

Flathead Valley Housing Market Analysis

Final Report

Bureau of Business and Economic Research (BBER)
The University of Montana

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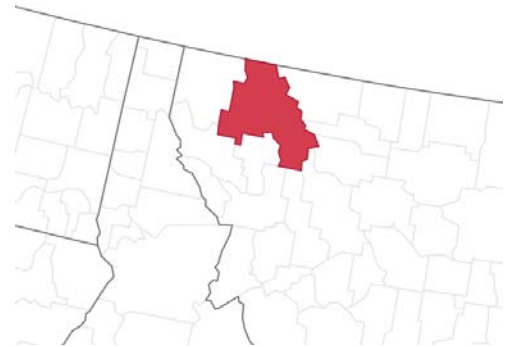
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Background and Introduction

The Flathead Valley, located in the northwestern portion of Montana just south of the Canadian border and west of Glacier National Park, is one of the most picturesque parts of a geographically spectacular state. Flathead County, home to 104,357 residents in 2020 and representing the fourth largest regional economy in the state, is the economic hub of the Valley. It has evolved from its origins as a timber harvesting and processing-based economy into one with a more diversified, high-amenity economic base with a strong presence of health care, recreation and visitor spending, and high tech and specialty manufacturing industries.

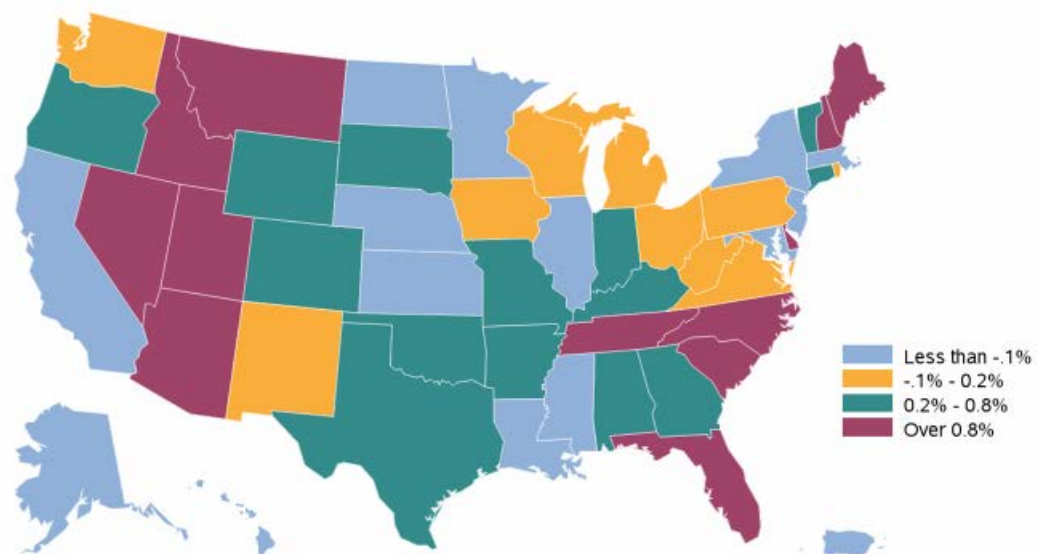


For the past twenty years, with the important exception of the great recession period of 2008-2011, Flathead County has experienced brisk growth in both its economy and its population. Between the two decennial Census years of 2010 and 2020, its population grew by 14.8 percent, the fifth fastest of Montana's 56 counties. Most of this growth occurred in the second half of the decade, as the housing market distress associated with the financial panic of the great recession receded into the past.

The pandemic's immediate aftermath has pushed already healthy pre-pandemic growth to another level. In 2021, the most recent year for which complete data are available, Flathead County's inflation-corrected growth accelerated to 8.3 percent, the fastest growth in more than 20 years, as measured by nonfarm earnings. This followed a year (2020) that saw growth of 7.3 percent.

The factors driving the faster growth were a mix of general and locally specific forces. The recent fast growth in Flathead County, especially in 2021, was an outcome seen nationally, as pandemic restrictions were lifted and consumers spent freely on goods and services of all kinds. More specific to Montana, and particularly to Flathead County, was the increased demand and interest in those living in the largest cities across the nation in less urbanized, less densely populated areas.

Figure 1 Net Domestic Migration as Percent of 2020 Population, 2021

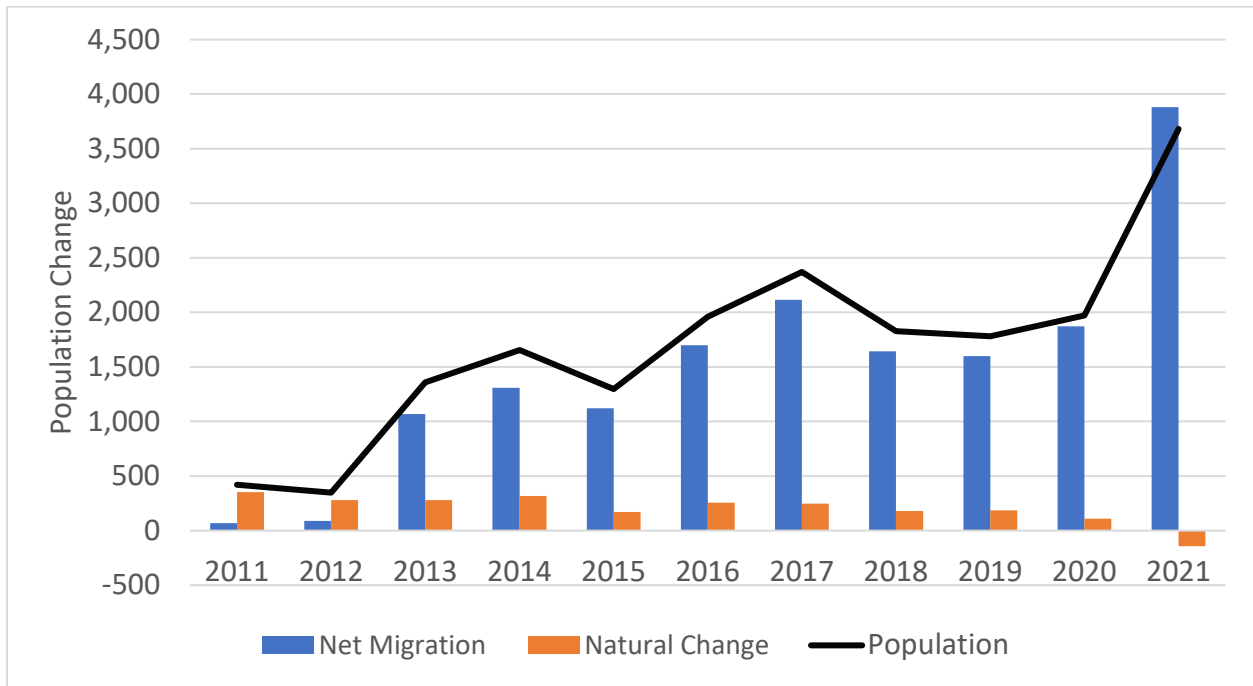


In 2021, Montana experienced a rate of domestic in-migration, defined as the net number of those moving into the state as a fraction of total population, that was second only to Idaho. As shown in Figure 1, the states who had the highest rates in-migration were clustered in the mountain west region and in portions

of the the southeast regions of the country. More populous states such as California and New York were among states with the highest rates of negative in-migration, losing residents on net to other states.

This in-migration surge was particularly prominent in Flathead County. New arrivals to the county have been the biggest contributor to overall population growth, which surged to more than 3,700 in 2021. The growth benefitted from both the expansion in remote working and the increase in early retirements

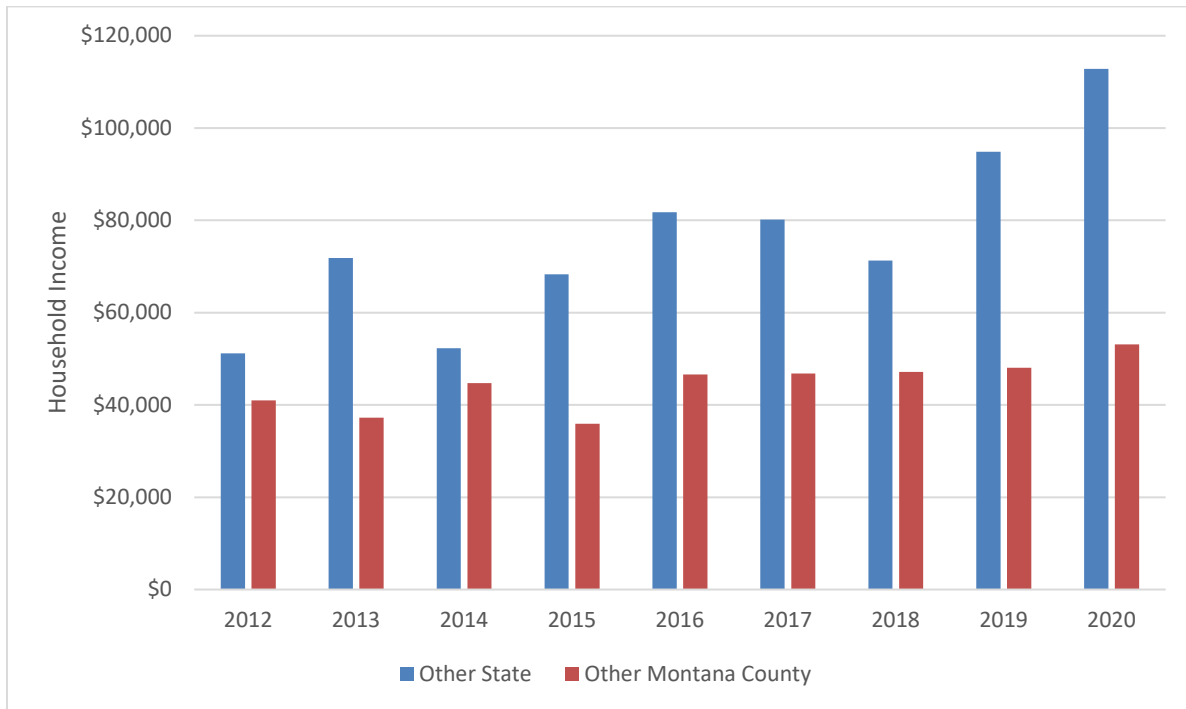
Figure 2 Components of Population Change, Flathead County, 2011-2021



