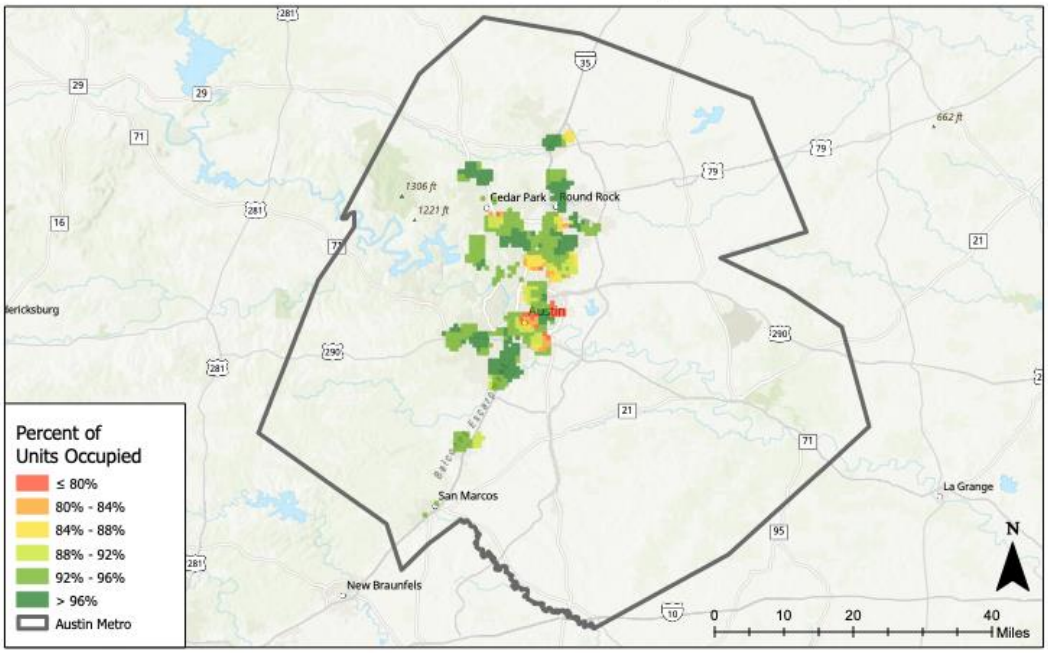
Sources: CoStar, U.S. Census Bureau, Austin Community College, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, NGA

Number of Units of Austin Multifamily Buildings



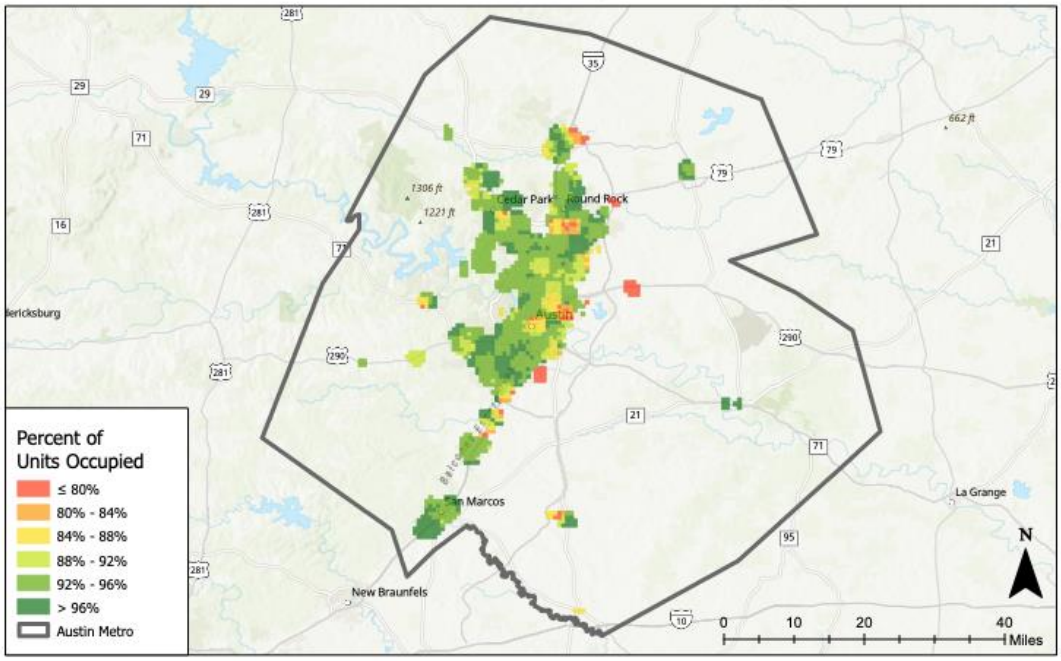
Sources: CoStar, U.S. Census Bureau, Austin Community College, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, NGA

