

Dallas-Fort Worth-Arlington Housing Affordability Outlook



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About this Report

Texas Real Estate Research Center economists continuously monitor many facets of both state and local housing markets. *Dallas-Fort Worth-Arlington Housing Affordability Outlook* summarizes significant housing activity and trends as related to affordability in the Dallas-Fort-Worth-Arlington Metropolitan Statistical Area (MSA). 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 Dallas-Fort Worth-Arlington 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.

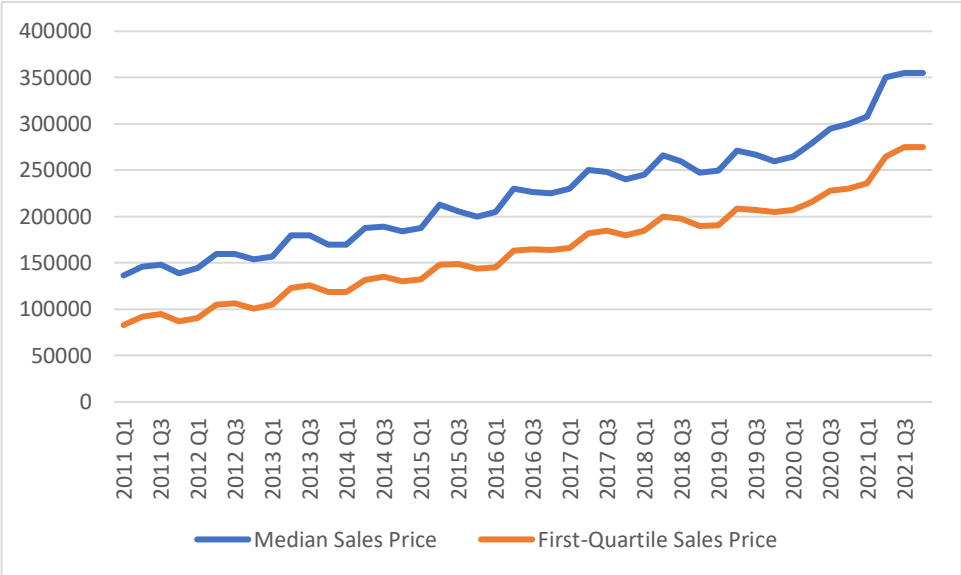
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Purchase Affordability

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 Dallas-Fort Worth-Arlington MSA moderated in the second half of the year (Figure 1).¹ The year-over-year (YOY) growth in median sales price and first-quartile sales price in the Dallas-Fort Worth-Arlington MSA measured 18.4 percent and 19.6 percent, respectively, significantly higher than average YOY growth for the fourth quarter (Table 1). The median sales price exceeded \$350,000, while the first-quartile sales price measured \$275,000. Meanwhile, median family income grew a mere 3.2 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 Dallas-Fort Worth-Arlington MSA



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

¹ 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	\$139,000		\$87,000	
4Q2012	\$154,000	10.8%	\$100,500	15.5%
4Q2013	\$169,500	10.1%	\$119,000	18.4%
4Q2014	\$184,000	8.6%	\$130,000	9.2%
4Q2015	\$200,000	8.7%	\$143,500	10.4%
4Q2016	\$225,000	12.5%	\$164,000	14.3%
4Q2017	\$240,000	6.7%	\$180,000	9.8%
4Q2018	\$247,500	3.1%	\$190,000	5.6%
4Q2019	\$260,000	5.1%	\$205,000	7.9%
4Q2020	\$299,900	15.3%	\$230,000	12.2%
4Q2021	\$355,000	18.4%	\$275,000	19.6%

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	\$55,300		\$69,100	
2012	\$56,100	1.4%	\$70,100	1.4%
2013	\$54,000	-3.7%	\$67,500	-3.7%
2014	\$54,300	0.6%	\$67,900	0.6%
2015	\$56,300	3.7%	\$70,400	3.7%
2016	\$57,350	1.9%	\$71,700	1.8%
2017	\$58,700	2.4%	\$73,400	2.4%
2018	\$61,750	5.2%	\$77,200	5.2%
2019	\$66,500	7.7%	\$83,100	7.6%
2020	\$68,950	3.7%	\$86,200	3.7%
2021	\$71,200	3.3%	\$89,000	3.2%

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 Dallas in 2021 (\$89,000), the median sales price for 4Q2021 was not affordable to them unless the home price-to-income multiplier approximated 4 (Table 3). Only 22.4 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 \$120,000 annually to be able to afford the median sales price 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
	\$75,000	\$150,000	\$187,500	\$225,000	\$262,500	\$300,000	\$337,500	\$375,000	\$412,500
	\$80,000	\$160,000	\$200,000	\$240,000	\$280,000	\$320,000	\$360,000	\$400,000	\$440,000
	\$85,000	\$170,000	\$212,500	\$255,000	\$297,500	\$340,000	\$382,500	\$425,000	\$467,500
Median Family Income	\$89,000	\$178,000	\$222,500	\$267,000	\$311,500	\$356,000	\$400,500	\$445,000	\$489,500
	\$90,000	\$180,000	\$225,000	\$270,000	\$315,000	\$360,000	\$405,000	\$450,000	\$495,000
	\$95,000	\$190,000	\$237,500	\$285,000	\$332,500	\$380,000	\$427,500	\$475,000	\$522,500
	\$100,000	\$200,000	\$250,000	\$300,000	\$350,000	\$400,000	\$450,000	\$500,000	\$550,000
	\$105,000	\$210,000	\$262,500	\$315,000	\$367,500	\$420,000	\$472,500	\$525,000	\$577,500
Workforce Households (120%)	\$106,800	\$213,600	\$267,000	\$320,400	\$373,800	\$427,200	\$480,600	\$534,000	\$587,400
	\$110,000	\$220,000	\$275,000	\$330,000	\$385,000	\$440,000	\$495,000	\$550,000	\$605,000
	\$115,000	\$230,000	\$287,500	\$345,000	\$402,500	\$460,000	\$517,500	\$575,000	\$632,500
	\$120,000	\$240,000	\$300,000	\$360,000	\$420,000	\$480,000	\$540,000	\$600,000	\$660,000
	\$125,000	\$250,000	\$312,500	\$375,000	\$437,500	\$500,000	\$562,500	\$625,000	\$687,500
	\$130,000	\$260,000	\$325,000	\$390,000	\$455,000	\$520,000	\$585,000	\$650,000	\$715,000
	\$135,000	\$270,000	\$337,500	\$405,000	\$472,500	\$540,000	\$607,500	\$675,000	\$742,500
	\$140,000	\$280,000	\$350,000	\$420,000	\$490,000	\$560,000	\$630,000	\$700,000	\$770,000
	\$145,000	\$290,000	\$362,500	\$435,000	\$507,500	\$580,000	\$652,500	\$725,000	\$797,500
	\$150,000	\$300,000	\$375,000	\$450,000	\$525,000	\$600,000	\$675,000	\$750,000	\$825,000

