Texas Quarterly Apartment Report

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Texas Quarterly Apartment Report:
4th Quarter 2021

DALLAS FORT WORTH

	OCCUPANCY RATES	ASKING RENTS
OVERALL	94.7% ▲	15.4% ▲
CLASS A	93.7% ▲	18.2% ▲

AUSTIN

	OCCUPANCY RATES	ASKING RENTS
OVERALL	93.9% ▲	20.5% ▲
CLASS A	94.1% ▲	21.3% ▲

SAN ANTONIO

	OCCUPANCY RATES	ASKING RENTS
OVERALL	94.3% ▲	13.0% ▲
CLASS A	94.4% ▲	17.1% ▲

HOUSTON

	OCCUPANCY RATES	ASKING RENTS
OVERALL	93.2% ▲	10.0% ▲
CLASS A	92.2% ▲	12.9% ▲

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About this Report

Texas Real Estate Research Center 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 areas (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

Economic activity within Texas improved during the fourth quarter. Increased hiring in December resulted in solid fourth-quarter payroll expansion, although joblessness in the Lone Star State was still higher than the national average. Moreover, headline wage numbers accelerated in real terms despite rising inflation. Oil industry activity accelerated as oil prices increased and the global economic recovery continued. Containment of the pandemic is vital as additional waves of infection, mainly from the Omicron variant, can weigh on consumer behavior and slow the return to pre-pandemic conditions.

Increasing COVID-19 vaccination rates have contributed to the reopening of the economy. Based on the most current data from the Texas Department of State Health Services, 64.9 percent of the state's population five years and older is fully vaccinated[1]. For additional commentary and statistics, see the Texas Real Estate Research Center's *Outlook for the Texas Economy.*

The Center estimated 2022 and 2023 overall and Class A apartment vacancy rates and effective rent percent changes for the major MSAs (Tables 1 and 2).

Overall apartment market trends looked strong through December as the majority of the Metropolitan Statistical Areas (MSAs) registered year-over-year positive changes in both occupancy and rents (Figure 1). Only San Angelo, Lufkin, and Corpus Christi registered negative annual changes in occupancy rates.

Texas nonfarm employment added 255,000 jobs through the fourth quarter. Total nonfarm employment in Texas is just over 13 million, surpassing the February 2020 pre-COVID peak of 12.9 million. Hiring in Houston continued to increase during the fourth quarter, recovering 50,200 jobs compared with the 51,400 positions added during the third quarter. Houston payrolls remain below pre-pandemic levels. Austin added 19,400 employees, continuing a strong recovery as the metro benefits from its substantial high-tech sector, which can socially distance and was prospered during the pandemic. Employment increased by 27,100 in Fort Worth. Dallas and San Antonio registered quarterly increases of 67,900 and 17,900 workers, respectively.

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 8,400 new jobs. Construction payrolls expanded this quarter, adding 16,200 jobs.

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[1] Data up to April 12, 2022. Source: Texas Department of Health Services

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

With monetary policy possibly normalizing, starting with the Federal Reserve Bank's tapering of bond purchases, economic growth forecasts for the coming years point to a slow return to the long-run structural trend as the initial and strongest stage of recovery likely reached its peak. It's becoming clearer that inflation pressures will be permanent versus temporary. The ten-year U.S. Treasury bond yield quarterly average decreased to 1.5 percent during the fourth quarter, still down from pre-pandemic levels of 1.7 percent during fourth quarter 2019. The spread between apartment capitalization rates and the ten-year Treasury yield decreased through the quarter (Figure 2). The decrease in the spread 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 4.8 percent, still higher than the national rate of 3.9 percent. The size of the state's labor force expanded while the labor force participation rate reached 63.1 percent. Texas' major metros all reported lower unemployment rates than the statewide average except in Houston, where joblessness fell to 5.5 percent. Unemployment inched down to 4.4 percent in Fort Worth. It also fell in San Antonio and Dallas to 4.4 and 4.2 percent, respectively. Joblessness remained lowest in Austin, where unemployment slid to 3.4 percent. The decrease in unemployment is important for multifamily vacancies given the relationship between unemployment rates and vacancy rates. The longer unemployment rates remain elevated, the stronger the negative impact on vacancies and rents. As expected, the increase in the unemployment rate with the recession pushed up vacancy rates in the major metros. Declining unemployment rates have been associated with falling vacancy rates (Figures 3-6). The reopening of the economy, accompanied by strong job growth, has contributed to decreasing vacancy rates. Going forward, the forecast calls for continued falls in vacancy and increases in rent.

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

Austin-Round Rock-Georgetown (Figures 7 – 10)

The actual vacancy rate in the overall Austin apartment market in 4Q2021 fell to 6.1 percent over the quarter. Effective rent per unit was up 20.5 percent over 4Q2020. Austin's effective rent currently sits at an all-time high, representing more than a simple recovery from a pandemic-burdened economy.

According to data from Real Page Inc., 96.5 percent of multifamily renters made full or partial rent payments in the Austin-Round Rock-Georgetown MSA, declining slightly from 3Q2021. Despite this figure falling, 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.

Although net absorption continued its decline from 2Q2021, Austin recorded a 36 percent increase over net absorption in 4Q2020. Meanwhile, units delivered continued to grow this quarter, promising continued supply to a booming market. Additionally, units under construction and construction values remained high and continued rising.

In national quarterly rankings of 5+ unit multifamily building permits submitted, Austin climbed to fourth place, breaking back into the top five. The number of permits rose by over 20 percent from 3Q2021 to 4Q2021.

Rising occupancy and steady net absorption signal consistent demand for multifamily housing in Austin-Round Rock-Georgetown. Units delivered and under construction remained steady, pointing to a new supply unit flow that isn't likely to decline anytime soon. However, as long as net absorption continues to outpace deliveries, driving vacancy lower, effective rents are likely to keep rising. This is especially true with new corporations continuing to relocate to the area, bringing their employees with them.

Dallas-Fort Worth-Arlington (Figures 11 – 14)

Actual vacancy in the overall Dallas-Fort Worth-Arlington apartment market fell from 3Q2021 to 4Q2021. Vacancy was at 5.3 percent, 3.1 percent lower than the natural vacancy rate and the lowest vacancy recorded in the last two decades. Effective rent reached a new all-time high for the second quarter in a row. The yearly growth in effective rent was 15.4 percent.

Net absorption declined this quarter but has still increased since 4Q2020, growing 34.8 percent over the year. Units delivered improved slightly from last quarter but are 37 percent lower than a year ago. This is likely the impact of paused building projects seen in the early days of the pandemic catching up with the housing market. Units under construction and construction

values saw a slight increase, mildly sustaining the burst of growth from 1Q2021. Construction start values continue to climb.

U.S. Census Bureau data rank the Dallas-Fort Worth-Arlington MSA 12th in terms of 5+ unit multifamily building permits submitted, the MSA's first time out of the top ten since 3Q2020. The number of permits submitted decreased from 3Q2021 in all Texas MSAs except Austin-Round Rock-Georgetown.

Based on data provided by RealPage Inc., 93.9 percent of multifamily renters in Dallas-Plano-Irving and 93.5 percent of multifamily renters in Fort Worth-Arlington made full or partial rent payments in 4Q2021. These represent declines of 0.8 and 1.9 percent, respectively, or about 1 percent for the MSA on the whole. Dallas-Fort Worth rent payments are still proportionally higher than the national and state averages. However, the MSA trails Austin and San Antonio in terms of rental payments.

Houston-The Woodlands-Sugar Land (Figures 15 – 18)

Houston's vacancy rate decreased for the fourth straight quarter to 6.8 percent. 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.

Like every other MSA, Houston's proportion of full or partial rent payments as collected by RealPage Inc. fell, finishing the quarter at 93.4 percent. This is virtually unchanged from 3Q2021. Houston remains the Texas MSA with the lowest proportion of payments and is just above the national average.

In the Census Bureau's tally of 5+ unit multifamily housing permits, Houston ranked ninth overall. Net absorption declined for the second consecutive quarter. Given the historic high reached in this metric in 2Q2021, this is not necessarily indicative of a downturn. Net absorption still remains at the third highest level recorded since 2001. Units delivered increased significantly this quarter while construction start values continued to decline. Units delivered was the highest it's been in 2021, signaling that the slump from last year's pausing of building projects is nearing an end. Construction start values were the lowest since 4Q2017.

San Antonio-New Braunfels (Figures 19 – 22)

Vacancy in San Antonio continues to fall, sitting at 5.7 percent, the lowest local vacancy rate since 2000. This remains well below the natural vacancy rate of 8.5 percent. RealPage Inc. reports that 93.8 percent of renters made full or partial payments in the San Antonio market, a 1.5 percent decrease from 3Q2021. This is the second lowest decrease among the four major MSAs. San Antonio is now the second highest rent-paying Texas MSA, but is behind the Dallas-Plano-Irving metropolitan division.

Yearly effective rent growth was 13.0 percent, the highest on record since 2001. This marked improvement over the decline in effective rents from 3Q2020, pointing to a market that not

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only has recovered from the pandemic-inflicted recession, but actually exceeded pre-pandemic measures. Effective rents are at their highest level since the Great Recession.

Net absorption shrank for the second consecutive quarter following record highs in 2Q2021. However, it remains well above net absorption from 1Q2021. Units under construction increased slightly as construction start values grew from the poor showing in 2Q2021. The index has decreased slightly but remains comparable to its average from 2010-19. Construction starts may begin to slow as, according to data from the U.S. Census Bureau, the San Antonio-New Braunfels MSA dropped from 22nd to 24th in national rankings of 5+ family unit building permits submitted over the quarter. The number of permits submitted fell by roughly 16 percent from 3Q2021 to 4Q2021.

After a strong third quarter, the San Antonio market looks to be slowing but still growing. Given the future outlook for building, this trend may continue to slow in the coming year.

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

Class A Apartment Sector

Austin-Round Rock-Georgetown (Figures 23 – 26)

The Austin-Round Rock-Georgetown Class A apartment market's actual vacancy rate continues to fall, demonstrating its lowest vacancy since 2000. Now at 5.9 percent, the vacancy rate has shrunk by more than half since 3Q2020 and is 3.1 percent below 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 nearly 20 years and are 21.4 percent higher than last year. Of the four major MSAs, it remains the one with the largest effective rent growth.

After posting record highs in the previous two quarters, the construction starts values index hit another high in 4Q2021. Units delivered in 4Q2021 fell 14.9 percent from 4Q2020. Net absorption fell for the second consecutive quarter, declining 24.2 percent over the year. Relatively high construction starts indicate continued investor confidence in Austin's future housing demand. This confidence is supported by vacancy and effective rent trends.

Dallas-Fort Worth-Arlington (Figures 27 – 30)

Actual vacancy in the DFW Class A apartment market continued to decline through 4Q2021, reaching its lowest value since 2000 at 6.3 percent. This is below the natural vacancy rate of 9.1 percent. A rise in effective rents accompanied this increase in occupancy, with annual effective rent growth at 18 percent, the most growth since 2001. Effective rents are the highest seen in the last two decades.

Units under construction continued the fall since 1Q2020. The yearly change represents a decline of 37.2 percent. Units delivered increased by several thousand from 3Q2021, but declined by 61.9 percent from 4Q2020. Net absorption fell over the quarter and by 28.5 percent over the year. Construction starts values rose for the sixth consecutive quarter, up 79.1 percent annually. The decline in deliveries and net absorption is likely attributable to paused construction projects in 2020 and rising effective rents. These factors may signal a slowdown in DFW Class A apartment demand following the boom seen across Texas earlier in 2021.

