FACTORS IMPACTING HOUSING AFFORDABILITY

EXPLORING COLORADO'S HOUSING AFFORDABILITY CHALLENGES IN ALL OF THEIR COMPLEXITY

Conducted by **Shift Research Lab** in partnership with
Phyllis Resnick, PhD

Executive Summary

Exploring Colorado's Housing Affordability Challenges in All of Their Complexity

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Shift
RESEARCH LAB
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Executive Summary

BACKGROUND

Colorado's housing affordability challenge is first and foremost one of supply. Prior to the Great Recession, there were more housing units in the seven-county Denver metro region than households. But, since the recession, the region has added households at an annual rate that has far outstripped that of housing units, consuming the surplus of housing units. As a result, demand has outstripped supply for nearly a decade and housing prices have risen in excess of wages, causing housing to become increasingly unaffordable for many Coloradans.

We forecast excess demand to persist, even with record levels of building permit activity. Under these circumstances, only significant increases in housing supply will stabilize price; incremental reductions in the cost structure of development will accrue to developer profit and do little to ameliorate price pressure.

And, everyone should care about this affordability challenge. Housing cost-stressed households impact all Coloradans through the negative effects on business, public tax bases, health and education.

Housing Affordability: Why it matters to all Coloradans

According to a recent Colorado Mesa University poll, housing affordability is the biggest issue facing Coloradans. And it is not solely a Denver issue. "Statewide, 14 percent of respondents said housing/real estate was the biggest issue facing their community, while 10 percent said the economy was the most important problem. 9 percent of respondents listed crime/drugs/violence, 7 percent said education, and 6 percent said government was the biggest issue facing their community."[1]

With housing representing, on average, 35 percent of spending for households earning $50,000 or less, housing unaffordability is becoming the most significant threat to family economic security in Colorado. Currently, 50 percent of Colorado renter households are cost burdened, with housing commanding more than 30 percent of total household income. Eighty-five percent of these cost-burdened households have annual household incomes of $50,000 or less.

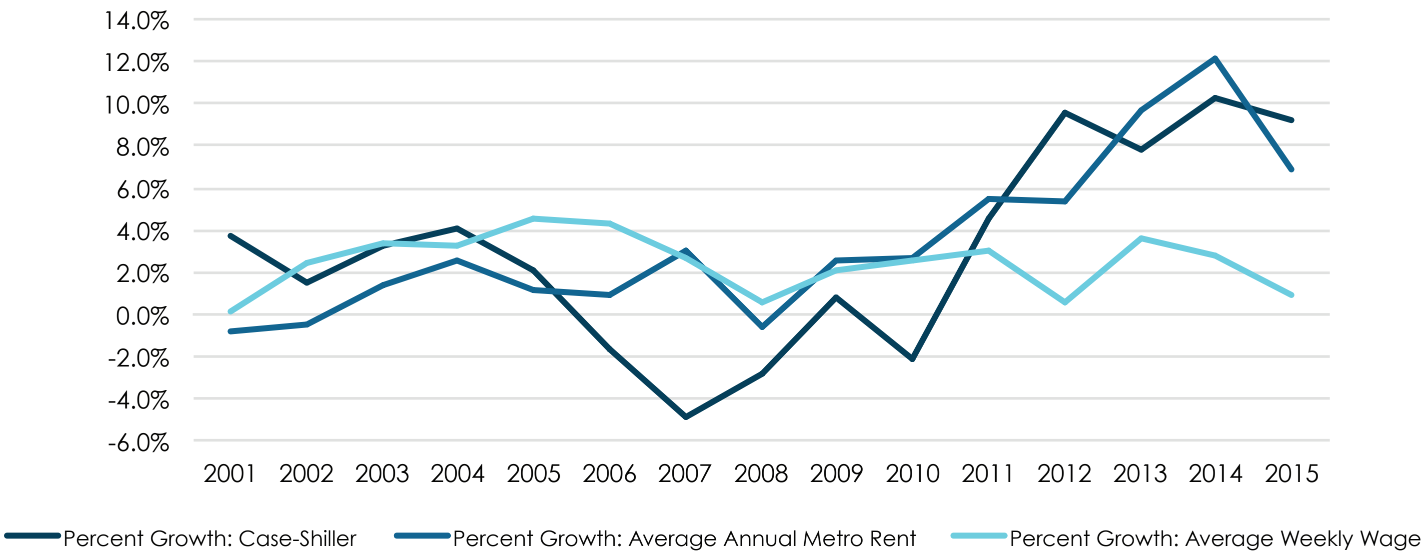
COMPOSITION OF MAJOR HOUSEHOLD EXPENDITURES (HHS EARNING LESS THAN $50,000)

Source: US Bureau of Labor Statistics, Consumer Expenditure Survey 2016

[1] http://www.thedenverchannel.com/news/local-news/poll-coloradans-rank-housing-economy-as-biggest-issues-facing-their-communities, accessed 1/22/18

But it was not always this acute. Between 2001 and the onset of the Great Recession, wages in Colorado kept pace with housing costs in both the rental and ownership markets. With the recovery from the Great Recession, housing costs diverged upward from wages. Since 2011, Colorado wages are up 11.4 percent while Denver metro rents are up 46.2 percent and the Denver Case-Shiller index of housing prices is up 48.7 percent.

WAGES VS HOUSING (PRICE & RENT) - ANNUAL GROWTH



Sources: S&P Case-Shiller Colorado (Denver) Home Price Index, US Bureau of Labor Statistics Quarterly Census of Employment and Wages (Colorado), Apartment Association Metro Denver Rent Survey

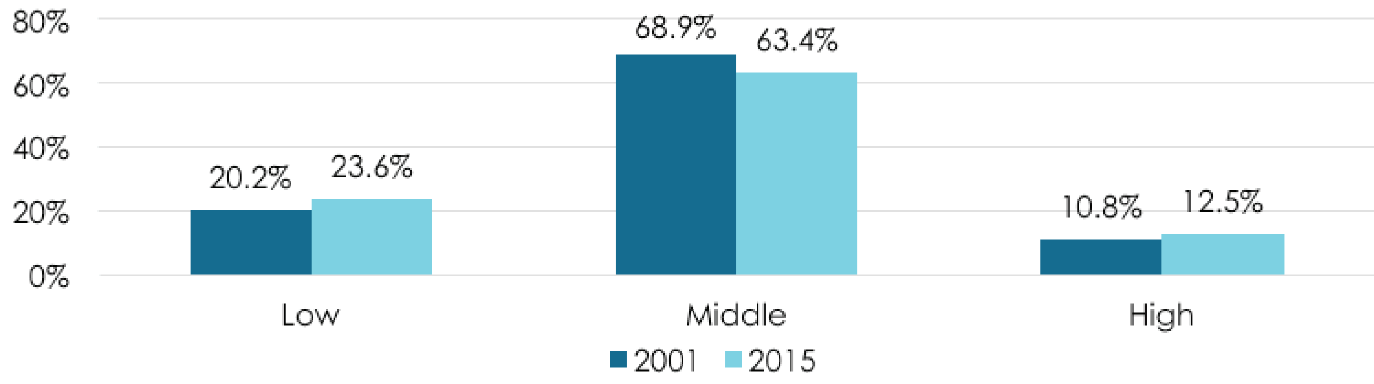
The cost burden of housing is an issue for every Coloradan, even households that are not directly affected. Annually, Colorado's cost-burdened households earning less than $50,000 annually are spending an additional $2 billion over the 30 percent standard to support their housing. That represents $2 billion that is not spent elsewhere on food, clothing, health care, recreation and other household expenditures. These expenditures could support local businesses, and many would be taxable and contributing to the provision of state and local services.

But the impacts are not limited to foregone expenditures. Colorado's service sector will find it increasingly difficult to maintain a workforce in this housing environment, threatening the viability of many of these businesses. Churn of student enrollment in Colorado's public schools, partially due to the community instability that results from high percentages of cost-burdened households, has shown to adversely affect all student performance and development. And, research has associated the overcrowding that often occurs in cost-burdened households with greater risk of injury, higher rates of infection, increased incidences of depression, and other childhood development problems[2], placing additional pressure on health care and social service systems.

The trends are not favorable. Our previous work on family economic security shows the state losing jobs paying middle-class wages, with the hollowing of that middle more to low-wage than high-wage jobs. Between 2001 and 2015, the share of middle-wage jobs in Colorado fell from 68.9 percent to 63.4 percent. As a result, the state experienced an increase in the share of high-wage jobs of 1.7 percentage points but also an increase in the share of low-wage jobs of 3.4 percentage points. To the extent Colorado is losing middle-wage jobs, it is losing them disproportionally and at twice the rate to low-paying jobs. Yet the new housing being built is disproportionally targeted to the high-income jobs highlighted in economic development announcements without recognizing that each of the additional high-paying jobs creates lower-paying service jobs at a greater than one-to-one ratio. If these trends continue with no changes, even more families will become housing cost burdened. It is in this context that we decided to look more deeply at the multiple, interconnected factors contributing to housing unaffordability in Colorado.

[2]Maciag, Mike. No Room in the City. Governing. November 2015.

