Harris Central Appraisal District

2024 Market Trends Report

Table of Contents

2023 Residential Real Estate Market Overview

As we begin 2024 and after 3 years of rapid appreciation which saw market values increasing >50% from 2020-2022, the Harris County housing market cooled in 2023.

Economic Indicators are a mixed bag but in general the market is doing well and is stable. The stability in Houston's housing market can be best evidenced by several key metrics that are indicative of a healthy market: home inventory levels though increasing are still below historic averages, sales prices holding up, and continued low unemployment. All of this being said, we are in a period of uncertainty as inflation, borrowing rates, and recession are daily focal points for the news cycle and markets.

JOB GROWTH

Metro Houston created an estimated 102,000 jobs in 2023 (revised upward from 83,000 in March '24).

Texas Labor Market Reached Historic Highs in 2023 - Texas Workforce Commission

Unemployment is still at or close to historic lows:

UNEMPLOYMENT

https://www.twc.texas.gov/news

Dec 2019 – 3.9%

Dec 2020 – 8.0%

Dec 2021 – 4.2%

Dec 2022 – 3.6%

Dec 2023 – 3.5%

INTEREST RATES

The Federal Funds rate, which is established by the Federal Open Market Committee (FOMC), is the rate banks charge each other to borrow and lend their excess reserves over night. This rate indirectly affects the prime lending rate and many other lending rates including mortgage rates.

Federal Funds Rate (2007-2022)

With the onset of covid and the federal governments attempts to prop-up the economy, inflation has became a problem.The result of this is that beginning in March ’22 the FOMC has raised the rate 11 times the last of which was in July ‘23 (depicted below). This was done in an attempt to stem economic activity and ultimately reduce inflation which is the highest its been in almost 50 years.

Federal Funds Rate (2/22 thru 2/23)

FOMC Meeting Date	Rate Change (bps)	Federal Funds Rate
July 26, 2023	+25	5.25% to 5.50%
May 3, 2023	+25	5.00% to 5.25%
March 22, 2023	+25	4.75% to 5.00%
Feb 1, 2023	+25	4.50% to 4.75%
Dec 14, 2022	+50	4.25% to 4.50%
Nov 2, 2022	+75	3.75% to 4.00%
Sept 21, 2022	+75	3.00% to 3.25%
July 27, 2022	+75	2.25% to 2.50%
June 16, 2022	+75	1.50% to 1.75%
May 5, 2022	+50	0.75% to 1.00%
March 17, 2022	+25	0.25% to 0.50%

https://www.macrotrends.net/2015/fed-funds-rate-historical-chart

MORTGAGE RATES

Depicted in the chart below, have fallen consistently over the last 40 years. As the Fed Funds rate increased, mortgage rates also increased as was expected. As of March '24 it appears that the increase is working to slow economic activity. It can definitely be argued that historically low interest rates are one of the major contributing factors in the rapid escalation in the values of homes over the last 5-10 years. As of 2/24/23 30-year mortgage rate is about 7.0%.

Avg. 30 year Mortgage Rate (2017-2024)

https://www.macrotrends.net/2604/30-year-fixed-mortgage-rate-chart

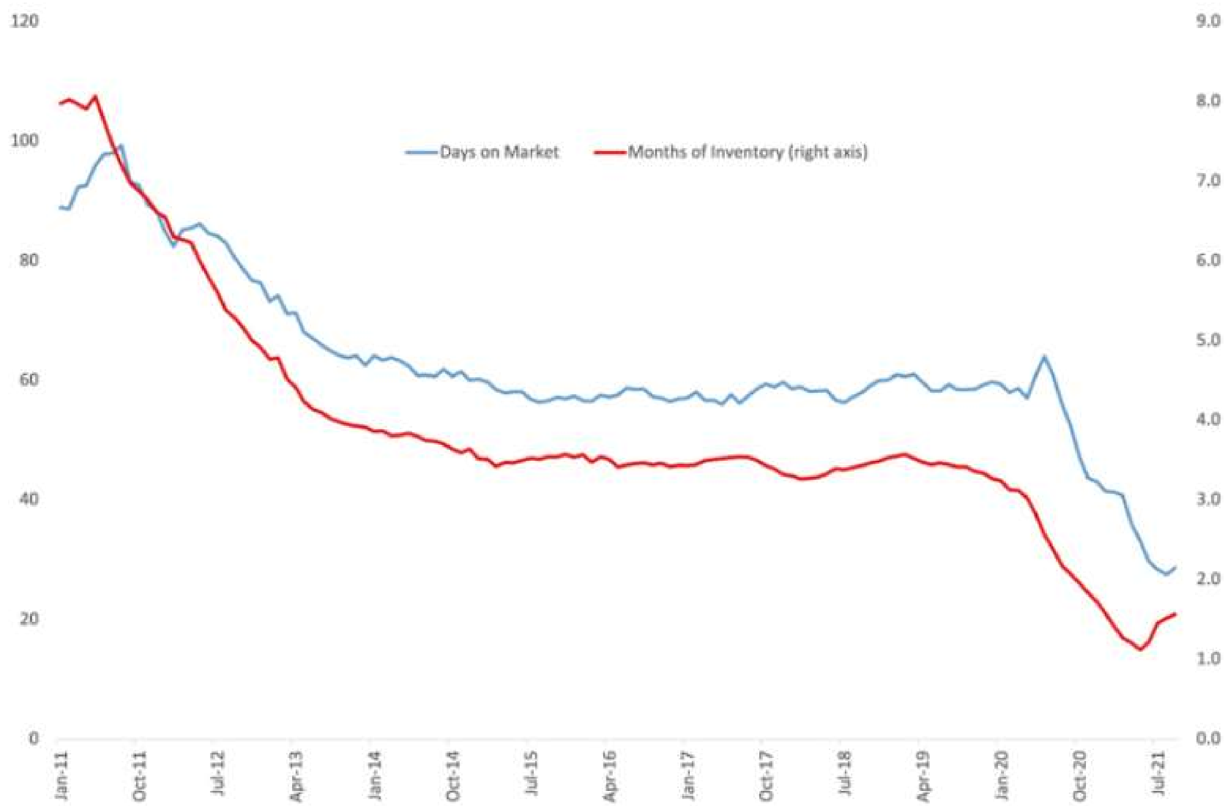
HOME INVENTORY

According to the Houston Association of Realtors (HAR), the inventory/listings of available homes increased from 33,606 (2.7 months) in January 2023 to 38,028 (3.6 months) of supply in December 2023. As the supply approaches equilibrium (4-6 months of supply) we are now experiencing, as anticipated, a slowdown in the price appreciation and a decline in sales volume.

Houston's housing market has been at the bottom of the range of equilibrium since 2013 which is depicted in the chart below. This is one of the biggest contributing factors to price appreciation and falling affordability in the housing market.

Newsroom - HAR.com

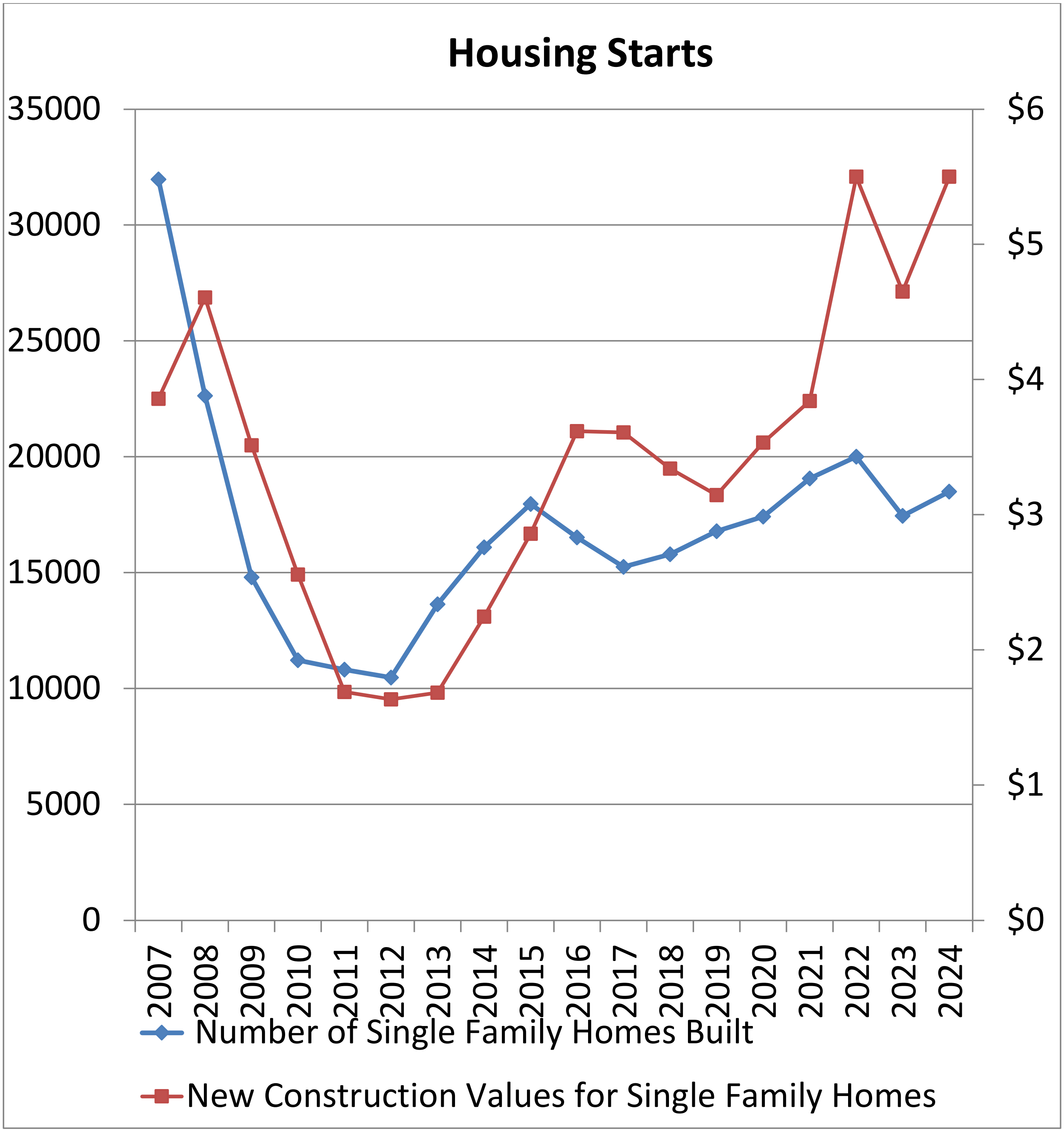
Home Inventory in Texas



Is the Pandemic Housing Frenzy Over? - Texas Real Estate Research Center (tamu.edu)

NEW STARTS

The number of new starts for 2024 will approach 19,000 homes which will be the second most in the last fourteen years. The new construction value associated with the new starts will approach $5.5 billion which is a reflection of increased cost to build.



SALES VOLUME

According to HAR, sales volume for single family residential properties for the full year 2023 totaled 83,854 units which is a 12 percent decrease versus the 95,302 units sold in 2022. This marks two consecutive years of double-digit declines in sales volume.

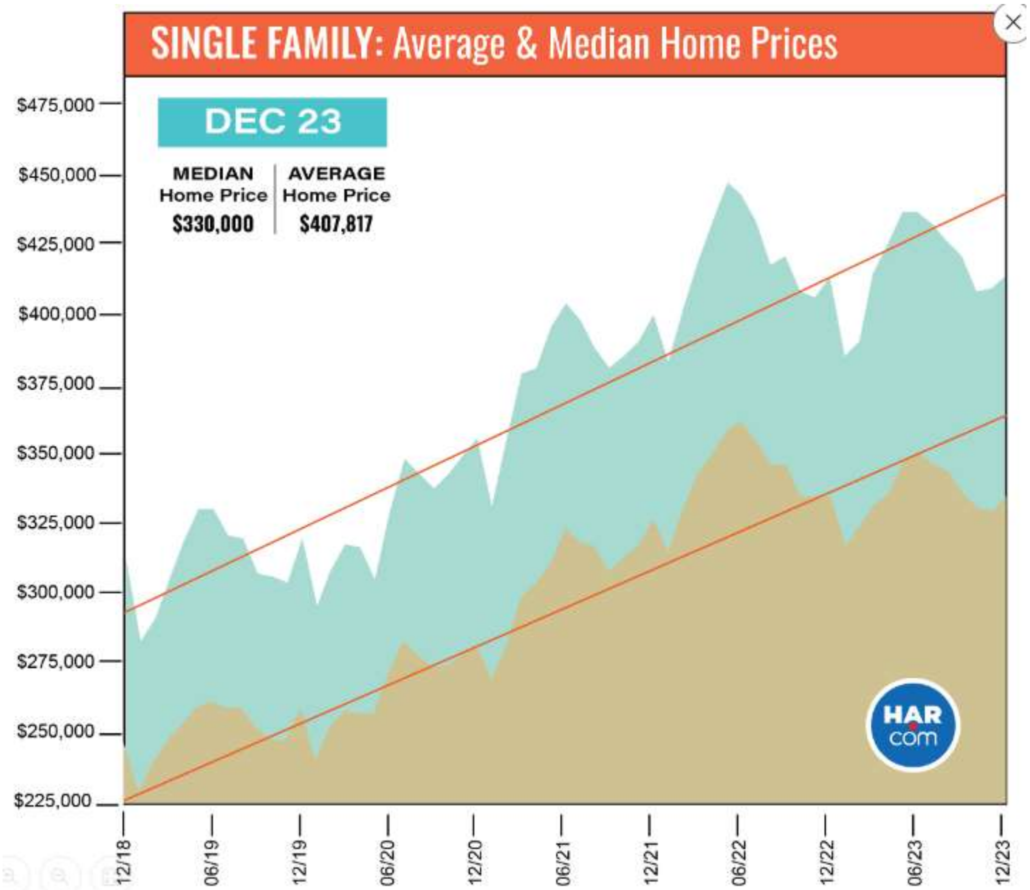
CATEGORIES	FULL-YEAR 2022	FULL-YEAR 2023	CHANGE
SINGLE-FAMILY HOME SALES	95,302	83,854	-12.0%
TOTAL PROPERTY SALES	117,784	102,367	-13.1%
TOTAL DOLLAR VOLUME	$45,631,779,205	$39,863,058,473	-12.6%
SINGLE-FAMILY AVERAGE SALES PRICE	$413,657	$412,161	0.0%
SINGLE-FAMILY MEDIAN SALES PRICE	$338,295	$330,000	-2.5%

Courtesy HAR February 8, 2023

SALES PRICES

In a full year's comparison, the median price for a home decreased to $330,000 from $338,000 in 2023 representing a -2.5% decline. In a full year's comparison, the average price was relatively unchanged falling less than 1% from $413,000 to $412,000.

The chart below shows a five-year trend line for both the average home sale price and the median home sale price of single-family homes.



