

# Houston-The Woodlands- Sugar Land

## Housing Affordability Outlook



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TEXAS A&M UNIVERSITY

Texas Real Estate Research Center

TECHNICAL REPORT

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# Houston-The Woodlands-Sugar Land Housing Affordability Outlook 4Q2021

## About this Report

Texas Real Estate Research Center economists continuously monitor many facets of both state and local housing markets. *Houston-The Woodlands-Sugar Land Housing Affordability Outlook* summarizes significant housing activity and trends as related to affordability in the Houston-The Woodlands-Sugar Land Metropolitan Statistical Area. Home prices reflect single-family existing homes unless otherwise stated. This report does not seasonally adjust home prices.

This publication is designed to be a one-stop resource for information on housing affordability for potential homebuyers in the Houston-The Woodlands-Sugar Land MSA. We hope you find them as useful as we do. Your feedback is always appreciated. Send comments and suggestions to [info@recenter.tamu.edu](mailto:info@recenter.tamu.edu).

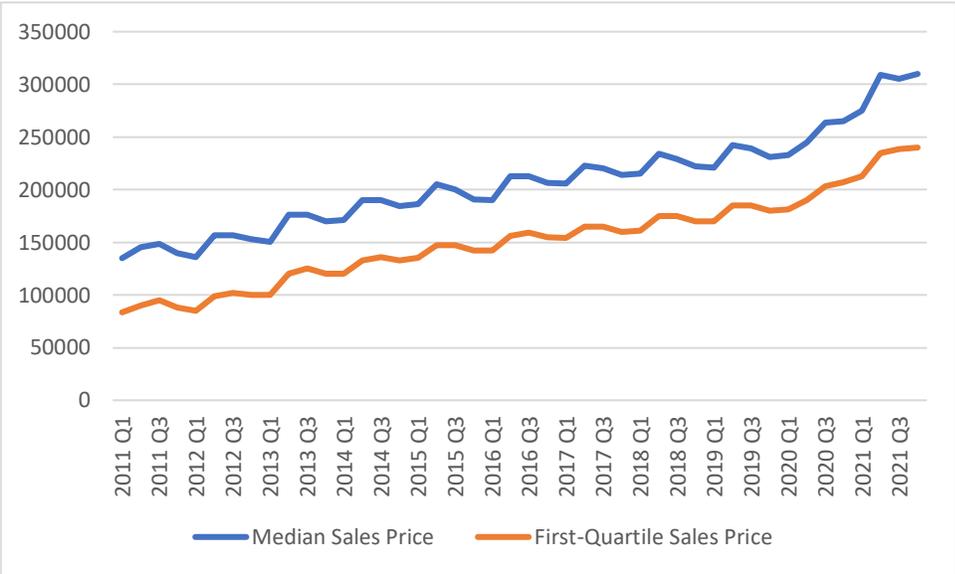
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### Purchase Affordability

Following strong price growth in the first half of 2021, the uptick in both the median sales price and first-quartile sales price for the Houston-The Woodlands-Sugar Land MSA moderated in the second half of the year (Figure 1).<sup>1</sup> The year-over-year (YOY) growth in median sales price and first-quartile home price in measured 16.9 percent and 15.9 percent, respectively, significantly higher than average YOY growth for the fourth quarter (Table 1). The median sales price was \$309,900; the first-quartile sales price was \$240,000. Meanwhile, median family income grew a mere 0.5 percent from 2020 to 2021 (Table 2). Without comparable growth in incomes, the rapid rise in home prices will continue to squeeze purchase affordability, or the ability of a household to buy a home.

Meanwhile, mortgage interest rates remained low, averaging 3.08 percent in 4Q2021 (Figure 2). All other things being equal, lower mortgage interest rates translate into lower monthly mortgage payments and ease purchase affordability. The Federal Reserve is widely anticipated to raise interest rates over the near-term to reduce inflationary pressures, which will likely prompt a slight rise in mortgage interest rates.

**Figure 1. Median and First-Quartile Sales Prices in the Houston-The Woodlands-Sugar Land MSA**



Source: Texas Real Estate Research Center at Texas A&M University

<sup>1</sup> The first quartile reflects the lowest-priced 25 percent of homes sold in a particular geography. The first-quartile sales price represents the highest home price among those lowest-priced 25 percent of homes sold. If the price of the lowest 25 percent of homes sold ranges from \$100,000 to \$150,000, then the first-quartile sales price would be \$150,000.

**Table 1. Median Sales Price and First-Quartile Sales Price by Quarter**

Year	Median Home Price	YOY Change	First-Quartile Home Price	YOY Change
4Q2011	\$140,000		\$88,000	
4Q2012	\$153,000	9.3%	\$100,000	13.6%
4Q2013	\$170,000	11.1%	\$120,000	20.0%
4Q2014	\$184,225	8.4%	\$132,500	10.4%
4Q2015	\$191,000	3.7%	\$142,500	7.5%
4Q2016	\$206,700	8.2%	\$154,900	8.7%
4Q2017	\$214,000	3.5%	\$160,000	3.3%
4Q2018	\$222,000	3.7%	\$170,000	6.3%
4Q2019	\$231,000	4.1%	\$180,000	5.9%
4Q2020	\$265,000	14.7%	\$207,000	15.0%
<b>4Q2021</b>	<b>\$309,900</b>	<b>16.9%</b>	<b>\$240,000</b>	<b>15.9%</b>

Source: Texas Real Estate Research Center at Texas A&M University

**Table 2. Median Family Income by Year**

Year	Income for First-Time Homebuyers	YOY Change	Median Family Income	YOY Change
2011	\$52,800		\$66,000	
2012	\$53,500	1.3%	\$66,900	1.4%
2013	\$52,950	-1.0%	\$66,200	-1.0%
2014	\$53,300	0.7%	\$66,600	0.6%
2015	\$55,450	4.0%	\$69,300	4.1%
2016	\$55,350	-0.2%	\$69,200	-0.1%
2017	\$57,200	3.3%	\$71,500	3.3%
2018	\$59,900	4.7%	\$74,900	4.8%
2019	\$61,050	1.9%	\$76,300	1.9%
2020	\$63,050	3.3%	\$78,800	3.3%
2021	<b>\$63,350</b>	<b>0.5%</b>	<b>\$79,200</b>	<b>0.5%</b>

Note: The income for first-time homebuyers reflects the income limit for low-income families, who earn no more than 80 percent of the median family income. This table reflects income figures for a four-person family.

Source: United States Department of Housing and Urban Development

**Figure 2. 30-Year Fixed Rate Mortgage Average in the United States**



Sources: Federal Reserve Economic Data and Freddie Mac

## Repeat Homebuyer

Purchase affordability continued to decline in 4Q2021 as the gap between median sales price and family income continued to widen. For households earning the median family income for the Houston-The Woodlands-Sugar Land MSA in 2021 (\$79,200), the median sales price for 4Q2021 was not affordable to them unless the home price-to-income multiplier exceeded 3.5 (Table 3). Only 24.1 percent of homes sold in 4Q2021 were affordable to households earning the median family income with a home price-to-income multiplier of 3 (Table 4). Households would have to earn nearly \$105,000 annually to be able to afford the median sales price (\$309,900) with a home price-to-income multiplier of 3.

**Table 3. Maximum Home Price Affordable by Family Income  
and Home Price-to-Income Multiplier**

	Family Income	Home Purchasing Power							
		2	2.5	3	3.5	4	4.5	5	5.5
	<b>\$75,000</b>	\$150,000	\$187,500	\$225,000	\$262,500	\$300,000	<b>\$337,500</b>	<b>\$375,000</b>	<b>\$412,500</b>
<b>Median Family Income</b>	<b>\$79,200</b>	\$158,400	\$198,000	\$237,600	\$277,200	<b>\$316,800</b>	<b>\$356,400</b>	<b>\$396,000</b>	<b>\$435,600</b>
	<b>\$80,000</b>	\$160,000	\$200,000	\$240,000	\$280,000	<b>\$320,000</b>	<b>\$360,000</b>	<b>\$400,000</b>	<b>\$440,000</b>
	<b>\$85,000</b>	\$170,000	\$212,500	\$255,000	\$297,500	<b>\$340,000</b>	<b>\$382,500</b>	<b>\$425,000</b>	<b>\$467,500</b>
	<b>\$90,000</b>	\$180,000	\$225,000	\$270,000	<b>\$315,000</b>	<b>\$360,000</b>	<b>\$405,000</b>	<b>\$450,000</b>	<b>\$495,000</b>
	<b>\$95,000</b>	\$190,000	\$237,500	\$285,000	<b>\$332,500</b>	<b>\$380,000</b>	<b>\$427,500</b>	<b>\$475,000</b>	<b>\$522,500</b>
<b>Workforce Households (120%)</b>	<b>\$95,040</b>	\$190,080	\$237,600	\$285,120	<b>\$332,640</b>	<b>\$380,160</b>	<b>\$427,680</b>	<b>\$475,200</b>	<b>\$522,720</b>
	<b>\$100,000</b>	\$200,000	\$250,000	\$300,000	<b>\$350,000</b>	<b>\$400,000</b>	<b>\$450,000</b>	<b>\$500,000</b>	<b>\$550,000</b>
	<b>\$105,000</b>	\$210,000	\$262,500	<b>\$315,000</b>	<b>\$367,500</b>	<b>\$420,000</b>	<b>\$472,500</b>	<b>\$525,000</b>	<b>\$577,500</b>
	<b>\$110,000</b>	\$220,000	\$275,000	<b>\$330,000</b>	<b>\$385,000</b>	<b>\$440,000</b>	<b>\$495,000</b>	<b>\$550,000</b>	<b>\$605,000</b>
	<b>\$115,000</b>	\$230,000	\$287,500	<b>\$345,000</b>	<b>\$402,500</b>	<b>\$460,000</b>	<b>\$517,500</b>	<b>\$575,000</b>	<b>\$632,500</b>
	<b>\$120,000</b>	\$240,000	\$300,000	<b>\$360,000</b>	<b>\$420,000</b>	<b>\$480,000</b>	<b>\$540,000</b>	<b>\$600,000</b>	<b>\$660,000</b>
	<b>\$125,000</b>	\$250,000	<b>\$312,500</b>	<b>\$375,000</b>	<b>\$437,500</b>	<b>\$500,000</b>	<b>\$562,500</b>	<b>\$625,000</b>	<b>\$687,500</b>
	<b>\$130,000</b>	\$260,000	<b>\$325,000</b>	<b>\$390,000</b>	<b>\$455,000</b>	<b>\$520,000</b>	<b>\$585,000</b>	<b>\$650,000</b>	<b>\$715,000</b>
	<b>\$135,000</b>	\$270,000	<b>\$337,500</b>	<b>\$405,000</b>	<b>\$472,500</b>	<b>\$540,000</b>	<b>\$607,500</b>	<b>\$675,000</b>	<b>\$742,500</b>
	<b>\$140,000</b>	\$280,000	<b>\$350,000</b>	<b>\$420,000</b>	<b>\$490,000</b>	<b>\$560,000</b>	<b>\$630,000</b>	<b>\$700,000</b>	<b>\$770,000</b>
	<b>\$145,000</b>	\$290,000	<b>\$362,500</b>	<b>\$435,000</b>	<b>\$507,500</b>	<b>\$580,000</b>	<b>\$652,500</b>	<b>\$725,000</b>	<b>\$797,500</b>
	<b>\$150,000</b>	\$300,000	<b>\$375,000</b>	<b>\$450,000</b>	<b>\$525,000</b>	<b>\$600,000</b>	<b>\$675,000</b>	<b>\$750,000</b>	<b>\$825,000</b>