SHARE OF HIGH, MIDDLE, AND LOW INCOME JOBS BY HOURLY WAGE - 2001 & 2015

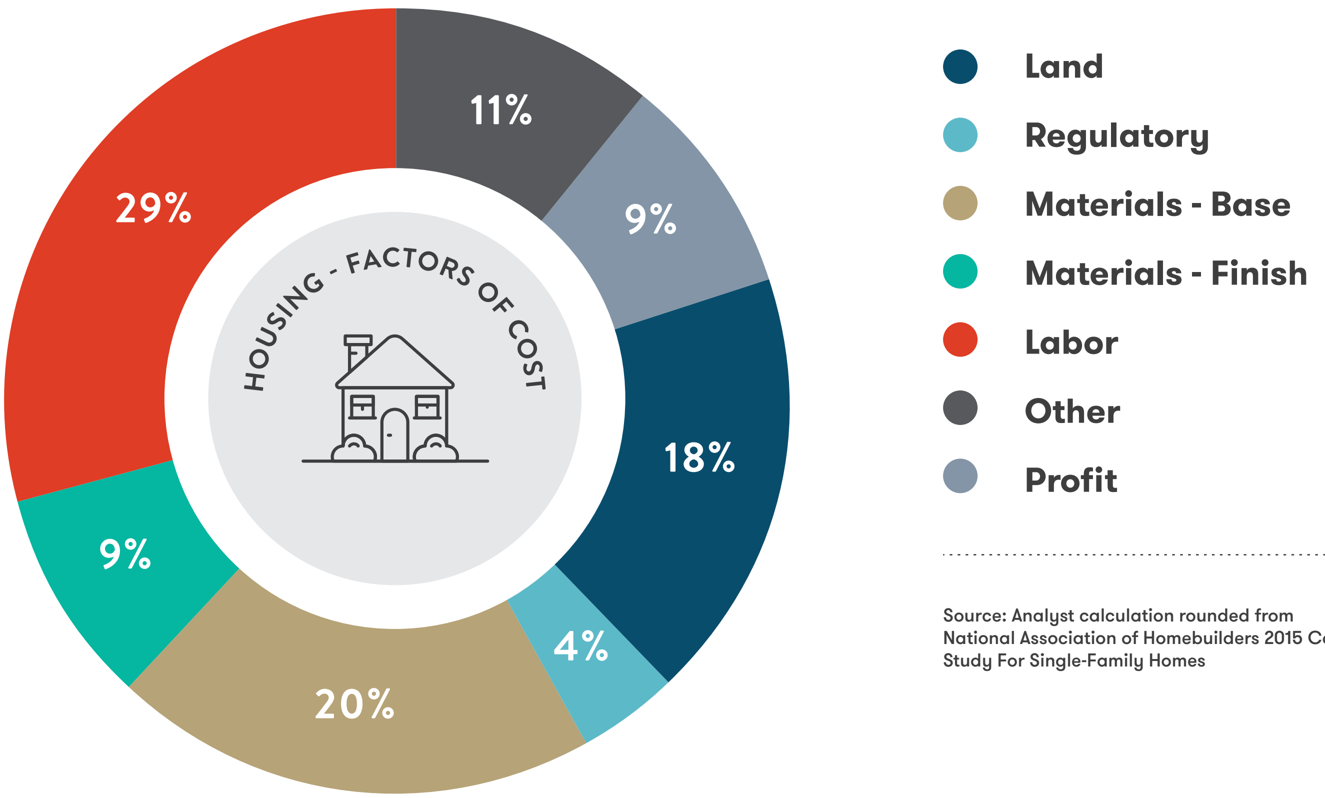


Source: Analyst calculation from Bureau of Labor Statistics data

HOUSING AFFORDABILITY - FACTORS OF COST

This study was designed to identify, analyze and synthesize the multiple and interrelated contributing factors to Colorado's housing challenge. While it is tempting to identify a single factor, for example construction defect legislation, or labor, the factors work in concert and interact with the market environment—and each of them matters. A simple fix to a singular contributor is unlikely to reverse the trend.

A recent study from the National Association of Homebuilders categorized the relative share of costs associated with building an average single-family home in the United States. While the shares may differ slightly for Colorado, the presentation is representative of the composition of the factors driving price.



Source: Analyst calculation rounded from National Association of Homebuilders 2015 Cost Study For Single-Family Homes

Colorado has experienced some degree of cost pressure in each of these factors since the end of the Great Recession. The degree to which the cost pressures impact final housing price vary with the relative importance of each factor to the cost of construction and the extent to which cost pressures have mounted for the particular factor. But, more importantly, the factors interact with each other in unexpected ways. As examples, the shortage in labor available to subdivide properties may be holding down the demand for land, thus dampening what would otherwise be additional pressures on land cost. A migration of labor back into the state, which ironically may not be happening due to the high cost of housing, could, in the short run, exacerbate housing costs by placing even more demand pressure on the limited stock of housing available. Even productivity improvements, often explored as a potential solution, require large up-front investments and the specter of such improvements may discourage workers to enter the construction trades and in the short-term exacerbate any existing labor shortage.

Further complicating the issue is the fundamental structure of the Colorado housing market, which is experiencing, and is projected to continue to experience, excess demand, record low vacancy rates, and quite possibly deficits of housing units. Under circumstances of such demand pressure, only increases in supply bring down price; incremental cost efficiencies more likely will flow to developer profit. The point is, housing is a system and must be understood, analyzed and addressed as such. Above all, this project is intended to highlight the networked nature of the housing supply challenge facing Colorado, and, unfortunately, to dispel the myth that there is a simple, unidimensional driver, and therefore a single solution.

The Research: Setting the Stage for a Discussion About Affordability

Our approach to this research was inductive; we entered the project with no formal model of unaffordability and instead set out to understand the issue through a series of interviews with professionals involved in various aspects of housing development. This qualitative approach provided a list of potential factors contributing to housing affordability that were synthesized into the following categories, and explored more deeply in the factsheets that comprise this report:

The Market	**Regulatory**	**Productivity**	**Materials**
Labor	**Land**	**Consumer Preference**	**Other**

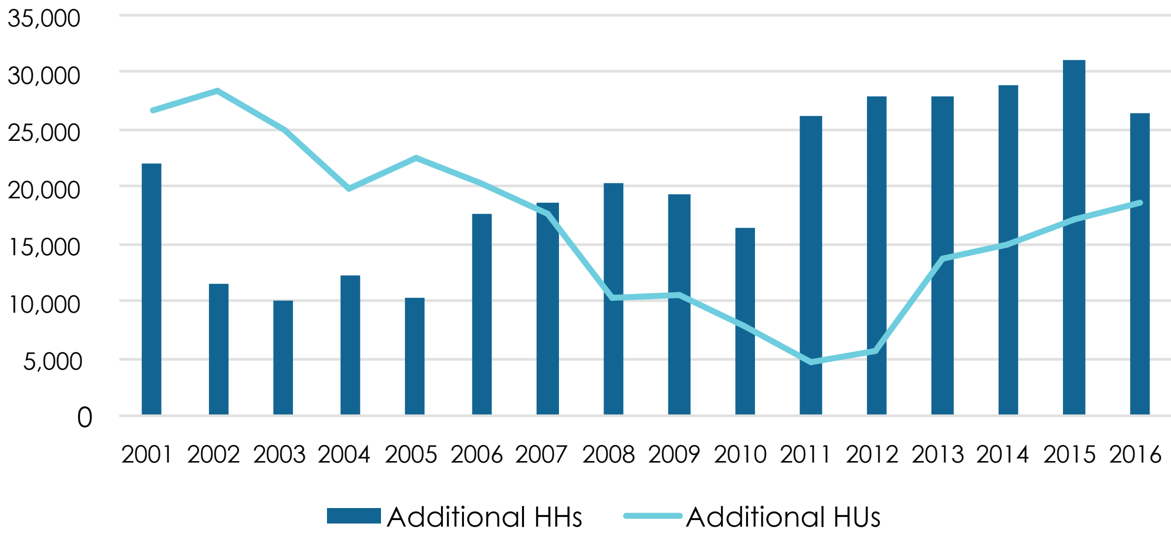
The second stage of this research was a quantitative assessment of each of the above factors and the extent to which each is contributing to unaffordability. The results, as summarized in the accompanying factsheets, are more nuanced than the conventional wisdom. Labor shortages exist, but to differing extents for general contracting/homebuilding and trade labor, with stronger evidence of shortages in the trades. Employment in the subfield of land subdivision is down more than 60 percent from its level in 2001, but employment in other subtrades has increased. The resulting impact on wages is similarly mixed with most subcategories of trade labor commanding larger increases in real wages than the overall private sector labor market. Yet real wages in home building and general contracting remain below both 2001 and 2006 levels. Notably, real wages for single-family general contractors have been largely flat since 2001; they are up only a half of a percent. And even though the wage pressure in the construction trades suggests a labor shortage, Colorado is using more trade labor per housing unit built today than it was in either 2001 or 2007.

Material costs displayed mixed results as well. Over the past ten years, most basic building material costs have demonstrated little inflation. Instead, the increase in material costs is more related to changes in consumer preferences and the industry's response. Preferences for larger homes and premium finishes, or perhaps perception of such on the part of developers, have contributed more to the cost of construction than the general level of inflation in basic building materials.

Land costs are up, but perhaps not as steeply as they would have been had the labor market for those engaged in subdividing activities not declined. Perhaps due to a shortage of that labor, the pressure to entitle land for development has slowed, likely holding down the cost pressures on vacant, currently unentitled land. Yet, land already zoned for residential development is becoming scarcer. Our analysis shows that the seven-county Denver metro region has about five years' worth of supply of land in a currently developable state, and once that supply is consumed, converting additional land to a developable form will add cost. This is on top of other regulatory cost pressures such as development and tap fees, a local issue in Colorado. These have displayed differing levels of cost pressure depending on the location.

While the individual factors certainly contribute to housing cost inflation, their impacts are more uneven, interrelated and nuanced than is initially obvious. The market circumstances, however, are unambiguous. Since the early 2000s, the seven-county Denver metro region housing market transitioned from producing annual surpluses (relative to households) to one of potential deficit of units to those seeking housing. This is due to both the unexpected growth in "housing seekers" coupled with the anemic growth in housing units during and just after the Great Recession and a demographic shift toward a larger number of smaller, single adult family units. Currently, many family units are doubling up, either by choice or due to necessity, resulting in multiple per housing unit. A reversal of the preference for doubling up will significantly exacerbate the regional housing shortage.

