



2023 HOUSING STUDY

Report commissioned by Greater Cheyenne Chamber of Commerce
Report prepared by Center for Business and Economic Analysis at LCCC



Overview

The Center for Business and Economic Analysis at LCCC was contacted by the Greater Cheyenne Chamber of Commerce to conduct a study on affordable housing. The chamber wanted an estimation on the need for housing during the next five years along with consideration for additional housing from employees coming to the area for the Sentinel Project.

The Sentinel Project is a missile system replacement project. It involves infrastructure projects both on and off F.E. Warren Air Force Base and requires additional on-base operations personnel to oversee the replacement. The entire project is estimated to take 10 years and bring in 3,515 direct positions and 4,006 indirect positions(Sentinel EIS). Those positions and their impact on the housing market are discussed more in-depth in the Housing Demand section of this report.

Methodology

Housing demand estimations were determined using data from the US Census on households and household income. The information on housing demand from the Sentinel Project were pulled from the environmental impact statement for the project. Estimations on renting versus buying came from the Survey of Consumer Finances.

Housing supply figures were estimated using data from the city and county planning departments. The number of new single-family homes – including condominiums and townhouses – were tracked using construction permit reports for Cheyenne and Laramie County. The same construction permit reports were used to track new multi-family housing units. New home values were determined by dividing the permit value by 0.6095. 60.95% is the average percent of home sales price attributed to construction costs in 2019(61.1%) and 2022(60.8%) from the National Association of Home Builders' Construction Cost Surveys.

Single home affordability was based on debt-to-income(DTI) ratios used by lenders. A home is considered affordable if no more than 30% of income goes towards housing costs, including both mortgage payments and utilities(HUD). However, your approval can be well above 30%. Federal Housing Administration(FHA) loans usually require a DTI below 43%, but can max out lending to 57%(FHA). Wyoming Community Development Authority(WCDA) loans have a maximum DTI of 45%(Wyoming CDA). Conventional loans have a maximum DTI of 45% with an allowance up to 50% if the borrower has other outstanding factors, like a high savings account balance(FannieMae). Veteran's Affairs loans have no maximum DTI, but scrutinizes borrowers if their DTI exceeds 41%. For these analyses, 45% DTI was used, which is the maximum DTI for WCDA loans and conventional loans and splits the difference between the suggested 30% and maximum 57%. Affordability tables were developed based on current market rates for 30-year fixed rate mortgages, down payment sizes(3.5%, 10%, 20%), and various levels of other debt(car payments, student loan payments, etc.). Based on current market conditions, households earning below \$50,000 per year are unlikely to find a single-family home that would be considered affordable. Analyses were conducted for households earning \$50,000, \$75,000, \$100,000, and \$150,000.

Housing Demand Estimations

From 2010 to 2020, the US Census Bureau estimated that Laramie County added 4,412 households. Data from 2021 were omitted because of messy data due to Covid-19 and layoffs. 2021 data accounted for short-term layoffs in 2020 and 2021 and unemployment returned to pre-Covid levels

in 2022 and 2023. Trends from 2010-2020 to estimate the number of households from 2023 to 2028.

Based on census data, Laramie County is projected to add 2,215 households between 2023 and 2028. The number of households earning below \$50,000 is projected to decrease by 1,490, the number of households earning between \$50,000 and \$150,000 is projected to increase by 2,390, and the number of households earning more than \$150,000 projected to increase by 1,315. The total population is projected to increase by 5,025 during the same time period.

In addition to those trends, Laramie County and the surrounding areas will be impacted by the Sentinel Project. This is a major missile replacement project that involves construction projects on and off F.E. Warren Air Force Base and additional operations positions located on base during the entirety of the project. All labor and population estimations related to the Sentinel Projects were estimated with IMPLAN and come directly from the official environmental impact report for the project.

The on-base construction projects are expected to bring in 665 directly hired positions and an additional 213 additional positions are expected to be created indirectly due to the increase in population. Of the 665 directly hired workers, 532 are expected to migrate into the area. Of the 213 additional indirect workers, 64 are expected to migrate into the area. In total, 596 workers are expected to migrate into the area, with 65 percent of them having additional family members moving with. The population increase associated with on-base construction is estimated to be 1,452 people total(596 workers, 856 family members). These positions are estimated to persist for 10 years.