[Newsroom - HAR.com]

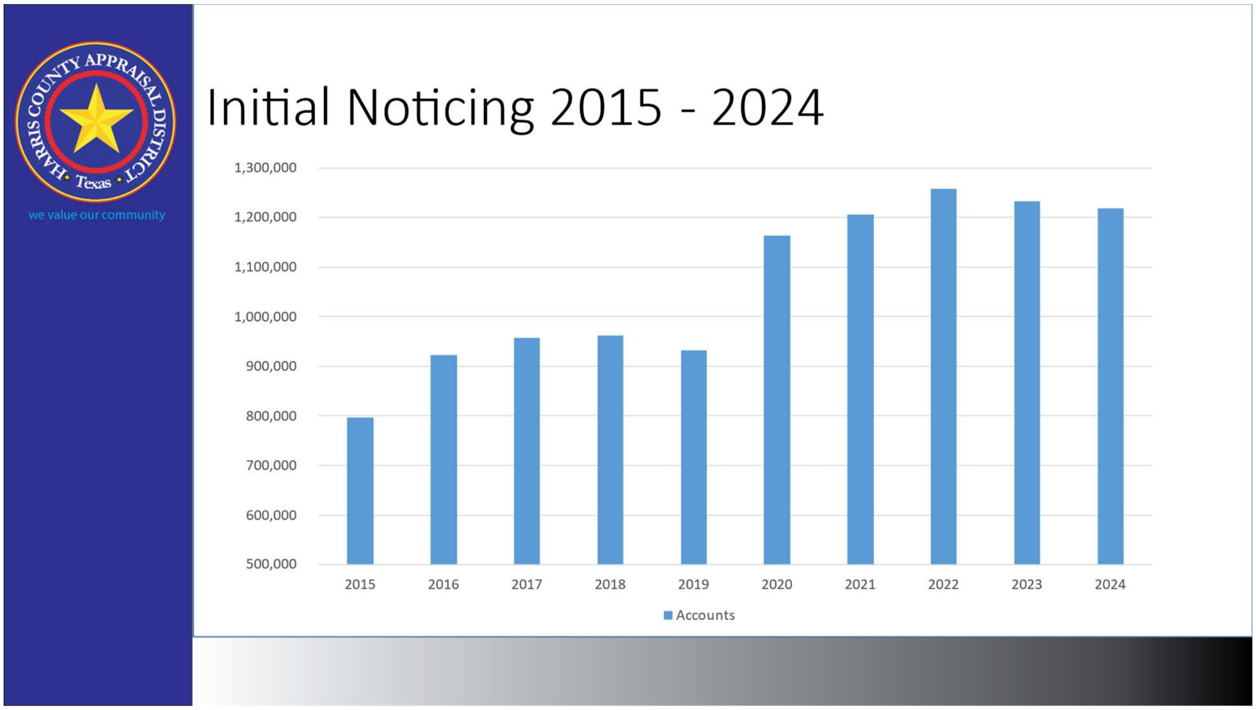
2024 Outlook and Insights

Despite two years of decreased sales volume, elevated interest rates, and growing supply, the housing market in Harris County is stable.

- Unemployment remains low.
- The fed has not increased rates in 8 months and has suggested decreases in mid to late ’24.
- The economy & job growth in Texas and nationally is positive.
- Inflation is approaching the Fed’s desired annual rate of 2%.
- Inventories, though growing, are still below what is considered equilibrium.

- No clear path to a recession

NOTICING:



HARRIS CENTRAL APPRAISAL DISTRICT
Texas
we value our community

2024 Single-family Increase, Decrease, No Change
(as of March 25)

Market Value	Parcels	Percent of Parcels		
		No Change	Increase	Decrease
Under 124,999	53,174	30.4%	38.7%	30.9%
125,000 - 199,999	67,350	21.2%	36.6%	42.2%
200,000 - 299,999	397,259	13.6%	28.8%	57.5%
300,000 - 449,999	282,412	9.9%	37.4%	52.7%
450,000 - 749,999	135,025	7.8%	58.1%	34.1%
750,000 and up	73,843	5.5%	73.4%	21.1%
Total	**1,109,063**	**13.4%**	**39.2%**	**47.4%**
Tax Year 2023		**2.9%**	**95.8%**	**1.3%**

2024 Single-family Percent Change
(as of March 25)

Market Value	Average Percent of Change		Overall Percent of Change
	Reappraisal Only	with New Construction	
Under 124,999	2.31%	2.58%	1.33%
125,000 - 199,999	0.30%	1.19%	-0.20%
200,000 - 299,999	-0.73%	4.35%	-0.85%
300,000 - 449,999	0.49%	10.56%	0.83%
450,000 - 749,999	3.64%	12.35%	3.98%
750,000 and up	6.52%	11.13%	7.73%
Total	**0.90%**	**6.80%**	**2.60%**

2024 Houston Commercial Real Estate Market Overview

National Commercial Real Estate

The commercial real estate industry is facing a post-pandemic era of sluggish economic development. Higher interest rates and the understanding that hybrid work schedules are here to stay have cast broad repercussions on the office markets and central business districts throughout the nation.

On the bright side there will be a strong demand for industrial warehouse properties, multifamily properties and properties designed for the digital economy supporting cell towers and server farms. For the past two years, the Federal Reserve has been increasing interest rates to combat the post-pandemic inflation.

The principal effect of rate hikes is evident. The cost of borrowing has spiked severely and will likely remain high for an extended amount of time. Higher mortgage rates are a negative for any borrower but can be devastating for commercial real estate investors who borrow heavily and generally need to refinance every three, five or seven years.

The problem for commercial investors is worsened by financial institutions restricting their lending standards or abstaining from making commercial real estate loans at all. Banks that are federally regulated, essentially, hold all their reserves in U.S. government bonds. The value of the bonds decreases when interest rates increase. Banks are being very conservative in making loans to protect themselves from the possibility of loan defaults. Commercial real estate loans have become harder to find as they have started to cost more to acquire.

We are potentially looking at a recession due to the Federal Reserve combatting inflation with rate increases. The rates were increased to slow the economy in response to the alarming rise in prices. The commercial real estate market is on the verge of an economic slowdown in 2024.

A major downturn would mean commercial property owners will have problems filling vacancies and difficulties increasing rents. The cost of operating and maintaining a building and providing amenities to tenants is dramatically higher than it was before the pandemic.

The end-users of commercial real estate are also plagued with uncertainty due to inflation. The commercial real estate industry can no longer rely on past benchmarks to determine how the market will function in the future and instead must set new norms.

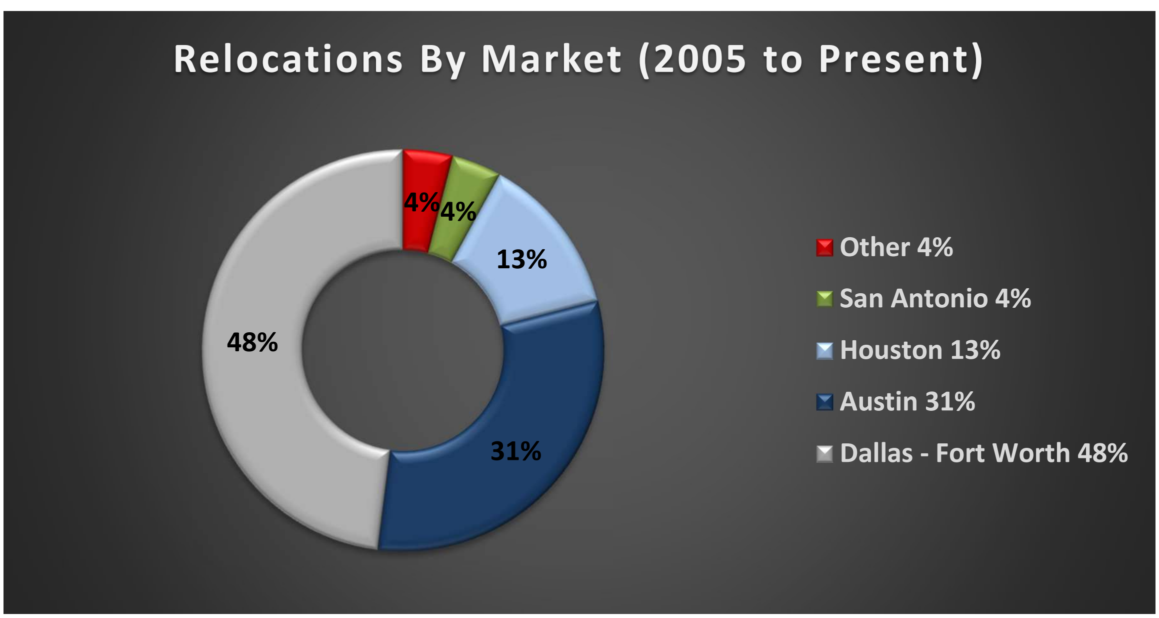
Texas Commercial Real Estate

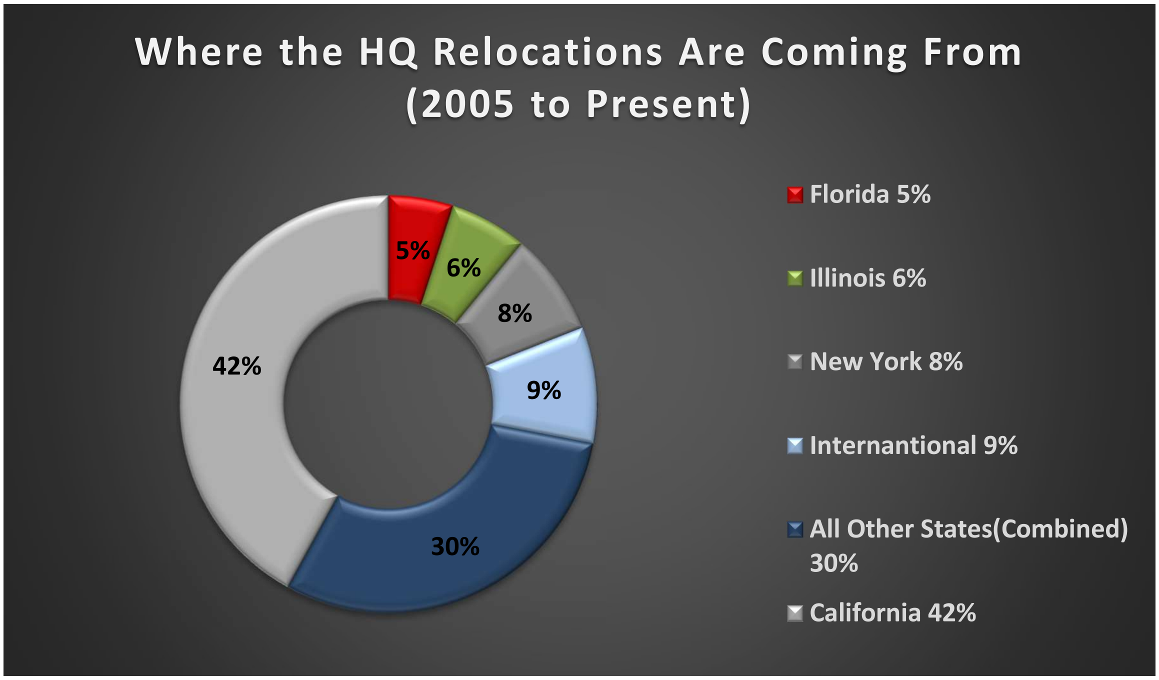
In recent years, Texas has been an epicenter for developers and investors of commercial real estate. In the past few years, thousands of people and over a hundred companies have migrated to Texas. This migration has boosted the economy within the state and created a prosperous business environment. Commercial property investors have an abundance of opportunities within this great state.

Texas is home to a flourishing commercial real estate market that traverses various sectors. The sectors are made up of office, medical, retail, hospitality, industrial, multifamily and land. The state's major cities, such as Houston, Dallas, San Antonio, and Austin, have experienced remarkable growth in recent years, attracting both commercial and residential development. This influx has created a high demand for commercial real estate, driving up property values and rental rates.

The growth of the commercial real estate market in Texas can be attributed to three principal factors. First, Texas possesses a business-friendly climate with low taxes and nominal regulatory accountability. This attracts businesses from across the country, especially California, and encourages entrepreneurship and job creation. Secondly, the state has a young and growing population, which fuels demand for housing, retail, and entertainment spaces. Lastly, Texas benefits from its strategic location and excellent transportation infrastructure, making it an appealing destination for logistics and distribution operations.

The most popular destinations for corporate relocations in Texas are Dallas-Fort Worth (48%), Austin (31%), and Houston (13%). According to the Texas Economic Development Corporation, there were 63 corporate relocations to Texas in 2021, which was a record high. These relocations represented over 10,000 jobs and $1.6 billion in capital investment.





For over 15 years, Texas has consistently been the number one state for headquarters relocations. The bulk of these relocations were from California, with 25 companies moving to Texas from the Golden State. Other states that saw a significant number of corporate relocations to Texas include New York, Illinois, and Florida.

Texas has also seen a significant increase in the number of businesses expanding their operations in the state. In 2022, the Texas Economic Development Corporation announced that it helped to facilitate over $100 billion in new capital investment and created over 100,000 new jobs in the state.

The trend of businesses relocating and expanding in Texas is likely to continue in the years to come. The state's strong economy and favorable business climate make it an attractive location for businesses of all sizes.

According to Texas A&M University Texas Real Estate Research Center, the Texas office market includes almost 1.2 billion square feet of leasable space, totaling 82 square feet per payroll worker. This inventory grew by nearly 12 million square feet, or about 1% in 2023. Statewide rents through 2023 averaged $30.00.

New deliveries will be at or above the 2023 level. Depending on how vigorously under-construction projects are completed, statewide inventory may increase by a net 10 million square feet, half of that by the first quarter.

Average statewide rent across all classes will fall throughout 2024. December 2024 rents will be 3% to 4% below their 2023 end.

Retail markets in Texas total 1.5 billion square feet of leasable space. This amounts to 51 square feet of retail space per person in the state. A net 7.5 million square feet were added to the retail inventory. Retail rent averaged $22.18 in 2023.

Statewide inventory will remain unchanged, with the potential for a 1% to 2% increase or decrease from December 2023. This will depend on the rate at which older spaces are converted and how closely new construction matches demand.

Retail net absorption as a percentage of inventory will be positive but lower in 2024 than in 2023. Total net absorption may approach ten million square feet or about 0.5 % of inventory. Retail rents are expected to end 2024 slightly above their December 2023 level. Up to 2% growth statewide is possible.

The Texas apartment market has over 2.5 million units, or one apartment for every 11 residents in the state. The market delivered over 80,000 units. Average per-unit rent is above $1,400 per month. Apartment deliveries will be much lower in 2024 than in 2023 as the under-construction pipeline has peaked. Statewide deliveries will be 20% lower by year end.

Multifamily effective rent growth will strengthen in 2024. Growth in the largest metropolitan markets will average 2.5% for the year.

The Texas industrial market includes 2.7 billion square feet of leasable space, averaging 191 square feet per payroll worker in Texas. Inventory grew by 2.8%, a total increase of 73 million square feet. Rents averaged $9.35 through 2023.

Even with macroeconomic conditions softening in 2024, deliveries will remain relatively strong. Depending on how vigorously under-construction projects are finished, total statewide inventory may increase by 1.5% to 3% by December 2024.