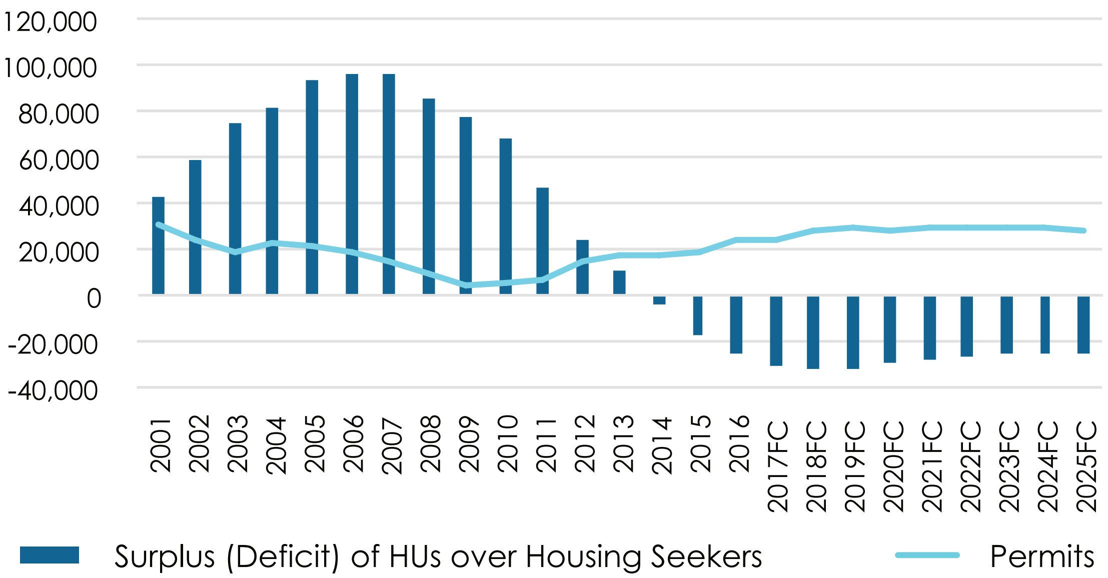
CHANGE IN HOUSEHOLDS AND HOUSING UNITS - ANNUAL GROWTH



Source: Colorado State Demography Office

And, our forecast is for a market that will not correct. Even record levels of projected permit activity fail to create a year-over-year surplus through the 2025 forecast horizon. Alternative forecasts of household formation, which reverse the trend toward one adult family units, also fail to return the region to healthy vacancy rates. Our alternative forecast projects vacancy rates in the vicinity of 1.5 percent regionally through 2025, far below the 5 percent generally considered healthy for a housing market.

BUILDING PERMITS AND ANNUAL SURPLUS RATE - DENVER METRO REGION



Source: Colorado State Demography Office

First and foremost, as argued and demonstrated earlier, Colorado's housing affordability challenge is a market problem; demand is outstripping supply. Why, then, with such demand pressure, has the market not corrected and further increased supply?

The story of limited supply likely has its genesis in the Great Recession, one largely fueled by real estate excesses. In the wake of the recession, Colorado appears to be left with the "perfect storm" on the supply side: a market dealing with the aftermath of bankruptcies and consolidations, uneven labor shortages particularly in the areas of land development and key trades, and increased levels of risk aversion among the remaining players. In the halo of the recession, rational business practice is to avoid the level of overextension that jeopardized the viability of many firms prior to the recession.

Compounding this, with a limited supply of developable land and a shortage of professionals available to shepherd land through the development process, there is neither the capacity nor perhaps the incentive to bring more housing to the market. With limited capacity to build and excess demand, the firms that remained turned to high-return projects: single-family housing out of the reach of those with modest incomes and rental units in high demand due to demographic shifts and the hangover of the foreclosure crisis. Finally, and to a lesser extent, investors entered the market, buying up single-family homes and deploying them as rental properties and the market for existing properties shrank, perhaps partly due to the requirement in Colorado's senior homestead exemption for ten years of continuous occupancy for eligibility. These multiple phenomena converged to limit supply, creating a vicious cycle in the resale market as potential sellers balked due to the inability to find replacement homes to buy. All the time, demand continued to mount.

Much has been written lately about the need to lower the cost of development. As demonstrated by this research, all aspects of housing development have experienced some cost pressure, albeit more unevenly and in some cases less acutely than the prevailing wisdom. Lowering or limiting these costs of development is necessary. However, it will not be sufficient to reduce the price of housing. Given the strong demand pressure, reductions in cost structure that fail to generate enough additional supply to alleviate the excess demand will flow mostly to developer profit and not to price reductions for the consumer. Instead, to be effective, changes in the cost structure MUST be accompanied with sufficient increased supply to alleviate the demand pressure, particularly supply tailored to households currently priced out of the market. This will require solutions that transcend the traditional market and instead focus on innovative approaches, such as those allowing for significant increases in the productivity of housing construction, expanding the supply of developable land, exploring the role of social capital in all phases of housing, and deploying strategic investments in infrastructure to increase the economic viability of less populated areas of Colorado.

A CALL TO ACTION

The factors contributing to housing unaffordability are complex and interrelated. Maintaining affordability for all segments of the market will require multiple approaches, some of which are yet to be identified, or perhaps even invented. But, to be successful in the current market environment, the actions taken must be structured around the goal of increasing the supply of housing.

While programs and policies that reduce cost and expand access to existing housing are necessary, particularly for the neediest Coloradans, they will not be sufficient in reducing price pressure; in the face of the current market conditions, only increased supply will be sufficient. Bringing that additional supply to the market undoubtedly will require the innovative thinking and actions of many; there is no simple solution. Thus, this call to action is designed to encourage all Coloradans to embrace a new way of thinking about Colorado's housing challenge while recognizing the need to maintain and expand the important programs, policies, and efforts currently underway. It should be interpreted as a set of potential actions that may be taken to augment, not replace, existing policy around housing affordability (e.g. LIHTC, State tax credits, vouchers, density bonuses, etc.). To commence the conversation, we offer the following action areas for consideration:

LABOR

To the extent the labor shortage is affecting supply of housing:

- Identify areas of labor shortage and expand training apprenticeship programs.
- Advocate for immigration policy that is consistent with the need for skilled trades.
- Explore programs to bring alternative sources of labor to the market, such as employing crews from the correctional system in a manner similar to Colorado Correctional Industries' SWIFT program.

Explore ways to expand labor productivity and bring more supply to the market by using methods such as factory-built modular housing. Currently both regulation and perception are barriers to these sorts of innovations in building. The legislature should form a committee to study and address these and other barriers to factory-built housing or other productivity-enhancing innovations in building. This inquiry should be inclusive of solutions for primary residences, as well as accessory dwelling units.

Communicate the true impact of major economic development announcements by accounting for the secondary jobs created by the new primary jobs. This will raise awareness and call attention to the number of additional workers, generally in lower paying occupations, who will demand housing as a result of the newly created economic activity.

ENHANCEMENTS OF CAPITAL RESOURCES

- **Identify and promote opportunities** for social impact capital investments that will enhance the ability to bring more supply to the market.
- **Expand investible opportunities** in private and/or public-private partnership cost abatement vehicles, such as community land trusts and pilot projects.

INNOVATIONS IN INFRASTRUCTURE PROVISION

- **Expand Colorado's housing options** through strategic infrastructure investments statewide, such as broadband, that make other regions of the state economically viable and thus more attractive for housing.
- **In the urban settings,** explore innovations in shared parking as a means of reducing the burden that parking regulations place on new development. This option is particularly viable as the Denver region continues development along newly established transit corridors.

POLICY

- **Monitor trade policy** for actions that would increase the price of building materials. Coordinate with relevant state agencies, and if appropriate advocate for, trade policies that will not increase the price of those materials.
- **Consider a restructure** of the Colorado Senior Property Tax Exemption to eliminate the requirement for ten years of ownership. This should reduce the incentive for seniors to remain in homes they would rather sell but for the loss of the exemption and as a result bring additional inventory and a more healthy "churn" to the resale market. Means testing the exemption could offset the additional cost of eliminating the residency requirement.
- **Continue to monitor** the impact of the changes to Colorado's construction defect laws to evaluate whether those changes have been successful at increasing the inventory of condominium property at more affordable price points.
- **Evaluate the impact** of the current federal tax reform on housing in Colorado and recommend state-level policy changes if appropriate.
- **Reach out to other areas,** particularly the San Francisco/Bay Area for lessons learned. Explore ways to incorporate those lessons into Colorado's housing policy.

Finally, we recognize that this call to action is a beginning, not an end. It is undoubtedly incomplete, both in coverage and in detail. It will take a persistent, on-going effort to address affordability in Colorado. To facilitate that effort, we recommend establishing a Housing Affordability Roundtable to explore these options and others, including the ongoing monitoring of the entire housing ecosystem.

ACKNOWLEDGEMENTS:

We Would Like To Thank...

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General Market

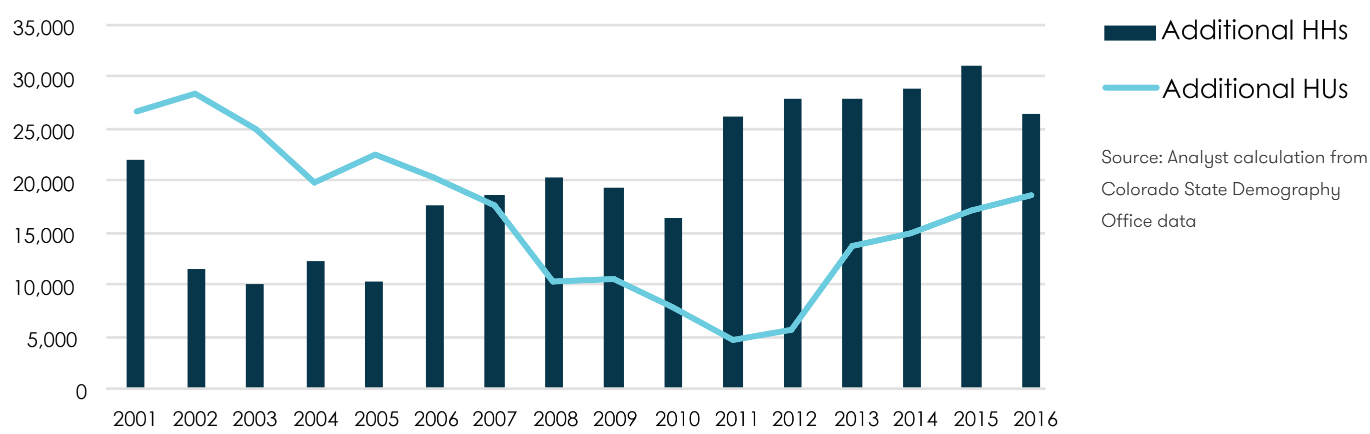
During the Great Recession, the Denver region added households at levels that exceeded those of the years prior to the recession. In 2008, the Denver region added 20,346 households. This is almost double the 10,203 households added to the region in 2005. However, during the recession, construction of new housing units fell to decades' lows.

As a result, the pre-recession regional surplus of housing units over households quickly was absorbed and by some estimates and forecasts, the region currently has fewer housing units available than households seeking residences. Our forecast is that even record-level building will do little to alleviate the pressure and reverse the trajectory of housing prices.