Houston-The Woodlands-Sugar Land (Figures 31 – 34)

Houston's Class A apartment vacancy continued to decline from its third quarter. Vacancy is now at 7.8 percent, below the natural vacancy rate of 9.7 percent. Effective rents are the highest they've been since 2000. Year-over-year effective rent growth totaled 12.9 percent, the highest growth rate for Houston in decades but still the lowest of the four major MSAs.

Units under construction declined this quarter, falling 40.5 percent since 4Q2020. Net absorption fell from 3Q2021 and decreased by 26.9 percent from 4Q2020. Units delivered increased over the quarter but declined by 31.4 percent over the year. The lowered construction values suggest real estate investors see a potential decrease in future demand, a notion supported by the significant decline in net absorption.

San Antonio-New Braunfels (Figures 35 – 38)

San Antonio's Class A apartment market vacancy rate was 5.6 percent during 4Q20201, declining slightly from last quarter. This remains well below the natural vacancy rate of 10 percent. Effective rent growth per unit increased substantially by 16.8 percent since 4Q2020. As record-high rents per unit continue to prevail, the metro shows constant growth in the Class A market.

Net absorption declined slightly from 3Q2021. Units delivered decreased after skyrocketing the past two quarters, but still showed a 43.3 percent increase from 4Q2020. Units under construction dropped by 45.6 percent, representing the lowest value since 4Q2012. For the second consecutive quarter, more new units were delivered than new units being occupied. The sharp increase in construction starts is not indicative of what appears to be a levelling-off of demand. This could represent some overbuilding in the San Antonio MSA.

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

Source: ALN Apt. Data
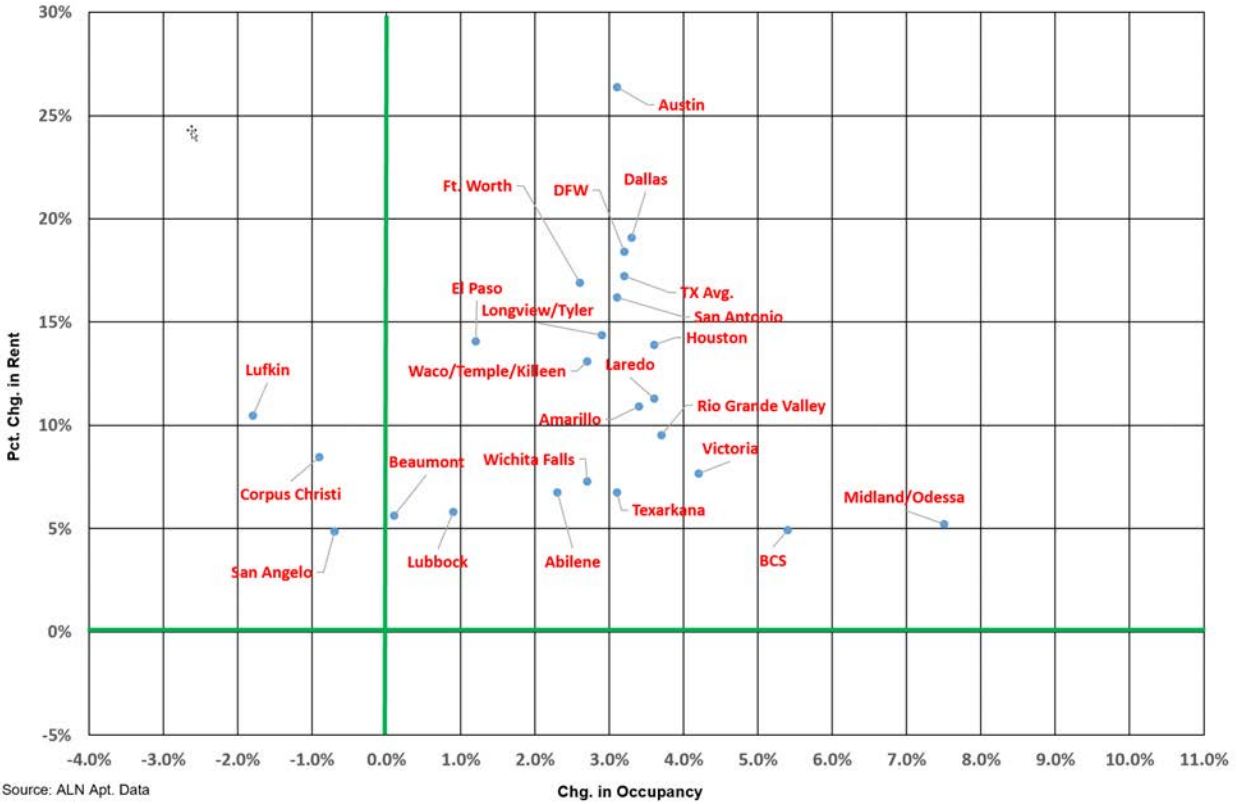
Sources: ALN Apartment Data and Texas Real Estate Research Center at Texas A&M University

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

Austin — DFW — Houston — SA — 10 yr Tbill
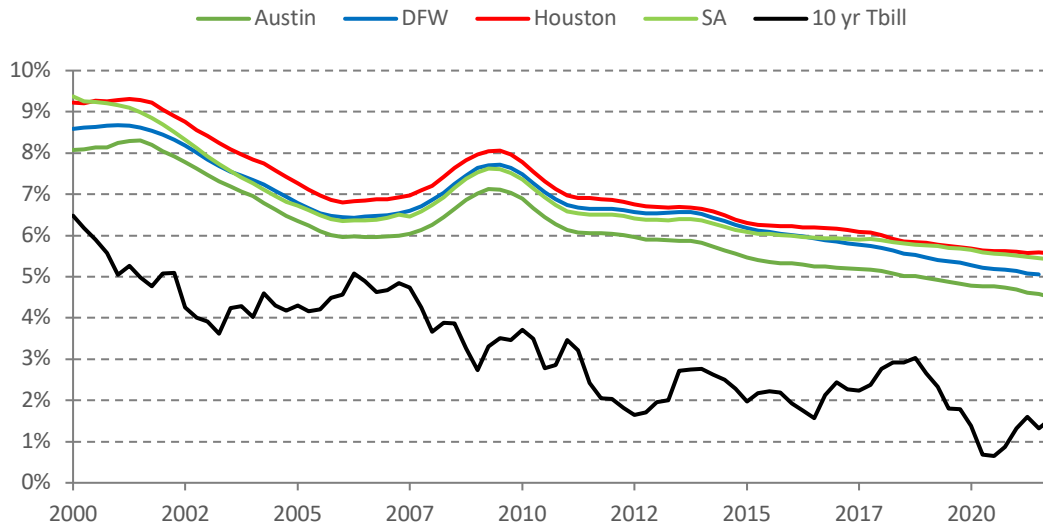
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

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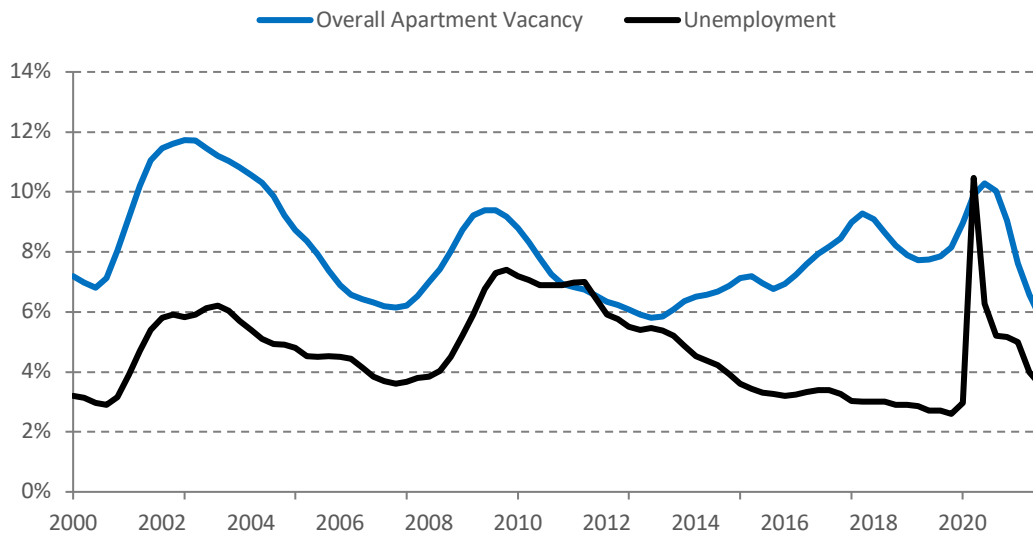
Overall Apartment Vacancy — Unemployment

Sources: Bureau of Labor Statistics, CoStar, and Texas Real Estate Research Center at Texas A&M University

Figure 4. DFW Apartment Vacancy Rates and Unemployment (SA and TC)*
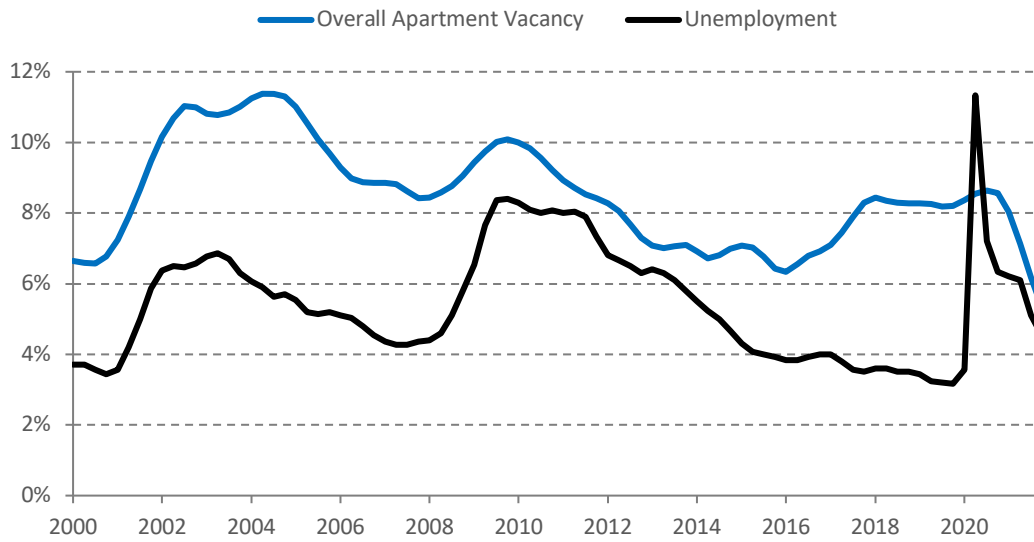
Sources: Bureau of Labor Statistics, CoStar, and Texas Real Estate Research Center at Texas A&M University

