



HOUSING FOR MIDDLE-INCOME HOUSEHOLDS

AN ECONOMIC ANALYSIS OF MISSING-MIDDLE HOUSING
City of Elk Grove

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1. INTRODUCTION



The City of Elk Grove is preparing to update the Housing Element of the City’s General Plan. As part of this process, the concern has arisen as to how well the market provides housing for middle-income households. This report provides an economic analysis of missing middle housing. The report includes an overview of trends influencing housing demand, a description of the market of middle-income households in the region, an analysis of the development feasibility of missing-middle housing products, and recommendations for how the City can promote new housing for middle-income households.

WHAT IS MISSING MIDDLE HOUSING

As discussed in this report, there are two distinct but related facets of the market for missing middle housing: the product-type component of the housing market and the economic component.

MISSING-MIDDLE HOUSING PRODUCTS

The term “missing-middle housing” was originated in 2010 by Opticos Design, of Berkeley, CA. On their missing-middle website,¹ they provide a simple definition for missing-middle housing, “House-scale buildings with multiple units in walkable neighborhoods.”

As they further describe, this type of housing covers the gap between single-family detached housing and mid- to high-rise multifamily apartments and condos. It includes duplexes and other multiplexes, courtyard apartments, bungalow courts, townhouses, and small apartment buildings.

¹ <https://missingmiddlehousing.com>

Since 2010, much has been written about missing-middle product types, urban design considerations, and form-based codes. This report builds on previous work rather than re-presenting it. Instead, this report provides an economic analysis of housing for middle-income households specific to market conditions in Elk Grove.

MIDDLE-INCOME HOUSEHOLDS

The other component of the missing middle is middle-income households. There is no set definition for middle income. One way to think about the levels of income in the middle is to consider the income distribution in quintiles—five equal groups, each containing 20 percent of the households in income order. Table 1 provides the income ranges for each quintile for households in Sacramento County.

Table 1: Household Income Range by Quintiles; Sacramento County; 2017

Quintile	Income Range
1	Up to \$26,549
2	\$26,550 to \$50,845
3	\$50,846 to \$80,084
4	\$80,085 to \$125,387
5	\$125,388 and above

Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

One could choose to define the middle income as just the middle, i.e., the third quintile. Equally valid would be a definition that includes the second, third, and fourth quintiles. Another way to approach the issue is to consider the income necessary to afford to buy or rent housing in the region. Table 2 summarizes the data for renting and purchasing housing. Table A-2, Table A-3, and Table A-4 in the appendix provide detailed data.

For both purchases and renting, the minimum annual household income to afford housing in the region is almost \$41,000 to rent (slightly less to purchase multifamily housing, if the household has \$29,000 for a conventional down payment. In 2017 (the year represented by the data in Table 2), the region’s median household income was about \$63,000. Most affordable housing support programs require incomes less than 80 percent of the area median income, which would have been \$50,400. Thus, if the lower income limit is set at \$41,000, the analysis will include some households that might be eligible for affordable housing programs. Furthermore, the Affordable Housing Fee Nexus Study found that new housing development projects that receive low-income housing tax credits still need additional subsidy even to accommodate households with incomes at 80 percent of the median.

At the other end, an annual household income of \$86,000 is necessary to qualify to purchase the average single-family detached house in Sacramento County, assuming the household can afford a 20 percent down payment. However, if the household cannot afford a 20 percent down payment and uses an FHA-insured loan with a 5 percent down payment, the minimum qualifying household income increases to \$108,000.

Table 2: Qualifying Annual Household Income to Rent or Purchase Housing by Housing Type; Sacramento County, 2017

	Single-Family Detached Housing	Single-Family Attached Housing	Multifamily Housing
Rented Housing			
Gross Monthly Rent	1,549	1,242	1,019
Minimum Annual Income	61,946	49,677	40,757
Owner-Occupied Housing			
Estimated Purchase Price	384,370	216,903	146,400
Conventional Mortgage			
Down Payment (20%)	76,874	43,381	29,280
Monthly Housing Costs	2,148	1,567	947
Minimum Annual Income	85,915	62,694	37,896
FHA-Insured Mortgage			
Down Payment (5%)	19,218	10,845	7,320
Monthly Housing Cost	2,712	1,885	1,162
Minimum Annual Income	108,462	75,417	46,484

Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

For the purposes of this report, middle income is defined as an annual household income between \$41,000 and \$108,000 in 2017. Adjusted for inflation, middle income in 2019 is household income between \$43,000 and \$113,000.

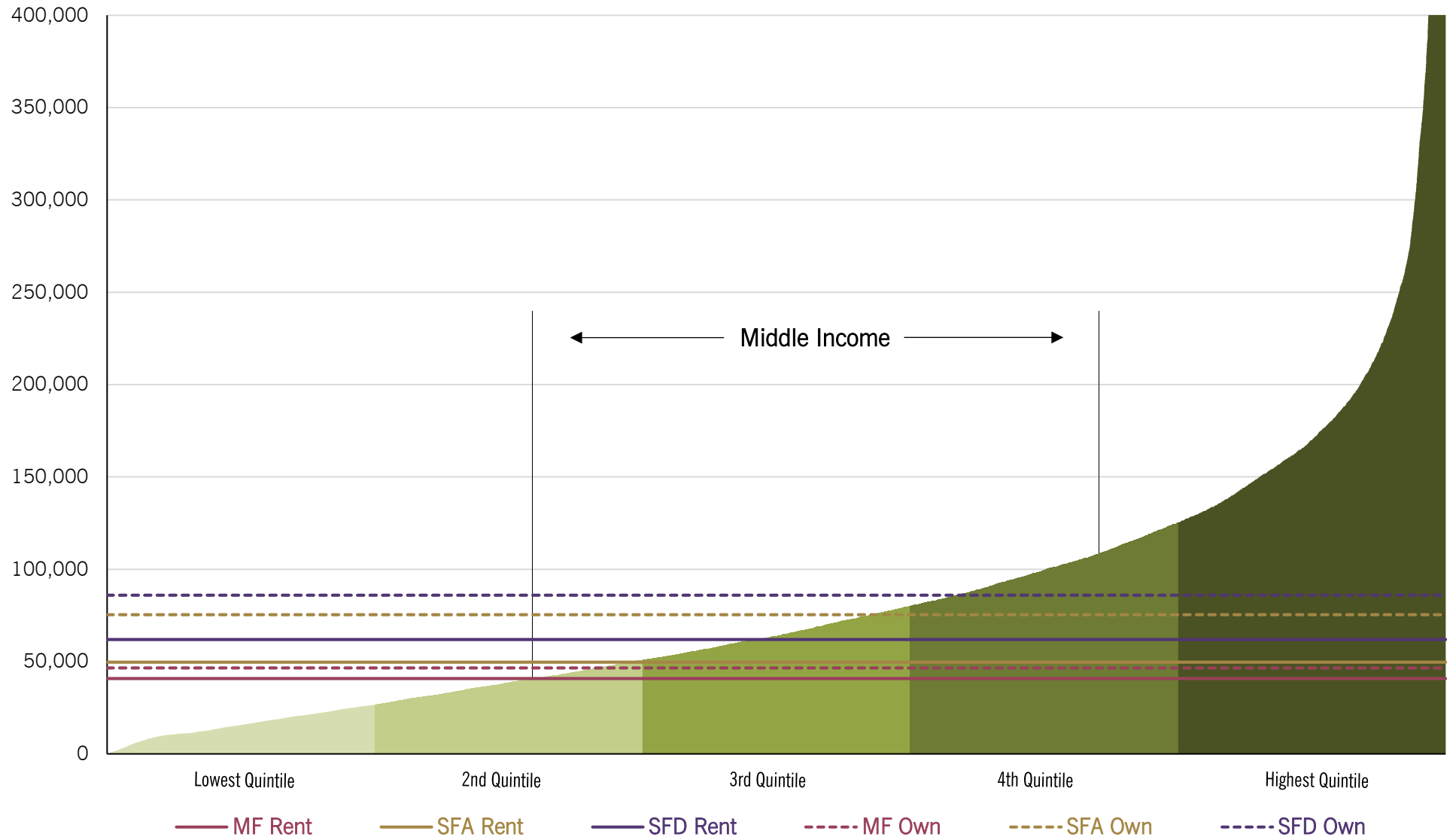
Figure 1 on the opposite page provides a histogram of annual household income for Sacramento County households in 2017, broken down by quintiles. The solid horizontal lines show the annual household income at which the 2017 median gross rents paid were affordable, from Table 2. The median multifamily housing gross rent paid in 2017 would have been affordable to 68 percent of household; nearly a third of households could not afford the median rent. The dashed horizontal lines show the annual household income at which the purchase of the 2017 median value existing home would be affordable, from Table 2. A minority of households, 37 percent, could afford to purchase the median value single-family detached house with a conventional mortgage.

The vertical lines in Figure 1 show the range of incomes that are included in the definition of middle-income, which includes 42.4 percent of all households. Of the remaining household, 31.7 percent have incomes lower than middle income and 25.9 percent have incomes above.

MIDDLE INCOME

For the purposes of this report, middle income is defined as an annual household income between \$43,000 and \$113,000, in 2019 dollars.

Figure 1: Household Income by Quintile, Range of Middle Income, and Minimum Annual Household Income to Afford to Rent and Purchase Existing Housing by Type of Housing; Sacramento County; 2017



Source: PlaceWorks, 2019, using data from the US Census Bureau's 2017 American Community Survey 5-Year Estimates, Public Use Microdata Set.

Table 3: Percentage of Households with Minimum Annual Income to Afford Existing Housing, by Housing Type and Tenure; Sacramento County, 2017.

	Minimum Annual Household Income for Affordable Housing Cost	Percentage of Households with Minimum Income or Above
Existing Rental Housing		
Multifamily	40,757	68.3%
Single-family Attached	49,677	61.1%
Single-family Detached	61,946	51.4%
Existing Owner-Occupied Housing		
Multifamily	46,484	63.5%
Single-family Attached	75,417	42.8%
Single-family Detached (Conventional Loan)	85,915	36.6%
Single-family Detached (FHA Loan)	108,462	25.9%

Source: PlaceWorks, 2019, using data from the 2017 American Community Survey 5-Year Estimates, Public Use Microdata Set.

Note: Minimum annual household income data were previously presented in Table 3. The percentage of households at or above the minimum income is based on all households reporting household income in the referenced data source.

REPORT ORGANIZATION

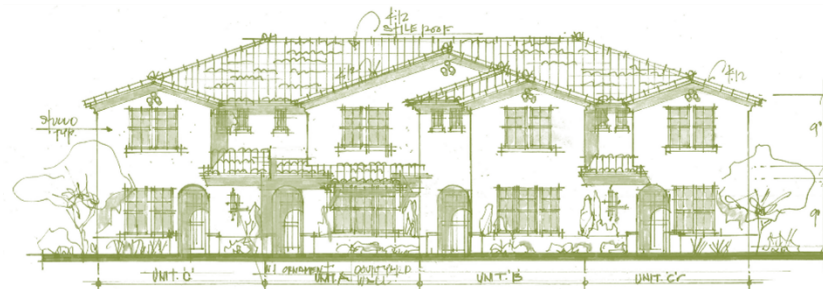
Chapter 2 summarizes national trends in households, housing, and incomes and housing costs. It looks at how the types, sizes, and incomes of households has changed over the past five decades and how the size and cost of housing that has been produced has not kept pace with household changes.

Chapter 3 describes the characteristics of middle-income households in Sacramento County. Even though the report focuses on Elk Grove, changes in middle-income households at the regional level drive the demand for missing-middle housing that Elk Grove may attract.

Chapter 4 provides an analysis of the financial feasibility of developing missing-middle housing types in Elk Grove and identifies factors that may limit the development of missing-middle housing.

Finally, Chapter 5 summarizes the report’s findings and provides recommendations for how the City could facilitate the development of more housing that is affordable to middle-income households. The intent of this report is to foster community discussion of the value of missing-middle housing and what the City can do to ensure that housing affordable to middle-income households is built.

2. NATIONAL HOUSING TRENDS



To understand the potential market demand for missing-middle housing requires an understanding of long-term demographic changes, because the total demand for housing—existing housing and new housing when demand is greater than existing housing—is driven by the total number of households that want to live in a region. It also requires an understanding of housing preferences and housing affordability.

LONG-TERM DEMOGRAPHIC TRENDS

GENERATIONAL DYNAMICS

One can regularly come across headlines and articles discussing differences among the generations, especially Baby Boomers and Millennials but also Gen-X and Gen Z. While there may or may not be factual foundations for such discussions, there are very real differences in the numbers of people (and the resulting potential for households) among these generations.

Figure 2 shows the number of live births and the fertility rate (the number of live births per woman age 15 to 45) in the US for each year from 1909 to 2018. It also shows descriptive labels for the four most recent generations. With the exception of the Baby Boom, there are no hard and fast demarcations for when one generation ends and another begins. In general, though, demographers often use five-year increments to enable analysis using Census Bureau data.

Prior to World War II, the US experienced a long, steady decline in the fertility rate. After World War II, the number of births in the US increased substantially above its long-term norm, peaked around 1957, and showed a sharp decline from 1964 to 1965.² The Baby Boom is the label used to refer to people born from 1945 to 1964.

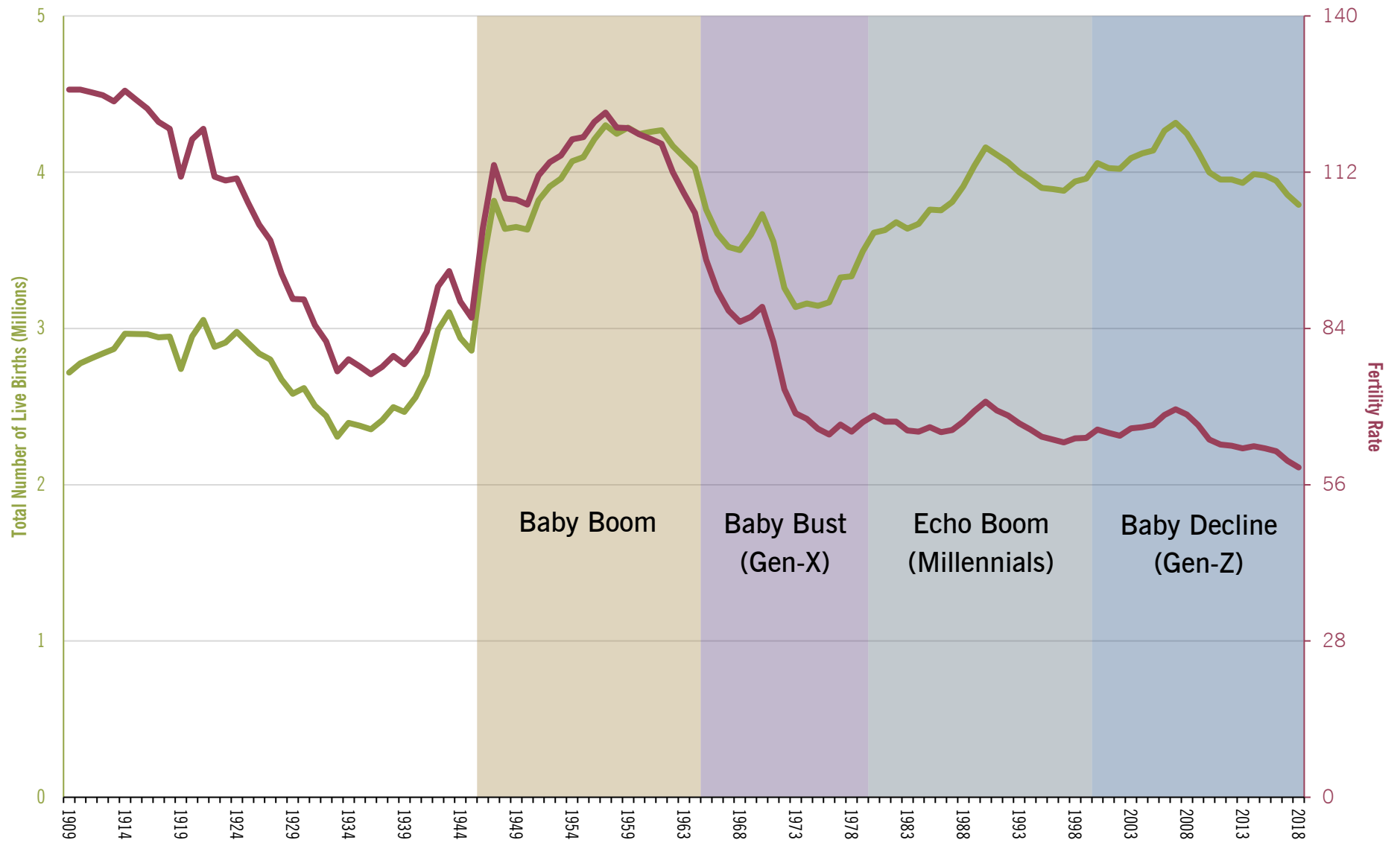
The number of births declined through 1975, and the fertility rate declined through 1976. Starting in 1979, the number of births and the fertility rate began to climb once again as the Baby Boomers began forming families. The label “Gen-X” has generally been applied to those born from 1965 through 1979, but the label “Baby Bust” is more descriptive for the demographic change during this period.

The fertility rate remained relatively stable until 2007, but with the large number of women in the Baby Boom generation, the number of live births steadily increased through 2007. From a record high of 4,316,233 in 2007, the number of live births in the US has declined. The number in 2018, 3,791,712 live births, was about the same as in 1950, 1965 (the beginning of the baby bust), and 1987. The fertility rate reached a postwar high of 122.7 live births per 1,000 women age 15 to 45 in 1956, reached a record low of 63.2 in 2011, and has continued to decline since then, reaching 59.1 in 2017. It is not known whether the declines in total number of live births

² The decline is largely attributable to the introduction of the birth control pill. The FDA approved the pill to regulate menstruation in 1957, the year in which the fertility rate reached its highest level since 1916. In 1960 the FDA approved its use as an

oral contraceptive. In 1965, the US Supreme Court effectively ended state and local laws limiting the use of the birth control pill by married couples.

Figure 2: Number of Live Births, Fertility Rates, and Generational Labels; United States; 2009 to 2018



Source: PlaceWorks, 2019, using data from the US Centers for Disease Control, National Vital Statistics System.

and the fertility rate are a lingering effect of the 2008–09 recession or if they represent a new, longer-term trend. After all, as the data in the chart show, the fertility rate has varied up and down but remained relatively range bound from 1975 to 2010.

Relative to the demographic changes taking place, the Echo Boom generation that began with births in 1980 could be said to continue through 2007. However, for simplicity’s sake, this generation has generally been considered to end with births in 1999, thus earning it the label, “Millennials.”

Finally, those born since 2000 represent a new generation, but no term is commonly ascribed to this group, so, for now, they are commonly referred to as “Gen-Z.” However, as a demographic cohort, it appears that they may well represent a new demographic change, a “Baby Decline.”

One final demographic measure is total fertility rate, which is not shown in the chart. This measure is the expected number of lifetime births per 1,000 women given current birth rates by age. A total fertility rate of 2,100.0 births per 1,000 women is considered necessary to replace a population over time. The US total fertility rate in 2018 was 1,729.5 (and 1,632.0 in California). With the exception of 2007, the US total fertility rate has not exceeded 2,100 since 1971. Were it not for immigration, the US population would be declining over time.

HOUSEHOLD CHANGES

With the fertility rate leveling off in the early 1970s and the oldest Baby Boomers moving out of their parents’ houses, the ways in which Americans live together in households began a decades-long transition. Figure 3 shows

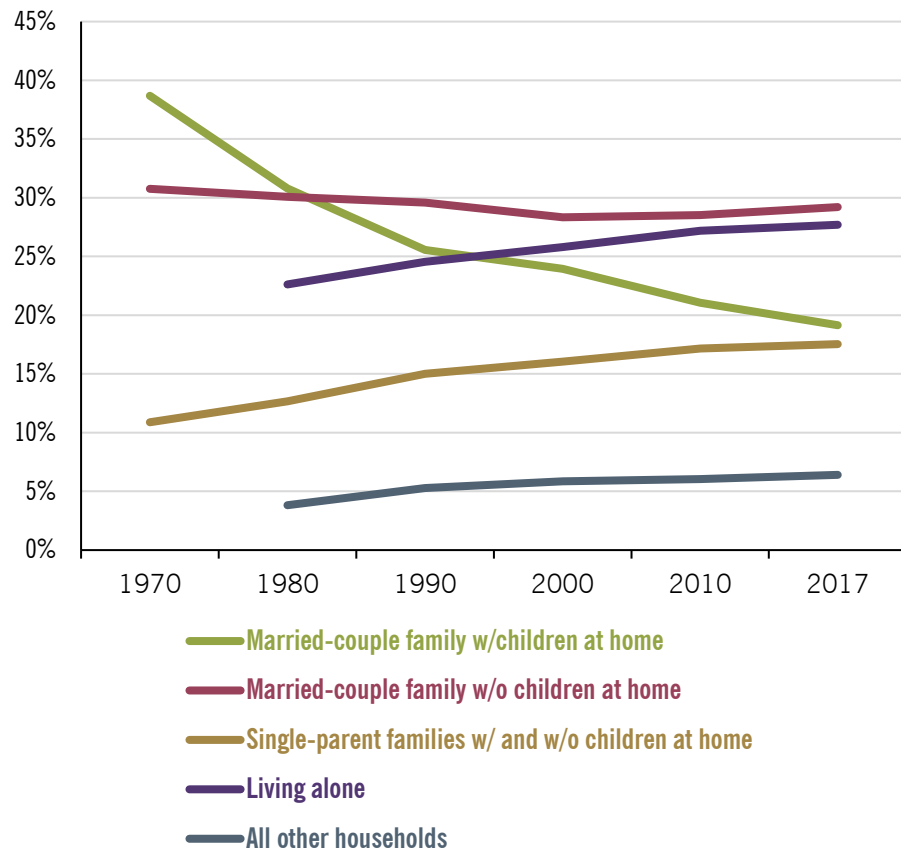
the percentage of total households by type of household for the US from 1970 to 2017.

During this period, the percentage of households that were married couples with children at home declined from 39 percent to 19 percent, even though the number of babies being born was steadily rising from 1976 through 2007. This decline was slightly offset by an increase in the percentage of households that were single-parent families with children at home, which increased from 5 percent in 1970 to 9 percent in 2017. Nevertheless, the percentage of households with children under the age of 18 at home, regardless of marital status, decreased to 28 percent of all households, down from 44 percent in 1970.

In contrast, the percentage of households that were married couples with no children at home hovered around 29 percent across the nearly five decades. As mentioned above, the share of households that were a single parent with children increased from 5 percent to 9 percent, and the share that were single parents without children at home increased from 5 percent to 8 percent. There was also a large increase in the share of households that were single people living alone, from 23 percent in 1980 (data were not published for 1970) to 28 percent in 2017. The two most common types of households—married couples without children living at home and single people living alone—account for 57 percent of all households.

From 1980 to 2017, the number of households in the US increased by 38.4 million. Households with children, regardless of marital status, accounted for 8 percent of the total household growth. Households without children (married couple, single householders living with one or more relatives, and

Figure 3: Type of Household by Share of Total Number of Households; United States; 1970 to 2017



Source: PlaceWorks, 2019, using data from the US Census Bureau. Decennial Censuses (2007 to 2000) and American Community Survey (2010 and 2017).

singles living alone) accounted for 80 percent of the increase. Nonfamily households accounted for the remaining 12 percent of the increase in households.

The household-type data show that the concept of the nuclear family, which plays a central role in how Americans view our society, really represents a minority of households. Furthermore, considering that only 28 percent of all households have children, the data raise the question of how well the housing market, which produces primarily single-family detached housing, is serving the needs of a majority of Americans.

MULTIGENERATIONAL HOUSEHOLDS

Multigenerational households are households that have two or more adult generations living in the same dwelling unit. Common examples are parents whose adult children have moved back home and adults with one or more aging parents. Multigenerational households are included in several of the households types shown in Figure 3.

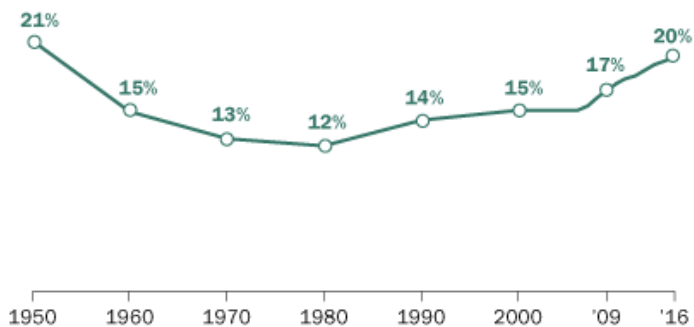
In 2018, the Pew Research Center published its research into the growth of multigenerational households. It is important to note that the Pew research includes grandparents raising their grandchildren in their definition, although Census Bureau data does not include these households.

The Pew research found that the percentage of the US population residing in multigenerational households decreased from 21 percent in 1950 to 12 percent in 1980, and then started increasing, reaching 20 percent in 2016. Figure 4 shows the results of the Pew research for the percentage of the population living in multigenerational households.

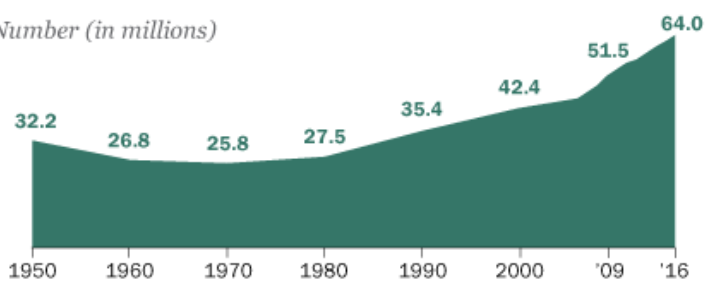
Figure 4: Multigenerational Household; United States; 1950 to 2016

One-in-five Americans live in a multigenerational household

% of population in multigenerational households



Number (in millions)



Note: Multigenerational households include at least two adult generations or grandparents and grandchildren younger than 25.
 Source: Pew Research Center analysis of 1950-2000 decennial censuses and 2006-2016 American Community Survey (IPUMS).

PEW RESEARCH CENTER

The Pew research notes that much of the decline in the percentage of population living in multigenerational households from 1950 to 1980 was driven by the decline among the older population living in such households. In contrast, the increase in young adults living in such households has fueled much of the increase since 1980.

The Pew research also notes that there are differences among race and ethnicities. Asians, 29 percent, Hispanics, 27 percent, and African Americans, 26 percent, are more likely to live in multigenerational households than whites, 16 percent.

HOUSEHOLDS BY SIZE

The number of households in the US increased from 63,401,000 in 1970 to 128,579,000 in 2019. The increase of 65,178,000 households represents an annual growth rate of 1.5 percent per year. However, the growth in households was largest among one- and two-person households, and increasingly larger households have increasingly lower rates of growth. The number of households with six or more persons declined during this period. Table 4 on the next page provides data on the changes in the number of households based on household size, and Figure 5 shows the trends over time.

One- and two-person households accounted for 79 percent of household growth over the five decades and increased from 46 percent of the total number of households in 1970 to 65 percent of all households in 2019. In contrast, all larger household sizes experienced a decline in the share of total households.

Table 4: Change in the Number of Households by the Number of Persons in Household; United States; 1970 and 2019

Number of Persons in Household	Total Increase	Annual Rate of Change	Share of Total Household Growth	Share of Households 1970	Share of Households 2019
One	25,628,000	2.5%	39.3%	17.1%	28.4%
Two	26,040,000	1.8%	40.0%	28.9%	34.5%
Three	8,425,000	1.2%	12.9%	17.3%	15.1%
Four	6,422,000	1.0%	9.9%	15.8%	12.8%
Five	881,000	0.3%	1.4%	10.3%	5.8%
Six	-625,000	-0.4%	-1.0%	5.6%	2.3%
Seven or more	-1,593,000	-1.4%	-2.4%	5.0%	1.2%
Total	65,178,000	1.5%	100.0%	100.0%	100.0%

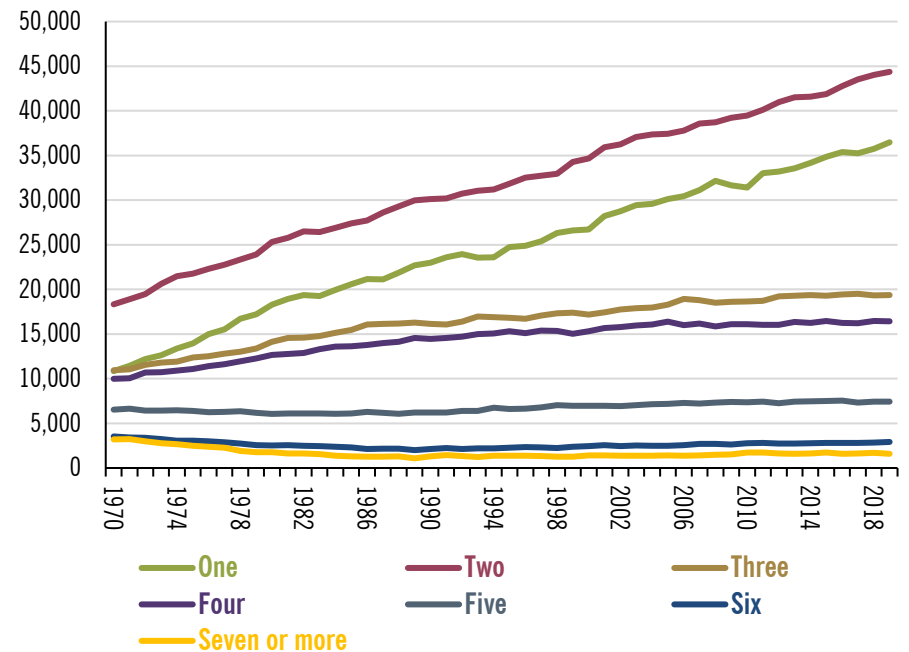
Source: PlaceWorks, 2019, using data from the Census Bureau's Current Population Survey.

AVERAGE HOUSEHOLD SIZE

Reflecting the higher growth in one- and two-person households and the decline in the number of households with six more persons, the average size of households has decreased. In 1970, the average household had 3.14 persons. By 2019, the average household size had decreased 25 percent, to 2.52 persons per household. **Error! Reference source not found.** shows the average household size for each year from 1970 to 2019.