Note: Figures in red indicate the maximum affordable home price meets or exceeds the current median sales price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 4. Percentage of Homes Sold in 4Q2021 Affordable by Family Income and Home Price-to-Income Multiplier**

	Family Income	Home Purchasing Power							
		2	2.5	3	3.5	4	4.5	5	5.5
	<b>\$75,000</b>	3.9%	9.1%	19.8%	34.2%	48.0%	57.9%	66.8%	73.2%
<b>Median Family Income</b>	<b>\$79,200</b>	4.6%	11.3%	24.1%	39.7%	52.5%	62.4%	70.3%	76.4%
	<b>\$80,000</b>	5.0%	12.4%	25.7%	41.2%	53.9%	63.5%	71.7%	77.0%
	<b>\$85,000</b>	6.2%	15.2%	31.6%	46.4%	59.0%	68.0%	75.2%	79.7%
	<b>\$90,000</b>	7.9%	19.8%	37.4%	52.4%	63.5%	72.3%	78.2%	82.0%
	<b>\$95,000</b>	9.9%	24.1%	43.0%	56.8%	67.8%	75.4%	80.5%	84.0%
<b>Workforce Households (120%)</b>	<b>\$95,040</b>	9.9%	24.1%	43.0%	56.8%	67.8%	75.4%	80.5%	84.0%
	<b>\$100,000</b>	12.4%	29.7%	48.0%	61.4%	71.7%	78.2%	82.6%	86.0%
	<b>\$105,000</b>	14.9%	34.2%	52.4%	64.8%	74.5%	80.1%	84.3%	87.3%
	<b>\$110,000</b>	18.1%	39.4%	56.5%	68.7%	77.0%	82.0%	86.0%	88.6%
	<b>\$115,000</b>	21.7%	43.4%	59.9%	71.8%	79.2%	83.7%	87.2%	89.8%
	<b>\$120,000</b>	25.7%	48.0%	63.5%	74.5%	81.0%	85.2%	88.5%	91.0%
	<b>\$125,000</b>	29.7%	51.3%	66.8%	76.5%	82.6%	86.4%	89.6%	91.8%
	<b>\$130,000</b>	33.7%	55.2%	69.6%	78.6%	84.0%	87.6%	90.6%	92.5%
	<b>\$135,000</b>	37.4%	57.9%	72.3%	80.1%	85.2%	88.7%	91.4%	93.1%
	<b>\$140,000</b>	41.2%	61.4%	74.5%	81.7%	86.4%	89.8%	92.3%	93.7%
	<b>\$145,000</b>	44.7%	63.7%	76.4%	83.0%	87.4%	90.7%	92.8%	94.2%
	<b>\$150,000</b>	48.0%	66.8%	78.2%	84.3%	88.5%	91.4%	93.4%	94.7%

Source: Texas Real Estate Research Center at Texas A&M University

## Mortgage Interest Rate

Holding home price constant, the total monthly mortgage payment increases as the mortgage interest rate increases (Table 5). At a 3.04 percent rate, this payment was \$2,084 for the median sales price in 4Q2021, more than twice the total monthly mortgage payment for the median-priced home in 4Q2011.

Table 6 shows the home price-to-income multiplier by mortgage interest rate. A 3.04 percent interest rate translates into a home price-to-income multiplier of 3.72<sup>2</sup>, meaning a household could afford a maximum home price of 3.72 times its annual income. The home price-to-income multiplier declines as the mortgage interest rate increases.

The income required to qualify for a loan with a 3.04 percent mortgage interest rate was \$83,344 for the median sales price in 4Q2021 (Table 7). An estimated 67.3 percent of current homeowners in the Houston-The Woodlands-Sugar Land MSA could afford the median sales price in 4Q2019 with a 3.04 percent interest rate (Table 8), a decline of nearly 11 percentage points from 4Q2011. (The Census Bureau has not published income data for the Houston-The Woodlands-Sugar Land MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Houston-The Woodlands-Sugar Land MSA, the proportion of households that could afford the median sales price in 4Q2021 is estimated to have declined since 4Q2019.)

**Table 5. Total Monthly Mortgage Payment for Repeat Buyers by Mortgage Interest Rate**

Year	Home Price	Mortgage Interest Rate						
		2.5%	3%	<b>3.04%</b>	3.5%	4%	4.5%	5%
4Q2011	\$140,000	\$36,368	\$37,555	<b>\$37,651</b>	\$38,784	\$40,055	\$41,366	\$42,716
4Q2012	\$153,000	\$39,745	\$41,042	<b>\$41,148</b>	\$42,385	\$43,774	\$45,207	\$46,683
4Q2013	\$170,000	\$44,161	\$45,602	<b>\$45,719</b>	\$47,095	\$48,638	\$50,230	\$51,870
4Q2014	\$184,225	\$47,857	\$49,418	<b>\$49,545</b>	\$51,035	\$52,708	\$54,433	\$56,210
4Q2015	\$191,000	\$49,616	\$51,235	<b>\$51,367</b>	\$52,912	\$54,646	\$56,435	\$58,277
4Q2016	\$206,700	\$53,695	\$55,447	<b>\$55,589</b>	\$57,262	\$59,138	\$61,074	\$63,068
4Q2017	\$214,000	\$55,591	\$57,405	<b>\$57,553</b>	\$59,284	\$61,227	\$63,231	\$65,295
4Q2018	\$222,000	\$57,669	\$59,551	<b>\$59,704</b>	\$61,500	\$63,516	\$65,595	\$67,736
4Q2019	\$231,000	\$60,007	\$61,965	<b>\$62,125</b>	\$63,993	\$66,091	\$68,254	\$70,482
4Q2020	\$265,000	\$68,840	\$71,085	<b>\$71,269</b>	\$73,412	\$75,818	\$78,300	\$80,856
<b>4Q2021</b>	<b>\$309,900</b>	<b>\$80,503</b>	<b>\$83,130</b>	<b>\$83,344</b>	<b>\$85,851</b>	<b>\$88,664</b>	<b>\$91,567</b>	<b>\$94,556</b>

Note: Assumes a 30-year loan term, 80 percent loan-to-value (LTV) ratio, 30 percent debt-to-income (DTI) ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

<sup>2</sup> The home price-to-income multiplier assumes a 30-year loan term, 80 percent loan-to-value (LTV) ratio, 30 percent debt-to-income (DTI) ratio, and property taxes and insurance of 4 percent.



**Table 6. Home Price-to-Income Multiplier for Repeat Buyers by Mortgage Interest Rate**

Mortgage Interest Rate	Home Price-to-Income Multiplier
2.5%	3.85
3%	3.73
<b>3.04%</b>	<b>3.72</b>
3.5%	3.61
4%	3.50
4.5%	3.38
5%	3.28

Note: Assumes a 30-year loan term, 80 percent LTV ratio, 30 percent DTI ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 7. Required Qualifying Income for Repeat Buyers by Mortgage Interest Rate**

Year	Home Price	Mortgage Interest Rate						
		2.5%	3%	<b>3.04%</b>	3.5%	4%	4.5%	5%
4Q2011	\$140,000	\$36,368	\$37,555	<b>\$37,651</b>	\$38,784	\$40,055	\$41,366	\$42,716
4Q2012	\$153,000	\$39,745	\$41,042	<b>\$41,148</b>	\$42,385	\$43,774	\$45,207	\$46,683
4Q2013	\$170,000	\$44,161	\$45,602	<b>\$45,719</b>	\$47,095	\$48,638	\$50,230	\$51,870
4Q2014	\$184,225	\$47,857	\$49,418	<b>\$49,545</b>	\$51,035	\$52,708	\$54,433	\$56,210
4Q2015	\$191,000	\$49,616	\$51,235	<b>\$51,367</b>	\$52,912	\$54,646	\$56,435	\$58,277
4Q2016	\$206,700	\$53,695	\$55,447	<b>\$55,589</b>	\$57,262	\$59,138	\$61,074	\$63,068
4Q2017	\$214,000	\$55,591	\$57,405	<b>\$57,553</b>	\$59,284	\$61,227	\$63,231	\$65,295
4Q2018	\$222,000	\$57,669	\$59,551	<b>\$59,704</b>	\$61,500	\$63,516	\$65,595	\$67,736
4Q2019	\$231,000	\$60,007	\$61,965	<b>\$62,125</b>	\$63,993	\$66,091	\$68,254	\$70,482
4Q2020	\$265,000	\$68,840	\$71,085	<b>\$71,269</b>	\$73,412	\$75,818	\$78,300	\$80,856
<b>4Q2021</b>	<b>\$309,900</b>	<b>\$80,503</b>	<b>\$83,130</b>	<b>\$83,344</b>	<b>\$85,851</b>	<b>\$88,664</b>	<b>\$91,567</b>	<b>\$94,556</b>