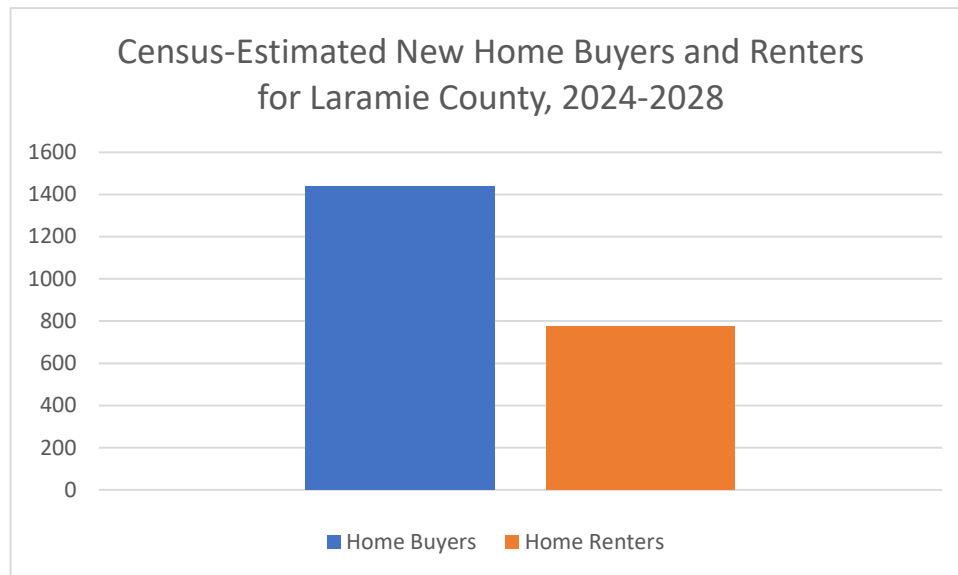
The operations of the project, located on-base, are expected to add 350 positions directly and 91 positions indirectly. Of the 350 direct positions, 280 are expected to migrate to the area and 70 are expected to be from the area. Of the 91 indirect positions, 27 are expected to migrate to the area and 64 are expected to be from the area. Of the 307 workers expected to move to the area, 200 are expected to bring family members. In total, the population is expected to increase by 749(307 workers, 441 family members). These positions are estimated to persist for 10 years. After 10 years, those positions will move to the next segment of the Sentinel Project, taking along 101 additional positions(80 direct, 21 indirect) and 172 people total(70 workers, 102 family members).

Off-base construction projects will be primarily in western Nebraska and the town of Kimball, Nebraska will be the main hub of that workforce. The off-base construction is estimated to create 2,500 jobs directly, all of which will be housed in a temporary workforce hub. There are an estimated 3,702 jobs that are indirectly tied to the off-base construction. Of those, 2,591 are expected to be local to the Kimball area and 1,111 are expected to migrate into the area. Of the 1,111 workers moving into the area, 722 are expected to bring additional family members. In total, a population increase of 2,706(1,111 workers, 1,595 family members) is expected. However, because the center of off-base construction is Kimball, Nebraska and not Cheyenne, just a fraction of the 2,706 people will move to Laramie County. If 10 percent of that workforce moves to the county, expect to see a population increase of 271 people(111 workers, 160 family members). These positions are expected to persist for five years.

Based on US Census data, 8.9% of the Laramie County workforce commutes in from somewhere other than Laramie County. The Sentinel Project is set to have approximately 1,014 new households move to the area. 924 are expected to move to Laramie County, with the other 90 living elsewhere

and commuting in. Between natural population increases and the Sentinel Project, about 3,162 households are expected to move to Laramie County. The population is expected to increase by 7,277.

Data from the Federal Reserve Survey of Consumer Finances, most recently conducted in 2019, was used to estimate the likelihood of renting v. buying for households. This survey collects data from consumers on income and living arrangements, specifically whether the households rent or own their homes. Applying the likelihoods of renting and buying for each income level and assuming our population coming in from natural growth is distributed evenly for all 2,215 new households, it is estimated that 777 of the new households coming in will rent and 1,438 will buy.



For the on-base construction projects, the average direct worker is estimated to make \$56,995/year, making them slightly more likely to buy instead of rent. If every direct worker earns the average salary, about 49.5 percent of those workers will rent and 50.5 percent of those workers will buy. It is estimated that 240 households will rent in Laramie County, 245 households will buy in Laramie County, and 47 will choose to live outside Laramie County and commute in.