Figure 5. Houston Apartment Vacancy Rates and Unemployment (SA and TC)*
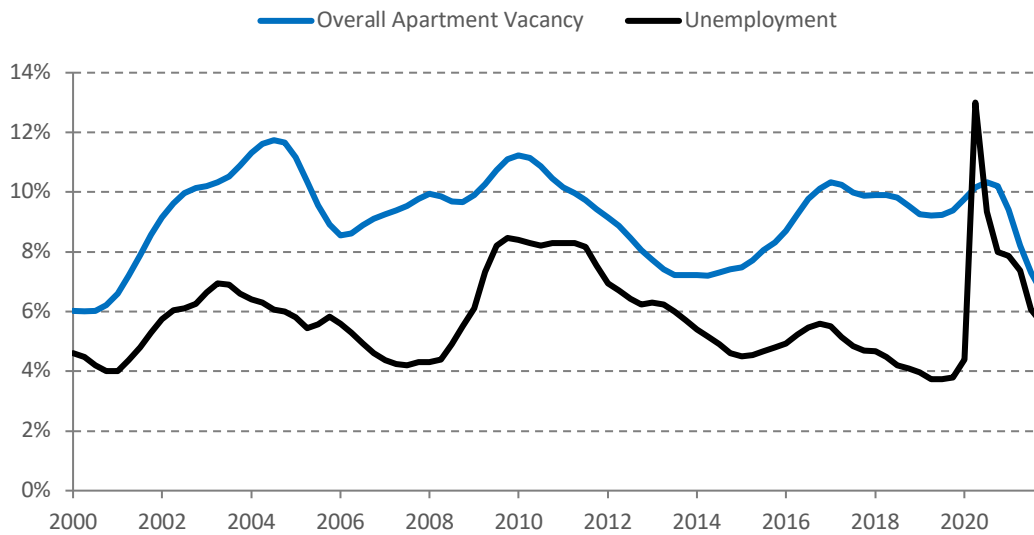
Sources: Bureau of Labor Statistics, CoStar, and Texas Real Estate Research Center at Texas A&M University

Figure 6. San Antonio Apartment Vacancy Rates and Unemployment (SA and TC)*
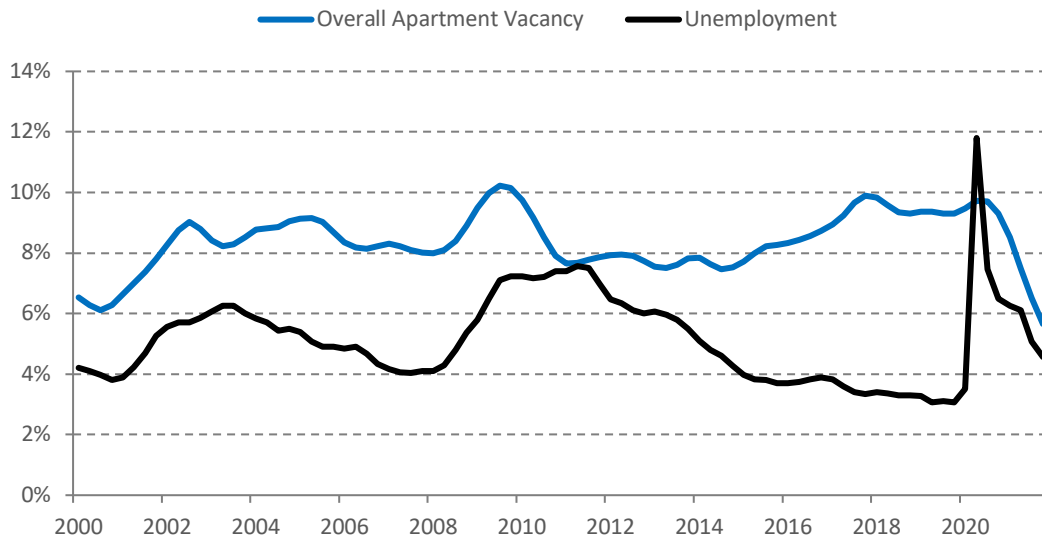
Sources: Bureau of Labor Statistics, CoStar, and Texas Real Estate Research Center at Texas A&M University

Austin Overall

OCCUPANCY RATE
▲ 93.9%

EFFECTIVE RENT GROWTH (PER UNIT)
▲ 20.5%
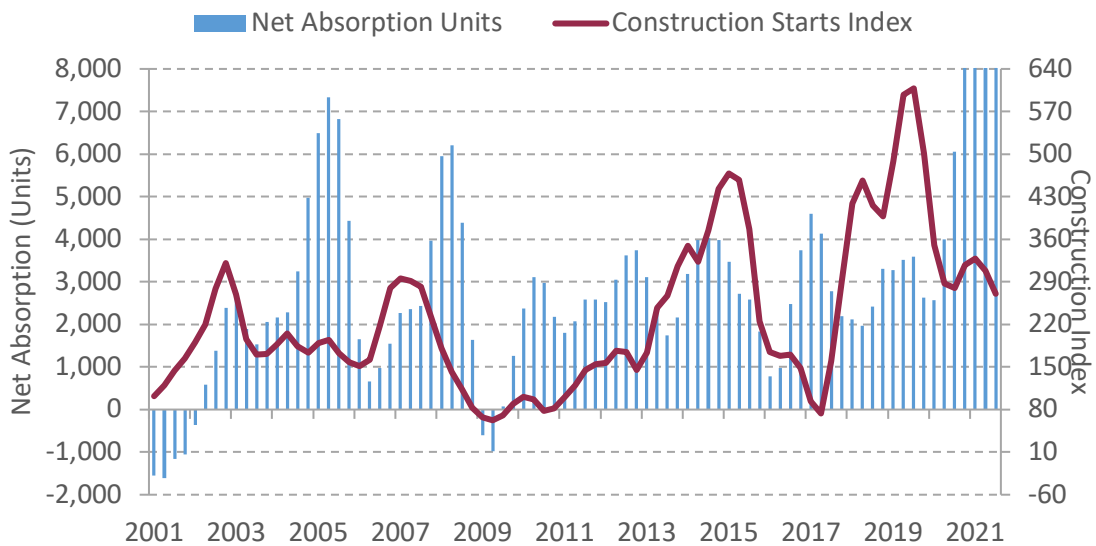
NET ABSORPTION (UNITS)
▼ 4,742

CONSTRUCTION STARTS
▲

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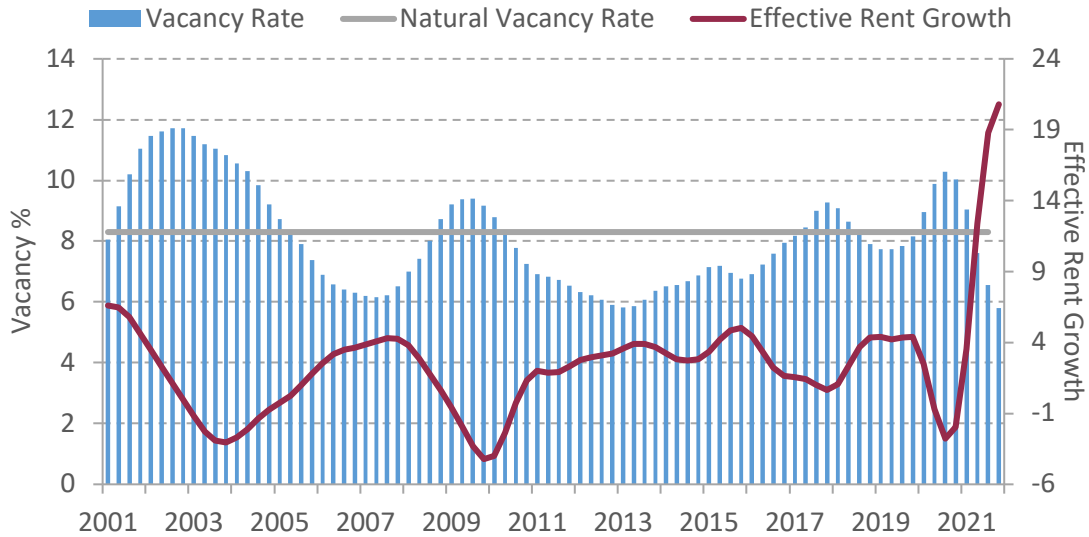
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 8. Austin Overall Net Absorption and Construction Starts Index (SA and TC)*
(Index 2000 Q1 = 100)
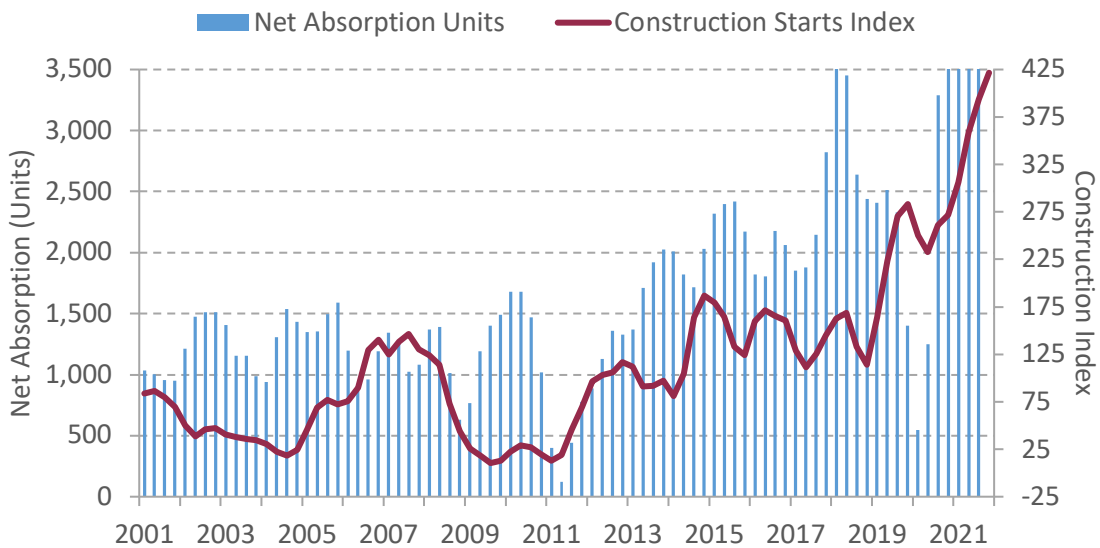
Sources: CoStar, Dodge Analytics, and Texas Real Estate Research Center at Texas A&M University
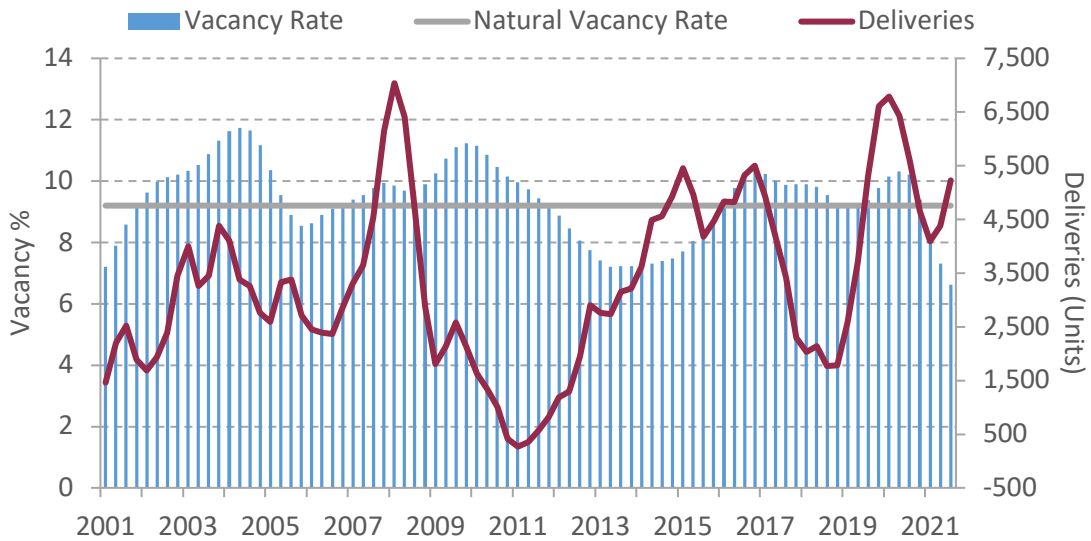
Figure 9. Austin Overall Vacancy and Units Under Construction (SA and TC)*
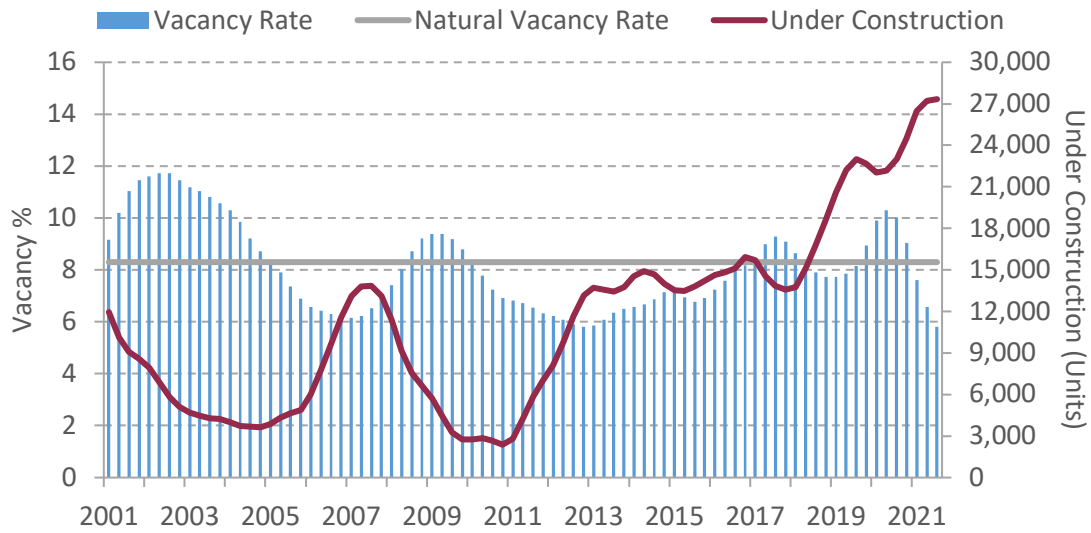
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 10. Austin Overall Vacancy and Deliveries in Units (SA and TC)*
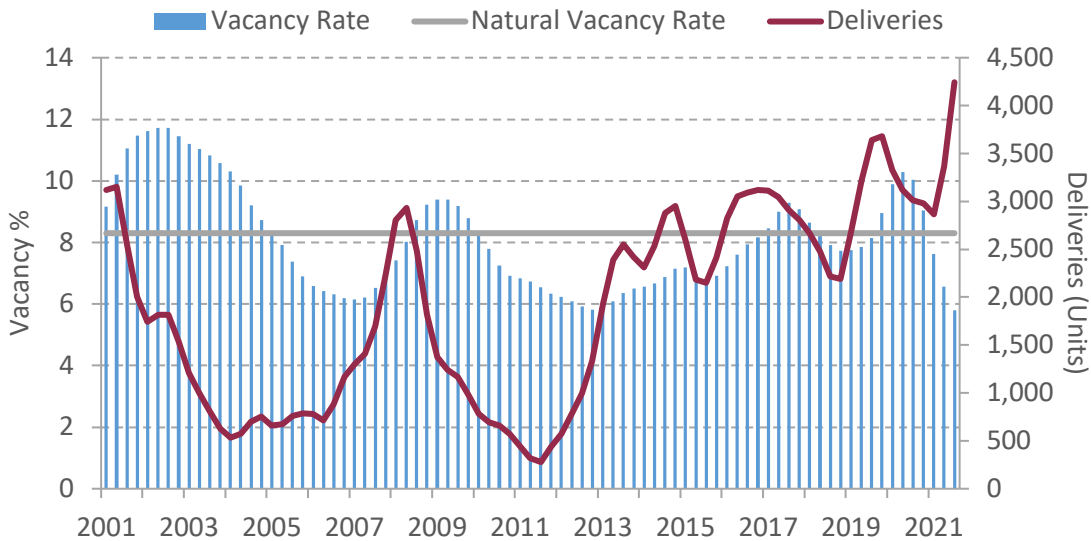
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Dallas-Fort Worth Overall