QUICK OVERVIEW

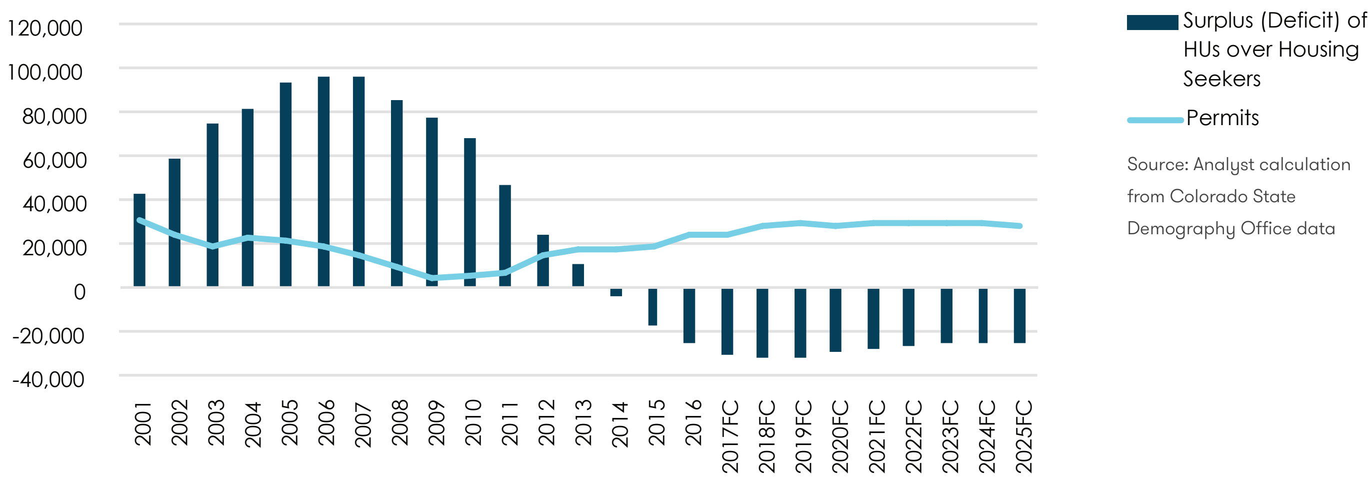
Between 2007 and 2015, growth in households in the seven-county Denver metro region outstripped that of housing units, consuming the surplus of housing units and resulting in a tight regional housing market. Even with a year-over-year forecast for building permit activity exceeding every year since 2001, demand pressures will result in continuing tight housing markets. As a result, housing prices as measured by the S&P Case-Shiller Denver Index, which are up 60 percent since their 2009 low, are projected to continue to rise, albeit at moderating rates. The market environment suggests that without meaningful increases in the supply of housing, price pressure will continue.

YEAR-OVER-YEAR CHANGE IN HOUSEHOLDS & HOUSING UNITS - DENVER METRO REGION



Source: Analyst calculation from Colorado State Demography Office data

RESIDENTIAL PERMITS AND HOUSING SURPLUS/DEFICIT (ASSUMES 100% REALIZATION RATE OF ALL PERMITS)



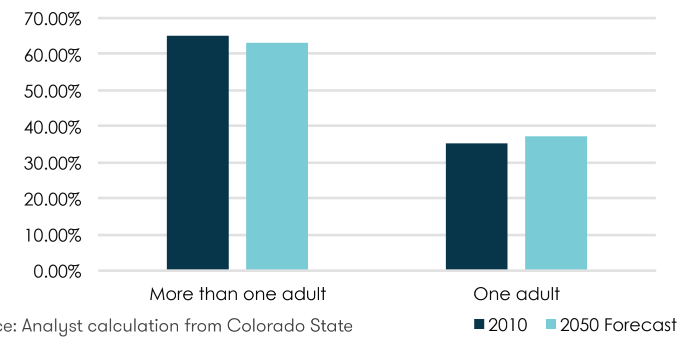
Source: Analyst calculation from Colorado State Demography Office data

How can this be possible? Can there really be more households than housing units? The short answer is no. The Census defines a household as all the people who occupy a housing unit, so by definition households cannot exceed housing units. But, family and non-family units (single adults or non-related persons living together) seeking a place to live can exceed housing units. The answer lies in the changing composition of these family and non-family units in the region. The Colorado State Demographer classifies these units into four types; the relevant distinction for this analysis is the number of adults. The recent and projected trend is for a continually increasing share of smaller, single adult family units.

Perhaps by choice, perhaps out of necessity, or probably a mixture of both, single adult units and quite possibly two adult family units are doubling up. This is resulting in an increasing number of housing units sheltering multiple families and leading to the conclusion that the region is operating at a deficit of housing units. But regardless of the reason, under current building patterns there simply is not sufficient volume of housing to serve the larger number of family and non-family units, now or in the future.

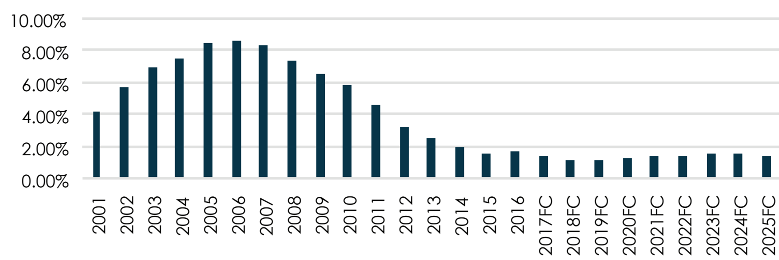
It is possible to conceive an alternative path for household formation, one in which the trend toward single adult families reverses in favor of the pattern of household composition from the past. We used Colorado State Demographer data to generate such a forecast, and it does little to brighten the outlook for the region's housing crunch. Under the alternative household forecast, the regional deficit of housing units erases, but instead the region is left with a prolonged period of historically low vacancy rates. Rather than a healthy vacancy rate of 5 percent, the rate most industry experts believe allows for normal churn in the housing market, Denver will experience vacancy rates in the vicinity of 1.5 percent for all forecast years.

SHIFT IN HOUSEHOLD COMPOSITION



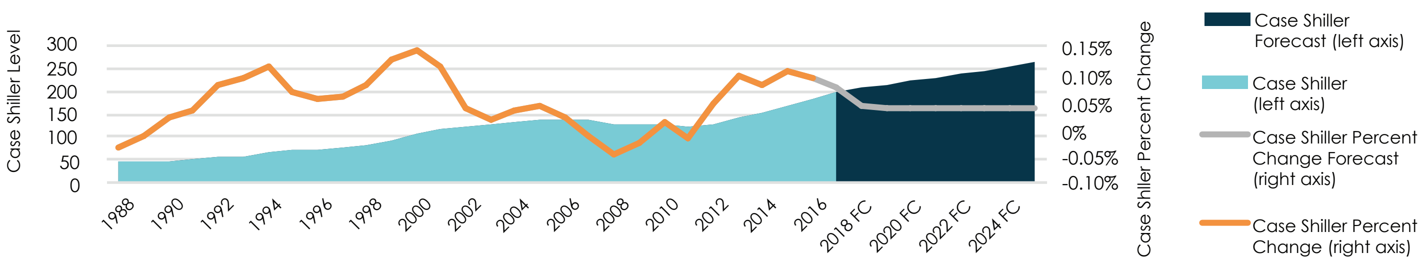
Source: Analyst calculation from Colorado State Demography Office data

REGIONAL VACANCY RATE UNDER ALTERNATIVE HOUSEHOLD COMPOSITION ASSUMPTIONS



Source: Analyst calculation from Colorado State Demography Office data

S&P CASE SHILLER DENVER, LEVEL AND PERCENT CHANGE: HISTORY AND FORECAST



Source: S&P Dow Jones Indices LLC, S&P/Case-Shiller Denver Home Price Index with analyst forecast

Regardless of the assumptions about household formation, regional housing supply is simply insufficient. As a result, our trend forecast of regional housing prices is for an increase in the range of 3 to 4 percent each year through 2025. The status quo market environment is not expected to contribute any significant relief to the mounting affordability pressures to housing. It will require additional supply, over and above the robust baseline forecast levels of permit activity, to return the region to a healthy housing balance and ameliorate the mounting price pressures.

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Consumer Preference

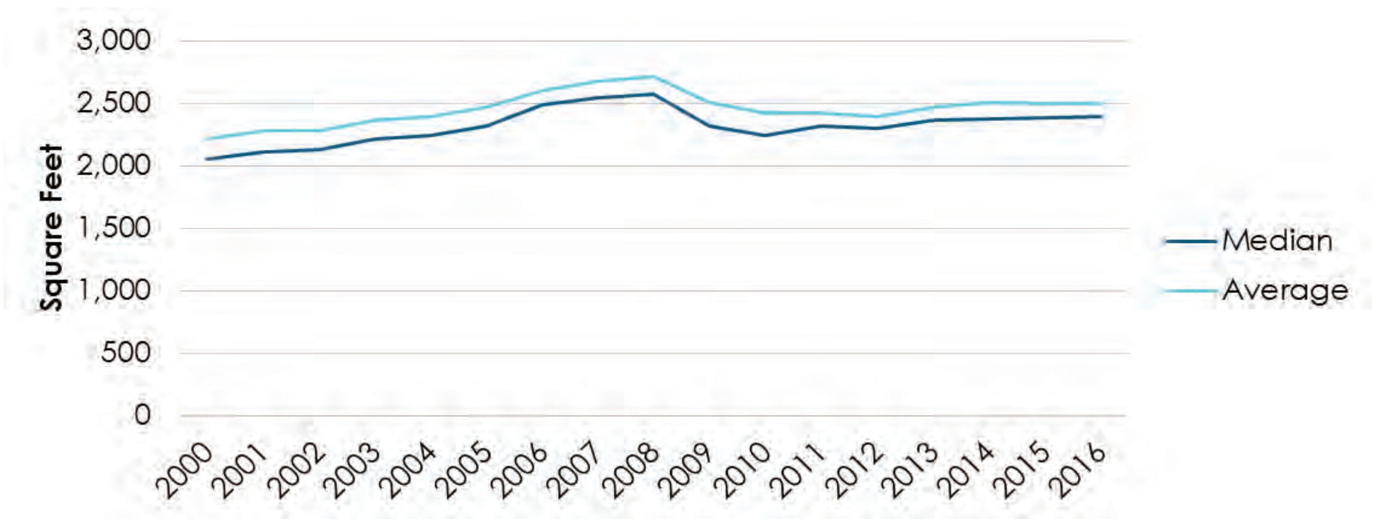
Size does matter. As noted in the Materials Factsheet, comparing the impact base material costs impose on the construction of a 1,000-square-foot home over time should be fairly straightforward. However, the size of new homes has been growing, with the exception of recessionary periods. Results from analyzing property data for the seven-county metro Denver region indicate 2008 was the peak of new single-family home median and average square footage, followed by a decline to 2010, before rising again through 2016. As builders offer larger homes, base material cost increases are further exaggerated, rendering a greater overall effect on the end price.