Occupancy of
Austin Class A Multifamily Buildings



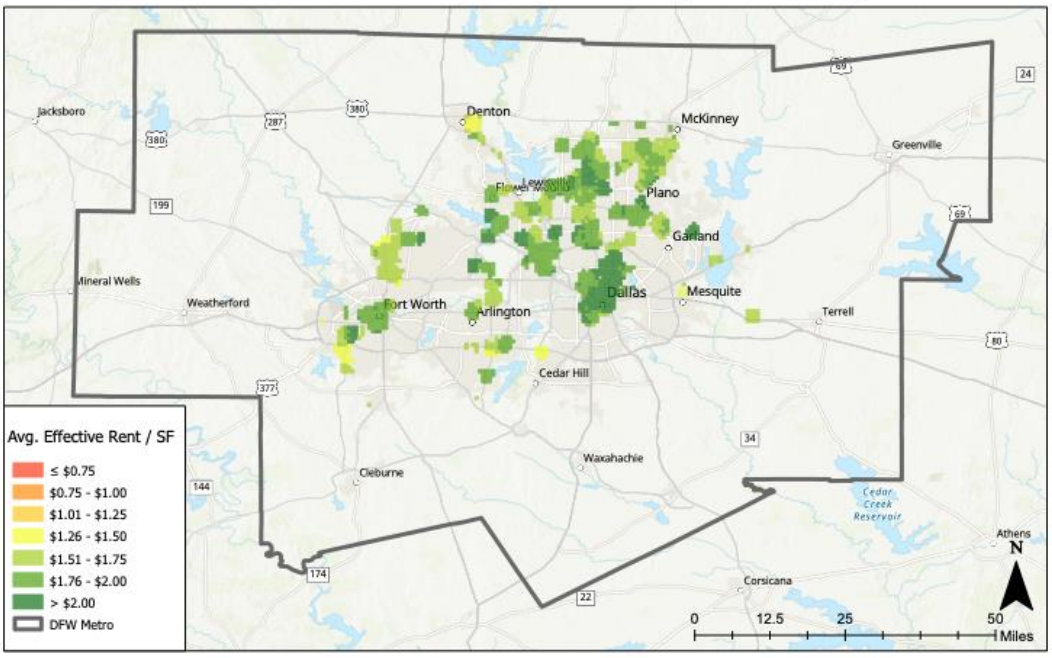
Sources: CoStar, U.S. Census Bureau, Austin Community College, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, NGA

Occupancy of
Austin Multifamily Buildings



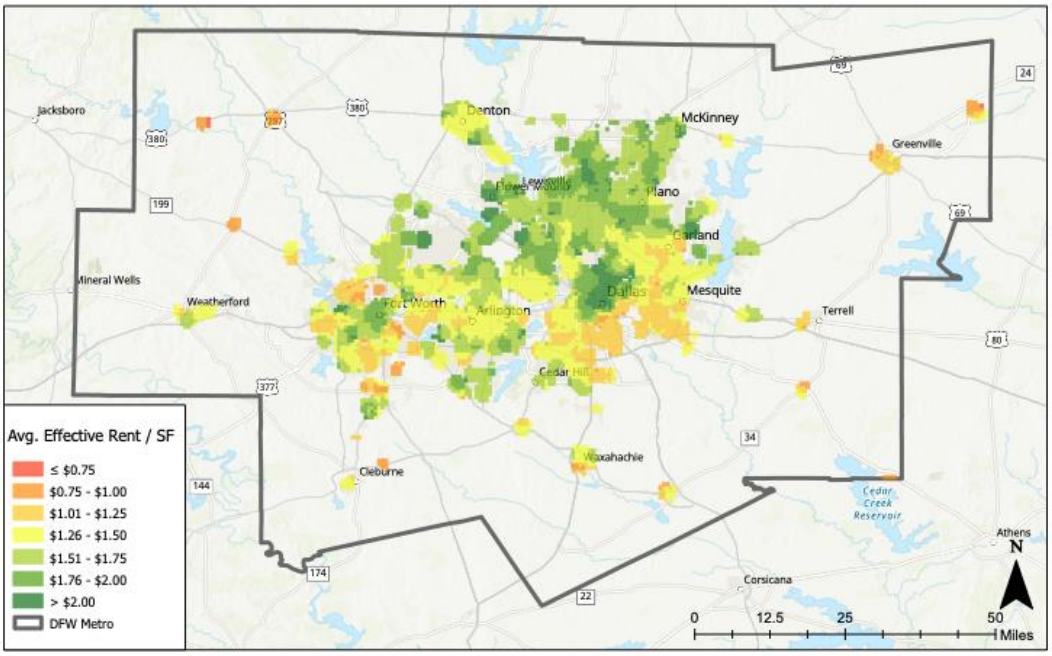
Sources: CoStar, U.S. Census Bureau, Austin Community College, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, NGA

Average Effective Rent / SF of DFW Class A Multifamily Buildings



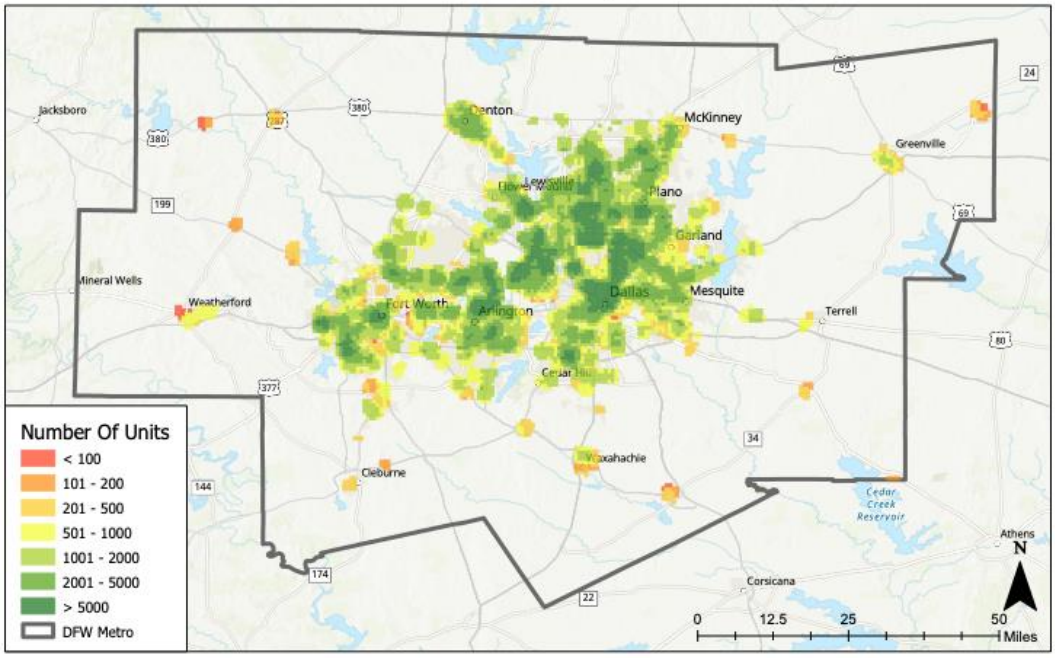
Sources: CoStar, U.S. Census Bureau, Esri. METI/NASA, USGS, Baylor University, Texas Parks & Wildlife, CONANP, HERE, Garmin, SafeGraph, FAO, EPA, NPS