Note: The required qualifying income reflects the minimum income a household must earn to qualify for a mortgage loan for a particular home price. Assumes a 30-year loan term, 80 percent LTV ratio, 30 percent DTI ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 8. Percentage of Repeat Buyers Who Earned Required Qualifying Income by Mortgage Interest Rate**

Year	Home Price	Mortgage Interest Rate						
		2.5%	3%	<b>3.04%</b>	3.5%	4%	4.5%	5%
4Q2011	\$140,000	79.2%	78.2%	<b>78.2%</b>	77.3%	76.3%	75.3%	74.3%
4Q2012	\$153,000	76.7%	75.8%	<b>75.7%</b>	74.8%	73.7%	72.7%	71.5%
4Q2013	\$170,000	73.5%	72.4%	<b>72.3%</b>	71.3%	70.2%	69.0%	67.9%
4Q2014	\$184,225	71.3%	70.2%	<b>70.1%</b>	69.1%	67.9%	66.7%	65.5%
4Q2015	\$191,000	70.9%	69.8%	<b>69.7%</b>	68.6%	67.4%	66.2%	64.9%
4Q2016	\$206,700	68.9%	67.8%	<b>67.7%</b>	66.5%	65.3%	63.9%	62.6%
4Q2017	\$214,000	68.8%	67.6%	<b>67.5%</b>	66.4%	65.1%	63.7%	62.3%
4Q2018	\$222,000	68.8%	67.6%	<b>67.5%</b>	66.3%	65.0%	63.7%	62.3%
4Q2019	\$231,000	68.6%	67.4%	<b>67.3%</b>	66.1%	64.8%	63.5%	62.1%

Note: Assumes a 30-year loan term, 80 percent LTV ratio, 30 percent DTI ratio, and additional costs of homeownership at 4 percent of home price. As repeat homebuyers constitute owner-occupied households, this table reflects income data solely for owner-occupied households.

Sources: American Community Survey, U.S. Census Bureau, and Texas Real Estate Research Center at Texas A&M University

### LTV Ratio

Holding home price constant, the total monthly mortgage payment increases as the LTV ratio increases (Table 9). For an 80 percent LTV ratio, the mortgage payment was \$2,084 for the median sales price in 4Q2021, more than twice the total monthly mortgage payment for the median-priced home in 4Q2011.

Table 10 shows the home price-to-income multiplier by LTV ratio. An 80 percent LTV ratio translates into a home price-to-income multiplier of 3.72<sup>3</sup>, meaning a household could afford a maximum home price of 3.72 times its annual income. The home price-to-income multiplier declines as the LTV ratio increases.

The income required to qualify for a loan with an 80 percent LTV ratio was \$83,344 for the median sales price in 4Q2021 (Table 11). An estimated 67.3 percent of current homeowners in the Houston-The Woodlands-Sugar Land MSA could afford the median sales price in 4Q2019 with an 80 percent LTV ratio (Table 12), a decline of nearly 11 percentage points from 4Q2011. (The Census Bureau has not published income data for the Houston-The Woodlands-Sugar Land MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Houston-The Woodlands-Sugar Land MSA, the proportion of

<sup>3</sup> The home price-to-income multiplier is based on a 30-year loan term, 3.04 percent mortgage interest rate, 30 percent DTI ratio, and property taxes and insurance of 4 percent. A 0.5 percent mortgage insurance premium is added to loans with a 90 percent or more LTV ratio.

households that could afford the median sales price in 4Q2021 is estimated to have declined since 4Q2019.)

**Table 9. Total Monthly Mortgage Payment for Repeat Buyers by LTV Ratio**

Year	Home Price	LTV Ratio				
		80%	85%	90%	95%	100%
4Q2011	\$140,000	<b>\$941</b>	\$971	\$1,001	\$1,030	\$1,060
4Q2012	\$153,000	<b>\$1,029</b>	\$1,061	\$1,094	\$1,126	\$1,158
4Q2013	\$170,000	<b>\$1,143</b>	\$1,179	\$1,215	\$1,251	\$1,287
4Q2014	\$184,225	<b>\$1,239</b>	\$1,278	\$1,317	\$1,356	\$1,395
4Q2015	\$191,000	<b>\$1,284</b>	\$1,325	\$1,365	\$1,406	\$1,446
4Q2016	\$206,700	<b>\$1,390</b>	\$1,434	\$1,477	\$1,521	\$1,565
4Q2017	\$214,000	<b>\$1,439</b>	\$1,484	\$1,530	\$1,575	\$1,620
4Q2018	\$222,000	<b>\$1,493</b>	\$1,540	\$1,587	\$1,634	\$1,681
4Q2019	\$231,000	<b>\$1,553</b>	\$1,602	\$1,651	\$1,700	\$1,749
4Q2020	\$265,000	<b>\$1,782</b>	\$1,838	\$1,894	\$1,950	\$2,006
<b>4Q2021</b>	<b>\$309,900</b>	<b>\$2,084</b>	<b>\$2,149</b>	<b>\$2,215</b>	<b>\$2,281</b>	<b>\$2,346</b>

Note: Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 30 percent DTI ratio, and additional costs of homeownership at 4 percent of home price. A mortgage insurance premium of 0.5 percent is added to loans with an LTV ratio of 90 percent or more.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 10. Home Price-to-Income Multiplier for Repeat Buyers by LTV Ratio**

LTV Ratio	Home Price-to-Income Multiplier
<b>80%</b>	<b>3.72</b>
85%	3.60
90%	3.50
95%	3.40
100%	3.30

Note: Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 30 percent DTI ratio, and additional costs of homeownership at 4 percent of home price. A mortgage insurance premium of 0.5 percent is added to loans with an LTV ratio of 90 percent or more.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 11. Required Qualifying Income for Repeat Buyers by LTV Ratio**

Year	Home Price	LTV Ratio				
		80%	85%	90%	95%	100%
4Q2011	\$140,000	<b>\$37,651</b>	\$38,838	\$40,024	\$41,211	\$42,397
4Q2012	\$153,000	<b>\$41,148</b>	\$42,444	\$43,741	\$45,038	\$46,334
4Q2013	\$170,000	<b>\$45,719</b>	\$47,160	\$48,601	\$50,042	\$51,483
4Q2014	\$184,225	<b>\$49,545</b>	\$51,106	\$52,668	\$54,229	\$55,791
4Q2015	\$191,000	<b>\$51,367</b>	\$52,986	\$54,605	\$56,223	\$57,842
4Q2016	\$206,700	<b>\$55,589</b>	\$57,341	\$59,093	\$60,845	\$62,597
4Q2017	\$214,000	<b>\$57,553</b>	\$59,366	\$61,180	\$62,994	\$64,808
4Q2018	\$222,000	<b>\$59,704</b>	\$61,586	\$63,467	\$65,349	\$67,230
4Q2019	\$231,000	<b>\$62,125</b>	\$64,082	\$66,040	\$67,998	\$69,956
4Q2020	\$265,000	<b>\$71,269</b>	\$73,515	\$75,760	\$78,006	\$80,252
<b>4Q2021</b>	<b>\$309,900</b>	<b>\$83,344</b>	<b>\$85,970</b>	<b>\$88,597</b>	<b>\$91,223</b>	<b>\$93,850</b>

Note: The required qualifying income reflects the minimum income a household must earn to qualify for a mortgage loan for a particular home price. Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 30 percent DTI ratio, and additional costs of homeownership at 4 percent of home price. A mortgage insurance premium of 0.5 percent is added to loans with an LTV ratio of 90 percent or more.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 12. Percentage of Repeat Buyers Who Earned Required Qualifying Income by LTV Ratio**

Year	Home Price	LTV Ratio				
		80%	85%	90%	95%	100%
4Q2011	\$140,000	<b>78.2%</b>	77.3%	76.3%	75.4%	74.5%
4Q2012	\$153,000	<b>75.7%</b>	74.7%	73.7%	72.8%	71.8%
4Q2013	\$170,000	<b>72.3%</b>	71.3%	70.2%	69.2%	68.2%
4Q2014	\$184,225	<b>70.1%</b>	69.0%	68.0%	66.9%	65.8%
4Q2015	\$191,000	<b>69.7%</b>	68.5%	67.4%	66.3%	65.2%
4Q2016	\$206,700	<b>67.7%</b>	66.5%	65.3%	64.1%	62.9%
4Q2017	\$214,000	<b>67.5%</b>	66.3%	65.1%	63.9%	62.7%
4Q2018	\$222,000	<b>67.5%</b>	66.3%	65.1%	63.8%	62.6%
<b>4Q2019</b>	<b>\$231,000</b>	<b>67.3%</b>	66.1%	64.9%	63.6%	62.4%

Note: Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 30 percent DTI ratio, and additional costs of homeownership at 4 percent of home price. A mortgage insurance premium of 0.5 percent is added to loans with an LTV ratio of 90 percent or more. As repeat homebuyers constitute owner-occupied households, this table reflects income data solely for owner-occupied households.