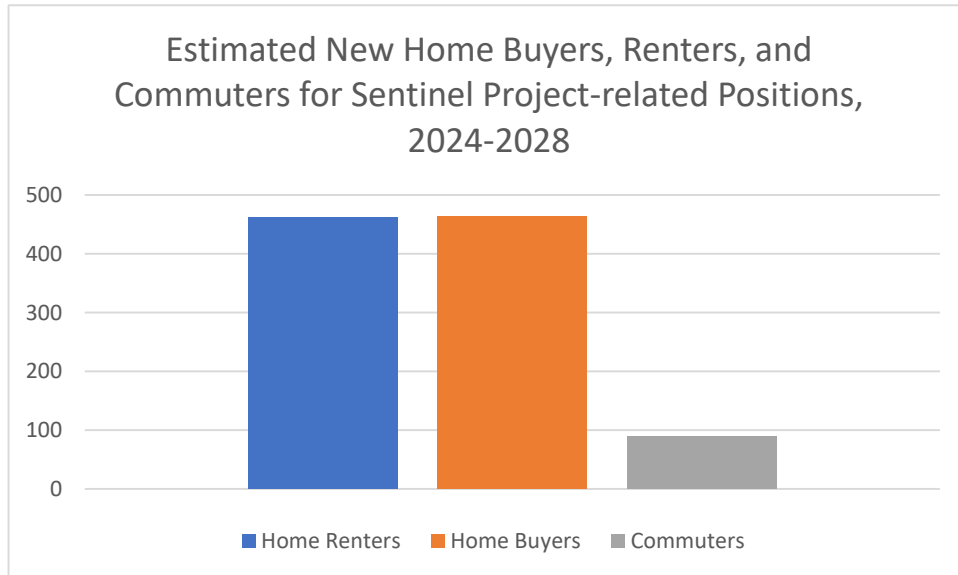
The average indirect worker tied to on-base construction is estimated to make \$45,867/year, making them more likely to rent instead of buy. If every indirect worker earns the average salary, 56.1 percent of those workers will rent and 43.9 percent of those workers will buy. It is estimated that 33 households will rent in Laramie County, 26 households will buy in Laramie County, and 5 will choose to live outside Laramie County and commute in.

For the on-base operations projects, the average direct worker is estimated to make \$85,350/year, making them more likely to buy than rent. If every direct operations worker earns the average salary, 36.6 percent of those workers will rent and 63.4 percent of those workers will buy. It is estimated that 93 households will rent in Laramie County, 162 households will buy in Laramie County, and 25 will choose to live outside Laramie County and commute in.

For the on-base operations projects, the average indirect worker is estimated to make \$38,856/year, making them more likely to rent instead of buy. If every indirect worker earns the average salary, 60.2 percent of those workers will rent and 39.8 percent of those workers will buy. It is estimated

that 15 households will rent in Laramie County, 10 households will buy in Laramie County, and 2 will choose to live outside Laramie County and commute in.

For the off-base construction projects, the average indirect worker is estimated to make \$55,804/year, making them equally likely to rent or buy. If every indirect worker earns the average salary, 50 percent of those workers will rent and 50 percent of those workers will buy. Because of the shorter term for these positions, the likelihood of renting will be higher, probably closer to 80 percent. It is estimated that 81 households will rent in Laramie County, 20 households will buy in Laramie County, and 10 will choose to live outside Laramie County and commute in.



In the next five years, between natural population growth and the Sentinel Project, it is estimated that 1,239 new households will move to Laramie County and want to rent housing and 1,901 new households will move to Laramie County and want to buy homes.

Housing Supply Estimations

From 2018 to 2022, the city of Cheyenne approved permits on 977 single-family residences. In that same time frame, they approved 125 number of multi-family permits to add an additional 888 housing units. In 2023, Cheyenne is on track to approve just 80 single-family homes and 16 multi-family permits to add an additional 64 units. The 80 single-family permits are the lowest count since 1991.

From 2018 to 2022, the remainder of Laramie County approved permits on 1,092 single-family residences. In that same time frame, they approved two multi-family permits to add an additional 12 housing units. The county also approved permits for 109 new mobile homes. In 2023, the remainder of Laramie County is on track to approve 94 single-family homes and 18 new mobile homes. The 94 single-family permits are the lowest count since 2011.