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▲ 94.7%	▲ 15.4%	▼ 11,364	▲

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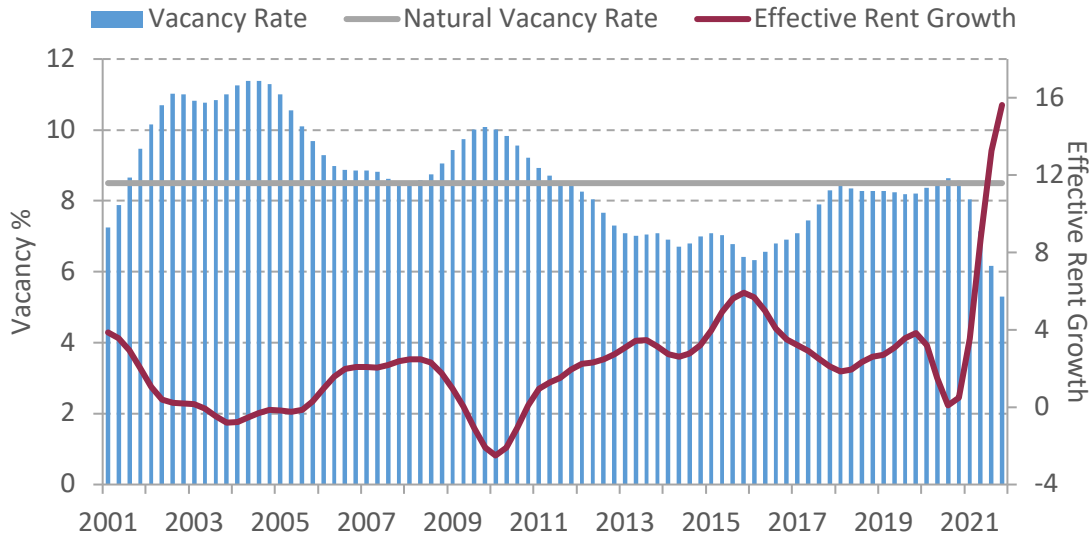
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 12. DFW Overall Net Absorption and Construction Starts Index (SA and TC)*
(Index 2000 Q1 = 100)
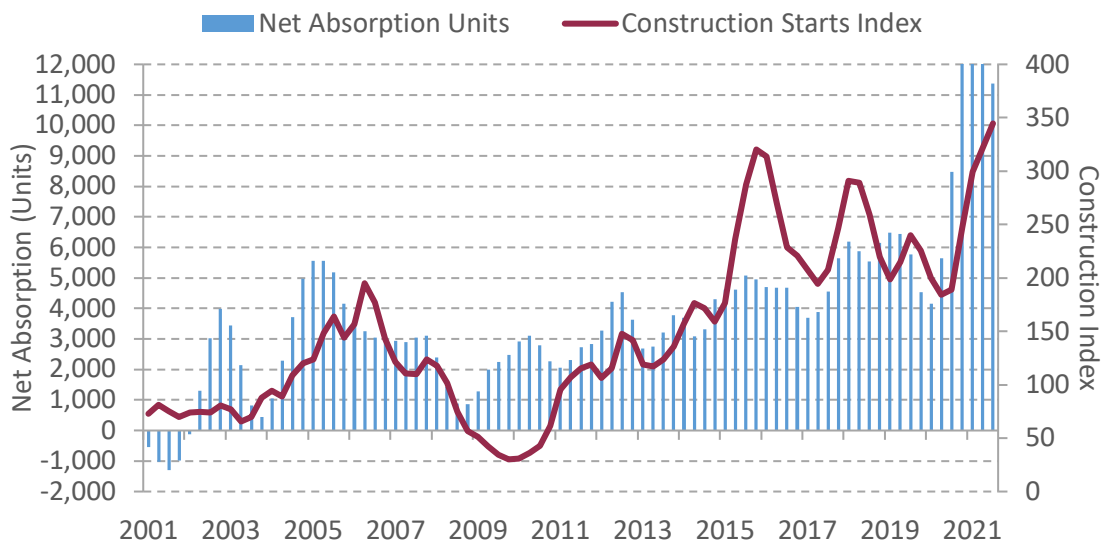
Sources: CoStar, Dodge Analytics, and Texas Real Estate Research Center at Texas A&M University

Figure 13. DFW Overall Vacancy and Units Under Construction (SA and TC)*
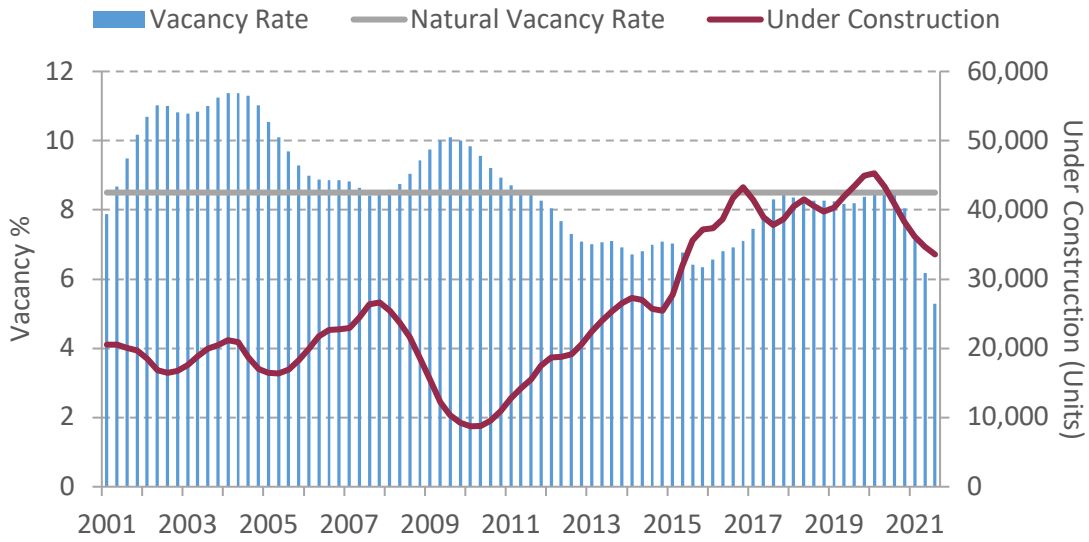
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 14. DFW Overall Vacancy and Deliveries in Units (SA and TC)*
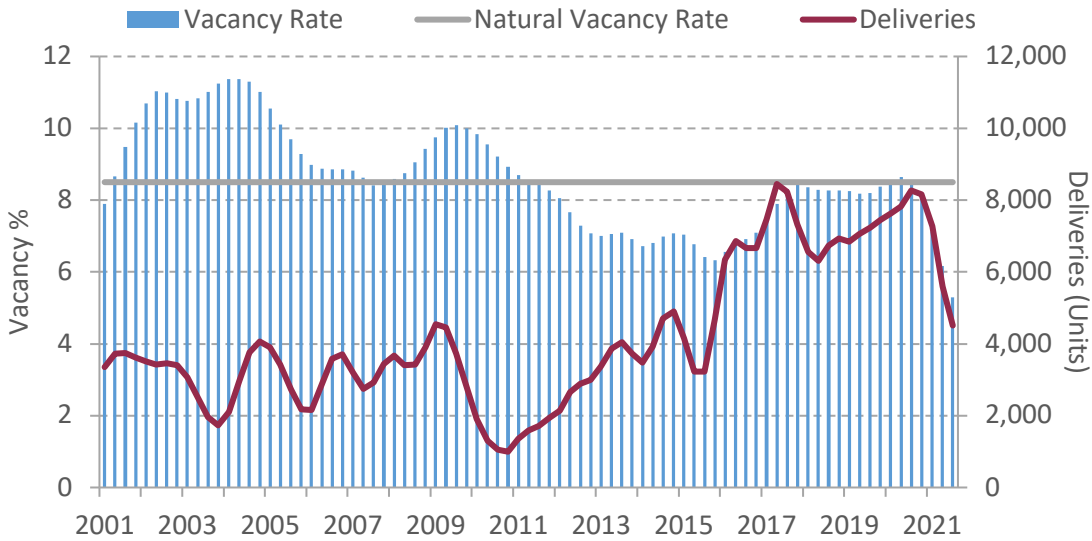
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Houston Overall