The largest decrease in average household size occurred in the 1970s and 1980s, with a brief pause during and after the 1982 recession. In large part, this reflects Baby Boomers leaving their parents' homes and moving out on

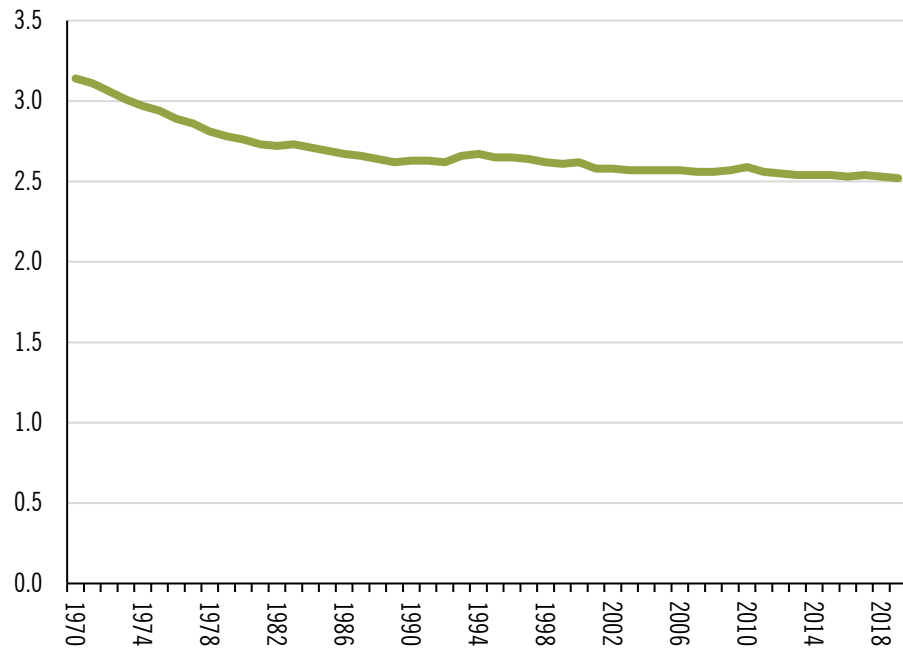
Figure 5: Number of Households by Number of Persons per Household; United States; 1970 to 2019



Source: PlaceWorks, 2019, using data from the US Census Bureau, Current Population Survey.

their own. Nevertheless, the average household size has generally decreased over the entire period, with brief pauses during and immediately after other recessions.

Figure 6: Average Number of Persons per Household; United States; 1970 to 2019



Source: PlaceWorks, 2019, using data from the US Census Bureau, Current Population Survey.

HOMEOWNERSHIP RATE

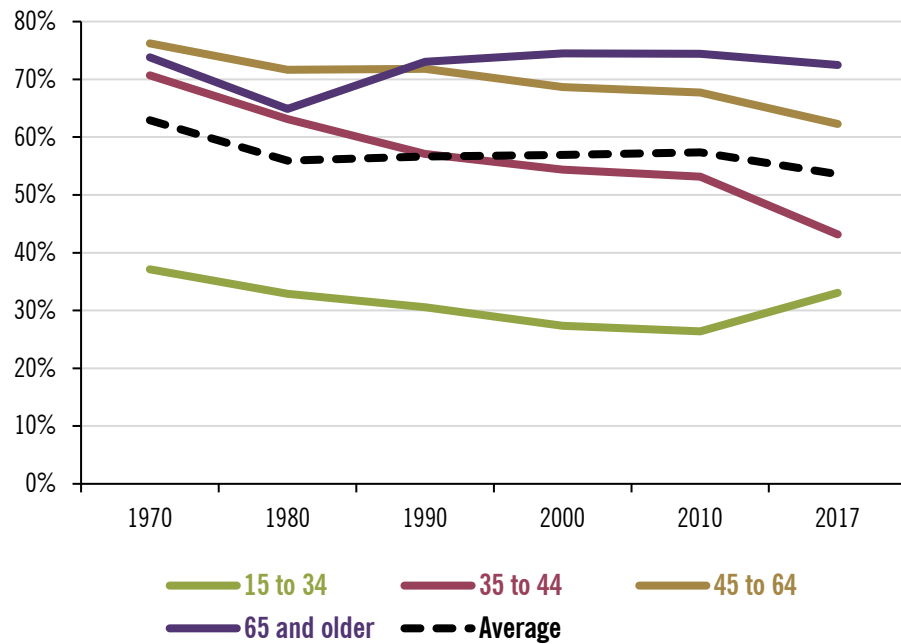
The percentage of households in the US living in homes they own decreased from 63 percent in 1970 to 54 percent in 2017. Although the 2008/09 recession affected the homeownership rate, this decline is a long-term trend spanning nearly five decades. Figure 7, on the following page, shows the homeownership rate by age group.

The decline in homeownership affected each of the age groups, although some have declined more than others. The ownership rate among householders age 65 and older declined from 1970 to 1980, but by 2000 the rate had increased slightly above the 1970 level, and only dipped below that level in 2017. For householders age 15 to 34, the ownership rate declined from 1970 through 2015, but it has increased since then. Nevertheless, the ownership rate for this age group is still 11 percent lower than the rate in 1970.

For middle-age householders, the ownership rate has steadily declined since 1970. For householders age 35 to 44, the ownership rate declined from 71 percent to 43 percent. For householders age 45 to 64, the ownership rate declined from 76 percent to 62 percent.

The ownership rate data suggest that as generations age, it becomes more difficult to purchase a home, at least until they are 65 years old and older. Indeed, the majority of households age 45 and younger are renters rather than homeowners. The ownership rate today lies in stark contrast to the rate in 1970, when the majority of households age 35 and older were homeowners.

Figure 7: Homeownership Rate by Householder Age Group; United States; 1970 to 2017



Source: PlaceWorks, 2019, using data from the US Census Bureau.

LIFE TRANSITIONS

The age at which women first give birth and the age at which people first marry has been increasing for many decades. The delay in forming families has implications for the demand for housing. Indeed, one can surmise that the long-term increase in households with single people living alone results,

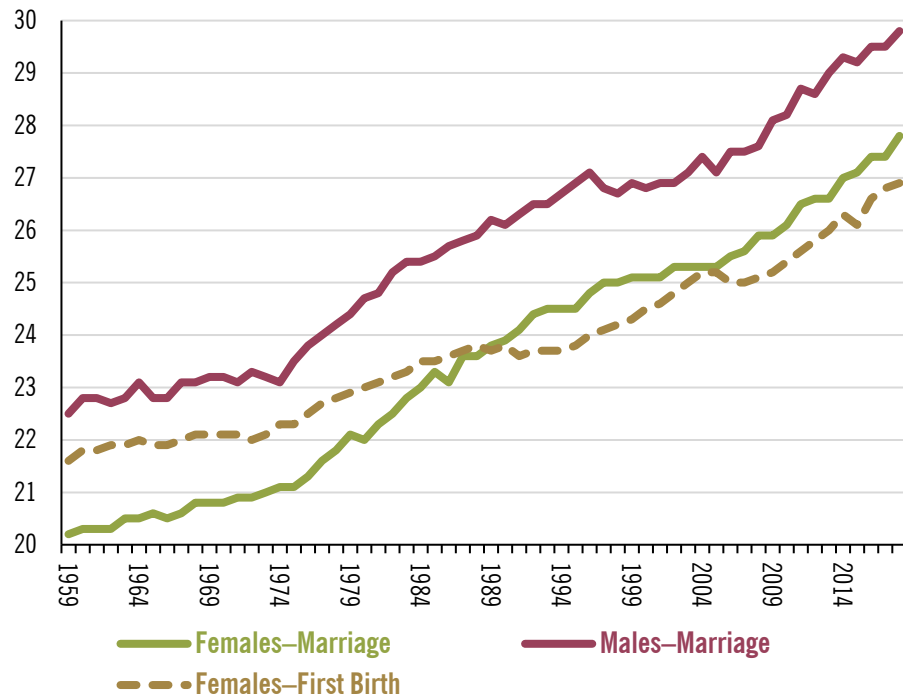
in part, from the trend of people spending more of their lives between becoming adults and first forming families. Figure 8 shows the median age at marriage for men and woman and the mean age for women at first birth.

The median age at marriage was steadily increasing for men and women but began a more rapid increase beginning in 1975 for men and 1976 for women. The rate of increase slowed down in the late 1990s and then grew again starting in 2006. For men, the median age at marriage increased from 23.2 in 1970 to 29.8 in 2018, an increase of 28.4 percent. For women, the median age at marriage increased from 20.8 in 1970 to 27.8 in 2017, an increase of 33.7 percent.

The mean age of women at first birth has been increasing since 1959, but the rate of increase was lower than the rate of increase in the median age at marriage. From 1959 to 1988, the mean age at first birth was higher than the median age at marriage. Since 1989, the mean age at first birth has been lower than the median age at marriage. However, it is important to realize that the two groups—woman getting married for the first time in a year and women having their first birth in that year—are different groups, though there could be overlap. The mean age of women at first birth increased from 22.1 in 1970 to 26.9 in 2017, an increase of 21.7 percent.

The data for age at first marriage and age at first birth show that Americans are spending a larger portion of their life as single adults without children before they move into the family-forming stage of life.

Figure 8: Median Age at First Marriage and Mean Female Age at First Birth; United States; 1959 to 2018



Source: PlaceWorks, 2019, using marriage data from the US Census Bureau’s Current Population Survey and birth data from the US Centers for Disease Control, National Vital Statistics System.

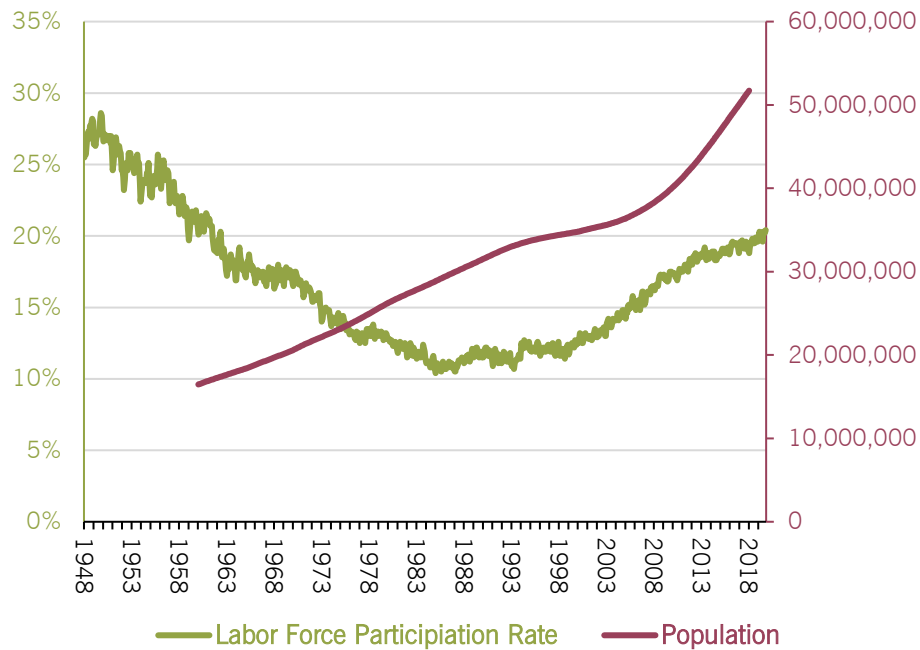
AGING AND RETIREMENT

One of the consequences of the demographic changes described on Figure 8 is that the population of the US is getting older. The oldest Baby Boomers began turning 65 in 2010. In 1970, 10.1 percent of the US population was age 65 and older; by 2018 this had increased to 15.8 percent. As this generation continues to age, the number of people and the percentage of the population age 65 and older will continue to increase. Figure 9 shows the number of people age 65 and older from 1960 to 2018.

The working habits of older adults have been changing for some time. The percentage of people age 65 and older who are in the labor force (the labor force participation rate includes those who are working or actively looking for work) had been steadily declining, bottoming out in the early 1980s at about 11 percent. The rate began steadily increasing in the early 2000s. By 2019, the labor force participation rate had climbed to over 20 percent, a level not seen since 1961. Figure 9 also shows the labor force participation rate for those age 65 and older in the United States from 1948 through 2019.

In the past, as households reached retirement age, some would relocate to a different metropolitan area (usually recognized as retirees moving to warmer climates), and some would downsize, relocating to a smaller housing unit in the same general region. However, about half would remain in their homes. It is not clear whether Baby Boomers will continue these same trends, but the magnitude of the continuing increase of people age 65 and older suggests that there will be a growing market for housing for these households. However, the increasing labor force participation rate for those age 65 and older suggests that this market will be a little longer in coming.

Figure 9: Number of Persons and Labor Force Participation Rate for the Population Age 65 and older; United States; 1948 to 2019



Source: PlaceWorks, 2019, using data from Federal Reserve Bank of St. Louis.

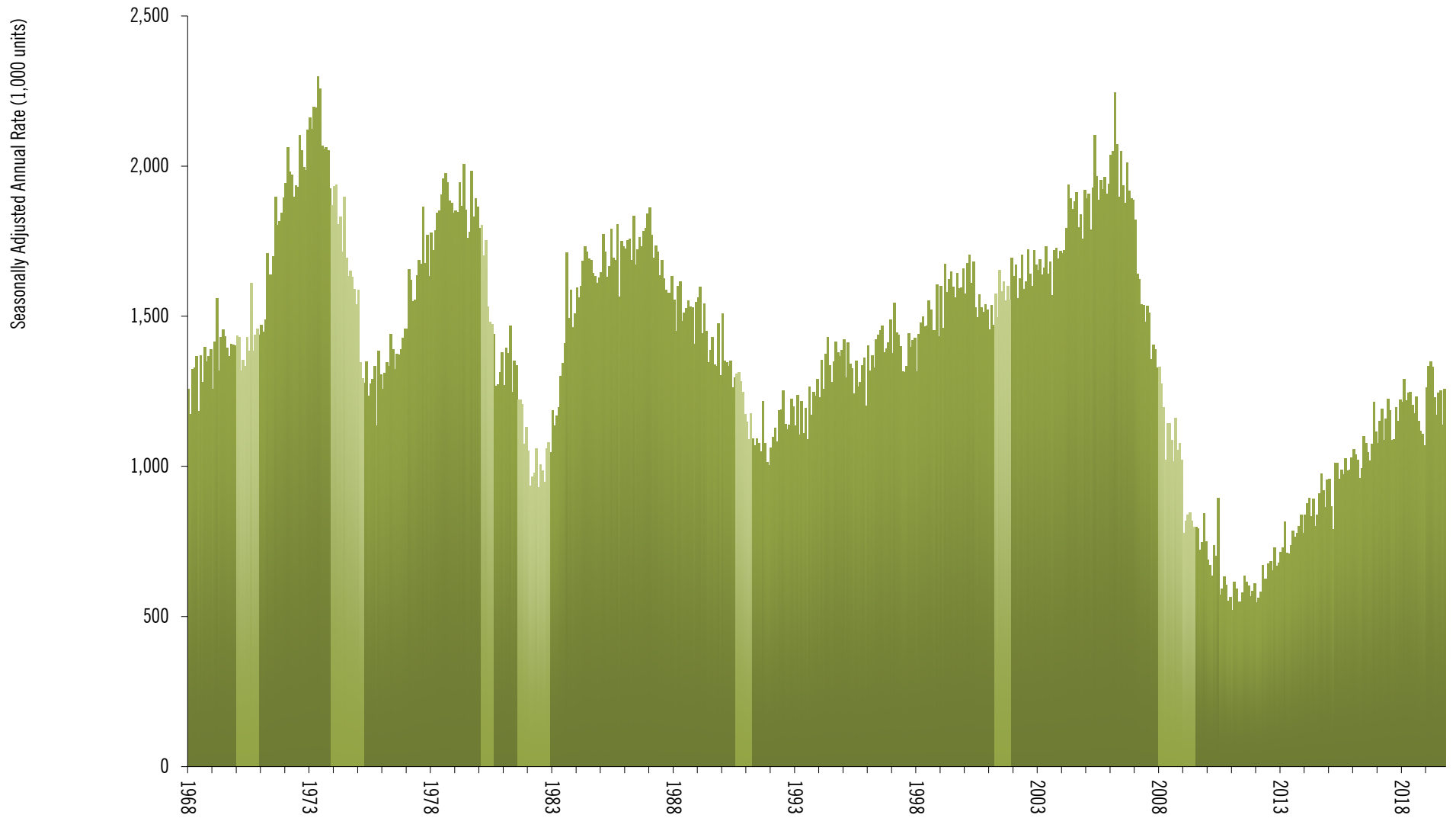
RESIDENTIAL DEVELOPMENT TRENDS

HOUSING PRODUCTION

The US economy is now more than ten years into the longest economic expansion on record. During the twelve months from November 2018 to October 2019, the US housing market completed about 1.2 million new housing units, barely more housing that it produced at the bottom of the 1982 recession and the 1992 recession. Figure 10 shows the number of housing units completed each month at a seasonally adjusted annual rate. Table 5 provides the average annual housing production during each economic expansion since December 1970. Even though this economic expansion is the longest on record, it has produced substantially less housing than each previous economic expansion.

During the previous ten years, the housing market completed an average of 868,642 housing units per year. At the beginning of this period, 2009, the Millennials were between 10 and 29 years old. At the end of this period, 2018, the Millennials were between 19 and 38 years old. For Baby Boomers, the corresponding age ranges represent the years 1974 to 1983. During this time period, the housing market completed an average of 1,497,850 housing units per year. The housing market produced 72 percent more housing units for the period when Baby Boomers were forming families than it produced when Millennials were forming families, even though there were only 3.5 percent more babies born during the Baby Boom as were born for Millennials. It is no wonder that there is a housing crisis.

Figure 10: Monthly Number of Housing Units Completed; United States; January 1968 to October 2019



Note: Lighter-shaded areas indicate recessions.

Source: PlaceWorks, 2019, using data from the US Census Bureau.

Table 5: Average Annual Housing Unit Production During Economic Expansions; United States; December 1970 through October 2019

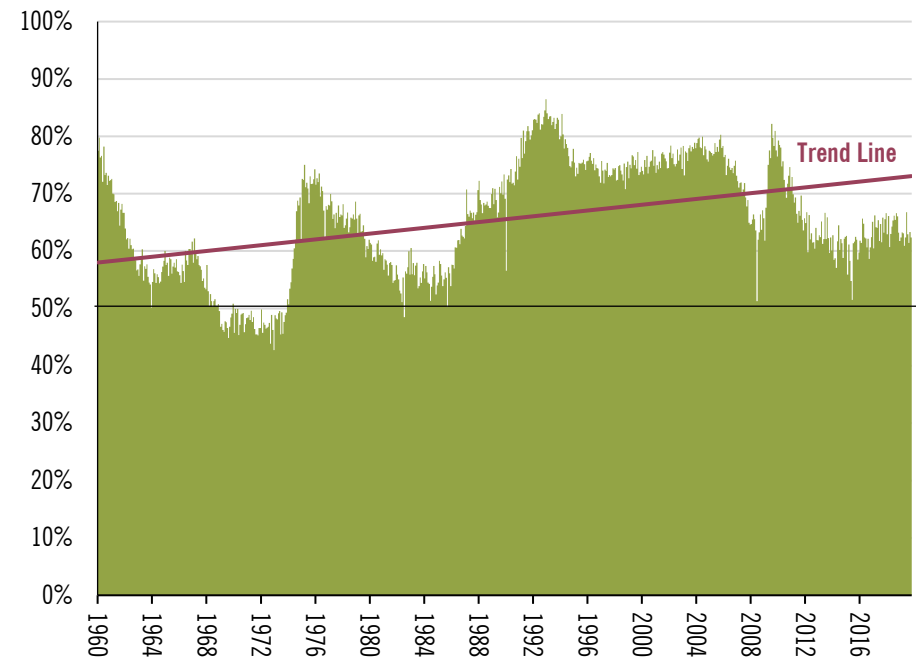
Economic Expansion		Average Number of Housing Units Completed
Start	End	
December 1970	November 1973	1,920,750
April 1975	January 1980	1,627,690
August 1980	July 1981	1,342,833
December 1982	July 1990	1,563,880
April 1991	March 2001	1,365,175
December 2001	December 2007	1,763,890
July 2009	Present (October 2019)	902,444

Source: PlaceWorks, using housing production data from the US Census Bureau's Building Permits Survey and Survey of Construction, and economic expansion/contraction data from the National Bureau for Economic Research.

HOUSING TYPE

The majority of new housing that has been constructed in the US since 1960 has been single-family detached housing. Figure 11 shows the share of all new housing completed that was single-family detached housing for each month since 1960. There were about five years at the end of the 1960s and early 1970s and one month, July 1982, in which single-family detached housing accounted for less than 50 percent of new units completed. During the last 30 years, single-family detached housing accounted for 72 percent of all new housing.

Figure 11: Single-Family Detached Housing as a Share of Total Housing Units Completed; United States; January 1960 to October 2019



Source: PlaceWorks, 2019, using data from the US Census Bureau.

Once again, it is interesting to note that when the Baby Boom generation was coming of age, not only did the housing market produce more housing, but it produced a greater share of single-family attached housing and multifamily housing. In contrast, when the Millennials were coming of age, the housing

market produced less housing, and more of what it produced was single-family detached housing.

As discussed in previous sections, married-couple families with children have substantially declined as a percentage of total households over the past five decades, as have households with children. At the same time, families without children and singles living alone have increased as a share of total households. In spite of these changes, the housing market has continued to predominantly produce housing for families with children.

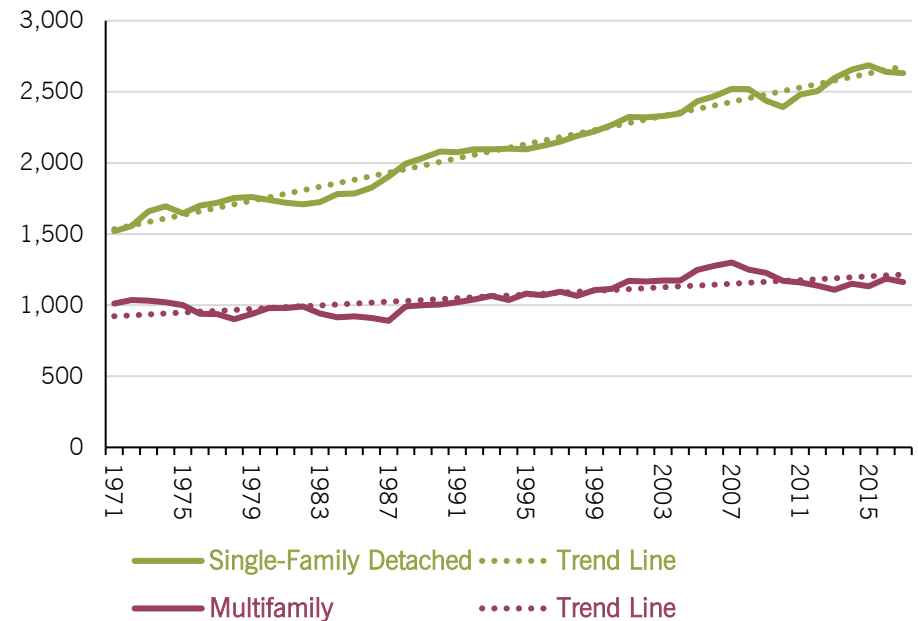
HOUSING UNIT SIZE

The size of housing units, both single-family detached and multifamily, have been increasing over time. Figure 12 shows the average unit size for each year, from 1971 to 2017.

The size of the average single-family detached house has increased 73 percent, growing from 1,520 square feet in 1971 to a high of 2,687 square feet in 2015, before declining slightly to 2,631 in 2017. Over the four and a half decades, the average house increased in size by about 25 square feet per year.

Similarly, the average unit size across multifamily housing units increased over this period by 15 percent, growing from 1,011 square feet in 1971 to a high of 1,300 square feet in 2007, and declining to 1,162 square feet in 2017. Although the average multifamily unit increased by about 6 square feet per year, the trend actually has three phases: declining average unit size from 1971 to 1988, increasing size from 1988 to 2007, and declining unit size since then.

Figure 12: Average Unit Size in Square Feet for Single-Family Detached Housing and Multifamily Housing Completions, Actual and Trend; United States; 1971 through 2017



Source: PlaceWorks, 2019, using data from the US Census Bureau.

Starting in 1999, the Census Bureau began reporting multifamily unit size for units intended for rental and those intended for sale. Since then, the average size of multifamily units intended for rental increased by 80 square feet, or

7.6 percent, to 1,130 square feet, which is only 119 square feet larger than the average size for all new multifamily units in 1971. In contrast, the average size of new multifamily units intended for sale increased by 265 square feet, or 19 percent, from 1,360 square feet in 1999 to 1,625 square feet in 2017.

INCOME AND HOUSING-COST TRENDS

HOUSEHOLD INCOME

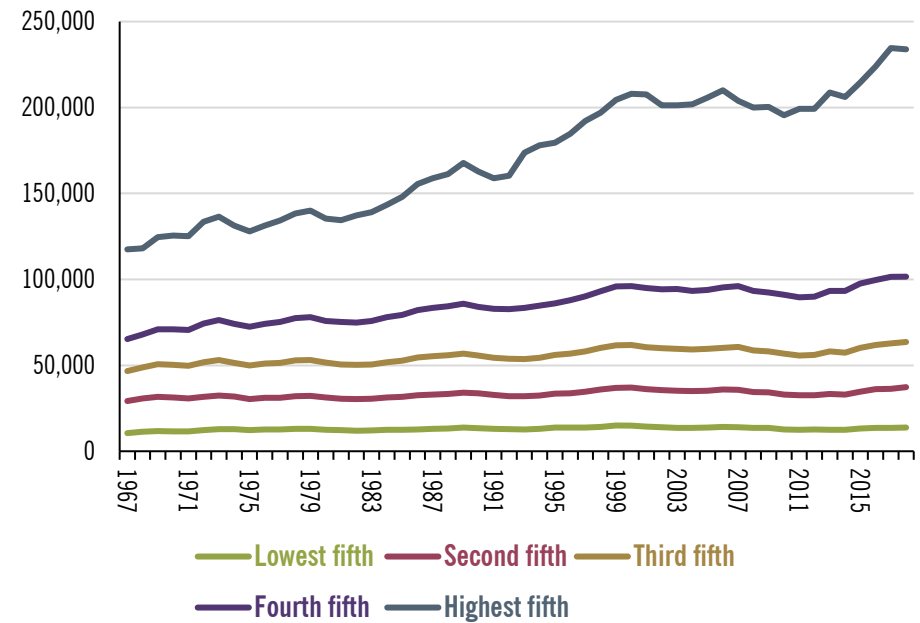
The real (inflation-adjusted) median household income in the US increased from \$50,545 in 1970 to \$63,179 in 2018, for an annual growth rate of 0.5 percent per year. However, the majority of the growth in median household income occurred prior to 1999. Since then, the trend has been stagnation and decline, until the median began growing again in 2014. The median household income only surpassed the 1999 high in 2016, when the median was 2.7 percent higher than it was in 1999.

Table 6: Change in US Mean, Real Household Income

	Lowest fifth	Second fifth	Third fifth	Fourth fifth	Highest fifth
Change: 1970 to 1999	3,463	5,580	11,323	25,006	78,994
	30.0%	17.9%	22.5%	35.3%	63.0%
Change: 1999 to 2018	-1,215	486	1,963	5,684	29,417
	-8.1%	1.3%	3.2%	5.9%	14.4%

Source: PlaceWorks, 2019, using data from the US Census Bureau, Current Population Survey.

Figure 13: Mean Real Annual Household Income by Household Income Quintile; United States; 1967 to 2018



Source: PlaceWorks, 2019, using data from the US Census Bureau, Current Population Survey.

More important for missing-middle housing is the trend in household income for households in middle income groups. Figure 13 shows the mean annual household income for each income quintile from 1967 to 2018. Again, the trends differ for the period from 1970 to 1999 and the period since 1999.

Table 6 provides the break down for these two periods for each income quintile.

From 1970 to 1999, each of the income quintiles experienced substantial increases in real (inflation-adjusted) household income. However, since 1999, only the highest-fifth income quintile experienced substantial income growth. The lowest-fifth income quartile experienced a decline in household income. The middle three income quintiles experienced only slight increases in household income.

Table 7: Change in Real Median Household Income by Age of Householder; United States; 1967 to 2018

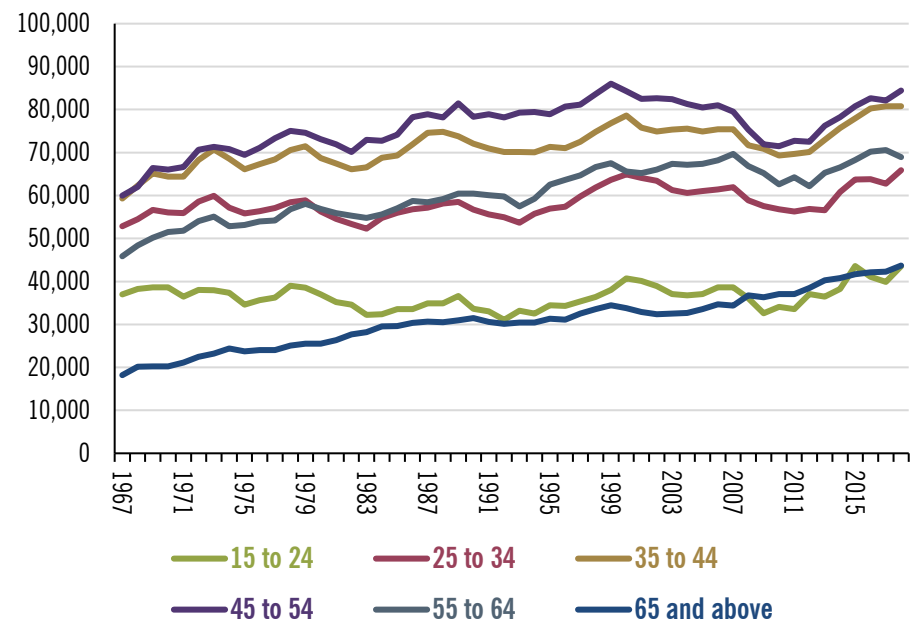
	15 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 and above
Peak Year	2000	2000	2000	1999	1999	1999
Change: 1967 to Peak	3,706	12,130	19,313	26,054	21,667	16,273
- Annual rate of change	0.3%	0.6%	0.9%	1.1%	1.2%	2.0%
Change: Peak to 2018	2,812	946	2,130	-1,562	1,425	9,230
- Annual rate of change	0.4%	0.1%	0.1%	-0.1%	0.1%	1.3%
1967 to 2018: Annual rate of change	0.3%	0.4%	0.6%	0.7%	0.8%	1.7%

Source: PlaceWorks, 2019, using data from the US Census Bureau, Current Population Survey.

HOUSEHOLD INCOME BY AGE OF HOUSEHOLDER

Changes in median household income by age provide an understanding of the proportion of income households have to pay for housing at different life stages, such as individuals first moving out on their own or at retirement. Growth rates in real household incomes generally reached a peak in 1999 (for householders age 15 to 44) and 2000 (for householders age 45 and

Figure 14: Real Median Household Income by Age of Householder; 1967 to 2018



Source: PlaceWorks, 2019, using data from the US Census Bureau, Current Population Survey.

above). Table 7 provides data for the changes in income relative to the peak. Figure 14 shows the median household income by the age of the householder from 1967 to 2018, in 2018 dollars.