Average Effective Rent / SF of DFW Multifamily Buildings



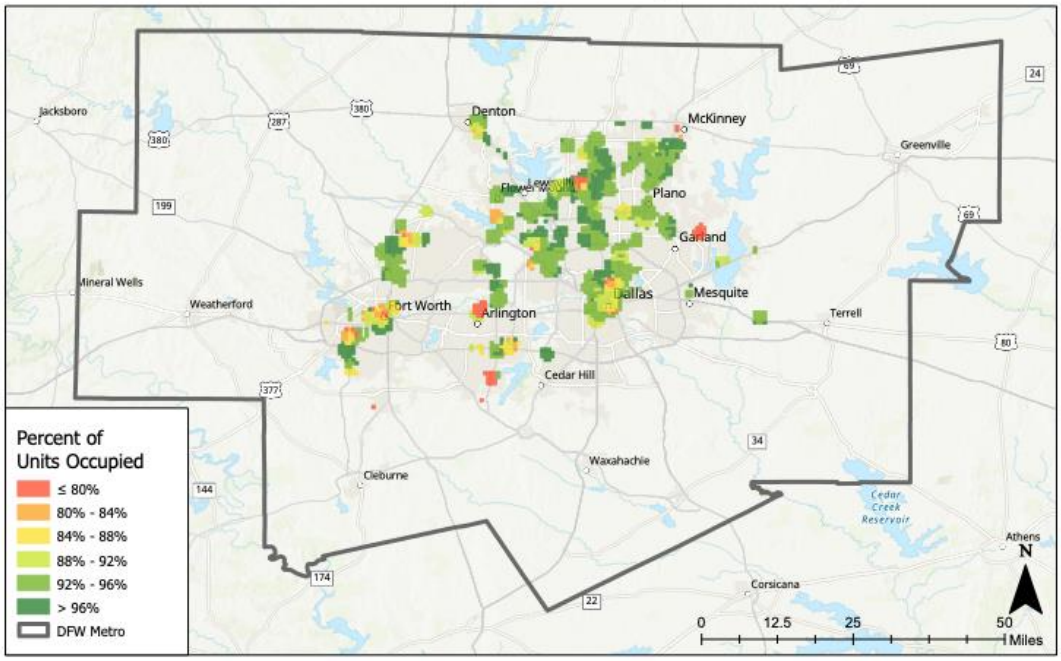
Sources: CoStar, U.S. Census Bureau, Esri. METI/NASA, USGS, Baylor University, Texas Parks & Wildlife, CONANP, HERE, Garmin, SafeGraph, FAO, EPA, NPS

Number of Units of DFW Multifamily Buildings



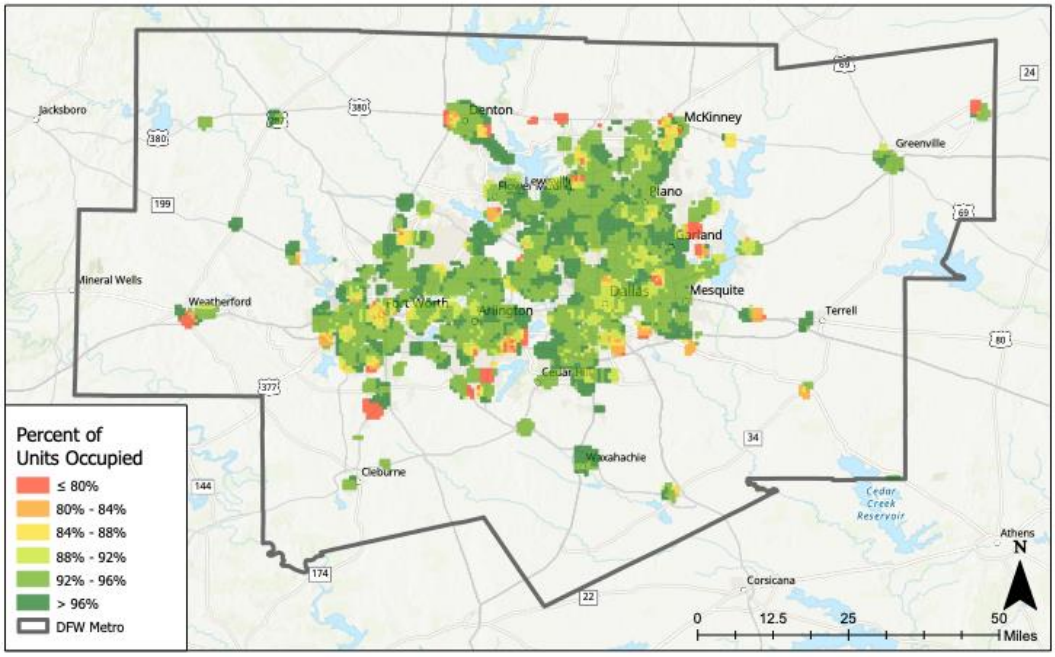
Sources: CoStar, U.S. Census Bureau, Esri. METI/NASA, USGS, Baylor University, Texas Parks & Wildlife, CONANP, HERE, Garmin, SafeGraph, FAO, EPA, NPS