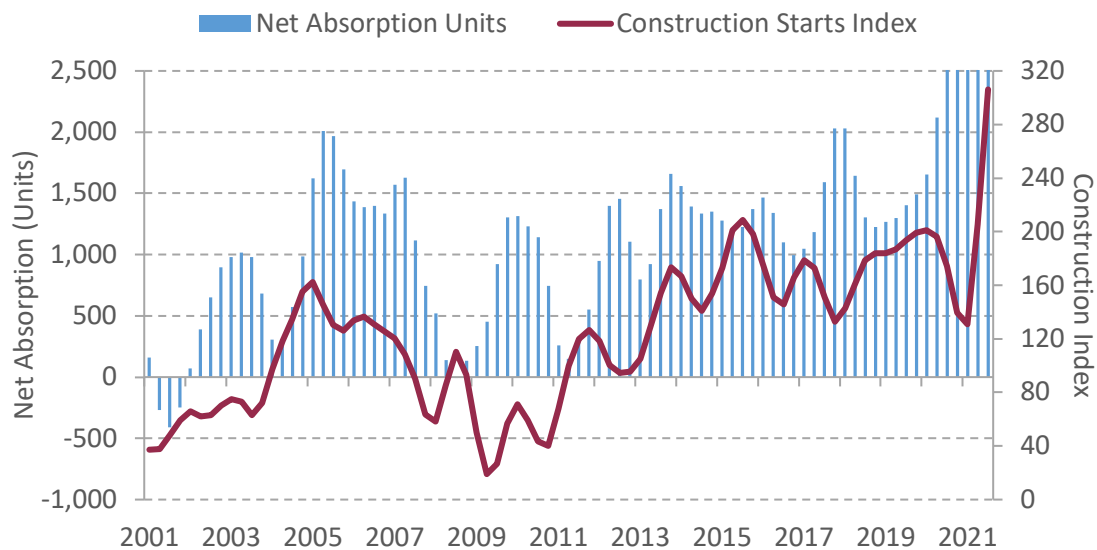| OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▲ 93.2%	▲ 10.0%	▼ 8,617	▼

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)*
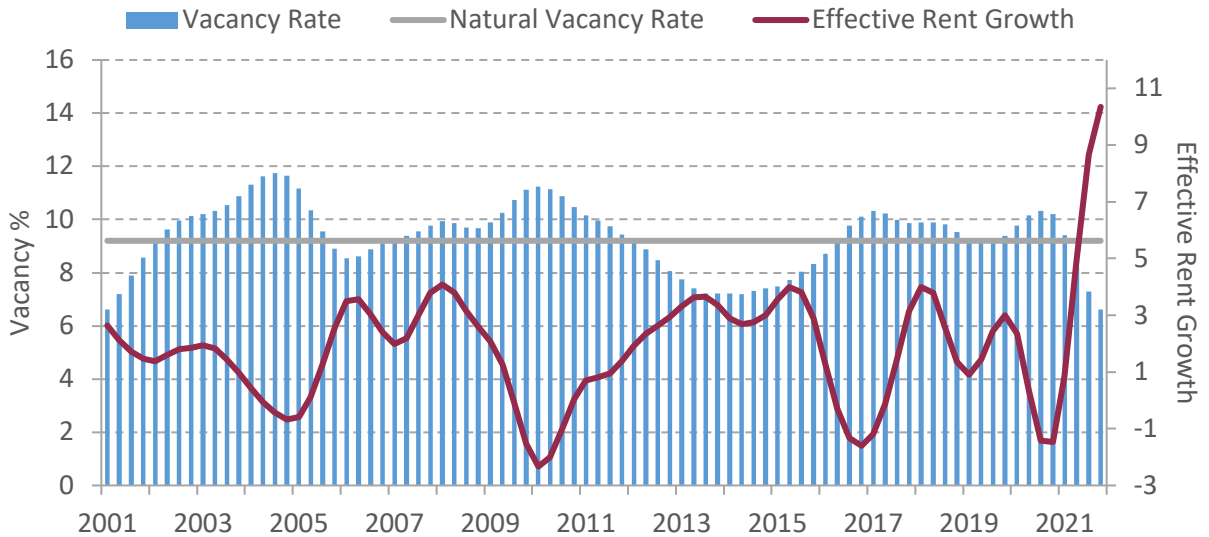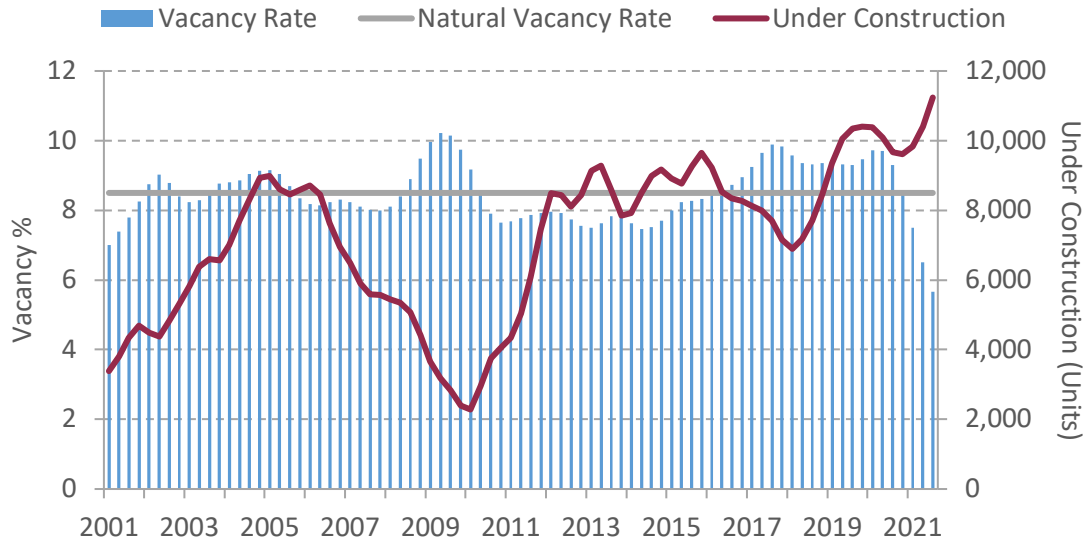

Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

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

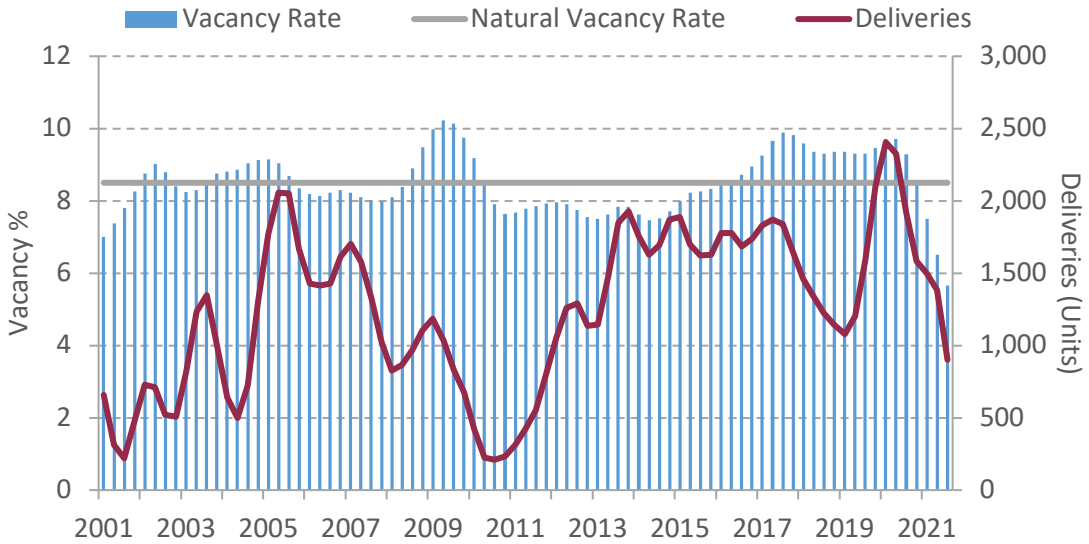

Sources: CoStar, Dodge Analytics, and Texas Real Estate Research Center at Texas A&M University

Figure 17. Houston Overall Vacancy and Units Under Construction (SA and TC)*
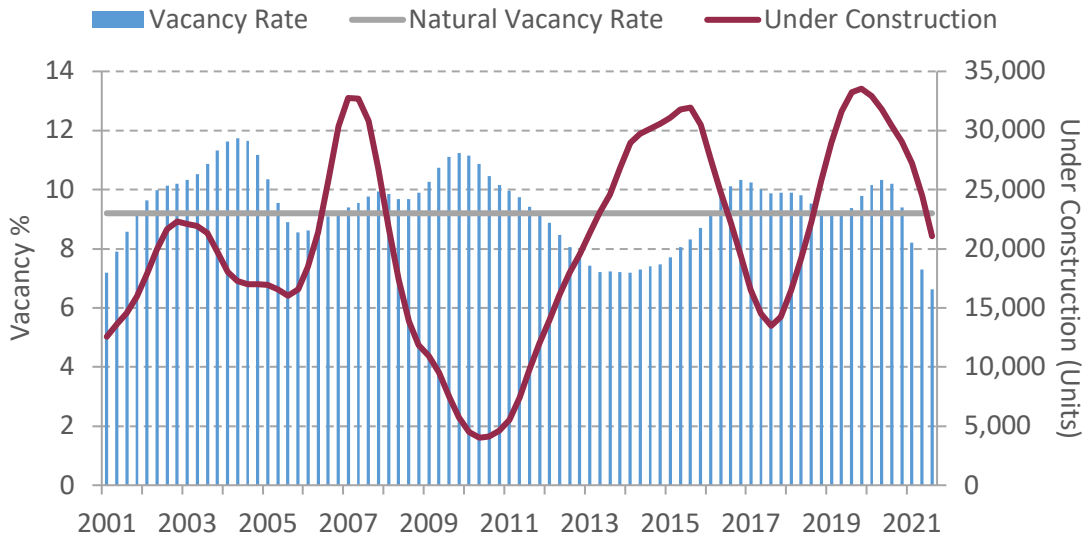
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