Sources: American Community Survey, U.S. Census Bureau, Texas Real Estate Research Center at Texas A&M University

### DTI Ratio

A 30 percent DTI ratio translates into a home price-to-income multiplier of 3.72<sup>4</sup> (Table 13), meaning a household could afford a maximum home price of 3.72 times its annual income at that interest rate. The home price-to-income multiplier increases as the DTI ratio increases.

The income required to qualify for a loan with a 30 percent DTI ratio was \$83,344 for the median sales price in 4Q2021 (Table 14). An estimated 67.3 percent of current homeowners in the Houston-The Woodlands-Sugar Land MSA could afford the median sales price in 4Q2019 with a 30 percent DTI ratio (Table 15), a decline of nearly 11 percentage points from 4Q2011. (The Census Bureau has not published income data for the Houston-The Woodlands-Sugar Land MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Houston-The Woodlands-Sugar Land MSA, the proportion of households that could afford the median sales price in 4Q2021 is estimated to have declined since 4Q2019.)

<sup>4</sup> The home price-to-income multiplier is based on a 30-year loan term, 3.04 percent mortgage interest rate, 80 percent LTV ratio, and property taxes and insurance of 4 percent.

**Table 13. Home Price-to-Income Multiplier  
for Repeat Buyers by DTI Ratio**

DTI Ratio	Home Price-to-Income Multiplier
20%	2.48
25%	3.10
<b>30%</b>	<b>3.72</b>
35%	4.34
40%	4.96
45%	5.58
50%	6.20

Note: Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 80 percent LTV ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 14. Required Qualifying Income for Repeat Buyers by DTI Ratio**

Year	Home Price	DTI Ratio						
		20%	25%	<b>30%</b>	35%	40%	45%	50%
4Q2011	\$140,000	\$56,477	\$45,182	<b>\$37,651</b>	\$32,273	\$28,238	\$25,101	\$22,591
4Q2012	\$153,000	\$61,721	\$49,377	<b>\$41,148</b>	\$35,269	\$30,861	\$27,432	\$24,689
4Q2013	\$170,000	\$68,579	\$54,863	<b>\$45,719</b>	\$39,188	\$34,290	\$30,480	\$27,432
4Q2014	\$184,225	\$74,318	\$59,454	<b>\$49,545</b>	\$42,467	\$37,159	\$33,030	\$29,727
4Q2015	\$191,000	\$77,051	\$61,641	<b>\$51,367</b>	\$44,029	\$38,525	\$34,245	\$30,820
4Q2016	\$206,700	\$83,384	\$66,707	<b>\$55,589</b>	\$47,648	\$41,692	\$37,060	\$33,354
4Q2017	\$214,000	\$86,329	\$69,063	<b>\$57,553</b>	\$49,331	\$43,165	\$38,368	\$34,532
4Q2018	\$222,000	\$89,556	\$71,645	<b>\$59,704</b>	\$51,175	\$44,778	\$39,803	\$35,823
4Q2019	\$231,000	\$93,187	\$74,550	<b>\$62,125</b>	\$53,250	\$46,593	\$41,416	\$37,275
4Q2020	\$265,000	\$106,903	\$85,522	<b>\$71,269</b>	\$61,087	\$53,451	\$47,512	\$42,761
<b>4Q2021</b>	<b>\$309,900</b>	<b>\$125,016</b>	<b>\$100,013</b>	<b>\$83,344</b>	<b>\$71,438</b>	<b>\$62,508</b>	<b>\$55,563</b>	<b>\$50,006</b>

Note: The required qualifying income reflects the minimum income a household must earn to qualify for a mortgage loan for a particular home price. Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 80 percent LTV ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 15. Percentage of Repeat Buyers Who Earned Required Qualifying Income by DTI Ratio**

Year	Home Price	DTI Ratio						
		20%	25%	<b>30%</b>	35%	40%	45%	50%
4Q2011	\$140,000	64.0%	72.4%	<b>78.2%</b>	82.2%	85.2%	87.5%	89.2%
4Q2012	\$153,000	60.7%	69.5%	<b>75.7%</b>	80.1%	83.3%	85.9%	87.9%
4Q2013	\$170,000	56.2%	65.8%	<b>72.3%</b>	77.1%	80.7%	83.5%	85.7%
4Q2014	\$184,225	53.0%	63.3%	<b>70.1%</b>	75.2%	79.0%	82.0%	84.4%
4Q2015	\$191,000	52.3%	62.6%	<b>69.7%</b>	74.8%	78.7%	81.7%	84.1%
4Q2016	\$206,700	49.9%	60.1%	<b>67.7%</b>	73.1%	77.2%	80.3%	82.9%
4Q2017	\$214,000	49.7%	59.8%	<b>67.5%</b>	73.0%	77.1%	80.3%	82.8%
4Q2018	\$222,000	49.7%	59.7%	<b>67.5%</b>	73.1%	77.1%	80.3%	82.8%
4Q2019	\$231,000	49.3%	59.5%	<b>67.3%</b>	72.9%	77.0%	80.1%	82.7%

Note: Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 80 percent LTV ratio, and additional costs of homeownership at 4 percent of home price. As repeat homebuyers constitute owner-occupied households, this table reflects income data solely for owner-occupied households.

Sources: American Community Survey, U.S. Census Bureau, and Texas Real Estate Research Center at Texas A&M University

### Property Taxes and Insurance

Holding home price constant, the total monthly mortgage payment increases as the annual costs of property taxes and insurance increase (Table 16). Assuming the cost of property taxes and insurance is 4 percent of the home price, the monthly mortgage payment was \$2,084 for the median sales price in 4Q2021, more than twice the total monthly mortgage payment for the median-priced home in 4Q2011.

Table 17 shows the home price-to-income multiplier by the costs of property taxes and insurance. A 4 percent property tax and insurance rate translates into a home price-to-income multiplier of 3.72<sup>5</sup>, meaning a household could afford a maximum home price of 3.72 times its annual income. The home price-to-income multiplier declines as the costs of property taxes and insurance increase.

The income required to qualify for a loan with property taxes and insurance at 4 percent of home price was \$83,344 for the median sales price in 4Q2021 (Table 18). An estimated 67.3 percent of current homeowners in the Houston-The Woodlands-Sugar Land MSA could afford the median sales price in 4Q2019 with a mortgage interest rate of 3.04 percent (Table 19), a decline of nearly 11 percentage points from 4Q2011. (The Census Bureau has not published income data for the Houston-The Woodlands-Sugar Land MSA since 2019. However, as growth in median

<sup>5</sup> The home price-to-income multiplier is based on a 30-year loan term, 3.04 percent mortgage interest rate, 80 percent LTV ratio, and 30 percent DTI ratio.

home price has significantly outpaced growth in median family income in the Houston-The Woodlands-Sugar Land MSA, the proportion of households that could afford the median sales price in 4Q2021 is estimated to have declined since 4Q2019.)

**Table 16. Total Monthly Mortgage Payment for Repeat Buyers by Additional Homeownership Costs**

Year	Home Price	Property Taxes & Insurance				
		2%	3%	4%	5%	6%
4Q2011	\$140,000	\$708	\$825	<b>\$941</b>	\$1,058	\$1,175
3Q2012	\$153,000	\$774	\$901	<b>\$1,029</b>	\$1,156	\$1,284
3Q2013	\$170,000	\$860	\$1,001	<b>\$1,143</b>	\$1,285	\$1,426
3Q2014	\$184,225	\$932	\$1,085	<b>\$1,239</b>	\$1,392	\$1,546
3Q2015	\$191,000	\$966	\$1,125	<b>\$1,284</b>	\$1,443	\$1,603
3Q2016	\$206,700	\$1,045	\$1,217	<b>\$1,390</b>	\$1,562	\$1,734
3Q2017	\$214,000	\$1,082	\$1,260	<b>\$1,439</b>	\$1,617	\$1,795
3Q2018	\$222,000	\$1,123	\$1,308	<b>\$1,493</b>	\$1,678	\$1,863
3Q2019	\$231,000	\$1,168	\$1,361	<b>\$1,553</b>	\$1,746	\$1,938
3Q2020	\$265,000	\$1,340	\$1,561	<b>\$1,782</b>	\$2,003	\$2,223
<b>4Q2021</b>	<b>\$309,900</b>	<b>\$1,567</b>	<b>\$1,825</b>	<b>\$2,084</b>	<b>\$2,342</b>	<b>\$2,600</b>

Note: Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 80 percent LTV ratio, and 30 percent DTI ratio.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 17. Home Price-to-Income Multiplier for Repeat Buyers by Additional Homeownership Costs**

Property Taxes and Insurance	Home Price-to-Income Multiplier
2%	4.94
3%	4.24
<b>4%</b>	<b>3.72</b>
5%	3.31
6%	2.98

Note: Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 80 percent LTV ratio, and 30 percent DTI ratio.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 18. Required Qualifying Income for Repeat Homebuyers by Additional Homeownership Costs**

Year	Home Price	Property Taxes & Insurance				
		2%	3%	4%	5%	6%
4Q2011	\$140,000	\$28,318	\$32,985	<b>\$37,651</b>	\$42,318	\$46,985
4Q2012	\$153,000	\$30,948	\$36,048	<b>\$41,148</b>	\$46,248	\$51,348
4Q2013	\$170,000	\$34,386	\$40,053	<b>\$45,719</b>	\$51,386	\$57,053
4Q2014	\$184,225	\$37,263	\$43,404	<b>\$49,545</b>	\$55,686	\$61,827
4Q2015	\$191,000	\$38,634	\$45,000	<b>\$51,367</b>	\$57,734	\$64,100
4Q2016	\$206,700	\$41,809	\$48,699	<b>\$55,589</b>	\$62,479	\$69,369
4Q2017	\$214,000	\$43,286	\$50,419	<b>\$57,553</b>	\$64,686	\$71,819
4Q2018	\$222,000	\$44,904	\$52,304	<b>\$59,704</b>	\$67,104	\$74,504
4Q2019	\$231,000	\$46,725	\$54,425	<b>\$62,125</b>	\$69,825	\$77,525
4Q2020	\$265,000	\$53,602	\$62,435	<b>\$71,269</b>	\$80,102	\$88,935
<b>4Q2021</b>	<b>\$309,900</b>	<b>\$62,684</b>	<b>\$73,014</b>	<b>\$83,344</b>	<b>\$93,674</b>	<b>\$104,004</b>