Source: U.S. Census – Population and Housing Unit Estimates (PEP)

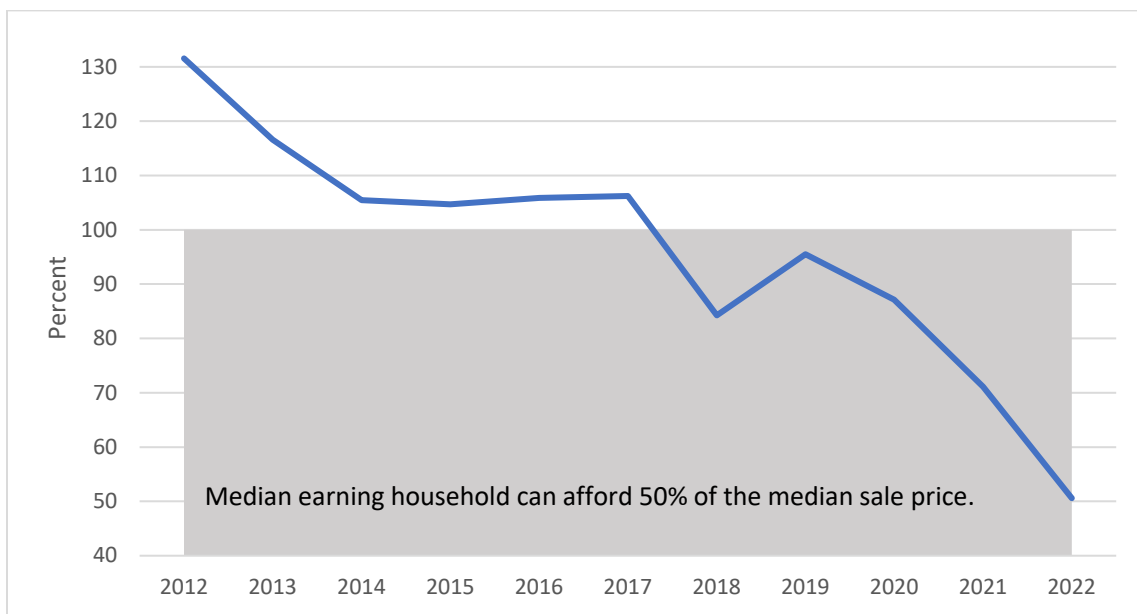
The trend in in-migration clearly has implications for new demand in the Flathead County housing market. Not only the numbers, but the spending power of new arrivals to the region – most of whom relocated from other states – is significant. The average income of households who move to Flathead County exceeded \$110,000 in 2020, as shown in Figure 3. This was more than twice as high as the income of those moving into the County from other parts of Montana.

Figure 3 Average Household Income for In-migrants by State



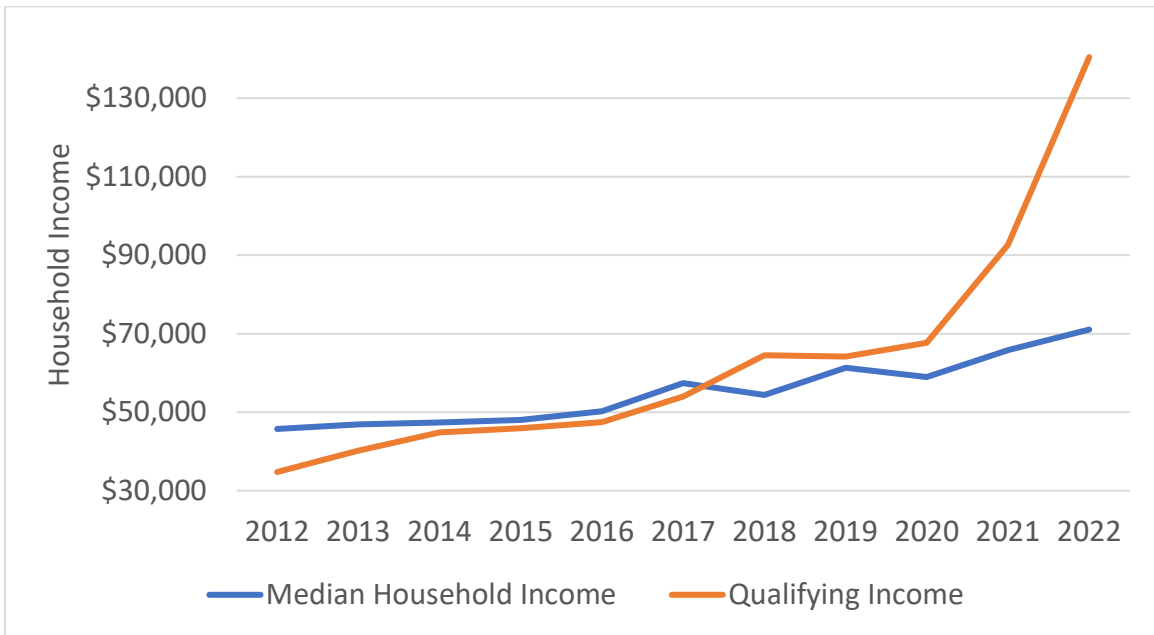
The unfortunate consequence of the growing demand to live in the Flathead Valley is declining affordability of housing for residents who live and work in the area. Beginning in 2018 the median earning household no longer had enough income to qualify for a median priced home. We estimate in 2022 the median earning household could qualify for about half of the median priced home.

Figure 4 Housing Affordability Index, Flathead County



Sources: Montana Regional MLS, U.S. Census Small Area Income and Poverty Estimates, Freddie Mac

Figure 5 Median Household Income vs Qualifying Income for Median Home



Sources: Montana Regional MLS, U.S. Census Small Area Income and Poverty Estimates, Freddie Mac

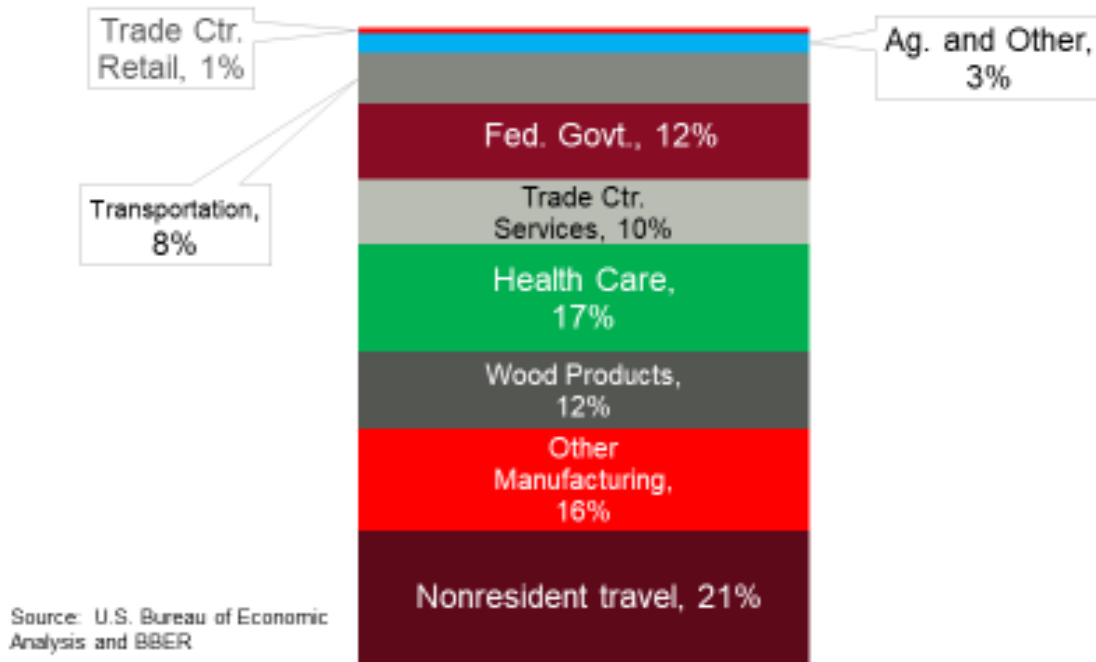
Drivers of the Flathead County Economy

It is useful to briefly review the forces that have historically shaped the direction and the magnitude of growth in Flathead County's economy in recent decades. These forces can be expected to continue to have a major influence on economic outcomes, even if newer trends like remote work and flight from dense urban areas rise in importance.

One approach to describing any regional economy is to divide all activities into two aggregate categories. One group of industries, called basic industries, is the subset of the entire economy that draws all or most of its sales revenue from outside the region. Thus the growth of this basic sector is not limited by the size of the local economy.

This is in contrast to the remainder of the economy, composed of derivative industries, whose customer base is primarily in the region itself. An example of a derivative industry would be local public schools, which serve the local population. Basic industries draw spending flows from outside into the region, which are then spent in part in support of goods and services consumed by locals.