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
	\$75,000	2.4%	5.5%	11.7%	21.0%	33.3%	44.7%	55.0%	63.2%
	\$80,000	3.1%	7.3%	15.1%	26.9%	39.7%	51.5%	61.0%	68.7%
	\$85,000	3.9%	8.9%	19.2%	31.7%	45.9%	56.5%	66.0%	72.6%
Median Family Income	\$89,000	4.5%	10.8%	22.4%	36.6%	50.2%	61.1%	69.3%	75.2%
	\$90,000	4.9%	11.7%	23.7%	37.9%	51.5%	61.9%	70.5%	75.9%
	\$95,000	6.0%	14.3%	28.3%	43.4%	56.2%	66.2%	73.8%	78.9%
	\$100,000	7.3%	18.0%	33.3%	48.9%	61.0%	70.5%	76.8%	81.8%
	\$105,000	8.7%	21.0%	37.9%	52.9%	64.9%	73.2%	79.4%	83.9%
Workforce Households (120%)	\$106,800	9.0%	22.4%	39.7%	54.1%	66.2%	74.5%	79.9%	84.5%
	\$110,000	10.6%	25.2%	43.1%	57.4%	68.7%	75.9%	81.8%	85.9%
	\$115,000	12.8%	28.8%	47.0%	61.3%	71.9%	78.4%	83.8%	87.5%
	\$120,000	15.1%	33.3%	51.5%	64.9%	74.5%	80.8%	85.6%	89.2%
	\$125,000	18.0%	36.8%	55.0%	67.9%	76.8%	82.6%	87.2%	90.3%
	\$130,000	20.7%	41.3%	58.5%	71.1%	78.8%	84.5%	88.7%	91.5%
	\$135,000	23.7%	44.7%	61.9%	73.2%	80.8%	85.9%	89.8%	92.3%
	\$140,000	26.9%	48.9%	64.9%	75.6%	82.6%	87.5%	91.0%	93.0%
	\$145,000	30.0%	51.8%	67.7%	77.4%	84.2%	88.7%	91.8%	93.6%
	\$150,000	33.3%	55.0%	70.5%	79.4%	85.6%	89.8%	92.6%	94.3%

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 3.145 percent rate, this payment was \$2,403 for the median sales price in 4Q2021, more than 2.5 times 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 3.145 percent interest rate translates into a home price-to-income multiplier of 3.69², meaning a household could afford a maximum home price of 3.69 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 3.145 percent mortgage interest rate was \$96,120 for the median sales price in 4Q2021 (Table 7). An estimated 63.5 percent of existing homeowners in the Dallas-Fort Worth-Arlington MSA could afford the median sales price in 4Q2019 with a 3.145 percent interest rate (Table 8), a decline of over 16 percentage points from 4Q2011. (The Census Bureau has not published income data for the Dallas-Fort Worth-Arlington MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Dallas-Fort Worth-Arlington 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%	3.145%	3.5%	4%	4.5%	5%
4Q2011	\$139,000	\$903	\$932	\$941	\$963	\$994	\$1,027	\$1,060
4Q2012	\$154,000	\$1,000	\$1,033	\$1,042	\$1,067	\$1,102	\$1,138	\$1,175
4Q2013	\$169,500	\$1,101	\$1,137	\$1,147	\$1,174	\$1,212	\$1,252	\$1,293
4Q2014	\$184,000	\$1,195	\$1,234	\$1,246	\$1,274	\$1,316	\$1,359	\$1,404
4Q2015	\$200,000	\$1,299	\$1,341	\$1,354	\$1,385	\$1,431	\$1,477	\$1,526
4Q2016	\$225,000	\$1,461	\$1,509	\$1,523	\$1,558	\$1,609	\$1,662	\$1,716
4Q2017	\$240,000	\$1,559	\$1,609	\$1,625	\$1,662	\$1,717	\$1,773	\$1,831
4Q2018	\$247,500	\$1,607	\$1,660	\$1,675	\$1,714	\$1,770	\$1,828	\$1,888
4Q2019	\$260,000	\$1,689	\$1,744	\$1,760	\$1,801	\$1,860	\$1,921	\$1,983
4Q2020	\$299,900	\$1,948	\$2,011	\$2,030	\$2,077	\$2,145	\$2,215	\$2,288
4Q2021	\$355,000	\$2,305	\$2,381	\$2,403	\$2,459	\$2,539	\$2,622	\$2,708