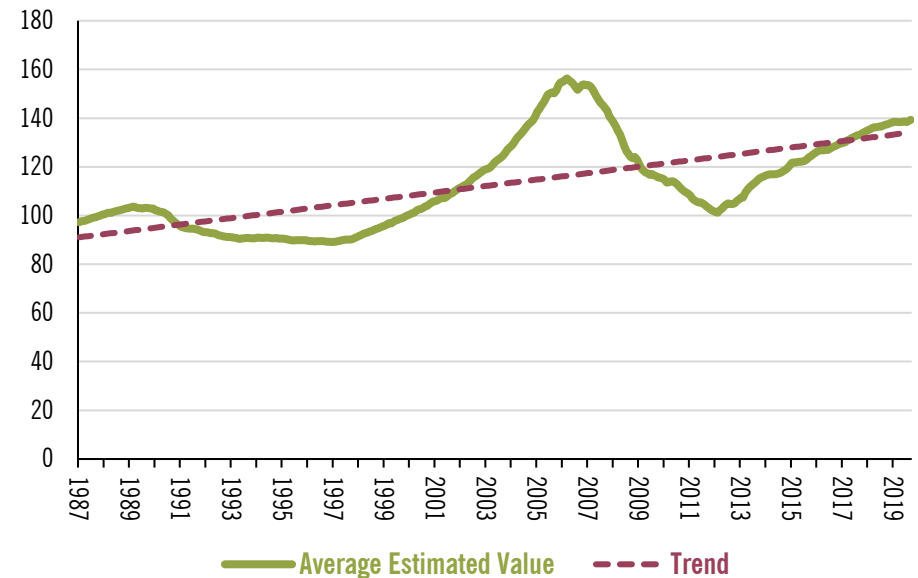
Over the entire time period, the annual percentage increase in median household income was larger for each older age group. Since the 1999/2000 peak, income growth has been negligible or negative for households in each age group from 25 to 64. Incomes for householders age 15 to 24 increased more rapidly in the postpeak period. Finally, householders age 65 and older had the most rapid increase in household incomes over the entire time period, and though there was a slowdown in growth after the peak, the annual rate of increase, 1.3 percent per year, was still substantial.

SALES PRICE FOR EXISTING SINGLE-FAMILY HOUSES

While 80 percent of American households were experience slowly growing (or decreasing) household income, housing values grew rapidly. Figure 15 shows the Case-Schiller Index, which estimates the average price of existing for-sale single-family housing in the nation, based on current month sales and the previous sales of those same housing units. By September 2019, the price of housing was still 9 percent below the prerecession high, when adjusted for inflation. From 1987 to 2019, the price of single-family housing increased about 1.3 percentage points per year after adjusting for inflation.

More importantly, from 1999 to 2018, the median household income in the US increased 2.7 percent while the price of single-family housing increased 40.9 percent, when adjusted for inflation. The growth in the price of housing

Figure 15: Case-Schiller National Index (Estimated Value of All Housing, Jan. 2000=100), Adjusted for Inflation; United States; January 1987 to September 2019



Source: PlaceWorks, 2019, using data from S&P Dow Jones Indices LLC, S&P/Case-Schiller U.S. National Home Price Index [CSUSHPIISA], retrieved from FRED, Federal Reserve Bank of St. Louis, and the consumer price index for all urban consumers data from the US Bureau of Labor Statistics.

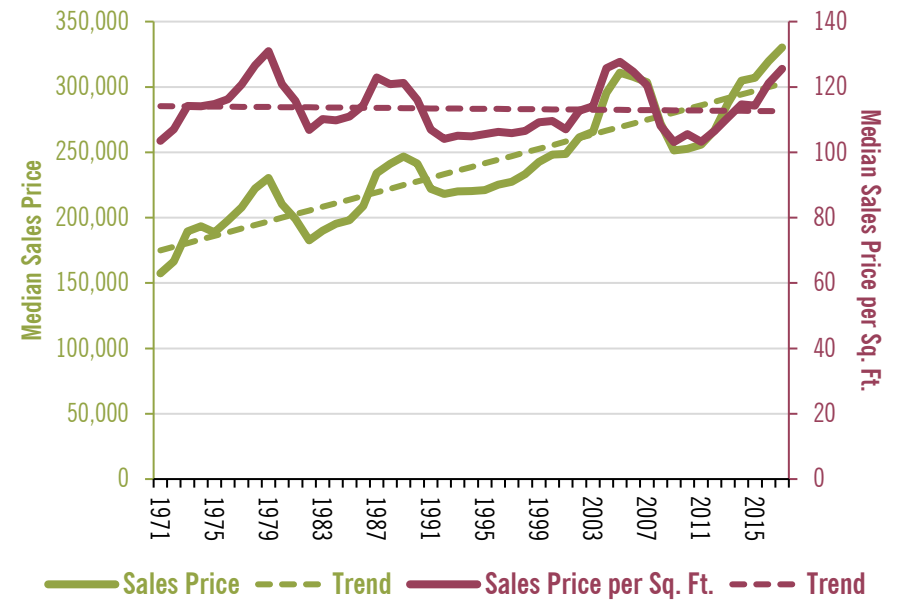
even outpaced income growth for the highest-fifth household-income quintile, whose average income increased 14.4 percent during this period.

SALES PRICE FOR NEW SINGLE-FAMILY HOUSES

The sales price for new single-family housing has increased, even when adjusted for inflation. From 1971 to 2018, the real average sales price increased about \$2,800 per year. In 2018 dollars, the median sales price increased from \$157,393 in 1971 to \$330,179 in 2018, an increase of 110 percent.

However, the increase in sales price follows the increase in the size of new single-family housing (see Figure 12 on page 20). Figure 16 shows the real median sales price and the real median sales price per square foot from 1971 to 2018. The median sales price per median square foot increased from \$103.55 per square foot in 1971 to \$125.50 per square foot in 2018, but, the trend line over the 47-year period decreases about \$0.03 per square foot per year.

Figure 16: Real Median Sales Price and Real Median Sales Price per Square Foot for New Single-Family Housing; United States; 1971 to 2018

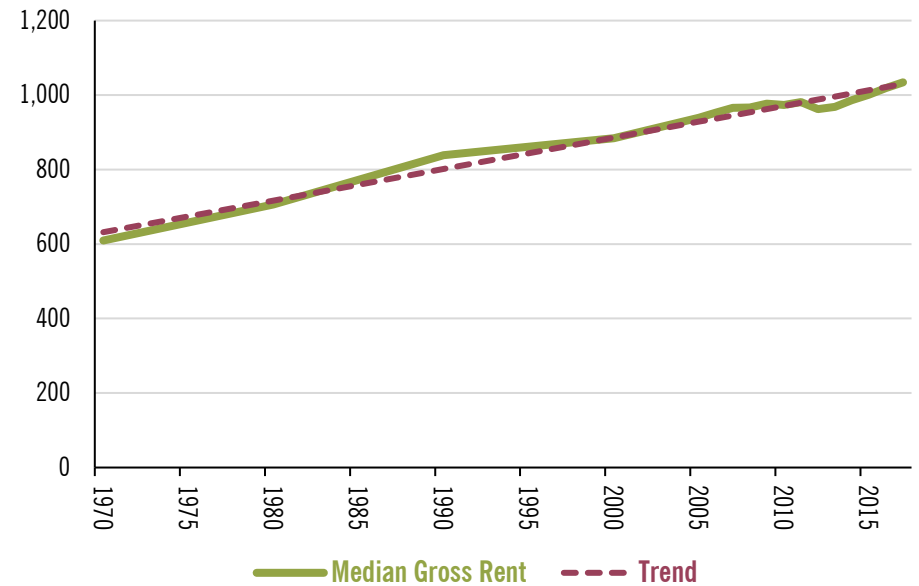


Source: PlaceWorks, 2019, using sales price and floor area data from the US Census Bureau's Characteristics of New Housing and the consumer price index for all urban consumers data from the US Bureau of Labor Statistics.

MEDIAN RENT

The median gross rent has been increasing over time, even when adjusted for inflation. In 1970, the median gross rent was \$610 per month in 2018 dollars. By 2017, rent had increased to \$1,034, rising by 70 percent. The trend over the 48-year period was an annual increase of 1.0 percent per year. It is important to note that the gross rent data reflect existing and new rental units and all types of rental housing, not just apartments. Data are not available on unit sizes, so there is no estimate of rental rates per square foot, as there is with new single-family houses. Figure 17 shows the real median gross rent from 1970 to 2017.

Figure 17: Real Median Gross Rent; United States; 1970, 1980, 1990, 2000, and 2005 to 2017



Source: PlaceWorks, 2019, using median gross rent data from the US Census Bureau's Decennial Census and American Community Survey, and the consumer price index for all urban consumers data from the US Bureau of Labor Statistics.

IMPLICATIONS OF LONG-TERM NATIONAL TRENDS

Mismatch Between Household Living Arrangements and Housing Production. Since at least the 1970s, Americans have waited longer to marry and have children, fewer and fewer households even have children, more people live alone and in two-person households, and the average household size has declined. However, the housing market has continued to produce predominantly single-family detached housing and has continued to build larger and larger houses. Perhaps one- and two-person households would continue to choose to live in larger single-family detached houses, but the data suggest that the growing number of small households has less and less opportunity to choose smaller housing units.

Housing Market Not Producing Enough Housing. The 2008/09 recession decimated the housing industry, and it has yet to fully recover. In the previous economic expansion, the economy produced almost twice as many units per year as it has in this expansion. If housing production in this economic expansion produced the average number of housing units per year as were produced in the economic expansions since 1975, there would be another 5.5 million housing units today. There were only 3.5 percent more Baby Boomers born than Millennials, but during the ten-year period when the Baby Boomers were the same ages as Millennials were in the past ten years, the housing market produced 72 percent more housing. The national housing crisis being experienced today is one of not enough housing being built.

Incomes Not Keeping Up with Housing Costs. Since 1970, inflation-adjusted median household income has increased about 0.5 percent per year. The average gross rent increased 1.0 percent per year, the average price of new housing increased 1.2 percent per year, and the average price of existing housing increased 1.3 percent per year (from 1987 to present), after adjusting for inflation. The four lowest quintiles of household income had growth of 0.8 percent per year or less, and householders in age cohorts under 65 had household income growth of 0.8 percent per year or less. The price of housing is outpacing the income growth for all but the wealthiest and those age 65 and older. The analysis of new housing, however, shows that the increase in prices is driven by increases in housing unit size (comparable data is not available for existing housing sales and rental housing).

These findings suggest that policies and programs to address the national housing crisis need to focus on facilitating smaller housing and building more housing. However, such interventions should be coordinated regionally: a single city in most metropolitan areas probably cannot drive the regional housing market.

3. REGIONAL MIDDLE-INCOME MARKET



There are unique characteristics that influence the housing market in one city versus another, and even in one neighborhood versus another. However, the housing market is truly a regional market. Regions with growing economies are better able to retain existing residents and attract migrants from other regions, if not other nations. Conversely, regions with stagnant or declining economies find it challenging to retain existing residents, let alone attract migrants. The local housing market is a function of the overall regional growth or stagnation or decline.

This chapter describes the characteristics of middle-income households in Sacramento County. It is the pool of middle-income households in the county—both existing and those that migrate to the county—from which Elk Grove would draw demand for missing-middle housing.

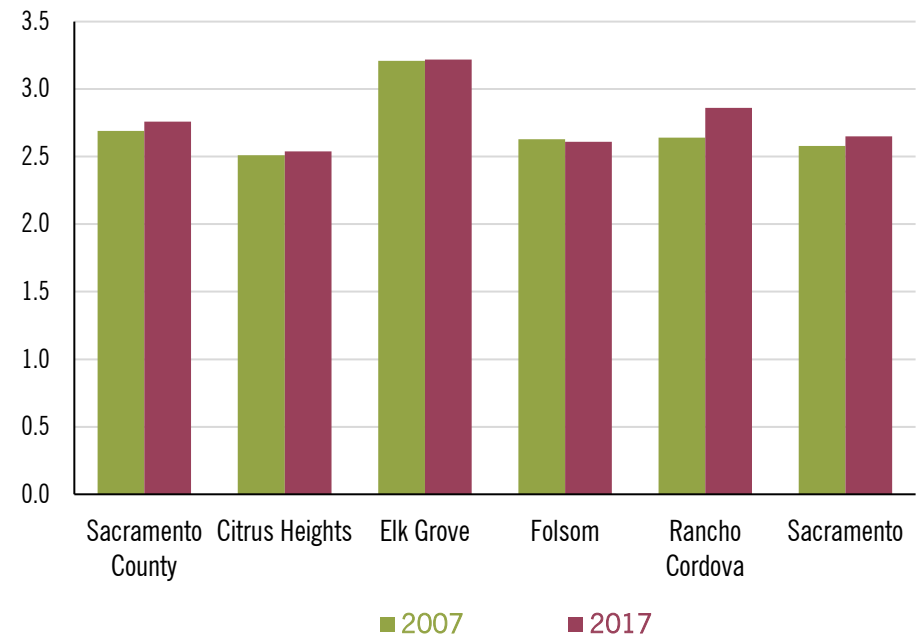
HOUSEHOLD CHARACTERISTICS

HOUSEHOLD SIZE

Elk Grove has the highest average household size among the major cities in Sacramento County, as shown in Figure 18. In Elk Grove, the average size increased from 3.21 persons per household in 2007 and 3.22 in 2017. The average household size increased countywide and in all the major cities, except Folsom.

For Elk Grove, the average household size for owner-occupied housing decreased, from 3.22 in 2007 to 3.21 in 2017, while the average size increased for renter households, from, from 3.17 to 3.24. The full household-size dataset is provided in Table A-5 in the Appendix.

Figure 18: Average Household Size; Sacramento County and Major Cities; 2007 and 2017



Source: PlaceWorks, 2019, using data from the Census Bureau's 2007 American Community Survey, 3-Year Estimates, and the 2017 American Community Survey, 5-Year Estimates.

HOUSEHOLD SIZE AND HOUSEHOLD INCOME

The average household size increases from lower-income households to higher-income households. The percentage of households that have only one person accounts for most but not all of the differences in average household size across the income categories. More than half of the lower-income households are one-person households, compared to 25 percent of middle-income households and only 7 percent of higher-income households. One- and two-person households make up 59 percent of middle-income households. Table 8 summarizes household size data for middle-income households. Figure 19 shows the percentage of each income category's households by the number of persons per household. Three or fewer person households account for 75 percent of middle-income households, and four or fewer person households account for 88 percent. This suggests that the vast majority of housing needs of middle-income households can be accommodated with housing units with three or fewer bedrooms. Indeed, housing units with two or fewer bedrooms should accommodate the majority of the 75 percent of middle-income households that have three or fewer people.

HOUSEHOLD TYPE

Household type varies by household income. Table 9 provides data on household type by income category for Sacramento County.

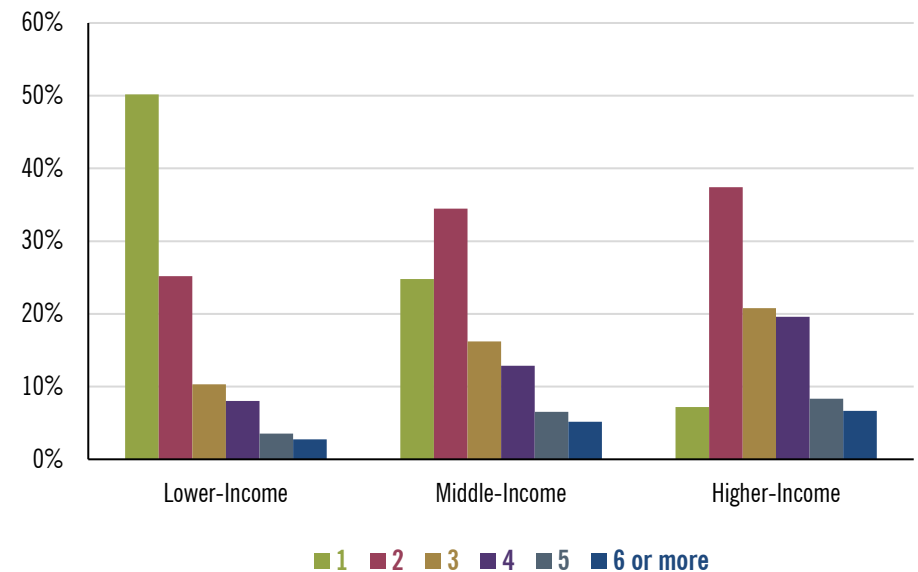
Households with higher income are more likely to be married-couple families, and married couples in all three income categories are more likely to have no children at home. Higher-income households are less likely to be single-parent households, but lower- and middle-income single-parents are more

Table 8: Household Size by Income Category; Sacramento County; 2017

	Lower-Income Households	Middle-Income Households	Higher-Income Households
Average household size	1.99	2.62	3.11
One-person households	50.2%	24.8%	7.2%
Two-person households	25.2%	34.5%	37.4%

Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

Figure 19: Percentage of Income-Category Households by Number of Persons per Household; Sacramento County; 2017



Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

likely to have children at home than to not have children at home. As stated under the household size discussion above, the majority of lower-income households are individuals living alone, and about a quarter of middle-income households are individuals living alone. Regardless of household type, a majority of households in each category do not have children living at home, with less than a third of middle-income households having children at home.

Table 9: Household Type and Presence of Children under the Age of 18 by Income Category; Sacramento County; 2017

	Lower- Income Households	Middle- Income Households	Higher- Income Households
Married couple with children at home	9.4%	20.8%	33.9%
Married couple without children at home	11.7%	26.8%	43.1%
Single parent with children at home	14.7%	10.2%	4.5%
Single parent without children at home	8.2%	9.5%	4.8%
Living alone	50.2%	24.8%	7.2%
Other household with children at home	0.3%	0.2%	0.2%
Other households w/o children at home	5.6%	7.5%	6.3%
All households with children at home	24.4%	31.3%	38.6%
All households without children at home	75.6%	68.7%	61.4%

Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

MULTIGENERATIONAL HOUSEHOLDS

The US Census Bureau defines a multigenerational household as a household with two or more adult generations. Although demographers often include grandparents raising grandchildren, these households are not included in the Census Bureau data. Table 10 on the following page provides multigenerational household data for Sacramento County.

The Pew Research Center published a 2018 report that noted that the population living in multigenerational households decreased from 21 percent in 1950 to 12 percent in 1980, and it has steadily increased since then, reaching 20 percent in 2016. Multigenerational households are not as common in Sacramento County. Nevertheless, 5 percent of middle-income households are multigenerational, and 10.6 percent of the population in middle-income households reside in multigenerational housing.

Table 10: Multigenerational Households as a Share of Total Households and Share of Population by Income Category; Sacramento County; 2017

	Lower-Income	Middle- Income	Higher- Income
Percent of all households	1.9%	5.2%	6.0%
Percent of population	4.2%	10.6%	11.2%

Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

LENGTH OF TIME AT CURRENT RESIDENCE

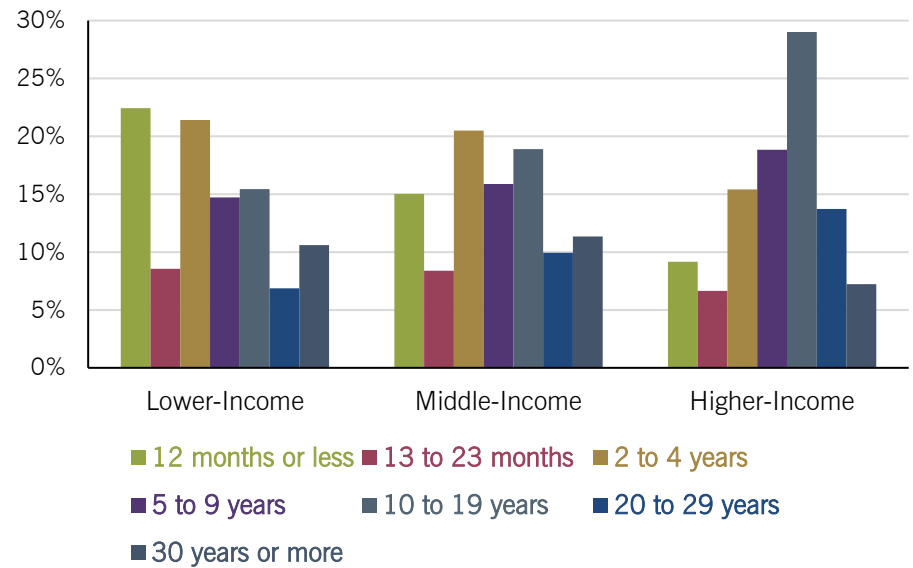
How long the typical household has lived at its current residence is correlated with household income. The higher the household income, the longer the household has likely lived at the current home. Figure 20 shows the length of time at current residence.

For lower-income households, the median household has lived at its current residence for two to four years. For middle-income households, the median household has lived at its current residence for five to nine years. Half of higher-income households have lived at their current residence for nine or fewer years, and half have lived there for 10 or more years.

AGE OF HOUSEHOLDER

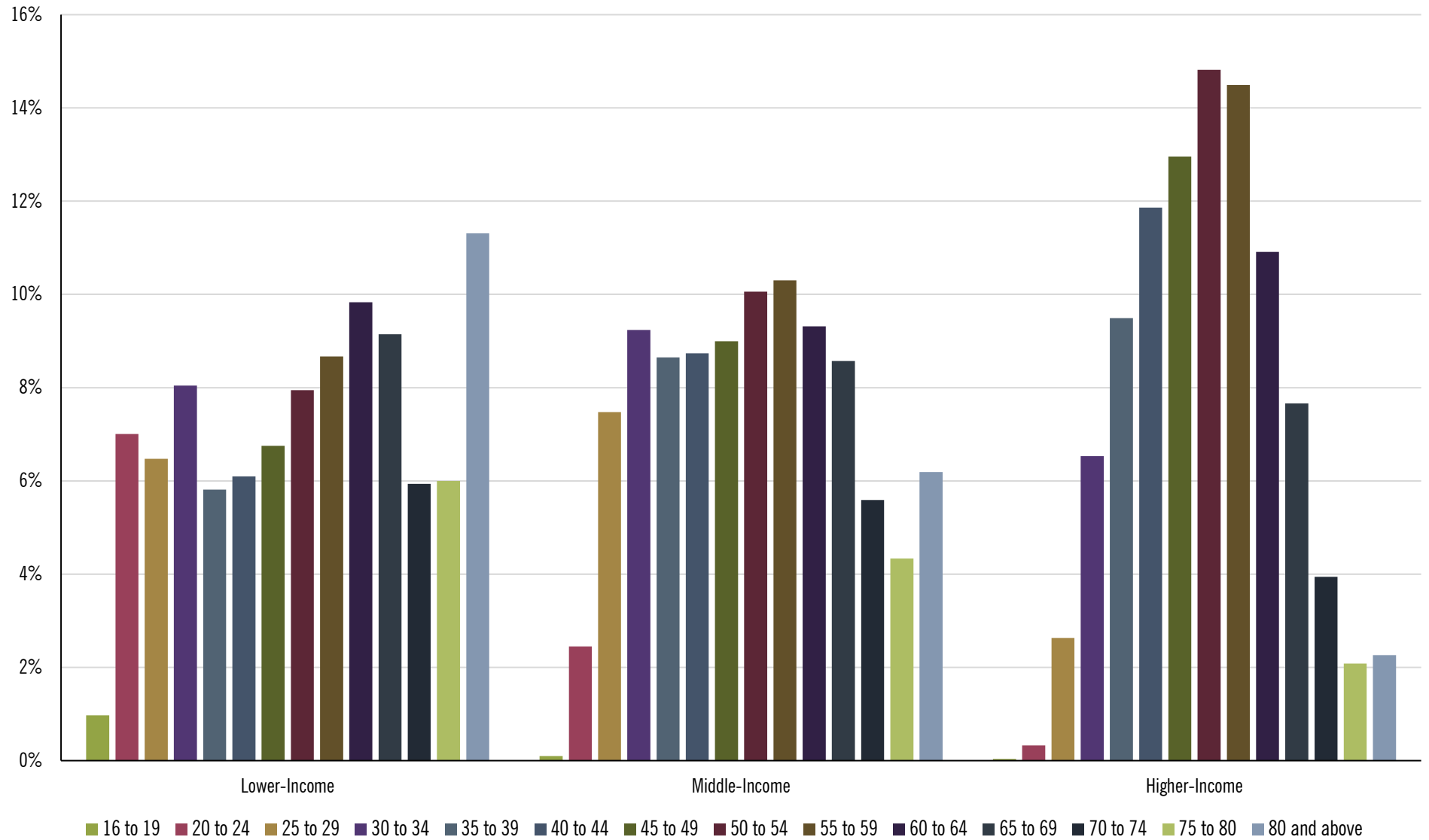
The average age of householders does not vary substantially across the three income categories: 53.9 years old for lower-income households, 51.9 years old for middle-income households, and 51.7 years old for higher-income households. However, there are large variations across income categories when looking at age cohorts. Figure 21 shows the age distribution for householders by income categories.

Figure 20: Length of Time at Current Residence by Income Category; Sacramento County, 2017



Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

Figure 21: Age Distribution of Households by Income Category; Sacramento County; 2017



Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

The age distribution for lower-income households has three general bumps: householders age 20 to 34, householders age 50 to 69, and householders age 80 and above. Higher-income householders are somewhat concentrated among the ages from 40 to 64, which make sense because those are the ages when individuals tend to earn their highest wages and salaries.

For middle-income households, the age distribution has little in the way of pronounced bumps. Each five-year age cohort from 25 to 69 accounts for 9.2 to 10.3 percent of middle-income householders. This age distribution suggests that housing to accommodate middle-income households will have to address most stages of life, including singles moving out on their own, family-forming, families with young and older children, empty nesters, and into retirement.

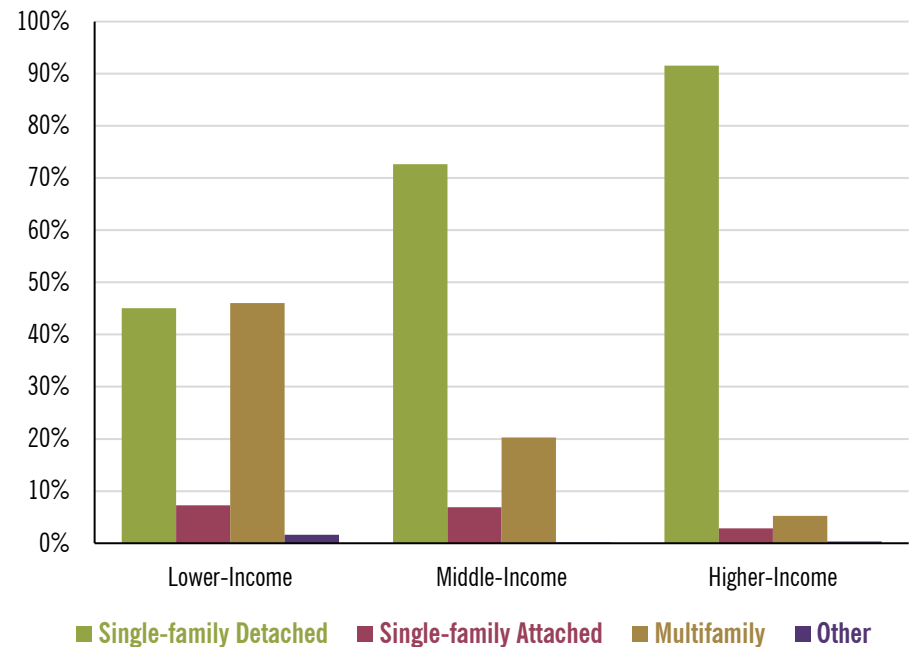
HOUSING CHARACTERISTICS

TYPE OF HOUSING

Single-family detached housing is the predominant form of housing in Sacramento County. However, occupancy of a single-family house is correlated with income. Figure 22 shows the data on housing type by income category.

For middle-income households, 73 percent live in a single-family detached house, 7 percent in single-family attached housing, and 20 percent in multifamily.

Figure 22: Percentage of Households by Income Category and by Type of Housing Unit; Sacramento County; 2017



Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

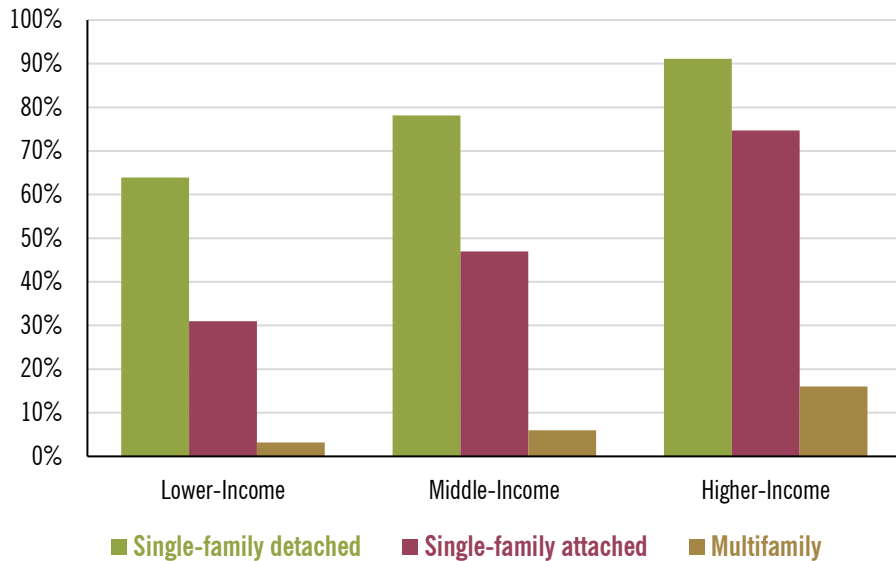
TENURE

Unsurprisingly, home ownership rates increase with increasing household income. Figure 23 shows the tenure data. Across the income categories, a majority of households residing in single-family detached housing are homeowners. For high-income households living in single-family attached

housing, a majority are homeowners. For lower-income and middle-income households living in single-family attached housing, a majority are renters.

Across all income categories, the vast majority of households residing in multifamily housing are renters. Slightly more than 5 percent of multifamily housing units in Sacramento County are owner occupied.

Figure 23: Homeownership Rate by Housing Type and Income Category; Sacramento County; 2017

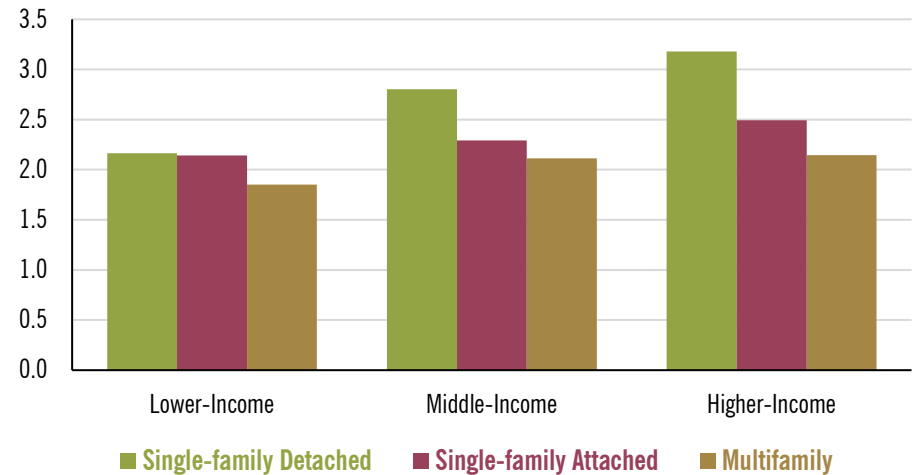


Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

HOUSEHOLD SIZE

The average household size in each type of housing increases with income. For middle-income households, household size decreases from 2.80 for households residing in single-family detached housing, to 2.29 for single-family attached housing, to 2.11 for multifamily housing. Figure 24 shows the average household size data.