Figure 6 Percentage Share of Income of Flathead County Basic Industries



The Bureau of Business and Economic Research has analyzed the Flathead County economy for more than 40 years, and our analysis produces the list of basic industries for the region shown in Figure 6. The industries shown are either entirely, or partially, part of the basic portion of the County economy. The largest of these, visitor spending, represents 21 percent of the total basic sector and thus can be considered to be the most important driver of the local economy. As shown in the Figure, Flathead County is also home to wood products companies, manufacturing, health care and federal government employers who bring spending into the economy from outside the region.

Some industries, including retail and health care, serve customers from both within and outside the region. The shares shown in Figure 6 are those of the slices of income in each flow from the spending coming from outside the region. The drivers shown can be briefly summarized as follows:

- Spending of nonresident visitors, which include spending of part time residents owning second homes or other properties, has grown significantly in its importance, peaking in the summer but with a secondary winter peak that is especially prominent in ski areas such as Whitefish.
- Wood products remains important, especially in Columbia Falls, with its close proximity to timber harvesting activities, including sawmills, log furniture, log home production and other activities.
- Other manufacturing spans a diverse range of nondurable manufacturing, including food products, as well as high tech and specialty manufacturing.
- Trade center services and retail reflects the fact that Kalispell in particular has emerged as a regional hub of a broader portion of the state, bring in spending for professional services of all kinds.
- The Kalispell Regional Hospital, now named Logan Health, has grown to serve patients with specialized care, drawing from a base larger than the County itself.

- The Federal Government has a considerable footprint in Flathead County, with activities ranging from land management, border control, veteran’s affairs and forest service activity.

There is a relatively new source of economic growth in Flathead County and in other parts of the state that is not adequately captured in this traditional approach. Before it acquired its broader meaning, the term “knowledge worker” was used in economic development to describe those occupations that had no geographic focus. The most prominent example would be a consultant whose only need is an airport to use to visit clients. High amenity places like Flathead County were well positioned to attract this niche of potential growth – a niche that does not fit into the basic/derivative industry notion described above.

Causes and Solutions to the Housing Affordability Crisis

There is abundant evidence of a decline in the affordability of housing in Flathead County over the last two decades, with the divergence between incomes and housing costs widening more briskly in the last few years. One of the statistics most quoted is the median sale price of homes sold by realtors. As illustrated in Figure 7, the median price of houses sold in Flathead County in 2012 was \$197,750. The median price in 2022 has grown to \$655,400, a 231 percent increase in a ten-year period. Just in the last two years, median home prices have grown by 59 percent. While rapid increases in sales prices for homes have shown up in other parts of the state, only Gallatin County in southwest Montana has experienced faster home price growth than Flathead County.

One shortcoming of median sale price as a description of how housing is valued is the variability in the composition of sales. If one end of the market – say, the upper end, luxury home segment – makes up a larger fraction of sales in any period, it can skew the sale price statistics. Measures based on repeat sales of the same properties, such as the Federal Home Finance Agency’s Housing Price Index (HPI), can correct for this situation.

The story of housing price growth revealed by the HPI since 2012 in Flathead County is the same as the median sale price data show – rapid growth over the decade, with an acceleration in the last two years, as shown in Figure 8. The longer time perspective offered in Figure 8, and its comparison of housing price growth to the growth of median household income, offers further insights on affordability.

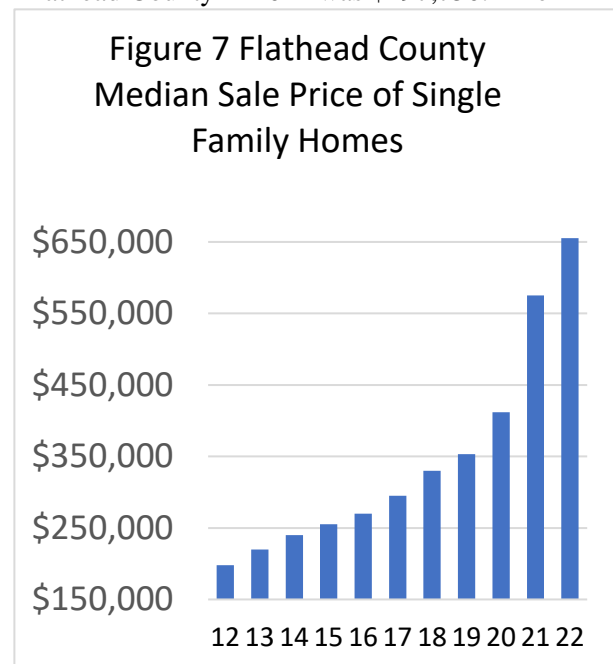
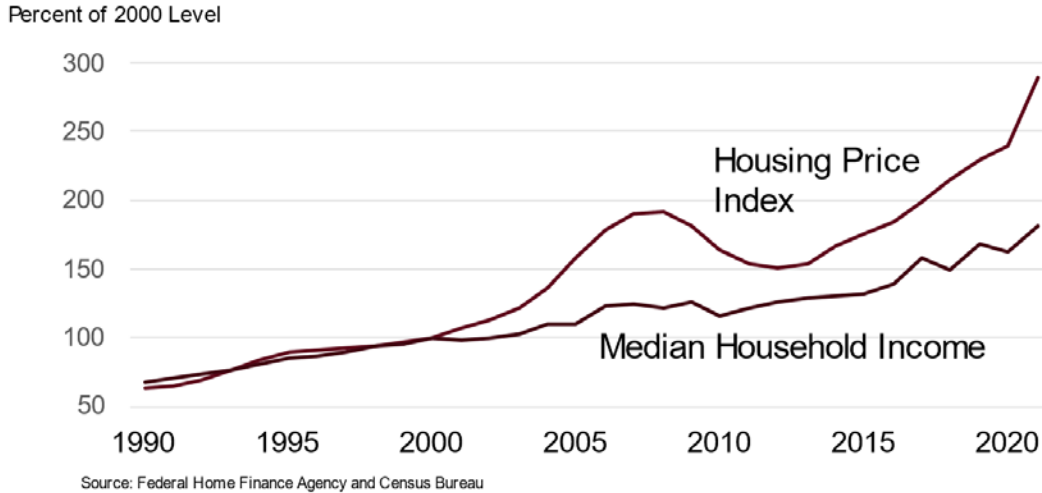


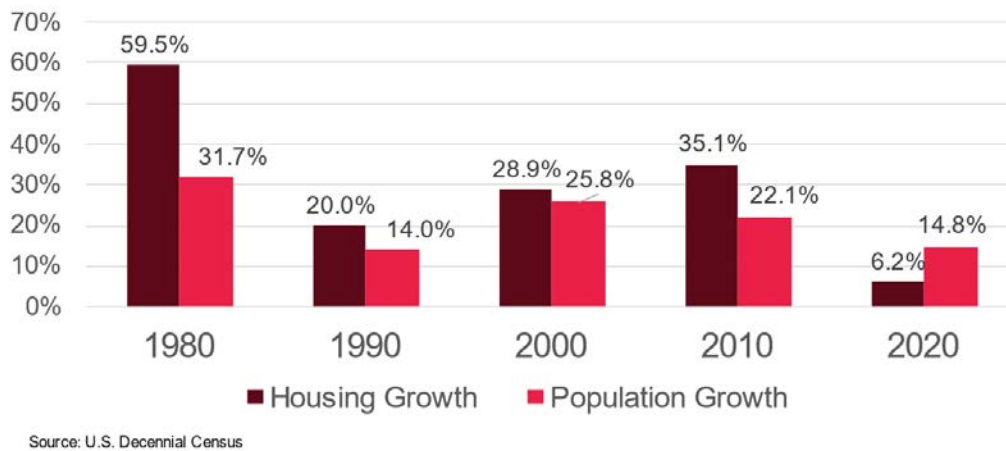
Figure 8 Housing Prices and Median Household Income, Flathead County, 1990-2021, Index (2000=100)



It is clear from the Figure that the housing prices grew considerably faster than median household income during the last decade. Thus affordability declined, especially in the last two years. There was also a rapid deterioration in affordability during the housing price boom that occurred leading up to the great recession period of 2008-11, when the collapse of housing prices in the financial panic of those years had the effect of improving affordability. Prior to the year 2000, Flathead County enjoyed a decade of housing price growth that unfolded at the same pace as income growth.

The tilting balance between demand and supply over this period helps to explain these outcomes. The last five decennial censuses, stretching back to 1980, reveal sizable changes in the pace of both population and housing growth in Flathead County, as shown in Figure 9. Changes in the Census counts of the housing stock from ten year-ago levels represent net new additions of all types of housing in the previous decade, including single family homes, multi-unit, and manufactured housing.

Figure 9 Housing Growth and Population Growth, Flathead County, 1980-2020, Percent



Perhaps the most striking feature of the growth in housing and population over this period has been its strength and durability. For four of the last five decades, housing growth exceeded population growth in the County, in some cases by a considerable margin. The exception is the most recent decade, where

population grew by almost 15 percent and the housing stock increased by only 6.2 percent. This disparity helps explain why strong demand pushed up prices faster than incomes for most of the period.