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

² 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
3.145%	3.69
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%	3.145%	3.5%	4%	4.5%	5%
4Q2011	\$139,000	\$36,108	\$37,286	\$37,636	\$38,507	\$39,769	\$41,071	\$42,411
4Q2012	\$154,000	\$40,005	\$41,310	\$41,697	\$42,662	\$44,060	\$45,503	\$46,988
4Q2013	\$169,500	\$44,031	\$45,468	\$45,894	\$46,956	\$48,495	\$50,083	\$51,717
4Q2014	\$184,000	\$47,798	\$49,357	\$49,820	\$50,973	\$52,644	\$54,367	\$56,141
4Q2015	\$200,000	\$51,954	\$53,649	\$54,152	\$55,406	\$57,221	\$59,095	\$61,023
4Q2016	\$225,000	\$58,449	\$60,355	\$60,921	\$62,331	\$64,374	\$66,481	\$68,651
4Q2017	\$240,000	\$62,345	\$64,379	\$64,983	\$66,487	\$68,665	\$70,913	\$73,228
4Q2018	\$247,500	\$64,294	\$66,391	\$67,014	\$68,564	\$70,811	\$73,129	\$75,516
4Q2019	\$260,000	\$67,541	\$69,744	\$70,398	\$72,027	\$74,388	\$76,823	\$79,330
4Q2020	\$299,900	\$77,906	\$80,447	\$81,202	\$83,081	\$85,803	\$88,612	\$91,504
4Q2021	\$355,000	\$92,219	\$95,228	\$96,120	\$98,345	\$101,568	\$104,893	\$108,316

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%	3.145%	3.5%	4%	4.5%	5%
4Q2011	\$139,000	81.2%	80.3%	80.0%	79.4%	78.4%	77.4%	76.4%
4Q2012	\$154,000	78.1%	77.2%	76.9%	76.2%	75.1%	74.1%	73.0%
4Q2013	\$169,500	75.1%	74.0%	73.7%	72.9%	71.8%	70.6%	69.4%
4Q2014	\$184,000	72.6%	71.5%	71.1%	70.3%	69.1%	67.8%	66.5%
4Q2015	\$200,000	69.9%	68.6%	68.3%	67.4%	66.0%	64.7%	63.3%
4Q2016	\$225,000	66.2%	64.8%	64.4%	63.4%	61.9%	60.4%	58.9%
4Q2017	\$240,000	65.0%	63.6%	63.2%	62.1%	60.6%	59.1%	57.5%
4Q2018	\$247,500	65.6%	64.2%	63.7%	62.7%	61.2%	59.7%	58.2%
4Q2019	\$260,000	65.3%	63.9%	63.5%	62.5%	61.0%	59.5%	58.1%

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 \$2,403 for the median sales price in 4Q2021, more than 2.5 times 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 3.69³, meaning a household could afford a maximum home price of 3.69 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 \$96,120 for the median sales price in 4Q2021 (Table 11). An estimated 63.5 percent of existing homeowners in the Dallas-Fort Worth-Arlington MSA could afford the median sales price in 4Q2019 with an 80 percent LTV ratio (Table 12), a decline of over 16 percentage points from 4Q2011. (The Census Bureau has not published income data for the Dallas-Fort Worth-Arlington MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family

³ The home price-to-income multiplier is based on a 30-year loan term, 3.145 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.

income in the Dallas-Fort Worth-Arlington MSA, the proportion of 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	\$139,000	\$941	\$971	\$1,001	\$1,030	\$1,060
4Q2012	\$154,000	\$1,042	\$1,076	\$1,109	\$1,142	\$1,175
4Q2013	\$169,500	\$1,147	\$1,184	\$1,220	\$1,257	\$1,293
4Q2014	\$184,000	\$1,246	\$1,285	\$1,325	\$1,364	\$1,404
4Q2015	\$200,000	\$1,354	\$1,397	\$1,440	\$1,483	\$1,526
4Q2016	\$225,000	\$1,523	\$1,571	\$1,620	\$1,668	\$1,716
4Q2017	\$240,000	\$1,625	\$1,676	\$1,728	\$1,779	\$1,831
4Q2018	\$247,500	\$1,675	\$1,728	\$1,782	\$1,835	\$1,888
4Q2019	\$260,000	\$1,760	\$1,816	\$1,872	\$1,927	\$1,983
4Q2020	\$299,900	\$2,030	\$2,094	\$2,159	\$2,223	\$2,288
4Q2021	\$355,000	\$2,403	\$2,479	\$2,555	\$2,632	\$2,708

Note: Assumes a 30-year loan term, 3.145 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
80%	3.69
85%	3.58
90%	3.47
95%	3.37
100%	3.28

Note: Assumes a 30-year loan term, 3.145 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	\$139,000	\$37,636	\$38,830	\$40,024	\$41,218	\$42,412
4Q2012	\$154,000	\$41,697	\$43,020	\$44,343	\$45,666	\$46,988
4Q2013	\$169,500	\$45,894	\$47,350	\$48,806	\$50,262	\$51,718
4Q2014	\$184,000	\$49,820	\$51,401	\$52,981	\$54,561	\$56,142
4Q2015	\$200,000	\$54,152	\$55,870	\$57,588	\$59,306	\$61,024
4Q2016	\$225,000	\$60,921	\$62,854	\$64,787	\$66,719	\$68,652
4Q2017	\$240,000	\$64,983	\$67,044	\$69,106	\$71,167	\$73,229
4Q2018	\$247,500	\$67,014	\$69,139	\$71,265	\$73,391	\$75,517
4Q2019	\$260,000	\$70,398	\$72,631	\$74,865	\$77,098	\$79,331
4Q2020	\$299,900	\$81,202	\$83,777	\$86,353	\$88,929	\$91,505
4Q2021	\$355,000	\$96,120	\$99,170	\$102,219	\$105,268	\$108,317

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, 3.145 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	\$139,000	80.0%	79.1%	78.2%	77.3%	76.4%
4Q2012	\$154,000	76.9%	75.9%	74.9%	73.9%	73.0%
4Q2013	\$169,500	73.7%	72.6%	71.5%	70.4%	69.4%
4Q2014	\$184,000	71.1%	70.0%	68.8%	67.7%	66.5%
4Q2015	\$200,000	68.3%	67.0%	65.8%	64.5%	63.3%
4Q2016	\$225,000	64.4%	63.0%	61.6%	60.3%	58.9%
4Q2017	\$240,000	63.2%	61.8%	60.3%	58.9%	57.5%
4Q2018	\$247,500	63.7%	62.3%	60.9%	59.5%	58.2%
4Q2019	\$260,000	63.5%	62.1%	60.7%	59.4%	58.1%

Note: Assumes a 30-year loan term, 3.145 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 3.69⁴ (Table 13), meaning a household could afford a maximum home price of 3.69 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 \$96,120 for the median sales price in 4Q2021 (Table 14). An estimated 63.5 percent of existing homeowners in the Dallas-Fort Worth-Arlington MSA could afford the median sales price in 4Q2019 with a 30 percent DTI ratio (Table 15), a decline of over 16 percentage points from 4Q2011. (The Census Bureau has not published income data for the Dallas-Fort Worth-Arlington MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Dallas-Fort Worth-Arlington MSA, the proportion of households that could afford the median sales price in 4Q2021 is estimated to have declined since 4Q2019.)