What is unclear at the moment is whether builders are responding to a demand for larger homes, or whether larger homes are selling so well in the current market environment that they are continuing to be offered. Either way, as size increases, so does final price.

QUICK OVERVIEW

Shifts in consumer preference, whether perceived or real, have significantly impacted the final price of housing. If it is true that supply responds to demand, the new supply of housing reflects a shift in preference in favor of larger, fancier and more amenity-rich residences. It is reasonable to consider whether demand is driving supply for the changes in housing or vice versa, but the result is the same. In metro Denver, with few exceptions, housing has become larger, fancier and, especially in the case of rental housing, more amenity-rich. The HGTV lifestyle phenomena has infiltrated all facets of what homes should look like, and, in most cases, imposes a very real cost. Changes in consumer preferences are driving up prices in Colorado more than the base price of raw materials.

SIZE OF SINGLE-FAMILY RESIDENCE - SEVEN-COUNTY DENVER REGION



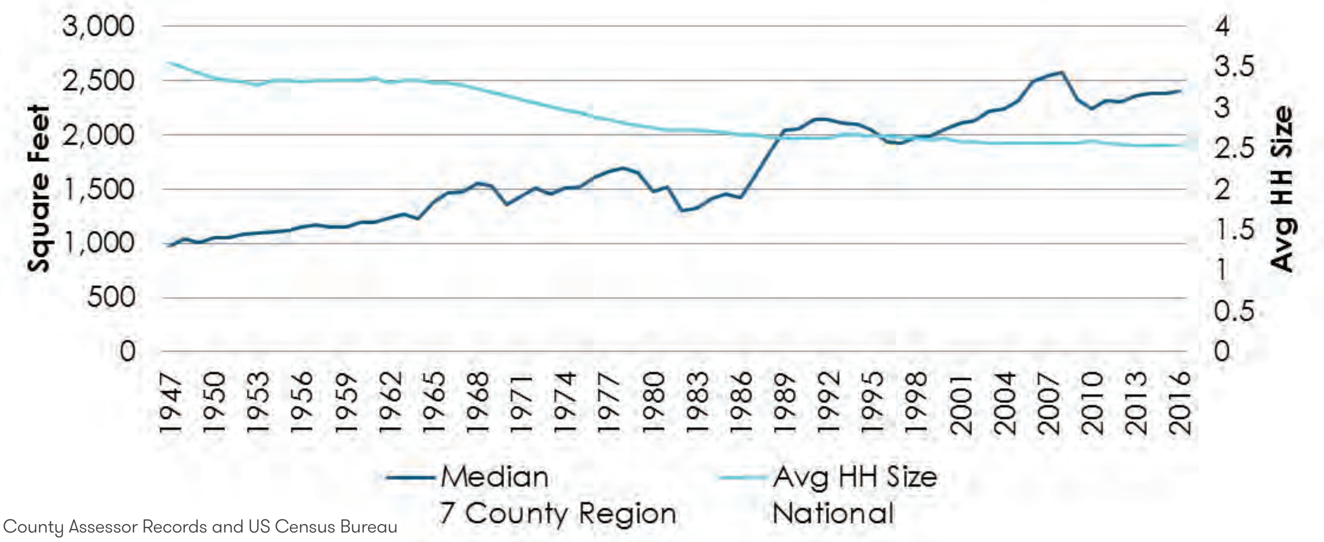
Source: County Assessor Records

While the size of single-family homes have been growing, the multifamily market has started to introduce some micro-units to the inventory, particularly in Denver. This could be a market response to demographic shifts such as new single-headed households' desire to balance the size of a home with a central location. More of these micro-unit projects are in the pipeline; however, they are still a niche submarket that has yet to command a significant share of the overall production.

LARGER HOMES FOR SHRINKING FAMILIES

Since 1947, square footage per person has risen almost 2.5 times. Today, new homes provide each adult and child, on average, a staggering 1,000 square feet. In many instances, bathrooms can outnumber the number of occupants.

SIZE OF SINGLE-FAMILY RESIDENCE VS. AVERAGE HOUSEHOLD SIZE SEVEN-COUNTY DENVER REGION



Source: County Assessor Records and US Census Bureau

RAISING THE FINISHES BAR

Materials used to finish a home's interior, such as countertops, flooring, and appliances, contribute a measurable percentage of the overall cost of construction. This is the one area the buyer could have some financial control over due to the range of price points, or so it was in the past. In an attempt to understand how much flexibility a buyer has today in selecting finishes to help minimize the final price of a new home, we inventoried the base finish packages offered by publicly-traded and local homebuilders across the state. The findings further support the notion that this market is catering to buyers of great means. Effectively, what were considered upgrades in the years leading into the recession (granite countertops, extensive wood and tile flooring, stainless steel appliances and designer details) are now considered the new standard. In short, the "finishes bar" has been raised, and it appears there is no turning back.

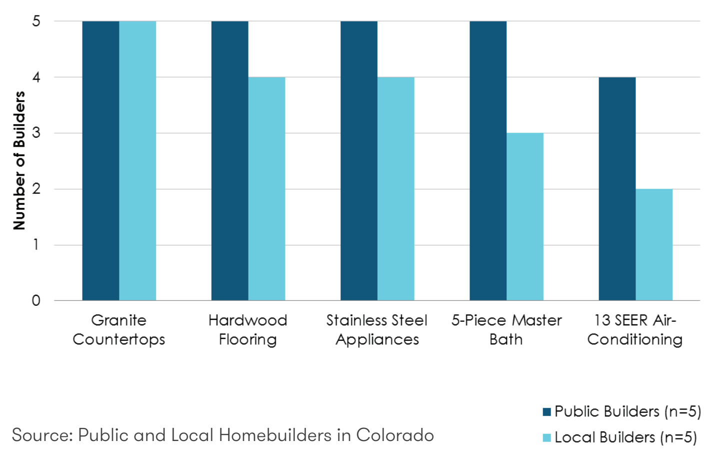
The movement from 'a la carte' to 'it's all included' is effectively impossible to quantify; however, it is not unreasonable to consider that what is now the new base would have been tens of thousands of dollars in upgrades for a homebuyer before the recession. For many current buyers, those upgrades, which are now standard, could be the difference between being able to purchase a home or not.

Even in the new rental developments, the finishes standard has played its part. Luxurious amenity packages and lifestyle amenities such as pools, workout facilities and roof top entertainment spaces, have resulted in rent levels never seen in this market.

AN EXCLUSIVE LIFESTYLE CLUB

On the surface, it appears that new homes, particularly ones in metro Denver where the average sale price has exceeded $500,000, are no longer for first-time homebuyers. Many new apartments also cater to a specific market, one that desires an elevated lifestyle in what is known as a lifestyle state. All of these new units are a luxury that only those with means can consider as a place to call home.

STANDARD FINISHES PREVIOUSLY CONSIDERED UPGRADES



Source: Public and Local Homebuilders in Colorado

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Labor: Employment & Wages

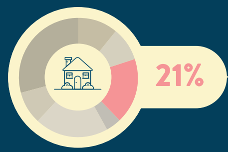
Labor affects affordability both directly and indirectly. First, increases in labor costs directly increase the cost of construction, the focus of this factsheet. Second, shortages in labor indirectly may affect the volume and timing of construction. The indirect relationship is explored in the second labor factsheet.

OVERALL PICTURE

Residential building construction (single and multifamily homebuilders and general contractors) has yet to recover to 2001 employment levels. At the depth of the Great Recession, the level was almost half that of 2001. In 2016, that deficit had shrunk to just over 19 percent; however, in 2016 Colorado still had 3,553 fewer residential building construction employees than in 2001. A decade after the Great Recession, Colorado is left with 20.8 percent fewer firms than in 2006.

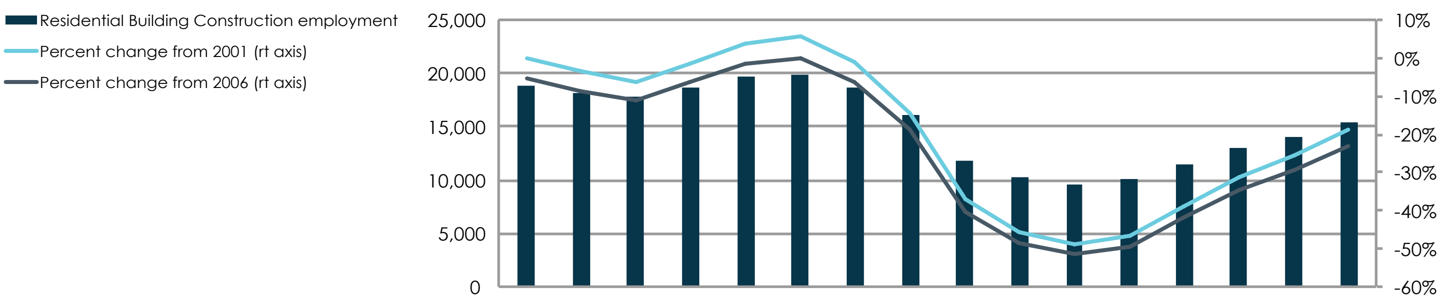
QUICK OVERVIEW

Statewide, 2016 employment of general contractors and homebuilders was 18.8 percent smaller than it was in 2001 and 23 percent smaller than it was in 2006, and real average weekly wages are down 1.9 percent from 2001 and 6.4 percent from 2006 levels. As a comparison, real wages for all private sector employment are up 5.51 percent and 0.67 percent since 2001 and 2006, respectively. While the industry overall employs fewer workers than prior to the recession, there has been no overall wage pressure in residential building construction. Trade labor presents a more nuanced wage picture with the majority of trades exhibiting wage pressure.