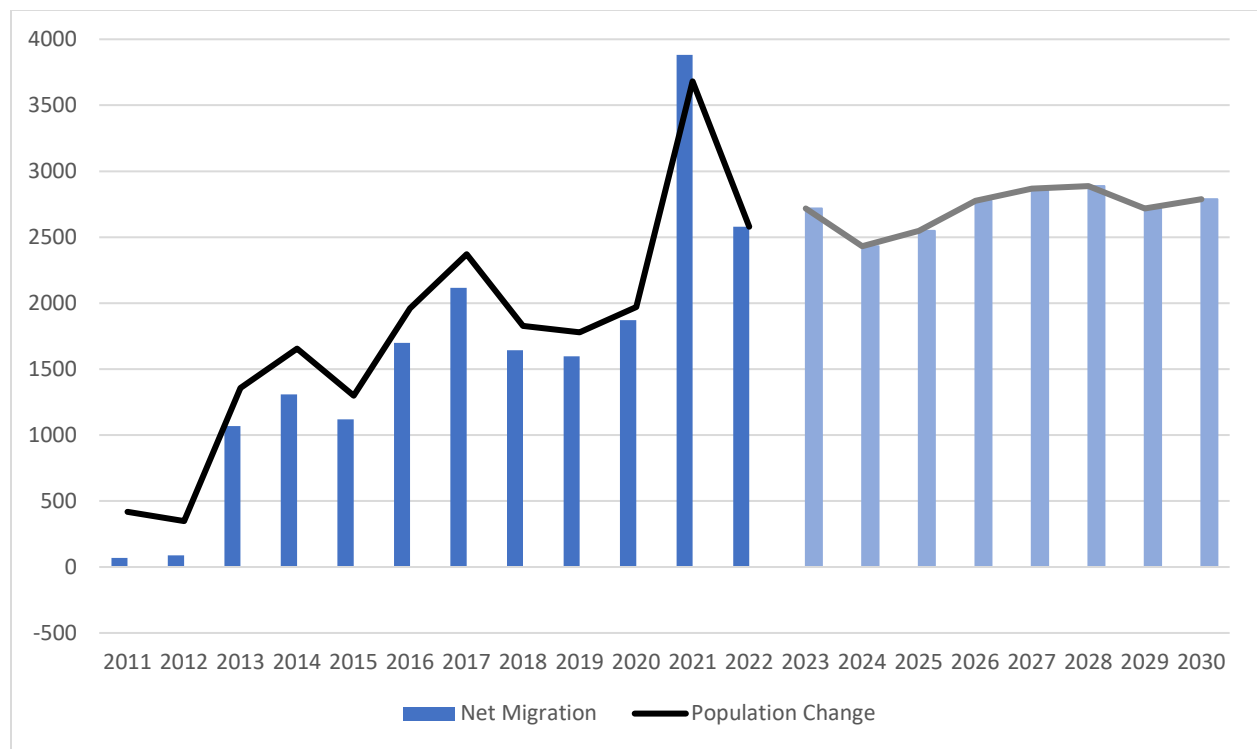
Projecting the Demand for Housing

There are three components to the demand for housing in any regional market:

- The demand that comes from the net creation or addition of households;
- The demand for second homes;
- The housing additions needed to support vacancy rates sufficient for markets to function.

Demand from all three of these sources promises to be of importance in the decade ahead. As can be seen from the detailed presentation of the housing demand forecast contained in the Appendix to this report, we have taken a conservative approach to the development of our forecast. For instance, despite the rapid growth of net migration to Flathead County during most of the last decade, we use a conservative projection that calls for migration to level off in the coming years, as shown in Figure 10.

Figure 10: Net Migration Forecast



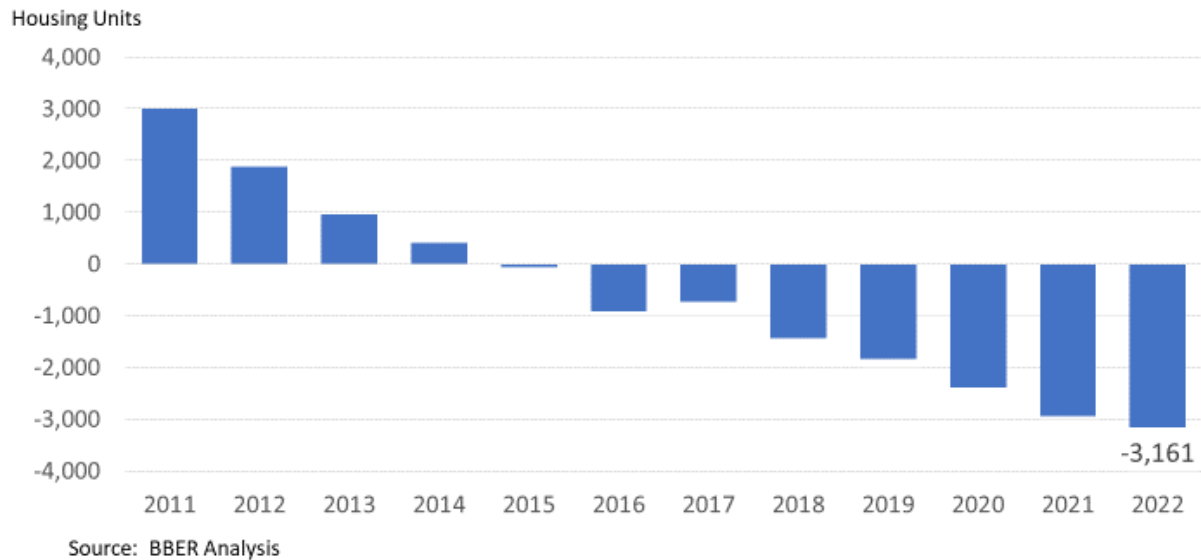
Sources: U.S. Census – Population and Housing Unit Estimates (PEP), Bureau of Business and Economic Research

The net movement of people into Flathead County forms the basis for new housing demand. As we detail in the Appendix, using data on household size and historical vacancy rates, we can estimate a target for new housing creation consistent with in-migration rates. It is possible to perform this calculation for recent history as well as the projection shown in Figure 10.

When one compares the target housing production for Flathead County to the actual number of units built in the last ten years, a stunning fact emerges: actual building has fallen well short of what was needed to

accommodate population and household growth. This is consistent with the imbalance between population and housing growth over the 2010's shown in Figure 9.

Figure 11 Estimated Surplus/Shortage of Housing Units, Flathead County, 2011-2022



The last decade began with a sizable surplus of housing units in the County, as shown in Figure 11. This was due to the strong building in the middle of the previous decade, and the collapse in demand that occurred in the housing price bust and financial panic of the Great Recession of 2007-09. As the decade progressed, the surplus was eroded. By the decade's midpoint, actual rates of building were no longer keeping up with the target rate for building to accommodate new demand. By 2022, the shortage of housing had cumulated to almost three year's production of housing, at 3,161 housing units of all types.

In practical terms, the size of this cumulative housing shortage has produced outcomes that are familiar to many Flathead County residents. The first is the rapid rise in housing prices and rents, as competition for existing units becomes more intense. There is also a dramatic decline in available vacancies and housing units for sale. Very thin inventories hurt the ability of markets to function, tending to perpetuate scarce housing as potential sellers looking to change their housing are dissuaded from listing their current properties, fearing the difficulty in finding new ones.

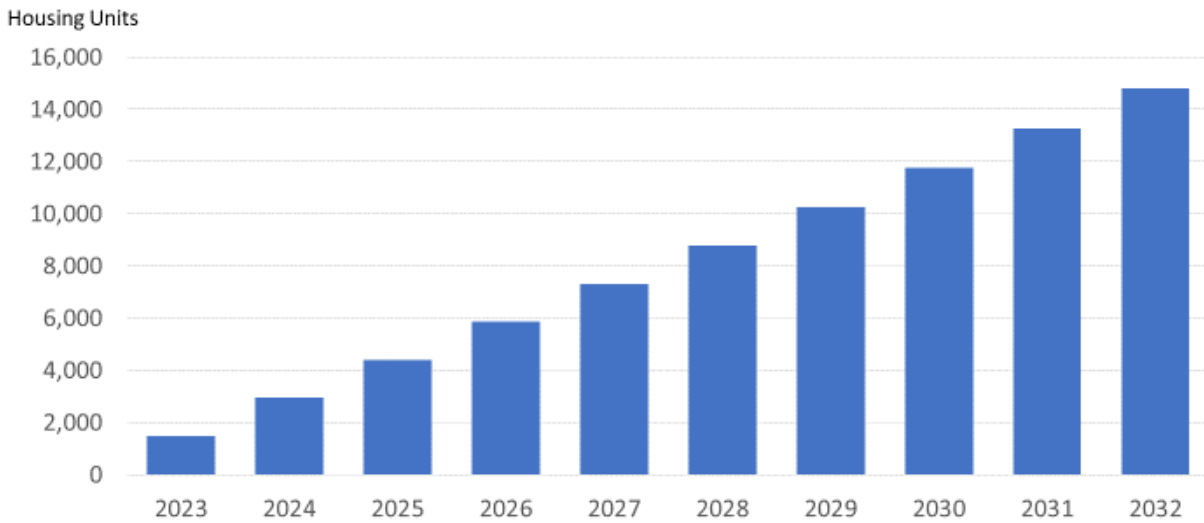
Finally, there is the creation of "missing households," defined as families or individuals who are forced by the lack of affordability or availability of housing to continue housing arrangements that are less desired. These range anywhere from living with parents or other extended family members or unrelated roommates, to inpermanent arrangements such as long distance commutes, motels, or sleeping in vehicles. Of course, these less desired housing arrangements are borne disproportionately by those with lower incomes.

Our forecast of housing production includes the target housing production needed to accommodate population growth, as well as the housing needed to redress the significant shortages that have been created by the underbuilding of the last decade. As detailed in the Appendix, we allow for a gradual rebalancing of the market over the coming 10 years, effectively spreading the building needed to address the current shortage over this longer period.

As shown in Figure 12, Flathead County needs to add almost 1,500 more housing units each year in the next ten years to accommodate what we consider to be a very conservative scenario for population growth

from new in-migration. Over a ten year period, the cumulative amount of new housing additions are estimated to be 14,800 for the County. The adequacy of any single development, or even groups of developments, to address the housing challenges faced in the coming years should be judged against this aggregate need.