Note: The required qualifying income reflects the minimum income a household must earn to qualify for a mortgage loan for a particular home price. Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 80 percent LTV ratio, and 30 percent DTI ratio.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 19. Percentage of Repeat Homeowners Who Earned Required Qualifying Income by Additional Homeownership Costs**

Year	Home Price	Property Taxes & Insurance				
		2%	3%	4%	5%	6%
4Q2011	\$140,000	85.1%	81.7%	<b>78.2%</b>	74.6%	71.0%
4Q2012	\$153,000	83.3%	79.5%	<b>75.7%</b>	71.9%	68.1%
4Q2013	\$170,000	80.6%	76.5%	<b>72.3%</b>	68.2%	64.3%
4Q2014	\$184,225	79.0%	74.5%	<b>70.1%</b>	65.9%	61.6%
4Q2015	\$191,000	78.6%	74.1%	<b>69.7%</b>	65.3%	60.9%
4Q2016	\$206,700	77.1%	72.3%	<b>67.7%</b>	63.0%	58.3%
4Q2017	\$214,000	77.0%	72.3%	<b>67.5%</b>	62.8%	58.0%
4Q2018	\$222,000	77.0%	72.3%	<b>67.5%</b>	62.7%	57.9%
4Q2019	\$231,000	76.9%	72.2%	<b>67.3%</b>	62.5%	57.8%

Note: Assumes a 30-year loan term, 3.04 percent mortgage interest rate, 80 percent LTV ratio, and 30 percent DTI ratio. As repeat homebuyers constitute owner-occupied households, this table reflects income data solely for owner-occupied households.

Sources: American Community Survey, U.S. Census Bureau, and Texas Real Estate Research Center

## First-Time Homebuyer

Purchase affordability continued to decline in 4Q2021 for first-time homebuyers in the Houston-The Woodlands-Sugar Land MSA, particularly among the lowest-income cohorts. Despite sustained low mortgage interest rates, the YOY uptick in the first-quartile sales price left homeownership increasingly unaffordable for lower-income households.

Table 20 shows the maximum home price affordable by family income and home-purchasing power. For example, households earning between \$26,500 and \$39,600 annually (i.e., between 31 and 50 percent of median family income) could afford a maximum home price between \$79,500 and \$118,800 with a home price-to-income multiplier of 3. Meanwhile, the range in the maximum home price affordable to that range in household income rises to between \$106,000 and \$158,400 should the home price-to-income multiplier measure 4.

Depending on the home price-to-income multiplier, only households earning at least \$45,000 annually could afford the first-quartile sales price in 4Q2021. Homeownership is largely not feasible to households earning less than 50 percent of median family income. In fact, homeownership really only becomes viable for households earning at least 80 percent of area median income. Even at that point it largely depends on whether mortgage lenders are willing to accept loans with high home price-to-income multipliers. Moreover, few homes are available for sale at these income thresholds. For instance, with a home price-to-income multiplier of 3, only 9.9 percent of homes for sale in the Houston-The Woodlands-Sugar Land MSA were affordable to households earning no more than 80 percent of area median income in 4Q2021 (Table 21).



**Table 20. Maximum Home Price Affordable by Family Income and Home Price-to-Income Multiplier**

	Family Income	Home Price-to-Income Multiplier							
		2	2.5	3	3.5	4	4.5	5	5.5
	<b>\$15,000</b>	\$30,000	\$37,500	\$45,000	\$52,500	\$60,000	\$67,500	\$75,000	\$82,500
	<b>\$20,000</b>	\$40,000	\$50,000	\$60,000	\$70,000	\$80,000	\$90,000	\$100,000	\$110,000
	<b>\$25,000</b>	\$50,000	\$62,500	\$75,000	\$87,500	\$100,000	\$112,500	\$125,000	\$137,500
<b>Extremely Low-Income Households (30%)</b>	<b>\$26,500</b>	\$53,000	\$66,250	\$79,500	\$92,750	\$106,000	\$119,250	\$132,500	\$145,750
	<b>\$30,000</b>	\$60,000	\$75,000	\$90,000	\$105,000	\$120,000	\$135,000	\$150,000	\$165,000
	<b>\$35,000</b>	\$70,000	\$87,500	\$105,000	\$122,500	\$140,000	\$157,500	\$175,000	\$192,500
<b>Very Low-Income Households (50%)</b>	<b>\$39,600</b>	\$79,200	\$99,000	\$118,800	\$138,600	\$158,400	\$178,200	\$198,000	\$217,800
	<b>\$40,000</b>	\$80,000	\$100,000	\$120,000	\$140,000	\$160,000	\$180,000	\$200,000	\$220,000
	<b>\$45,000</b>	\$90,000	\$112,500	\$135,000	\$157,500	\$180,000	\$202,500	\$225,000	<b>\$247,500</b>
	<b>\$50,000</b>	\$100,000	\$125,000	\$150,000	\$175,000	\$200,000	\$225,000	<b>\$250,000</b>	<b>\$275,000</b>
	<b>\$55,000</b>	\$110,000	\$137,500	\$165,000	\$192,500	\$220,000	<b>\$247,500</b>	<b>\$275,000</b>	<b>\$302,500</b>
	<b>\$60,000</b>	\$120,000	\$150,000	\$180,000	\$210,000	<b>\$240,000</b>	<b>\$270,000</b>	<b>\$300,000</b>	<b>\$330,000</b>
<b>Low-Income Households (80%)</b>	<b>\$63,350</b>	\$126,700	\$158,375	\$190,050	\$221,725	<b>\$253,400</b>	<b>\$285,075</b>	<b>\$316,750</b>	<b>\$348,425</b>
	<b>\$65,000</b>	\$130,000	\$162,500	\$195,000	\$227,500	<b>\$260,000</b>	<b>\$292,500</b>	<b>\$325,000</b>	<b>\$357,500</b>
	<b>\$70,000</b>	\$140,000	\$175,000	\$210,000	<b>\$245,000</b>	<b>\$280,000</b>	<b>\$315,000</b>	<b>\$350,000</b>	<b>\$385,000</b>
	<b>\$75,000</b>	\$150,000	\$187,500	\$225,000	<b>\$262,500</b>	<b>\$300,000</b>	<b>\$337,500</b>	<b>\$375,000</b>	<b>\$412,500</b>

Note: Figures in red indicate the maximum affordable home price meets or exceeds the first-quartile home sales price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 21. Percentage of Homes Sold in 4Q2021 Affordable by Family Income and Home Price-to-Income Multiplier**

	Family Income	Home Price-to-Income Multiplier							
		2	2.5	3	3.5	4	4.5	5	5.5
Extremely Low-Income Households (0-30%)	\$15,000	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%	0.4%	0.5%
	\$20,000	0.1%	0.1%	0.2%	0.4%	0.5%	0.8%	1.1%	1.4%
	\$25,000	0.1%	0.2%	0.4%	0.7%	1.1%	1.4%	2.1%	2.7%
	\$26,500	0.1%	0.3%	0.5%	0.9%	1.3%	1.7%	2.4%	3.4%
Very Low-Income Households (31-50%)	\$30,000	0.2%	0.4%	0.8%	1.3%	1.8%	2.6%	3.9%	5.6%
	\$35,000	0.4%	0.7%	1.3%	1.9%	3.0%	4.5%	6.9%	10.2%
	\$39,600	0.5%	1.0%	1.7%	2.8%	4.6%	7.2%	11.3%	16.6%
Low-Income Households (51-80%)	\$40,000	0.5%	1.1%	1.8%	3.0%	5.0%	7.9%	12.4%	18.1%
	\$45,000	0.8%	1.4%	2.6%	4.5%	7.9%	12.7%	19.8%	27.9%
	\$50,000	1.1%	2.1%	3.9%	6.9%	12.4%	19.8%	29.7%	39.4%
	\$55,000	1.4%	2.7%	5.6%	10.2%	18.1%	27.9%	39.4%	48.3%
	\$60,000	1.8%	3.9%	7.9%	14.9%	25.7%	37.4%	48.0%	56.5%
	\$63,350	2.1%	4.6%	9.9%	18.2%	30.3%	43.0%	52.5%	60.3%
	\$65,000	2.4%	5.1%	10.9%	20.4%	33.7%	45.1%	55.2%	62.5%
	\$70,000	3.0%	6.9%	14.9%	27.3%	41.2%	52.4%	61.4%	68.7%
	\$75,000	3.9%	9.1%	19.8%	34.2%	48.0%	57.9%	66.8%	73.2%

Source: Texas Real Estate Research Center at Texas A&M University

### Mortgage Interest Rate

Holding home price constant, the total monthly mortgage payment increases as the mortgage interest rate increases (Table 22). A 3.22 percent rate brought the mortgage payment to \$1,852 for the first-quartile sales price in 4Q2021, nearly three times the total monthly mortgage payment for the same home in 4Q2011.

Table 23 shows the home price-to-income multiplier by mortgage interest rate. A 3.22 percent interest rate translates into a home price-to-income multiplier of 3.78<sup>6</sup>, meaning a household could afford a maximum home price of 3.78 times its annual income. The home price-to-income multiplier declines as the mortgage interest rate increases.

<sup>6</sup> The home price-to-income multiplier is based on a 30-year loan term, 95 percent LTV ratio, 35 percent DTI ratio, and property taxes and insurance of 4 percent.