LABOR REPRESENTS 21% OF COSTS FOR CONSTRUCTING A SINGLE-FAMILY HOME

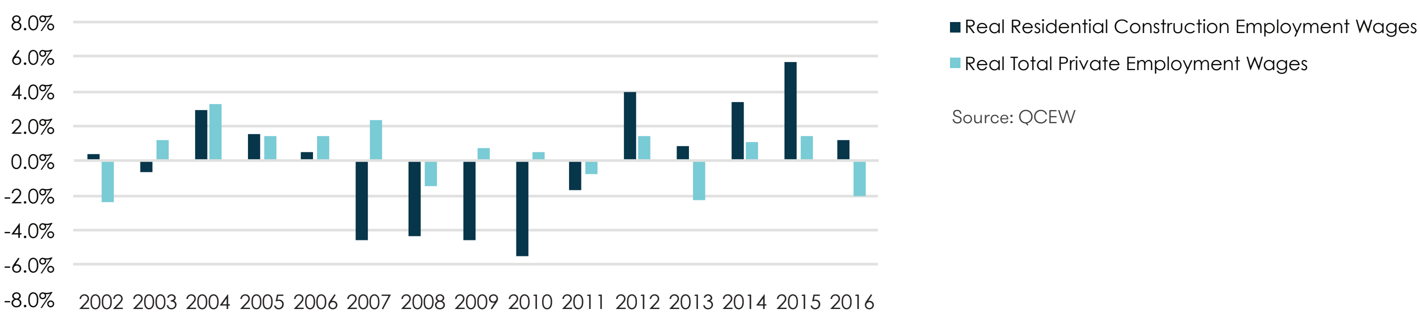
RESIDENTIAL BUILDING CONSTRUCTION EMPLOYMENT AND CHANGE FROM PREVIOUS LEVELS - COLORADO



Source: QCEW

The impact on cost, however, is less apparent. There is some evidence that the contraction in the construction labor market has impacted wages, but only in the past five years, perhaps a correction of the large recessionary declines. A longer-term perspective shows that since 2006, real wages are still down 6.4 percent, and since 2001 they are down 1.9 percent. By comparison, since 2001 real wages for all private employment in Colorado are up 5.5 percent.

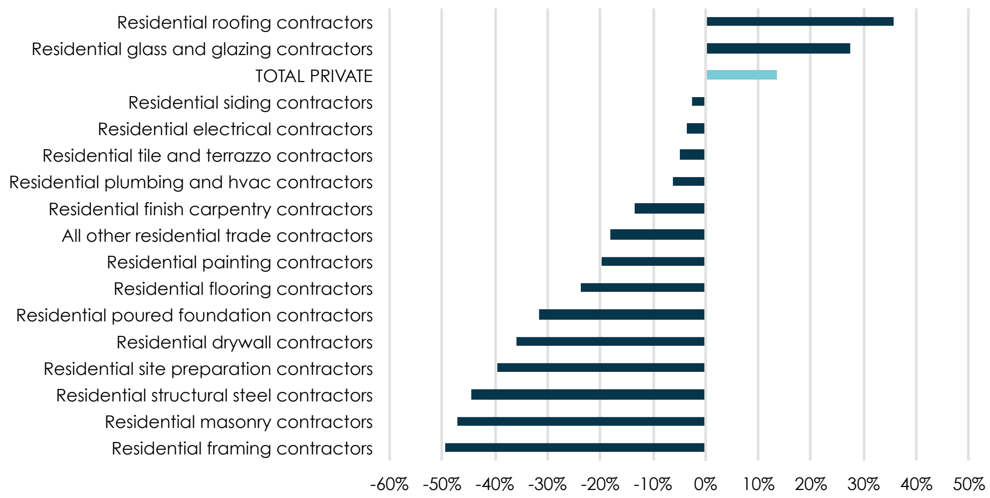
PERCENT CHANGE IN REAL WEEKLY AVERAGES RESIDENTIAL BUILDING CONSTRUCTION & TOTAL PRIVATE EMPLOYMENT



Source: QCEW

Much of the labor employed in building a home is in the specialty trades, not in the homebuilding and contracting categories. Experience across the trades varies. Most trades have experienced contractions in employment from their 2001 and 2006 levels. But, compared to 2001, four categories of trade labor saw increases in employment at rates that exceeded the rate of all private sector job growth in Colorado. Comparing to 2006, that statistic fell to two categories.

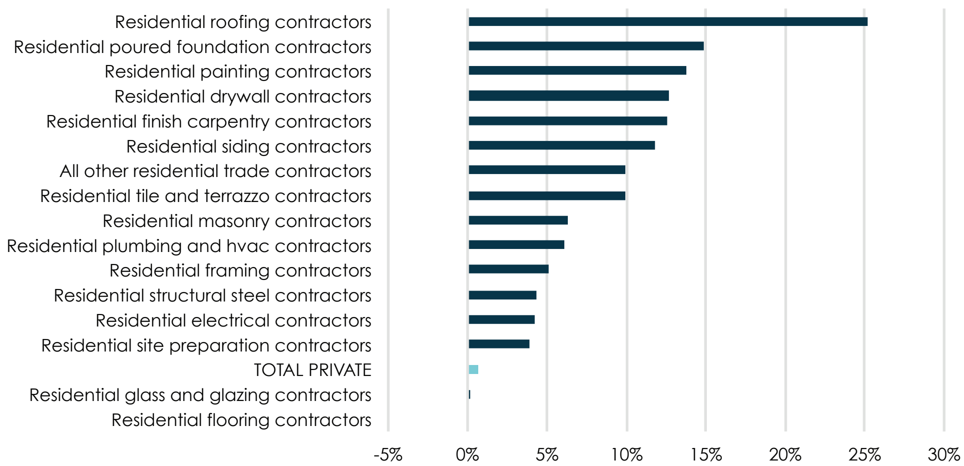
CHANGE IN SPECIALITY TRADE LABOR LEVELS FROM 2006 - COLORADO



Source: QCEW

The findings on trade wages vary depending on the base year. Relative to 2001, real average weekly wages for nine specialty trade categories have increased in excess of overall private wages, but eight categories have not. Relative to 2006, fourteen categories of trade labor are experiencing wage pressure in excess of overall state wages and two are not. The majority of the wage pressure for trade labor has occurred relative to the time just before the recession; the longer-term view displays less pressure on trade wages.

PERCENT CHANGE IN AVERAGE WEEKLY REAL WAGE RELATIVE SINCE 2006 - COLORADO



Source: QCEW

Labor shortages may be measured by employment levels, but only wage pressure confirms a shortage. For residential construction labor, the results are decidedly mixed. The levels of labor in building construction are lower than earlier in the 2000s and of late there has been some wage pressure. But compared to overall wage pressure in Colorado, residential building construction has experienced less wage growth since 2001 and 2006 than total private employment; in fact, real average weekly wages in the sector are still below their 2001 and 2006 levels. Drilling down into the individual trades presents stronger evidence of a labor shortage. The data for the specialty trades indicate wage pressure in excess of the broader economy for almost all trades, particularly when measuring from a base year of 2006. The wage data suggest that the labor shortage affecting construction is in the specialty trades rather than in homebuilding and contractor activities.

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Labor: Impact on Construction

As the previous Labor Factsheet outlined, the data suggest that the labor shortage, particularly in the specialty trades, likely is having a direct effect on the cost of housing construction. However, there is less evidence that the lower levels of employment are having an effect on the amount or timing of building, even as production returns to near pre-recession levels.

IMPACTS ON VOLUME AND TIMING OF CONSTRUCTION

One measure of the severity of labor shortages is the amount of labor utilized for each housing unit produced. There are two major categories of labor affecting homebuilding: residential building construction labor and residential specialty trade contractors. The ratio of residential contractor and homebuilder labor to unit built was 46 percent higher in Colorado in 2016 than in 2001, and residential trade labor per unit built was 54 percent higher than it was in 2001. Relative to 2007, those ratios were far closer for both labor categories. Trade labor per unit built was 1.63 and 1.75 in 2007 and 2016, respectively. For residential construction labor, those values were .51 and .52 for 2007 and 2016. By all measures, there is more labor per unit built currently than there was either at the beginning of the century or just before the Great Recession. It must be noted that these statewide statistics reflect a lower level of statewide building in 2016 than in 2007 but a higher level of regional building in the Denver area where the majority of Colorado's residential construction activity occurs.

QUICK OVERVIEW

Labor market conditions indirectly affect prices in the housing market through their impact on the construction process. Labor shortages that result in construction delays increase costs and likely the market price of housing. In 2016, the ratio of residential construction employees (General Contractors and Homebuilders) to new housing units was up 46 percent statewide from 2001 and almost equal to 2007 levels. For trade contractors, employment per new unit is above both its 2001 and 2007 levels. Additionally, in the Denver region, the time from building permit to certificate of occupancy has not increased. Regional labor pressures are not demonstrating an effect on the volume or realization rate of new housing, even as regional housing production returns to pre-Great Recession levels.