Occupancy of DFW Class A Multifamily Buildings



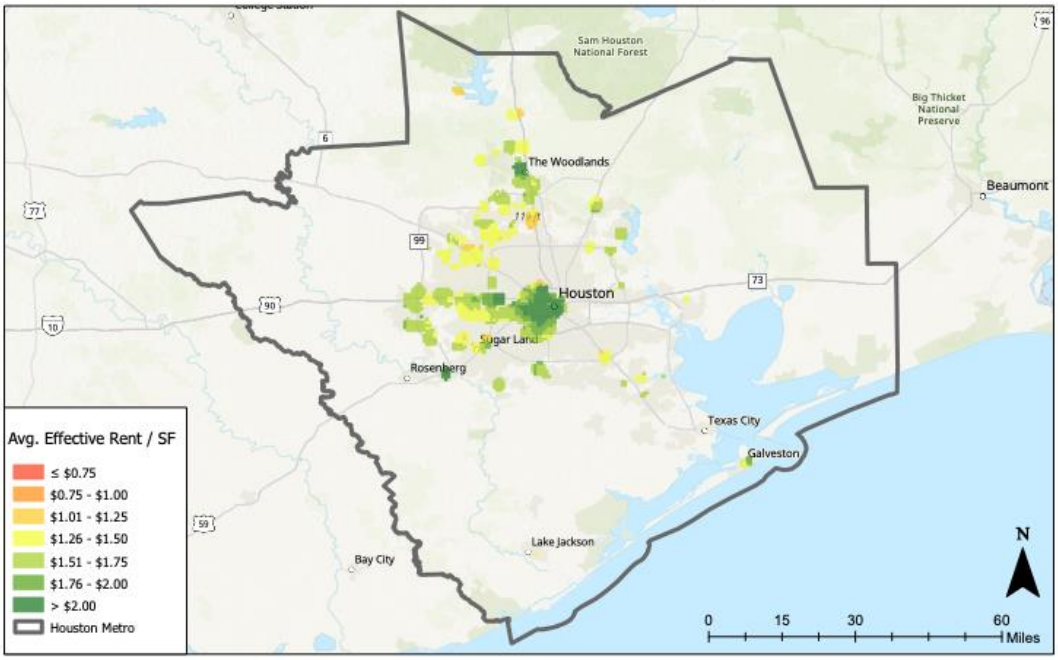
Sources: CoStar, U.S. Census Bureau, Esri. METI/NASA, USGS, Baylor University, Texas Parks & Wildlife, CONANP, HERE, Garmin, SafeGraph, FAO, EPA, NPS

Occupancy of DFW Multifamily Buildings



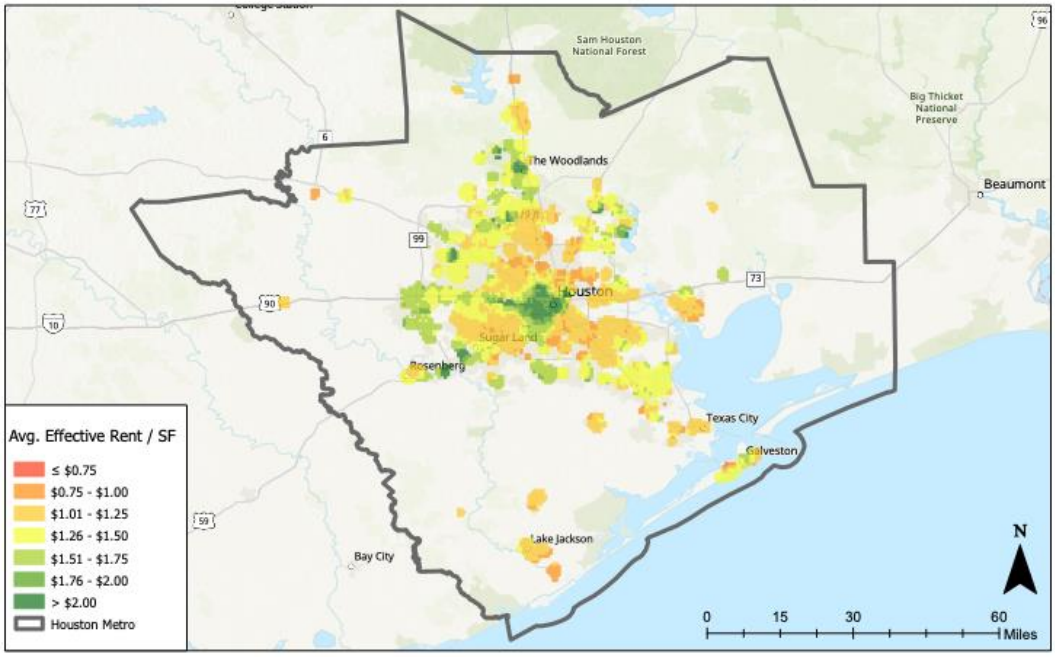
Sources: CoStar, U.S. Census Bureau, Esri. METI/NASA, USGS, Baylor University, Texas Parks & Wildlife, CONANP, HERE, Garmin, SafeGraph, FAO, EPA, NPS