The income required to qualify for a loan with a 3.22 percent mortgage interest rate was \$63,498 for the first-quartile sales price in 4Q2021 (Table 24). An estimated 46.2 percent of renters in the Houston-The Woodlands-Sugar Land MSA could afford the first-quartile sales price in 4Q2019 with a 3.22 percent interest rate (Table 25), a decline of nearly 21 percentage points from 4Q2011. (The Census Bureau has not published income data for the Houston-The Woodlands-Sugar Land MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Houston-The Woodlands-Sugar Land MSA, the proportion of households that could afford the first-quartile sales price in 4Q2021 is estimated to have declined since 4Q2019.)

**Table 22. Total Monthly Mortgage Payment for First-Time Buyers by Mortgage Interest Rate**

Year	Home Price	Mortgage Interest Rate					
		2.5%	3%	<b>3.22%</b>	3.5%	4%	4.5%
4Q2011	\$88,000	\$646	\$669	<b>\$679</b>	\$692	\$717	\$742
4Q2012	\$100,000	\$734	\$760	<b>\$772</b>	\$787	\$815	\$843
4Q2013	\$120,000	\$881	\$912	<b>\$926</b>	\$944	\$978	\$1,012
4Q2014	\$132,500	\$972	\$1,007	<b>\$1,022</b>	\$1,043	\$1,079	\$1,117
4Q2015	\$142,500	\$1,046	\$1,083	<b>\$1,100</b>	\$1,121	\$1,161	\$1,202
4Q2016	\$154,900	\$1,137	\$1,177	<b>\$1,195</b>	\$1,219	\$1,262	\$1,306
4Q2017	\$160,000	\$1,174	\$1,216	<b>\$1,235</b>	\$1,259	\$1,303	\$1,349
4Q2018	\$170,000	\$1,248	\$1,292	<b>\$1,312</b>	\$1,338	\$1,385	\$1,434
4Q2019	\$180,000	\$1,321	\$1,368	<b>\$1,389</b>	\$1,416	\$1,466	\$1,518
4Q2020	\$207,000	\$1,519	\$1,573	<b>\$1,597</b>	\$1,629	\$1,686	\$1,746
<b>4Q2021</b>	<b>\$240,000</b>	<b>\$1,761</b>	<b>\$1,824</b>	<b>\$1,852</b>	<b>\$1,889</b>	<b>\$1,955</b>	<b>\$2,024</b>

Note: Assumes a 30-year loan term, 95 percent LTV ratio, 35 percent DTI ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 23. Home Price-to-Income Multiplier for First-Time Buyers by Mortgage Interest Rate**

Mortgage Interest Rate	Home Price-to-Income Multiplier
2.5%	3.97
3%	3.84
<b>3.22%</b>	<b>3.78</b>
3.5%	3.71
4%	3.58
4.5%	3.46

Note: Assumes a 30-year loan term, 95 percent LTV ratio, 35 percent DTI ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University



**Table 24. Required Qualifying Income by Mortgage Interest Rate**

Year	Home Price	Mortgage Interest Rate					
		2.5%	3%	<b>3.22%</b>	3.5%	4%	4.5%
4Q2011	\$88,000	\$22,142	\$22,928	<b>\$23,283</b>	\$23,741	\$24,580	\$25,444
4Q2012	\$100,000	\$25,161	\$26,055	<b>\$26,458</b>	\$26,979	\$27,932	\$28,914
4Q2013	\$120,000	\$30,193	\$31,266	<b>\$31,749</b>	\$32,374	\$33,518	\$34,696
4Q2014	\$132,500	\$33,338	\$34,522	<b>\$35,056</b>	\$35,747	\$37,010	\$38,311
4Q2015	\$142,500	\$35,854	\$37,128	<b>\$37,702</b>	\$38,445	\$39,803	\$41,202
4Q2016	\$154,900	\$38,974	\$40,359	<b>\$40,983</b>	\$41,790	\$43,267	\$44,787
4Q2017	\$160,000	\$40,257	\$41,687	<b>\$42,332</b>	\$43,166	\$44,691	\$46,262
4Q2018	\$170,000	\$42,773	\$44,293	<b>\$44,978</b>	\$45,864	\$47,484	\$49,153
4Q2019	\$180,000	\$45,289	\$46,898	<b>\$47,624</b>	\$48,562	\$50,278	\$52,045
4Q2020	\$207,000	\$52,083	\$53,933	<b>\$54,767</b>	\$55,846	\$57,819	\$59,851
<b>4Q2021</b>	<b>\$240,000</b>	<b>\$60,386</b>	<b>\$62,531</b>	<b>\$63,498</b>	<b>\$64,749</b>	<b>\$67,037</b>	<b>\$69,393</b>

Note: The required qualifying income reflects the minimum income a household must earn to qualify for a mortgage loan for a particular home price. Assumes a 30-year loan term, 95 percent LTV ratio, 35 percent DTI ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 25. Percentage of Renter-Occupied Households That Earned Required Qualifying Income by Mortgage Interest Rate**

Year	Home Price	Mortgage Interest Rate					
		2.5%	3%	<b>3.22%</b>	3.5%	4%	4.5%
4Q2011	\$88,000	68.9%	67.7%	<b>67.1%</b>	66.4%	65.1%	63.7%
4Q2012	\$100,000	64.7%	63.4%	<b>62.8%</b>	62.0%	60.6%	59.2%
4Q2013	\$120,000	57.8%	56.2%	<b>55.6%</b>	54.7%	53.1%	51.4%
4Q2014	\$132,500	54.5%	52.9%	<b>52.1%</b>	51.4%	50.1%	48.7%
4Q2015	\$142,500	52.0%	50.6%	<b>50.0%</b>	49.2%	47.8%	46.3%
4Q2016	\$154,900	50.1%	48.6%	<b>48.0%</b>	47.1%	45.5%	43.9%
4Q2017	\$160,000	50.6%	49.1%	<b>48.4%</b>	47.6%	46.0%	44.3%
4Q2018	\$170,000	49.9%	48.3%	<b>47.6%</b>	46.7%	45.0%	43.3%
4Q2019	\$180,000	48.7%	47.0%	<b>46.2%</b>	45.2%	43.5%	42.2%

Note: Assumes a 30-year loan term, 95 percent LTV ratio, 35 percent DTI ratio, and additional costs of homeownership at 4 percent of home price. As first-time homebuyers constitute renter-occupied households, this table reflects income data solely for renter-occupied households.

Sources: American Community Survey, U.S. Census Bureau, and Texas Real Estate Research Center at Texas A&M University

## LTV Ratio

Holding home price constant, the total monthly mortgage payment increases as the LTV ratio increases (Table 26). For a 95 percent LTV ratio, this payment amounted to \$1,852 for the first-quartile sales price in 4Q2021, nearly three times the total monthly mortgage payment for the same home in 4Q2011.

Table 27 shows the home price-to-income multiplier by LTV ratio. A 95 percent LTV ratio translates into a home price-to-income multiplier of 3.78<sup>7</sup>, meaning a household could afford a maximum home price of 3.78 times its annual income. The home price-to-income multiplier declines as the LTV ratio increases.

The income required to qualify for a loan with a 95 percent LTV ratio was \$63,498 for the first-quartile sales price in 4Q2021 (Table 28). An estimated 46.2 percent of renters in the Houston-The Woodlands-Sugar Land MSA could afford the first-quartile sales price in 4Q2021 with a 95 percent LTV ratio (Table 29), a decline of nearly 21 percentage points from 4Q2011. (The Census Bureau has not published income data for the Houston-The Woodlands-Sugar Land MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Houston-The Woodlands-Sugar Land MSA, the proportion of households that could afford the first-quartile sales price in 4Q2021 is estimated to have declined since 4Q2019.)

**Table 26. Total Monthly Mortgage Payment by LTV Ratio**

Year	Home Price	LTV Ratio				
		95%	96.5%	97%	98%	100%
4Q2011	\$88,000	<b>\$679</b>	\$685	\$687	\$691	\$699
4Q2012	\$100,000	<b>\$772</b>	\$779	\$781	\$786	\$795
4Q2013	\$120,000	<b>\$926</b>	\$934	\$937	\$943	\$954
4Q2014	\$132,500	<b>\$1,022</b>	\$1,032	\$1,035	\$1,041	\$1,053
4Q2015	\$142,500	<b>\$1,100</b>	\$1,110	\$1,113	\$1,119	\$1,133
4Q2016	\$154,900	<b>\$1,195</b>	\$1,206	\$1,210	\$1,217	\$1,231
4Q2017	\$160,000	<b>\$1,235</b>	\$1,246	\$1,249	\$1,257	\$1,272
4Q2018	\$170,000	<b>\$1,312</b>	\$1,324	\$1,328	\$1,335	\$1,351
4Q2019	\$180,000	<b>\$1,389</b>	\$1,401	\$1,406	\$1,414	\$1,431
4Q2020	\$207,000	<b>\$1,597</b>	\$1,612	\$1,616	\$1,626	\$1,645
<b>4Q2021</b>	<b>\$240,000</b>	<b>\$1,852</b>	<b>\$1,869</b>	<b>\$1,874</b>	<b>\$1,885</b>	<b>\$1,907</b>

Note: Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 35 percent DTI ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

<sup>7</sup> The home price-to-income multiplier is based on a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 35 percent DTI ratio, and property taxes and insurance of 4 percent.