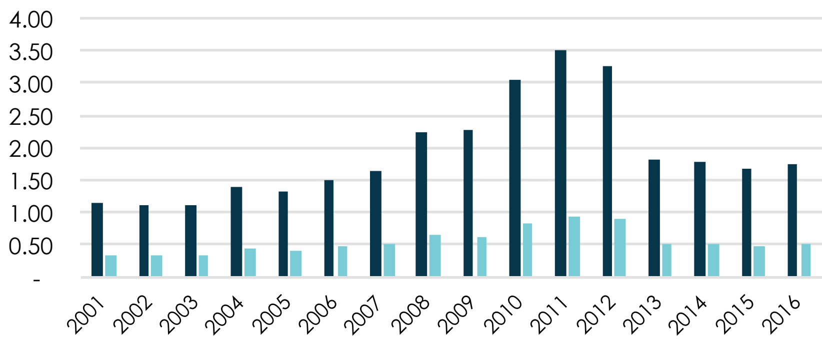
LABOR REPRESENTS 21% OF COSTS FOR CONSTRUCTING A SINGLE-FAMILY HOME

RESIDENTIAL CONSTRUCTION & SPECIALTY TRADE LABOR PER RESIDENTIAL UNIT BUILT LEVELS - COLORADO

■ Trade labor per new housing unit

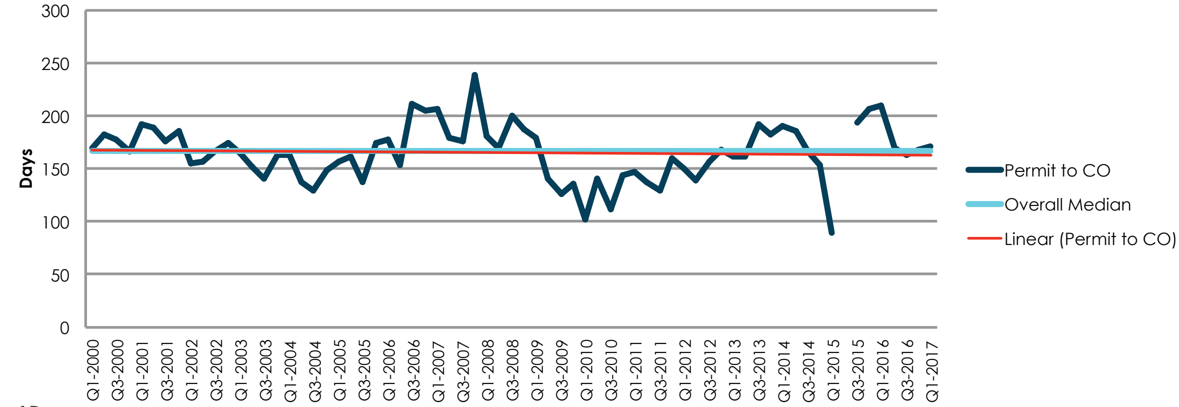
■ Residential construction labor per new housing unit

Source: US Bureau of Labor Statistics, QCEW and Colorado State Demography Office



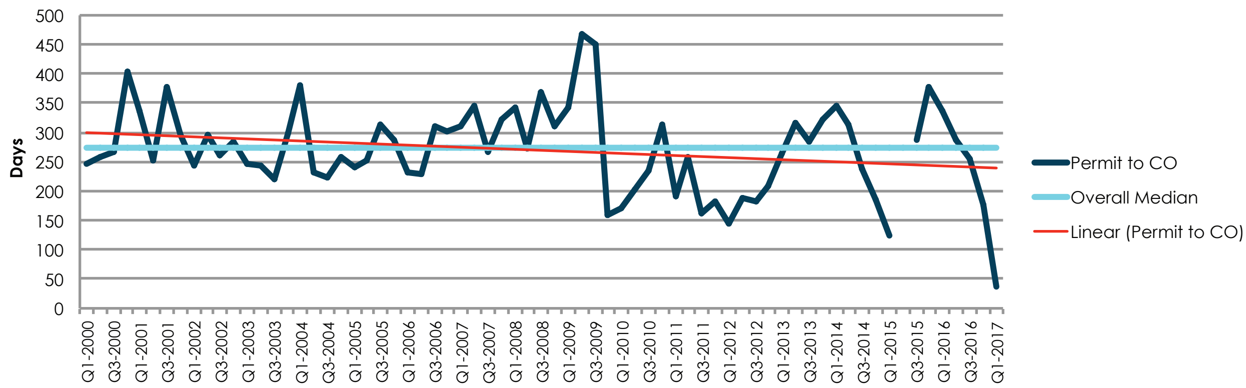
Labor can also impact the cost of construction by lengthening the time to completion. Significant labor shortages should result in longer durations from permit to occupancy. However, with the exception of specific multifamily apartment projects in 2011 and 2012, there is little or no evidence that the time from permit to certificate of occupancy has increased across building types in Denver. This is evidenced by the flat or declining linear trendlines in the figures on the following page.

PERMIT TO CO DURATION FOR SINGLE-FAMILY OVERALL MEDIAN: 167 DAYS (5.5 MONTHS)



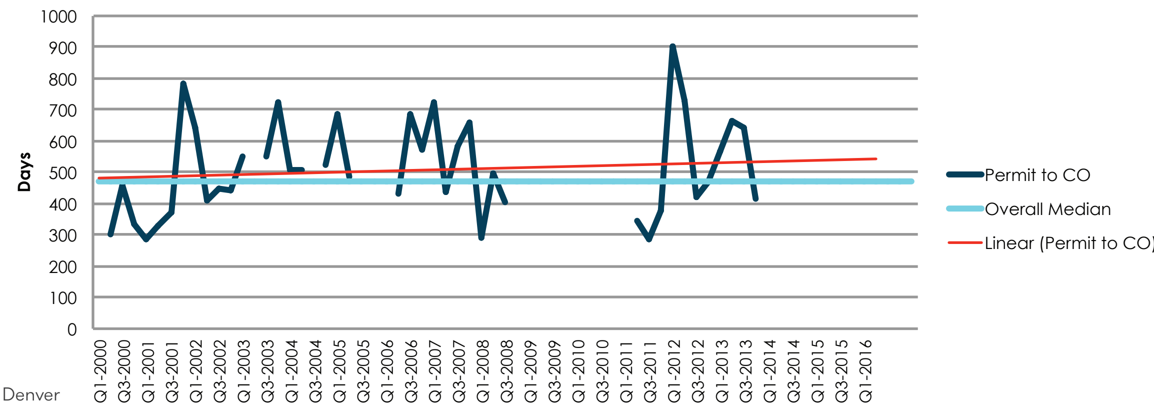
Source: City of Denver

PERMIT TO CO DURATION FOR TOWNHOMES OVERAL MEDIAN: 274 DAYS (9.1 MONTHS)



Source: City of Denver

PERMIT TO CO DURATION FOR APARTMENTS OVERAL MEDIAN: 471 DAYS (15.7 MONTHS)



Source: City of Denver

There is some evidence of labor shortages, particularly in the specialty trades. The previous factsheet demonstrated wage pressure for trade labor, but this analysis shows that trade labor per unit built still exceeds its pre-recession level. Labor per unit built for general contractors and homebuilders has returned to pre-recession levels. These findings are in the context of building statewide remaining lower than pre-recession levels, but building in the Denver region above 2007 levels. For the Denver region, there is little evidence that the labor shortage is hampering either the level of building or the timing to completion of residential construction projects. Instead, the data suggest that production could be increased without stressing the current supply of labor.

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Labor Productivity

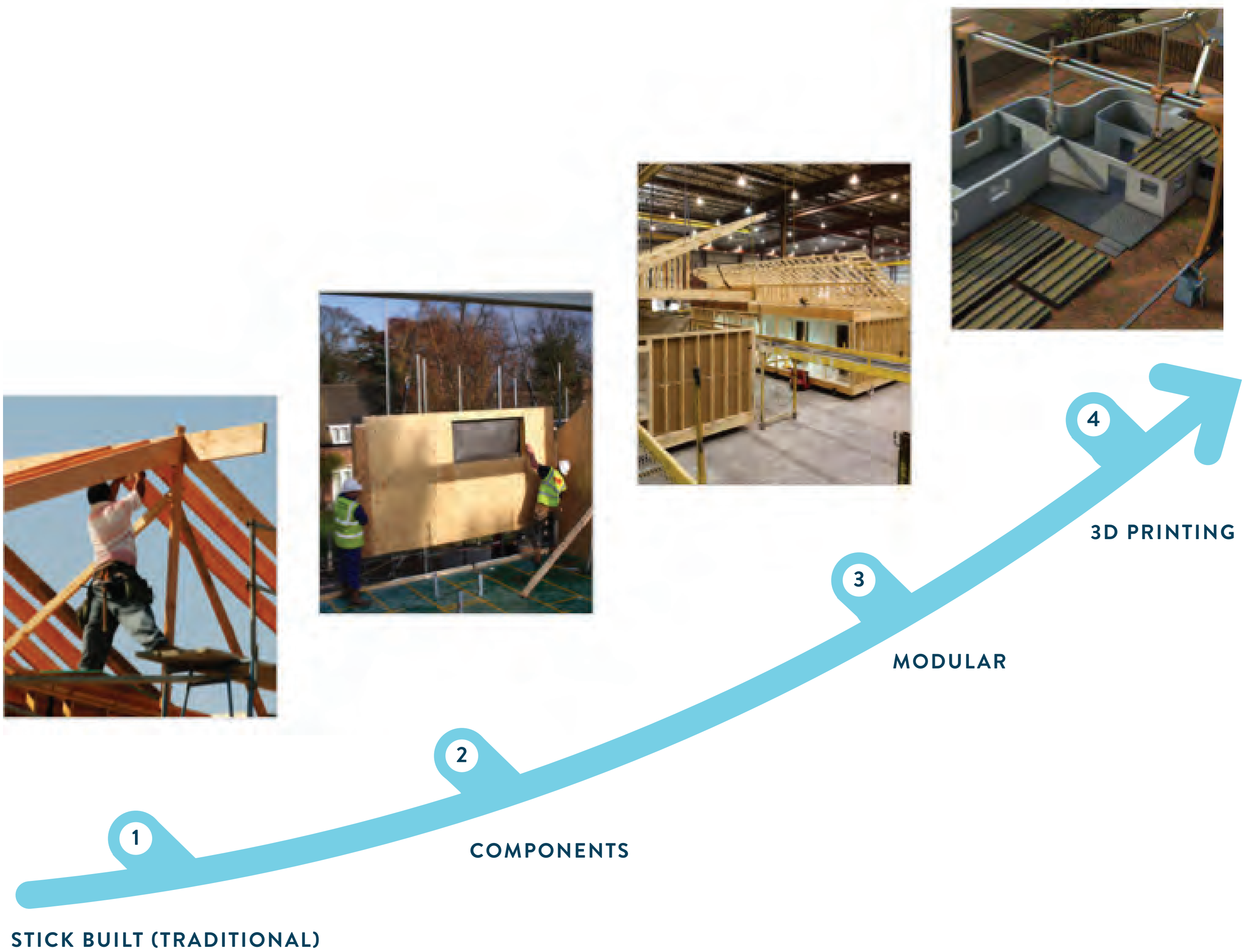
QUICK OVERVIEW

Compared to other major sectors of the economy, construction has achieved the least in terms of productivity gains. This is true if productivity gains are measured over the last decade or the last seven decades; by one standard measure, the construction industry is no more productive today than it was in 1947. The inability of the industry to harness productivity gains and the resulting inefficiencies are contributing to the lack of housing affordability.