Average Effective Rent / SF of Houston Class A Multifamily Buildings



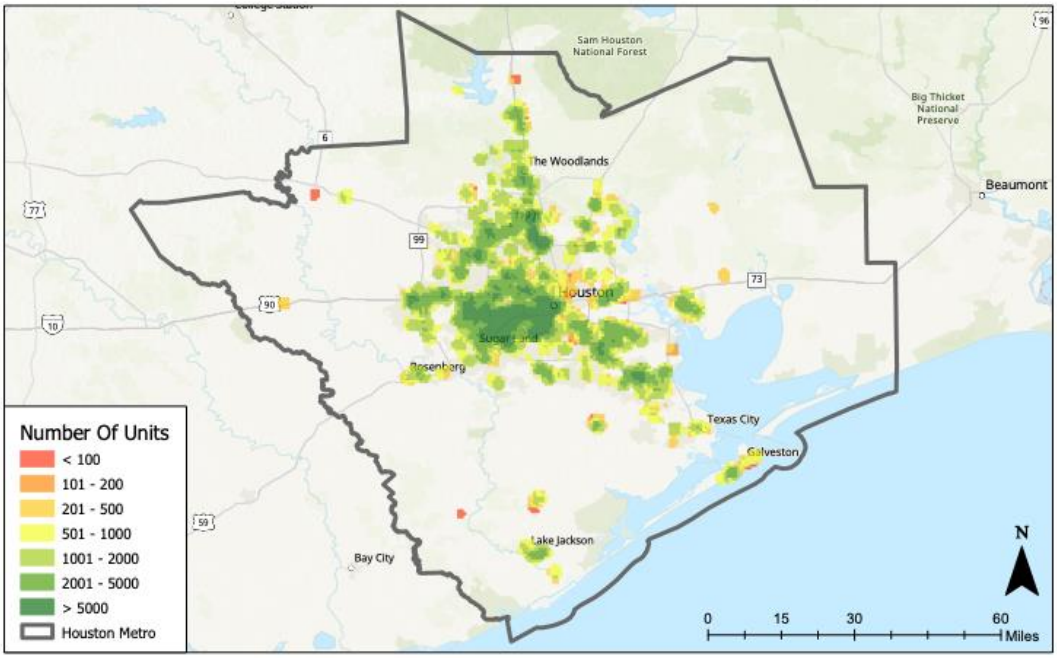
Sources: CoStar, U.S. Census Bureau, City of Houston, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, CGIAR

Average Effective Rent / SF of Houston Multifamily Buildings



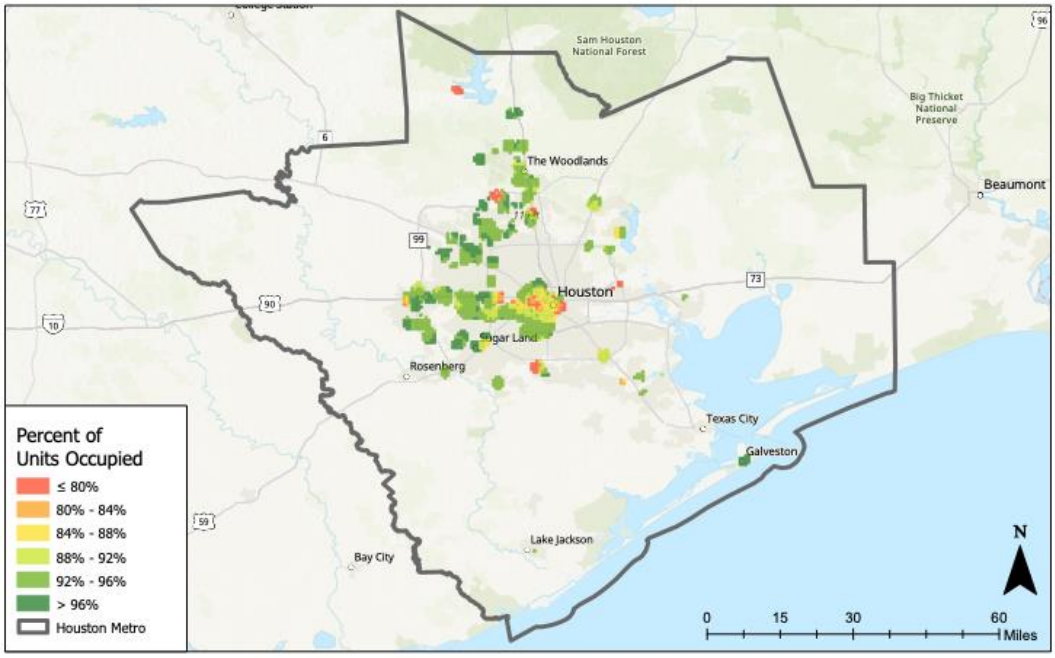
Sources: CoStar, U.S. Census Bureau, City of Houston, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, CGIAR