Figure 24: Average Household Size by Housing Type and by Income Category; Sacramento County; 2017

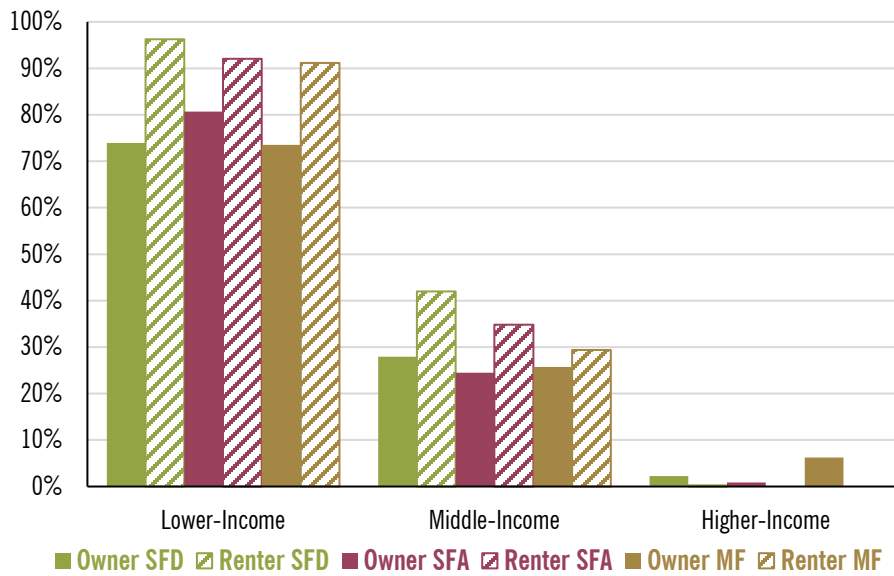


Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

HOUSING OVERPAYMENT

Housing overpayment represents households that pay more than 30 percent of their household income for housing cost. For renters, housing cost includes rent and utilities, commonly referred to as gross rent. For owners, housing cost includes mortgage payments, insurance, taxes, and condo fees. Figure 25 shows housing overpayment in Sacramento County.

Figure 25: Housing Overpayment (Excess of 30% of Income) by Housing Type, Tenure, and Income Category; Sacramento County; 2017



Source: PlaceWorks, 2019, using data from the US Census Bureau, Public Use Microdata Set.

Few higher-income households experience housing overpayment. The majority of lower-income households experience housing overpayment. Overall, about 31 percent of middle-income households experience housing overpayment, but the rates range from 25 percent of households residing in owner-occupied single-family attached housing to 42 percent of households renting single-family detached housing.

CITY-LEVEL CHANGES

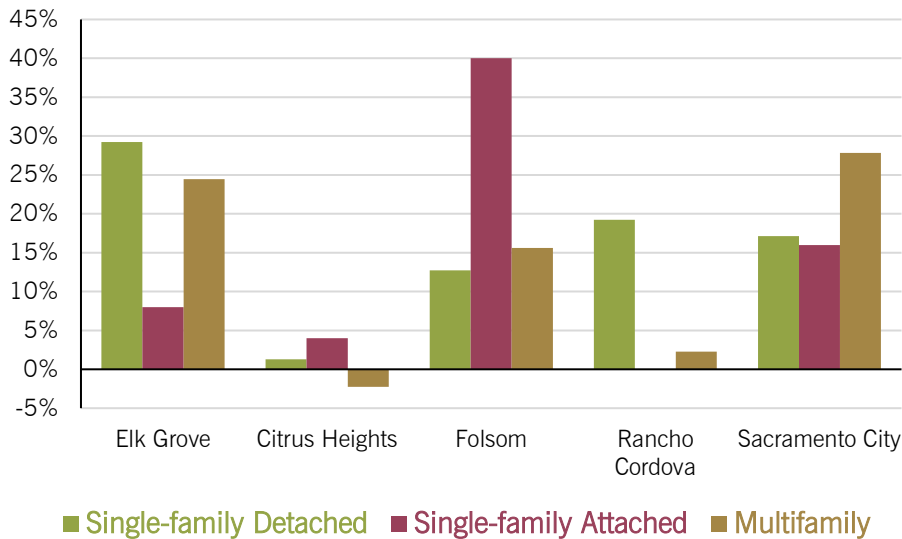
HOUSING TYPE

From 2010 to 2017, according to data from the CA Department of Finance, the number of housing units in Sacramento County increased by 11,266, growing 0.2 percent per year. Single-family detached housing accounted for 81.7 percent of that growth; single-family attached housing accounted for another 0.22 percent; and multifamily provided the remaining 18.1 percent. In contrast, the comparable data for the state as a whole were: single-family detached, 41.1 percent; single-family attached 5.0 percent; and multifamily 53.6 percent. Of course, the majority of state housing growth is in the Los Angeles and San Francisco regions, which have different development patterns. Nevertheless, single-family detached housing's share of countywide growth was even larger than its 63.1 percent share of housing growth nationally.

There are differences among cities in the types of housing that were developed in this period. In Elk Grove, single-family housing accounted for 84.3 percent of new housing constructed, less than in Rancho Cordova (97.5 percent) but more than in Folsom (78.1 percent) and Sacramento (73.4 percent).

Elk Grove accounted for 28.3 percent of countywide housing growth. It accounted for 29.2 percent of the single-family detached housing growth and 24.4 percent of the multifamily housing growth. In absolute numbers, Elk Grove provided 499 multifamily units, compared to 568 units in the City of Sacramento. The data in Figure 26 suggest that Folsom is a single-family-attached housing powerhouse, but there were only 25 new units of single-family attached housing countywide.

Figure 26: Share of Countywide Housing Growth by Type of Housing; Major Cities in Sacramento County; 2010 to 2017

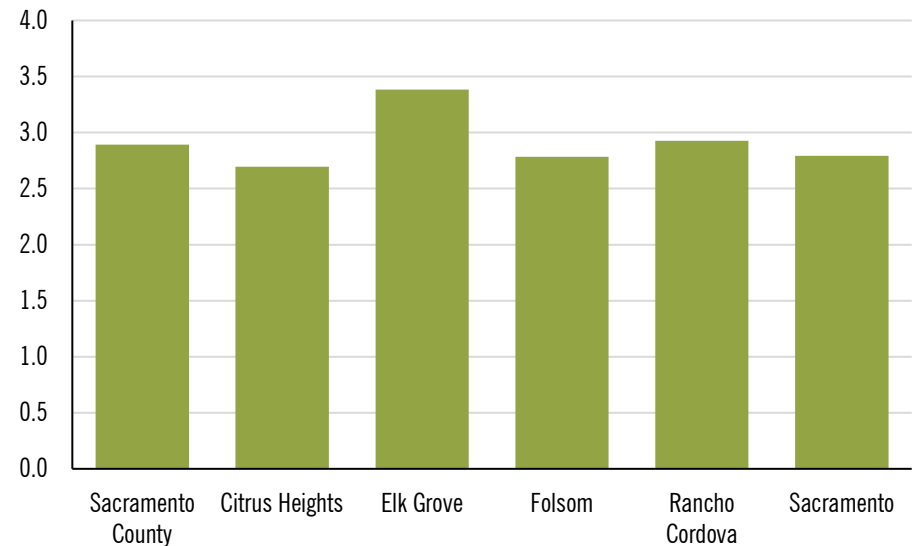


Source: PlaceWorks, 2019, using data from the CA Department of Finance.

AVERAGE HOUSEHOLD SIZE

From 2010 to 2017, the average household size increased slightly in all the cities. The highest growth was 0.7 percent per year in Rancho Cordova and 0.4 percent per year in Sacramento. The average household size in Citrus Heights, Elk Grove, and Folsom increased at about 0.1 percent per year. In 2017, the average household size of middle-income households that moved into their residence in the previous two years was 2.57, which was lower than the average household size in any of these five cities.

Figure 27: Average Household Size; Major Cities; 2017



Source: PlaceWorks, 2019, using data from the CA Department of Finance.

OVERCROWDING

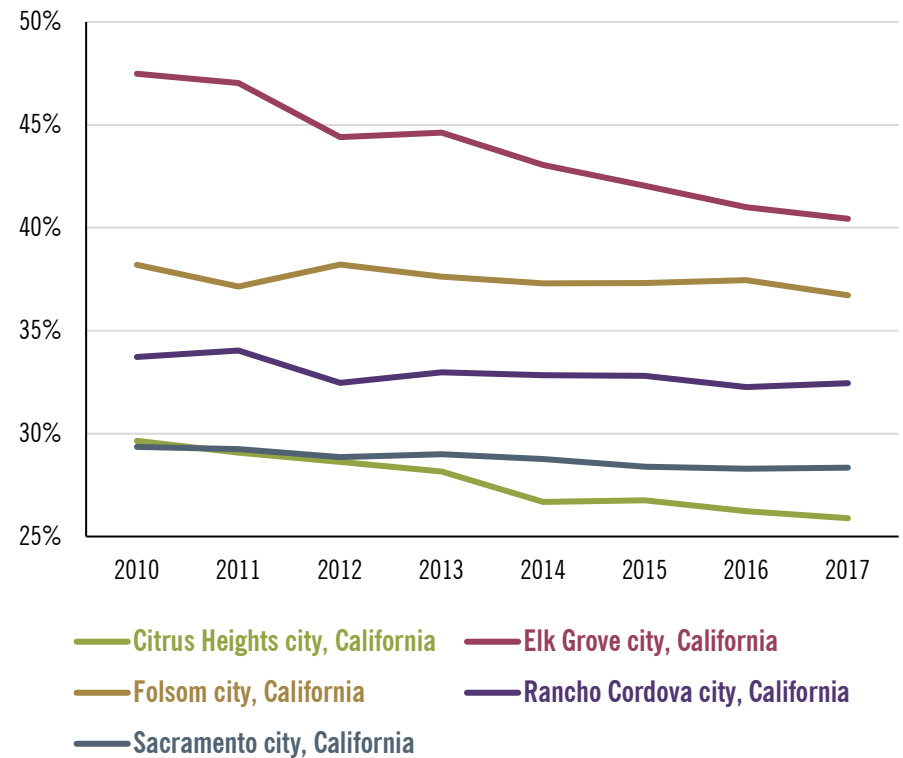
Occupancy by more than one person per room is used as a general proxy for overcrowding. The two cities with the largest growth in household size from 2010 to 2017 are also the cities with the most overcrowding. In Sacramento, 5.6 percent of the housing units had more than one occupant per room, and in Rancho Cordova it was 6.4 percent of housing units. The highest rate of growth in overcrowding was Folsom, which increased from 0.9 percent in 2010 to 1.3 percent in 2017. In contrast, Elk Grove was the one city in which overcrowding declined, from 3.2 to 3.1 percent.

HOUSEHOLDS WITH CHILDREN

From 2010 to 2017, the number of households in Sacramento County with children at home decreased by over 2,700 even though the County was growing. The percentage of households with children declined from 33 percent to 31 percent.

The percentage of households with children under the age of 18 in all the cities decreased from 2010 to 2017. Figure 28 shows the trend in household size for each city. In Elk Grove the number of households with children declined by 286 even though the city was growing; the percentage of households with children decreased from 47.4 percent to 40.4 percent. Citrus Heights also experienced a decline in the total number of households with children. The other cities experienced an increase in the total number of households with children, but far less than the total increase in housing, so that the percentage decreased.

Figure 28: Percentage of Households with Children under the Age of 18; Select Cities in Sacramento County; 2010 to 2017



Source: PlaceWorks, using data from the US Census Bureau's American Community Survey 5-Year Estimates.

A general trait of households with children is that the children usually grow up and move out at some point. The net decline in households with children in Elk Grove does not mean that these households were necessarily moving away. It means that children were leaving home faster than new households with children were moving into the city.

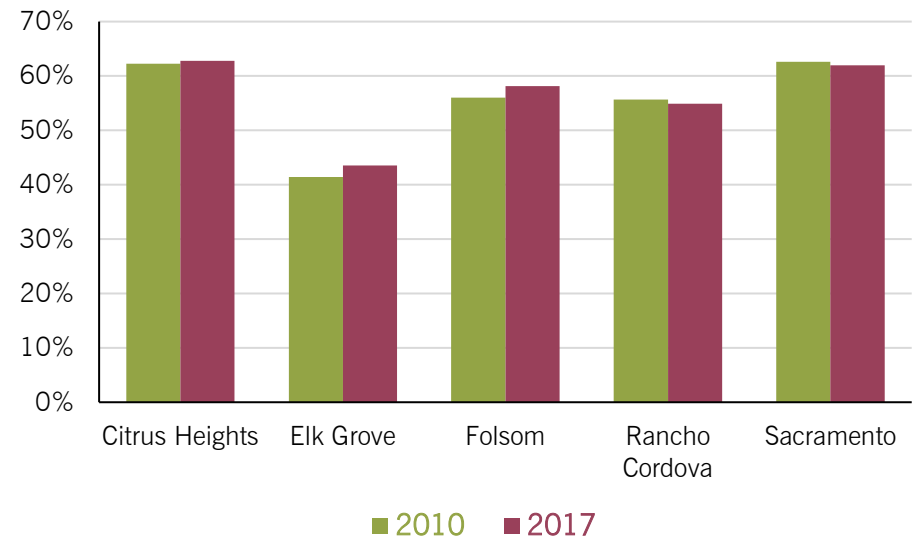
In 2017, of the households in Sacramento County that moved into their residence in the prior two years, 35.3 percent had children under the age of 18 at home. This is slightly higher than the percentage of households with children in the county and in each of the cities, except for Elk Grove and Folsom.

HOUSEHOLD TYPE

The majority of households, 57.8 percent, in Sacramento County in 2017 were one- and two-person households, a slight decrease from 58.1 percent in 2010. On average, the county grew by about 1,636 one- and two-person households per year.

Figure 29 shows the percentage of one- and two-person households in each of the cities in 2010 and 2017. The three cities with the highest percentages of one- and two-person households in 2017 were Citrus Heights at 62.8 percent, Sacramento at 62.0 percent, and Folsom at 58.1 percent. Elk Grove had the lowest percentage of one- and two-person households, 43.5 percent, but it had the highest growth, with one- and two person households gaining about 0.4 percentage points per year. The city also accounted for the highest percentage of the countywide increase in one- and two-person households, 33.6 percent. In 2017, of the countywide middle-income households that

Figure 29: One- and Two-Person Households as a Share of Total Households; Select Cities in Sacramento County; 2010 and 2017



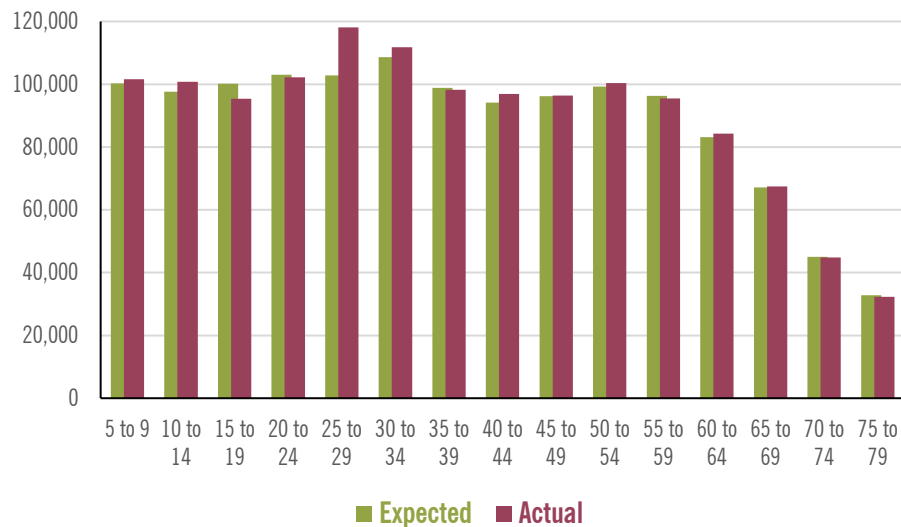
Source: PlaceWorks, using data from the US Census Bureau's American Community Survey 5-Year Estimates.

moved into their residence in the previous two years, only 26.2 percent were one- and two-person households. The relatively small share of growth suggests that a large part of the increase in one- and two-person households is driven by changes in the composition of existing households rather than new households moving into the county.

CHANGE IN AGE STRUCTURE

One way to better understand who is moving into and out of an area is to look at the changes in age structure. For example, the number of people age 30 to 34 in 2012 should equal the number of people age 35 to 39 in 2017, less the number expected to die during the time period. More than the expected number of people suggests in-migration, and less suggests out-

Figure 30: Population by Age Cohort, 2017, and Number of Persons Expected Based on Population in 2012; Sacramento County



Source: PlaceWorks, 2019, using data from the US Census Bureau's American Community Survey 5-Year Estimates.

migration. Table A-6 in the Appendix provides the underlying data for this analysis.

For Sacramento County, this analysis finds that the 2017 population in the 25 to 29 age cohort is 14.8 percent higher than expected based on the 2012 population age 20 to 24. The population age 30 to 34 and the population age 40 to 44 are 2.9 percent higher. There are small variations among the age cohorts, but these are the three largest differences from the expected population. This suggests that the region's largest net in-migration is among younger people. This represents a regional pool of household growth to drive new residential development. However, young people tend to have smaller households and lower incomes, and more often live in rental and multifamily housing. Figure 30 on the following page shows the age cohort population data for Sacramento County.

The change in age structure in Elk Grove differs from the countywide age structure. Figure 31 shows the population by age cohort data for Elk Grove. The largest differences between the expected and actual population were in the 5 to 9 age cohort (27.8 percent higher than expected), the 40 to 44 age cohort (21.9 percent higher than expected), and the 30 to 34 age cohort (20.3 percent higher than expected). This suggests that much of the city's growth has been driven by an influx of middle-age households, some with children. The data also show that the 15 to 19 and the 20 to 24 age cohorts had less population than expected. However, this is common for most cities as children go away to college and move out of their parents' homes.

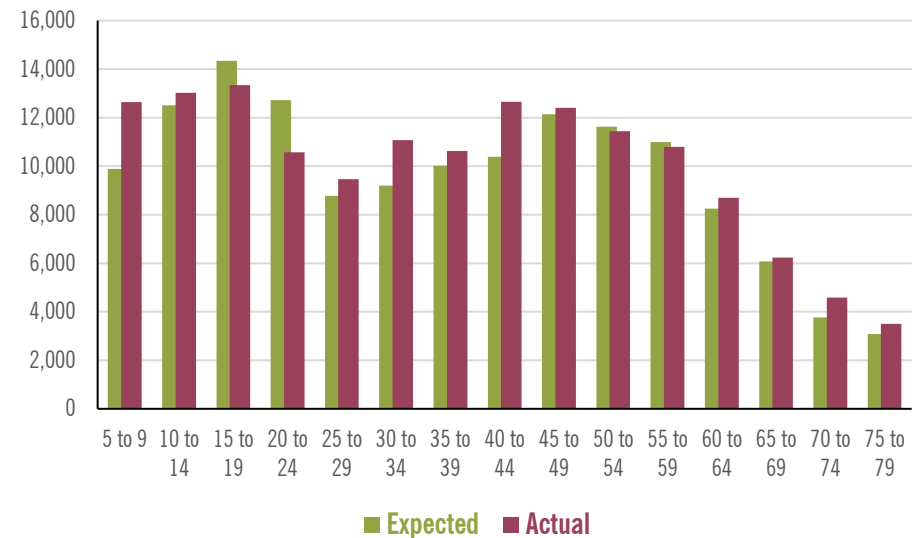
Citrus Heights had higher than expected 2017 populations in the 20 to 29, 50 to 54, and 65 to 69 age cohorts. The city had 18.2 percent fewer people age 40 to 45 than expected. Interestingly, the 5 to 9 cohort was 5.3 percent larger than expected, but the 10 to 14 cohort was 13.1 smaller than expected. Taken together, these data suggest that the city has some in-migration of younger families with younger children and some out-migration of middle-age families with older children. In addition, the city appears to have attracted some older households (ages 50 to 54 and 65 to 69).

Folsom’s age distribution tells a mixed story. The city had a higher than expected population in the 40 to 44 age cohort, with slightly more than expected in the 45 to 54 cohorts. This was accompanied by higher than expected population in the 5 to 14 cohorts. At the same time, the city had a lower than expected population in the 25 to 34 cohorts and the 55 to 59 cohort.

For Rancho Cordova, the population in the age cohorts 25 to 34 was much larger than expected, and somewhat larger for the 50 to 54 cohort. The city also had a lower than expected population in the 55 to 69 cohorts. For children, the city had a lower population for the 5 to 9 cohort and a larger than expected population for the 10 to 14 cohort.

Sacramento had larger than expected population in the 20 to 29 age cohorts. This suggests that the city is a destination for young adults moving out on their own and going to college and after college. The city also had a lower than expected population in the 5 to 14 age cohorts and the 50 to 54 cohort.

Figure 31: Population by Age Cohort, 2017, and Number of Persons Expected Based on 2012 Population; Elk Grove



Source: PlaceWorks, 2019, using data from the US Census Bureau’s American Community Survey 5-Year Estimates.

IMPLICATIONS OF REGIONAL MIDDLE-INCOME MARKET

Market-Rate Housing May Not Be the Solution for All Middle-Income Households. The range of household income defined in this report for middle-income households (\$41,000 and \$107,000) includes some households that might be eligible for affordable housing programs and some households that may have no difficulty obtaining housing at prices that are not burdensome. For those at the lower end, market rate housing may not be affordable, and there may not be enough funding in public affordable housing programs. Future research could explore how facilitating other middle-income households to move to new housing may or may not free up existing housing stock for households at the lower end of the income range.

Smaller Housing for Smaller Households. With 75 percent of middle-income households having three or fewer people and 88 percent having four or fewer, it would appear that smaller housing needs to be part of the market approach to affordable housing for the missing middle. And while the average household size has been slowly increasing, the average household size among recent movers is smaller than the size in the county and the cities. Furthermore, only 33.5 percent of recent movers were households with children.

But Some Larger Houses. With the national trend of a growing share of the population living in multigenerational households there will likely still be demand for larger houses. Even though only about 10 percent of Sacramento County's population currently

lives in multigenerational households, that number will likely grow. An unknown is whether or not there are sufficient numbers of appropriate housing units to accommodate that growth.

Smaller Single-Family Housing or More Attached and Multifamily Housing. Sacramento County is predominantly single-family detached housing, and the current market continues to produce predominantly single-family detached housing. In contrast, the markets in larger metropolitan areas in the state produce substantially more attached and multifamily housing—in some cases, that is the majority of new housing produced. It is not clear whether the market response in Sacramento County should be smaller single-family houses or more attached and multifamily housing. In fact, this will probably not be known until the market increases its production of both and sees how consumers respond.

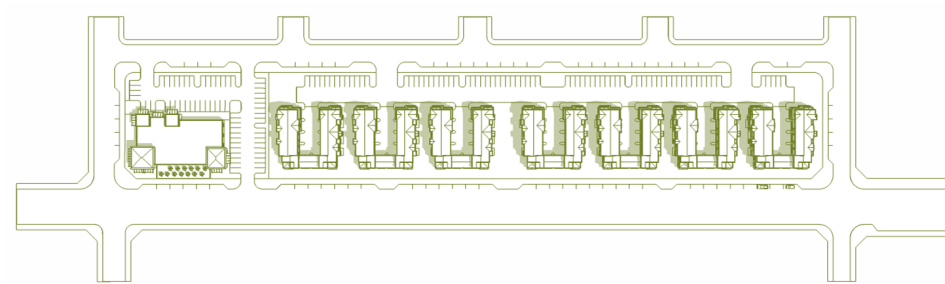
Home Ownership. Housing overpayment is usually lower for owners than it is for renters. In large part this is because mortgage lenders are restricted from approving loans that exceed a buyer's ability to pay. In some cases of housing overpayment, households choose to pay a larger share of their income to get the housing they desire, and in other cases households overpay because they cannot find housing that is affordable. Though facilitating the development of lower cost housing may be necessary to address housing for middle-income households, consideration should be given to programs that support home ownership and first-time buyers.

Housing Overpayment as a Pool of Market Demand. The percentage of middle-income households overpaying for housing is not high compared to other parts of the state. Nevertheless, these households represent a pool of potential purchasers and renters for new housing that is sized and priced to be affordable for them.

Young and Old Driving Market Demand. Sacramento County has attracted 25- to 34-year-olds over the past seven years, and a significant number of them have chosen to move to Elk Grove. Continued growth in these age cohorts suggests demand for smaller, affordable, and often attached or multifamily housing products.

At the same time, the continued aging of the Baby Boom generation is expected to drive the housing market in the future. This market has two facets. First, as some Baby Boomers decide to relocate, they will put their houses on the market, which will compete with the continued production of new single-family detached housing in the region. This has not happened yet, but it is expected to over the next ten years. Second, the Baby Boomers who do relocate will more likely be looking for smaller housing options. Whether the market is retirees relocating in Sacramento County or retirees moving to the county, this suggests that there will be an increasing demand for smaller housing units.

4. DEVELOPMENT FEASIBILITY



DEVELOPMENT FEASIBILITY

This chapter describes some of the common types of missing-middle housing and analyzes the development feasibility of constructing these product types in Elk Grove. The feasibility analysis calculates whether a developer can generate a sufficient profit based on current market conditions. If it is not currently feasible, the analysis explores what conditions or standards could be changed to make such development feasible.

The feasibility analysis determines how much a developer can afford to pay for the land, given construction costs and expected sales value or lease rates, and generate a rate of return sufficient to attract the required equity investment. The return on investment for a for-sale development project is typical measured as the internal rate of return or IRR. For for-rent development projects, the typical return is measured as the cash-on-cash yield. In conversations with area developers, it was determined that a 20 percent IRR and 8 percent yield are necessary for a project to be feasible.

Table 11 lists the development prototypes that are analyzed in this section of the report. Table A-7 in the Appendix provides the assumptions used in the financial feasibility analysis.

Table 11: Development Prototypes

Single-Family Detached Housing	
1. Standard Small-Lot Single-Family Detached	
1.1 Small Lot / Small House Size	
1.2 Small Lot / Moderate House Size	
<hr/>	
2. Courtyard Clusters	
2.1 High Density Courtyard Cluster	
2.2 Medium Density Courtyard Cluster	
<hr/>	
Single-Family Attached Housing	
3. Multiplexes	
3.1 Duplexes	
3.2 Triplexes	
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4. Rowhouse/Townhouse	
4.1 Townhouse Neighborhood	
4.2 Rowhouse Infill	
<hr/>	
Multifamily Housing	
5. Mixed-Housing Types	
5.1 Courtyard Cottages	
5.2 Mixed Townhouse/Flats	
<hr/>	
6. Gardencourt Apartments	
6.1 Courtyard Condos	
6.2 Courtyard Townhomes	
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SINGLE-FAMILY DETACHED HOUSING

PROTOTYPE 1: STANDARD SMALL LOT

This category of housing seeks to serve the market for single-family detached housing but to lower cost through smaller lots and higher density. The lots tend to be narrower than conventional single-family detached lots and may be less deep. This lotting pattern not only achieves a higher density, typically in the range of 10 to 18 dwelling units per acre but can also result in less street frontage. Reflecting the lot shape and size, the houses also are narrower and deeper. One of the constraints to this type of housing is the width needed for driveways and garages, although the buildings may utilize a single-width single-bay garage or a single-width tandem garage. Figure 32 shows the typical lot plan for this prototype.

There are two versions of the prototype analyzed here. The first, Prototype 1.1, provides missing-middle housing with a smaller house on a small lot. The second, Prototype 1.2, provides a larger house on a small lot. One of the challenges with missing middle housing is to keep the housing unit size small so that the units are geared toward the growing market of smaller households and that the purchase price is affordable to middle-income households. Comparing these two prototypes provides an understanding of the difference unit sizes make.

PROTOTYPE 1.1 SMALL LOT, SMALL HOUSE SIZE

The development program for Prototype 1.1 is provided in Table 12. The development scenario analyzed provides 33 single-family detached units on 2.6 acres, for a density of 12.7 units per acre. As shown in Figure 32, a

Figure 32: Typical Lot Plan for Prototype 1.1, Standard Small-Lot Single-Family Detached Housing

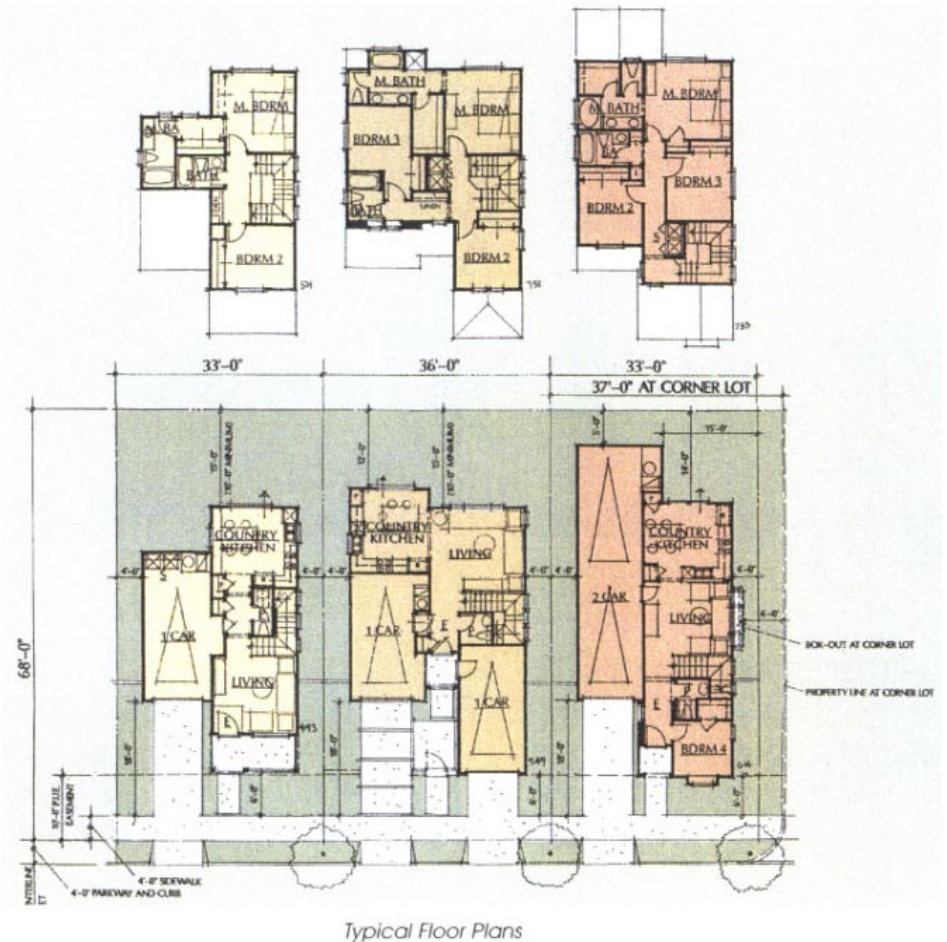


Table 12: Development Program for Prototypes 1.1 and 1.2, Small-Lot Single-Family Detached

	Prototype 1.1	Prototype 1.2
Site Information		
Gross land area (acres)	2.61	1.97
Number of units	33	23
Density	12.7	11.7
Average lot size (sq. ft.)	2,312	2,480
Unit 1		
- Number of units	11	5
- Bedrooms	2	3
- Size (sq. ft.)	994	1,486
- Est. sales value (\$)	316,714	367,473
Unit 2		
- Number of units	11	7
- Bedrooms	3	3
- Size (sq. ft.)	1,170	1,649
- Est. sales value (\$)	321,360	417,951
Unit 3		
- Number of units	11	11
- Bedrooms	4	4
- Size (sq. ft.)	1,347	1,820
- Est. sales value (\$)	343,817	439,198

typical lotting pattern for this type of development would have 33-foot by 68-foot lots for units 1 and 3, which have single-width garages, and 36-foot by 68-foot lots for unit 2, which has double-width garages. The average lot size across all 33 lots in this scenario is 2,508 square feet.