**Table 27. Home Price-to-Income Multiplier  
for First-Time Buyers by LTV Ratio**

LTV Ratio	Home-Purchasing Power
<b>95%</b>	<b>3.78</b>
96.5%	3.75
97%	3.73
98%	3.71
100%	3.67

Note: Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 35 percent DTI ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 28. Required Qualifying Income by LTV Ratio**

Year	Home Price	LTV Ratio				
		95%	96.5%	97%	98%	100%
4Q2011	\$88,000	<b>\$23,283</b>	\$23,491	\$23,561	\$23,700	\$23,979
4Q2012	\$100,000	<b>\$26,458</b>	\$26,695	\$26,774	\$26,932	\$27,249
4Q2013	\$120,000	<b>\$31,749</b>	\$32,034	\$32,129	\$32,319	\$32,698
4Q2014	\$132,500	<b>\$35,056</b>	\$35,371	\$35,475	\$35,685	\$36,104
4Q2015	\$142,500	<b>\$37,702</b>	\$38,040	\$38,153	\$38,378	\$38,829
4Q2016	\$154,900	<b>\$40,983</b>	\$41,350	\$41,473	\$41,718	\$42,208
4Q2017	\$160,000	<b>\$42,332</b>	\$42,712	\$42,838	\$43,091	\$43,598
4Q2018	\$170,000	<b>\$44,978</b>	\$45,381	\$45,516	\$45,785	\$46,322
4Q2019	\$180,000	<b>\$47,624</b>	\$48,051	\$48,193	\$48,478	\$49,047
4Q2020	\$207,000	<b>\$54,767</b>	\$55,258	\$55,422	\$55,749	\$56,404
<b>4Q2021</b>	<b>\$240,000</b>	<b>\$63,498</b>	<b>\$64,068</b>	<b>\$64,257</b>	<b>\$64,637</b>	<b>\$65,396</b>

Note: The required qualifying income reflects the minimum income a household must earn to qualify for a mortgage loan for a particular home price. Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 35 percent DTI ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 29. Percentage of Renter-Occupied Households That Earned Required Qualifying Income by LTV Ratio**

Year	Home Price	LTV Ratio				
		95%	96.5%	97%	98%	100%
4Q2011	\$88,000	<b>67.1%</b>	66.8%	66.7%	66.5%	66.0%
4Q2012	\$100,000	<b>62.8%</b>	62.4%	62.3%	62.1%	61.6%
4Q2013	\$120,000	<b>55.6%</b>	55.2%	55.0%	54.8%	54.2%
4Q2014	\$132,500	<b>52.1%</b>	51.8%	51.7%	51.5%	51.0%
4Q2015	\$142,500	<b>50.0%</b>	49.7%	49.6%	49.3%	48.8%
4Q2016	\$154,900	<b>48.0%</b>	47.6%	47.4%	47.2%	46.7%
4Q2017	\$160,000	<b>48.4%</b>	48.0%	47.9%	47.6%	47.1%
4Q2018	\$170,000	<b>47.6%</b>	47.2%	47.1%	46.8%	46.2%
4Q2019	\$180,000	<b>46.2%</b>	45.8%	45.6%	45.3%	44.7%

Note: Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 35 percent DTI ratio, and additional costs of homeownership at 4 percent of home price. As first-time homebuyers constitute renter-occupied households, this table reflects income data solely for renter-occupied households.

Sources: American Community Survey, U.S. Census Bureau, and Texas Real Estate Research Center at Texas A&M University

### DTI Ratio

A 35 percent DTI ratio translates into a home price-to-income multiplier of 3.78<sup>8</sup> (Table 30), meaning a household could afford a maximum home price of 3.78 times its annual income. The home price-to-income multiplier increases as the DTI ratio increases.

The income required to qualify for a loan with a 35 percent DTI ratio was \$63,498 for the first-quartile sales price in 4Q2021 (Table 31). An estimated 46.2 percent of renters in the Houston-The Woodlands-Sugar Land MSA could afford the first-quartile sales price in 4Q2021 with a 35 percent DTI ratio (Table 32), a decline of nearly 21 percentage points from 4Q2011. (The Census Bureau has not published income data for the Houston-The Woodlands-Sugar Land MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Houston-The Woodlands-Sugar Land MSA, the proportion of households that could afford the first-quartile sales price in 4Q2021 is estimated to have declined since 4Q2019.)

<sup>8</sup> The home price-to-income multiplier is based on a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and property taxes and insurance of 4 percent.

**Table 30. Home Price-to-Income Multiplier  
for First-Time Buyers by DTI Ratio**

DTI Ratio	Home Price-to-Income Multiplier
20%	2.16
25%	2.70
30%	3.24
<b>35%</b>	<b>3.78</b>
40%	4.32
45%	4.86
50%	5.40

Note: Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 31. Required Qualifying Income for First-Time Buyers by DTI Ratio**

Year	Home Price	DTI Ratio						
		20%	25%	30%	<b>35%</b>	40%	45%	50%
4Q2011	\$88,000	\$40,745	\$32,596	\$27,163	<b>\$23,283</b>	\$20,372	\$18,109	\$16,298
4Q2012	\$100,000	\$46,301	\$37,041	\$30,867	<b>\$26,458</b>	\$23,150	\$20,578	\$18,520
4Q2013	\$120,000	\$55,561	\$44,449	\$37,041	<b>\$31,749</b>	\$27,780	\$24,694	\$22,224
4Q2014	\$132,500	\$61,348	\$49,079	\$40,899	<b>\$35,056</b>	\$30,674	\$27,266	\$24,539
4Q2015	\$142,500	\$65,978	\$52,783	\$43,986	<b>\$37,702</b>	\$32,989	\$29,324	\$26,391
4Q2016	\$154,900	\$71,720	\$57,376	\$47,813	<b>\$40,983</b>	\$35,860	\$31,875	\$28,688
4Q2017	\$160,000	\$74,081	\$59,265	\$49,387	<b>\$42,332</b>	\$37,041	\$32,925	\$29,632
4Q2018	\$170,000	\$78,711	\$62,969	\$52,474	<b>\$44,978</b>	\$39,356	\$34,983	\$31,484
4Q2019	\$180,000	\$83,341	\$66,673	\$55,561	<b>\$47,624</b>	\$41,671	\$37,041	\$33,336
4Q2020	\$207,000	\$95,842	\$76,674	\$63,895	<b>\$54,767</b>	\$47,921	\$42,597	\$38,337
<b>4Q2021</b>	<b>\$240,000</b>	<b>\$111,122</b>	<b>\$88,897</b>	<b>\$74,081</b>	<b>\$63,498</b>	<b>\$55,561</b>	<b>\$49,387</b>	<b>\$44,449</b>

Note: The required qualifying income reflects the minimum income a household must earn to qualify for a mortgage loan for a particular home price. Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and additional costs of homeownership at 4 percent of home price.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 32. Percentage of Households That Earned Required Qualifying Income by DTI Ratio**

Year	Home Price	DTI Ratio						
		20%	25%	30%	<b>35%</b>	40%	45%	50%
4Q2011	\$88,000	43.3%	53.1%	61.2%	<b>67.1%</b>	71.7%	75.4%	78.4%
4Q2012	\$100,000	38.3%	48.1%	56.3%	<b>62.8%</b>	67.9%	72.0%	75.2%
4Q2013	\$120,000	31.2%	40.8%	48.8%	<b>55.6%</b>	61.2%	65.6%	69.5%
4Q2014	\$132,500	28.5%	37.2%	45.9%	<b>52.1%</b>	58.2%	63.0%	66.8%
4Q2015	\$142,500	26.1%	35.1%	43.4%	<b>50.0%</b>	55.7%	60.7%	64.7%
4Q2016	\$154,900	23.3%	33.2%	40.7%	<b>48.0%</b>	53.4%	58.6%	62.9%
4Q2017	\$160,000	23.1%	33.7%	41.0%	<b>48.4%</b>	54.0%	58.9%	63.1%
4Q2018	\$170,000	22.7%	32.9%	40.6%	<b>47.6%</b>	53.4%	58.0%	62.5%
4Q2019	\$180,000	21.8%	31.4%	39.6%	<b>46.2%</b>	52.4%	57.2%	61.5%

Note: Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and additional costs of homeownership at 4 percent of home price. As first-time homebuyers constitute renter-occupied households, this table reflects income data solely for renter-occupied households.

Sources: American Community Survey, U.S. Census Bureau, and Texas Real Estate Research Center at Texas A&M University

## Property Taxes and Insurance

Holding home price constant, the total monthly mortgage payment increases as additional annual homeownership costs (property taxes and insurance) increase (Table 33). With a rate of 4 percent of home price, this payment amounted to \$1,852 for the first-quartile sales price in 4Q2021, nearly three times the total monthly mortgage payment for the same home in 4Q2011.

Table 34 shows the home price-to-income multiplier by the costs of property taxes and insurance. A 4 percent property tax and insurance rate translates into a home price-to-income multiplier of 3.78<sup>9</sup>, meaning a household could afford a maximum home price of 3.78 times its annual income. The home price-to-income multiplier declines as the mortgage interest rate increases.

The income required to qualify for a loan with property taxes and insurance at 4 percent of home price was \$63,498 for the first-quartile sales price in 4Q2021 (Table 35). An estimated 46.2 percent of Texas households could afford the first-quartile sales price in 4Q2021 with property taxes and insurance at 4 percent of home price (Table 36), a decline of nearly 21 percentage points from 4Q2011. (The Census Bureau has not published income data for the Houston-The Woodlands-Sugar Land MSA since 2019. However, as growth in median home price

<sup>9</sup> The home price-to-income multiplier is based on a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and 35 percent DTI ratio.

has significantly outpaced growth in median family income in the Houston-The Woodlands-Sugar Land MSA, the proportion of households that could afford the first-quartile sales price in 4Q2021 is estimated to have declined since 4Q2019.)