Figure 12 Cumulative Projected Need for New Housing Units, Flathead County, 2023-2032



Source: BBER Projection

As a county-wide estimate, this rate of housing production needed to rebalance the current market and to accommodate future demand has implications for jurisdictions within Flathead County, including Columbia Falls. The three incorporated areas in the County – Kalispell, Whitefish, and Columbia Falls – have substantial economic and infrastructure interdependences that make housing outcomes in any one of them of significant relevance for the others.

Understanding the Dynamics of Housing Supply

Well before the acceleration in housing prices of 2020-21 that affected places like Flathead County all over the country, strong research support for the conclusion that the U.S. is underbuilding housing has been growing. A 2018 analysis by Freddie Mac concluded that 1.62 million units were needed each year nationally to satisfy new housing demand – with significantly more needed to achieve a market with healthy vacancy rates. A study by EcoNorthwest (2022) analyzed underbuilding in 2019 and concluded that the 3.8 million unit shortfall in construction affected nearly every city and region of the country. They also found that areas with more severe underproduction of housing had the fastest acceleration in housing prices.

The conclusion of these and other studies on housing supply is that substantial new supply is needed to bring the trajectories of prices and rents for housing back to earth. Yet this is not the conclusion of many of the players and advocates in local politics. Two nationally representative surveys of urban and suburban residents found that many residents associated increased development of housing with increasing prices and rents (Clayton, et. al, 2022). Survey responses suggested that only 30-40 percent of respondents thought that a 10 percent increase in the housing supply would lower prices and rents.

This disconnect points out another challenge for improving housing affordability, and that is to better understand the dynamics of housing markets. Since local advocates and residents hold enormous sway in the permitting, regulation, and planning of housing development, effective policies and actions to address accelerating prices cannot proceed without a better grasp of how the markets function.

There are at least three aspects of the functioning of housing markets that have often led observers astray in assigning causality to the price impacts of housing supply:

- **Simultaneity.** Development of new housing supply does not occur in a vacuum. The incentive to develop is strongest in markets that have growing demand, which in turn can cause more price growth – growth that is related to demand, not supply.
- **Interaction with building restrictions.** New housing that developers do manage to build in areas where it is difficult or expensive to build can expect to command high prices because of scarcity.
- **Ignoring interactions and filtering through housing price tiers.** There is ample evidence that adding market rate housing increases the supply of other types.

Simultaneity

The static, textbook depiction of supply and demand interacting to determine a market price has relevance for local housing markets, but only if it is interpreted in its intended way. The term *ceteris paribus* – all other things being equal – is the key concept in the operation of the demand-supply equilibrium of the economics textbook.

To apply this reasoning to the Flathead County housing market, we might say that if the demand for housing were fixed – no population growth, no new households created – and more housing were built, then we would have the same number of tenants bidding for a larger number of properties, hence the prediction of a falling price.

Because these *ceteris paribus* conditions do not exist in the actual market – that demand is in fact rising, and that other factors affecting price, such as construction costs – are changing as well does not negate the proposition that increases in supply are associated with declines in prices. The reality is that we observe new housing being built at the same time as prices in the market are rapidly rising. But to conclude that

construction is causing prices to rise is incorrect – because the latter is due to rising demand. If new development were to slow or stall, the growth in prices would be stronger.

This is especially important for housing markets, because the variability in demand is such an important consideration in investment decisions about where new supply is built. It is not surprising that investors are drawn to places with strong demand growth, and that growth is reflected in housing prices when supply cannot keep up with demand.

Interactions with Local Regulation

A second, important dynamic in local housing markets is the interaction between home building and places with restrictions on additions to housing supply. At its worst, this can set up a self-fulfilling cycle of price growth that is used to rationalize further restrictions.

Consider the following cycle of events:

Opposition to new development. There is resistance to new housing development in an area, which results in decisions or land use regulations that make it costly or impossible to build. The reasons can be anything from aesthetic concerns to self-interest on the part of existing homeowners.

Existing homes grow in value because new supply is restricted.

Population growth occurs, rents and prices rise rapidly as growing demand faces restricted supply. Builders want to build but are restricted.

Developers push through some new projects by building in adjacent areas with less political opposition, or by expending resources to gain approval.

Since supply remains tight relative to demand, newly constructed units fetch high prices, purchased or rented by richer people.

Advocates of poorer residents who cannot afford the new units see rents and prices high and conclude that the new building has driven up prices.

Political support for further restrictions on new construction grows, returning to the first stage of the cycle.

Some version of this cycle can explain why the notion that new construction causes higher prices is maintained by some, tending to perpetuate the circumstances that support more building restrictions and more price growth.

The Interdependency of Housing Market Price Tiers

New houses tend to be more expensive, for reasons that are easy to understand. Homes are physical assets that depreciate. New homes usually employ newer technologies. New homes also must comply with building codes and other regulations that older homes do not. And beyond these cost factors comes an important consideration from the other side of the transaction – new homes also have the features and characteristics that make people want to buy them. And so new homes tend to have attached garages, spacious closets, and multiple bathrooms.

In Flathead County, a typical new home might be represented by a single story, 3-bedroom, 1600 square foot home with attached garage. At current materials and labor costs, the price for such a home in a desirable location, including excavation, land, landscaping and all permits and fees would be approximately \$550,000. Assuming a 7 percent interest rate and a 20 percent down payment, a household would have to earn about \$100,000 to qualify for a conventional mortgage. With median household income for Flathead County estimated at \$63,582, there are clearly many households who could not

afford this typical home. (We note that using 2019 mortgage rates of 3.5 percent, the qualifying income falls to \$63,600).

Some would argue that building more homes at these market price points has no impact on affordability in a region, since the price of the new homes are out of reach for middle and low income households. In this view, only the construction of homes whose prices or rents fall into the range that more modest earning households can accommodate within their budgets can impact affordability.

Such a view fails to take into account the interactions between the different segments and tiers of a regional housing market. These interactions, which have received considerable research support, cause supply changes in different locations and price tiers to propagate through the overall market.

It is useful to explain the process conceptually to start. Consider the buyer of a market rate house who is a resident of Flathead County. Those who buy homes also sell them, or vacate the dwellings they previously rented, and the latter can often be older or smaller homes in different price tiers. Thus there is a supply effect beyond the price tier of the new home that is less affordable.

If the purchaser is a new arrival to the region, or the purchase is for a second home or even a vacation rental, the logic still holds. This is because the construction and the sale of the new home has displaced the removal from the marketplace an existing home that would have otherwise been purchased.

Economist Bryan Caplan describes the process of how new construction impacts all tiers of the marketplace, referred to as market filtering, using the metaphor of a game of musical chairs:

A normal game of musical chairs starts out with one chair per person, then subtracts a chair every turn. The result: Faster, aggressive kids push out everyone else, until the fastest, most aggressive kid wins. In my variant game, we start out with *fewer* chairs than people, then *add* a chair every turn. The result: Slower and more pacific kids start getting places to sit, until there are enough chairs for everyone (Caplan, 2021).

The empirical research on the topic is broadly supportive of the notion that construction of new housing in one price tier of the market has supply effects elsewhere, including:

A 2019 paper from the W.E. Upjohn Institute (Mast, 2019) used address changes to track movements within urban markets when new multifamily units were constructed. There was strong evidence of migration to and from low-income housing as a result, with models suggesting adjustments took place within five years.

A 2019 working paper from New York University (Li, 2019) examined the impact of new high-rises on nearby residential rents and sales in New York, estimating that for every 10 percent rise in the housing stock, nearby rents fell by 1 percent in the adjacent areas.

The Furman Center's 2018 paper on "Supply Skepticism: Housing Supply and Affordability" conducted a survey of research of housing filtering, finding that adding new homes moderates price increases and that filtering of housing sold by other owners accounted for a large fraction in the increased supply of modestly priced housing units (Vicki Been, 2018).

A 2018 paper from the Federal Reserve Board constructed a simulation model of housing filtering based on data from the 2014 American Community Survey (Kung, 2018). The model showed modest impacts of new construction on rents.

The research emphasizes the considerable variation in housing supply – according to age, location, amenities and access to services. All of these factors are of tremendous importance in determining the prices and rents that properties command.

Conclusion

Flathead County, home to the fourth largest population among Montana's 56 counties, faces a significant housing affordability challenge. Even before the rise in conventional mortgage rates that has occurred in the last twelve months, growth in home prices and rents has pushed beyond the limits of what median earning residents can accommodate. With strong economic drivers and good prospects for continued rapid growth, the challenge to reduce the price pressures on housing markets in the County is likely to become more intense in the coming years.

This report has examined the causes, consequences, and at least one possible solution to the price and availability pressures in the Flathead County housing market. Our principal findings are:

- The strong amenity-led economic growth in Flathead County can be expected to continue to exceed the state average in the coming years, supporting a level of net in-migration to the state at levels similar to what the County experienced in the last half of the previous decade.
- The 6.2 percent increase in the total number of housing units in Flathead County during the 2010's was less than half the percentage increase in the population, the first time in 40 years that housing growth measured between decennial census years failed to outpace population growth.
- A surplus of housing that existed just after the Great Recession period of 2007-09 was erased by weak building and stronger demand in subsequent years. Since 2015, housing construction has fallen short of what is needed to accommodate population growth and to support vacancy rates that allow the market to function. We estimate that the housing deficit for Flathead County in 2022 stood at 3,161 units, or almost three years worth of building at current rates.
- Housing prices were already growing faster than median income before the surge in demand over the pandemic period of 2020-21 increased the trajectory of prices dramatically. The median earning household in Flathead County only has 50 percent of the income required to qualify for a mortgage on the median-priced home.
- Based on conservative assumptions about future population growth, we project that Flathead County needs to build almost 1,500 new housing units per year for the next 10 years – a cumulative total of just less than 15,000 units – to address current shortages and to accommodate future growth.
- Skepticism that new building can meaningfully impact price growth promises to make shortages more acute – observed price increases accompanying new construction are largely due to increased demand and the impact of building restrictions.
- There is ample evidence to demonstrate that housing markets across price tiers are interdependent, with newly constructed housing priced at or above market rates producing supply and price impacts across other price tiers.