The development scenario analyzed provides four-foot side yards for each house. The Elk Grove Zoning Code requires five-foot side yards for single-family housing at lower densities. For the RD-15 zoning district, the minimum side-yard width is determined through the design review process. Similarly, the development scenario utilizes smaller front yards, six feet, and rear yards, five, 12, and 15 feet. This analysis assumes that smaller yards would be approved.

The units in this prototype are fairly small for single-family detached housing: 994 square feet for the 2-bedroom units; 1,170 square feet for the 3-bedroom units; and 1,347 square feet for the 4-bedroom units.

Based on an analysis of residential sales in Elk Grove in 2018 and 2019, the analysis estimates a sales price of \$317,000 for unit 1, \$321,000 for unit 2, and \$344,000 for unit 3.

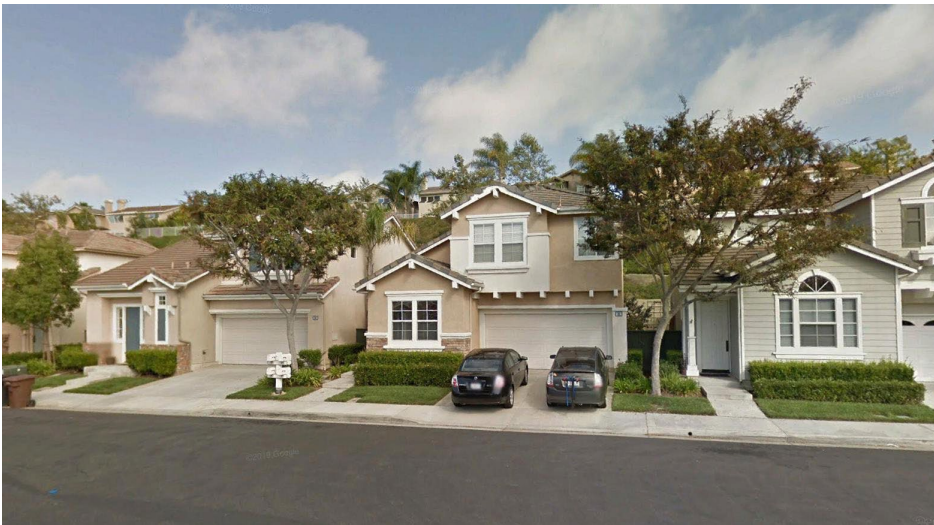
PROTOTYPE 1.2 SMALL LOT, MODERATE SIZE HOUSE

The development program for Prototypes 1.2 is provided in Table 11. The development scenario analyzed provides 23 single-family detached units on 2.0 acres, for a density of 11.7 units per acre. The typical lot in this development scenario is 40 feet wide and 62 feet deep. The average lot size is 2,535 square feet.

The units in this prototype are slightly smaller than conventional lot single-family detached housing, but they are 30 to 40 percent larger than the units for Prototype 1.1. The discussion of the financial feasibility analysis discusses the actual floor-to-area ratios of these two prototypes and how this affects the feasibility and the affordability. Specifically, the unit sizes are: 1,486 square feet for a 3-bedroom unit; 1,649 square feet for the other 3-bedroom unit, and 1,820 for the 4-bedroom unit.

Based on an analysis of residential sales in Elk Grove in 2018 and 2019, the analysis estimates a sales price of \$367,000 for unit 1, \$418,000 for unit 2, and \$439,000 for unit 3.

Prototype 1.2 Development



Source: Google Earth.

FEASIBILITY

Table 13 summarizes the financial feasibility analysis of these two prototypes.

For Prototype 1.1, the total development cost is \$10.2 million, and the total expected sales value is \$10.8 million. In order to develop this project, the developer would have to invest \$1.9 million and would borrow \$8.6 million. However, that investment would only earn a return of 12.8 percent.

In order to achieve an IRR of 20 percent, the developer would have to be able to purchase the land for \$970,000, about \$73,900 or 7.1 percent *below* the estimated cost for land acquisition.

For Prototype 1.2, the total development cost is \$9.1 million, and the total expected sales value is \$9.6 million. In order to develop this project, the developer would have to invest \$1.6 million and would borrow \$7.5 million. This investment would earn a return of 29.3 percent.

In order to achieve an IRR of 20 percent, the developer could afford to purchase the land for \$858,000, about \$77,000 or 9.9 percent *above* the estimated cost for land acquisition.

Financial feasibility analyses for Elk Grove, Citrus Heights, Folsom, and Rancho Cordova are provided in Table A-8 in the Appendix.

Table 13: Financial Feasibility Summary for Prototypes 1.1 and 1.2

	Prototype 1.1		Prototype 1.2	
	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	78,300	2,370	58,600	2,550
Land cost	1,043,000	31,600	781,000	34,000
Total finished floor area (sq. ft.)	38,600	1,170	39,000	1,700
Construction cost	7,060,000	214,000	6,390,000	278,000
Development fees	1,354,000	41,000	1,081,000	47,000
Other soft costs	706,000	21,400	639,000	27,800
Total development cost	10,160,000	308,000	9,130,000	397,000
Total sales value	10,800,000	327,000	9,590,000	417,000
Construction loan amount	8,550,000	259,000	7,520,000	327,000
- cost of financing	278,000	8,410	244,000	10,620
Equity required	1,890,000	57,300	1,606,000	69,800
IRR	12.8%		29.3%	
Land value @20% IRR	970,000	29,400	858,000	37,300
Surplus value / (feasibility gap)	(73,900)	(2,240)	77,000	3,350
- percent of land value	(7.1%)		9.9%	

Source: PlaceWorks, 2019.

TARGET MARKET

The small size of the units in Prototype 1.1 would be targeted to small households with one, two, or three people, and they would be targeted mostly to first-time homebuyers. The larger units in Prototype 1.2 would be targeted to larger households with three- four- and five people. Existing property owners trading up or relocating from elsewhere, depending on income, may also favor the larger unit sizes in Prototype 1.2.

Table 14 on the following page shows the minimum annual household income for which the purchase price is affordable for each of the units in the two prototypes. The table provides data for conventional mortgages with a 20 percent down payment and for FHA-insured mortgages with a 5 percent down payment. The conventional mortgage would more often be used by existing homeowners applying equity from their current home. The FHA-insured mortgage would more often be used by first-time buyers.

With an FHA-insured mortgage, the units in Prototype 1.1 would be affordable to 42, 41, and 38 percent of Sacramento County middle-income households, for units 1, 2, and 3, respectively. With a conventional mortgage, the eligible share of regional households increases to 53, 52, and 49 percent. The difference between the two is that the 20 percent down payment for a conventional mortgage reduces the monthly mortgage payment, which decreases the income needed for the annual housing cost to be affordable.

For Prototype 1.2, with the larger unit sizes, an FHA-insured mortgage would be affordable to 35, 29, and 26 percent of middle-income households, for units 1, 2, and 3, respectively. With a conventional mortgage, the share of middle-income households that could afford to purchase increases to 47, 41,

Table 14: Affordable Annual Income to Purchase Prototypes 1.1 and 1.2

	Prototype 1.1		Prototype 1.2	
	Conv. Mortgage	FHA-Insured Mortgage	Conv. Mortgage	FHA-Insured Mortgage
Unit 1				
Sales price	317,000	317,000	367,000	367,000
Down payment	63,300	15,840	73,500	18,370
Monthly mortgage payment	1,210	1,670	1,400	1,940
Total annual housing cost	18,910	24,500	21,900	28,400
Affordable income	63,000	81,600	73,200	94,700
- % middle-income households	53.1%	41.6%	46.5%	34.5%
Unit 2				
Sales price	321,000	321,000	418,000	418,000
Down payment	64,300	16,070	83,600	20,900
Monthly mortgage payment	1,220	1,700	1,590	2,210
Total annual housing cost	19,190	24,800	25,000	32,300
Affordable income	64,000	82,800	83,200	107,700
- % middle-income households	52.4%	40.9%	40.7%	28.8%
Unit 3				
Sales price	344,000	344,000	439,000	439,000
Down payment	68,800	17,190	87,800	22,000
Monthly mortgage payment	1,310	1,810	1,670	2,320
Total annual housing cost	20,500	26,600	26,200	34,000
Affordable income	68,400	88,600	87,400	113,200
- % middle-income households	49.2%	37.5%	38.1%	26.3%

Source: PlaceWorks, 2019.

and 38 percent. In all cases, a majority of middle-income households could not afford to buy a unit in Prototype 1.2.

ASSESSMENT

The analysis shows that Prototype 1.1 would be affordable to half of middle-income households with a conventional mortgage and nearly a third with an FHA-insured mortgage, but it is not financially feasible to develop this prototype given current market conditions. However, if costs were reduced by \$2,240 per unit, this prototype would achieve the 20 percent IRR threshold to be financially feasible to develop. The magnitude of this cost reduction could be achieved by lowering the average lots size by 7.1 percent, from 2,312 square feet to 2,144 square feet, but this reduction might require zoning changes to reduce setback requirements.

The problem is that Prototype 1.2, which is permitted in the same zoning district as 1.1, achieves a 29.3 percent IRR without any changes. This prototype has larger units: the floor-to-area (FAR) ratio increases from 0.49 for prototype 1.1 to 0.67 for 1.2. Even if setbacks were reduced for Prototype 1.1, the market would still provide a larger financial incentive for a developer to construct Prototype 1.2. The problem is that these larger units are less affordable: up to 47 percent of middle-income households could afford the smallest Prototype 1.2 unit with a conventional mortgage, and up to 35 percent with an FHA-insured mortgage.

The analysis also considered market conditions in several other cities. As with Elk Grove, Prototype 1.1 is not feasible, and Prototype 1.2 is feasible in Citrus Heights. Both prototypes are feasible in Folsom, and neither are feasible under current market conditions in Rancho Cordova.

PROTOTYPE 2: COURTYARD CLUSTER

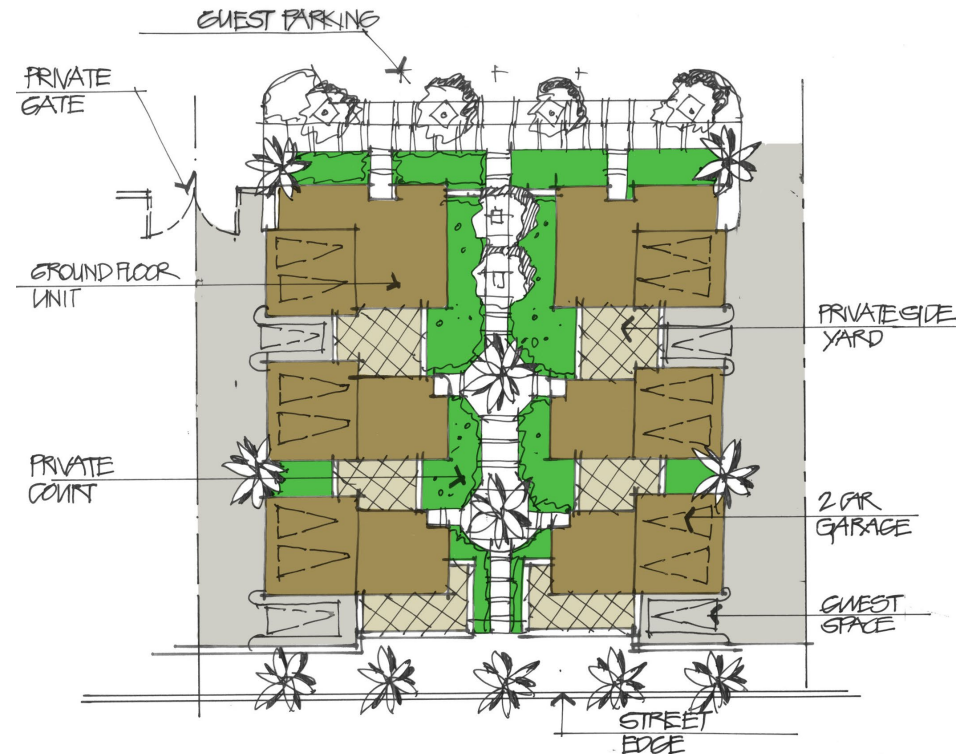
Courtyard clusters are another type of small lot single-family detached housing product. However, instead of aligning the housing units fronting on a street, this housing product is usually rear loaded from an internal alley, with the housing units fronting on an internal courtyard. The achievable densities vary from about 8 units per acre up to about 16, which is dependent on the parcel layout and the need to provide internal alleyways. Figure 33 shows a typical layout for a courtyard cluster.

There are two versions of this prototype. Prototype 2.1 provides moderately size housing units on somewhat smaller lots. The second, Prototype 2.2, provides somewhat larger housing units on somewhat larger lots.

PROTOTYPE 2.1 HIGH-DENSITY COURTYARD CLUSTER

The development program for Prototype 2.1 is provided in Table 15 on page 51. The development scenario analyzed provides 72 single-family detached units on 4.7 acres, for a density of 15.2 units per acre. Figure 34, on page 52 shows an aerial view of the development scenario analyzed. In this scenario, there is an eight-foot distance between the sides of the housing units, a ten-foot separation between the closest points of the fronts of each housing units, and the rear of each housing unit is offset about three foot from the rear property line and alleyway. These distances do not meet the minimum standards required by the Elk Grove Zoning Code for single-family housing at lower densities. For the RD-15 zoning district, the minimum yard width is determined through the design review process. This analysis assumes that smaller yards would be approved.

Figure 33: Illustrative Courtyard Cluster Layout



Source: PlaceWorks, 2019.

The unit sizes in this prototype are modest for single-family detached housing: 1,030 and 1,145 square feet for the 2-bedroom units; 1,275 square feet for

Table 15: Development Program for Prototypes 2.1 and 2.2, Courtyard Cluster Single-Family Detached

	Prototype 1.1	Prototype 1.2
Site Information		
Gross land area (acres)	4.74	14.31
Number of units	72	162
Density	15.2	11.3
Average lot size (sq. ft.)	2,444	2,694
Unit 1		
- Number of units	12	18
- Bedrooms	2	2
- Size (sq. ft.)	1,030	1,538
- Est. sales value (\$)	324,731	423,819
Unit 2		
- Number of units	12	61
- Bedrooms	2	2
- Size (sq. ft.)	1,145	1,608
- Est. sales value (\$)	347,162	437,473
Unit 3		
- Number of units	24	35
- Bedrooms	3	3
- Size (sq. ft.)	1,275	1,790
- Est. sales value (\$)	359,717	448,815

Table 15 continued

	Prototype 1.1	Prototype 1.2
Unit 4		
- Number of units	24	34
- Bedrooms	4	3
- Size (sq. ft.)	1,497	1,736
- Est. sales value (\$)	378,861	445,095
Unit 5		
- Number of units		14
- Bedrooms		4
- Size (sq. ft.)		1,810
- Est. sales value (\$)		451,269

the 3-bedroom units; and 1,497 square feet for the 4-bedroom units. Based on a review of residential sales in Elk Grove in 2018 and 2019, the analysis estimates a sales price of \$325,000 for unit 1, \$347,000 for unit 2, \$372,000 for unit 3, and \$392,000 for unit 4.

PROTOTYPE 2.2 MEDIUM-DENSITY COURTYARD CLUSTER

The development program for Prototypes 2.2 is provided in Table 15. The development scenario analyzed provides 162 single-family detached units on 14.3 acres, for a density of 11.3 units per acre. The average lot size is 2,694 square feet.

Figure 34: Prototype 2.1 Development



Source: Google Earth.

The units in this prototype are somewhat larger than the units in Prototype 2.1, but they are still a modest size for conventional single-family detached housing. The sizes range from 1,540 square feet for a two-bedroom unit up to 1,810 for a four-bedroom unit.

Based on a review of residential sales in Elk Grove in 2018 and 2019, the analysis estimates a sales prices ranging from \$424,000 for unit 1 up to \$451,000 for unit 5.

FEASIBILITY

Table 16 summarizes the financial feasibility analysis of these two prototypes. Summaries for other cities are provided in Table A-9 in the Appendix.

For Prototype 2.1, the total development cost is \$24.2 million, and the total expected sales value is \$25.8 million. In order to develop this project, the developer would have to invest \$4.7 million and would borrow \$20.2 million. However, that investment would only earn a return of 12.5 percent. In order to achieve an IRR of 20 percent, the developer would have to be able to purchase the land for \$2.8 million, about \$204,000 or 6.8 percent below the estimated cost for land acquisition.

For Prototype 2.2, the total development cost is \$67.3 million, and the total expected sales value is \$71.5 million. In order to develop this project, the developer would have to invest \$12.9 million and would borrow \$54.3 million. This investment would earn a return of 31.0 percent.

In order to achieve an IRR of 20 percent, the developer could afford to purchase the land for \$9.7 million, about \$850,000 or 9.6 percent above the estimated cost for land acquisition.

Table 16: Financial Feasibility Summary for Prototypes 2.1 and 2.2

	Prototype 2.1		Prototype 2.2	
	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	206,500	2,870	623,300	3,850
Land cost	2,987,000	41,500	8,836,000	54,500
Total finished floor area	92,600	1,290	272,800	1,680
Construction cost	16,550,000	230,000	44,630,000	276,000
Development fees	3,049,000	42,400	7,595,000	46,900
Other soft costs	1,655,000	23,000	4,463,000	27,600
Total development cost	24,240,000	337,000	67,290,000	415,000
Total sales value	25,790,000	358,000	71,470,000	59,000
Construction loan amount	20,220,000	281,000	54,370,000	336,000
- cost of financing	656,000	9,120	1,765,000	10,900
Equity required	4,681,000	65,000	12,921,000	79,800
IRR	12.5%		31.0%	
Residual land value @20% IRR	2,783,000	38,600	9,685,000	59,800
Surplus value (feasibility gap)	(204,000)	(2,830)	849,600	5,240
- percent of land value	(6.8%)		9.6%	

TARGET MARKET

Both the prototypes provide a mix of two-, three-, and four-bedroom units, suggesting that both would be targeted to small one- and two-person households as well as larger households with kids. However, the smaller

overall unit sizes in Prototype 2.1 would more likely be target to smaller households, and the larger unit sizes in Prototype 2.2 would be target to larger households.

Table 17 shows the minimum annual household income for which the purchase price is affordable for each of the units in the two prototypes. The table provides data for conventional mortgages with a 20 percent down payment and for FHA-insured mortgages with a 5 percent down payment. The conventional mortgage would more often be used by existing homeowners applying equity from their current home. The FHA-insured mortgage would more often be used by first-time buyers.

With an FHA-insured mortgage, the units in Prototype 2.1 would be affordable to about 40 percent of Sacramento County middle-income households for the smallest 2-bedroom unit, about 35 percent for the three-bedroom unit, and 33 percent for the four-bedroom unit. With a conventional mortgage, the eligible share of regional households increases to 52, 79, 47, and 45 percent for the four types of units. However, to qualify for the conventional mortgage, the down payment increases from \$16,000 to \$65,000 for the smallest unit and from \$19,000 to \$76,000 for the largest unit.

For Prototype 2.2, with the larger unit sizes, an FHA-insured mortgage would be affordable to 28 percent of middle-income households for the smallest two-bedroom unit and 25 percent of middle-income households for the four-bedroom unit. With a conventional mortgage, the share of middle-income households that could afford to purchase increases to 37 percent to 40 percent, depending on the unit size.

Table 17: Affordable Annual Income to Purchase Prototypes 2.1 and 2.2

	Prototype 2.1		Prototype 2.2	
	Conv. Mortgage	FHA-Insured Mortgage	Conv. Mortgage	FHA-Insured Mortgage
Unit 1	Conv. Mortgage	FHA-Insured Mortgage	Conv. Mortgage	FHA-Insured Mortgage
Sales price	325,000	325,000	424,000	424,000
Down payment	64,900	16,200	84,800	21,200
Affordable income	64,600	83,700	84,400	109,200
- % middle-income households	52.1%	40.4%	40.0%	28.0%
Unit 2				
Sales price	347,000	347,000	437,000	437,000
Down payment	69,400	17,400	87,500	21,900
Affordable income	69,100	89,500	87,100	112,800
- % middle-income households	49.0%	37.0%	38.4%	26.5%
Unit 3				
Sales price	360,000	360,000	449,000	449,000
Down payment	71,900	18,000	89,800	22,400
Affordable income	71,600	92,700	89,300	115,700
- % middle-income households	47.3%	35.3%	37.2%	25.4%
Unit 4				
Sales price	379,000	379,000	445,000	445,000
Down payment	75,800	18,900	89,000	22,300
Affordable income	75,400	97,600	88,600	114,700
- % middle-income households	45.3%	33.3%	37.5%	25.7%
Unit 5				
Sales price			451,000	451,000
Down payment			90,300	22,600
Affordable income			89,800	116,300
- % middle-income households			36.9%	25.2%

A majority of middle-income households could not afford to buy a unit in Prototype 2.2, and just over half of middle-income households could afford to purchase the smallest unit in Prototype 2.1, and then only if they could afford the 20 percent down payment.

ASSESSMENT

The feasibility and affordability of Prototypes 2.1 and 2.2 are similar to Prototypes 1.1 and 1.2. While 40 percent of middle-income households could afford to purchase a Prototype 2.1 unit with an FHA-insured mortgage, the prototype is not financially feasible to develop given current market conditions. To be financially feasible, costs would have to be reduced by \$2,830 per unit. Unlike Prototype 1.1, however, this prototype does not have yard space that can be reduced to lower the cost of land acquisition. The pro forma model does assume that the gross acreage purchased by the developer includes ten percent of the net acreage for off-site parks/open space. Eliminating the parks/open space would increase the IRR to 23.1 percent, making the prototype financially feasible. Eliminating the parks/open space may not be effective because, without such open space nearby, the units may be less attractive and sell for lower than the assumed prices.

Also similar to Prototypes 1.1 and 1.2, the larger unit sizes in Prototype 2.2 achieve a 31 percent IRR without any reductions. This creates a market incentive for developers to build larger units. But the larger units are only affordable to 40 percent of middle-income households, with a conventional mortgage and larger down payment, or 28 percent of middle-income households, with an FHA-insured mortgage.

Prototype 2.1 Development



The analysis also considered market conditions in several other cities. As with Elk Grove, Prototype 2.1 is not feasible by a similar magnitude in Citrus Heights and Folsom, but Prototype 2.2 is feasible in both cities. Neither prototype is feasible under current market conditions in Rancho Cordova.

SINGLE-FAMILY ATTACHED HOUSING

PROTOTYPE 3: MULTIPLEXES

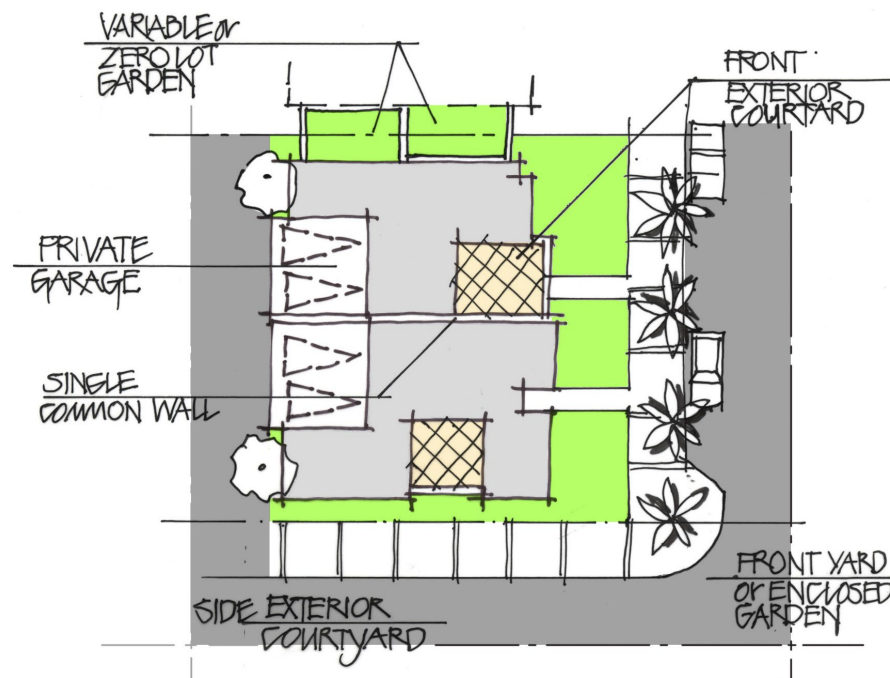
Multiplexes generally refers to single-family attached housing, that includes duplexes (two attached units), triplexes (three attached units), quadplexes, and so on. Depending on the design, there can be some cost savings by exchanging two exterior walls for one common interior wall. Also dependent on design, multiplexes can achieve densities generally from 5 to 20 units per acre. Higher densities usually result from additional height (typically three-story buildings) and rear alley loading. Figure 35 shows a typical lot layout for a duplex. Figure 37 on page 60 shows a typical lot layout for a triplex.

There are two versions of this prototype. The first, Prototype 3.1 provides a small development with eight duplexes at a density of 10.2 units per acre. The second, Prototype 3.2, provides a larger scale development with 78 triplex units, at a density of 15.2 units per acre.

PROTOTYPE 3.1 DUPLEXES

The development program for Prototype 3.1 is provided in Table 18 on page 57. The development scenario analyzed provides eight single-family attached duplex units—four buildings, each with two dwelling units. This type of development can be scaled up for a large concentration of duplexes or scaled down to provide a small number of duplexes to balance out other product types in a larger development project. The development scenario presented here includes eight units on 0.8 acres, for a density of 10.2 units per acre. As configured, the distance between the duplex buildings is eight feet, with offsetting zero lot lines so that each unit has an enclosed side yard. As

Figure 35: Typical Duplex Lot Layout



discussed with previous prototypes, the analysis assumes that this setback would be approved as part of the design review process.

The units in this prototype are somewhat large for middle-income housing: 1,600-square foot and 1,800 square foot three-bedroom units and 1,900-square foot and 2,100-square foot four-bedroom units. The analysis estimates that these duplex units would sell for \$428,000 to \$501,000, with an average sales value of \$470,000.

Table 18: Development Program for Prototypes 3.1 and 3.2, Multiplex Single-Family Attached Housing

	Prototype 3.1	Prototype 3.2
Site Information		
Gross land area (acres)	0.79	5.15
Number of units	8	78
Density	10.2	15.2
Average lot size (sq. ft.)	1,233	1,137
Unit 1		
- Number of units	2	26
- Bedrooms	3	2
- Size (sq. ft.)	1,610	1,272
- Est. sales value (\$)	427,524	391,700
Unit 2		
- Number of units	2	26
- Bedrooms	3	3
- Size (sq. ft.)	1,810	1,922
- Est. sales value (\$)	474,697	496,380
Unit 3		
- Number of units	2	26
- Bedrooms	4	3
- Size (sq. ft.)	1,935	1,922
- Est. sales value (\$)	477,737	487,927

Table 18 continued

	Prototype 3.1	Prototype 3.2
Unit 4		
- Number of units	2	
- Bedrooms	4	
- Size (sq. ft.)	2,145	
- Est. sales value (\$)	501,488	

PROTOTYPE 3.2 TRIPLEXES

The development program for Prototype 3.2 is provided in Table 18. The development scenario analyzed provides 78 single-family attached triplex units—each building has three dwelling units. Each building is alley loaded from the rear. The first unit is a carriage-house unit over the garages. Figure 36 on page 60 shows a carriage-house unit in a triplex. The other two units are two-story townhouse units fronting on the street. As with the duplex prototype, triplexes can be scaled up and scaled down. The development scenario presented here includes 72 units on 5.1 acres, for a density of 15.2 units per acre. This size of development could be a stand-alone project or one part of a larger residential neighborhood.

The carriage-house unit is a moderately sized 1,200 square feet. The two townhouse units are larger, at 1,900 square feet. The analysis estimates that the two-bedroom carriage-house unit would sell for \$392,000, the three-bedroom townhouse unit for \$496,000, and the four-bedroom townhouse unit for \$488,000.

Table 19: Financial Feasibility Summary for Prototypes 3.1 and 3.2

	Prototype 3.1		Prototype 3.2	
	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	34,300	4,290	162,600	2,080
Land cost	582,000	72,800	3,807,000	48,800
Total finished floor area	15,000	1,880	133,000	1,710
Construction cost	2,550,000	319,000	22,610,000	290,000
Development fees	393,000	49,100	3,677,000	47,100
Other soft costs	255,000	31,900	2,261,000	29,000
Total development cost	3,780,000	473,000	33,230,000	426,000
Total sales value	3,760,000	470,000	35,780,000	459,000
Construction loan amount	3,110,000	389,000	27,050,000	347,000
- cost of financing	101,000	12,630	878,000	11,260
Equity required	771,000	96,400	6,186,000	79,300
IRR	n/a		45.0%	
Residual land value @20% IRR	317,000	39,700	4,691,000	60,100
Surplus value (feasibility gap)	(265,100)	(33,140)	884,000	11,330
- percent of land value	(45.5%)		23.2%	

FEASIBILITY

Table 19 summarizes the financial feasibility analysis of these two prototypes. Table A-10 provides feasibility summaries for the other cities.