Interest rates, in an effort to combat inflation, have also slowed construction builds. Within the next five years, it seems unlikely that interest rates will fall to the levels seen before Covid. Investment experts think there will be incremental decreases starting in late 2024/early 2025(Bloomberg). That should not only encourage more homebuilding, due to cheaper lines of credit, but also encourage

homebuying due to lower mortgage interest rates. However, rate decreases will likely be offset by construction labor cost increases due to the on-base and off-base construction projects during the next five to ten years.

In Cheyenne in 2018, the average new single-family permit value was \$211,999, leading to an average new home estimated value of \$347,824. So far in 2023, the average single-family permit value is \$266,751, leading to an average new home value of \$437,655.

In the remainder of Laramie County in 2018, the average new single-family permit value was \$181,293, leading to an average new home estimated value of \$297,446. So far in 2023, the average single-family permit value is \$211,127, leading to an average new home value of \$346,394.

In the last year and a half, the city and county approved permits for 456 new single-family homes. However, just 34 single-family housing permits would be considered affordable for a family making \$50,000 with 0 debt and a 3.5% down payment, the most common down payment. That trend is likely to continue downward as construction costs climb during the on-base and off-base construction projects and as mortgage interest rates continue to stay higher than 7%. We estimate that new home builds will pick up slowly over the next five years.

In August 2023, Laramie County had 387 single-family homes available for sale (227 in Cheyenne, 117 in the remainder of Laramie County, 43 townhomes/condos). In September 2023, there were 239 rental listings on HotPads.com, the broadest listing of rental advertisements. On that site, there were 104 apartments, 72 condos/townhomes/duplexes, and 63 single-family homes available to rent in September. Comparable sites, like Zillow (219) and Trulia (230), had similar figures and the overwhelming majority of listings were copied on all three sites.

In terms of affordability, three listings were for apartments for low-income renters. Only eight others were listed for less than \$800/month. Nearly 40 percent of available rental listings were for over \$1,600/month.

In the most recent data from the Economic Analysis Division at the state, Laramie County had the second-highest average rent for apartments in the state, trailing only Teton County. Average for a two-bedroom, unfurnished apartment in the second quarter of 2022 was \$1,008 dollars. That was up 9.1% from the second quarter 2021. If the annual rate of increase continues into 2023, the average monthly rent for a two-bedroom apartment will show \$1,100 in the second quarter of 2023.

The average rental rate for a house in Laramie County was \$1,587, the second-highest rate in the state behind Teton County. The house rental rate is up 9.1% from the second quarter of 2021. If the annual rate of increase continues into 2023, the average monthly rent for a house will show \$1,731 in the second quarter of 2023.

The average rental rate for a mobile home, including lot rent, in Laramie County was \$1,152, the second-highest rate in the state behind Teton County. The mobile home rental rate is up 17.7% from the second quarter of 2021. If the annual rate of increase continues into 2023, the average monthly rent for a mobile home will show \$1,356 in the second quarter of 2023.

New apartment builds are harder to estimate, due to the extended time it takes for apartment approval. There are more zoning restrictions, height restrictions around the capitol, and parking requirements that make large apartment complexes nearly impossible to predict, so we've not

included them in our estimations. Small buildings, with 4 units, are much more common. Small apartment building construction, like single-family housing, is expected to improve marginally in the next five years.

Housing Surplus/Shortage Estimation

Interest rates and inflation rates are expected to fall incrementally throughout the next five years. Construction labor will likely to be harder to hire in the next five years due to demand for construction labor for the Sentinel Project. Home-building figures are expected to improve, but only incrementally, over the next five years. If we assume the home-buying population increases by a fixed amount every year, we will end up about 534 single-family homes short of what’s needed by 2028.

Single-Family/Townhome/Condo Surplus/Shortage Estimates

Year	New Homebuyers	New Homes	Existing Stock	Surplus/Shortage
2024	380	172	387	179
2025	380	184	179	-17
2026	380	196	0	-184
2027	380	208	0	-172
2028	381	220	0	-161

Because apartment complex permits are more irregular, they are harder to estimate. If the number of 4-unit permits increases by 2 per year starting in 2025, due to lower interest and inflation rates, and those are the only ones added, Laramie County will be short 600 units by 2028.