Statewide net absorption will be healthy in 2024, but at two-thirds the rate of 2023, or about 50 million square feet. This is about 2% of December 2023 inventory.

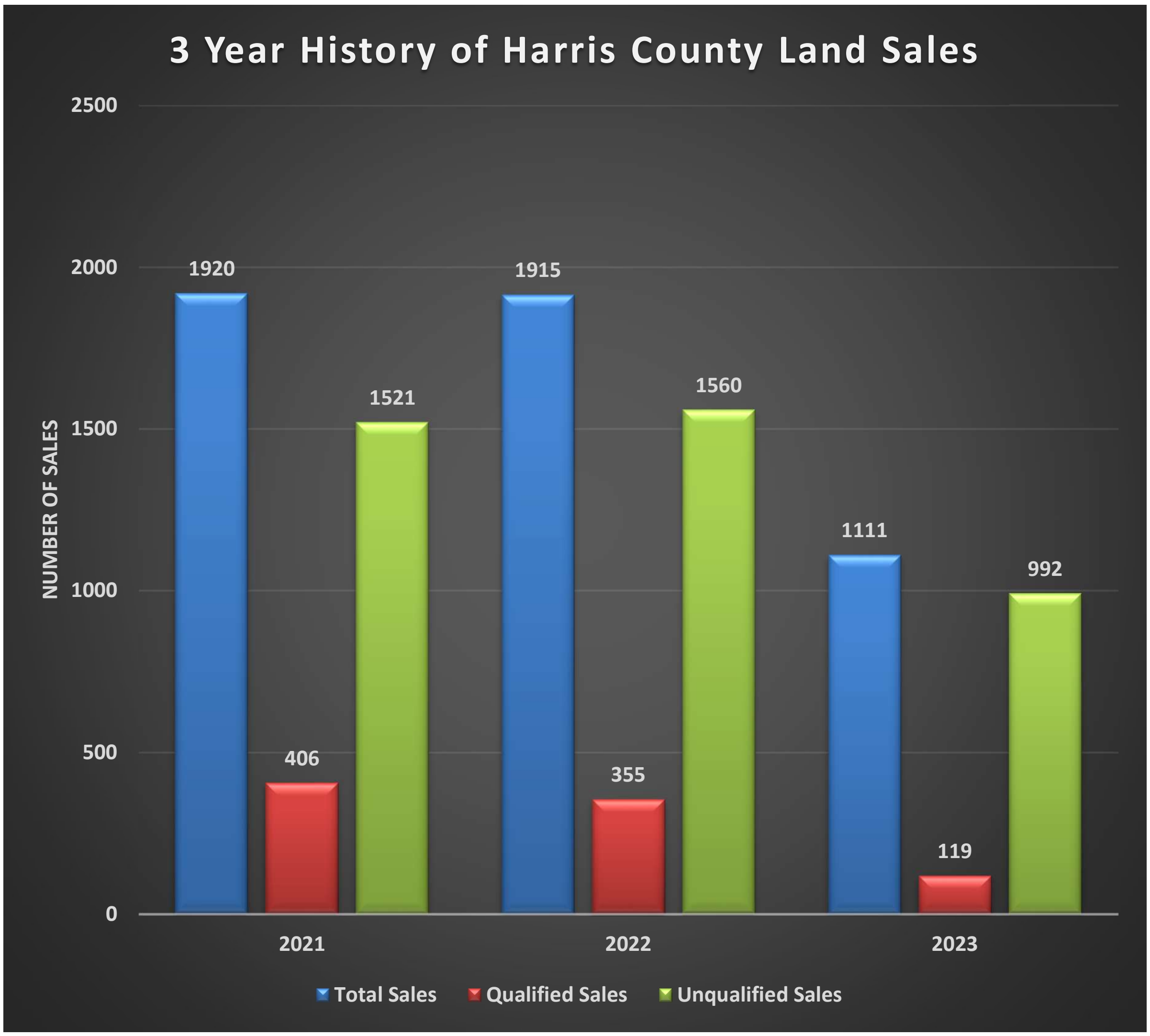
Statewide industrial rents will continue increasing in 2024, but the 2% to 4 % increase will be below the 2023 pace.

COMMERCIAL LAND

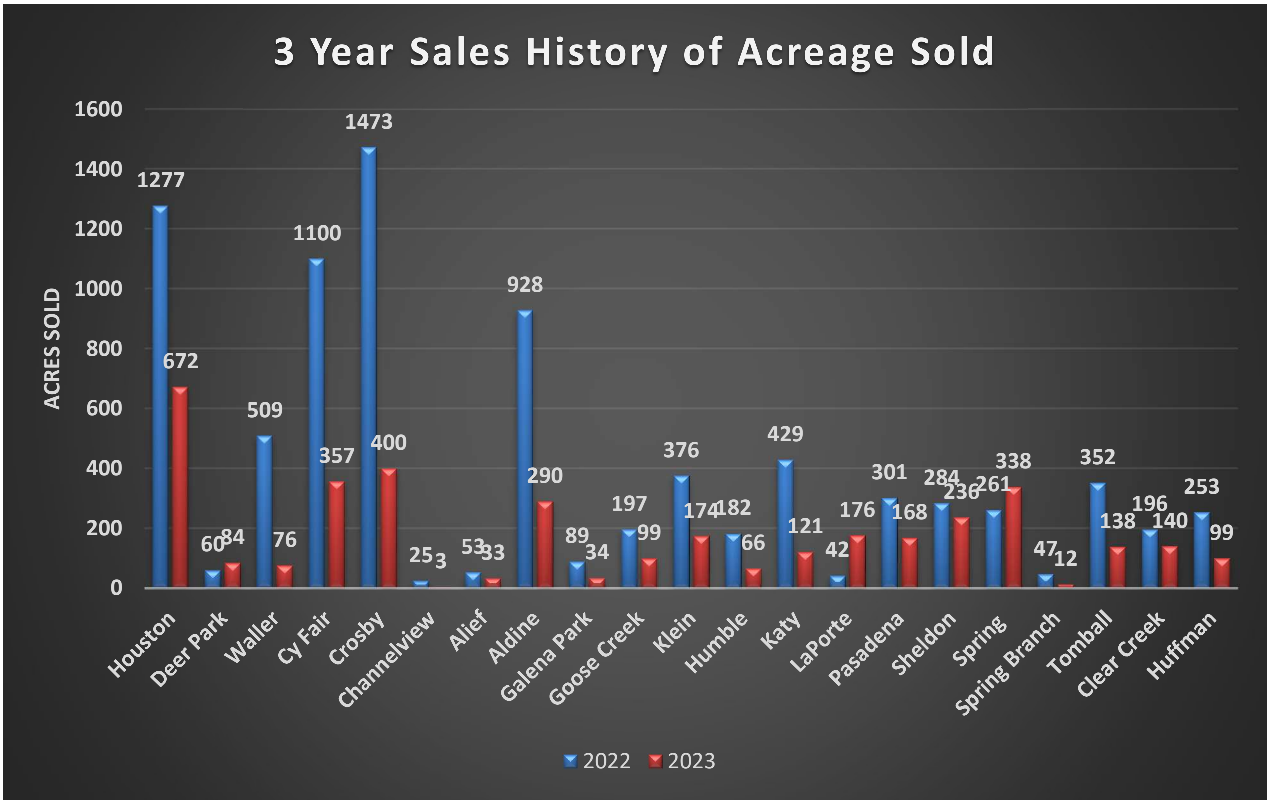
The previous market report gave a preliminary number of 3,778 acres sold for commercial development in 2022, in Harris County. The final tally of land sold for development in 2022 was 7,446 acres of land. As of mid-December 2023, 3,443 acres have been sold for commercial development. Although the numbers are not much different for the acreage of land sold by Q4 2023, the number the of transactions are significantly less than Q4 2022. Less transactions taking place, while more acreage is selling tells us that investors and developers are focusing on getting the most acreage they can buy in fewer transactions.

Land sales in Harris County have dropped significantly in comparison to previous years. As of mid-January 2024, there have been only 1,111 land sale transactions reported. At this time in Q4 of 2022, there were 1,370 land sale transactions reported. Year 2022 had a total of 1,915 land sale transactions reported which is on par with the 1,920 land sale transactions reported in 2021. It should be noted that sales transactions are reported throughout the year and the numbers listed above can and will change.

The chart below shows a three-year history of land sale transactions for all of Harris County. It also shows the totals and breakdown of qualified and unqualified sales. Qualified sales are sales that were confirmed and validated with sales prices. Unqualified sales may or may not have sales prices and are considered invalid based on not meeting the definition of a fair market transaction.



The chart below gives a breakdown of the acres sold per school district for 2022 and 2023. The number of acres sold includes qualified and unqualified sales.



A further breakdown of the sales by school districts shows the activity and direction of growth in the county. HISD leads the way as usual, in total sales. Cy Fair and Aldine ISD are currently tied for second in the number of sales transactions. The number two spot has usually been Cy Fair ISD. Aldine ISD is always a close third.

The surprising data point is the acreage sold in Crosby ISD in 2022. There were quite a few large acreage sales in that area last year although the number of transactions were few in comparison to the ISD's with the most sales.

It has yet to be determined the future use of those properties in Crosby. The area is rural and most of the land has an agricultural use.

The breakdown of transactions per year and per ISD is illustrated in the following chart. The disclaimer remains for 2023 noting the number of sales is preliminary and will change throughout the year as more sales are uncovered through discovery.

Total Number of Sales Per Year by ISD

Harris County	2023	2022	2021
Houston ISD	355	572	575
Cy Fair ISD	98	204	179
Northwest			
Waller ISD	38	70	81
Klein ISD	44	105	91
Spring ISD	48	72	70
Tomball ISD	45	82	60
Northeast			
Aldine ISD	95	193	243
Humble ISD	39	70	75
Crosby ISD	33	65	70
Channelview ISD	6	21	14
Sheldon ISD	19	18	22
Huffman ISD	24	32	26
Southwest			
Alief ISD	20	25	35
Katy ISD	57	100	112
Spring Branch ISD	5	29	20
Southeast			
Deer Park ISD	8	8	19
Galena Park ISD	15	13	9
Pasadena ISD	63	107	81
Goose Creek ISD	47	52	67
LaPorte ISD	26	28	34
Clear Creek ISD	25	47	35

MULTIFAMILY

Demand in Houston’s multifamily market remained strong throughout 2023, with a total annual absorption of approximately 10,238 units, which is more than 10% above the average amount absorbed annually during the pre-COVID five-year average. Bear Creek/Copperfield, Sugar Land/Missouri City, and Lake Houston, where new supply has been concentrated in recent quarters, have all outpaced their historical norms for demand. Furthermore, strengthening demand within the 3-star units led to a modestly positive trailing 12-month performance in the fourth quarter of 2023. This is the first time this has occurred since the second quarter of 2022. Nevertheless, new deliveries in Houston were almost double the total units absorbed, due to the recent supply wave and rent growth will likely remain flat through most of 2024.

Currently, year-over-year rent growth in Houston sits at 1.5%, which is at its lowest level since 2020 and is significantly underperforming the market's 10-year average of 2.5%. More affordable submarkets like Alief and South-Central Houston with minimal new supply have been among the top performers in the past 12 months, while expensive nodes like Downtown and The Woodlands contending with more new supply have posted rent losses during this time.

With supply outpacing demand, vacancies have risen higher for the past two years, going from a seven-year low of 8.5% in the third quarter of 2021 to 10.9% today. An encouraging sign is that the vacancy rate appears to have peaked. Total annual construction starts in 2023 fell to a six-year low due to elevated interest rates, meaning supply-side pressure will be much lighter in the quarters ahead. This could set the stage for falling vacancies and accelerating rent growth in 2025.

While Houston regularly leads the country in net deliveries, the pace of development remains disciplined, with 3.6% of inventory underway, below the national average of 4.8%. Fast-growing suburban areas in Houston to the north and west are at the forefront of construction activity, while urban areas are seeing activity decline compared to recent years.

Key Houston Multifamily Indicators

	Overall	Class A	Class B	Class C	Class D
# of Properties	3,139	754	1,164	859	362
# of Units	744,240	200,583	280,958	207,887	54,812
Avg Price ($/mo.)	$1,265	$1,727	$1,249	$976	$763
Avg Rate (c/sf/mo.)	141.7	181.8	141.0	114.3	88.2
Occupancy	89.1%	84.6%	91.5%	90.1%	89.0%

Trends	Past 3 months	Past 6 months	Past 12 months
Rental Rate Growth (annualized)	**-5.9%**	**-2.4%**	**1.5%**
Absorption (units)	**2,408**	**6,768**	**10,238**

Leasing momentum remained strong throughout 2023 though not enough to keep up with the recent supply stream. When looking at annual figures, as of the first quarter of 2024, a net of

10,238 units have been absorbed over the past 12 months, versus the 28,813 units that have opened during this time. In turn, Houston's current vacancy rate of 10.9% is above its 10-year average of 9.4%.

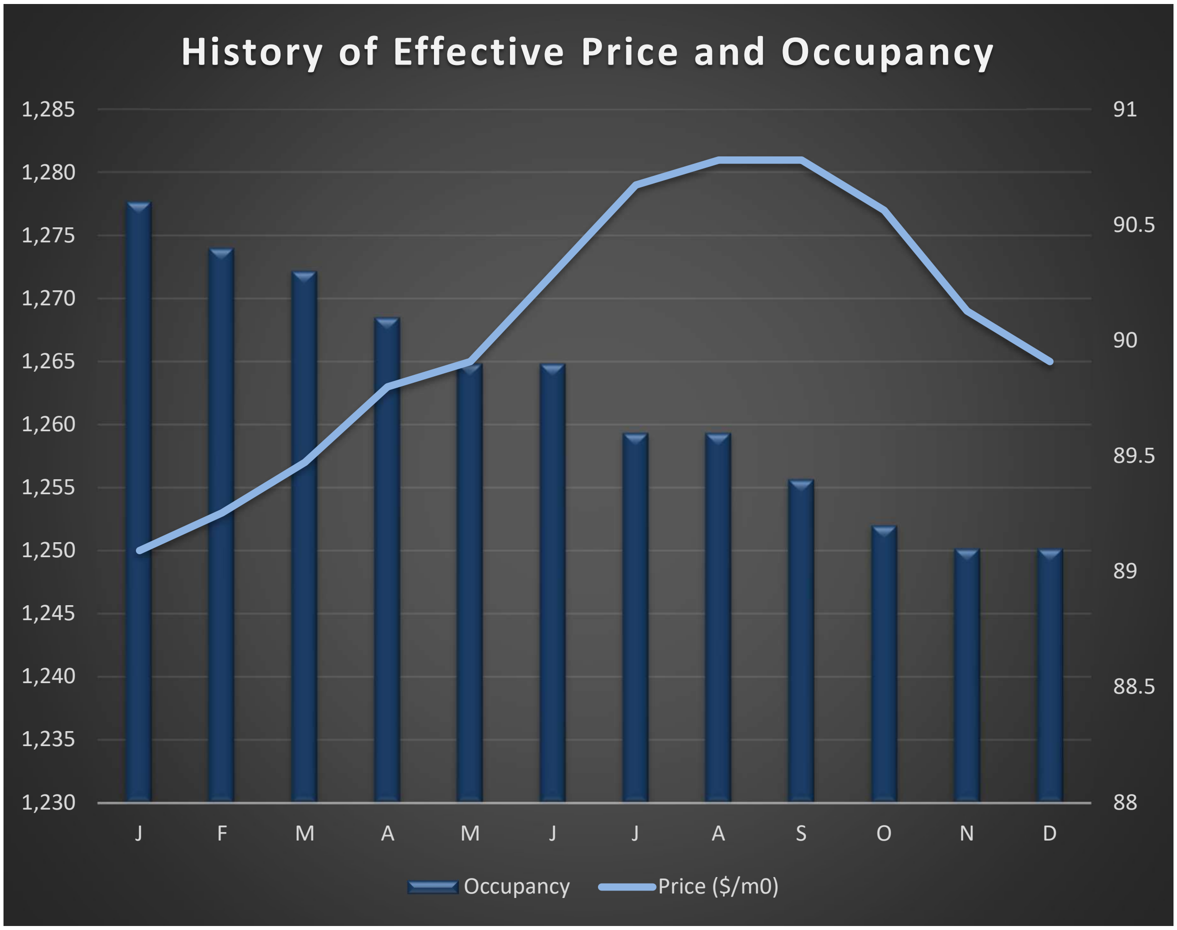
Demand has been largely driven by new inventory being absorbed, with 13,000 of those units within 4-star and 5-star communities. This explains why supply-heavy areas such as Bear Creek/Copperfield, Neartown/River Oaks, and Sugar Land/Missouri City have posted some of the strongest absorption figures during the past 12 months. Meanwhile, year-over-year, Class B product (3-star) recorded 270 units absorbed while the lowest-tier inventory stood at -1,300 units. A recovery in the 3-star segment has led to a modestly positive trailing 12-month performance in the fourth quarter of 2023 marking the first time this has occurred since the second quarter of 2022.