⁴ The home price-to-income multiplier is based on a 30-year loan term, 3.145 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%	2.46
25%	3.08
30%	3.69
35%	4.31
40%	4.92
45%	5.54
50%	6.16

Note: Assumes a 30-year loan term, 3.145 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%	30%	35%	40%	45%	50%
4Q2011	\$139,000	\$56,454	\$45,163	\$37,636	\$32,259	\$28,227	\$25,091	\$22,582
4Q2012	\$154,000	\$62,546	\$50,037	\$41,697	\$35,741	\$31,273	\$27,798	\$25,018
4Q2013	\$169,500	\$68,841	\$55,073	\$45,894	\$39,338	\$34,421	\$30,596	\$27,536
4Q2014	\$184,000	\$74,730	\$59,784	\$49,820	\$42,703	\$37,365	\$33,213	\$29,892
4Q2015	\$200,000	\$81,229	\$64,983	\$54,152	\$46,416	\$40,614	\$36,102	\$32,491
4Q2016	\$225,000	\$91,382	\$73,106	\$60,921	\$52,218	\$45,691	\$40,614	\$36,553
4Q2017	\$240,000	\$97,474	\$77,979	\$64,983	\$55,700	\$48,737	\$43,322	\$38,990
4Q2018	\$247,500	\$100,520	\$80,416	\$67,014	\$57,440	\$50,260	\$44,676	\$40,208
4Q2019	\$260,000	\$105,597	\$84,478	\$70,398	\$60,341	\$52,799	\$46,932	\$42,239
4Q2020	\$299,900	\$121,802	\$97,442	\$81,202	\$69,601	\$60,901	\$54,134	\$48,721
4Q2021	\$355,000	\$144,181	\$115,345	\$96,120	\$82,389	\$72,090	\$64,080	\$57,672

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, 3.145 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%	30%	35%	40%	45%	50%
4Q2011	\$139,000	65.8%	74.3%	80.0%	83.9%	86.8%	89.0%	90.6%
4Q2012	\$154,000	61.4%	70.7%	76.9%	81.3%	84.5%	86.9%	88.9%
4Q2013	\$169,500	56.7%	66.9%	73.7%	78.6%	82.2%	85.0%	87.2%
4Q2014	\$184,000	52.9%	63.8%	71.1%	76.3%	80.2%	83.2%	85.5%
4Q2015	\$200,000	49.6%	60.4%	68.3%	73.9%	78.1%	81.4%	83.9%
4Q2016	\$225,000	45.0%	55.7%	64.4%	70.6%	75.2%	78.8%	81.7%
4Q2017	\$240,000	43.5%	54.6%	63.2%	69.6%	74.4%	78.1%	81.0%
4Q2018	\$247,500	44.2%	55.4%	63.7%	70.1%	74.9%	78.5%	81.4%
4Q2019	\$260,000	44.1%	55.2%	63.5%	70.0%	74.8%	78.4%	81.3%

Note: Assumes a 30-year loan term, 3.145 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, a monthly mortgage payment was \$2,403 for the median sales price in 4Q2021, more than 2.5 times 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 3.69⁵, meaning a household could afford a maximum home price of 3.69 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 \$96,120 for the median sales price in 4Q2021 (Table 18). An estimated 63.5 percent of existing homeowners in the Dallas-Fort Worth-Arlington MSA could afford the median sales price in 4Q2019 with property taxes and insurance at 4 percent of home price (Table 19), a decline of over 16 percentage points from 4Q2011. (The Census Bureau has not published income data for the Dallas-Fort Worth-Arlington MSA since 2019. However, as growth in median home

⁵ The home price-to-income multiplier is based on a 30-year loan term, 3.145 percent mortgage interest rate, 80 percent LTV ratio, and 30 percent DTI ratio.

price has significantly outpaced growth in median family income in the Dallas-Fort Worth-Arlington 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	\$139,000	\$709	\$825	\$941	\$1,057	\$1,173
3Q2012	\$154,000	\$786	\$914	\$1,042	\$1,171	\$1,299
3Q2013	\$169,500	\$865	\$1,006	\$1,147	\$1,289	\$1,430
3Q2014	\$184,000	\$939	\$1,092	\$1,246	\$1,399	\$1,552
3Q2015	\$200,000	\$1,020	\$1,187	\$1,354	\$1,520	\$1,687
3Q2016	\$225,000	\$1,148	\$1,336	\$1,523	\$1,711	\$1,898
3Q2017	\$240,000	\$1,225	\$1,425	\$1,625	\$1,825	\$2,025
3Q2018	\$247,500	\$1,263	\$1,469	\$1,675	\$1,882	\$2,088
3Q2019	\$260,000	\$1,327	\$1,543	\$1,760	\$1,977	\$2,193
3Q2020	\$299,900	\$1,530	\$1,780	\$2,030	\$2,280	\$2,530
4Q2021	\$355,000	\$1,811	\$2,107	\$2,403	\$2,699	\$2,995

Note: Assumes a 30-year loan term, 3.145 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%	4.90
3%	4.21
4%	3.69
5%	3.29
6%	2.96