Apartment Surplus/Shortage Estimates

Year	New Renters	New Apartments	Existing Stock	Surplus/Shortage
2024	248	64	239	55
2025	248	72	55	-121
2026	248	80	0	-168
2027	248	88	0	-160
2028	247	96	0	-151

On average, Laramie County adds about 17 new mobile homes every year. That would be 85 new mobile homes by 2028. Combining all expected new builds, new apartments, and new mobile homes, Laramie County will be short 1,050 housing units in five years. To have a properly functioning housing market, Laramie County will be 1,150 – 1,250 housing units short of what's needed.

Recommendations

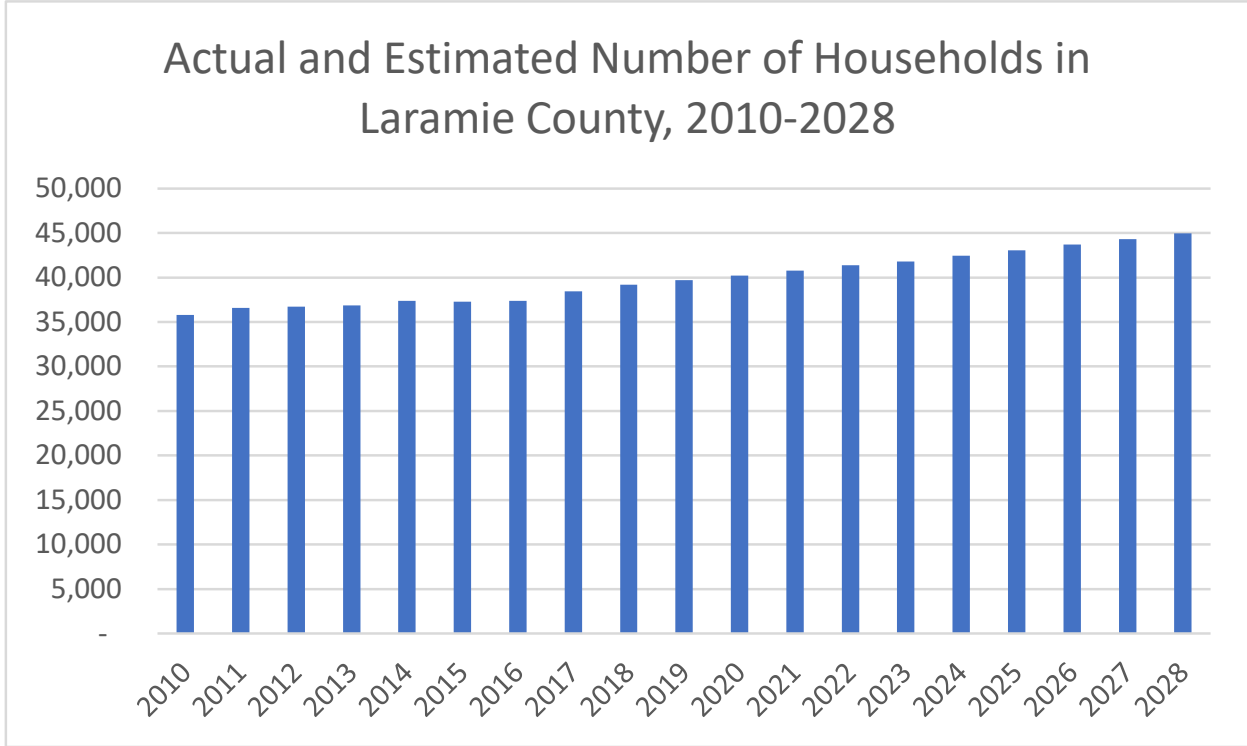
I would recommend making any change possible to allow for more multi-family housing, whether it's removing height restrictions, rezoning land, or changing parking restrictions. Any change to make apartments easier to get approved will help ease the housing shortage Laramie County will face. Apartments are of more importance to alleviating the problem for two reasons. First and most obvious, apartments house more people in fewer projects. Second and less obvious, the positions tied to the Sentinel Project are relatively short-term. On-base operations and construction projects are for 10 years and move on to Montana. My estimations for home ownership for those positions may be overstated if workers come in toward the latter end of the project.