Lower-income households have been under significant stress because of inflation concerns and notable rent increases, which has led some to seek alternative housing choices such as moving in with relatives or finding a roommate. While the Fed has made progress in its effort to curb inflation with the most recent available inflation data in Houston at 3% as of October, it remains above the historic 2% seen over the past 20 years. More importantly, core inflation, which excludes food and energy due to their volatility and measures price changes like housing, medical and transportation, has been slower to recede and remains at about 4% in Houston.

Vacancies are lower in workforce housing-heavy areas like Northeast Houston, where supply pressure has been minimal. Meanwhile, construction-heavy areas like Outlying Montgomery County and Bear Creek/Copperfield are posting some of the highest vacancies. Over the short term, the Metro's 22,449 units underway will place further pressure on the market's vacancy rate. Though under CoStar's house view, the vacancy rate is not anticipated to rise much further, but rather simply remain in the double digits through the next couple of years. The long-term outlook is favorable. Houston regularly ranks as one of the top markets in the country for population growth, along with comparable Sun Belt metros such as Dallas-Fort Worth, Phoenix, and Atlanta. Robust net migration and household growth should continue to fuel demand for Houston-area apartments. Additionally, 20+ year high mortgage rates paired with the rapid increase in single-family home prices have raised the homeownership barrier for many households, directing new housing demand to the rental market as well as fueling greater renter retention rates.

Average asking rents of $1,265 per month in Houston are about 25% below Austin and the U.S. average and roughly 15% below Dallas-Fort Worth. Just 10 years ago, the U.S. held a 15% rent premium, meaning rent gains in Houston have been much slower during this time when compared to the national average. Over the past decade, Houston's multifamily stock has expanded by 32% whereas the national average has been about 25%.

Year-over-year rent growth of 1.5% is down significantly from the peak of 9.0% recorded in the fourth quarter of 2021. Nevertheless, the market is outperforming all three of its Texas Triangle peers, Austin, Dallas-Fort Worth, and San Antonio, which are all currently posting rent losses. These markets are all contending with more elevated amounts of new supply in terms of percentage of inventory than Houston. Looking ahead, weak performance in Houston is anticipated to continue into the first half of 2024 as the market absorbs the considerable construction pipeline.



Source: Apartment Data Services

The chart above shows the overall occupancy and effective rental prices over the last 12 months. These statistics derived from a continuous survey of all apartment communities. Effective rental prices are calculated net of concessions and utility adjustments.

It is undisputed by market participants that construction costs are now 30% to 50% higher than they were two years ago, depending on the type of material. This, paired with supply chain issues and the elevated cost of debt has made it difficult for projects to break ground. While the 22,449 units currently under construction are meaningful, it is below the market's five-year average of 30,000 units. The number of construction starts last year slowed drastically, meaning the pipeline should be much lighter in the quarters ahead. Total new construction starts in 2023 fell to its slowest pace since 2017.

Concessions are generally represented by three types of specials: move-in, months free or floorplan. These specials are prorated over a lease term to arrive at a percentage reduction in market or street rents. The chart below displays the concessions as of December 2023. The chart shows overall concessions and a breakdown by class of property.

Concessions

Class	Total Units w/ Concessions	% of Total Units	Citywide Effect	Average Special
All	255,522	34.0%	-2.2%	-5.9%
A	99,635	47.0%	-3.2%	-6.7%
B	94,397	34.0%	-1.7%	-5.0%
C	61,640	30.0%	-1.6%	-5.4%
D	5,850	11.0%	-0.5%	-4.4%

Although the market has wavered substantially over the past few years, the long-term drivers supporting Houston's multifamily market remain sound: nation leading population growth, a diversifying economy, and average rents of $1,265/month, which remain below national rates and Sun Belt competitors such as Austin, Atlanta, and Miami. Long-term, stakeholders within the Houston multifamily market remain positive on its outlook.

In addition to the forementioned factors, 20+ year high mortgage rates paired with rapid increases in single-family home prices have increased the home ownership barrier. This is also shifting the housing demand toward the rental market and driving increased renter retention rates.

THE OFFICE MARKET

The economy for the Houston metro area has performed quite well during the fourth quarter of 2023 with 78,000 non-farm jobs created over the trailing 12 months ending November 2023, with oil & gas related jobs up 3.7% over the same period. Unemployment in Houston remains comparatively low at 3.8%. Despite a surprising 10% growth in office-using jobs, with 70,000 new positions added since its pre-pandemic peak, there has not been a direct correlation in office absorption as companies continue to right-size and become more efficient with their office space footprints likely due to remote and hybrid work arrangements.

Leasing activity in Trophy and Class A+ properties continue to surpass the broader market. As the flight to quality trend persists and the construction pipeline remains non-existent, this could lead to rent premiums and declining concessions in these properties because of the supply of high-quality space options being strained. Tenants are moving to better quality space to ensure that the luxuries employees experienced while working from home also exist in the office.

Net absorption grew to 1.4 million square feet, championing the previous year's -925,910 square feet. Year-to-date, net absorption is at 723,898 square feet, up from the prior year-to-date number of -1.1 million square feet. 1.3 million square feet of the fourth quarter's positive net absorption can be attributed to Class A space leases. This accounts for 87% of the positive net absorption.

Leasing activity decreased 41% year-over-year from the fourth quarter of 2022 to 2023. In the fourth quarter of 2022, 4.2 million square feet of office space was newly leased or renewed. At the end of the fourth quarter of 2023 that number drastically fell to 2.5 million square feet. Leasing activity is currently at 13 million square feet at the end of the fourth quarter of 2023. In 2022 at this time, 16.9 million square feet were leased.

At the end of the fourth quarter of 2023, the overall vacancy rate in the Houston office market increased 30 basis points year-over-year from 24.6% to 24.9%. Class A and Class B properties have vacancy rates of 26.2% and 25.4%, respectively.

Deliveries in the Houston office market surpassed 1 million square feet at the end of the fourth quarter of 2023 at 1.3 million square feet. This is the first time in two years deliveries exceeded the 1 million square foot mark. Year-to-date, deliveries are at 2.1 million square feet. Most of the office space delivered for the year was in the medical related office in the Medical Center.

The overall full-service rent in Houston increased to $30.42 per square foot over the previous year's rent at $30.02 per square foot. This increase is a record high for the metro office market. Class A space asking rent is approximately $35.47 per square foot, while Class B space has an asking rent of about $23.07 per square foot. Taking into consideration 68.1 million square feet of office space is available and the challenges the current market is faced with, rent increases in 2024 will be minimal.

Key Houston Office Market Indicators

	Current Q4 2023	Prior Quarter Q3 2023		Prior Year Q4 2022	
Vacant Total	24.9%	25.1%	↓	24.6%	↑
Vacant Direct	23.8%	23.9%	↓	23.6%	↑
Available Total	27.4%	28.4%	↑	29.0%	↓
Available Direct	25.3%	25.9%	↓	26.1%	↓
Net Absorption (SF)	1,494,414	-864,648	↓	-925,910	↑
Leasing Activity (SF)	2,508,919	2,692,807	↑	4,267,238	↓
Construction (SF)	1,457,304	2,796,133	↑	3,343,512	↓
Deliveries (SF)	1,338,829	294,170	↓	22,329	↑
Avg Asking Rent (FSG)	$30.42	$30.24	↓	$30.02	↑
Inventory (SF)	247,480,319	249,141,490	↑	245,354,320	

Source: Partners Research

MEDICAL OFFICE

Houston is home to the largest medical complex in the world known as the Texas Medical Center (TMC). The TMC ranks as the 8th largest business district in the U.S. and is one of the largest employers in Houston. The annual economic impact of the TMC is estimated to be a new $63 billion, from prior year estimated $25 billion. Due to an aging baby-boomer generation and a growing Houston population, healthcare is one of the fastest growth industries in Houston. With these trending demographics, medical office buildings are viewed by investors as safe-haven assets. Houston's booming medical real estate market responds and keeps pace with the demand.

The Houston healthcare real estate market continues to demonstrate strong fundamentals despite the lingering effects of the COVID-19 pandemic and increasing concerns over the economy's direction and inflationary pressures. In addition, major health systems continue to expand their facilities both on campus and off campus outpatient settings to accommodate Houston's expanding population and robust job growth.

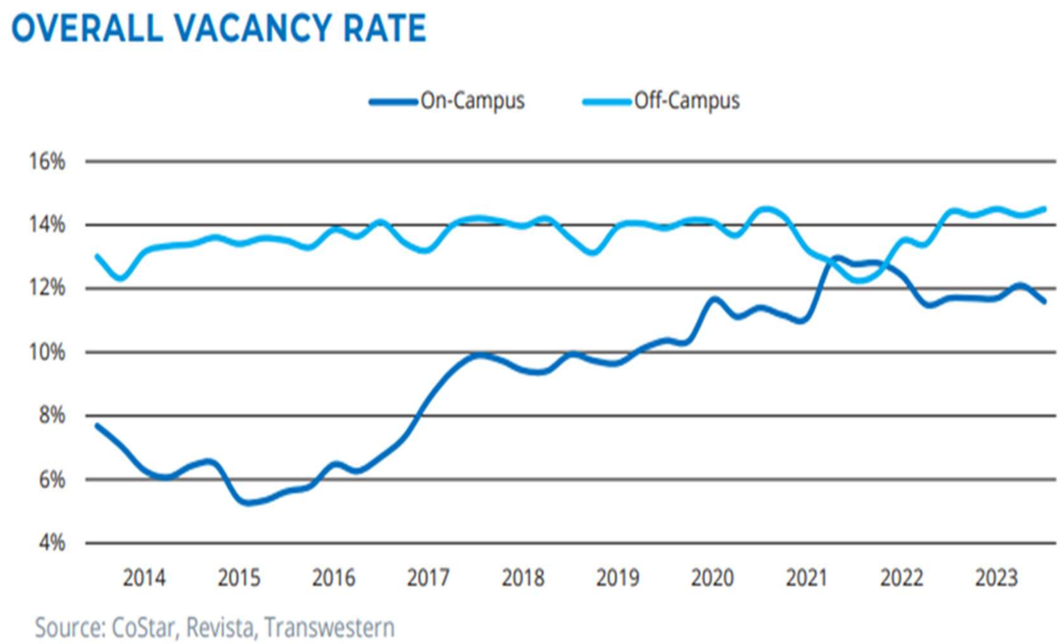
Advancing technology, increasing competition and pricing pressure are driving a rapid evolution in healthcare deliveries to become more consumer-centric, moving off the hospital campus to an ambulatory setting. Healthcare providers have added outpatient space and have increasingly taken on retail space as part of the outpatient clinic real estate strategy, particularly in Houston's fast-growing suburban submarkets. On the supply side, rapidly rising material costs and labor shortages have caused delivery delays and extended fit-out periods for new properties.

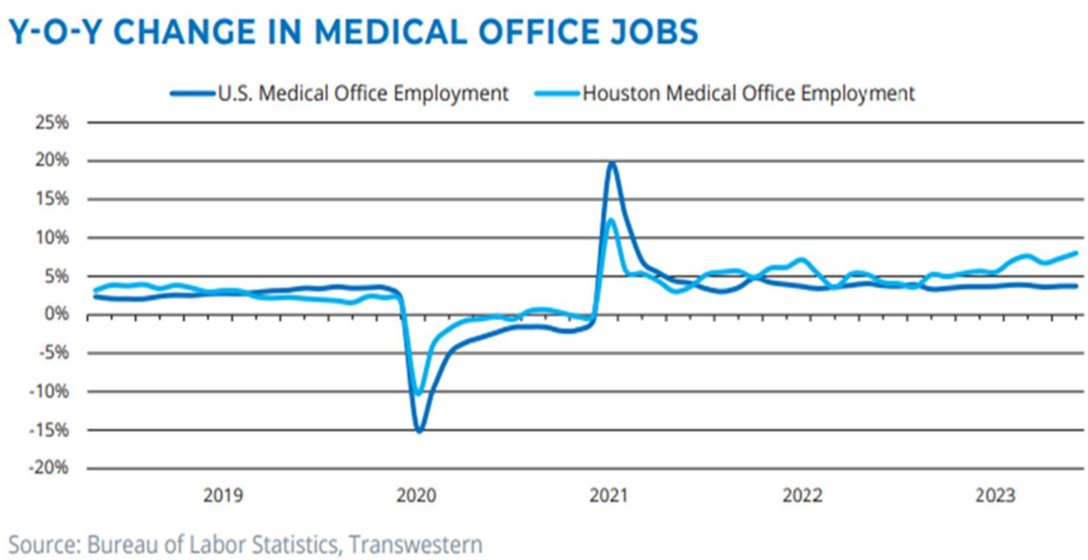
Key Houston Medical Office Indicators

	Q3 2023	Q3 2022
Unemployment Rate	4.7%	4.4%
Net Absorption (SF)	234,300	29,000
Direct Vacancy Rate	13.2%	13.2%
Total Availability (SF)	4,300,000	4,200,000
Under Construction (SF)	1,200,000	1,900,000
Avg Asking Rent Full Service (PSF)	$30.40	$30.18
Sales Volume (Millions)	$85.3	$19.0