For Prototype 3.1, the duplexes, the total development cost is \$3.8 million. The total expected sales value is actually less than the total development cost. In order to develop this product in Elk Grove, the analysis estimates that land acquisition cost would need to be reduced or subsidized by \$265,000 or 45.5 percent. The layout of the development scenario analyzed could be altered if the project were developed along existing public streets (and the rear alley where the garages are located). Such a configuration would result in a smaller land area, lower land acquisition cost, and a reduction in construction cost. These changes would increase the density to 15.3 units per acre but also make the development financially feasible. However, such changes would have to be approved through the design review process, and it is not clear that there would be many, if any, locations with an existing public street and rear alley that could accommodate this prototype.

For Prototype 3.2, the total development cost is \$33.2 million, and the total expected sales value is \$35.8 million. In order to develop this project, the developer would have to invest \$6.2 million and would borrow \$27 million. This investment would earn a return of 45.0 percent.

In order to achieve an IRR of 20 percent, the developer could afford to purchase the land for \$4.7 million, about \$884,000 or 23.2 percent above the estimated cost for land acquisition. This prototype is lucrative, in part, because the unit sizes are fairly large.

Table 20: Affordable Annual Income to Purchase Prototypes 3.1 and 3.2

	Prototype 3.1		Prototype 3.2	
	Conv. Mortgage	FHA-Insured Mortgage	Conv. Mortgage	FHA-Insured Mortgage
Unit 1				
Sales price	431,000	431,000	395,000	395,000
Down payment	86,100	21,500	78,900	19,700
Affordable income	85,700	111,000	78,600	101,700
- % middle-income households	39.2%	27.2%	43.3%	31.3%
Unit 2				
Sales price	478,000	478,000	500,000	500,000
Down payment	95,700	23,900	100,000	25,000
Affordable income	95,200	123,300	99,600	128,900
- % middle-income households	34.2%	22.8%	32.3%	21.0%
Unit 3				
Sales price	481,000	481,000	492,000	492,000
Down payment	96,300	24,100	98,300	24,600
Affordable income	95,800	124,100	97,900	126,700
- % middle-income households	33.9%	22.6%	33.2%	21.7%
Unit 4				
Sales price	505,000	505,000		
Down payment	101,100	25,300		
Affordable income	100,600	130,200		
- % middle-income households	31.9%	20.6%		

TARGET MARKET

Both the prototypes provide a mix of two-, three-, and four-bedroom units, but the unit sizes are fairly large compared to other prototypes presented in this report. This suggests that both would be targeted to larger households with and without children.

Table 20 shows the minimum annual household income for which the purchase price is affordable for each of the units in the two prototypes. The table provides data for conventional mortgages with a 20 percent down payment and for FHA-insured mortgages with a 5 percent down payment.

It is worth restating that Prototype 3.1, the duplex product, is not feasible without substantial site planning and design review. Nevertheless, if such a project could be developed, the smallest unit, Unit 1, would be affordable to 27 percent of middle-income households with an FHA-insured mortgage and 39 percent with a conventional mortgage. The largest unit would be affordable to 21 percent of middle-income households with an FHA-insured mortgage and 32 percent with a conventional mortgage.

For Prototype 3.2, the triplex product, the carriage-house units (Unit 1) would be affordable to 31 percent of middle-income households with and FHA-insured mortgage and 43 percent with a conventional mortgage. For the larger townhouse units (Units 2 and 3), about 21 percent of middle-income households could afford the purchase with an FHA-insured mortgage, and only about 32 percent with a conventional mortgage.

ASSESSMENT

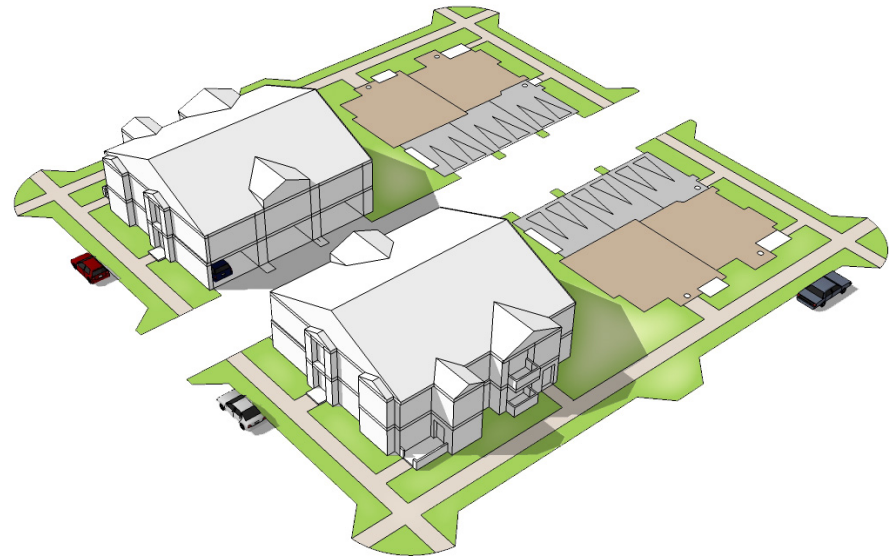
The financial feasibility analysis shows that multiplexes have limited suitability for providing housing affordable to middle-income households. The duplex product, Prototype 3.1, that was analyzed in the report is not financially feasible to develop. The feasibility could be improved with larger unit sizes, but that would decrease affordability, and the unit sizes in the prototype, 1,600 to 2,100 square feet, are already fairly large to begin with.

Figure 36: Prototype 3.2, Triplex—Rear-Loading Garages and Carriage-house Unit



The triplex product, Prototype 3.2, represents a lucrative development product. However, this prototype achieves a significant return on investment because two-thirds of the units, the townhouse units, are fairly large, but these larger units are not affordable to a majority of middle-income households.

Figure 37: Typical Lot Layout for Prototype 3.2



PROTOTYPE 4: ROWHOUSE/TOWNHOUSE

The rowhouse or townhouse is single-family attached housing in which the units share common sidewalls. As the average size of attached housing has increased over the years, so has the price. In order to contain costs and limit price increases, several design approaches have been tried. These include deeper and narrower units (some include tandem garages), rear alley loading, obtaining floor area by adding stories, and modest unit sizes. Figure 38 shows a typical layout for rowhouse/townhouse development with rear alley-loaded garages and moderate unit sizes.

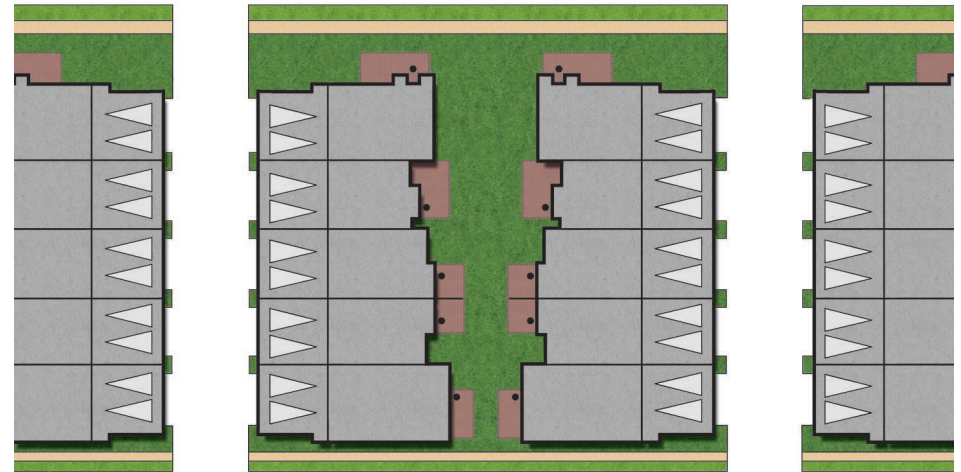
There are two versions of this prototype. Both are townhouse products. But the first has a real variety of layouts and unit sizes, and the second is a bit more uniform.

Prototype 4.1 provides 70 units, ranging in size from 1,330 to 1,690 square feet, and could be a stand-alone residential development project. Prototype 4.2 provides 30 units in six buildings, which could line an entry road or otherwise be one component of a larger development project.

PROTOTYPE 4.1 TOWNHOUSE NEIGHBORHOOD

The development program for Prototype 4.1 is provided in Table 21 on page 62. The development scenario analyzed provides 70 townhouse units in 11 buildings surrounding internal streets. One-third of the site is landscaped open space, and the buildings can be built within the standards of the Elk Grove Zoning Ordinance. The site is 2.46 acres in size, which results in a density of 20.0 units per acre.

Figure 38: Typical Rowhouse/Townhouse Lot Layout



Prototype 4.1 Building with Eight Units



Table 21: Development Program for Prototypes 4.1 and 4.2, Rowhouse/Townhouse Single-Family Attached Housing

	Prototype 4.1	Prototype 4.2
Site Information		
Gross land area (acres)	2.46	1.60
Number of units	70	30
Density	20.0	18.8
Average lot size (sq. ft.)	776	809
Unit 1		
- Number of units	20	18
- Bedrooms	2	3
- Size (sq. ft.)	1,473	1,588
- Est. sales value (\$)	425,334	437,802
Unit 2		
- Number of units	10	6
- Bedrooms	2	3
- Size (sq. ft.)	1,327	1,661
- Est. sales value (\$)	396,856	452,041
Unit 3		
- Number of units	20	6
- Bedrooms	3	3
- Size (sq. ft.)	1,592	1,632
- Est. sales value (\$)	435,743	446,384

Table 21 continued

	Prototype 4.1	Prototype 4.2
Unit 4		
- Number of units	20	
- Bedrooms	3	
- Size (sq. ft.)	1,686	
- Est. sales value (\$)	454,078	

The units range in size from 1,330 square feet for a two-bedroom unit to 1,690 square feet for a three-bedroom unit. The unit layouts differ from conventional townhouses, with a large part of the two-bedroom units built over the garages for other units. Otherwise, all the units share a common sidewall. The building height is three stories, but only some of the units have a third story.

The units in this prototype are moderate-sized middle-income housing. The analysis estimates that Unit 1, with two bedrooms and 1,70 square feet would sell for \$425,000, and Unit 2, with two bedrooms and 1,330 square feet would sell for \$397,000. However, only 10 of the 70 units in this development scenario would be the smallest, most affordable unit type. The analysis also estimates that Unit 3, with three bedrooms and 1,590 square feet would sell for \$436,000, and Unit 4, with three bedrooms and 1,690 square feet would sell for \$454,000.

PROTOTYPE 4.2 ROWHOUSE INFILL

The development program for Prototype 4.2 is provided in Table 21, on the previous page. As analyzed, this prototype is made up of 6 buildings; each building has three Unit 1's in the middle, with a Unit 2 on one end and a Unit 3 on the other end. The six buildings occupy 1.6 acres, achieving a density of 18.8 units per acre. Slightly over a third of the site is open space.

All of the units have three bedrooms. Unit 1, which accounts for the majority of the units, is 1,590 square feet in size, and the two end units are 1,630 and 1,660 square feet. The analysis estimates that Unit 1 would sell for \$438,000, Unit 2 for \$452,000, and Unit 3 for \$446,000.

FEASIBILITY

Table 22 summarizes the financial feasibility analysis of these two prototypes. Table A-11 in the Appendix provides the feasibility summaries for other cities.

For Prototype 4.1, the total development cost is \$28.5 million, and the total expected sales value is \$30.3 million. This produces a residual land value of \$3.1 million, which is about \$242,000, or 7.2 percent, below the estimated cost for land acquisition. The development scenario as analyzed is not financially feasible, achieving a return of only 12.2 percent. However, reducing the open space from 50,760 to 41,100 square feet, or from 33.3 percent to 28.8 percent of the site, results in a 20 percent IRR. While this might seem to be a minor adjustment, the reduction would eliminate most of the functional open space on the site; the remaining open space would mostly be landscaping in front of the units and in the turn radius areas for internal streets.

Table 22: Financial Feasibility Summary for Prototypes 4.1 and 4.2

	Prototype 4.1		Prototype 4.2	
	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	107,000	1,530	49,900	1,660
Land cost	3,373,000	48,200	1,541,000	51,400
Total finished floor area	108,300	1,550	48,300	1,610
Construction cost	19,930,000	285,000	8,560,000	285,000
Development fees	3,174,000	45,300	1,382,000	46,100
Other soft costs	1,993,000	28,500	856,000	28,500
Total development cost	28,470,000	407,000	12,680,000	423,000
Total sales value	30,270,000	432,000	13,270,000	442,000
Construction loan amount	23,800,000	340,000	10,290,000	343,000
- cost of financing	773,000	11,040	334,000	11,130
Equity required	5,452,000	77,900	2,391,000	79,700
IRR	12.2%		20.9%	
Residual land value @20% IRR	3,130,000	44,700	1,553,000	51,800
Surplus value (feasibility gap)	(242,200)	(3,460)	12,500	420
- percent of land value	(7.2%)		0.8%	

For Prototype 4.2, the total development cost is \$12.7 million, and the total expected sales value is \$13.3 million. In order to develop this project, the developer would have to invest \$2.4 million and would borrow \$10.3 million. This investment would earn a return of 20.9 percent, meaning that it is financially feasible to develop.

TARGET MARKET

Prototype 4.1 provides a mix of two- and three-bedroom moderately sized units. These would be suitable for small and medium sized households. Prototype 4.2 provides all three-bedroom units, with an average unit size slightly larger than Prototype 4.2. These larger units would mostly be suited to medium-size households.

Table 23 shows the minimum annual household income for which the purchase price is affordable for each of the units in the two prototypes. The table provides data for conventional mortgages with a 20 percent down payment and for FHA-insured mortgages with a 5 percent down payment.

For Prototype 4.1, the two-bedroom units would be affordable to about 39 to 43 percent of middle-income households with a conventional mortgage and about 28 to 31 percent with an FHA-insured mortgage. The three-bedroom units would be affordable to about 36 to 38 percent of middle-income households with a conventional mortgage and about 25 to 26 percent with an FHA-insured mortgage.

For Prototype 4.2, the units would be affordable to about 37 percent of middle-income households with a conventional mortgage and about 25 percent with an FHA-insured mortgage.

Table 23: Affordable Annual Income to Purchase Prototypes 4.1 and 4.2

	Prototype 4.1		Prototype 4.2	
	Conv. Mortgage	FHA-Insured Mortgage	Conv. Mortgage	FHA-Insured Mortgage
Unit 1				
Sales price	428,000	428,000	440,000	440,000
Down payment	85,600	21,400	88,100	22,000
Affordable income	85,200	110,300	87,700	113,500
- % middle-income households	39.4%	27.5%	38.1%	26.2%
Unit 2				
Sales price	399,000	399,000	455,000	455,000
Down payment	79,800	20,000	90,900	22,700
Affordable income	79,500	102,900	90,500	117,200
- % middle-income households	42.8%	30.9%	36.4%	24.8%
Unit 3				
Sales price	438,000	438,000	449,000	449,000
Down payment	87,700	21,900	89,800	22,500
Affordable income	87,300	113,000	89,400	115,700
- % middle-income households	38.2%	26.4%	37.2%	25.3%
Unit 4				
Sales price	457,000	457,000		
Down payment	91,400	22,800		
Affordable income	90,900	117,700		
- % middle-income households	36.3%	24.7%		

ASSESSMENT

Prototype 4.1 has a somewhat smaller average unit size than Prototype 4.2 and it is affordable to slightly more middle-income households. However, to be financially feasible to develop, this prototype can only provide a limited amount of open space.

In contrast, Prototype 4.2 is financially feasible, but this results from slightly larger unit sizes and fronting the buildings on an existing street so that there

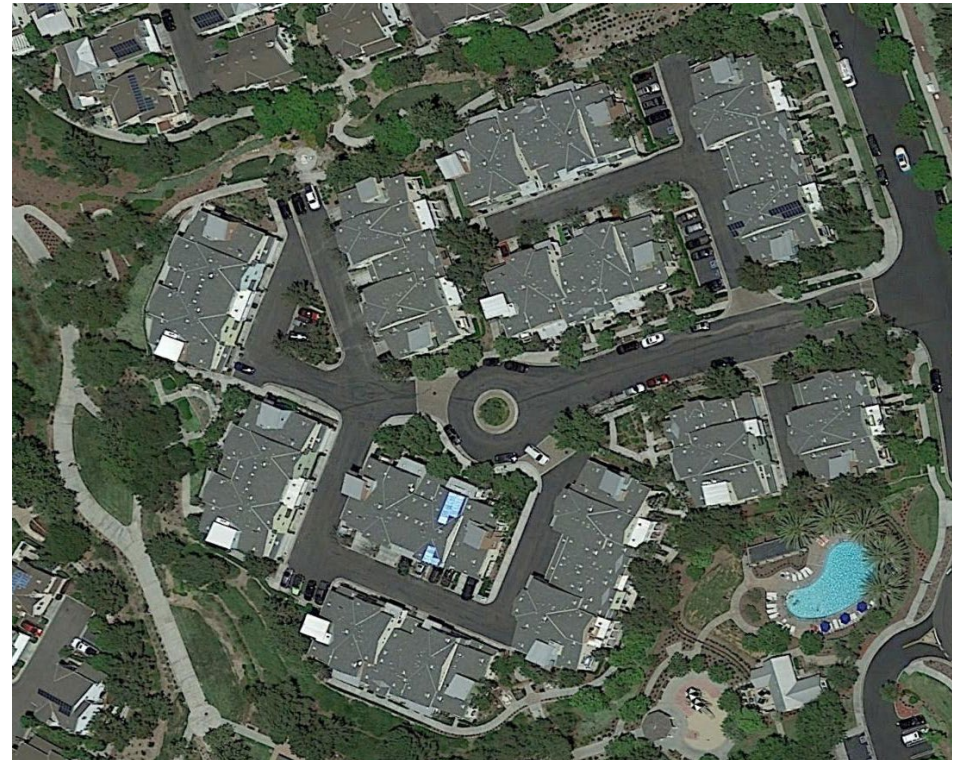
Figure 39: Prototype 4.2 Development, Rear-Loaded Rowhouses



Source: Google Earth

is less cost in building internal streets to serve the new rowhouse/townhouse units. Nevertheless, these moderately size units are affordable to more than a third of middle-income households with a conventional mortgage and a quarter of those that need an FHA-insured mortgage.

Figure 40: Prototype 4.1 Development, Townhouse Neighborhood



Source: Google Earth.

MULTIFAMILY HOUSING

PROTOTYPE 5: MIXED HOUSING TYPES

These prototypes mix some smaller multifamily flats with larger attached or detached units to provide some more affordable units as part of a financially feasible project.

The first prototype is a courtyard cluster that combines four small single-family detached housing units in a zero lot-line configuration with two carriage-house units over the detached parking garage for all size units. The second prototype mixes townhouses and flats in a three-story building, with a substantial amount of the ground floor used for parking garages.

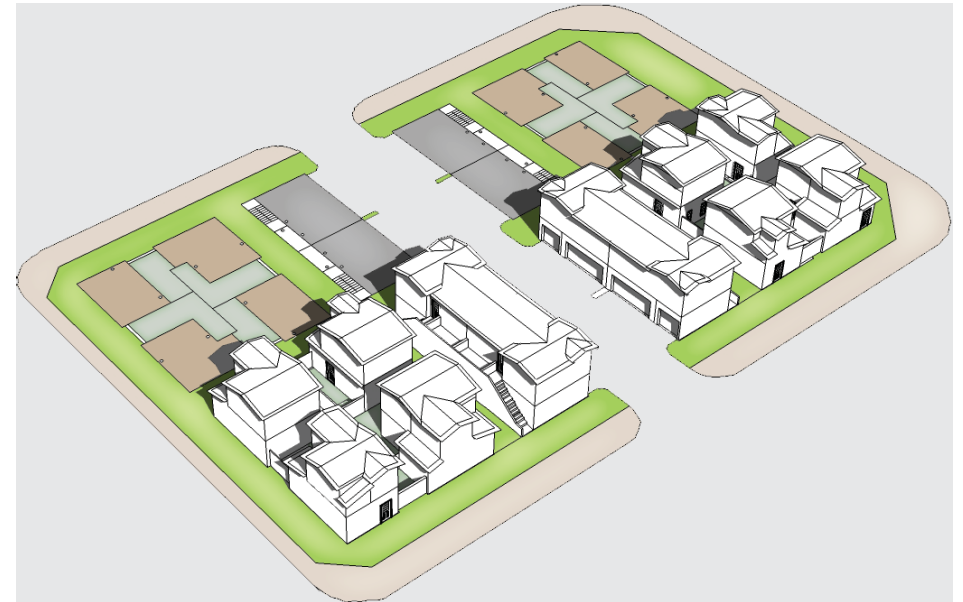
PROTOTYPE 5.1 COURTYARD COTTAGES

The development program for Prototype 5.1 is provided in Table 24. The development scenario analyzed provides six courtyard clusters. Each cluster includes four small single-family detached houses and two carriage house units over the garages. Figure 41 shows the typical layout for a courtyard cluster.

The development scenario is intended for infill development with existing streets and includes new alleys to serve the garage parking for each cluster. The site is 1.6 acres, and with 36 dwelling units, it results in a density of 22.4 units per acre. About 38 percent of the site is landscaped open space.

The two carriage units over the garages are studios, with 600 square feet of living space. The single-family detached houses include two one-bedroom units with 700 square feet, a 925 square foot one-bedroom unit, and a 950

Figure 41: Typical Lot Layout for Prototype 5.1, Courtyard Cottages



Source: PlaceWorks, 2019.

square foot two-bedroom unit. The area between the single-family detached houses is private yard space with zero lot lines. The buildings are eight feet apart, so this distance would have to be approved through the design review process.

The single-family detached units in this prototype are small, relative to conventional single-family housing. The studio carriage house units are also

Table 24: Development Program for Prototypes 5.1 and 5.2

	Prototype 5.1	Prototype 5.2
Site Information		
Gross land area (acres)	1.60	4.60
Number of units	36	96
Density	22.4	20.9
Average lot size (sq. ft.)	475	838
Unit 1		
- Number of units	12	57
- Bedrooms	Studio	2
- Size (sq. ft.)	600	1,160
- Est. sales value (\$)	279,394	372,798
Unit 2		
- Number of units	12	39
- Bedrooms	1	3
- Size (sq. ft.)	700	1,270
- Est. sales value (\$)	285,870	381,452
Unit 3		
- Number of units	6	
- Bedrooms	1	
- Size (sq. ft.)	925	
- Est. sales value (\$)	315,904	

Continued on the following page

Table 24 continued

	Prototype 5.1	Prototype 5.2
Unit 4		
- Number of units	6	
- Bedrooms	2	
- Size (sq. ft.)	950	
- Est. sales value (\$)	320,615	

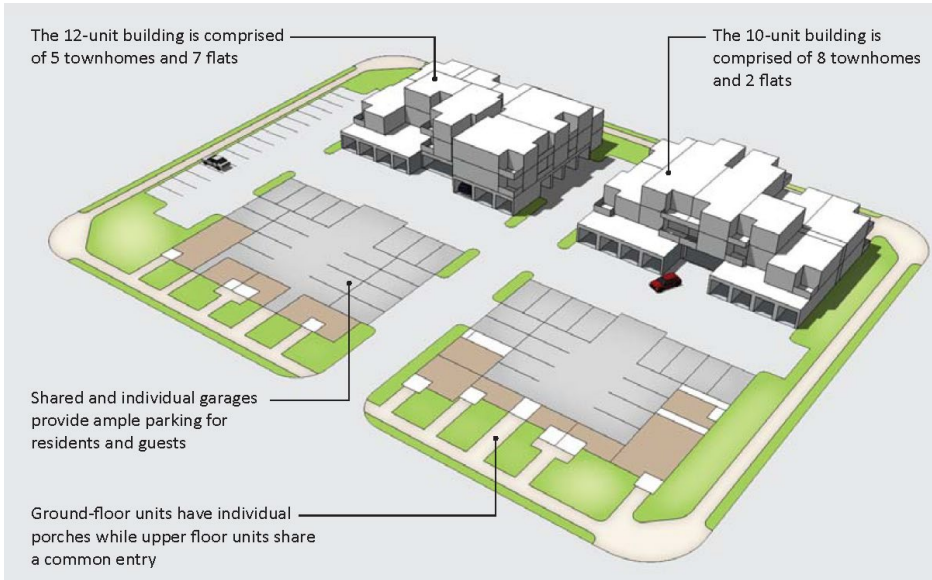
Source: PlaceWorks, 2019.

somewhat small. The sizes lead to sales prices that are somewhat low relative to the other prototypes analyzed in this report. The analysis estimates that the carriage house units would sell for \$279,000. The smaller one-bedroom would sell for \$286,000, and the larger would sell for \$316,000. The two-bedroom unit would sell for 321,000.

PROTOTYPE 5.2 MIXED TOWNHOUSE/FLATS

The development program for Prototype 5.1 is provided in Table 23. The development scenario analyzed includes six ten-unit buildings and three twelve-unit buildings. Each building is three stories and contains two-bedroom flats and three-bedroom townhouses. The ground level contains garabe parking and ground floor residential units facing the street. The parking is load from the rear alley with a few individual side garages. Figure 42 shows the layout of buildings and garages.

Figure 42: Prototype 5.2 Typical Lot Layout



Source: PlaceWorks, 2019.

The units in this prototype are larger than the units in Prototype 5.1, but they are still a moderate size: the two-bedroom units are 1,160 square feet, and the three-bedrooms are 1,270 square feet in size.

The development scenario could be a stand-alone project or a part of a larger development. The site is 4.6 acres, and with 96 dwelling units, it results in

a density of 20.9 units per acre. About 37 percent of the site is landscaped open space.

The analysis estimates that the two-bedroom flats would sell for \$373,000. The three-bedroom townhouses would sell for \$381,000.

FEASIBILITY

Table 26 summarizes the financial feasibility analysis of these two prototypes. Table A-12 in the Appendix provides financial feasibility summaries for the other cities.

For Prototype 5.1, the total development cost is \$9.3 million, and the total expected sales value is \$10.7 million. In order to develop this project, the developer would have to invest \$1.9 million and would borrow \$7.6. This investment would earn a return of 60.3 percent, meaning that this project is financially feasible to develop. To earn an IRR of 20 percent, the developer could afford to pay an additional \$541,000 to purchase the land. This amount could be used instead to pay for public benefits.

For Prototype 5.2, the total development cost is \$34.2 million, and the total expected sales value is \$36.1 million. In order to develop this project, the developer would have to invest \$6.5 million and would borrow \$27.6. This investment would earn a return of 27.4 percent, meaning that this project is financially feasible to develop. To earn an IRR of 20 percent, the developer could afford to pay an addition \$289,000 to purchase the land. This amount could be used instead to pay for public benefits.

Table 25: Financial Feasibility Summary for Prototypes 5.1 and 5.2

	Prototype 5.1		Prototype 5.2	
	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	69,800	1,940	154,500	1,610
Land cost	1,549,000	43,000	4,430,000	46,100
Total finished floor area	26,900	750	115,700	1,200
Construction cost	5,860,000	163,000	22,610,000	236,000
Development fees	1,303,000	36,200	3,977,000	41,400
Other soft costs	586,000	16,300	2,261,000	23,600
Total development cost	9,300,000	258,000	34,180,000	356,000
Total sales value	10,680,000	297,000	36,130,000	376,000
Construction loan amount	7,610,000	211,000	27,640,000	288,000
- cost of financing	247,000	6,860	897,000	9,350
Equity required	1,937,000	53,800	6,543,000	68,200
IRR	63.3%		27.4%	
Residual land value @20% IRR	2,090,000	58,100	4,719,000	49,200
Surplus value (feasibility gap)	540,700	15,020	288,800	3,010
- percent of land value	34.9%		6.5%	

Source: PlaceWorks, 2019.

TARGET MARKET

Prototype 5.1 provides a mix of small studio, one-bedroom, and two-bedroom units. Because of the small size of the units and the limited number of bedrooms, these housing units would be targeted to one- and two-person households and small families. In contrast, the units in Prototype 5.2 are moderately sized but are two- and three-bedroom units. These would likely be targeted at small households and families.

Table 26 shows the minimum annual household income for which the purchase price is affordable for each of the units in the two prototypes. For Prototype 5.1, the carriage-house studio units would be affordable to about 52 percent of middle-income households with a conventional mortgage and about 46 percent with an FHA-insured mortgage. The single-family detached units would be affordable to about 46 to 51 percent of middle-income households with a conventional mortgage and about 40 to 45 percent with an FHA-insured mortgage. For Prototype 5.2, the units would be affordable to about 40 percent of middle-income households with a conventional mortgage and about 33 percent of households with an FHA-insured mortgage.

The analysis also evaluated the feasibility of developing these two prototypes as rental housing. Typically, a residential development for rental is feasible if it generates a cash-on-cash yield—defined as the net operating income after debt service and taxes divided the equity investment—of 8 percent or higher. Table 27 on the following page shows the monthly rent necessary for development to be financially feasible, the annual household income for the

Table 26: Affordable Annual Income to Purchase Prototypes 5.1 and 5.2

	Prototype 5.1		Prototype 5.2	
	Conv. Mortgage	FHA-Insured Mortgage	Conv. Mortgage	FHA-Insured Mortgage
Unit 1				
Sales price	289,000	289,000	373,000	373,000
Down payment	57,800	14,500	74,600	18,600
Affordable income	64,900	74,500	83,700	96,100
- % middle-income households	51.9%	45.8%	40.4%	33.8%
Unit 2				
Sales price	296,000	296,000	381,000	381,000
Down payment	59,200	14,800	76,300	19,100
Affordable income	66,400	76,300	85,600	98,300
- % middle-income households	50.6%	44.8%	39.2%	32.9%
Unit 3				
Sales price	327,000	327,000		
Down payment	65,400	16,300		
Affordable income	73,400	84,300		
- % middle-income households	46.5%	40.1%		
Unit 4				
Sales price	332,000	332,000		
Down payment	66,400	16,600		
Affordable income	74,500	85,500		
- % middle-income households	45.9%	39.3%		

Source: PlaceWorks, 2019.

rent to be affordable, and the percentage of middle-income households with that income or higher.

For Prototype 5.1, the developer would have to put in a total equity investment of \$4.6 million. This is substantially more than the equity required to develop Prototype 5.1 as a for-sale product because the net operating income from rents would not be enough to secure permanent financing to cover the development cost. With this added equity, the project would generate a yield of 7.4 percent. To achieve an 8.0 percent yield, market rate rents would have to be 8.4 percent higher.

For Prototype 5.2, the developer would have to make a total equity investment of \$16.8 million, more than two and a half times the equity investment needed to develop the site as a for-sale product. However, with this

Table 27: Affordable Annual Income to Rent Prototypes 5.1 and 5.2

	Unit:	1	2	3	4
Prototype 5.1					
Monthly Rent		1,460	1,730	1,810	2,050
Affordable Income		63,000	74,600	78,100	88,400
% middle-incomes households		53.2%	45.8%	43.7%	37.6%
Prototype 5.2					
Monthly Rent		1	2,210		
Affordable Income		91,700	103,400		
% middle-incomes households		35.8%	30.6%		

Source: PlaceWorks, 2019.

investment, market rate rents would generate a cash-on-cash yield of 8.4 percent. Thus, developing this prototype as a for-rent project is financially feasible. However, it is unlikely that a developer would choose to make the larger investment necessary to do so.