Note: Assumes a 30-year loan term, 3.145 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	\$139,000	\$28,369	\$33,003	\$37,636	\$42,269	\$46,903
4Q2012	\$154,000	\$31,431	\$36,564	\$41,697	\$46,831	\$51,964
4Q2013	\$169,500	\$34,594	\$40,244	\$45,894	\$51,544	\$57,194
4Q2014	\$184,000	\$37,554	\$43,687	\$49,820	\$55,954	\$62,087
4Q2015	\$200,000	\$40,819	\$47,486	\$54,152	\$60,819	\$67,486
4Q2016	\$225,000	\$45,921	\$53,421	\$60,921	\$68,421	\$75,921
4Q2017	\$240,000	\$48,983	\$56,983	\$64,983	\$72,983	\$80,983
4Q2018	\$247,500	\$50,514	\$58,764	\$67,014	\$75,264	\$83,514
4Q2019	\$260,000	\$53,065	\$61,731	\$70,398	\$79,065	\$87,731
4Q2020	\$299,900	\$61,208	\$71,205	\$81,202	\$91,198	\$101,195
4Q2021	\$355,000	\$72,454	\$84,287	\$96,120	\$107,954	\$119,787

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, 3.145 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	\$139,000	86.7%	83.4%	80.0%	76.5%	73.0%
4Q2012	\$154,000	84.3%	80.7%	76.9%	73.1%	69.3%
4Q2013	\$169,500	82.1%	77.9%	73.7%	69.5%	65.3%
4Q2014	\$184,000	80.0%	75.6%	71.1%	66.6%	62.2%
4Q2015	\$200,000	77.9%	73.1%	68.3%	63.4%	58.6%
4Q2016	\$225,000	75.1%	69.7%	64.4%	59.0%	53.8%
4Q2017	\$240,000	74.2%	68.7%	63.2%	57.6%	52.9%
4Q2018	\$247,500	74.7%	69.2%	63.7%	58.3%	53.7%
4Q2019	\$260,000	74.6%	69.1%	63.5%	58.3%	53.4%

Note: Assumes a 30-year loan term, 3.145 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 Texas' first-time homebuyers, particularly among the lowest-income cohorts. Despite sustained low mortgage interest rates, the 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 \$26,700 and \$44,500 annually (i.e., between 31 and 50 percent of median family income) could afford a maximum home price between \$80,100 and \$133,500 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 \$106,800 and \$178,000 should the home price-to-income multiplier measure 4.

Depending on the home price-to-income multiplier, only households earning at least \$50,000 annually could afford the median first-quartile sales price in 4Q2021. Homeownership is largely not feasible to households earning no more than 50 percent of Texas' 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 9.0 percent of homes for sale 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

		Home Purchasing Power							
		Home Price-to-Income Multiplier							
	Family Income	2	2.5	3	3.5	4	4.5	5	5.5
	\$15,000	\$30,000	\$37,500	\$45,000	\$52,500	\$60,000	\$67,500	\$75,000	\$82,500
	\$20,000	\$40,000	\$50,000	\$60,000	\$70,000	\$80,000	\$90,000	\$100,000	\$110,000
	\$25,000	\$50,000	\$62,500	\$75,000	\$87,500	\$100,000	\$112,500	\$125,000	\$137,500
Extremely Low-Income (30%)	\$26,700	\$53,400	\$66,750	\$80,100	\$93,450	\$106,800	\$120,150	\$133,500	\$146,850
	\$30,000	\$60,000	\$75,000	\$90,000	\$105,000	\$120,000	\$135,000	\$150,000	\$165,000
	\$35,000	\$70,000	\$87,500	\$105,000	\$122,500	\$140,000	\$157,500	\$175,000	\$192,500
	\$40,000	\$80,000	\$100,000	\$120,000	\$140,000	\$160,000	\$180,000	\$200,000	\$220,000
Very Low-Income (50%)	\$44,500	\$89,000	\$111,250	\$133,500	\$155,750	\$178,000	\$200,250	\$222,500	\$244,750
	\$45,000	\$90,000	\$112,500	\$135,000	\$157,500	\$180,000	\$202,500	\$225,000	\$247,500
	\$50,000	\$100,000	\$125,000	\$150,000	\$175,000	\$200,000	\$225,000	\$250,000	\$275,000
	\$55,000	\$110,000	\$137,500	\$165,000	\$192,500	\$220,000	\$247,500	\$275,000	\$302,500
	\$60,000	\$120,000	\$150,000	\$180,000	\$210,000	\$240,000	\$270,000	\$300,000	\$330,000
	\$65,000	\$130,000	\$162,500	\$195,000	\$227,500	\$260,000	\$292,500	\$325,000	\$357,500
	\$70,000	\$140,000	\$175,000	\$210,000	\$245,000	\$280,000	\$315,000	\$350,000	\$385,000
Low-Income (80%)	\$71,200	\$142,400	\$178,000	\$213,600	\$249,200	\$284,800	\$320,400	\$356,000	\$391,600
	\$75,000	\$150,000	\$187,500	\$225,000	\$262,500	\$300,000	\$337,500	\$375,000	\$412,500

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 Purchasing Power							
		Home Price-to-Income Multiplier							
		2	2.5	3	3.5	4	4.5	5	5.5
Extremely Low-Income (0-30%)	\$15,000	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%
	\$20,000	0.1%	0.1%	0.1%	0.2%	0.3%	0.4%	0.6%	0.9%
	\$25,000	0.1%	0.1%	0.2%	0.4%	0.6%	0.9%	1.3%	1.8%
	\$26,700	0.1%	0.2%	0.3%	0.5%	0.8%	1.2%	1.6%	2.1%
Very Low-Income (31-50%)	\$30,000	0.1%	0.2%	0.4%	0.7%	1.2%	1.7%	2.4%	3.4%
	\$35,000	0.2%	0.4%	0.7%	1.2%	1.9%	2.8%	4.3%	6.2%
	\$40,000	0.3%	0.6%	1.2%	1.9%	3.1%	4.9%	7.3%	10.6%
	\$44,500	0.4%	0.9%	1.6%	2.7%	4.5%	7.3%	10.8%	15.7%
Low-Income (51-80%)	\$45,000	0.4%	0.9%	1.7%	2.8%	4.9%	7.5%	11.7%	16.6%
	\$50,000	0.6%	1.3%	2.4%	4.3%	7.3%	11.7%	18.0%	25.2%
	\$55,000	0.9%	1.8%	3.4%	6.2%	10.6%	16.6%	25.2%	33.6%
	\$60,000	1.2%	2.4%	4.9%	8.7%	15.1%	23.7%	33.3%	43.1%
	\$65,000	1.6%	3.2%	6.5%	11.9%	20.7%	30.4%	41.3%	50.4%
	\$70,000	1.9%	4.3%	8.7%	16.3%	26.9%	37.9%	48.9%	57.4%
	\$71,200	2.0%	4.5%	9.0%	16.8%	27.5%	39.7%	50.2%	58.6%
	\$75,000	2.4%	5.5%	11.7%	21.0%	33.3%	44.7%	55.0%	63.2%