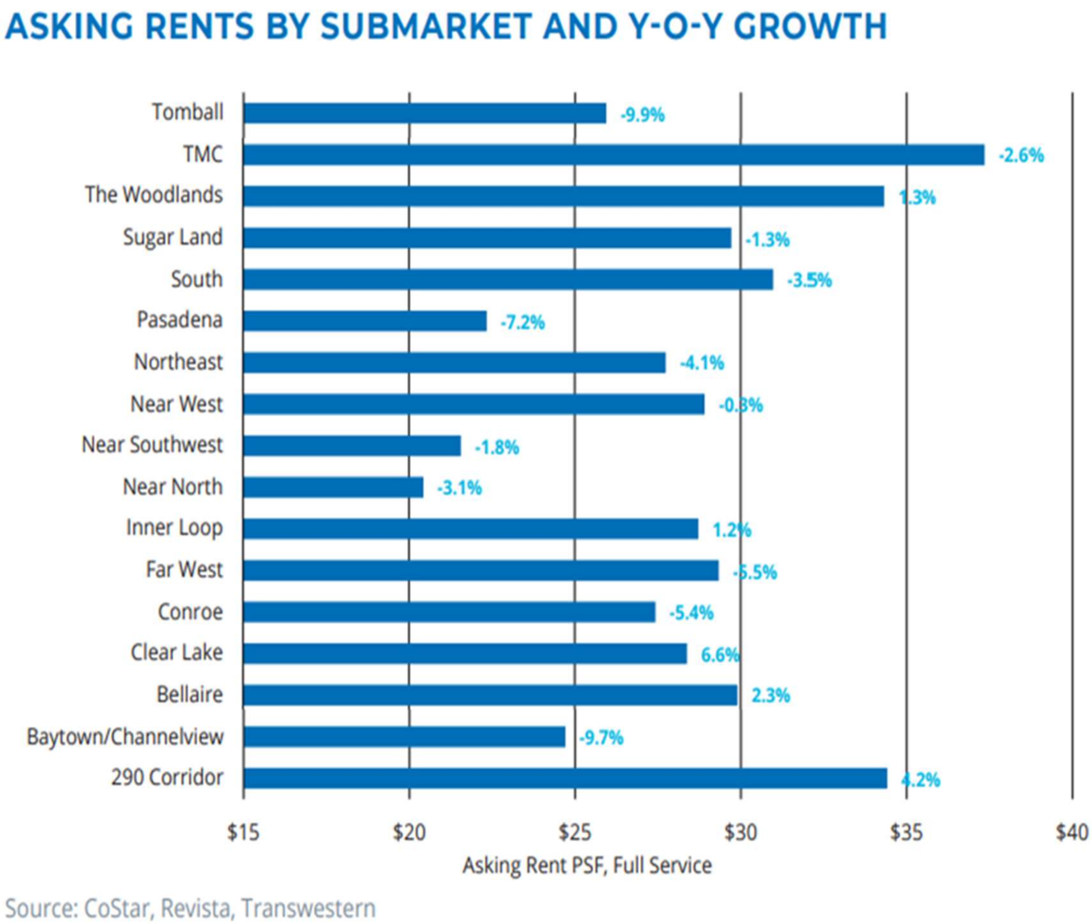
Houston's healthcare sector overall net absorption totaled 234,300 square feet in Q3 2023, with both on-campus and off-campus chalking space gains, most of which were on-campus. More than 93% of the 1.2 million square feet currently being built throughout Houston's healthcare sector are already pre-leased.

Two submarkets had net losses of over 15,000 square feet Q3 2023: Near Southwest and Tomball finished the quarter with losses of 21,197 square feet and 15,959 square feet, respectively.





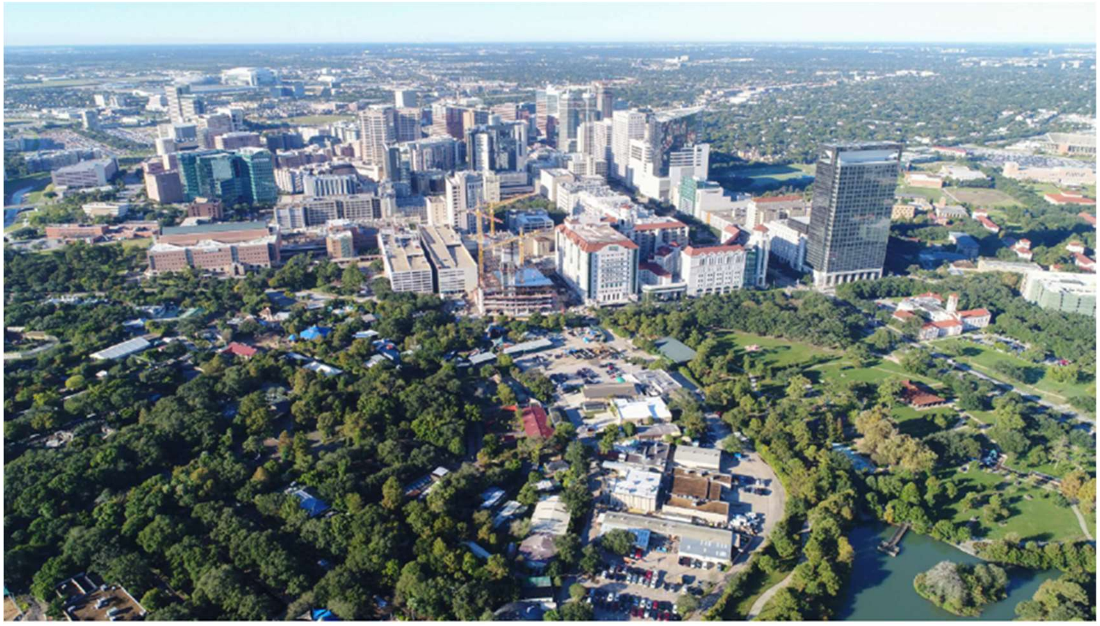
Overall direct vacancies for Houston's healthcare sector remained at 13.2% over the period and have steadily hovered around this rate since Q1 2022. During Q3 2023, off-campus vacancies increased by 30 basis points, while on-campus products experienced a decrease of 50 basis points. Q3 2023 vacancy rates are in line with vacancy rates of the same time last year with off-campus properties experiencing an increase in vacancy of just 10 basis points, while on-campus vacancies declined by 10 basis points.



Houston's healthcare sector asking rents rose Q3 2023 to $30.40 per square foot per year from $30.19 per square foot per year. The Clear Lake submarket experienced the most significant increase with a 7.5% gain, quarter-over-quarter, and a 6.6% increase year-over-year.

Both on-campus and off-campus products experienced a rise in rents quarter-over-quarter, with on-campus experiencing a larger increase. Annualized on-campus saw rents rise to $33.41 per square foot, up 1.6% from last quarter, and up 3.5% from same quarter last year. The overall market average for off-campus products is $28.28 per square foot per year, up by 1.3% from the previous quarter, but down 1.9% from same time last year.

Sources: *Transwestern, Bureau of Labor Statistics, Colliers, CoStar, Real Capital Analytics, Revista*



The Texas Medical Center has 10 million patient encounters annually, more than 160,000 visitors, over 180,000 annual surgeries, 750,000 Emergency Room visits per year, almost 14,000 total heart surgeries. Home to over 120,000 employees (with 247,000 future employees), 50,000 life science students, thousands of volunteers, 50 million sq. ft. of developed building area with an additional 3 million square feet in the planning stages, and $3 billion in construction projects underway. Houston's top three recipients receiving grant funding from the National Institute of Health (NIH) include: Baylor College of Medicine, The University of Texas MD Anderson Cancer Center, and The University of Texas Health Science Center of Houston; all three totaling more than $520 million.

Highlighted Medical Office Activity

Texas A&M University TMC3, a 37-acre biomedical research campus, is still in its development phase. The $546M development located in the Texas Medical Center is one of several major projects underway in the area. Texas A&M Innovation Plaza will consist of two new towers, as well as the purchase and renovation of 1020 Holcombe Blvd., an 18-story building. Innovation Plaza will be home to the Texas A&M Engineering Medicine (EnMed) program and provide student housing, while the other is a mixed-use development for medical offices and retail. The 3 towers are Discovery, Life, and Horizon. The mixed-use building, known as Horizon Tower, is an integrated medical plaza of 17 stories sitting atop a 13-story parking garage and will cater to life sciences, clinical, biomedical, technology and office uses. Medistar Corp. held a virtual groundbreaking ceremony for the campus on Oct. 1. The Horizon Tower is aiming for a 2023 4th quarter delivery; however it is currently under construction.

Texas Medical Center 3 (TMC3) is a world-class life science complex that unites the best minds in medicine across several institutions. The 37-acre project will include shared and proprietary research centers, multi-disciplinary laboratories, health care institutions, a hotel and conference center, retail, and a unique double helix-shaped green space TMC3 Helix Gardens – totaling almost 3.7 million square feet of developed property. The complex will add an estimated 23,000 permanent jobs and an ongoing annual impact of $5.4 billion to the Houston economy. It is also estimated that 17,000 construction jobs will help bring the TMC3 vision to life.

TMC3 Collaborative Building is a four-story, 250,000 square foot, state-of-the-art building. The recently completed building features include a 43,000 square foot joint research lab, office/co-working space, and a shared IT infrastructure to facilitate synergistic research initiatives for four founding institutions: MD Anderson, Texas A&M University Health Science Center, the University of Texas Health Science Center at Houston, and TMC.

As the TMC expands, global real estate giant Hines and partners Harrison and 2ML Real Estate Interests are progressing on a 53-acre mixed-use project that's expected to infuse more residential, retail and life science space into one of Houston's most prominent business districts.

Levit Green launched with a five-story mixed-use building that is expected to eventually include a mix of residential, retail and office space. The first 270,000 square foot building features research and wet lab space, a 7,000 square foot conference center, and a 25,000 square foot lab and office space for entrepreneurs and startups. The building is alongside several lakes that Hines is planning to build as part of the project. A boardwalk and a 5,800 square foot fitness center, and outdoor garden are expected to encourage tenant connections to the outdoors.

Levit Green is expected to have immediate access to state Highway 288, the MetroRail, and Metro bus and bike trails, according to Hines. The project is being built on land that was once home to Grocers Supply Co. facility at the corner of SH 288 and Holcombe Blvd.
Sources: Partners (fka NAI Partners), TMC, CoStar, Colliers, Revista, Transwestern

Houston Methodist broke ground on a 106-acre site on U.S. Highway 290 near Barker Cypress Rd. in northwest Houston in summer of 2022. Methodist purchased the land which formerly housed administrative operations for Sysco Corp., in 2021. The campus will include a seven-story, 571,000 square foot hospital, and a 160,000 square foot medical office building. Houston Methodist Cypress Hospital, scheduled to open in the first quarter of 2025, will be Houston Methodist's ninth hospital and will incorporate the most advanced technology available. With 400 beds and a prime location in the heart of the rapidly growing U.S. 290 corridor, the hospital will be equipped with technologically advanced innovations implemented during COVID.

The new campus will be modeled after the comprehensive Houston Methodist West and Houston Methodist The Woodlands facilities, and according to a press release, will ultimately have 400 beds, multiple medical office buildings and room for future growth. The new hospital could open as early as 2024 and ultimately employ more than 500 people, according to the press release. Officials said outpatient clinics and medical staff offices are slated to open first.
Sources: Partners (fka NAI Partners), Community Impact

HOTELS

In comparison to the rest of Texas, the Houston hospitality market has been slow to bounce back to pre-pandemic levels of operations. However, in 2023, the hotel market has shown signs of life. The resurgence in the hotel market can be attributed to high levels of group travel and leisure travel for many events taking place in Houston, such as concerts, sporting events and conventions. These are all things that were nonexistent during the pandemic and shortly after the pandemic was at a controllable level.

Economic conditions, labor limitations, and the slow return of business-related and leisure visitors are the drivers in Houston's hotel recovery. An attempt to return to normalcy began in 2022. This return to normalcy brought back the demand for group-related travel. The resurgence of group demand swiftly began in 2022 and persisted through 2023 into January. Much like Dallas, the revival of conventions has been a significant factor in Houston's recovery, compensating for the lagging levels of business travel. While weekday business travel, particularly from Monday to Wednesday, remains sluggish, the increase in group and weekend travel, coupled with the return of conventions and major entertainment events, has helped balance the overall travel landscape.

In 2023, the monthly Average Daily Rate (ADR) started topping 2019 levels and continued to grow throughout the year. Twelve-month ADR through January saw a 6.7% change and 14.3% growth year over year. Additionally, 12-month revenue per available room (RevPAR) also experienced an increase of 11.5% growth, with an increase of 17.4% year over year. Occupancy rates are still below pre-pandemic averages and are expected to take a few more years to fully recover. Occupancy lag is attributed in part to the gaps in demand for business travel and the significant increase in hotel room inventory. From 2020 to 2022, Houston consistently ranked among the top markets for hotel room deliveries, impacting both room absorption and occupancy rates.

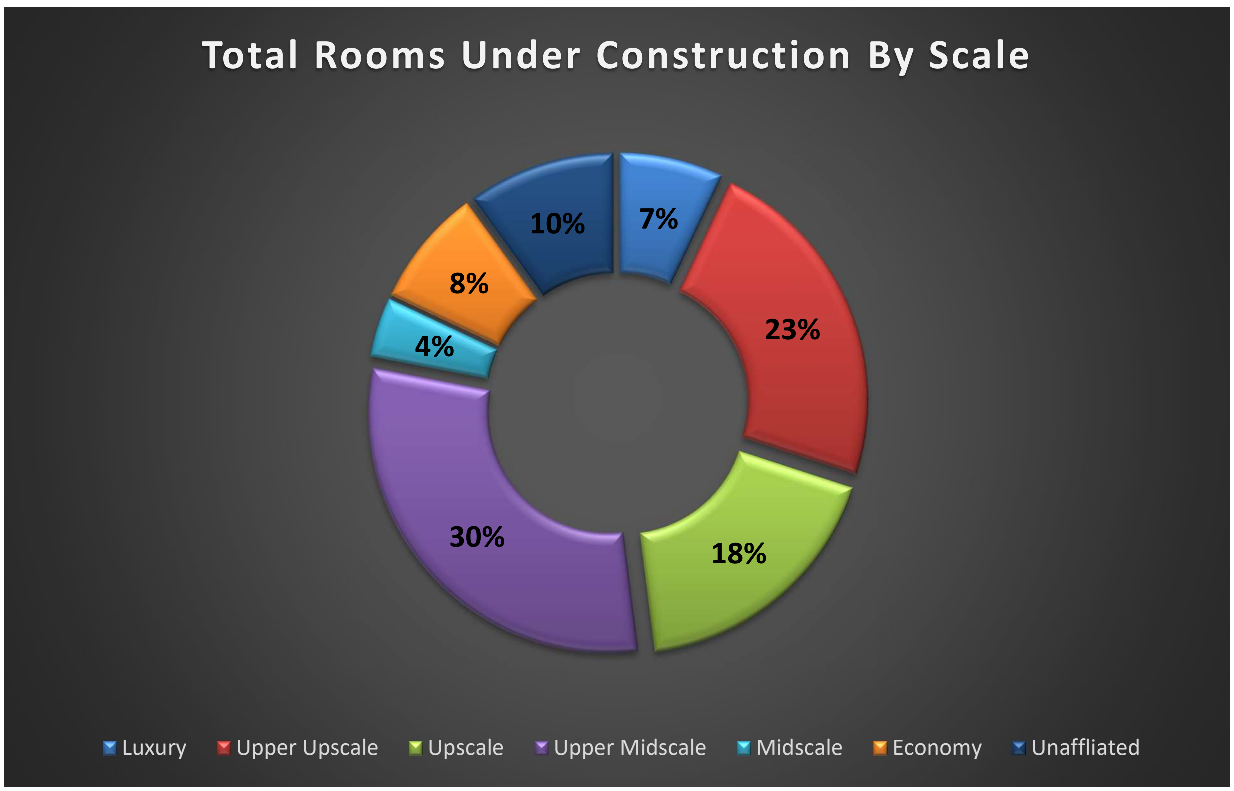
Despite lower inventory levels this past year, the 2023 and 2024 construction pipeline is expected to increase and bring upwards of 2,400 new rooms, representing 2.3% of existing hotel supply, to the market. Eleven properties totaling almost 1,100 rooms opened in 2023, with a total of 721 coming online by the end of the year. With a slower-than-normal construction pipeline in 2023, 2024 is seeing a healthy pipeline build for projects in the final planning stage. There are 42 hotels set for 2024-26 openings and in the final planning stages.