ASSESSMENT

Both of these prototypes provide small or moderate-size units at densities higher than the earlier prototypes. This results in expected sales prices that would be affordable to many but not the majority of middle-income households.

There is not much that can be done to lower the sales price of units in Prototype 5.1. The units are already small, and it is not possible to increase the density. Similarly, the buildings in Prototype 5.2 are not designed to be scaled up with additional stories. These housing products can help provide housing affordable to some middle-income households, but not most of them.

PROTOTYPE 6: GARDENCOURT APARTMENTS

At the upper end of scale and density of missing-middle housing types are motorcourt and gardencourt apartments. Both provide apartments in a U-shaped building. In a Motorcourt, the bottom of the U faces the street and parking is accessed from the rear into the middle of the U. In a gardencourt, the top of the U faces the street and the interior of the U is landscaped open space. Parking is accessed from the side and rear of the building. From a financial feasibility perspective, the two are very similar. The gardencourt is analyzed here because it tends to provide a more interesting and active street presence. Figure 43 shows the lot layout for the gardencourt apartments analyzed as Prototype 6.1.

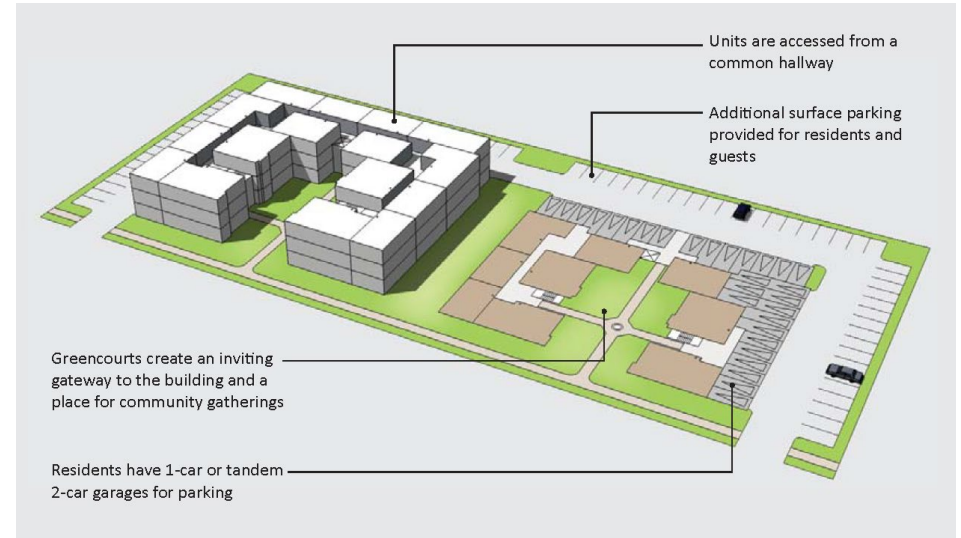
There are two prototypes for gardencourt apartments. The first is a three-story building with one- and two-bedroom apartments. The second contains a mix of one-, two-, and three-story flats and townhouses.

PROTOTYPE 6.1 GARDENCOURT CONDOS

The development program for Prototype 6.1 is provided in Table 28. The development scenario analyzed includes three three-story buildings, each of which has 18 870-square foot one-bedroom units and 20 1,050-square foot two-bedroom units. The buildings provide 87 garage parking spaces and 148 surface parking spaces, for a total of 2.06 space per unit. Landscaped open space accounts for 22.6 percent of the site area. With 114 units on 3.8 acres, the development would result in a density of 30 dwelling units per acre.

The analysis estimates that the one-bedroom units would sell for \$346,000. The two-bedroom units would sell for \$351,000. If developed as a for-rent

Figure 43: Prototype 6.1 Typical Lot Layout



Source: PlaceWorks, 2019.

project, the analysis estimates that the market-rate monthly rents would be \$1,650 for the one-bedroom units and \$1,920 for the two-bedroom units.

PROTOTYPE 6.2 GARDENCOURT TOWNHOMES

Prototype 6.2 has eight different unit types, ranging from an 822-square foot one-bedroom flat to a 1,324-square foot three-bedroom two-story townhouse to a 1,445-square foot two-bedroom three-story townhouse. All of the units have a two-car attached garage, except the one-bedroom units, which have a one-car garage. The site also accommodates 133 on-street parking spaces.

Landscaped open space accounts for 13.5 percent of the site. With 179 units on the 9-acre site, the development results in a density of 20 units per acre.

The estimated values range from \$337,000 for the one-bedroom unit to \$420,000 for the largest units, Unit 8. If developed as a for-rent project, the analysis estimates that the monthly rents would range from \$1,630 for the one-bedroom unit to \$2,050 for the largest unit.

Figure 44: Prototype 6.2 Development



Table 28: Development Program for Prototypes 6.1 and 6.2

	Prototype 6.1	Prototype 6.2
Site Information		
Gross land area (acres)	3.8	9.0
Number of units	114	179
Density	30.0	20.0
Average lot size (sq. ft.)	494	860
Unit 1		
- Number of units	54	11
- Bedrooms	1	1
- Size (sq. ft.)	870	822
- Est. sales value (\$)	346,067	336,705
Unit 2		
- Number of units	60	42
- Bedrooms	2	2
- Size (sq. ft.)	1,050	1,155
- Est. sales value (\$)	351,342	363,307

Table 28 continued

Prototype 6.2		Prototype 6.2	
Unit 3		Unit 6	
- Number of units	31	- Number of units	11
- Bedrooms	2	- Bedrooms	2
- Size (sq. ft.)	1,183	- Size (sq. ft.)	1,330
- Est. sales value (\$)	377,285	- Est. sales value (\$)	383,468
Unit 4		Unit 7	
- Number of units	31	- Number of units	11
- Bedrooms	2	- Bedrooms	2
- Size (sq. ft.)	1,181	- Size (sq. ft.)	1,398
- Est. sales value (\$)	368,378	- Est. sales value (\$)	410,705
Unit 5		Unit 8	
- Number of units	31	- Number of units	11
- Bedrooms	3	- Bedrooms	2
- Size (sq. ft.)	1,324	- Size (sq. ft.)	1,445
- Est. sales value (\$)	383,468	- Est. sales value (\$)	419,873

Source: PlaceWorks, 2019.

FEASIBILITY

Table 29 summarizes the financial feasibility analysis of these two prototypes.

For Prototype 6.1, the total development cost is \$32.1 million, and the total expected sales value is \$39.8 million. In order to develop this project, the developer would have to invest \$6.1 million and would borrow \$26.8 million. This investment would earn a return of 154.1 percent, meaning that this project is financially feasible to develop. To earn an IRR of 20 percent, the developer could afford to pay an additional \$4.5 million to purchase the land. This amount could be used instead to pay for public benefits. However, it is worth noting that there are insufficient sales of land zoned for 30 units per acre to base an accurate estimate of the land acquisition cost, so the actual cost to purchase the site may be more than accounted for in the pro forma.

For Prototype 6.2, the total development cost is \$65.5 million, and the total expected sales value is \$67.6 million. In order to develop this project, the developer would have to invest \$12.6 million and would borrow \$52.9 million. However, this investment would earn a return of only 8.6 percent, meaning that this project is not financially feasible to develop. To earn an IRR of 20 percent, the cost to acquire the land would have to be reduced by \$851,000, or about 10 percent of the estimated land acquisition cost. Eliminating all the on-street parking would increase the IRR to 18.8 percent, which is still not financially feasible, but it is close. However, overflow and guest parking are important, so eliminating all the on-street parking is not a viable option. Because this prototype has a small amount of landscaped open space outside the courtyard, which is its defining feature, reducing open

space is also not a viable option. Thus, this prototype is not a financially feasible development option under current market conditions.

Table 29: Financial Feasibility Summary for Prototypes 6.1 and 6.2

	Prototype 6.1		Prototype 6.2	
	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	109,000	960	245,700	1,370
Land cost	3,660,000	32,100	8,620,000	48,200
Total finished floor area	110,000	960	217,800	1,220
Construction cost	21,810,000	191,000	43,370,000	242,000
Development fees	4,410,000	38,700	7,442,000	41,600
Other soft costs	2,181,000	19,100	4,337,000	24,200
Total development cost	32,060,000	281,000	65,490,000	366,000
Total sales value	39,770,000	349,000	67,570,000	377,000
Construction loan amount	26,840,000	235,000	52,910,000	296,000
- cost of financing	871,000	7,640	1,718,000	9,600
Equity required	6,090,000	53,400	12,583,000	70,300
IRR	154.1%		8.6%	
Residual land value @20% IRR	8,192,000	71,900	7,769,000	43,400
Surplus value (feasibility gap)	4,532,400	39,760	(851,100)	(4,750)
- percent of land value	123.8%		(9.9%)	

Source: PlaceWorks, 2019.

TARGET MARKET

Prototype 6.1 provides one- and two-bedroom flats, which are somewhat small for a for-sale unit but typically sized for apartments. Because of the small size of the units and the limited number of bedrooms, these housing units would be targeted to one- and two-person households and small families. Prototype 6.2 includes a wide variety of unit sizes, but most of the units have two bedrooms. Nevertheless, the average unit size in Prototype 6.2 is 26 percent larger than the average in Prototype 6.1. Thus, Prototype 6.2 would also be targeted to smaller households, but also moderate-sized households also.

Table 30 shows the minimum annual household income for which the purchase price is affordable for each of the units in the two prototypes. For Prototype 6.1, the units would generally be affordable for about 43 percent of middle-income households to purchase with a conventional mortgage and about 37 percent with an FHA-insured mortgage.

Prototype 6.2 includes a variety of unit sizes with a range of sales values. Generally speaking, though, the units would be affordable to 35 to 43 percent of middle-income households with a conventional mortgage and 29 to 39 percent with an FHA-insured mortgage.

Table 30: Affordable Annual Income to Purchase Prototypes 6.1 and 6.2

	Prototype 6.1		Prototype 6.2	
	Conv. Mortgage	FHA-Insured Mortgage	Conv. Mortgage	FHA-Insured Mortgage
Unit 1				
Sales price	346,000	346,000	337,000	337,000
Down payment	69,200	17,300	67,300	16,800
Affordable income	77,700	89,200	75,600	86,800
- % middle-income households	43.9%	37.2%	45.3%	38.6%
Unit 2				
Sales price	351,000	351,000	363,000	363,000
Down payment	70,300	17,600	72,700	18,200
Affordable income	78,800	90,600	81,500	93,600
- % middle-income households	43.2%	36.4%	41.7%	35.0%
Unit 3				
Sales price			377,000	377,000
Down payment			75,500	18,900
Affordable income			84,700	97,200
- % middle-income households			39.9%	33.5%
Unit 4				
Sales price			368,000	368,000
Down payment			73,700	18,400
Affordable income			82,700	94,900
- % middle-income households			41.0%	34.3%

Table 30 continued

	Prototype 6.2	
	Conv. Mortgage	FHA-Insured Mortgage
Unit 5		
Sales price	383,000	383,000
Down payment	76,700	19,200
Affordable income	86,100	98,800
- % middle-income households	39.1%	32.7%
Unit 6		
Sales price	406,000	406,000
Down payment	81,200	20,300
Affordable income	91,100	104,600
- % middle-income households	36.2%	30.1%
Unit 7		
Sales price	411,000	411,000
Down payment	82,100	20,500
Affordable income	92,200	105,900
- % middle-income households	35.7%	29.7%
Unit 8		
Sales price	420,000	420,000
Down payment	84,000	21,000
Affordable income	94,200	108,200
- % middle-income households	34.7%	28.6%

Source: PlaceWorks, 2019.

The analysis also evaluated the feasibility of developing these two prototypes as rental housing. Table 31 shows the market-rate rent that each unit could be expected to earn, the annual household income for the rent to be affordable, and the percentage of middle-income households with that income or higher.

For Prototype 6.1, with market rate rents would have to more than double, or the developer would have to put in a total equity investment of \$16.3 million. This is more than double the equity required to develop Prototype 6.1 as a for-sale product because the net operating income from rents would not be enough to secure permanent financing to cover the development cost. With this added equity, the project would generate a yield of 10.5 percent. This exceeds the minimum yield of eight percent, so it would be financially feasible to develop this prototype as a rental product.

For Prototype 6.2, the developer would have to make a total equity investment of \$36.1 million, about three times the equity investment needed to develop the site as a for-sale product. However, with this investment, market rate rents would generate a cash-on-cash yield of 8.3 percent. Thus, developing this prototype as a for-rent project is financially feasible.

To develop either prototype as a rental product would require a developer to invest substantially more equity than would be required to develop the prototype as a for-sale product. There simply is no incentive for a developer to invest more than is necessary to earn a typical return on the investment.

Nevertheless, if these products were put on the market as rentals, a larger share of middle-income households could afford the rent than the share who

could afford to purchase the units. For instance, the one-bedroom units in Prototype 6.1 would be affordable to rent for 51 percent of middle-income households, but only 44 percent of middle-income households could afford a conventional mortgage, and then only if they had \$69,200 for the down payment. However, more than half of middle-income households would not be able to afford to purchase or rent any of these housing units.

Table 31: Affordable Annual Income to Rent Prototypes 6.1 and 6.2

Prototype 6.1				
Unit	1	2		
Monthly Rent	1,650	1,920		
Affordable Income	65,900	76,900		
% middle-incomes households	51.0%	44.4%		
Prototype 6.2				
Unit	1	2	3	4
Monthly Rent	1,630	1,960	1,970	1,970
Affordable Income	65,300	78,300	78,600	78,600
% middle-incomes households	51.4%	43.4%	43.3%	43.3%
Unit	5	6	7	8
Monthly Rent	2,230	2,010	2,040	2,050
Affordable Income	89,000	80,600	81,500	82,100
% middle-incomes households	37.3%	42.2%	41.7%	41.3%

Source: PlaceWorks, 2019.

ASSESSMENT

The gardencourt apartments, Prototype 6.1, are developed at a density of 30 units per acre, and this density results in the most lucrative prototype, based on the return on investment. Nevertheless, this increased density does not result in a substantial increase in affordability for middle-income households. Indeed, there are other prototypes that are more affordable at lower densities.

The gardencourt townhomes, Prototype 6.2, are developed at a density of 20 units per acre, but the prototype is not financially feasible to develop under current market conditions. There are no viable options to make this prototype financially feasible, other than increasing unit sizes, which would decrease affordability.

DEVELOPMENT FEASIBILITY SUMMARY

Table 32 on the opposite page summarizes key indicators of the development feasibility of the twelve prototypes of missing-middle housing. The table indicates whether each prototype is financially feasible to develop under current market conditions. If the discussion of the prototype identified ways that projects that are not feasible could be feasible, such as reducing the amount of landscaped open space, Table 32 identifies the financial feasibility as “Possibly.” The final row in the table provides the weighted percent affordability, indicating the percentage of middle-income households that could afford to purchase units in the development prototype.

Three of the four most affordable and feasible prototypes are multifamily housing: Prototype 5.1, courtyard cottages, which is affordable to 48.8 percent of middle-income households; Prototype 6.1, courtyard condos,

which is affordable to 42.7 percent of households; and Prototype 5.2, mixed townhouse/flats, which is affordable to 39.1 percent of households. The other most affordable is Prototype 1.2, small-lot moderately sized single-family detached houses, which is affordable to 39.3 percent of middle-income households and Prototype 2.1, high-density courtyard cluster.

There are two other prototypes that have a relative high percentage of affordability and that are close to being financially feasible: Prototype 1.1, small lots with small houses, which is affordable to 50.2 percent of middle-income households; and Prototype 2.1, high density courtyard clusters, which is affordable to 50.2 percent of households. Because these two prototypes are near the top on affordability, they warrant additional consideration as to how they could be financially feasible to develop.

The first two sections of this report discussed the changing sizes and types of households and the need for smaller housing. There is not a direct correlation in the data in Table 32 between average unit size and affordability. However, it is interesting to note that the four prototypes with the smallest average unit size are among the five prototypes with the highest affordability percentage.

The analysis also considered the feasibility of each of the prototypes to be developed as rental housing, although the results were only discussed with Prototypes 6.1 and 6.2 because these were the closest to being feasible for development as rental projects. However, in all cases, the analysis found that current market rate rents were too low to support new development for these prototypes. The analysis did not cover large-scale multifamily housing development, which is not typically associated with missing-middle housing.

Table 32: Summary of Development Feasibility Findings

Prototype	Single-Family Detached					Single-Family Attached				Multifamily		
	1.1	1.2	2.1	2.2	3.1	3.2	4.1	4.2	5.1	5.2	6.1	6.2
Housing Type	Small Lot / Small House	Small Lot / Moderate House	High Density Courtyard Cluster	Low Density Courtyard Cluster	Duplex	Triplex	Townhouse Neighborhood	Rowhouse Infill	Courtyard Cottages	Mixed Townhouse/ Flats	Courtyard Condos	Courtyard Townhomes
Rate of Return (IRR)	(7.1%)	9.9%	(6.8%)	9.6%	(25.4%)	83.7%	(7.2%)	20.9%	63.3%	27.4%	123.8%	(4.0%)
Financially Feasible	Possibly	Yes	Possibly	Yes	No	Yes	Possibly	Yes	Yes	Yes	Yes	No
Total Number of Units	33	23	72	162	8	78	70	30	36	96	114	179
Density (units per acre)	12.7	11.7	15.2	11.3	10.2	15.2	20.0	18.8	22.4	20.9	30.0	21.3
Average Unit Size (sq. ft.)	1,170	1,695	1,287	1,684	1,875	1,705	1,547	1,611	746	1,205	965	1,217
Floor-Area Ratio	0.49	0.67	0.45	0.44	0.44	0.59	0.71	0.69	0.38	0.58	0.66	0.6
Percent Affordable	50.2%	39.3%	46.3%	36.6%	33.5%	37.7%	37.8%	35.8%	48.8%	39.1%	42.7%	39.1%

Source: PlaceWorks, 2019.

Perhaps a key takeaway from the analysis is that a majority of middle-income households could not afford to purchase a home in any of the prototypes except Prototype 1.1, small lot, small size house. Absent public subsidies, the needs of most middle-income households will have to be addressed through the market of existing housing—for-sale and for-rent—and, possibly, the development of new larger-scale multifamily housing.

Facilitating the development of new housing for middle-income households has the potential to lure some middle-income households out of existing housing and into new housing. In turn, this movement could free up some existing housing stock to meet the needs of those middle-income households that cannot afford new housing.

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5. MOVING FORWARD



RECOMMENDATIONS

The analysis conducted for this report identifies several ways the City could take action to promote the development of new housing affordable to middle-income households.

Establish Standards for Small-Lot Middle-Income Housing

The single-family detached housing prototypes use small lots. As discussed in the Development Feasibility section, the yard space and setbacks that these prototypes accommodate do not always meet the requirements for residential zoning districts at densities lower than 10 units per acre. This is not a problem, per se, because all the prototypes are at densities higher than 10 units per acre, and the Zoning Code provides for flexibility in development standards through the design review process.

For example, the small lots used for Prototype 1.1 have side yards that are four feet in width. Similarly, the courtyard cottages in Prototype 5.1 have zero lot lines with side yards as small as eight feet in width separating buildings. Setbacks are the development standard that could most likely be problematic, and this applies primarily to the single-family detached housing products.

In order to facilitate the development of middle-income housing, the City may want to consider establishing standards for projects that will provide this type of housing. Although flexibility is important, reducing uncertainty in the development approval process can encourage desired forms of development.

Establish Landscaped Open Space Standards for Middle-Income Housing

Each of the development prototypes use deliberate design to accommodate many units on a site. As discussed in the development feasibility section, reducing the area dedicated to landscape and open space may be necessary for some types of development to be financially feasible. Reducing the amount of landscape and open space is an easy and viable solution to make Prototype 1.1, small-lot, small-house development, and Prototype 4.1, townhomes, financially feasible.

There are tradeoffs, of course. As unit sizes become smaller and private yards become smaller or are eliminated community and public open space becomes more important.

The City may want to consider establishing separate landscape and open space standards for housing that will be affordable to middle-income households. In lieu of separate standards, the City may want to consider guidelines for when and how landscape and open space standards may be modified.

Limit Unit Sizes

Even when housing affordable to middle-income households is financially feasible to develop, the market often provides an incentive to developers to build larger units, which may be affordable to fewer middle-income households. Larger unit sizes result in high cost housing, which often results in a higher return on investment. Indeed, the very possibility of developing higher value (i.e., higher cost) housing may drive up the cost of land.

If the City's land use regulations do not provide substantive limits on unit sizes, Prototype 1.2 and 2.2 types of development would be more lucrative to developers than Prototypes 1.1 and 2.1, respectively, and these prototypes are affordable to fewer middle-income households. However, this issue applies to all the prototypes.

Limiting unit size can be challenging, but it is neither impossible nor illegal. Many communities have regulations that preclude McMansions. Nevertheless, it would be difficult to make such changes for land that has already been planned and/or approved for development. However, for future planning and future development approvals, the City may want to consider size limitations for areas zoned or to be zoned RD-10 through RD-30.

Fee Reductions

The difference between feasible and not feasible for four of prototypes that were not financially feasible (Prototypes 1.1, 2.1, 4.1, and 6.2) was between \$1,800 and \$3,500 per unit. To promote the development of housing affordable to middle-income households, the City could consider fee reductions. Fee reductions have a real cost, but this is one way the City can support more of this housing.

It is important to realize that fee reductions are not a magic bullet. As the previous recommendation noted, there is a market incentive for developers to build larger more expensive housing units. So even fee reductions will not necessarily result in housing for more middle-income households. Any fee reduction would need to be tied to performance standards for developing housing that sells at a price affordable to middle-income households. Given

the cost to the public to offset lost revenue, any fee reductions should be provided on an ad hoc basis.

First-Time Homebuyers

Most middle-income households will not be able to afford to purchase housing in the prototypes presented in this report, and none of the prototypes could be developed as a for-rent product under current market conditions. One way to address their housing needs is to ensure that more existing housing becomes available. And one way to do that is to help existing middle-income households that could afford a new home to purchase one.

The City has an existing first-time home buyer program. However, this program is limited to low-income households. The City may want to explore expanding this program or creating a complementary program for which middle-income households would be eligible.

Regional Action

Through land use regulation, the development of public infrastructure, and investment in public services, cities are able to influence what gets developed within their jurisdictions. However, in a metropolitan region like Sacramento, it would be a mistake to conflate that influence with the idea that there is a local housing market.

The housing market is driven by the success of the regional economy—its ability to retain existing residents and attract new ones. Furthermore, one city's ability or inability to accommodate regional housing growth will have spillover effects on other cities.

Elk Grove can do everything right to promote new housing development for middle-income households. However, if the region is not producing sufficient housing for these households, the undersupply may result in price escalation.

The City currently works with other cities through SACOG to promote adequate housing. Thus, this action is less about new action by Elk Grove and more about reiterating the importance of regional action in the regional housing market.

APPENDIX



Table A-1: Housing Affordability Terminology

Affordable Housing Cost	Housing is considered to be affordable for a household when the annual housing costs do not exceed 30 percent of the household’s annual income. For renters, annual housing costs includes rent and utilities. For owners, annual housing costs include mortgage payment (principle and interest), property tax, homeowner’s insurance, and mortgage insurance when required.
Gross Monthly Rent	Gross monthly rent is monthly rent plus average monthly utility cost. The data used for gross monthly rent in Table 2. is the average amount of gross for Sacramento County renter households paying rent as reported in the 2017 ACS Five-Year Estimates Public Use Microdata Set.
Qualifying Income	Qualifying income is the annual household income at which the annual housing cost is affordable, i.e., the annual housing cost is 30 percent of the annual household income.
FHA-Insured Mortgage	A Federal Housing Administration (FHA)-insured mortgage is a mortgage provided by and FHA-approved lender. The FHA insures the mortgage, allowing the lender to provide lower rates and lower closing costs. In addition, the down payment can be as little as 3.5 percent, which is substantially less than the 20 to 30 percent down payment typically required for conventional mortgages. As part of the financing, the buyer is required to pay a Mortgage Insurance Premium (MIP). With the lower down payment and the addition of MIP, the monthly mortgage payment would be higher than the payment for a conventional mortgage on the same property. However, for first-time buyers who lack the savings for a 20 percent down payment and for buyers with moderate to low credit scores, an FHA-insured mortgage may be the best financing that is obtainable.
Mortgage Insurance Premium (MIP) Private Mortgage Insurance (PMI)	Mortgage Insurance Premium (MIP) is required for FHA-insured mortgages and Private Mortgage Insurance (PMI) is typically required for conventional mortgages for buyers with less than a 20 percent down payment and/or some buyers with lower credit scores. Both MIP and PMI are used to repay lenders when the borrower is unable to repay the mortgage and the lender is unable to recoup the outstanding debt through foreclosure. In Table 2 the MIP is based on an upfront payment of 1.75 percent of the mortgage amount and a monthly payment of 0.085 percent of the mortgage amount.
Single-Family Detached Housing	Single-family detached housing refers to housing in which a single building includes one and only one housing unit.
Single-Family Attached Housing	Single-family attached housing refers to housing in which a single building includes more than one dwelling units, and the units are attached by one or more common ground-to-roof walls and share no utilities and no common facilities (e.g., basement or heating). This type of housing typically includes duplexes, other multiplexes, rowhouses, and townhouses.
Multifamily Housing	Multifamily housing refers to housing in which a single building includes more than one dwelling unit, and the dwelling units are partially or fully above and below each other, with or without common walls, with or without common facilities, and with or without shared utilities. Multifamily housing is typically referred to as apartments when the dwelling units are owned by a single entity and rented to tenants and are referred to as condos when each unit is individually owned, regardless if occupied by owners or renters (condominium refers to a form of ownership that may apply to any type of housing, but the term condo is most often applied to individually owned multifamily housing units).

Table A-2: Annual Household Income for Which Average Rents are Affordable; Sacramento County, 2017 and 2019

	Single-Family Detached Housing			Single-Family Attached Housing			Multifamily Housing		
	Low	Average	High	Low	Average	High	Low	Average	High
Monthly Rent	785	1,328	1,871	683	1,085	1,488	565	917	1,269
Gross Monthly Rent Payment	1,057	1,549	2,040	811	1,242	1,673	645	1,019	1,393
Annual Housing Payment	12,683	18,584	24,485	9,729	14,903	20,077	7,743	12,227	16,711
Qualifying Income @30%	42,275	61,946	81,616	32,432	49,677	66,923	25,811	40,757	55,702
- 2019 Dollars	44,149	64,692	85,235	33,870	51,880	69,890	26,955	42,564	58,172

Source: PlaceWorks, 2019, using data from the 2017 American Community Survey 5-Year Estimates, Public Use Microdata Set.

Notes to Table A-2:

1. The rent and gross rent data in “Average” columns are the average rents paid by households paying rent in each housing type as reported in the above referenced dataset. The data in the average columns are used for the analysis in Middle-Income Households section starting on page 2. The rent and gross rent data in the “Low” and “High” columns are derived by subtracting (for Low) and adding (for High) one standard deviation from/to the average, thus providing a range that encompasses about two-thirds of all households paying rent.
2. Gross rent includes the rent payment plus payment for utilities.
3. Annual housing payment is derived by multiplying the gross monthly rent payment by 12.
4. Qualifying income is the annual household income at which the annual housing payment would be affordable. It is derived by dividing the annual housing payment by 0.30. The data are expressed in 2019 dollars. The qualifying income in 2019 dollars data are derived by multiplying the qualifying income by the change in the Consumer Price Index for all Urban Consumers from 2017 to 2019.

Table A-3: Average Housing Costs for Purchasing a Home with a Conventional Mortgage and the Annual Income for Which the Average Costs are Affordable; Sacramento County; 2017 and 2019

	Single-Family Detached Housing			Single-Family Attached Housing			Multifamily Housing		
	Low	Average	High	Low	Average	High	Low	Average	High
Estimated Sales Price	229,629	384,370	539,111	160,893	216,903	272,913	101,451	146,400	191,349
Down Payment Rate	20%	20%	20%	20%	20%	20%	20%	20%	20%
Down Payment Amount	45,926	76,874	107,822	32,179	43,381	54,583	20,290	29,280	38,270
Total Mortgage	183,703	307,496	431,289	128,714	173,522	218,330	81,161	117,120	153,079
Interest Rate	3.98%	3.98%	3.98%	3.98%	3.98%	3.98%	3.98%	3.98%	3.98%
Total Monthly Payment	875	1,464	2,054	613	826	1,040	387	558	729
Total Annual Payment	10,499	17,574	24,649	7,356	9,917	12,478	4,638	6,694	8,749
Other Annual Owner Costs	4,899	8,201	11,502	6,595	8,891	11,187	1,186	1,712	2,238
Total Annual Housing Cost	15,398	25,774	36,151	13,951	18,808	23,665	5,825	8,406	10,987
Qualifying Income @30%	51,327	85,915	120,503	46,505	62,694	78,883	19,416	28,019	36,622
- 2019 Dollars	53,603	89,724	125,846	48,567	65,474	82,381	20,277	29,261	38,246

Source: PlaceWorks, 2019, using data from the 2017 American Community Survey 5-Year Estimates, Public Use Microdata Set.

Notes to Table A-3:

1. The estimated sales price data in “Average” columns are the average home values for each housing type as reported in the above referenced dataset. The data in the average columns are used for the analysis in Middle-Income Households section starting on page 2. The sales value data in the “Low” and “High” columns are derived by subtracting (for Low) and adding (for High) one standard deviation from/to the average, thus providing a range that encompasses about two-thirds of all households in owner-occupied housing.
2. The down payment rate is typical for a conventional mortgage without private mortgage insurance. The down payment amount is derived by multiplying the down payment amount by the estimated sales price. The total mortgage is the estimated sales price less the down payment amount.
3. The interest rate was the typical rate at the time the analysis was conducted, based on a 30-year fixed rate mortgage. The total monthly payment is based on the total mortgage amount and the interest rate for a 30-year term. The annual payment is derived by multiplying the monthly payment by 12.
4. Other annual owner costs include condo/homeowners’ association fees, property taxes, and insurance. The data are an average of the annual owner costs as a percentage of the home values for each type of housing as reported in the above referenced dataset. Total annual housing cost is the total annual mortgage payment plus the other annual owner costs.
5. Qualifying income is the annual household income at which the total annual housing cost is affordable. The data are derived by dividing the total annual housing cost by 0.30. The qualifying income in 2019 dollars data are derived by multiplying the qualifying income by the change in the Consumer Price Index for all Urban Consumers from 2017 to 2019.