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 3.18 percent rate brought the mortgage payment to \$2,116 for the first-quartile sales price in 4Q2021, more than 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 3.18 percent interest rate translates into a home price-to-income multiplier of 3.79⁶, meaning a household could afford a maximum home price of 3.79 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 3.18 percent mortgage interest rate was \$72,556 for the first-quartile sales price in 4Q2021 (Table 24). An estimated 44.4 percent of renters in the Dallas-Fort Worth-Arlington MSA could afford the first-quartile sales price in 4Q2019 with a 3.18 percent interest rate (Table 25), a decline of over 25 percentage points from 4Q2011. (The Census Bureau has not published income data for the Dallas-Fort Worth-Arlington MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Dallas-Fort Worth-Arlington MSA, the proportion of households that could afford the median 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%	3.18%	3.5%	4%	4.5%
4Q2011	\$87,000	\$638	\$661	\$669	\$685	\$709	\$734
4Q2012	\$100,500	\$738	\$764	\$773	\$791	\$819	\$848
4Q2013	\$119,000	\$873	\$904	\$916	\$936	\$969	\$1,004
4Q2014	\$130,000	\$954	\$988	\$1,000	\$1,023	\$1,059	\$1,096
4Q2015	\$143,500	\$1,053	\$1,090	\$1,104	\$1,129	\$1,169	\$1,210
4Q2016	\$164,000	\$1,204	\$1,246	\$1,262	\$1,290	\$1,336	\$1,383
4Q2017	\$180,000	\$1,321	\$1,368	\$1,385	\$1,416	\$1,466	\$1,518
4Q2018	\$190,000	\$1,394	\$1,444	\$1,462	\$1,495	\$1,548	\$1,602
4Q2019	\$205,000	\$1,504	\$1,558	\$1,578	\$1,613	\$1,670	\$1,729
4Q2020	\$230,000	\$1,688	\$1,748	\$1,770	\$1,810	\$1,874	\$1,940
4Q2021	\$275,000	\$2,018	\$2,090	\$2,116	\$2,164	\$2,240	\$2,319

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

⁶ 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.



**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
3.16%	3.79
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%	3.18%	3.5%	4%	4.5%
4Q2011	\$87,000	\$21,890	\$22,668	\$22,954	\$23,471	\$24,301	\$25,155
4Q2012	\$100,500	\$25,287	\$26,185	\$26,516	\$27,114	\$28,072	\$29,058
4Q2013	\$119,000	\$29,941	\$31,005	\$31,397	\$32,105	\$33,239	\$34,407
4Q2014	\$130,000	\$32,709	\$33,871	\$34,299	\$35,072	\$36,312	\$37,588
4Q2015	\$143,500	\$36,106	\$37,388	\$37,861	\$38,714	\$40,082	\$41,491
4Q2016	\$164,000	\$41,264	\$42,730	\$43,269	\$44,245	\$45,809	\$47,418
4Q2017	\$180,000	\$45,289	\$46,898	\$47,491	\$48,562	\$50,278	\$52,045
4Q2018	\$190,000	\$47,806	\$49,504	\$50,129	\$51,259	\$53,071	\$54,936
4Q2019	\$205,000	\$51,580	\$53,412	\$54,087	\$55,306	\$57,261	\$59,273
4Q2020	\$230,000	\$57,870	\$59,926	\$60,683	\$62,051	\$64,244	\$66,501
4Q2021	\$275,000	\$69,192	\$71,650	\$72,556	\$74,191	\$76,813	\$79,512

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%	3.0%	3.18%	3.5%	4.0%	4.5%
4Q2011	\$87,000	71.3%	70.1%	69.7%	68.8%	67.5%	66.2%
4Q2012	\$100,500	66.2%	64.9%	64.4%	63.5%	62.0%	60.6%
4Q2013	\$119,000	59.9%	58.4%	57.8%	56.8%	55.1%	53.4%
4Q2014	\$130,000	56.9%	55.2%	54.6%	53.5%	52.1%	50.7%
4Q2015	\$143,500	53.4%	52.0%	51.4%	50.5%	49.0%	47.4%
4Q2016	\$164,000	49.5%	47.8%	47.2%	46.2%	44.4%	42.7%
4Q2017	\$180,000	47.5%	45.8%	45.1%	43.9%	42.1%	40.7%
4Q2018	\$190,000	47.5%	45.6%	45.0%	44.0%	42.6%	41.1%
4Q2019	\$205,000	46.4%	44.9%	44.4%	43.4%	41.8%	40.1%

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 \$2,116 for the first-quartile sales price in 4Q2021, over 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 3.79⁷, meaning a household could afford a maximum home price of 3.79 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 \$72,556 for the first-quartile sales price in 4Q2021 (Table 28). An estimated 44.4 percent of renters in the Dallas-Fort Worth-Arlington MSA could afford the first-quartile sales price in 4Q2021 with a 95 percent LTV ratio (Table 29), a decline of over 25 percentage points from 4Q2011. (The Census Bureau has not published income data for the Dallas-Fort Worth-Arlington MSA since 2019. However, as

⁷ The home price-to-income multiplier is based on a 30-year loan term, 3.18 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 35 percent DTI ratio, and property taxes and insurance of 4 percent.