Key Houston Hotel Market Indicators

Class	Rooms	12 Mo Occ	12 Mo ADR	12 Mo RevPAR	12 Mo Delivered	Under Construction
Luxury & Upper Scale	24,162	61.4%	$199.91	$122.66	640	729
Upper Scale & Upper Midscale	45,934	60.6%	$111.55	$67.55	498	1,264
Midscale & Economy	37,430	58.3%	$60.08	$35.00	312	271
Total	107,526	59.9%	$114.36	$68.54	1,449	2,264

Average Trend	Current	3 Mo	YTD	12 Mo	Historical Avg	Forecast Ave
Occupancy	*55.2%*	54.3%	55.2%	59.9%	54.9%	62.1%
Occupancy Change	2.7%	0.5%	2.7%	4.5%	-0.4%	0.9%
ADR	$117.86	$110.45	$117.86	$114.6	$101.76	$118.86
ADR Change	14.3%	6.8%	14.3%	6.7%	1.5%	1.5%
RevPAR	$65.10	$60.01	$65.10	$68.54	$55.82	$73.75
RevPAR Change	17.4%	7.3%	17.4%	11.5%	1.1%	2.4%

Source: CoStar Group



Source: CoStar Group

Highlighted Hotel Activity

Great Wolf Lodge Gulf Coast Texas

Situated on a 27-acre site east of Interstate 45, just south of the NASA Bypass and adjacent to a Topgolf, the Great Wolf Texas Gulf Coast is an indoor water park with a hotel and entertainment facilities. The property will feature 400,000 sq. ft. of entertainment and lodging including 532 rooms and about 95,000 sq. ft. of indoor waterpark. Additionally, the resort will include retail spaces and 15,800 square feet of flexible conference space with breakout rooms.

Almost a year after commencing construction on the Great Wolf Lodge project, valued at over $200 million, Turner Construction, a New York-based general contractor, placed the final external beam on the structure in August 2023. The anticipated opening is November 2024, with hopes of completing the project even earlier.

WAREHOUSE (INDUSTRIAL) MARKET

The Houston Industrial market seems to be in decent shape after posting its fourteenth year of positive net absorption. This is one of the few commercial real estate sectors that has faced nominal adversity due to the pandemic and post pandemic economic issues. While the demand in this market for Warehouse/Distribution space may be slowing a bit, it is still a bright spot for developers and investors.

Net absorption is at 2.3 million square feet for the fourth quarter of 2023. This is down 68% from the fourth quarter of 2022 at 7.3 million square feet, however it is still positive net absorption. Overall net absorption for 2023 was 18,515,808 square feet.

The Houston Industrial market observed an increase in overall vacancy rates reaching 7.0% for the fourth quarter of 2023. This represents an increase of 180 basis points year-over-year from 5.2%. The increase is also 30 basis points higher than the third quarter of 2023 at 6.7%. Flex space has a vacancy of 8.8%, Manufacturing space has a vacancy rate of 1.8% and Warehouse/Distribution space has a vacancy rate of 7.7%. With new deliveries coming online and outpacing the demand, the overall vacancy rate is expected increase to 8.0% by the middle of 2024.

Lofty financing costs have continued to decrease the commencement of new supply within the Houston industrial market in the past few months. At the end of the fourth quarter of 2023, industrial new construction decreased to 21.4 million square feet. The decrease was 12% less than the previous quarter's new construction at 24.3 million square feet. In the fourth quarter of 2022, industrial new construction was 42% more than the 2023 fourth quarter number at 37.1 million square feet.

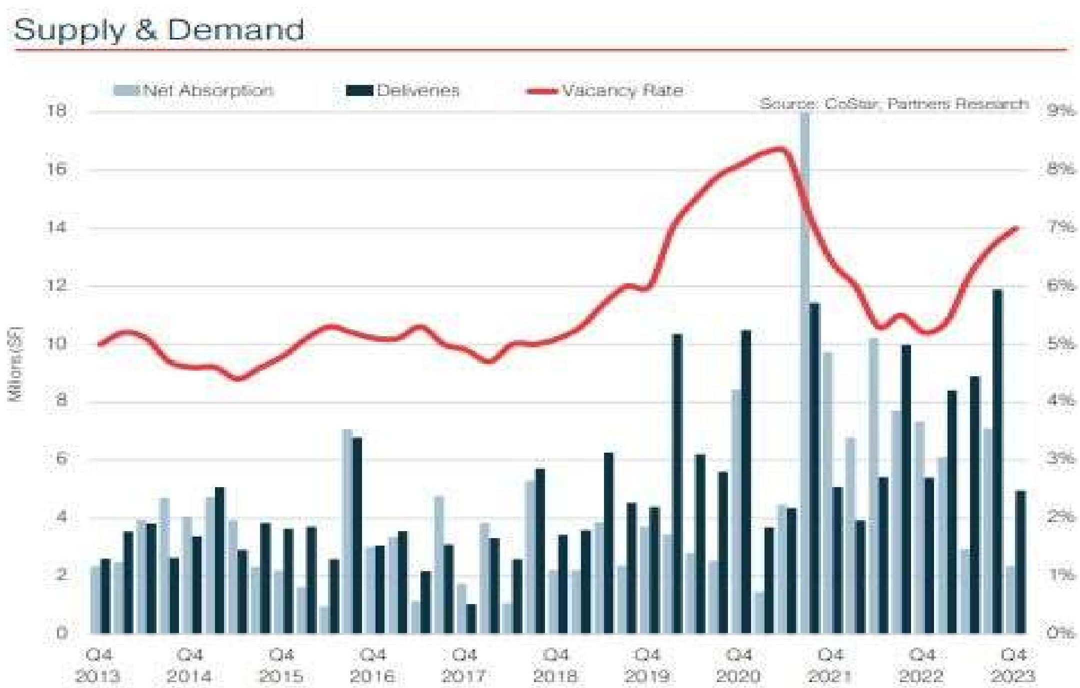
Deliveries decreased from the previous quarter by 58%. 4.9 million square feet were delivered in the fourth quarter of 2023. Previously in the third quarter 11.8 million square feet were delivered. The fourth quarter of 2022 delivered 5.4 million square feet. This was 8% more than the most recent deliveries. Year-to-date 34.1 million square feet have been delivered. This is a 38% increase in deliveries over the previous year's 24.7 million square feet.

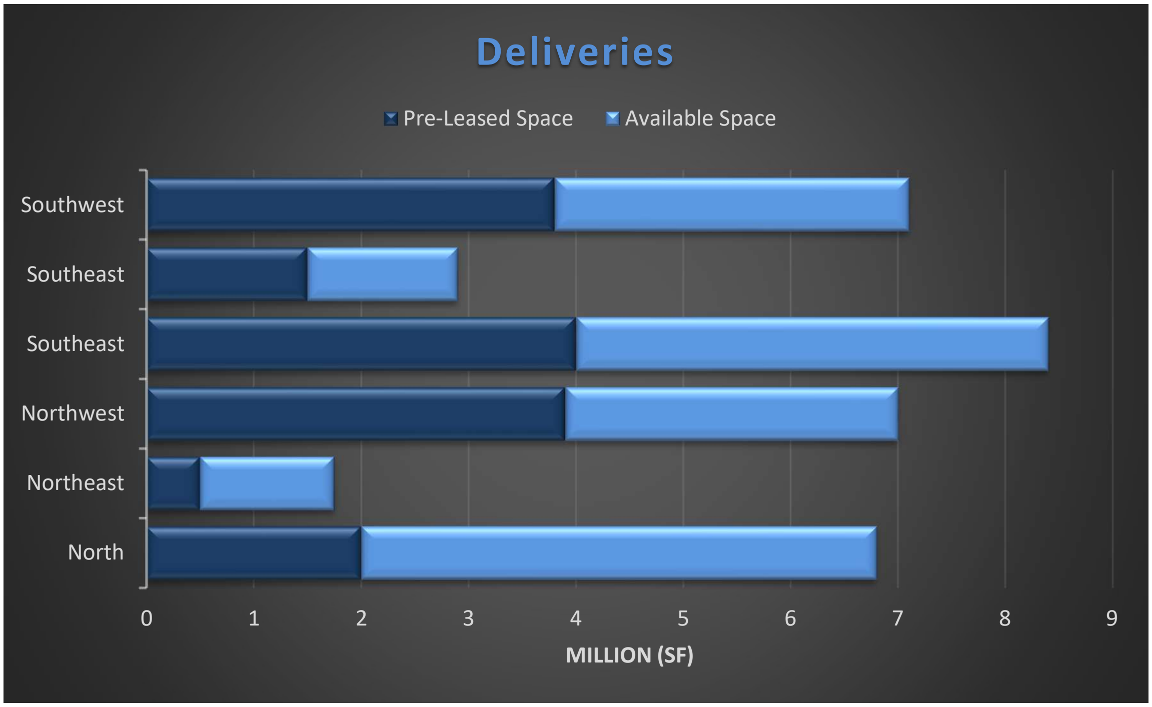
Asking rents are at an all-time high for the Houston industrial market. The average monthly rental rate (NNN) is $0.78 per square foot. These rents are up from 2022 by 9%. A proportionate breakdown of monthly rents shows Flex space rent at $0.96, Manufacturing space rents at $0.75 and Warehouse/Distribution space at $0.74 per square foot.

<u>Key Houston Industrial Market Indicators</u>

	Current Q4 2023	**Prior Quarter Q3 2023**		**Prior Year Q4 2022**	
Vacant Total	7.0%	6.7%	↑	5.2%	↑
Vacant Direct	6.6%	6.5%	↑	5.1%	↑
Available Total	9.7%	10.0%	↓	9.4%	↑
Available Direct	8.8%	9.2%	↓	8.8%	-
Net Absorption (SF)	2,353,573	7,110,201	↓	7,343,278	↓
Leasing Activity (SF)	9,351,408	10,796,682	↓	15,183,245	↓
Construction (SF)	21,480,795	24,372,780	↓	37,170,265	↓
Deliveries (SF)	4,960,617	11,891,360	↓	5,403,944	↓
Avg Asking Rent (NNN)	$0.76	$0.76	↑	$0.72	↑
Inventory (SF)	748,861,282	743,900,665	↑	714,707,596	↑

Source: CoStar, Partners Research





Source: CoStar, Partners Research

Summary

The key takeaway from the data compiled in this report is that overall, the Houston commercial real estate market is in good condition. Although the office market is struggling, the bright spot for this market is medical-based properties. Developers and investors will have to become creative in dealing with hybrid work schedules and use of regular office space.

The multifamily market will thrive if the hurdles of home ownership remain, due to high interest rates and low supply of single-family inventory. Houston's increasing population growth will keep the multifamily and retail markets in good shape.

The hospitality market should thrive as we return to normal from pandemic related issues. The hotel market recovery will take an upward path with support from increasing business relocations, ongoing economic development, and the market's reputation as a global hub for energy, health care, and aerospace.

The industrial (warehouse) market will remain strong as well. Houston is a major port of trade. The Houston Ship Channel will keep this market afloat and in need of warehouse/distribution space.

The land market may seem slow, but investors and developers are still focused on the best tracts of land they can acquire. Even if the land has been previously improved, if it is in a desirable location, investors and developers will be interested.

COMMERCIAL PERSONAL PROPERTY

Commercial personal property has been significantly impacted by the recent changes in market trends post the 2020 pandemic era and other socio-economic issues such as inflation, health care, population growth, employment, etc. This impact, as we would see in this report, has affected the value and demand of commercial personal property. This report will identify the correlation between the economic changes on the Federal, State, and local government levels and its impact on business personal property.

Harris County, located in Texas, is a dynamic economic hub with a diverse range of businesses contributing to its growth. It is also the 3rd largest county in the United States according to World Population Review. This growth can be attributed to factors such as population growth, economic expansion, and emerging trends.

POPULATION GROWTH

According to the United States Censors Bureau, Harris County was listed as the 3rd most populous county in the United States.

Top 10 Most Populous Counties: July 1, 2023

Rank	State	County	April 1, 2020 (Estimates Base)	July 1, 2022	July 1, 2023
1	California	Los Angeles County	10,013,976	9,719,765	9,663,345
2	Illinois	Cook County	5,275,555	5,111,566	5,087,072
3	Texas	Harris County	4,731,122	4,781,337	4,835,125
4	Arizona	Maricopa County	4,425,102	4,555,833	4,585,871
5	California	San Diego County	3,298,648	3,277,176	3,269,973
6	California	Orange County	3,186,997	3,150,372	3,135,755
7	Florida	Miami-Dade County	2,701,776	2,673,056	2,686,867
8	Texas	Dallas County	2,611,481	2,601,993	2,606,358
9	New York	Kings County	2,736,119	2,589,531	2,561,225
10	California	Riverside County	2,418,182	2,474,241	2,492,442

Source: U.S. Census Bureau, Vintage 2023 Population Estimates.

Harris County in the past couple of years has received a surge in population growth. An increase of this sort can consequently lead to:

1. **Increased Labor Force**: A growing population means more people of working age, expanding the labor force. This can lead to higher productivity as there are more workers available to contribute to economic activities.
2. **Consumer Demand**: With more people, there's an increase in demand for goods and services. This stimulates production and drives economic growth. More consumers mean more markets for businesses to sell their products and services to, thereby boosting economic activity.
3. **Innovation and Entrepreneurship**: A larger population often means more innovators and entrepreneurs. More people mean more potential ideas, talents, and skills that can be harnessed to create new businesses, products, and services, which can fuel economic growth.
4. **Increased Tax Base**: A larger population generally leads to a larger tax base, providing governments with more revenue to invest in infrastructure, education, healthcare, and other public services that are essential for economic development.
5. **Economies of Scale**: With a larger population, businesses can benefit from economies of scale. Producing goods and services on a larger scale often leads to lower average costs, which can result in lower prices for consumers and higher profits for businesses.