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

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

# San Antonio Overall

OCCUPANCY RATE
▲ 94.3%

EFFECTIVE RENT GROWTH (PER UNIT)
▲ 13.0%

NET ABSORPTION (UNITS)
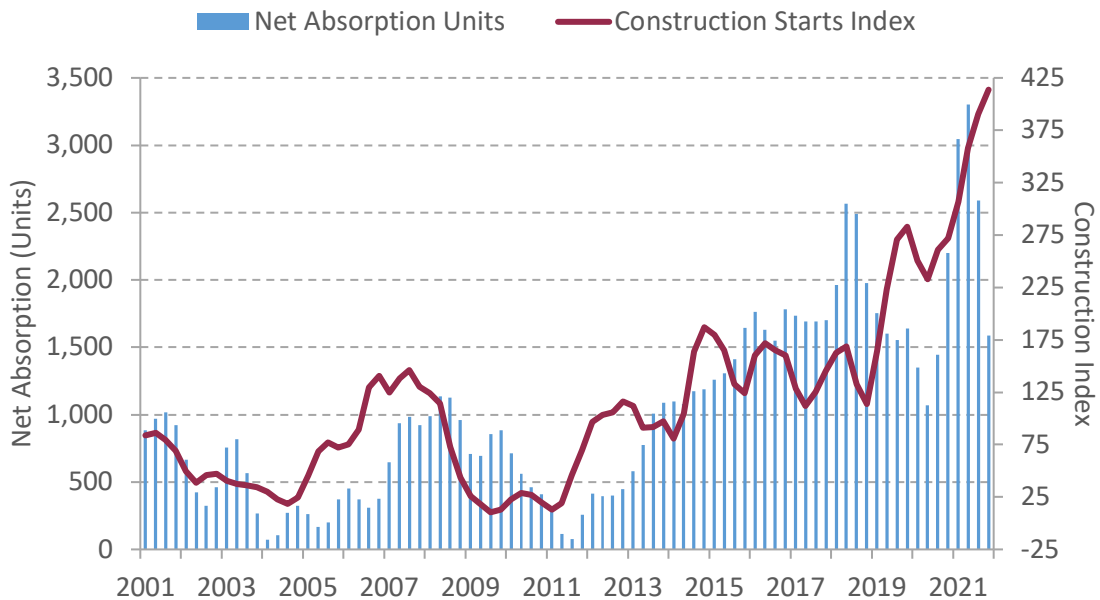▼ 2,902

CONSTRUCTION STARTS
▲

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)*
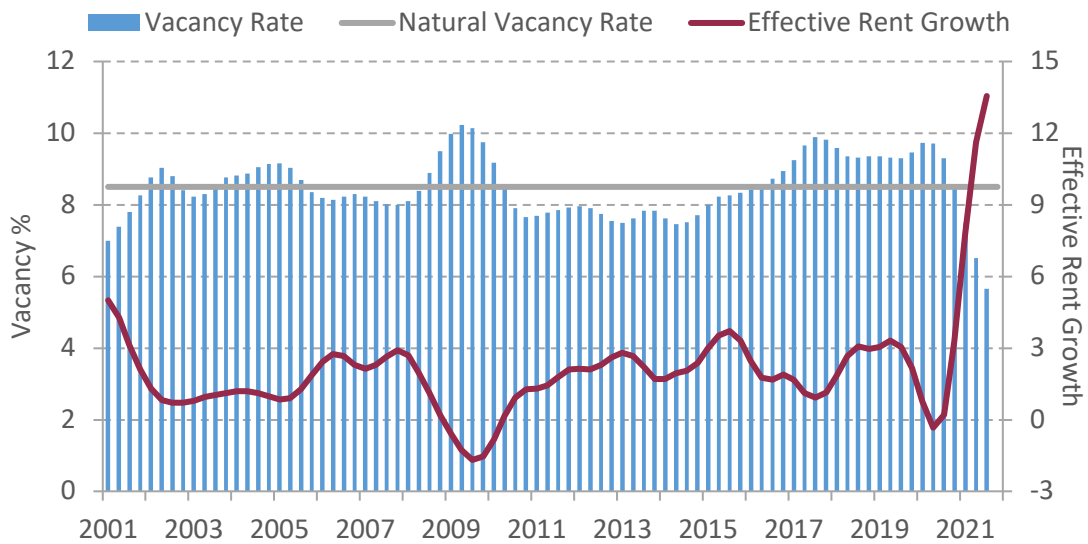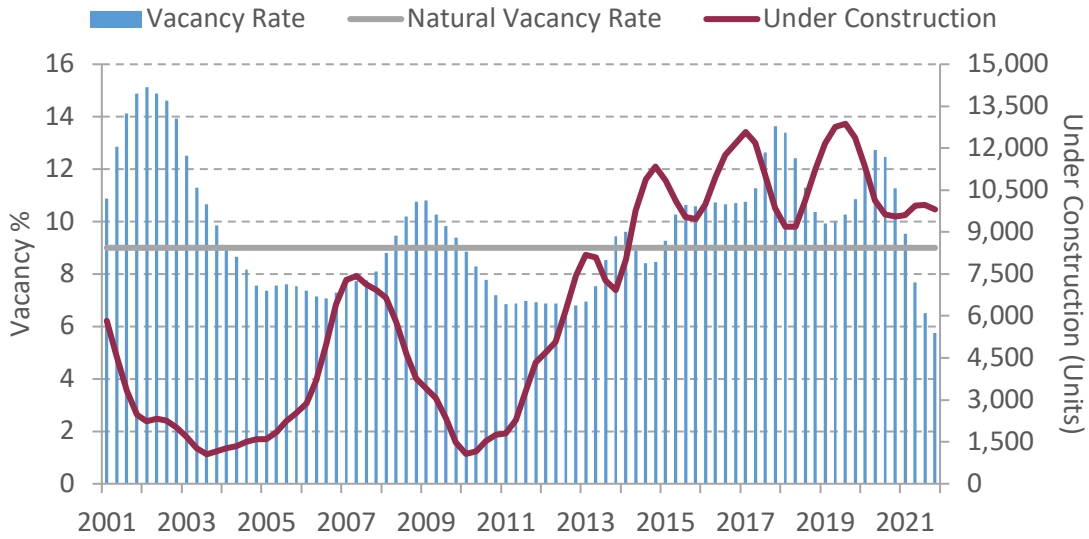

Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

Figure 20. San Antonio Overall Net Absorption and Construction Starts Index (SA and TC)*
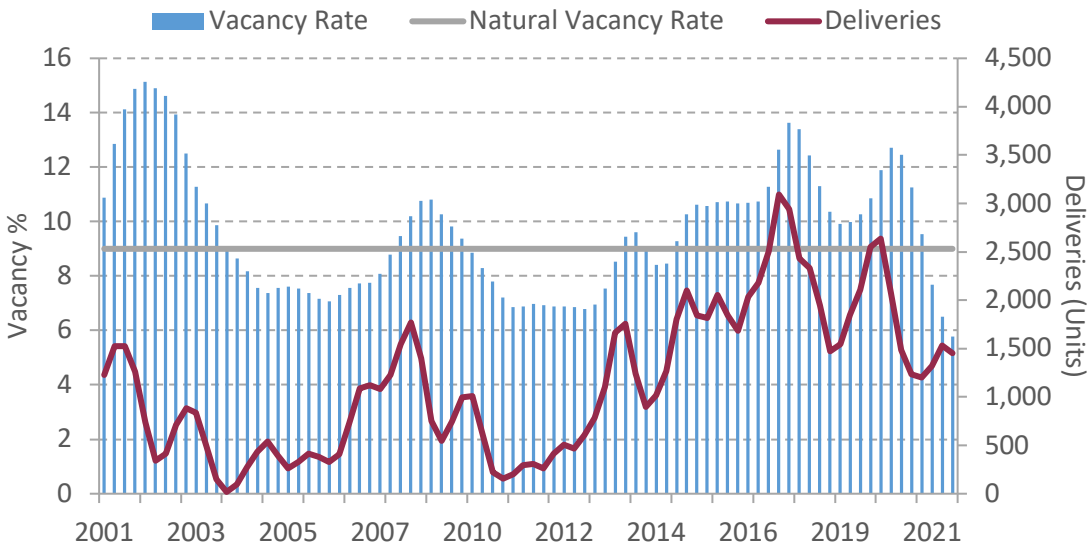**(Index 2000 Q1 = 100)**

Sources: CoStar, Dodge Analytics, and Texas Real Estate Research Center at Texas A&M University

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

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

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

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

Austin Class A

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▲ 94.1%	▲ 21.3%	▼ 1,587	▲

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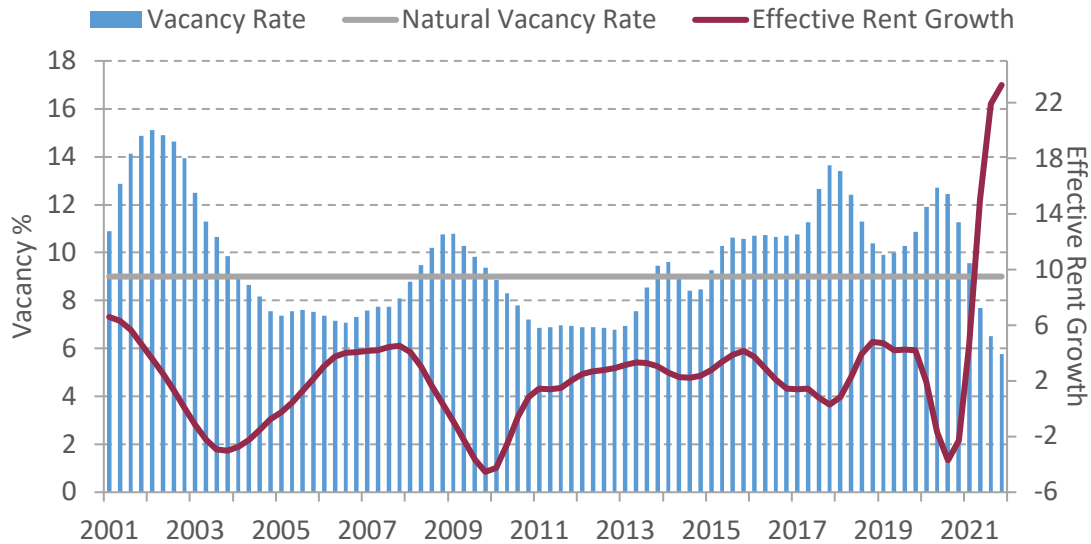
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

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

Sources: CoStar, Dodge Analytics, and Texas Real Estate Research Center at Texas A&M University