Number of Units of Houston Multifamily Buildings



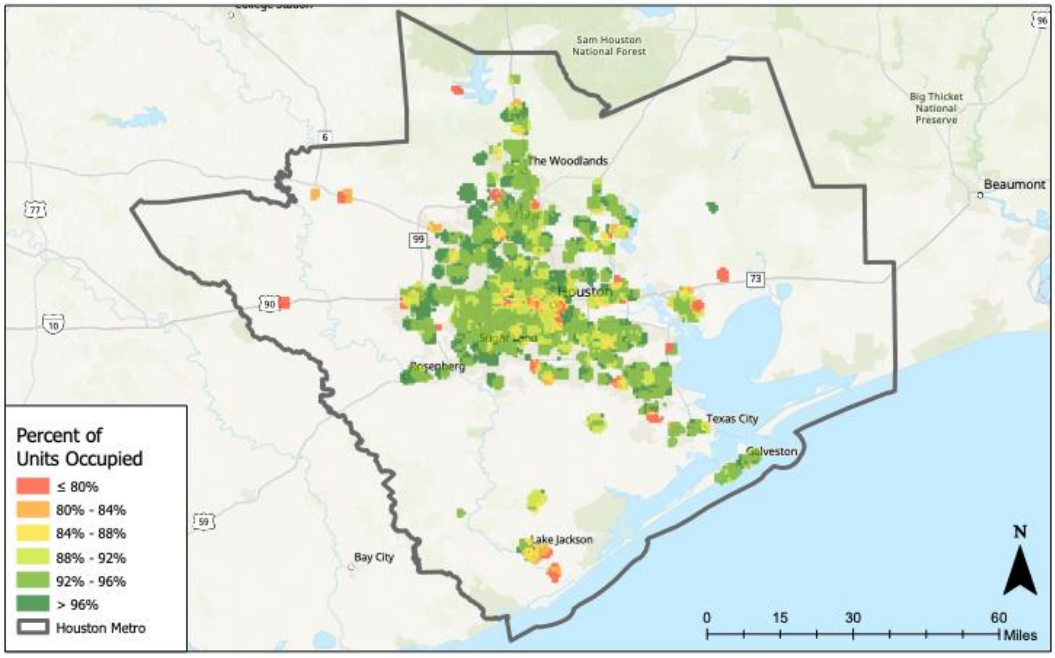
Sources: CoStar, U.S. Census Bureau, City of Houston, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, CGIAR

Occupancy of
Houston Class A Multifamily Buildings



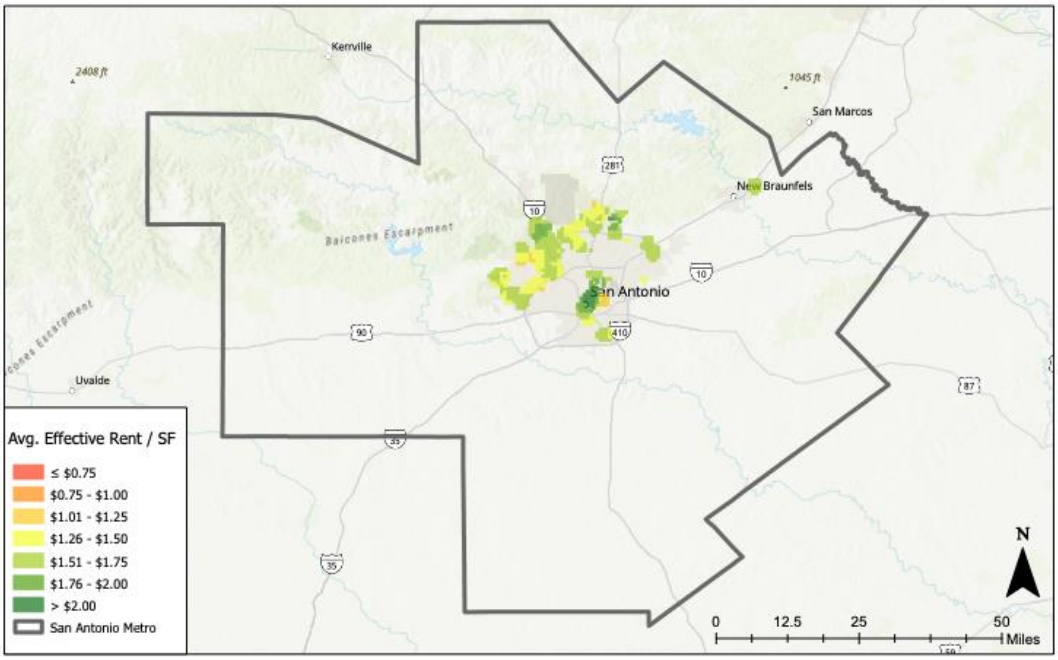
Sources: CoStar, U.S. Census Bureau, City of Houston, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, CGIAR

Occupancy of
Houston Multifamily Buildings



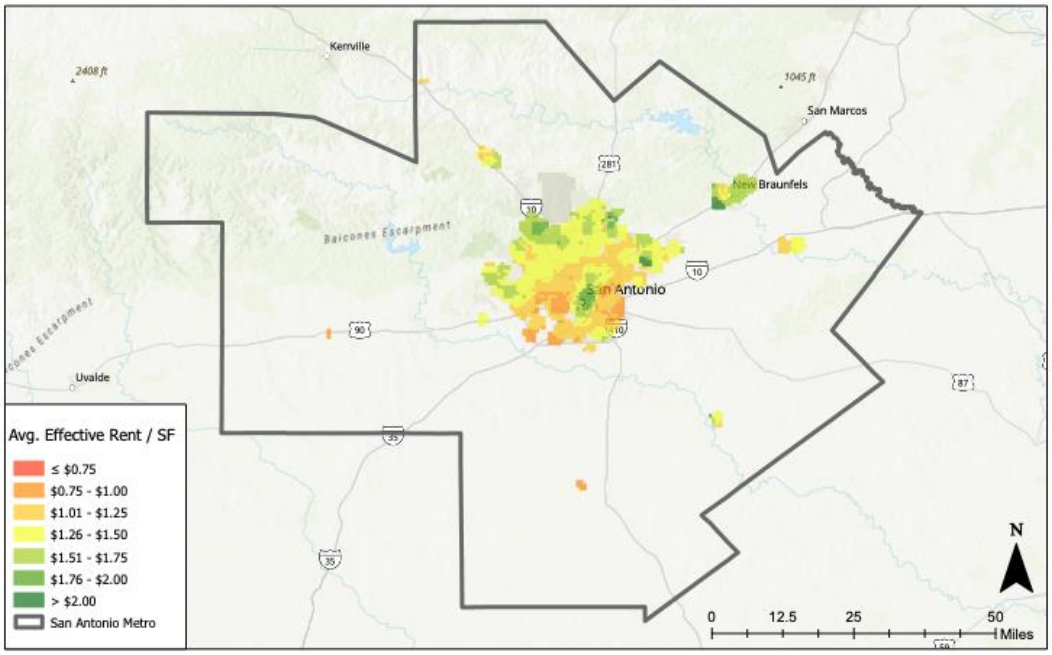
Sources: CoStar, U.S. Census Bureau, City of Houston, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, CGIAR