ECONOMIC EXPANSION

As mentioned earlier the Texas economy has been growing in tandem with the overall us economy and Harris County, being the largest county in the state is a major contributor to this growth. The evidence of this could be seen in the decrease in office vacancies as reported by Colliers despite the growing trend of remote work. According to Colliers, looking back at 2023, the Houston office market had its share of ups and downs, facing absorption challenges for much of the year. However, it ended on a positive note overall, buoyed by a robust fourth quarter. As we move into 2024, economic conditions, particularly in the job market which directly impacts office space, have shown resilience, staving off potential recessionary pressures. The pause in interest rate hikes has provided investors with better clarity on what lies ahead. While uncertainties persist, the outlook for the Houston office market in 2024 is cautiously optimistic, building on the momentum from a strong finish in 2023.

Technology and Innovation

Harris County is home to a vibrant technology and innovation ecosystem, with many businesses investing in cutting-edge technologies and solutions. This trend is driving demand for specialized business personal property, such as high-tech equipment and machinery.

Emerging Trends:

Several emerging trends are shaping the future of the business personal property market in Harris County:

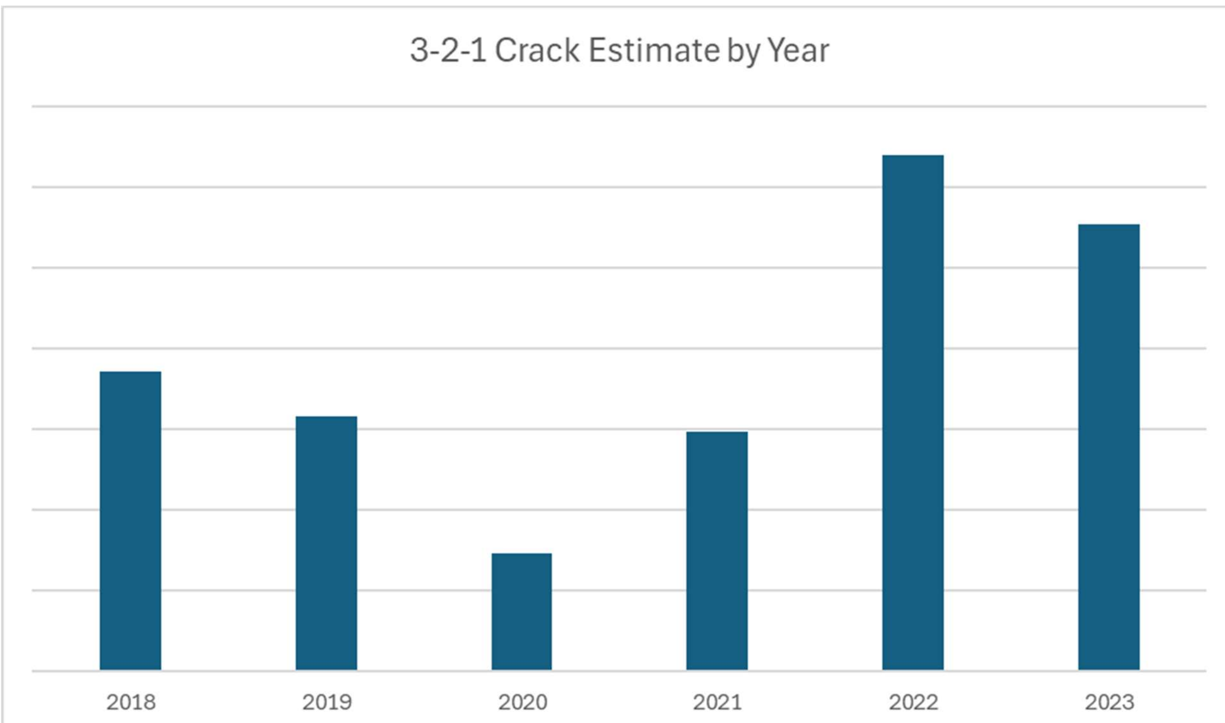
1. **Sustainability:** There is a growing emphasis on sustainability and environmental responsibility among businesses in Harris County. This trend is driving demand for eco-friendly business personal property, such as energy-efficient equipment and green technologies. According to the Houston Chronicles in its web article dated Oct. 13th, 2023; Harris County received a $1.6 million grant from the U.S. Department of Energy as part of a $30 million allocation to state and local governments for clean energy initiatives. This grant represents the largest single investment towards implementing components of the county's Climate Action Plan. The funding will support efforts to make county operations more sustainable, including reviewing solar and energy storage options in buildings and restarting recycling programs. Additionally, some funds will be allocated to climate justice planning in collaboration with community groups. Harris County's director of Sustainability highlighted the coordination of various federal, foundation, and nonprofit funds for these initiatives. The grant will assist in reducing energy burdens and promoting clean energy goals, including the construction of a solar electric vehicle charging station in disadvantaged communities. This grant builds on the county's internal climate action plan released in January, aligning with sustainability targets set for the coming years.
2. **Remote Work:** The shift towards remote work in response to the COVID-19 pandemic has led many businesses to reassess their workspace needs and invest in flexible, mobile business personal property solutions.
3. **E-commerce Boom:** The rise of e-commerce is transforming the retail landscape in Harris County, with businesses investing in warehousing, logistics, and fulfillment infrastructure. This trend is driving demand for business personal property related to storage, transportation, and distribution. One such example is the ecommerce giant Amazon, who in October of 2023 rolled out a new robotic system to speed up warehouse deliveries.

With a rebounding economy, growth is inevitable which would lead to trend changes in assets used to generate revenue. However, with inflation still in the forefront and possible rate hikes, this could lead to a slowdown in investments which will ultimately affect the demand and supply for business assets.

REFINERIES

Major international events came together in the first half of 2022 to produce the highest refining margin spike ever seen on the Gulf Coast. Stout product demand in the U.S. and Europe, along with Russia-Ukraine sanctions, combined to serve up a significant but short-lived margin for refiners that year. Some of this carried over into 2023 but was limited to the first quarter of the year. After that, margins declined somewhat but still closed the year on the healthy side of historical averages. Refinery run rates were lower in 2023 too. On the first trading day of 2024, the price of West Texas Intermediate (WTI) crude oil was about $70.62 per barrel compared to last year at $76.87 (NYMEX; first trading day 2023).

The Gulf Coast refineries' average annual capacity utilization, as defined by the Department of Energy, was 90.8% in 2023 compared to 93.5% in 2022. Pre-pandemic (2019), the rate was 92.0%, so there was either a recovery bounce, or some pent-up demand that took place, or both, especially in the summer driving/vacation months of 2022. It's close, but 2023 has not gotten back to the 2019 run rates.



Data source: U.S. Energy Information Administration, online, data through November 2023, accessed 3-1-2024.

The graphic above shows an historical refining margin proxy using a 3-2-1 crack spread as an estimate of earnings and highlights the magnitude of the 2022 and 2023 markets relative to the COVID year (2020) and pre-pandemic. For 2023, Baker & O'Brien Inc.'s PRISM® cash margins for refining on the Gulf Coast (PADD 3) were down about 30% compared to the prior year (2023 vs. 2022). In the first quarter of 2023 margins started out higher than 2022, but slowly faded through the year. Refiner margins will be site-specific depending on configuration, crude diet, and utilization, but in general, it was a pretty good few months (and full-year average) for the segment. Prognosticators anticipate a decline in 2024 margins compared to 2023 as inflation, declining savings accounts, and increasing credit card debt continue to put pressure on consumer spending, and therefore, the economy. Again, the economics are site-specific, and heavy crude coking refinery performance continues to underperform the market average.

The price of D6, or ethanol-based, RINs (Renewable Identification Numbers; the renewable fuels trading/compliance mechanism) fell 9% on average for 2023 versus 2022. Diesel RINs (D4) costs were down 19% in 2023 compared to 2022.

There were no new sale announcements for U.S.-based refineries in 2023. However, Par Pacific Holdings, Inc. closed on its purchase of the Billings, Montana refinery on June 1st last year. While margins have been robust over the last two years, potential buyers are eyeing the uncertainty of the future regarding a transition to electric vehicles which may limit gasoline demand.

LyondellBasell still plans to idle its Houston refinery next year, which has failed to attract a buyer.

CHEMICALS

The US economy has been growing steadily since bottoming out in the second quarter of 2020 when the Coronavirus first hit. Since then, the market has been on a steady upward trend into 2022. The disruptions of supply chain issues are mostly gone, but the Ukraine invasion in early 2022 is still impacting Europe's economy. China's economy still hasn't fully rebounded from Covid and while they have restarted their industrial facilities, China's consumption is not keeping up with production and their exports are up. The chemicals industry varies by product, but, as a whole, 2023 only grew about 1%, well short of the 3-4% expected for the year.

The chemicals industry is heavily dependent on auto manufacturing and home building and, as the economy goes, so goes the chemical industry. GDP is up 2.5% for 2023 and expectations are that it could be up again in 2024. Last year the Fed was concerned about a potential recession and, to try and counteract heavy inflation in the market, increased the interest rate from 0.25% to 5.5% between March and July of 2023. Inflation appears to have been curtailed with 2023 ending at 3.4% and we did not have a recession in 2023. Expectations are that the Fed will ease up and lower interest rates in 2024, but that remains to be seen.

Housing starts peaked in 2022 and were down about 15% year on year. Starts continued to build along with the economy until the Federal Reserve began their crusade against inflation. However, vehicle sales have increased about 3% with modest expectations of a 1% increase in 2024 to 15.7 million units, but still well below pre-pandemic sales of 17 million units.

Texas has been blessed with an abundance of oil and natural gas fields that continue to be developed. West Texas has been the most recent boom area with massive volumes of gas and natural gas liquids. The glut of natural gas that has been in place since 2005 has caused a tremendous amount of new construction to process the gas and the natural gas liquids have been piped to the Texas Gulf Coast to be fractionated into Ethanes, Propanes, Butanes, and heavier components, which can be sold domestically or liquified for exports.

Many companies have begun exporting natural gas through LNG liquefaction terminals. Expansion of existing facilities and construction of new projects is ongoing with natural gas going out to the world market. Natural gas prices may not be as cheap or as stable as they have been for nearly a decade as we've seen natural gas prices climbing near $10/MMBTU at the end of 2022 only to fall off to less than $3/MMBTU in early 2023. The increases at the end of 2022 led to reduced margins on products that result from natural gas derivatives, which adversely impacted many facilities in the Houston and Gulf Coast region. Since that rollercoaster, prices have stabilized in the $2.50-$3.50 range and are expected to stay there until the next weather event, war, pandemic, or other world-changing event occurs.

Economics of the large commodities chemical units built in the Gulf Coast started strong but hit some substantial headwinds in 2022 and continue through 2023. Increased raw material costs from natural gas derivatives along with an increase in global capacity over the last 5 years put a heavy squeeze on margins. Operation rates for olefins units have decreased 2.0% for the year. Altogether, this industry appears to have peaked in 2015 for the current 5 to 15-year cycle, and is not likely to get to those levels again for a while.

Chemical-related inventory volumes are likely to be down 1/1/2024. Many plants are trying to control their inventory as much as they can without creating new supply chain issues. Values on older facilities will likely hold steady or have a slight decrease for 2024, but the newer facilities are still depreciating heavier than the established plants. Specialty chemicals may be up or down depending on the products.

UTILITIES

NATURAL GAS DISTRIBUTION

Natural Gas Distribution utility companies are always requesting that regulators allow them higher returns (through the rates they are allowed to charge their customers) in order to pay for the cost of expansion when needed, repair storm damage at times, and maintain reliable service overall. However, the main goal of regulators is to make sure gas distribution companies remain operational while keeping service costs as low as possible, in return for the monopoly power given to these companies over designated service areas. Because both revenues and expenses tend to be held in line with this process, the values of property owned by these natural gas distribution businesses tend to be rather stable. Other factors that augur well for continued healthy future demand for utility services are **a)** the nation's population appears to be on a steady upward growth course; **b)** limited practical alternatives exist for consumers seeking a steady supply of natural gas; and **c)** natural gas supplies in this country are abundant thanks to proficient drilling and extraction technologies. Unseasonably warm or cold weather (eg: Winter Storm Uri in Feb. 2021) can always cause substantial volatility in quarterly operating results; however, companies strive to counteract this exposure through long-term oriented temperature-adjusted rate mechanisms.

For 2024, the market values of the companies in this sector should remain stable if not improve slightly, due to a continued increase in the customer base in their operational areas and higher rate cases being approved in certain service areas. Natural gas quotations have weakened significantly over the past few months reflecting, among other factors, heightened production levels and mild winter weather. Even though this scenario does not augur well for companies that produce this commodity, regulated utility units generally benefit. That's partially because diminished gas pricing tends to lead to lower prices for customers, which might bring down bad-debt expense. Moreover, there is an increased possibility that homeowners will convert from alternative fuel sources, such as propane or oil, to natural gas. (At present, it's estimated that over half of all households in this country use natural gas.) The market is optimistic, in general, about the sector's operating performance over the long term. Natural gas ought to remain an abundant resource in the United States, brought about partially by new technologies, so a shortage does not seem probable anytime soon. Too, there are limited alternatives for the services the companies in this category offer. Furthermore, it's a challenge for new entrants in the market, given such factors as the size of existing competitors and the substantial initial capital outlays that are required. Finally, the country's population ought to remain on a steady, upward course, which augurs well for future demand for utility services.

TELECOMMUNICATIONS

Currently, in the telecommunications industry, the high inflation that has been seen has caused many companies to experience margin pressure. At the same time, consumer pricing is becoming more exposed to discounting as many companies compete for new customers by luring existing customers from other companies via deals or discounts on phone services. In addition, capital spending has remained high across the telecommunications industry, as many companies are aggressively working to increase the speed and reliability of their networks. That may change though as the high interest rates are also working against companies resulting in margin pressure and loss of market share at many of the smaller regional carriers. Larger companies are also under pressure, and there has been talk of lower capital spending at some of the bigger wireless carriers.

Fiber-based broadband is also gaining a lot of investment and increased government spending via The American Rescue Plan and the Infrastructure Investment and Jobs Act (IIJA) should only accelerate this trend. The mapping process for what areas will receive funds was completed in mid-November and funding should begin in the later part of 2023. Texas received the largest amount. NTIA allocated $3,313,000,000 in BEAD funding to Texas. Note that demand for fiber networks in rural areas was strong prior to enactment of the IIJA and as the networks for the big three (AT&T, Verizon, and T-Mobile) are built out further, parity in speeds and reliability could lead to more aggressive price competition. This is usually good for the consumer, but usually results in lower operating margins.