It is important to point out that while this report addresses housing, what is really at stake is the welfare the people who depend on adequate, affordable, and safe housing for shelter, security, and basic needs. The low rates of homebuilding of the last 10 years, coupled with the strong attraction of Flathead County

to new companies, workers and residents has produced an unfortunate and painful increase in the cost of housing that has placed increased pressure on many who are least able to bear it. Addressing the shortage of housing in the state's fourth largest county should be a priority of all of the decision-making entities within the County if the unfortunate trends that have pushed adequate housing beyond the means of many households are to be meaningfully changed.

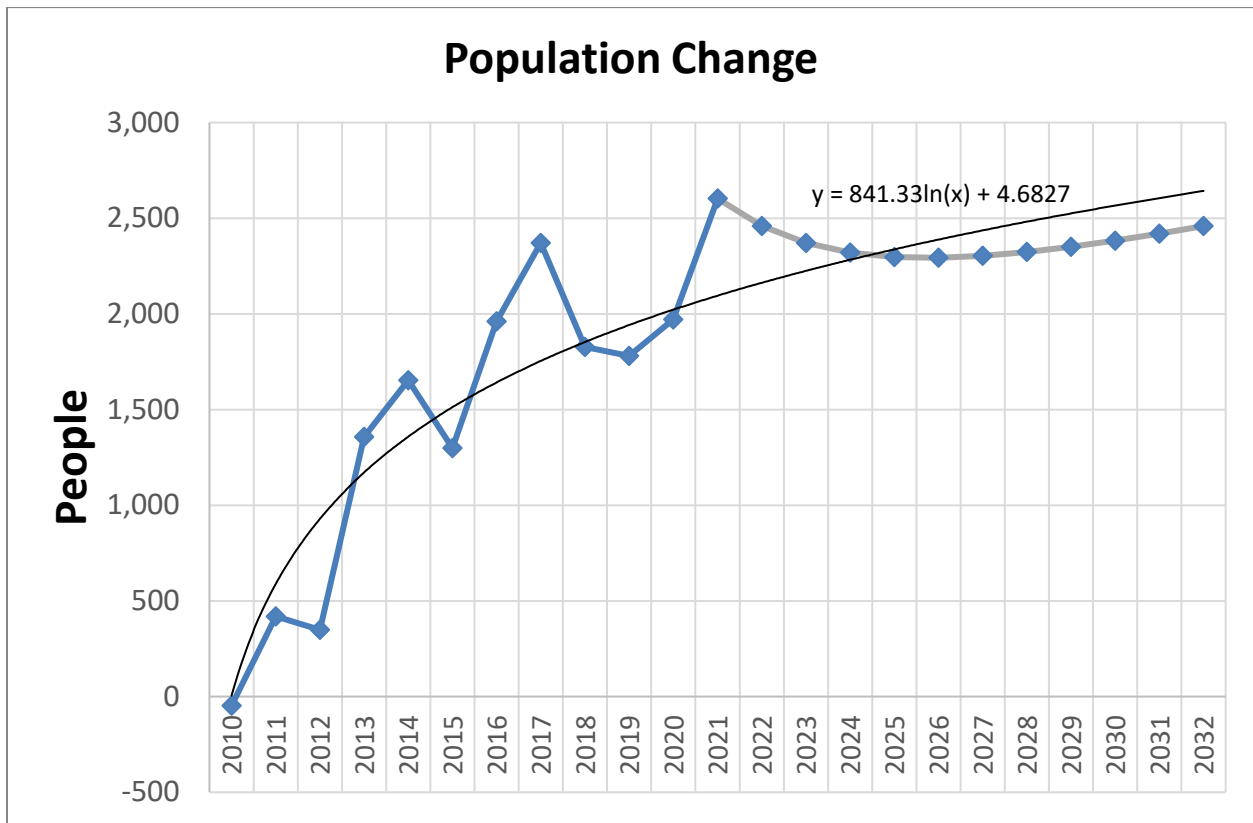
Appendix

Forecast of Housing Demand

To estimate the demand for housing, we must first assess the number of people who currently and will either move or be born in the county. For this, we must rely on U.S. Census's American Community Survey (ACS) and make projections of that population over the next couple of years. For consistency between estimates, all data used in this forecast is based on ACS 1-yr estimates. We use a methodology similar to the one used by Freddie Mac to assess the housing demand (Khater, 2021).

Population Projection

Figure A- 1: Observed and Projected Population Change, 2010-2032



Population Households and Group Quarters

Not all people living in a county are in households or live in housing units as defined by the U.S. Census Bureau therefore we must take out the portion of households who live in group quarters. Group quarters are defined as “places where people live or stay in a group living arrangement that is owned or managed by an organization providing housing and/or services for the residents.” These include living arrangements such as student housing and nursing homes.

pct_{hh} = percent persons in households

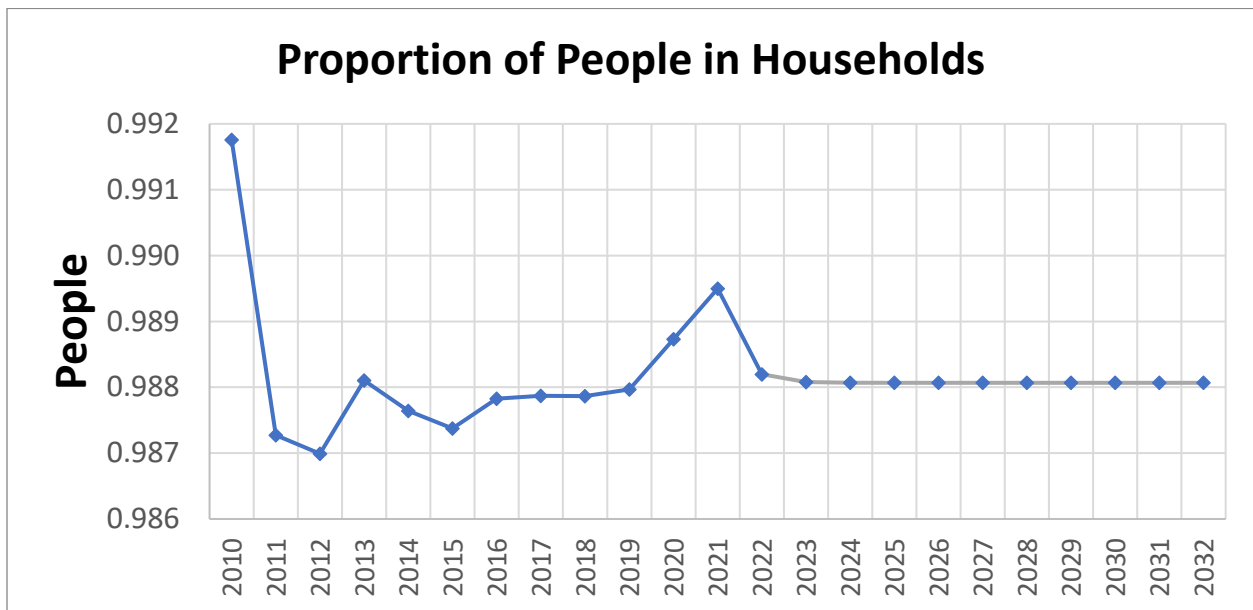
$$pct_{hh} = \frac{\text{Population in households}}{\text{Population}}$$

Since 2010, the estimate for the percentage of the population in households has varied slightly. All observations for housing demand from 2010 to 2022 use observations of the population in households not the total population. However, to project the housing demand going forward we must assume that this remains constant as shown in Figure A-1.

$$pop_{hh} = population \text{ in households}$$

$$pop_{hh} = population * pct_{hh}$$

Figure A- 2: Observed and Assumed Constant Proportion of Population in Households by year, 2010 - 2032



Household Formation

An individual or group of people who occupy a single housing unit is considered a household. These include a variety of living arrangements from family households, people living alone, and non-family households, such as three unrelated people sharing the expense of a three-bedroom home.