Average Effective Rent / SF of San Antonio Class A Multifamily Buildings



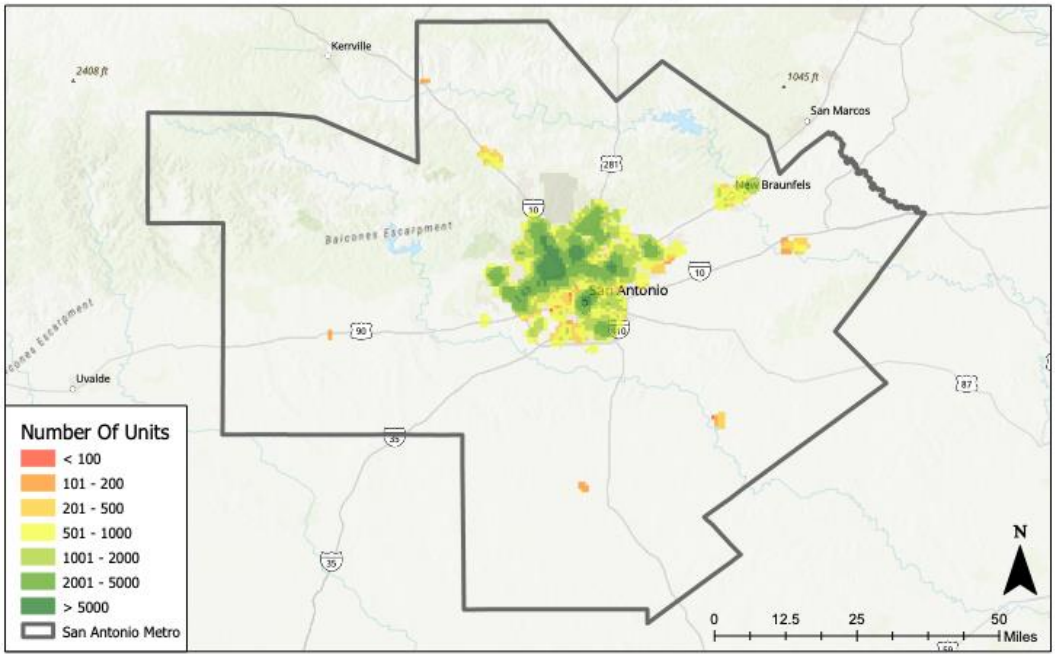
Sources: CoStar, U.S. Census Bureau, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, NASA

Average Effective Rent /SF of San Antonio Multifamily Buildings



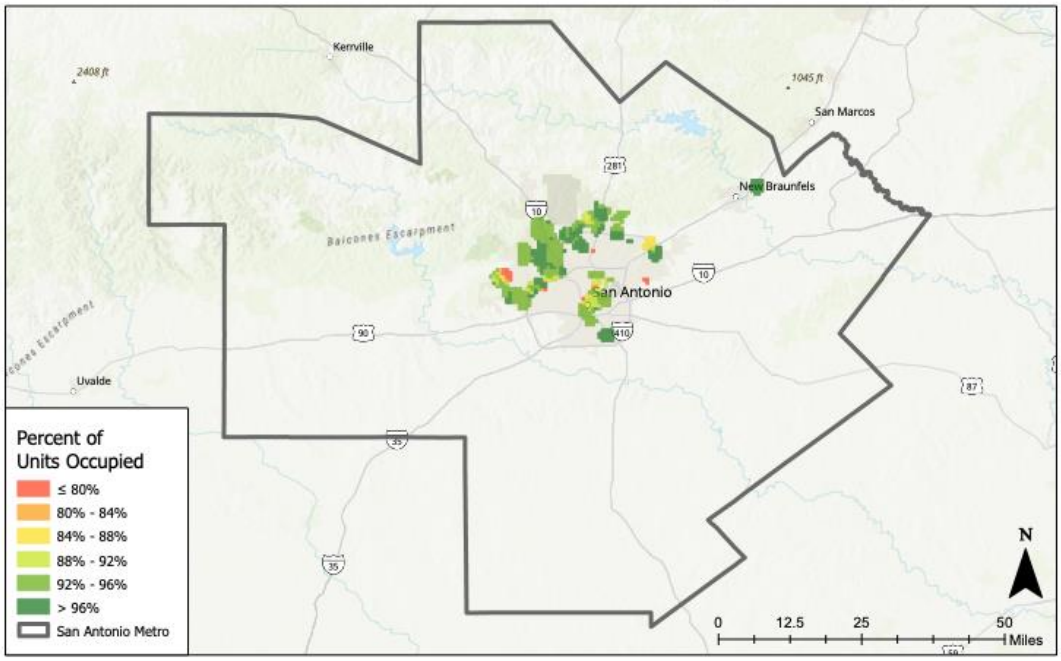
Sources: CoStar, U.S. Census Bureau, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, NASA