Merger and acquisition (M&A) activity continues to be a feature of the telecommunications industry as a way for those companies to add new capabilities and evolve for the next era. However, in 2023 the total global telecom M&A activity continued to slow when it only reached $49 billion during the first three quarters, which is 39% lower than the $81 billion reached during the same period in 2022. In addition, infrastructure deals resulting from telecom divestments were the largest cause of M&A activity in 2023, though it was only 50% of the total amount from the same period in 2022.

For the traditional portion of Telephone Utilities, the number of phone lines in the United States continues to decrease. Competition from alternative technologies, namely wireless, instant messaging, and Voice over Internet Protocol, has caused residential and business customers to continue to cancel their wireline service. Most wireline carriers are rural; thus, peer competition is scarce. Access lines continue to be in decline. Margins remain under pressure across the telecommunications industry. Data usage continues to grow exponentially as technological innovation has led to faster networks and more powerful cell phones. Thus, price competition has become more intense. Traditional telephone property across the state is expected to continue declining over the next few years as it is replaced and/or transformed into broadband and/or wireless service.

CABLE TV

The Cable TV Group continues to face a serious threat from T-Mobile and Verizon, which are now offering inexpensive in-home broadband service via fixed-wireless technology. T-Mobile announced that its 5G Home Internet services had nearly 4.24 million subscribers as of September 30th, 2023. T-Mobile’s September period additions easily exceeded 63,000 for Charter, which was the only major US cable company to increase its broadband subscriber base in the quarter. Fixed Wireless (FW) offers particularly price-sensitive consumers an inexpensive option for in-home broadband service. T-Mobile’s FW service is currently priced at $50/month, which is 33% less than the typical $75/month for high-speed internet. However, these consumers couldn’t afford high speed internet before, so they might not be losing customers from this service option. In conclusion, there is no indication that this industry will be improving any time soon.

ELECTRIC POWER

The EIA, in their January 2024 Short-Term Energy Outlook predicts that solar power with be the leading source of growth in the electricity generation sector in both 2024 and 2025. They state that 36 gigawatts (GW) of new solar capacity will come online in 2024 and 43 GW in 2025 across the country. Overall, they predict that US electricity generation will grow by 3% in 2024 and stay the same in 2025. In addition, coal generation will continue to decline by 9% in 2024 and 10% in 2025 based on a combination of higher costs for coal over renewables and an additional 12 GW of coal-fired capacity retiring over the next two years. Natural gas capacity is predicted to remain at the same level as in 2023 throughout 2024 and 2025.

ERCOT set a new all-time maximum peak demand record for August of 85,464 MW for the system on 8/10/2023, which was 2,525 MW more than the previous record of 82,939 MW on 7/31/2023, which was 6,959 MW more than the August 2022 demand of 78,505 MW. In addition, monthly energy generation increased by 16.8% year-over-year to 50,241 GWh in August 2023, compared to 43,002 GWh in August 2022. Slightly more than half of the supply is generated using gas, with the balance provided by coal and wind, solar, and nuclear. There continue to be, by far, the most planned solar and battery installations in the next 7 years including: 136 GW (46.4%) Solar, 112 GW (38%) Battery, 32 GW (11%) Wind, and 12 GW (4%) Gas. There were transmission projects totaling $1.589 billion endorsed in 2023 as of August 31, 2023.

The Production Tax Credit (PTC), (for wind, closed-loop biomass, geothermal energy, open-loop biomass, landfill gas facilities, and trash facilities) which was originally enacted in 1992, has been renewed and expanded multiple times. Most recently, the PTC was extended again by the Inflation Reduction Act of 2022, which made significant changes to the credit. Those changes include extending the expiration date, providing new bonus credits, and establishing new criteria to qualify for the full credit. The base credit can now be earned only if all laborers and mechanics involved in the construction and maintenance of the project are paid prevailing wages for the entire PTC credit period. Several bonus credits can also be earned. Those include the domestic content bonus, which is earned by any project with 100% of steel or iron and 40% of manufactured products produced in the United States. Furthermore, there is also the energy community bonus, which now can be earned by any project located at one of the following: (i) a brownfield site, (ii) a metropolitan or non-metropolitan statistical area which (A) has (or, at any time during the period beginning after December 31, 2009, had) 0.17% or greater direct employment or 25% or greater local tax revenues related to the extraction, processing, transport, or storage of coal, oil, or natural gas, or (B) has an unemployment rate above the national average for the previous year, or (iii) a census tract or a census tract that is adjoining a census tract in which a coal mine has closed after 1999 or a coal-fired electric generating unit was retired after 2009. Finally, this credit will now be phased out by the end of 2024 and replaced with a new technology-neutral tax credit.

The TCEQ and Texas Legislative Branch completed a rulemaking process and law change during the special legislative sessions in 2021, which finalize the tax exemption of Heat Recovery Steam Generators (HRSGs). HRSGs have been added to the Tier 1 exempted properties at 65% exempted. Those taxpayers who have not applied for HRSG exemptions can now get a 65% tax exemption on the HRSG portion of their combined cycle facility.

Industry representatives of the TCEQ Tax Relief Advisory Committee have already started preliminary discussions about exempting carbon capture equipment.

UNDERGROUND STORAGE FACILITIES

Natural gas–a colorless, odorless, gaseous hydrocarbon–as well as liquid hydrocarbons may be stored in several different ways. These commodities are commonly held as inventory underground under pressure in three types of facilities:

- depleted reservoirs in oil and/or natural gas fields;
- salt dome caverns or salt formations; and
- aquifers.

Harris County currently has underground storage facilities operating in two depleted gas reservoirs (Bammel and West Clear Lake) and in several caverns within a salt dome (Pierce Junction).

Each storage type has its own physical characteristics (porosity, permeability, retention capability) and economics (site preparation and maintenance costs, deliverability rates, and cycling capability) which govern its suitability for particular applications. Two key characteristics of underground storage facilities that drive market value are the capacity to hold natural gas or liquids for future use and deliverability, the rate at which the inventory can be withdrawn from the facility. Injection is the opposite of deliverability and is assumed to be commensurate in scope.

The principal owners/operators of underground storage facilities are interstate pipeline companies, intrastate pipeline companies, local distribution companies (LDCs), and independent storage service providers. If a storage facility serves interstate commerce as a transmission utility business, it is subject to the jurisdiction of the Federal Energy Regulatory Commission (FERC); otherwise, it is state regulated. Most working gas (the volumes that are injected into and withdrawn from the storage facilities) is held under lease with shippers, LDCs, or end users who own the gas. In the case of salt dome caverns, storage usage is not generally associated with regulated utility operations.

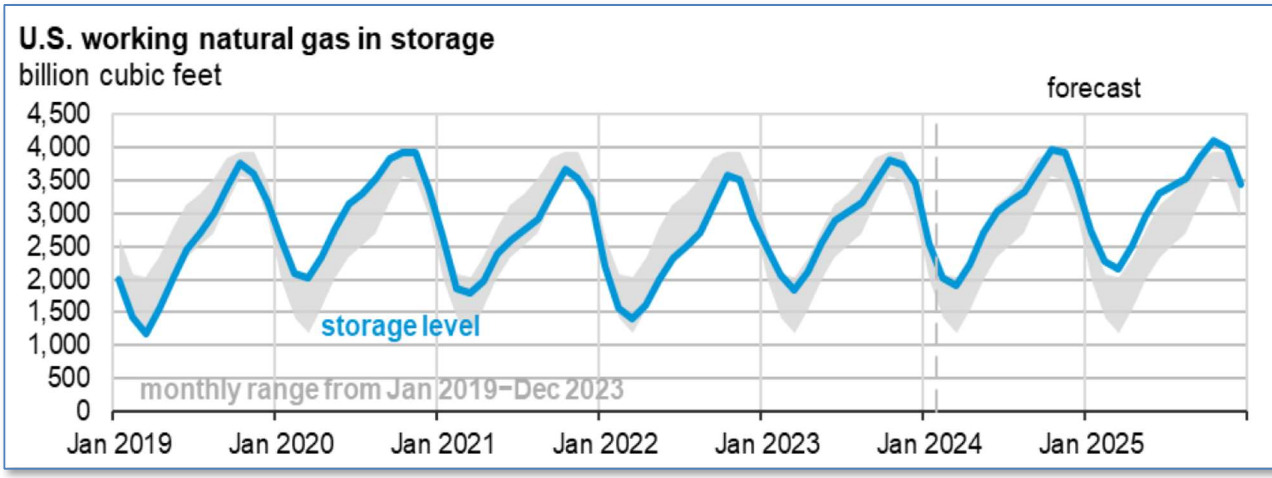
Underground gas storage serves a variety of purposes. In particular, pipeline companies, both interstate and intrastate, rely heavily on underground storage to facilitate load balancing and system supply management on their long-haul transmission lines. Local gas distribution companies generally use underground storage exclusively to serve various customer needs directly. Independent storage service providers build and own underground storage facilities to almost exclusively serve third-party customers like marketers and electricity generators on an "open access" basis.

The storage operations in Pierce Junction Salt Dome revolve around storage of "purity" natural gas liquids (propane, butane, etc.), derivative liquid products of ethane and propane (ethylene, polypropylene, etc.), and crude oil. These products are both internally and commercially held by the salt dome cavern operators.

The value of underground gas storage in Texas has the potential to increase as the population here keeps growing and the associated need for electricity ramps up, especially if gas production itself doesn't commensurately increase and renewable sources of energy (wind, solar, commercial battery storage, etc.) can't reliably fill the breach.

Per the U.S. Energy Information Administration (EIA) in their February 2024 *Short-Term Energy Outlook* (STEO) report, January began with 13% more natural gas in storage than average over the past five years. They forecast inventories will end this winter heating season (November–March) at about 1,910 Bcf, which would be 15% more than the five-year average, due to milder-than-normal winter weather. Withdrawals from propane stocks on the U.S. Gulf Coast (PADD 3) have been high recently because of strong overseas demand, which is unrelated to weather. Demand for U.S. propane overseas remains high because the commodity is used as a feedstock in petrochemicals as well as a heating fuel. Although delays at the Panama Canal are increasing shipping times and costs for liquified petroleum gas (LPG) carriers, these issues have so far not affected U.S. propane exports, the bulk of which come from the U.S. Gulf Coast.

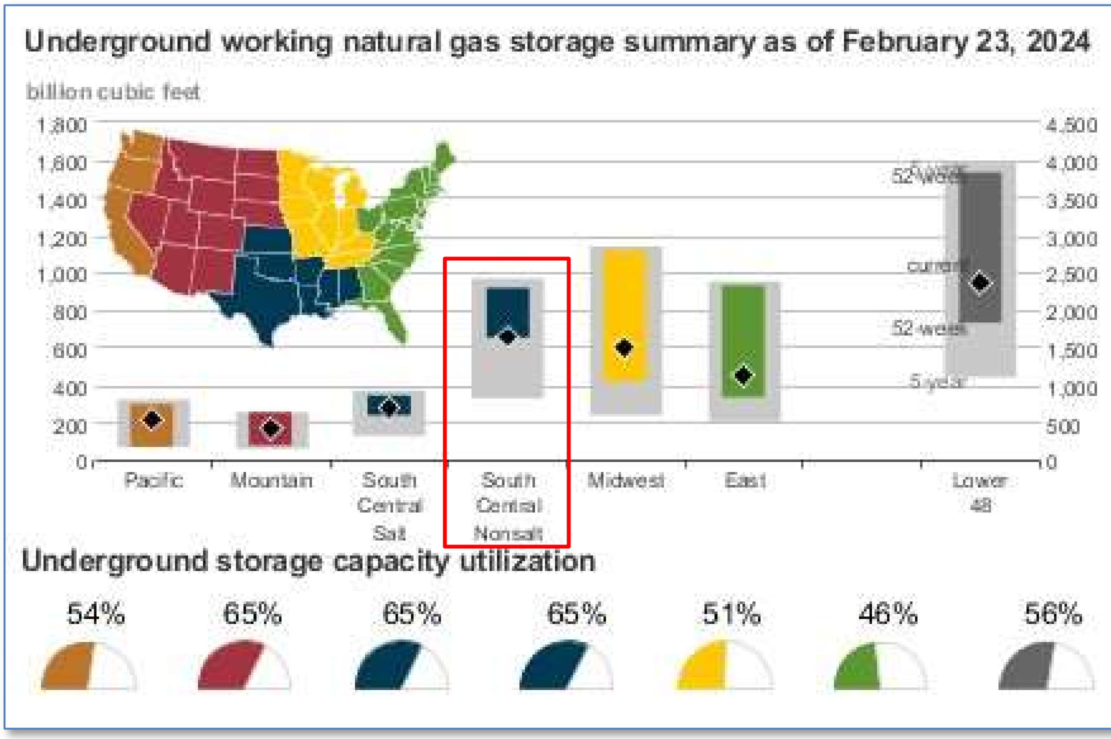
Storage and consumption of natural gas is methodically cyclical. The graphic below from EIA's February STEO report shows how storage and withdrawal periods happen in a predictable pattern:



Per the February STEO report, natural gas will continue to be a dominant source of U.S. electricity generation through 2024. However, EIA forecasts a continued rise of renewables in the mix, particularly in Texas. They forecast solar generation in ERCOT areas will grow by 90% in 2024 (24 BkWh) and wind generation by 8% (9 BkWh).

This doesn't mean the business of storing natural gas is a declining industry, as electricity generation is hardly the only use for natural gas. Any declines in residential and commercial sectors will likely be offset by increases in industrial sector consumption. As always, winter weather plays a leading role in how much gas is ultimately withdrawn from storage for domestic heating purposes. But a significant and growing use of domestically produced natural gas is as export volumes to the world at large in the form of liquified natural gas (LNG).

Per the EIA's *Natural Gas Storage Dashboard* released February 29, 2024, working gas in storage for the Lower 48 states (the amount of gas owned by the third-party customers of the storage facility operators) was estimated to be 2,374 Bcf (2.374 trillion cubic feet), or about average compared to the range of last five years. More specific to depleted gas reservoirs in Harris County, the South Central Non-salt [dome cavern] working gas storage was at 660 BCF, also about average compared to the 5-year range. This average storage volume represents about 65% of available capacity.



The liquid hydrocarbons storage volumes at Pierce Junction salt dome caverns, or the depleted gas field storage facilities at Bammel and West Clear Lake, do not necessarily follow overall U.S. trends all the time. They each have unique markets, shippers, and end-users. In any event, inventories present on the inventory owner's chosen lien date (either January 1 or September 1) will be appraised with the prevailing market price at that time. Oil or other liquid hydrocarbon prices have remained fairly consistent over the last 12 months. However, natural gas prices have significantly deteriorated to a decidedly bearish level, which places business stress on all levels of upstream and midstream operations, including storage. The crude oil storage business at Pierce Junction Salt Dome has seen dimming prospects over the last year or so as new pipelines and export terminals in Corpus Christi have essentially stolen the unique purpose and lofty profit potential once envisioned for these caverns in Harris County when built a few years ago.

The storage facilities themselves (including salt dome caverns as man-made structures, as well as base gas amounts) will be appraised with analysis and consideration of the most appropriate methods and techniques applicable to each property, in conjunction with and adherence to Property Tax Code Sec. 23.01(b) regarding uniformity of appraisal for similarly situated properties.