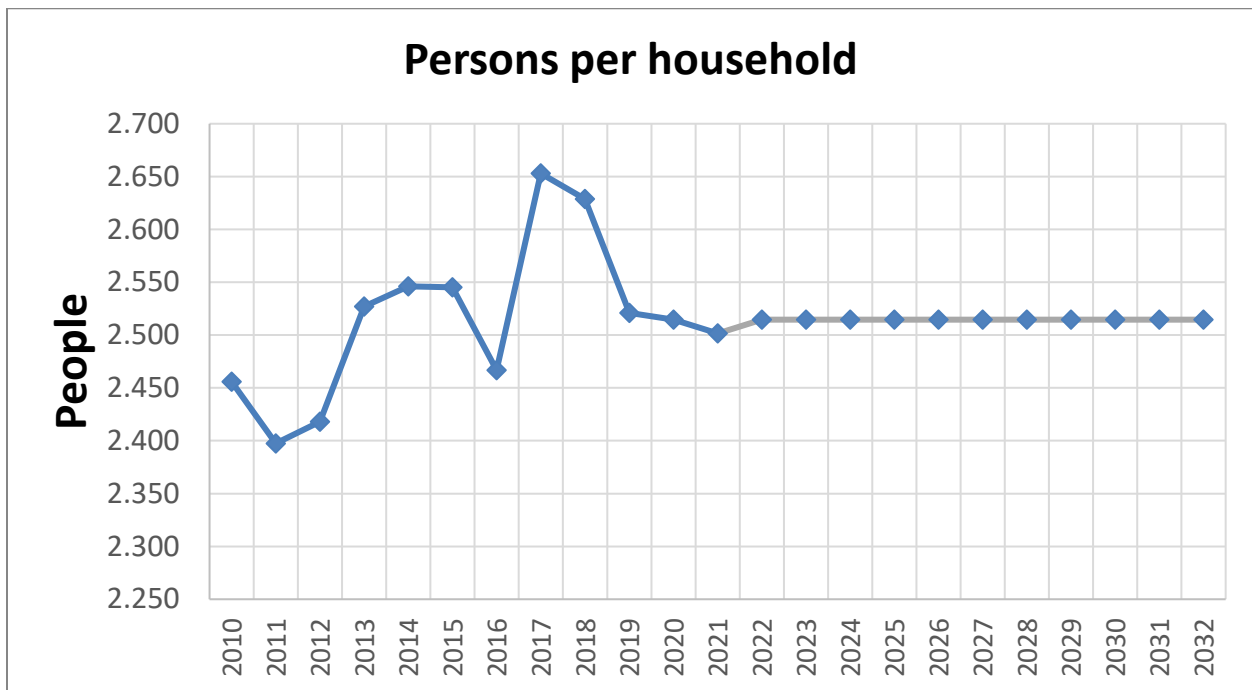
$$hh = \text{households} = \text{family} + \text{nonfamily households} \approx \text{occupied housing units}$$

The number of households changes primarily through natural change, births and deaths, or migration, but another way a household is formed is the division of one household into multiple households. Therefore, some demand for housing exists *within* households, such as an adult who lives in their parent’s home or a person who would prefer not to share a housing unit. The demand to form households is a function of people’s preferences (marriage decisions, fertility, etc.) and the cost of those preferences. In areas with high housing costs, this results in many “missing households,” households that choose to remain in their current home for cost reasons rather than their preferred living arrangement.

To estimate the total demand for housing, we must assume some household formation rate that aligns with the population's preferences and is not driven by the cost of housing. We assume a “constant headship rate” as the average from 2010 to 2021—below what it’s been since 2012, shown in Figure A-2. Therefore, we account for some missing households due to rising housing costs.

$$h^* = \text{constant headship rate} = \frac{1}{\text{persons per household}} = \frac{1}{2.515} \approx 39.7 \% \text{ or } 2.515 \text{ per household} .$$

Figure A- 3: Observed and Assumed Constant Number of People per Household by year, 2010 - 2032



We can calculate the total household demand for a county's existing and future full-time residents from a constant headship rate. This estimate attempts to capture the rate of household formation preferred by the population absent cost considerations. The sum of the current and missing households is the demand for housing.

$$hh^* = \text{housing demand} = \text{current households} + \text{missing households}$$

$$hh^* = \text{housing demand} = pop_{hh} * h_{actual} + pop_{hh}(h^* - h_{actual})$$

or,

$$hh^* = \text{housing demand} = pop_{hh} * h^*$$

Vacancy Rates

For a housing market to function well, a balance has to be struck between the number of units vacant and the number of units occupied. The vacancy rate measures this balance as simply the number of units vacant at a time and place divided by the total units at the same time and place.

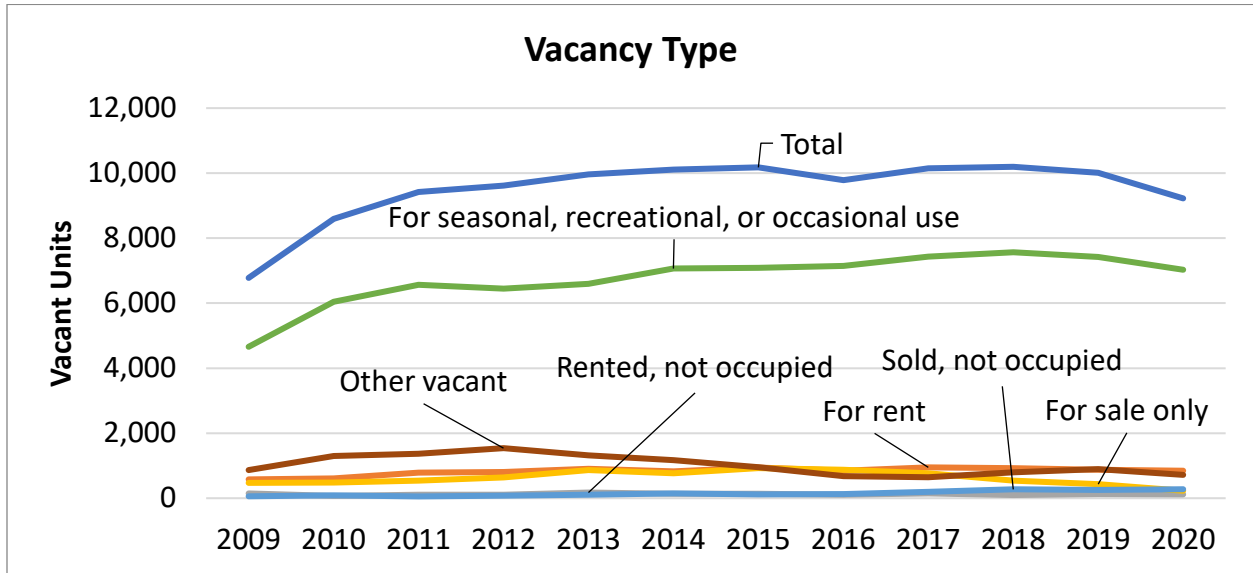
$$v = \text{vacancy rate} = \frac{\text{vacant units}}{\text{total units}}$$

Vacant units can be left unoccupied for several reasons; the following lists the categories of vacant units by the reason they are vacant.

$$\begin{aligned} \text{vacant units} = & \text{for rent} + \text{rented, not occupied} + \text{for sale only} + \text{Sold, not occupied} \\ & + \text{for seasonal, recreational, or occasional use} + \text{for migrant workers} \\ & + \text{other vacant} \end{aligned}$$

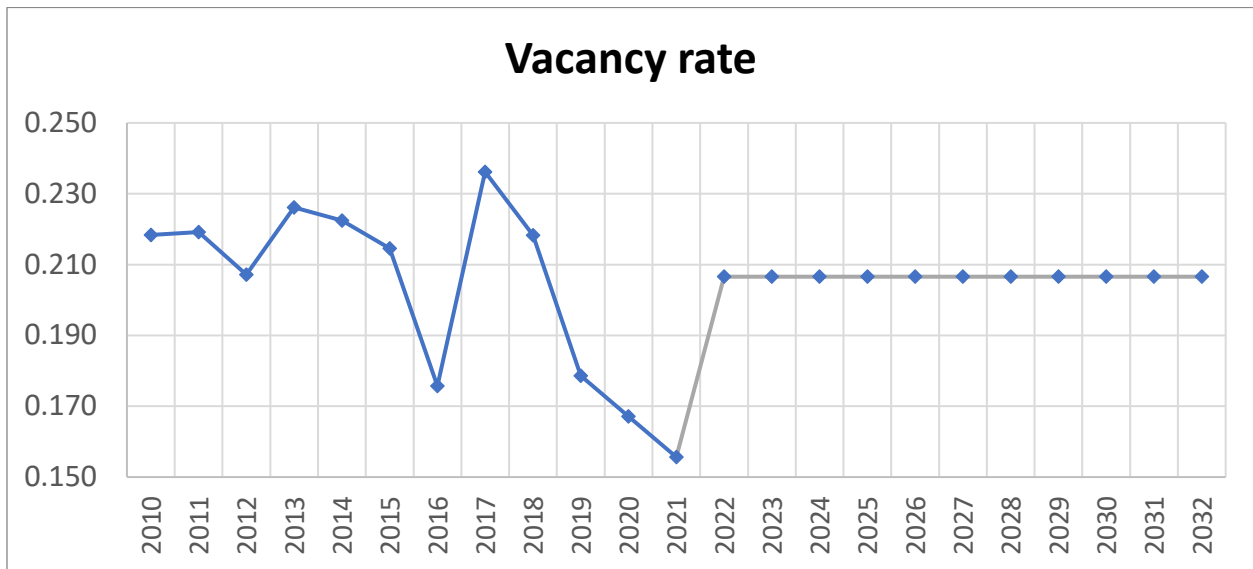
The presence of tourism destinations such as Flathead Lake, Whitefish Ski Resort, and nearby Glacier National Park results in a relatively high vacancy rate, primarily in the form of vacation rentals or second vacation homes. These units remain vacant but are otherwise unavailable to residents to occupy. Therefore, to assess the amount of housing stock needed in the area, we must consider the relatively high vacancy rates required in this market, shown in Figure A-4.

Figure A- 4: Vacant Units by Type and Year, 2009 to 2020.



As seen in Figure A-5, vacancy rates have been trending downward over the past few years, meaning that the number of units available in the rental and sales markets is decreasing relative to the housing stock. The housing stock must increase enough to offset both the vacation/ second homes demand and the vacancy needed for a stable housing market.