growth in median home price has significantly outpaced growth in median family income in the Dallas-Fort Worth-Arlington MSA, the proportion of households that could afford the median 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	\$87,000	\$669	\$675	\$677	\$681	\$689
4Q2012	\$100,500	\$773	\$780	\$783	\$787	\$796
4Q2013	\$119,000	\$916	\$924	\$927	\$932	\$943
4Q2014	\$130,000	\$1,000	\$1,009	\$1,012	\$1,018	\$1,030
4Q2015	\$143,500	\$1,104	\$1,114	\$1,117	\$1,124	\$1,137
4Q2016	\$164,000	\$1,262	\$1,273	\$1,277	\$1,285	\$1,300
4Q2017	\$180,000	\$1,385	\$1,398	\$1,402	\$1,410	\$1,426
4Q2018	\$190,000	\$1,462	\$1,475	\$1,480	\$1,488	\$1,506
4Q2019	\$205,000	\$1,578	\$1,592	\$1,596	\$1,606	\$1,625
4Q2020	\$230,000	\$1,770	\$1,786	\$1,791	\$1,802	\$1,823
4Q2021	\$275,000	\$2,116	\$2,135	\$2,141	\$2,154	\$2,179

Note: Assumes a 30-year loan term, 3.18 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 27. Home Price-to-Income Multiplier for First-Time Buyers by LTV Ratio

LTV Ratio	Home-Purchasing Power
95%	3.79
96.5%	3.76
97%	3.75
98%	3.72
100%	3.68

Note: Assumes a 30-year loan term, 3.18 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	\$87,000	\$22,954	\$23,159	\$23,228	\$23,365	\$23,639
4Q2012	\$100,500	\$26,516	\$26,753	\$26,832	\$26,990	\$27,307
4Q2013	\$119,000	\$31,397	\$31,678	\$31,771	\$31,959	\$32,333
4Q2014	\$130,000	\$34,299	\$34,606	\$34,708	\$34,913	\$35,322
4Q2015	\$143,500	\$37,861	\$38,200	\$38,313	\$38,538	\$38,990
4Q2016	\$164,000	\$43,269	\$43,657	\$43,786	\$44,044	\$44,560
4Q2017	\$180,000	\$47,491	\$47,916	\$48,058	\$48,341	\$48,908
4Q2018	\$190,000	\$50,129	\$50,578	\$50,727	\$51,027	\$51,625
4Q2019	\$205,000	\$54,087	\$54,571	\$54,732	\$55,055	\$55,700
4Q2020	\$230,000	\$60,683	\$61,226	\$61,407	\$61,769	\$62,493
4Q2021	\$275,000	\$72,556	\$73,205	\$73,421	\$73,854	\$74,720

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, 3.18 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	\$87,000	69.7%	69.3%	69.2%	69.0%	68.6%
4Q2012	\$100,500	64.4%	64.0%	63.9%	63.7%	63.2%
4Q2013	\$119,000	57.8%	57.4%	57.2%	57.0%	56.4%
4Q2014	\$130,000	54.6%	54.2%	54.0%	53.7%	53.2%
4Q2015	\$143,500	51.4%	51.1%	50.9%	50.7%	50.2%
4Q2016	\$164,000	47.2%	46.8%	46.7%	46.4%	45.8%
4Q2017	\$180,000	45.1%	44.6%	44.5%	44.2%	43.6%
4Q2018	\$190,000	45.0%	44.6%	44.5%	44.2%	43.7%
4Q2019	\$205,000	44.4%	44.0%	43.8%	43.6%	43.0%

Note: Assumes a 30-year loan term, 3.18 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 3.79⁸ (Table 30), meaning a household could afford a maximum home price of 3.79 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 \$72,556 for the first-quartile sales price in 4Q2021 (Table 31). An estimated 44.4 percent of renters in the Dallas-Fort Worth-Arlington MSA could afford the first-quartile sales price in 4Q2021 with a 35 percent DTI ratio (Table 32), a decline of over 25 percentage points from 4Q2011. (The Census Bureau has not published income data for the Dallas-Fort Worth-Arlington MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Dallas-Fort Worth-Arlington MSA, the proportion of households that could afford the median sales price in 4Q2021 is estimated to have declined since 4Q2019.)

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

DTI Ratio	Home Price-to-Income Multiplier
20%	2.17
25%	2.71
30%	3.25
35%	3.79
40%	4.33
45%	4.87
50%	5.41

Note: Assumes a 30-year loan term, 3.18 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

⁸ The home price-to-income multiplier is based on a 30-year loan term, 3.18 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and property taxes and insurance of 4 percent.

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

Year	Home Price	DTI Ratio						
		20%	25%	30%	35%	40%	45%	50%
4Q2011	\$87,000	\$40,169	\$32,135	\$26,780	\$22,954	\$20,085	\$17,853	\$16,068
4Q2012	\$100,500	\$46,403	\$37,122	\$30,935	\$26,516	\$23,201	\$20,623	\$18,561
4Q2013	\$119,000	\$54,944	\$43,955	\$36,630	\$31,397	\$27,472	\$24,420	\$21,978
4Q2014	\$130,000	\$60,023	\$48,019	\$40,015	\$34,299	\$30,012	\$26,677	\$24,009
4Q2015	\$143,500	\$66,256	\$53,005	\$44,171	\$37,861	\$33,128	\$29,447	\$26,503
4Q2016	\$164,000	\$75,722	\$60,577	\$50,481	\$43,269	\$37,861	\$33,654	\$30,289
4Q2017	\$180,000	\$83,109	\$66,487	\$55,406	\$47,491	\$41,555	\$36,937	\$33,244
4Q2018	\$190,000	\$87,726	\$70,181	\$58,484	\$50,129	\$43,863	\$38,989	\$35,090
4Q2019	\$205,000	\$94,652	\$75,722	\$63,101	\$54,087	\$47,326	\$42,068	\$37,861
4Q2020	\$230,000	\$106,195	\$84,956	\$70,797	\$60,683	\$53,097	\$47,198	\$42,478
4Q2021	\$275,000	\$126,972	\$101,578	\$84,648	\$72,556	\$63,486	\$56,432	\$50,789