I would also recommend minimum lot size changes for single-family homes. Smaller lot sizes allow for more single-family homes to be built and to be built more densely, which means land acquisition won't be nearly as onerous. Any opportunities for home-ownership will be preferred to renting, so the best options under current conditions are condos and townhomes.

Another suggestion, and one that is getting started, is expansion of on-base housing and near-base housing. A large enough on-base complex could help house on-base operations personnel and reduce the need for housing outside of the base. Large complexes near the base could house on-base construction crews and other non-military personnel. The proposed location, next to I-25 and Happy Jack Road, would be ideal for both military members and non-military personnel hired to work on the base.

Appendix

Figure 1. Actual and Estimated Number of Households in Laramie County



Source: US Census Bureau and Sentinel Environmental Impact Statement

Table 1. Proposed Action IMPLAN Model Output for F.E. Warren AFB On-Base Construction

Impact Type	Employment	Labor Income(\$)	Value Added(\$)	Output(\$)
Direct Effect	665	\$37,902,224	\$28,756,743	\$60,970,000
Indirect Effect	213	\$9,769,686	\$18,894,707	\$36,675,143
Total Effect	878	\$47,671,910	\$47,651,450	\$97,645,143

Source: IMPLAN 2021

Table 2. Proposed Action Estimated Population Changes from F.E. Warren AFB On-Base Construction

Workers and Families	Direct Workers and Families	Indirect Workers and Families	Total Workers and Families
Number of jobs	665	213	878
Local workers	133	149	282
Migrating workers	532	64	596
Single migrating workers	186	23	209
Migrating workers bringing family	346	41	387
Migrating workers family members	764	92	856
Total Population Change	1,296	156	1,452

Source: IMPLAN 2021

Tables 3 and 4. Proposed Action IMPLAN Model Output for F.E. Warren AFB On-Base Operations Peak Operations

Impact Type	Employment	Labor Income(\$)	Value Added(\$)	Output(\$)
Direct Effect	350	\$29,872,618	\$39,979,914	\$39,979,914
Indirect Effect	91	\$3,535,946	\$7,338,477	\$13,506,562
Total Effect	441	\$33,408,564	\$47,318,391	\$53,486,476

Source: IMPLAN 2021

End-State Operations

Impact Type	Employment	Labor Income(\$)	Value Added(\$)	Output(\$)
Direct Effect	-80	-\$6,828,027	-\$9,138,266	-\$9,138,266
Indirect Effect	-21	-\$808,216	-\$1,677,366	-\$3,087,214
Total Effect	-101	-\$7,646,243	-\$10,815,632	-\$12,225,480

Source: IMPLAN 2021

Tables 5 and 6. Proposed Action Estimated Population Changes from F.E. Warren AFB On-Base Operations

Peak Operations

Workers and Families	Direct Workers and Families	Indirect Workers and Families	Total Workers and Families
Number of jobs	350	91	441
Local workers	70	64	134
Migrating workers	280	28	307
Single migrating workers	98	10	108
Migrating workers bringing family	182	18	200
Migrating workers family members	402	39	441
Total Population Change	682	67	749

Source: IMPLAN 2021

End-State Operations

Workers and Families	Direct Workers and Families	Indirect Workers and Families	Total Workers and Families
Number of jobs	-80	-21	-101
Local workers	-16	-15	-31
Migrating workers	-64	-6	-70
Single migrating workers	-22	-2	-24
Migrating workers bringing family	-42	-4	-46
Migrating workers family members	-93	-9	-102
Total Population Change	-157	-15	-172

Source: IMPLAN 2021

Table 7. Proposed Action IMPLAN Model Output for F.E. Warren AFB Off-Base Construction

Impact Type	Employment	Labor Income(\$)	Value Added(\$)	Output(\$)
Direct Effect	2,500	\$381,781,028	\$217,019,498	\$501,816,660
Indirect Effect	3,702	\$206,588,438	\$364,363,843	\$666,961,876
Total Effect	6,202	\$588,369,466	\$581,383,341	\$1,168,778,536

Source: IMPLAN 2021

Table 8. Proposed Action Estimated Population Changes from F.E. Warren AFB Off-Base Construction

Workers and Families	Indirect Workers and Families
Number of jobs	3,702
Local workers	2,591
Migrating workers	1,111
Single migrating workers	389
Migrating workers bringing family	2,317
Migrating workers family members	1,595
Total Population Change	2,706

Source: IMPLAN 2021

Tables 9, 10, and 11. Home Affordability by Income Levels and Debt Levels

The top row is gross income level. The leftmost column is level of monthly debt obligations that are not home-related. The home prices are the maximum amount approved by lenders at 45% DTI.