Figure A- 5: Observed and Assumed Constant Vacancy Rate



We assume the historical average vacancy rate from 2010 to 2021 as this encompasses some of the decline and increase in housing prices and vacant vacation rentals or second homes needed in this market.

$$v^* = \text{target vacancy rate} \approx 20.7 \%$$

Target Housing Stock

Target Housing Units

To estimate the number of units needed in a market, we calculate a “target housing stock” that incorporates the missing households from rising housing costs and the amount of vacancy necessary for a balanced housing market. We estimate the total housing demand or target housing units needed to keep vacancy rates and household formation constant with the following equation.

$$k^* = \text{target housing stock} \approx \text{total market demand}$$

$$k^* = \frac{\text{pop}_{hh} * h^*}{1 - v^*}$$

Where,

$$\begin{aligned} \text{pop}_{hh} &= \text{population in households} \\ h^* &= \frac{1}{hh_{size}} = \text{target headship rate} \approx 39.8\% \\ v^* &= \text{target vacancy rate} \approx 20.7\% \end{aligned}$$

Shortage or Surplus of Housing Units

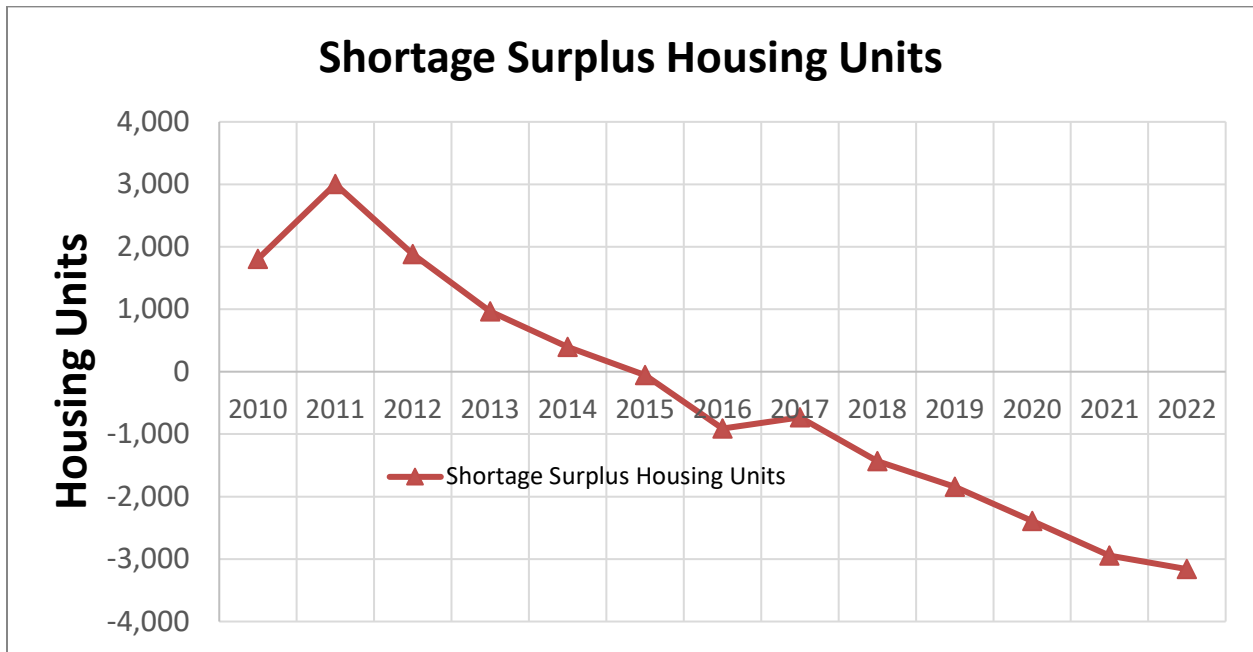
To estimate the current shortage of housing units, we subtract the actual housing stock each year from the target housing stock. If the existing housing stock is greater than the target housing stock, we have a surplus of housing units holding vacancy rates and household formation constant. However, if the target housing stock exceeds the actual housing stock, this estimate becomes a shortage, given vacancy rates and household formation should not change.

$$\text{Surplus Shortage} = k_{actual} - k^*$$

$$k_{actual} = \text{total housing stock}$$

Figure A-5 shows Flathead County was estimated to have a surplus of units throughout the recovery from the Great Recession between 2010 and 2013. The estimated surplus corresponds to a period when prices were not increasing substantially. However, despite overall increases in housing stock, the surplus continued to decline, becoming an increasing shortage since 2017. In 2022 we estimated a total market shortage of -3,161 units, the last point in Figure A-6.

Figure A- 6: Shortage or Surplus of Housing Units by Year

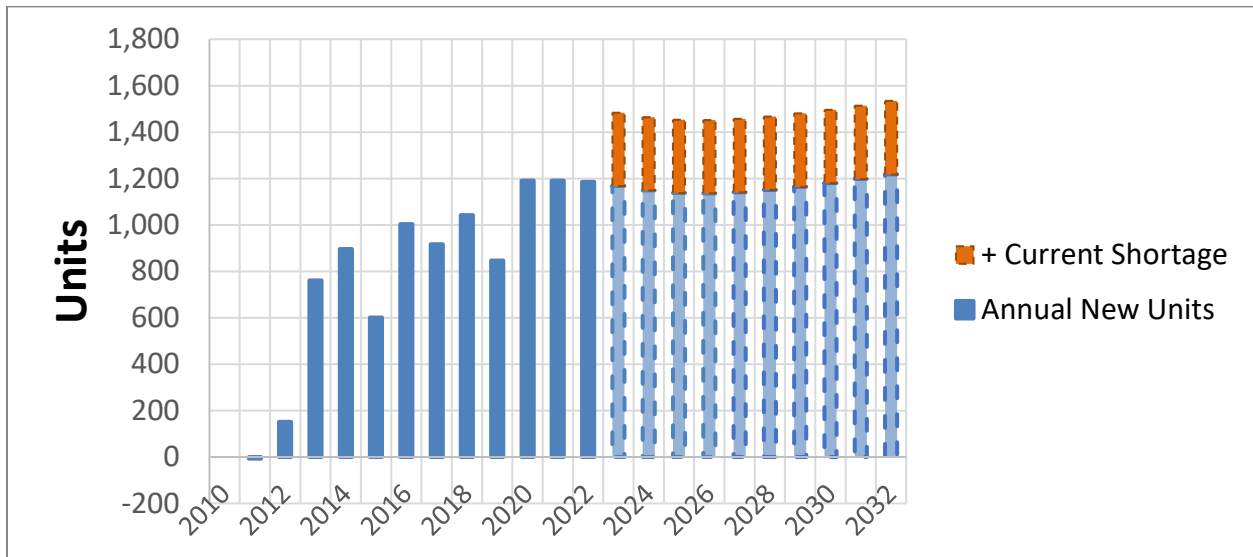


Expected Housing Demand 2023-2032

On top of the current estimated shortage, we also have the expected continuation of population growth in Flathead County. Based on our projection population is likely to return to longer-term trends instead of the potential outlier that was the COVID-19-related migration in 2021. COVID-19 migration is the phenomenon observed in which many areas of the country with small cities saw large numbers of residents from densely populated cities move into their communities. So far, population data suggests that the net migration for high-growth states such as Montana and Idaho in 2021 did not see as high of growth in 2022.

Figure A-6 shows the annual housing need for Flathead County to keep up with expected future demand but also the demand that currently exists from residents in the county. The figure below depicts the annual new housing stock required based on the assumptions discussed in this section.

Figure A- 7: Annual New Unit Demand, Actual and Projected, 2010-2032



We estimate a cumulative new housing demand over the next ten years to be about 14,803 units to keep housing costs, vacancy rates, and household formation stable over the coming decade. We also assume that the current shortage in Flathead County requires additional demand across the next ten years.

Figure A- 8: Shortage of Units, New Unit Demand, and Total Unit Demand, 2012-2032

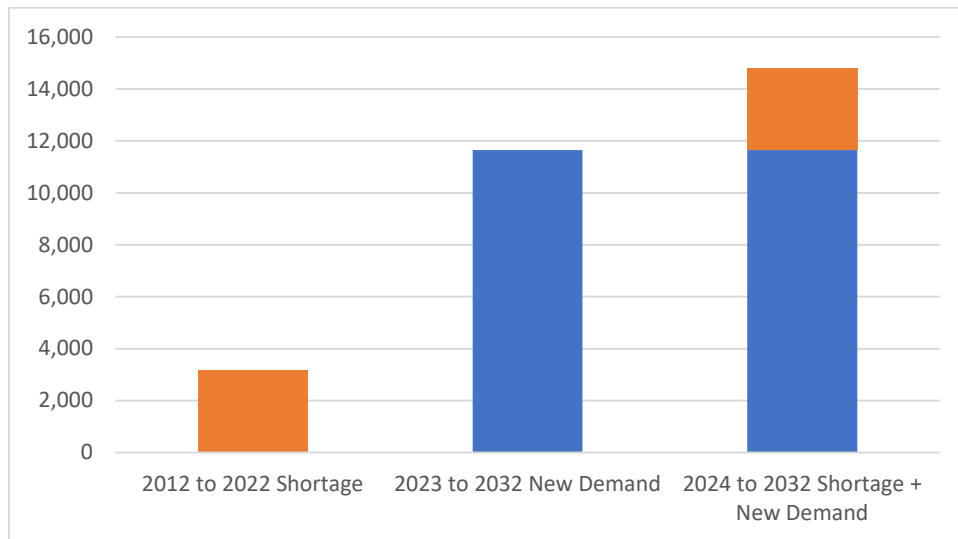


Table A- 1: Shortage of Units, New Unit Demand, and Total Unit Demand, 2012-2032

	<i>Unit Need</i>
<i>2012 to 2022 Shortage</i>	3,161
<i>2023 to 2032 New Demand</i>	11,642
<i>2023 to 2032 Shortage + New Demand</i>	14,803

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