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, 3.18 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%	35%	40%	45%	50%
4Q2011	\$87,000	45.0%	55.5%	63.7%	69.7%	74.2%	77.6%	80.4%
4Q2012	\$100,500	38.5%	49.3%	57.8%	64.4%	69.4%	73.5%	76.6%
4Q2013	\$119,000	31.9%	42.4%	50.7%	57.8%	63.6%	68.1%	71.8%
4Q2014	\$130,000	29.3%	38.8%	47.9%	54.6%	60.7%	65.4%	69.3%
4Q2015	\$143,500	25.9%	35.6%	44.4%	51.4%	57.3%	62.4%	66.5%
4Q2016	\$164,000	20.7%	31.8%	39.4%	47.2%	53.2%	58.2%	62.8%
4Q2017	\$180,000	19.4%	29.4%	38.1%	45.1%	51.7%	56.7%	61.2%
4Q2018	\$190,000	19.4%	28.8%	38.2%	45.0%	51.8%	57.1%	61.4%
4Q2019	\$205,000	17.9%	27.0%	37.0%	44.4%	50.6%	56.3%	60.9%

Note: Assumes a 30-year loan term, 3.18 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 \$2,116 for the first-quartile sales price in 4Q2021, more than 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 3.79⁹, meaning a household could afford a maximum home price of 3.79 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 \$72,556 for the first-quartile sales price in 4Q2021 (Table 35). An estimated 44.4 percent of renters in the Dallas-Fort Worth-Arlington MSA could afford the first-quartile sales price in 4Q2021 with a 3.18 percent mortgage interest rate (Table 36), a decline of over 25 percentage points from 4Q2011. (The Census Bureau has not published income data for the Dallas-Fort Worth-Arlington MSA since 2019. However, as growth in median home price has significantly outpaced growth in median family income in the Dallas-Fort Worth-Arlington MSA, the proportion of households that could afford the median 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	\$87,000	\$524	\$597	\$669	\$742	\$814
4Q2012	\$100,500	\$606	\$690	\$773	\$857	\$941
4Q2013	\$119,000	\$717	\$817	\$916	\$1,015	\$1,114
4Q2014	\$130,000	\$784	\$892	\$1,000	\$1,109	\$1,217
4Q2015	\$143,500	\$865	\$985	\$1,104	\$1,224	\$1,343
4Q2016	\$164,000	\$989	\$1,125	\$1,262	\$1,399	\$1,535
4Q2017	\$180,000	\$1,085	\$1,235	\$1,385	\$1,535	\$1,685
4Q2018	\$190,000	\$1,145	\$1,304	\$1,462	\$1,620	\$1,779
4Q2019	\$205,000	\$1,236	\$1,407	\$1,578	\$1,748	\$1,919
4Q2020	\$230,000	\$1,387	\$1,578	\$1,770	\$1,962	\$2,153
4Q2021	\$275,000	\$1,658	\$1,887	\$2,116	\$2,345	\$2,575

Note: Assumes a 30-year loan term, 3.18 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

⁹ The home price-to-income multiplier is based on a 30-year loan term, 3.18 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and 35 percent DTI ratio.

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

Property Taxes & Insurance	Home Price-to-Income Multiplier
2%	4.84
3%	4.25
4%	3.79
5%	3.42
6%	3.12

Note: Assumes a 30-year loan term, 3.18 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	\$87,000	\$17,982	\$20,468	\$22,954	\$25,440	\$27,925
4Q2012	\$100,500	\$20,773	\$23,644	\$26,516	\$29,387	\$32,259
4Q2013	\$119,000	\$24,597	\$27,997	\$31,397	\$34,797	\$38,197
4Q2014	\$130,000	\$26,870	\$30,585	\$34,299	\$38,013	\$41,728
4Q2015	\$143,500	\$29,661	\$33,761	\$37,861	\$41,961	\$46,061
4Q2016	\$164,000	\$33,898	\$38,584	\$43,269	\$47,955	\$52,641
4Q2017	\$180,000	\$37,205	\$42,348	\$47,491	\$52,634	\$57,777
4Q2018	\$190,000	\$39,272	\$44,701	\$50,129	\$55,558	\$60,986
4Q2019	\$205,000	\$42,373	\$48,230	\$54,087	\$59,944	\$65,801
4Q2020	\$230,000	\$47,540	\$54,111	\$60,683	\$67,254	\$73,826
4Q2021	\$275,000	\$56,841	\$64,698	\$72,556	\$80,413	\$88,270

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, 3.18 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	\$87,000	77.4%	73.6%	69.7%	65.8%	62.0%
4Q2012	\$100,500	73.2%	68.8%	64.4%	60.1%	55.8%
4Q2013	\$119,000	67.8%	62.8%	57.8%	52.8%	48.9%
4Q2014	\$130,000	65.1%	59.9%	54.6%	50.2%	46.0%
4Q2015	\$143,500	62.1%	56.4%	51.4%	46.9%	42.3%
4Q2016	\$164,000	57.9%	52.4%	47.2%	42.1%	37.8%
4Q2017	\$180,000	56.5%	50.8%	45.1%	40.3%	36.3%
4Q2018	\$190,000	56.8%	50.8%	45.0%	40.6%	36.2%
4Q2019	\$205,000	56.0%	49.6%	44.4%	39.6%	34.8%

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, 3.18 percent mortgage interest rate, 0.5 percent mortgage insurance premium, 95 percent LTV ratio, and 35 percent DTI ratio.

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.¹⁰ 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).

¹⁰ 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.¹¹

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.

¹¹ 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

Loan or Applicant Characteristics	Effect on Purchase Affordability
Mortgage interest rate	An increase in the mortgage interest rate diminishes purchase affordability
Loan term	An increase in the loan term increases purchase affordability
LTV ratio	An increase in the loan-to-value ratio diminishes purchase affordability
DTI ratio	An increase in the debt-to-income ratio increases purchase affordability
Additional costs of homeownership (property taxes and insurance)	An increase in the additional costs of homeownership diminishes purchase affordability
Additional costs of borrowing mortgage capital (such as the mortgage insurance premium)	An increase in the additional costs of borrowing mortgage capital diminishes 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 (3.145 percent in 4Q2021)¹², 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 (3.18 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.

¹² The source for the prevailing mortgage interest rate is CoreLogic.



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