**Table 33. Total Monthly Mortgage Payment  
by Additional Homeownership Costs**

Year	Home Price	Property Taxes & Insurance				
		2%	3%	4%	5%	6%
4Q2011	\$88,000	\$532	\$606	<b>\$679</b>	\$752	\$826
4Q2012	\$100,000	\$605	\$688	<b>\$772</b>	\$855	\$938
4Q2013	\$120,000	\$726	\$826	<b>\$926</b>	\$1,026	\$1,126
4Q2014	\$132,500	\$802	\$912	<b>\$1,022</b>	\$1,133	\$1,243
4Q2015	\$142,500	\$862	\$981	<b>\$1,100</b>	\$1,218	\$1,337
4Q2016	\$154,900	\$937	\$1,066	<b>\$1,195</b>	\$1,324	\$1,453
4Q2017	\$160,000	\$968	\$1,101	<b>\$1,235</b>	\$1,368	\$1,501
4Q2018	\$170,000	\$1,029	\$1,170	<b>\$1,312</b>	\$1,454	\$1,595
4Q2019	\$180,000	\$1,089	\$1,239	<b>\$1,389</b>	\$1,539	\$1,689
4Q2020	\$207,000	\$1,252	\$1,425	<b>\$1,597</b>	\$1,770	\$1,942
<b>4Q2021</b>	<b>\$240,000</b>	<b>\$1,452</b>	<b>\$1,652</b>	<b>\$1,852</b>	<b>\$2,052</b>	<b>\$2,252</b>

Note: Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and 35 percent DTI ratio.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 34. Home Price-to-Income Multiplier for First-Time  
Buyers by Additional Homeownership Costs**

Property Taxes & Insurance	Home Price-to-Income Multiplier
2%	4.82
3%	4.24
<b>4%</b>	<b>3.78</b>
5%	3.41
6%	3.11

Note: Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and 35 percent DTI ratio.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 35. Required Qualifying Income by Additional Homeownership Costs**

Year	Home Price	Property Taxes & Insurance				
		2%	3%	4%	5%	6%
4Q2011	\$88,000	\$18,254	\$20,768	<b>\$23,283</b>	\$25,797	\$28,311
4Q2012	\$100,000	\$20,743	\$23,600	<b>\$26,458</b>	\$29,315	\$32,172
4Q2013	\$120,000	\$24,892	\$28,320	<b>\$31,749</b>	\$35,178	\$38,606
4Q2014	\$132,500	\$27,485	\$31,270	<b>\$35,056</b>	\$38,842	\$42,628
4Q2015	\$142,500	\$29,559	\$33,631	<b>\$37,702</b>	\$41,773	\$45,845
4Q2016	\$154,900	\$32,131	\$36,557	<b>\$40,983</b>	\$45,408	\$49,834
4Q2017	\$160,000	\$33,189	\$37,761	<b>\$42,332</b>	\$46,903	\$51,475
4Q2018	\$170,000	\$35,263	\$40,121	<b>\$44,978</b>	\$49,835	\$54,692
4Q2019	\$180,000	\$37,338	\$42,481	<b>\$47,624</b>	\$52,766	\$57,909
4Q2020	\$207,000	\$42,938	\$48,853	<b>\$54,767</b>	\$60,681	\$66,596
<b>4Q2021</b>	<b>\$240,000</b>	<b>\$49,784</b>	<b>\$56,641</b>	<b>\$63,498</b>	<b>\$70,355</b>	<b>\$77,212</b>

Note: The required qualifying income reflects the minimum income a household must earn to qualify for a mortgage loan for a particular home price. Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and 35 percent DTI ratio.

Source: Texas Real Estate Research Center at Texas A&M University

**Table 36. Percentage of Households That Earned the Required Qualifying Income by Additional Homeownership Costs**

Year	Home Price	Property Taxes & Insurance				
		2%	3%	4%	5%	6%
4Q2011	\$88,000	75.2%	71.1%	<b>67.1%</b>	63.2%	59.5%
4Q2012	\$100,000	71.7%	67.1%	<b>62.8%</b>	58.6%	54.4%
4Q2013	\$120,000	65.3%	60.4%	<b>55.6%</b>	50.8%	47.1%
4Q2014	\$132,500	62.6%	57.4%	<b>52.1%</b>	48.1%	44.1%
4Q2015	\$142,500	60.4%	54.8%	<b>50.0%</b>	45.7%	41.4%
4Q2016	\$154,900	58.2%	52.7%	<b>48.0%</b>	43.3%	38.5%
4Q2017	\$160,000	58.5%	53.3%	<b>48.4%</b>	43.6%	39.3%
4Q2018	\$170,000	57.7%	52.6%	<b>47.6%</b>	42.6%	39.0%
4Q2019	\$180,000	56.9%	51.6%	<b>46.2%</b>	41.7%	37.9%

Note: Because first-time homebuyers constitute renter-occupied households, this table reflects income data solely for renter-occupied households. Assumes a 30-year loan term, 3.22 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and 35 percent DTI ratio.

\*Represents estimates using 2020 ACS 1-Year Experimental Data.

Sources: American Community Survey, U.S. Census Bureau, and Texas Real Estate Research Center at Texas A&M University

## Overview of Housing Affordability

Housing affordability persistently proves one of the most salient topics in housing markets across the state. Although definitions vary, housing affordability broadly denotes the relationship between home price (or rent) and household (or family) income.<sup>10</sup> As such, housing affordability generally reflects the two housing tenures: owner- and renter-occupied housing. However, Center economists further classify owner-occupied housing affordability into two distinct categories: purchase and repayment affordability.

This report focuses only on purchase affordability. Purchase affordability measures the ability of a household to buy a home. In other words, it reflects home-purchasing potential. Repayment affordability, on the other hand, measures an existing homeowner’s ability to make timely monthly mortgage payments. While purchase affordability involves all potential homebuyers, regardless of whether a household already owns a home, repayment affordability solely involves current homeowners (i.e., only owner-occupied households).

<sup>10</sup> Household income reflects all households in the income distribution, including both family and nonfamily households, which consist of a householder living alone or a householder who shares his/her home with individual(s) of no relation to him/her. Meanwhile, family income includes only households in which the householder lives with at least one other related family member.

## Measuring Purchase Affordability

The vast majority of homebuyers—86 percent in Texas in 2020—rely on mortgage financing to purchase a home. As such, purchase affordability largely acts as a function of income, wealth, and credit. These three factors typically constitute the primary determinants of a mortgage applicant’s creditworthiness, or the applicant’s ability to repay the mortgage loan, a factor heavily weighed by the mortgage lender in the decision to extend mortgage financing to an applicant. In mortgage financing, income, wealth, and credit materialize through the DTI ratio, LTV ratio, and credit score.<sup>11</sup>

Other factors that affect purchase affordability include the mortgage interest rate, any additional costs of borrowing mortgage capital (such as the mortgage insurance premium, which is generally charged if the LTV ratio is 80 percent or higher), and the additional costs of homeownership—property taxes and insurance.

Table 37 shows how characteristics of a mortgage loan or applicant affect the maximum home price affordable to a particular household. Holding all else equal, an increase in the loan term decreases the total monthly mortgage payment, which increases the maximum affordable home price. Meanwhile, an increase in the DTI ratio also raises the maximum affordable home price. However, an increase in the mortgage interest rate, LTV ratio, additional costs of homeownership, and additional costs of borrowing mortgage capital increase the total monthly mortgage payment, which decreases the maximum affordable home price and reduces home-purchasing potential.

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<sup>11</sup> There are two types of DTI ratios: “front-end” and “back-end” ratios. The front-end DTI ratio measures mortgage debt as a percentage of household income, while the back-end ratio reflects total household debt—mortgage loans, car loans, credit card loans, student loans, etc.—as a percentage of household income. Should mortgage debt equal \$800 per month and the monthly household income equal \$2,400, then the front-end DTI ratio is 30 percent. Should total household debt equal \$1,200 per month, then the back-end DTI ratio is 50 percent. This report uses the front-end DTI ratio. The LTV ratio measures the household’s down payment as a percentage of the home price. A 5 percent down payment translates into a 95 percent LTV ratio.



**Table 37. How Loan, Applicant Characteristics Affect Purchase Affordability**

<b>Loan or Applicant Characteristics</b>	<b>Effect on Purchase Affordability</b>
Mortgage interest rate	An increase in the mortgage interest rate <b>diminishes</b> purchase affordability
Loan term	An increase in the loan term <b>increases</b> purchase affordability
LTV ratio	An increase in the loan-to-value ratio <b>diminishes</b> purchase affordability
DTI ratio	An increase in the debt-to-income ratio <b>increases</b> purchase affordability
Additional costs of homeownership (property taxes and insurance)	An increase in the additional costs of homeownership <b>diminishes</b> purchase affordability
Additional costs of borrowing mortgage capital (such as the mortgage insurance premium)	An increase in the additional costs of borrowing mortgage capital <b>diminishes</b> purchase affordability

Source: Texas Real Estate Research Center at Texas A&M University

The Center uses the home price-to-income multiplier (also known as “home-purchasing power”) to find the ratio between home price and household income, or the maximum home price affordable to a household of a particular income. For example, a multiplier of 3 indicates a household could afford a home priced at three times the household’s income (so, a household earning \$50,000 annually could afford a maximum home price of \$150,000).

The multiplier generally measures lower for conventional borrowers, a function of the lower DTI ratios that such borrowers tend to present, and higher for first-time borrowers, who depict higher DTI ratios. The home price-to-income multiplier typically measures around 3 for the repeat homebuyer, and between 3 and 4 for first-time homebuyers.

This report computes purchase affordability for both repeat and first-time homebuyers. For the repeat buyer, calculations in this report assume the prevailing mortgage interest rate (3.04 percent in 4Q2021)<sup>12</sup>, 80 percent LTV ratio, 30 percent DTI ratio, and property taxes and insurance of 4 percent of home value. First-time homebuyers, who tend to be younger and therefore have not accumulated as much wealth or achieved peak earnings, tend to have higher LTV and DTI ratios. The lower income, wealth, and credit of first-time homebuyers generally reduces the maximum home price affordable to them. The calculations of purchase affordability for first-time homebuyers reflect the prevailing mortgage interest rate (3.22 percent in 4Q2021), 0.5 percent mortgage insurance premium, 95 percent LTV ratio, 35 percent DTI ratio, and property taxes and insurance of 4 percent of home value.

<sup>12</sup> The source for the prevailing mortgage interest rate is CoreLogic.



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