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

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

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

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

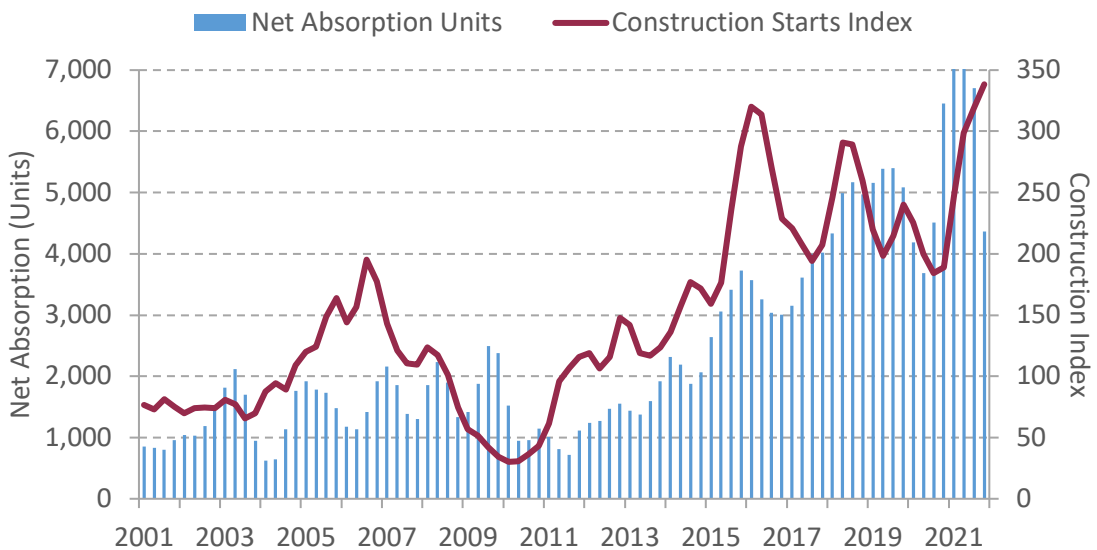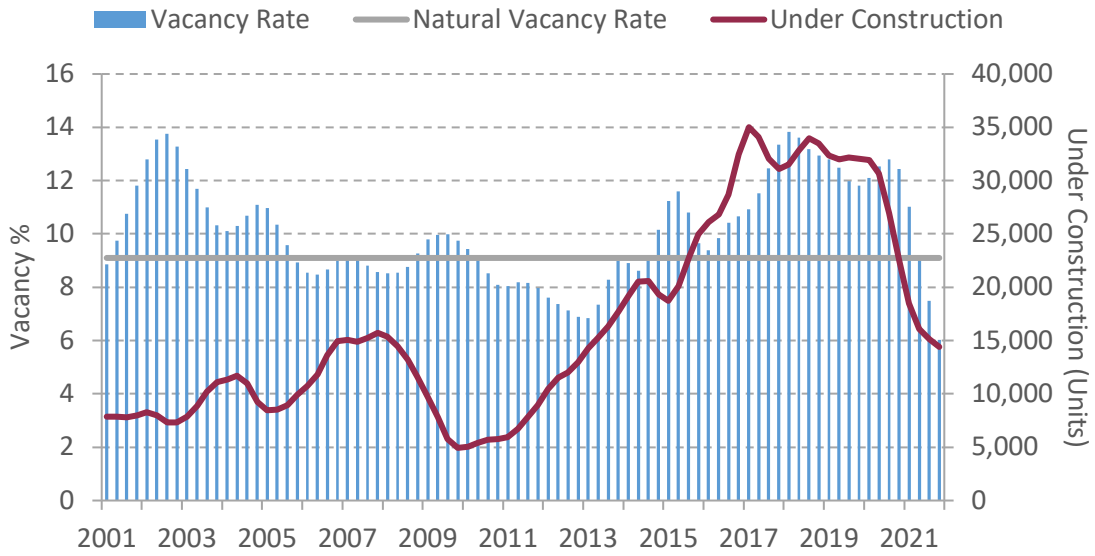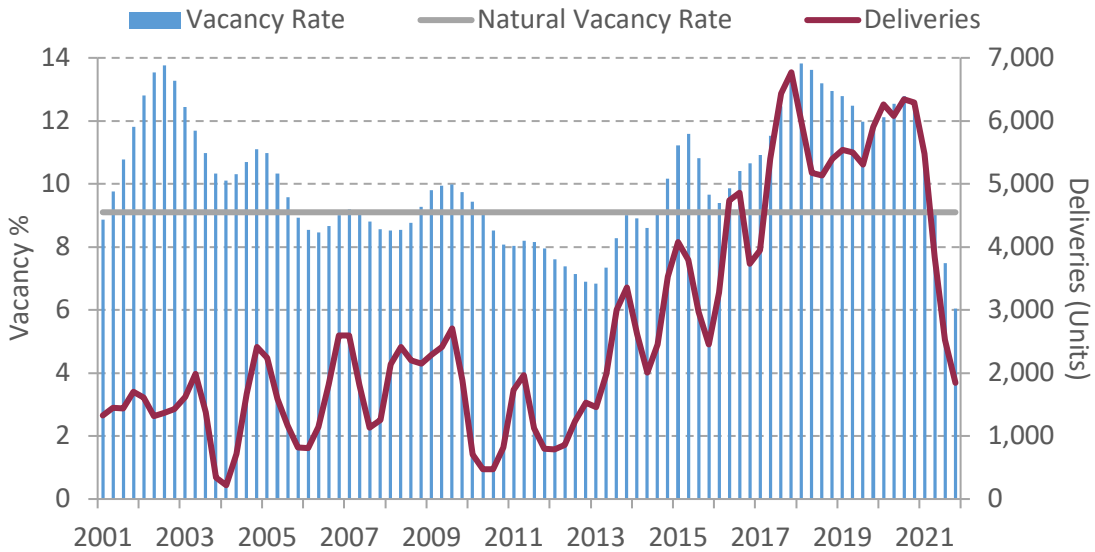# Dallas-Fort Worth Class A

OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▲ 93.7%	▲ 18.2%	▼ 4,361	▲

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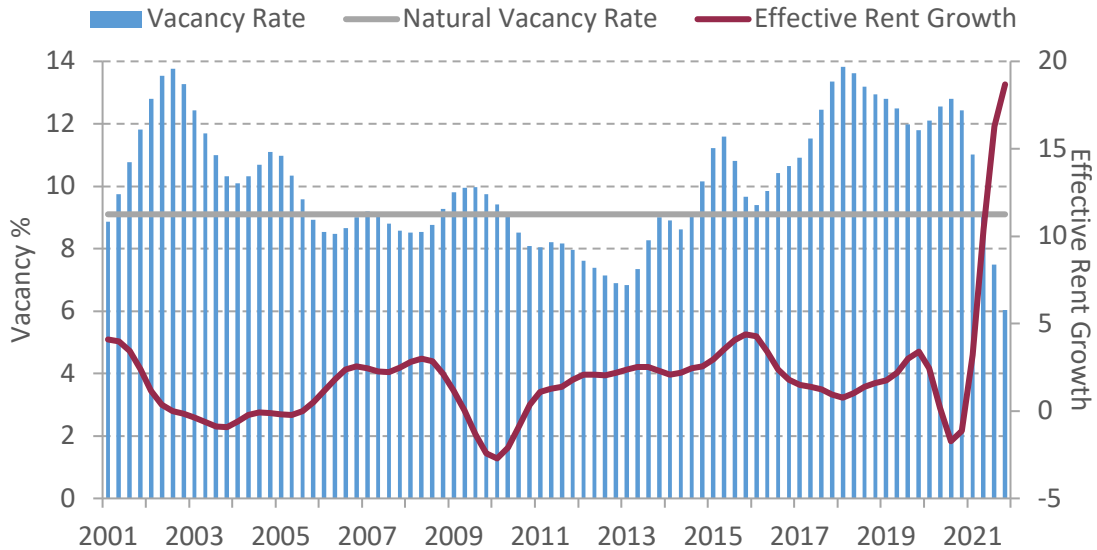
Sources: CoStar and Texas Real Estate Research Center at Texas A&M University

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

Sources: CoStar, Dodge Analytics, and Texas Real Estate Research Center at Texas A&M University

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

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

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

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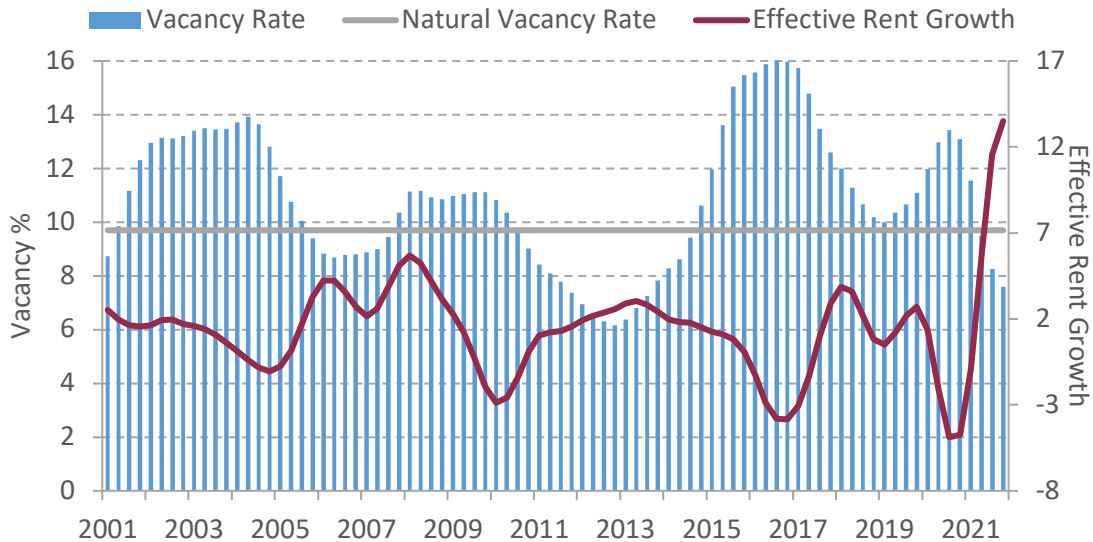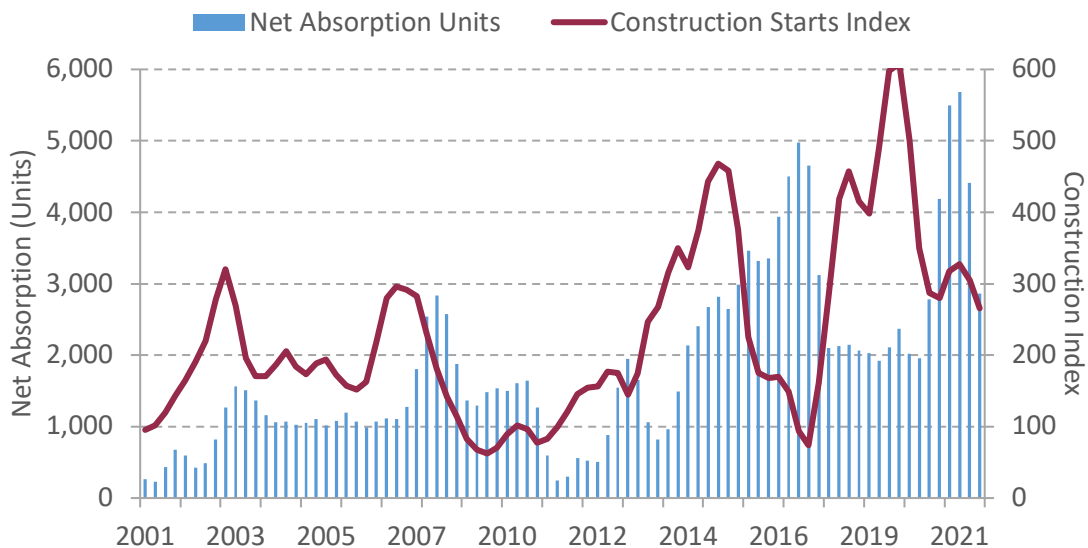
Houston Class A

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

Sources: CoStar and Texas Real Estate Research Center at Texas A&M University
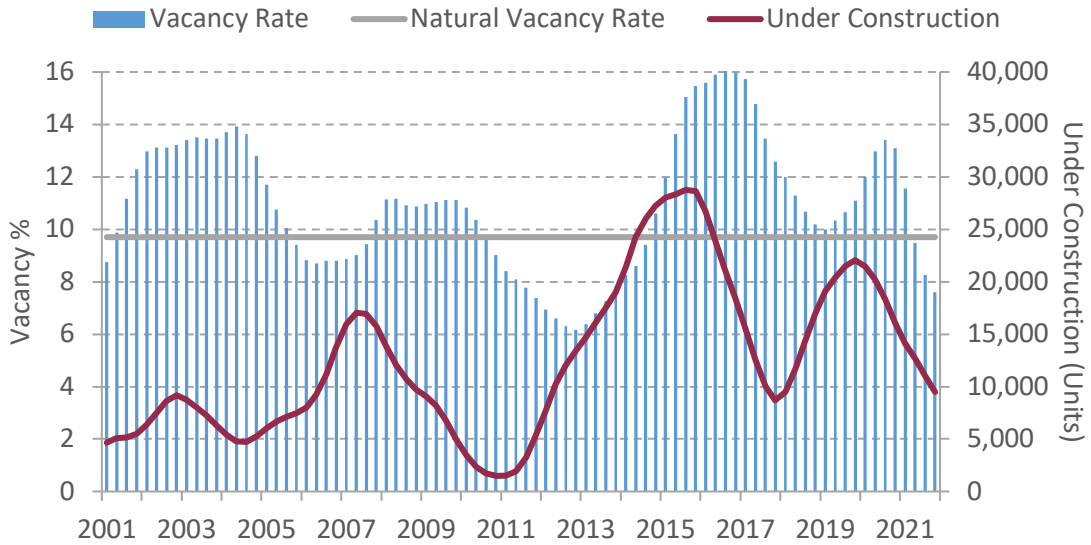
Figure 32. Houston Class A Net Absorption and Construction Starts Index (SA and TC)*