3.5% Down Payment

	\$50,000/year	\$75,000/year	\$100,000/year	\$150,000/year
\$0	\$226,000	\$339,000	\$452,000	\$679,000
\$250	\$196,000	\$309,000	\$422,000	\$649,000
\$500	\$166,000	\$279,000	\$392,000	\$618,000
\$750	\$135,000	\$249,000	\$362,000	\$588,000
\$1,000	\$105,000	\$218,000	\$332,000	\$558,000
\$1,250	\$75,000	\$188,000	\$302,000	\$528,000
\$1,500	\$45,000	\$158,000	\$271,000	\$498,000

Source: ConsumerFinance.gov

10% Down Payment

	\$50,000/year	\$75,000/year	\$100,000/year	\$150,000/year
\$0	\$250,000	\$375,000	\$501,000	\$751,000
\$250	\$217,000	\$342,000	\$467,000	\$718,000
\$500	\$183,000	\$309,000	\$434,000	\$684,000
\$750	\$150,000	\$275,000	\$401,000	\$651,000
\$1,000	\$117,000	\$242,000	\$367,000	\$618,000
\$1,250	\$83,000	\$208,000	\$334,000	\$584,000
\$1,500	\$50,000	\$175,000	\$300,000	\$551,000

Source: ConsumerFinance.gov

20% Down Payment

	\$50,000/year	\$75,000/year	\$100,000/year	\$150,000/year
\$0	\$291,000	\$437,000	\$583,000	\$874,000
\$250	\$252,000	\$398,000	\$544,000	\$835,000
\$500	\$213,000	\$359,000	\$505,000	\$796,000
\$750	\$175,000	\$320,000	\$466,000	\$756,000
\$1,000	\$136,000	\$281,000	\$427,000	\$718,000
\$1,250	\$97,000	\$242,000	\$388,000	\$680,000
\$1,500	\$58,000	\$203,000	\$349,000	\$641,000

Source: ConsumerFinance.gov

Table 12. New Single-Family Homes by Affordability for a 3.5% Down Payment

Price Bracket	2018	2019	2020	2021	2022	2023(Through June)
Under \$226,000	45	54	39	34	24	10
\$226,000-\$339,000	171	158	156	166	148	20
\$339,000-\$452,000	122	135	185	169	97	33
\$452,000-\$679,000	30	31	64	114	95	21
Over \$679,000	0	3	6	17	7	2

Source: City of Cheyenne Compliance Division and Laramie County Planning and Development

Table 13. Rental Listings by Price

Price Range(Monthly Rent Only)	Count
Income-restricted Apartments	3
Under \$800/month	8
\$800/month - \$999/month	44
\$1,000/month - \$1,199/month	34
\$1,200/month - \$1,399/month	32
\$1,400/month - \$1,599/month	26
\$1,600/month - \$2,000/month	61
Over \$2,000/month	31

Source: Hotpads.com, September 2023

Table 14. Likelihood of Renting versus Owning by Income Percentile

Income Percentile	Likelihood to Rent	Likelihood to Own
0-24.9%	60.6%	39.4%
25-49.9%	41.8%	58.2%
50-74.9%	27.5%	72.5%
75-99.9%	10.5%	89.5%

Source: RubyHome – Data from Survey of Consumer Finances, 2019

Data Sources

Population/Household Growth

- IMPLAN
- Sentinel Project Environmental Impact Study
- US Census Bureau

Home Affordability

- Consumer Financial Protection Bureau
- Fannie Mae
- Federal Housing Administration
- Housing and Urban Development
- National Association of Homebuilders
- State of Wyoming Economic Analysis Division
- Veteran's Affairs Administration
- Wyoming Community Development Authority
- Wyoming Smart Capital Network

Housing Availability

- Bloomberg.com
- Cheyenne Board of Realtors
- City of Cheyenne Compliance Division
- Hotpads.com
- Laramie County Planning and Development
- RubyHome.com
- Survey of Consumer Finances
- Trulia.com
- Zillow.com