Number of Units of San Antonio Multifamily Buildings



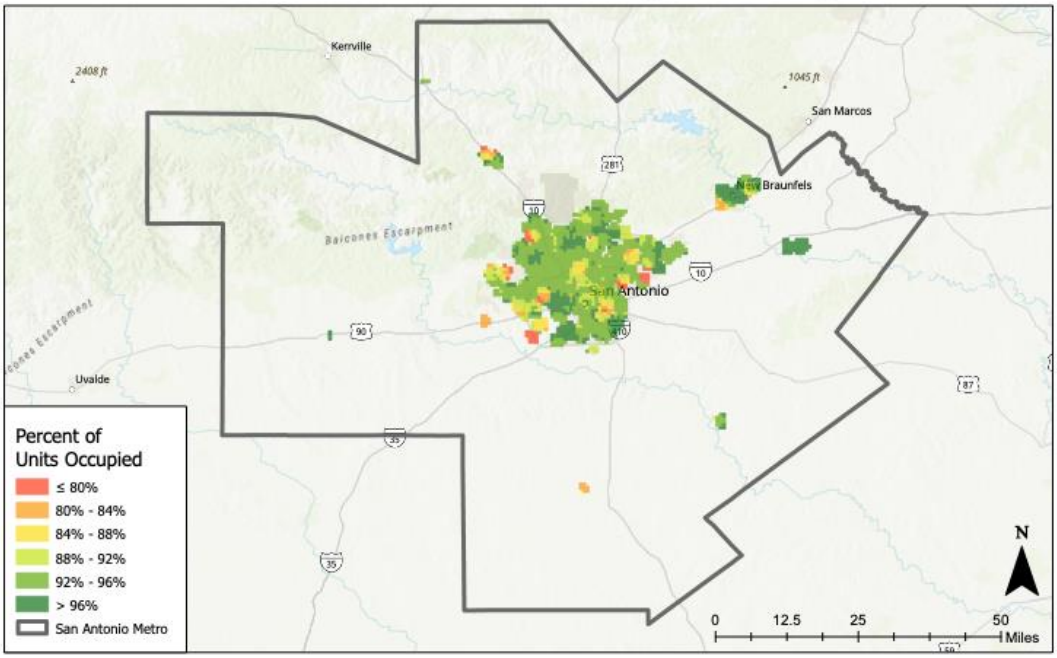
Sources: CoStar, U.S. Census Bureau, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, NASA

Occupancy of San Antonio Class A Multifamily Buildings



Sources: CoStar, U.S. Census Bureau, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, NASA

Occupancy of
San Antonio Multifamily Buildings



Sources: CoStar, U.S. Census Bureau, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, NASA

Definitions

Capitalization rate/cap rate:

The cap rate is computed by dividing expected net operating income (NOI) generated from the property by the current property value (V) and expressing it as a percentage. NOI is rent minus the owner's share of expenses, such as taxes, insurance, maintenance, and management costs. Mortgage costs and any other costs of financing are not included in expenses.

In general, the higher the cap rate, the higher the risk. Investors compare cap rates for potential projects with their cost of funds when selecting investment projects, considering only those investments where the cap rates exceed the cost of funds.

Risk can be estimated by computing the "spread," the difference between the cap rate and some risk-free rate. Because commercial real estate investments are expected to generate streams of income over a long period, investors commonly use the U.S. ten-year Treasury rate as a risk-free rate.

Construction Starts Index: Reflects the dollar value of construction starts in relation to a specified base year (1Q2000) and is a precursor to future units under construction.

Dodge Analytics tracks commercial construction start figures as soon as a new project kicks off to estimate its total construction "value," which is essentially total construction cost. We realize some real estate professionals may question whether calling the total dollars to be spent on a project's "construction value" equates to its "market value" at completion. However, for consistency, this report will use Dodge's terminology.

Effective rents: Leases typically dictate this amount to be paid monthly.

Natural and actual vacancy:

The natural vacancy rate represents the point at which zero real (inflation-adjusted) rent growth will occur. Natural vacancy reflects the level to which vacancy rates adjust over the long term.

The actual vacancy rate reflects the seasonally adjusted and trend-cycled natural vacancy rate. The actual vacancy rate smooths the raw data by removing fluctuations created by seasonal and time trends.

Natural vacancies for the possibility of new construction are calculated separately using historical construction data. The calculated natural vacancies were compared with the actual vacancies to estimate whether new development should be expected in the various commercial real estate markets. When actual vacancy in a local market falls below natural vacancy, developers may consider building new space.

A comparison of natural vacancy and actual vacancy along with historical vacancy trends allows researchers to anticipate the direction of commercial real estate (CRE) rental rates in real terms. When actual vacancy in a local market falls below (rises above) natural vacancy, building managers may consider increasing (decreasing) rents.

Aggregate natural vacancy in an overall market may not reflect the trigger vacancy rate an individual CRE professional uses to make decisions affecting a specific property or project. However, these measures indicate the direction of rents and new construction.

Net Absorption: The net change in occupied space, measured in units, over a given period. Net absorption reflects the amount of space occupied as well as the amount of space vacated.

Nominal: Value or rate that reflects current prices or rates, without adjusting for inflation.

Seasonal Adjustment: A statistical method for removing the seasonal component of a time series that exhibits a seasonal pattern.

Trend-cycle component: Removes the effects of accumulating data sets from a trend to show only the absolute changes in values and to allow potential cyclical patterns to be identified.

Under Construction: Reflects the number of units under construction within a particular market; applies to buildings that have not received a certificate of occupancy.

Vacancy Rate: A measurement expressed as a percentage of the total amount of physically vacant units divided by the total amount of existing inventory.

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