(Index 2000 Q1 = 100)

Sources: CoStar, Dodge Analytics, and Texas Real Estate Research Center at Texas A&M University
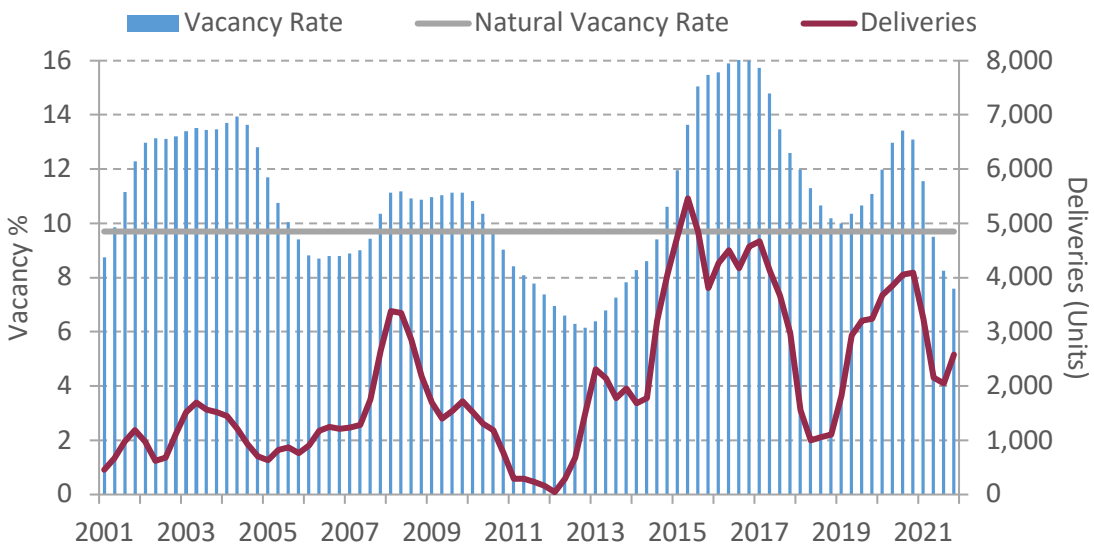
Figure 33. Houston Class A Vacancy and Units Under Construction (SA and TC)*

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

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

Sources: CoStar and Texas Real Estate Research Center at Texas A&M University
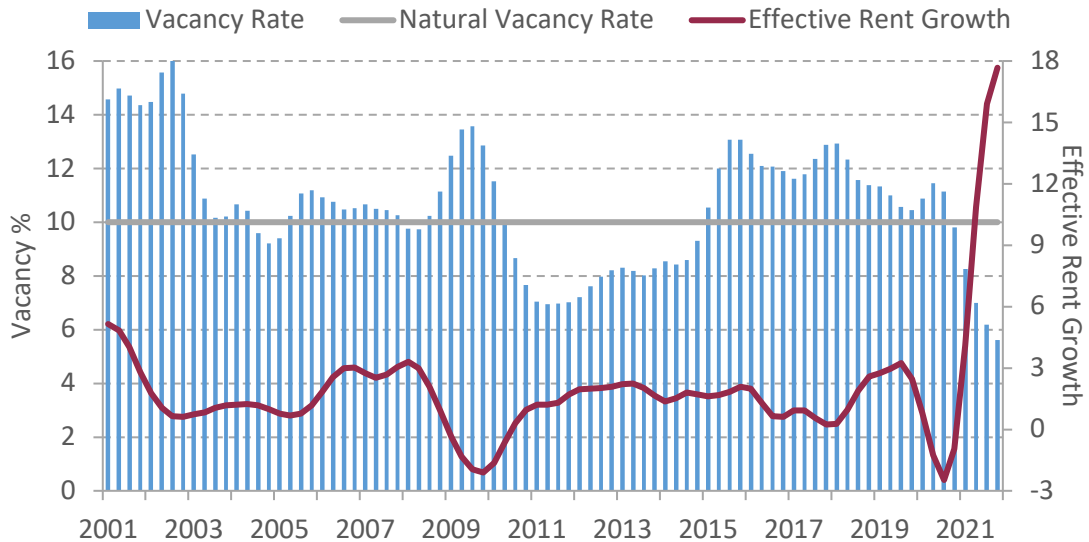
San Antonio Class A

| OCCUPANCY RATE	EFFECTIVE RENT GROWTH (PER UNIT)	NET ABSORPTION (UNITS)	CONSTRUCTION STARTS
▲ 94.4%	▲ 17.1%	▼ 1,064	▲

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

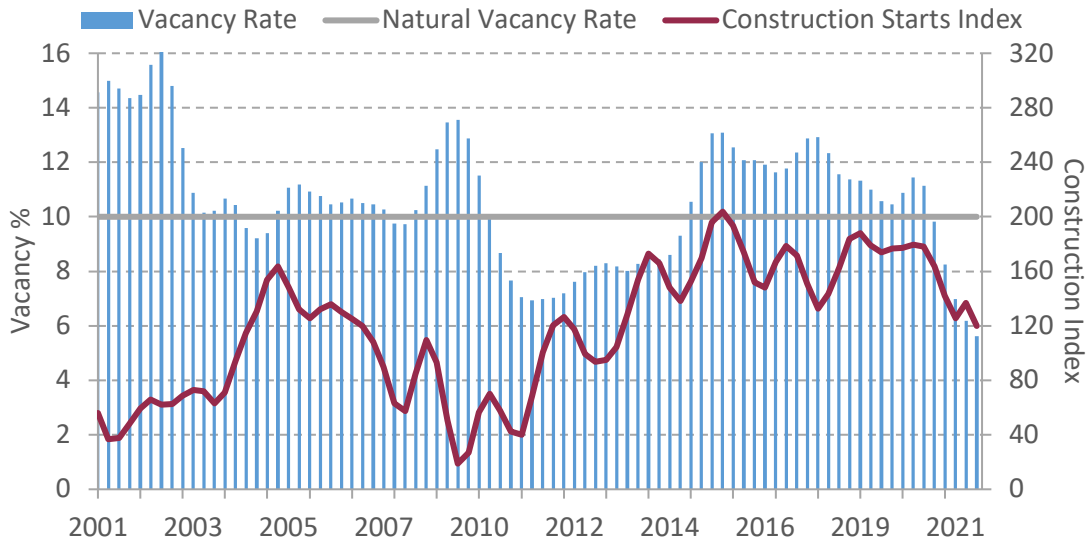### Figure 35. San Antonio Class A Vacancy and Effective Rent Growth (SA and TC)*

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

Figure 36. San Antonio Class A Net Absorption and Construction Starts Index (SA and TC)*
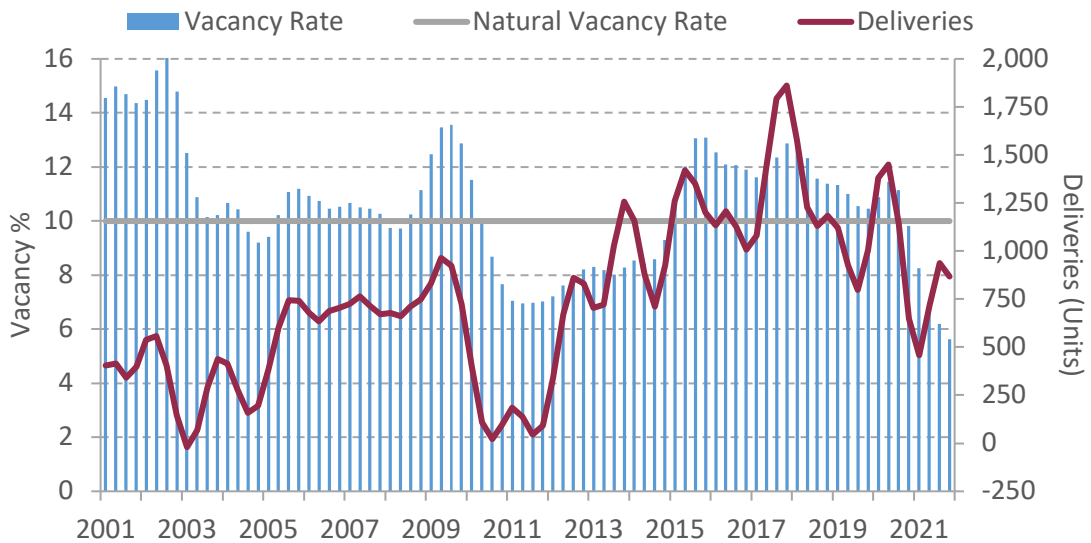**(Index 2000 Q1 = 100)**
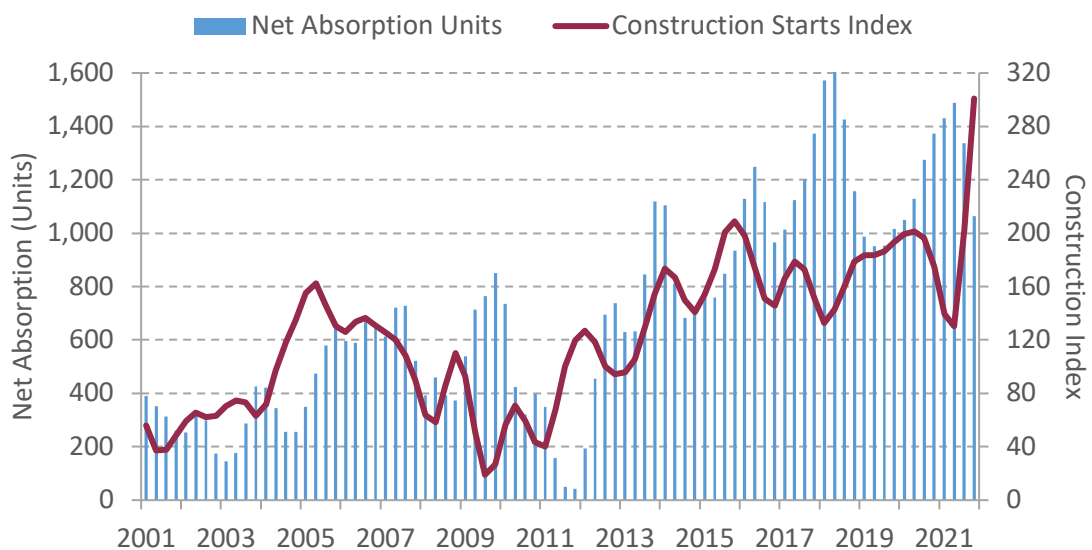
Sources: CoStar, Dodge Analytics, and Texas Real Estate Research Center at Texas A&M University

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

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

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

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

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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