Table A-4: Average Housing Costs for Purchasing a Home with an FHA-Insured Mortgage and the Annual Income for Which the Average Costs are Affordable; Sacramento County; 2017 and 2019

	Single-Family Detached Housing			Single-Family Attached Housing			Multifamily Housing		
	Low	Average	High	Low	Average	High	Low	Average	High
Sales Price	229,629	384,370	539,111	160,893	216,903	272,913	101,451	146,400	191,349
Down Payment Rate	5%	5%	5%	5%	5%	5%	5%	5%	5%
Down Payment Amount	11,481	19,218	26,956	8,045	10,845	13,646	5,073	7,320	9,567
Principal	218,147	365,151	512,155	152,848	206,057	259,267	96,378	139,080	181,782
Upfront MIP @1.75%	3,818	6,390	8,963	2,675	3,606	4,537	1,687	2,434	3,181
Total Mortgage	221,965	371,541	521,118	155,523	209,663	263,804	98,065	141,514	184,963
Interest Rate	3.98%	3.98%	3.98%	3.98%	3.98%	3.98%	3.98%	3.98%	3.98%
Monthly Payment	1,057	1,770	2,482	741	999	1,256	467	674	881
Monthly MIP @0.85%	155	259	363	108	146	184	68	99	129
Total Monthly Payment	1,212	2,028	2,845	849	1,145	1,440	535	772	1,010
Total Annual Payment	14,540	24,338	34,136	10,188	13,734	17,281	6,424	9,270	12,116
Other Owner Costs	4,899	8,201	11,502	6,595	8,891	11,187	1,186	1,712	2,238
Total Annual Housing Cost	19,439	32,539	45,638	16,783	22,625	28,468	7,610	10,982	14,354
Qualifying Income @0%	64,797	108,462	152,127	55,943	75,417	94,892	25,368	36,607	47,846
- 2019 Dollars	67,670	113,271	158,872	58,423	78,761	99,100	26,492	38,230	49,968

Source: PlaceWorks, 2019, using data from the 2017 American Community Survey 5-Year Estimates, Public Use Microdata Set.

Notes to Table A-4:

1. See also the notes to Table A-3.
2. The data in this table are similar to the data in Table A-3, except the analysis shows the housing costs and qualifying income if the home is purchased using an FHA-insured mortgage rather than a conventional mortgage. The down payment rate is reduced to 5 percent, which results in a larger principle. The financing also incorporates an upfront Mortgage Insurance Premium (MIP) of 1.75 percent of the principle and a monthly MIP payment of 0.85 percent (annual rate).

Table A-5: Average Household Size by Tenure; Sacramento County and Major Cities; 2007 and 2017

	2007	2017	Change
Average Household Size			
Sacramento County, California	2.69	2.76	0.07
Citrus Heights city, California	2.51	2.54	0.03
Elk Grove city, California	3.21	3.22	0.01
Folsom city, California	2.63	2.61	-0.02
Rancho Cordova city, California	2.64	2.86	0.22
Sacramento city, California	2.58	2.65	0.07
Average Household Size			
Sacramento County, California	2.80	2.81	0.01
Citrus Heights city, California	2.67	2.55	-0.12
Elk Grove city, California	3.22	3.21	-0.01
Folsom city, California	2.77	2.77	0.00
Rancho Cordova city, California	2.70	2.84	0.14
Sacramento city, California	2.72	2.74	0.02
Average Household Size			
Sacramento County, California	2.52	2.71	0.19
Citrus Heights city, California	2.29	2.52	0.23
Elk Grove city, California	3.17	3.24	0.07
Folsom city, California	2.22	2.26	0.04
Rancho Cordova city, California	2.57	2.89	0.32
Sacramento city, California	2.44	2.57	0.13

Source: PlaceWorks, 2019, using Census Bureau data from the 2007 American Community Survey, 3-Year Estimates, and the 2017 American Community Survey, 5-Year Estimates.

Table A-6: Actual Population by Age Cohort, 2017, and Population Expected Based on Population in 2012; Sacramento County and Major Cities

	Sacramento County				Citrus Heights				Elk Grove			
	Expected	Actual	Difference		Expected	Actual	Difference		Expected	Actual	Difference	
5 to 9	100,295	101,623	1,328	1.3%	4,776	5,028	252	5.3%	9,887	12,640	2,753	27.8%
10 to 14	97,642	100,804	3,162	3.2%	5,371	4,669	(702)	-13.1%	12,509	13,028	519	4.1%
15 to 19	100,199	95,385	(4,814)	-4.8%	5,434	4,739	(695)	-12.8%	14,337	13,339	(998)	-7.0%
20 to 24	103,048	102,160	(888)	-0.9%	5,544	6,015	471	8.5%	12,717	10,576	(2,141)	-16.8%
25 to 29	102,856	118,091	15,235	14.8%	6,385	7,787	1,402	22.0%	8,780	9,462	682	7.8%
30 to 34	108,594	111,741	3,147	2.9%	6,448	6,848	400	6.2%	9,206	11,071	1,865	20.3%
35 to 39	98,860	98,271	(589)	-0.6%	5,616	5,576	(40)	-0.7%	10,023	10,621	598	6.0%
40 to 44	94,179	96,882	2,703	2.9%	5,732	4,690	(1,042)	-18.2%	10,381	12,660	2,279	21.9%
45 to 49	96,148	96,362	214	0.2%	5,206	5,030	(176)	-3.4%	12,134	12,398	264	2.2%
50 to 54	99,283	100,352	1,069	1.1%	5,951	6,776	825	13.9%	11,623	11,440	(183)	-1.6%
55 to 59	96,299	95,491	(808)	-0.8%	6,101	5,787	(314)	-5.1%	10,988	10,792	(196)	-1.8%
60 to 64	83,135	84,276	1,141	1.4%	5,244	5,212	(32)	-0.6%	8,248	8,697	449	5.4%
65 to 69	67,189	67,417	228	0.3%	4,010	4,778	768	19.1%	6,079	6,237	158	2.6%
70 to 74	45,000	44,800	(200)	-0.4%	3,462	3,004	(458)	-13.2%	3,762	4,582	820	21.8%
75 to 79	32,821	32,326	(495)	-1.5%	2,152	2,290	138	6.4%	3,083	3,508	425	13.8%

Continued on the next page.

Table A-6 Continued

	Folsom				Rancho Cordova				Sacramento			
	Expected	Actual	Difference		Expected	Actual	Difference		Expected	Actual	Difference	
5 to 9	4,489	5,275	786	17.5%	5,125	4,954	(171)	-3.3%	34,852	33,831	(1,021)	-2.9%
10 to 14	5,249	5,601	352	6.7%	4,298	5,205	907	21.1%	30,907	30,070	(837)	-2.7%
15 to 19	4,350	4,342	(8)	-0.2%	4,746	3,882	(864)	-18.2%	29,534	29,738	204	0.7%
20 to 24	4,250	3,257	(993)	-23.4%	4,532	4,654	122	2.7%	32,986	36,408	3,422	10.4%
25 to 29	4,436	4,087	(349)	-7.9%	4,454	6,507	2,053	46.1%	38,150	45,056	6,906	18.1%
30 to 34	4,886	4,627	(259)	-5.3%	4,948	5,909	961	19.4%	41,918	42,365	447	1.1%
35 to 39	5,360	5,308	(52)	-1.0%	5,750	5,547	(203)	-3.5%	35,215	33,759	(1,456)	-4.1%
40 to 44	6,060	6,660	600	9.9%	4,718	4,510	(208)	-4.4%	30,731	31,189	458	1.5%
45 to 49	6,780	6,895	115	1.7%	4,222	4,360	138	3.3%	30,154	29,254	(900)	-3.0%
50 to 54	6,300	6,722	422	6.7%	4,221	4,642	421	10.0%	30,776	28,754	(2,022)	-6.6%
55 to 59	5,422	5,087	(335)	-6.2%	4,430	4,016	(414)	-9.3%	29,263	28,941	(322)	-1.1%
60 to 64	3,866	4,117	251	6.5%	3,380	3,307	(73)	-2.1%	26,467	27,034	567	2.1%
65 to 69	2,977	3,112	135	4.5%	2,870	2,630	(240)	-8.4%	21,545	21,200	(345)	-1.6%
70 to 74	1,742	2,432	690	39.6%	1,868	1,710	(158)	-8.5%	14,155	13,553	(602)	-4.3%
75 to 79	1,407	1,650	243	17.3%	1,592	1,512	(80)	-5.1%	9,805	9,212	(593)	-6.0%

Source: PlaceWorks, 2019, using data from the US Census Bureau's 2012 and 2017 American Community Survey, 5-Year Estimates.

Notes to Table A-6:

1. The 2017 expected population for each age cohort is the population for the five years younger age cohort in 2012 less the number of persons expected to die, based on California Department of Health Services, Center for Health Statistics, Abridged Life Tables for California, 2004.
2. The difference between the expected population and the actual population represents net migration. Small differences may be attributable to the margin of error in the underlying population estimates.

Table A-7: Development Feasibility Assumptions

Construction Costs	<p>Construction costs are calculated on a per square foot basis for finished floor area and a separate square foot basis for garages. The per square foot costs are taken from Craftsman Book Company's 2019 National Building Cost Manual, with the source's recommended adjustments for the Sacramento region. Per square foot construction costs generally decline with larger structures.</p> <p>As noted in the source, Costs in the tables include all construction costs: labor, material, equipment, plans, building permit, supervision, overhead and profit. Cost tables do not include land value, site development costs, government mandated fees (other than the building permit) or the cost of modifying unusual soil conditions or grades. Construction expense may represent as much as 60% or as little as 40% of the cost to the first building owner. Site preparation, utility lines, government fees and mandates, finance cost and marketing are not part of the construction cost and may be as much as 20% of the cost to the first building owner.</p>
Driveway/Parking/Circulation	Assumed cost of \$10 per square foot
Landscaping	Assumed cost of \$3 per square foot
Development Fees	The development fees are calculated separately for each development prototype. The calculated fees include: building permit; general plan update; technology; CBSC; SMIP; Capital Facilities Fee; Roadway; Measure A; I-5; Fire; Parks; and Elk Grove USD. The pro forma model assumes that county fees for water, sewer, and drainage are captured in the estimated asking price for land. Fees were similarly calculated for the pro forma analysis of each development prototype in Citrus Heights, Folsom, and Rancho Cordova.
Other Soft Costs	The pro forma model assumes an allowance of 10 percent of hard costs for contingency and other soft costs.
Land Acquisition Costs	The estimated land acquisition costs are based on analysis of vacant land sales by zoning in the previous 12-month period. Because there are few to no recent vacant land sales for higher density vacant land, the estimates also incorporated the assessed land value of existing development that was sold in the previous 12-month period. Land acquisition costs were calculated separately for each city.
Sales/Rent Values	The estimated sales values are based on sales new homes in the previous 12-month period. Because there were few to no new sales of higher density prototypes, the analysis incorporated the assessed valuation of existing development that was sold in the previous 12-month period, with a regression analysis based on the year of construction to estimate the sales value for new construction. Estimated market rate rents are based on a survey of asking rents. Both sale values and rents are calculated based on a regression analysis of sales and of rents, incorporating the finished floor area, number of bedrooms, and number of bathrooms. Thus, there is not a straight-line per-square foot relationship among the estimated sale value and rents among the prototypes.
Financing Assumptions	The pro forma model uses the following current market conditions for financing assumptions: Construction loan rate 9.30%; Construction loan fee 3.25%; Debt service coverage ratio 1.43; Permanent loan rate 5.30%; Revenue growth 4%; Depreciation - residential buildings 27.5; Depreciation - non-residential buildings 39.0; Tax rate 35%; Capitalization rate 9.36; Sales commission 6%.

Table A-8: Development Pro Forma Summaries for Prototypes 1.1 (Small Lot / Small House Size) and 1.2 (Small Lot / Moderate House Size)

	Elk Grove				Citrus Heights			
	Prototype 1.1		Prototype 1.2		Prototype 1.1		Prototype 1.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	78,291	2,372	58,624	2,549	78,291	2,372	58,624	2,549
Land cost	1,043,486	31,621	781,364	33,972	1,049,747	31,811	786,052	34,176
Total finished floor area	38,621	1,170	38,993	1,695	38,621	1,170	38,993	1,695
Construction cost	7,061,407	213,982	6,385,545	277,632	7,061,407	213,982	6,385,545	277,632
Development fees	1,353,878	41,027	1,081,301	47,013	1,353,878	41,027	1,081,301	47,013
Other soft costs	706,141	21,398	638,554	27,763	706,141	21,398	638,554	27,763
Total development cost	10,164,912	308,028	9,131,064	397,003	10,171,173	308,217	9,135,830	397,210
Total sales value	10,800,797	327,297	9,594,201	417,139	10,865,260	329,250	9,594,201	417,139
Construction loan amount	8,552,631	259,171	7,524,571	327,155	8,555,867	259,269	7,526,994	327,261
- cost of financing	277,676	8,414	244,299	10,622	277,781	8,418	244,377	10,625
Equity required	1,889,957	57,271	1,606,492	69,847	1,893,087	57,366	1,608,836	69,949
IRR	12.8%		29.3%		17.5%		34.5%	
Residual land value @20% IRR	969,585	29,381	858,377	37,321	1,023,716	31,022	906,726	39,423
Surplus value (feasibility gap)	(73,901)	(2,239)	77,013	3,348	(26,031)	(789)	120,674	5,247
- percent of land value	(7.1%)		9.9%		(2.5%)		15.4%	

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Table A-8 Continued

	Folsom				Rancho Cordova			
	Prototype 1.1		Prototype 1.2		Prototype 1.1		Prototype 1.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	78,291	2,372	58,624	2,549	78,291	2,372	58,624	2,549
Land cost	1,650,844	50,026	1,236,155	53,746	1,329,210	40,279	995,315	43,275
Total finished floor area	38,621	1,170	38,993	1,695	38,621	1,170	38,993	1,695
Construction cost	7,061,407	213,982	6,385,545	277,632	7,061,407	213,982	6,385,545	277,632
Development fees	1,353,878	41,027	1,081,301	47,013	1,353,878	41,027	1,081,301	47,013
Other soft costs	706,141	21,398	638,554	27,763	706,141	21,398	638,554	27,763
Total development cost	10,772,270	326,432	9,593,485	417,108	10,450,636	316,686	9,348,604	406,461
Total sales value	11,664,095	353,457	9,594,201	417,139	10,720,214	324,855	9,594,201	417,139
Construction loan amount	8,866,501	268,682	7,759,597	337,374	8,700,287	263,645	7,635,136	331,962
- cost of financing	287,867	8,723	251,929	10,953	282,470	8,560	247,888	10,778
Equity required	2,193,636	66,474	1,833,888	79,734	2,032,819	61,601	1,713,468	74,499
IRR	23.3%		44.5%	1.9%	-16.1%		N/A	
Residual land value @20% IRR	1,696,235	51,401	1,503,671	65,377	901,626	27,322	798,891	34,734
Surplus value (feasibility gap)	45,390	1,375	267,515	11,631	(427,584)	(12,957)	(196,425)	(8,540)
- percent of land value	2.7%		21.6%		(32.2%)		(19.7%)	

Table A-9: Development Pro Forma Summaries for Prototypes 2.1 (High Density Courtyard Cluster) and 2.2 (Medium Density Courtyard Cluster)

	Elk Grove				Citrus Heights			
	Prototype 2.1		Prototype 2.2		Prototype 2.1		Prototype 2.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	206,474	2,868	623,344	3,848	206,474	2,868	623,344	3,848
Land cost	2,986,515	41,479	8,835,735	54,542	3,004,434	41,728	8,888,750	54,869
Total finished floor area	92,628	1,287	272,786	1,684	92,628	1,287	272,786	1,684
Construction cost	16,549,943	229,860	44,631,684	275,504	16,549,943	229,860	44,631,684	275,504
Development fees	3,049,378	42,352	7,594,812	46,882	3,049,378	42,352	7,594,812	46,882
Other soft costs	1,654,994	22,986	4,463,168	27,550	1,654,994	22,986	4,463,168	27,550
Total development cost	24,240,830	336,678	67,290,594	415,374	24,258,749	336,927	67,344,499	415,707
Total sales value	25,788,598	358,175	71,474,119	441,198	25,942,514	360,313	71,900,703	443,831
Construction loan amount	20,215,766	280,775	54,369,277	335,613	20,225,027	280,903	54,396,675	335,782
- cost of financing	656,341	9,116	1,765,196	10,896	656,642	9,120	1,766,085	10,902
Equity required	4,681,405	65,020	12,921,317	79,761	4,690,364	65,144	12,947,825	79,925
IRR	12.5%		31.0%		16.6%		34.8%	
Residual land value @20% IRR	2,782,553	38,647	9,685,322	59,786	2,910,746	40,427	10,046,734	62,017
Surplus value (feasibility gap)	(203,962)	(2,833)	849,587	5,244	(93,688)	(1,301)	1,157,984	7,148
- percent of land value	(6.8%)		9.6%		(3.1%)		13.0%	

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Table A-9 Continued

	Folsom				Rancho Cordova			
	Prototype 2.1		Prototype 2.2		Prototype 2.1		Prototype 2.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	206,474	2,868	623,344	3,848	206,474	2,868	623,344	3,848
Land cost	4,724,809	65,622	13,978,554	86,287	3,804,274	52,837	11,255,111	69,476
Total finished floor area	92,628	1,287	272,786	1,684	92,628	1,287	272,786	1,684
Construction cost	16,549,943	229,860	44,631,684	275,504	16,549,943	229,860	44,631,684	275,504
Development fees	3,049,378	42,352	7,594,812	46,882	3,049,378	42,352	7,594,812	46,882
Other soft costs	1,654,994	22,986	4,463,168	27,550	1,654,994	22,986	4,463,168	27,550
Total development cost	25,979,124	360,821	72,519,701	447,652	25,058,589	348,036	69,750,563	430,559
Total sales value	27,849,858	386,804	77,186,984	476,463	25,596,195	355,503	70,940,866	437,907
Construction loan amount	21,114,079	293,251	57,026,974	352,018	20,638,366	286,644	55,619,558	343,331
- cost of financing	685,506	9,521	1,851,483	11,429	670,061	9,306	1,805,788	11,147
Equity required	5,550,552	77,091	15,492,727	95,634	5,090,284	70,698	14,131,005	87,228
IRR	14.4%		24.9%		N/A		N/A	
Residual land value @20% IRR	4,518,838	62,762	14,492,809	89,462	2,619,397	36,381	9,243,377	57,058
Surplus value (feasibility gap)	(205,971)	(2,861)	514,255	3,174	(1,184,876)	(16,457)	(2,011,733)	(12,418)
- percent of land value	(4.4%)		3.7%		(31.1%)		(17.9%)	

Table A-10: Development Pro Forma Summaries for Prototypes 3.1 (Duplexes) and 3.2 (Triplexes)

	Elk Grove				Citrus Heights			
	Prototype 3.1		Prototype 3.2		Prototype 3.1		Prototype 3.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	34,300	4,288	162,595	2,085	34,300	4,288	162,595	2,085
Land cost	457,219	57,152	2,989,253	38,324	459,904	57,488	3,006,805	38,549
Total finished floor area	15,000	1,875	133,016	1,705	15,000	1,875	133,016	1,705
Construction cost	2,553,128	319,141	22,611,207	289,887	2,553,128	319,141	22,611,207	289,887
Development fees	392,621	49,078	3,676,593	47,136	392,621	49,078	3,676,593	47,136
Other soft costs	255,313	31,914	2,261,121	28,989	255,313	31,914	2,261,121	28,989
Total development cost	3,658,281	457,285	32,402,623	415,418	3,660,966	457,621	32,420,470	415,647
Total sales value	3,791,177	473,897	36,045,128	462,117	3,813,805	476,726	36,260,258	464,875
Construction loan amount	3,048,487	381,061	26,625,659	341,355	3,049,874	381,234	26,634,729	341,471
- cost of financing	98,975	12,372	864,450	11,083	99,020	12,377	864,744	11,086
Equity required	708,769	88,596	5,776,964	74,064	710,111	88,764	5,785,740	74,176
IRR	N/A		83.7%		N/A		89.0%	
Residual land value @20% IRR	340,893	42,612	4,920,423	63,082	359,937	44,992	5,100,955	65,397
Surplus value (feasibility gap)	(116,326)	(14,541)	1,931,170	24,759	(99,966)	(12,496)	2,094,150	26,848
- percent of land value	(25.4%)		64.6%		(21.7%)		69.6%	

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Table A-10 Continued

	Folsom				Rancho Cordova			
	Prototype 3.1		Prototype 3.2		Prototype 3.1		Prototype 3.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	34,300	4,288	162,595	2,085	34,300	4,288	162,595	2,085
Land cost	723,250	90,406	4,728,537	60,622	582,339	72,792	3,807,275	48,811
Total finished floor area	15,000	1,875	133,016	1,705	15,000	1,875	133,016	1,705
Construction cost	2,553,128	319,141	22,611,207	289,887	2,553,128	319,141	22,611,207	289,887
Development fees	392,621	49,078	3,676,593	47,136	392,621	49,078	3,676,593	47,136
Other soft costs	255,313	31,914	2,261,121	28,989	255,313	31,914	2,261,121	28,989
Total development cost	3,924,312	490,539	34,171,089	438,091	3,783,401	472,925	33,234,371	426,082
Total sales value	4,094,203	511,775	38,926,184	499,054	3,762,892	470,362	35,776,203	458,669
Construction loan amount	3,185,966	398,246	27,524,483	352,878	3,113,146	389,143	27,048,395	346,774
- cost of financing	103,438	12,930	893,631	11,457	101,074	12,634	878,174	11,259
Equity required	841,784	105,223	6,646,607	85,213	771,329	96,416	6,185,976	79,307
IRR	N/A		84.9%		N/A		45.0%	
Residual land value @20% IRR	596,448	74,556	7,349,215	94,221	317,226	39,653	4,691,320	60,145
Surplus value (feasibility gap)	(126,802)	(15,850)	2,620,678	33,598	(265,113)	(33,139)	884,045	11,334
- percent of land value	(17.5%)		55.4%		(45.5%)		23.2%	

Table A-11: Development Pro Forma Summaries for Prototypes 4.1 (Townhouse Neighborhood) and 4.2 (Rowhouse Infill)

	Elk Grove				Citrus Heights			
	Prototype 4.1		Prototype 4.2		Prototype 4.1		Prototype 4.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	107,048	1,529	49,850	1,662	107,048	1,529	49,850	1,662
Land cost	3,372,571	48,180	1,540,757	51,359	3,392,374	48,462	1,549,804	51,660
Total finished floor area	108,290	1,547	48,342	1,611	108,290	1,547	48,342	1,611
Construction cost	19,934,304	284,776	8,562,963	285,432	19,934,304	284,776	8,562,963	285,432
Development fees	3,173,905	45,342	1,382,105	46,070	3,173,905	45,342	1,382,105	46,070
Other soft costs	1,993,430	28,478	856,296	28,543	1,993,430	28,478	856,296	28,543
Total development cost	28,474,211	406,774	12,676,058	422,535	28,494,014	407,057	12,685,256	422,842
Total sales value	30,271,680	432,453	13,270,983	442,366	30,452,352	435,034	13,350,189	445,006
Construction loan amount	23,795,234	339,932	10,285,474	342,849	23,805,468	340,078	10,290,149	343,005
- cost of financing	772,555	11,036	333,936	11,131	772,887	11,041	334,088	11,136
Equity required	5,451,531	77,879	2,390,583	79,686	5,461,433	78,020	2,395,107	79,837
IRR	12.2%		20.9%		16.5%		25.0%	
Residual land value @20% IRR	3,130,412	44,720	1,553,220	51,774	3,280,734	46,868	1,619,899	53,997
Surplus value (feasibility gap)	(242,159)	(3,459)	12,462	415	(111,639)	(1,595)	70,095	2,336
- percent of land value	(7.2%)		0.8%		(3.3%)		4.5%	

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Table A-11 Continued

	Folsom				Rancho Cordova			
	Prototype 4.1		Prototype 4.2		Prototype 4.1		Prototype 4.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	107,048	1,529	49,850	1,662	107,048	1,529	49,850	1,662
Land cost	5,334,888	76,213	2,437,241	81,241	4,295,491	61,364	1,962,393	65,413
Total finished floor area	108,290	1,547	48,342	1,611	108,290	1,547	48,342	1,611
Construction cost	19,934,304	284,776	8,562,963	285,432	19,934,304	284,776	8,562,963	285,432
Development fees	3,173,905	45,342	1,382,105	46,070	3,173,905	45,342	1,382,105	46,070
Other soft costs	1,993,430	28,478	856,296	28,543	1,993,430	28,478	856,296	28,543
Total development cost	30,436,527	434,808	13,587,582	452,919	29,397,130	419,959	13,104,767	436,826
Total sales value	32,691,270	467,018	14,331,721	477,724	30,045,830	429,226	13,171,971	439,066
Construction loan amount	24,809,316	354,419	10,748,757	358,292	24,272,179	346,745	10,503,366	350,112
- cost of financing	805,479	11,507	348,978	11,633	788,040	11,258	341,011	11,367
Equity required	6,432,690	91,896	2,838,825	94,627	5,912,991	84,471	2,601,401	86,713
IRR	16.1%		20.5%		N/A		N/A	
Residual land value @20% IRR	5,165,997	73,800	2,446,835	81,561	2,939,804	41,997	1,469,912	48,997
Surplus value (feasibility gap)	(168,891)	(2,413)	9,594	320	(1,355,687)	(19,367)	(492,481)	(16,416)
- percent of land value	(3.2%)		0.4%		(31.6%)		(25.1%)	

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Table A-12: Development Pro Forma Summaries for Prototypes 5.1 (Courtyard Cottages) and 5.2 (Mixed Townhouse/Flats)

	Elk Grove				Citrus Heights			
	Prototype 5.1		Prototype 5.2		Prototype 5.1		Prototype 5.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	69,808	1,939	154,509	1,609	69,808	1,939	154,509	1,609
Land cost	1,549,137	43,032	4,430,313	46,149	1,558,233	43,284	4,456,327	46,420
Total finished floor area	26,850	746	115,650	1,205	26,850	746	115,650	1,205
Construction cost	5,858,580	162,738	22,613,320	235,555	5,858,580	162,738	22,613,320	235,555
Development fees	1,302,797	36,189	3,977,490	41,432	1,302,797	36,189	3,977,490	41,432
Other soft costs	585,858	16,274	2,261,332	23,556	585,858	16,274	2,261,332	23,556
Total development cost	9,296,372	258,233	34,179,732	356,039	9,305,468	258,485	34,206,182	356,314
Total sales value	10,676,495	296,569	36,126,122	376,314	11,116,124	308,781	36,341,735	378,560
Construction loan amount	7,606,682	211,297	27,636,754	287,883	7,611,383	211,427	27,650,198	288,023
- cost of financing	246,965	6,860	897,277	9,347	247,117	6,864	897,713	9,351
Equity required	1,936,654	53,796	6,542,978	68,156	1,941,202	53,922	6,555,985	68,292
IRR	63.3%		27.4%		91.8%		31.3%	
Residual land value @20% IRR	2,089,862	58,052	4,719,064	49,157	2,460,815	68,356	4,899,789	51,039
Surplus value (feasibility gap)	540,725	15,020	288,751	3,008	902,581	25,072	443,462	4,619
- percent of land value	34.9%		6.5%		57.9%		10.0%	

	Folsom				Rancho Cordova			
	Prototype 4.1		Prototype 4.2		Prototype 4.1		Prototype 4.2	
	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit	Project Total	per Unit
Land area (sq. ft.)	69,808	1,939	154,509	1,609	69,808	1,939	154,509	1,609
Land cost	2,450,496	68,069	7,008,073	73,001	1,973,066	54,807	5,642,689	58,778
Total finished floor area	26,850	746	115,650	1,205	26,850	746	115,650	1,205
Construction cost	5,858,580	162,738	22,613,320	235,555	5,858,580	162,738	22,613,320	235,555
Development fees	1,302,797	36,189	3,977,490	41,432	1,302,797	36,189	3,977,490	41,432
Other soft costs	585,858	16,274	2,261,332	23,556	585,858	16,274	2,261,332	23,556
Total development cost	10,197,731	283,270	36,800,742	383,341	9,720,300	270,008	35,412,450	368,880
Total sales value	11,933,403	331,483	39,013,651	406,392	10,967,729	304,659	35,856,592	373,506
Construction loan amount	8,072,485	224,236	28,968,884	301,759	7,825,759	217,382	28,263,284	294,409
- cost of financing	262,088	7,280	940,527	9,797	254,077	7,058	917,618	9,559
Equity required	2,387,333	66,315	7,831,858	81,582	2,148,618	59,684	7,149,166	74,470
IRR	59.7%		22.7%		44.4%		N/A	
Residual land value @20% IRR	3,150,911	87,525	7,151,745	74,497	2,335,177	64,866	4,492,378	46,796
Surplus value (feasibility gap)	700,415	19,456	143,672	1,497	362,111	10,059	(1,150,311)	(11,982)
- percent of land value	28.6%		2.1%		18.4%		(20.4%)	

Table A-13: Estimated Development Fees by Development Prototype; Elk Grove; 2019

Prototype:	1.1	1.2	2.1	2.2	3.1	3.2	4.1	4.2	5.1	5.2	6.1	6.2
Building permit												
- SFR 135.41	4,469	3,114	9,750	21,936	1,083	10,562	9,479	4,062	4,875	12,999	15,437	24,238
- Building permits	89,547	62,358	195,326	439,221	21,686	211,471	189,819	81,344	97,842	260,479	309,526	485,672
Other fees												
- General plan update (per \$1,000)	1,624	1,469	3,806	10,265	587	5,201	4,585	1,969	1,347	5,201	5,016	9,921
- Technology (per \$1,000)	2,825	2,554	6,620	17,853	1,021	9,044	7,974	3,425	2,343	9,045	8,724	17,254
- CBSC (per \$25,000)	282	255	662	1,785	102	904	797	343	234	905	872	1,725
- SMIP (per \$100,000)	918	830	2,151	5,802	332	2,939	2,591	1,113	762	2,940	2,835	5,608
Impact Fees												
- Capital Facilities Fee	141,537	98,647	308,808	694,818	34,312	334,542	300,230	128,670	154,404	411,744	488,946	767,731
- Roadway	235,620	164,220	514,080	1,156,680	57,120	556,920	499,800	214,200	257,040	685,440	813,960	1,278,060
- Measure A	30,690	21,390	66,960	150,660	7,440	72,540	65,100	27,900	33,480	89,280	106,020	166,470
- I-5	63,063	43,953	137,592	309,582	15,288	149,058	133,770	57,330	68,796	183,456	217,854	342,069
- Fire	45,276	31,556	98,784	222,264	10,976	107,016	96,040	41,160	49,392	131,712	156,408	245,588
- Parks	148,500	103,500	324,000	729,000	36,000	351,000	315,000	135,000	162,000	432,000	513,000	805,500
Elk Grove USD (per sq. ft.)	436,804	441,011	1,047,623	3,085,210	169,650	1,504,411	1,224,760	546,748	303,674	1,308,002	1,243,874	2,463,126
Affordable Housing	152,724	106,444	333,216	749,736	37,024	360,984	323,960	138,840	166,608	444,288	527,592	828,412
Total Fees	1,353,878	1,081,301	3,049,378	7,594,812	392,621	3,676,593	3,173,905	1,382,105	1,302,797	3,977,490	4,410,065	7,441,374
- per Unit	41,026	47,013	42,352	46,882	49,078	47,136	45,342	45,342	36,189	41,432	38,685	41,572

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