Productivity numbers speak, but so do images. One industry leader suggested that a visit to a construction site today would reveal techniques and methods that have barely changed since the middle of the past century. As most industries have gained efficiencies through shifting to more capital-intensive production methods, one industry analysis[1] suggests that construction is experiencing the opposite. Workers are actually replacing machinery at many firms, largely because firms are concerned about their ability to carry the fixed costs associated with large capital investments during periods of recession.

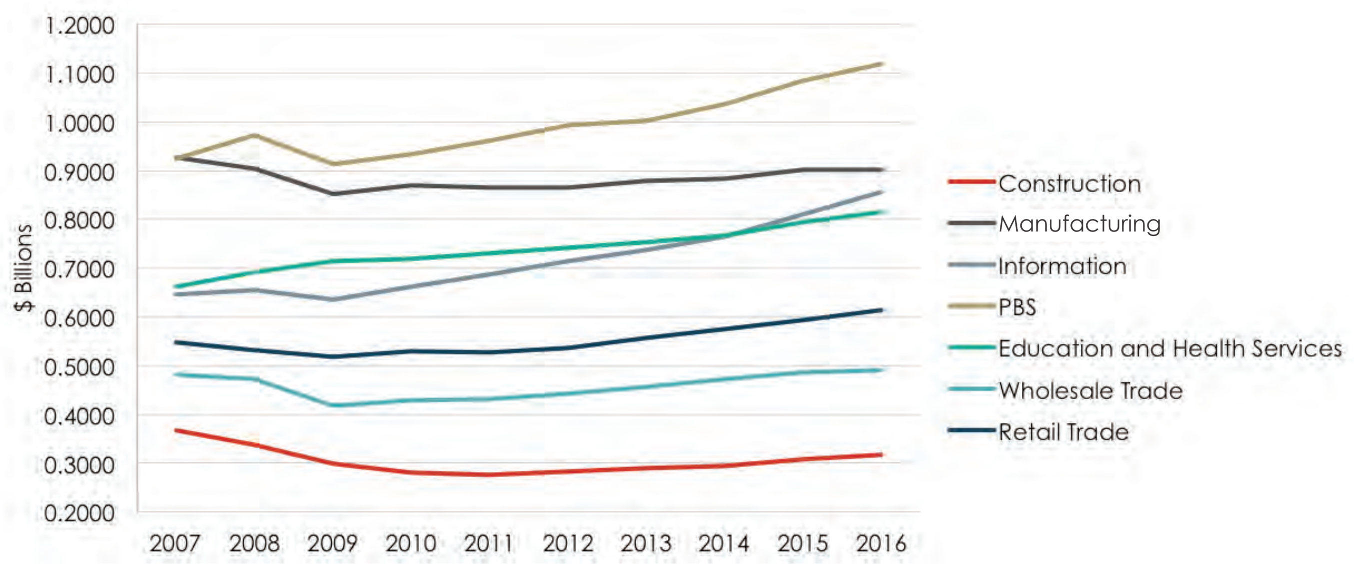
Labor investments, on the other hand, are more easily reduced and rarely leave firms with legacy costs. While industry leaders can envision an evolution toward more productive building methods (see the continuum below), most processes remain far to the left of the homebuilding innovation continuum and have not changed in more than 50 years.

THE HOMEBUILDING INNOVATION CONTINUUM



Consistent with the images, the data reflect the lagging nature of productivity improvements in construction. One standard measure of productivity is real gross value added per labor hour worked, a measure of the value of the output that is created by an incremental hour of labor input. On this measure, construction fails to achieve the level of productivity of 2007 and by far underperforms all other major industrial categories.

INDEX OF REAL GROSS VALUE ADDED PER HOUR WORKED (2007 = 100)

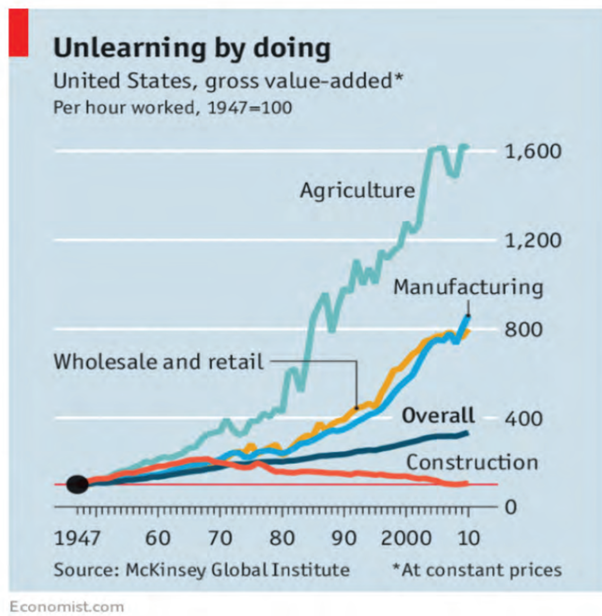


Source: Calculated from US Bureau of Labor Statistics data

HISTORICAL PERSPECTIVE

The longer view is even more stark. With a base in the post-WWII year of 1947, McKinsey Global Institute measured the same productivity measure: real gross value added per hour worked. Their findings, reported in *The Economist*[2], show overall industrial productivity was up almost 400 times, with agriculture leading the way with an increase by a factor of 1,600. Over the same time period, this measure is flat for construction.

Confirming the sentiment of industry experts, construction has enjoyed virtually no gains in labor productivity in more than half a century. In a housing market that needs more supply, productivity improvements are critical.



[1] https://www.recode.net/2017/6/6/15701186/robots-construction-homes-technology-drones-building-automation-productivity, accessed 1/22/18

[2] https://www.recode.net/2017/6/6/15701186/robots-construction-homes-technology-drones-building-automation-productivity, accessed 1/22/18

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FACTORS IMPACTING HOUSING AFFORDABILITY

Land

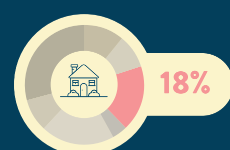
LOCAL CONTROL AND THE DEVELOPMENT RUNWAY

In Colorado, local control gives each jurisdiction power over its own land, and depending on its goals, will designate certain portions for residential and non-residential uses. Residential properties provide very little revenue for local governments, as compared to non-residential properties, due to the fiscal tax structure that exists. Financial powers afforded to municipalities for revenue generating sources are primarily rooted in sales and use taxes. While some revenues are generated through the property tax—approximately 8.8 percent according to revenue totals from the Colorado Legislative Council—it is reasonable to assume a potential fiscal bias toward zoning land for more non-residential uses because it better supports budgets.

Availability of land zoned for residential development effectively acts as the development runway, allowing developers or builders to proceed quickly to construction. This "use-by-right" inventory avoids the heavy regulatory process of re-entitlement or rezoning, thereby reducing costs, including time and money, on a project. Our analysis shows, in metro Denver, the current amount of land zoned for residential development would **only carry five years of forecasted household growth**, assuming no additional land would be rezoned. As a result, many multifamily residential developments have gone (and are currently going) through rezoning because the property was deemed worth it. Looking specifically at single-family development, Metrostudy's analysis finds that builders have calibrated the number of annual starts to equal that of finished lots, suggesting a reluctance to take on the expense of re-entitling land. This tight land supply has implications for the market's ability to deliver new units in a timely manner, as well as create additional pressure on land valuation.

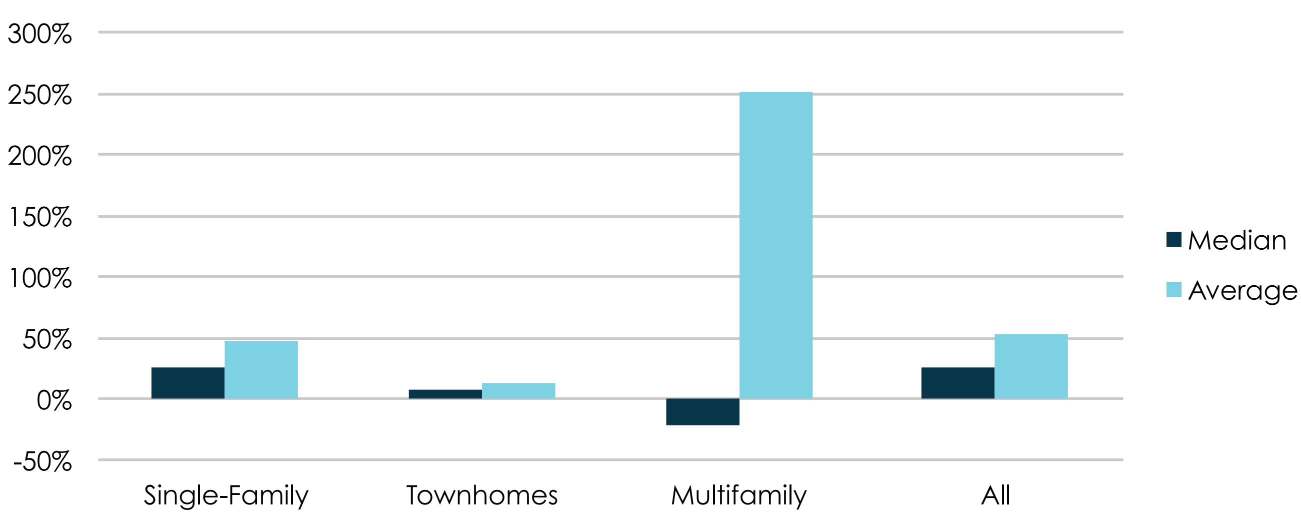
QUICK OVERVIEW

Land, whether vacant or under some previous use, is the basis of supply for new development, and its availability varies greatly from jurisdiction to jurisdiction. Metro Denver, and Colorado overall, has an abundance of land; however, land that is currently zoned for new residential development is in limited supply. Our estimates indicate the current inventory can support five years of growth. Limited land supply, coupled with household demand, has resulted in land valuations that have risen measurably since 2010, led by a significant jump in multifamily rental properties. Without some of the constraint on labor, land would most likely assume a larger share of the market's price pressure. But the real pressure is yet to come. Unless land is preemptively rezoned for residential development, developing unentitled land will be a much more expensive proposition, as highlighted in the Regulatory Factsheet.



LAND REPRESENTS 18% OF COSTS FOR CONSTRUCTING A SINGLE-FAMILY HOME

LAND VALUATION CHANGE (FROM 2010 - 2017) - SEVEN-COUNTY DENVER REGION

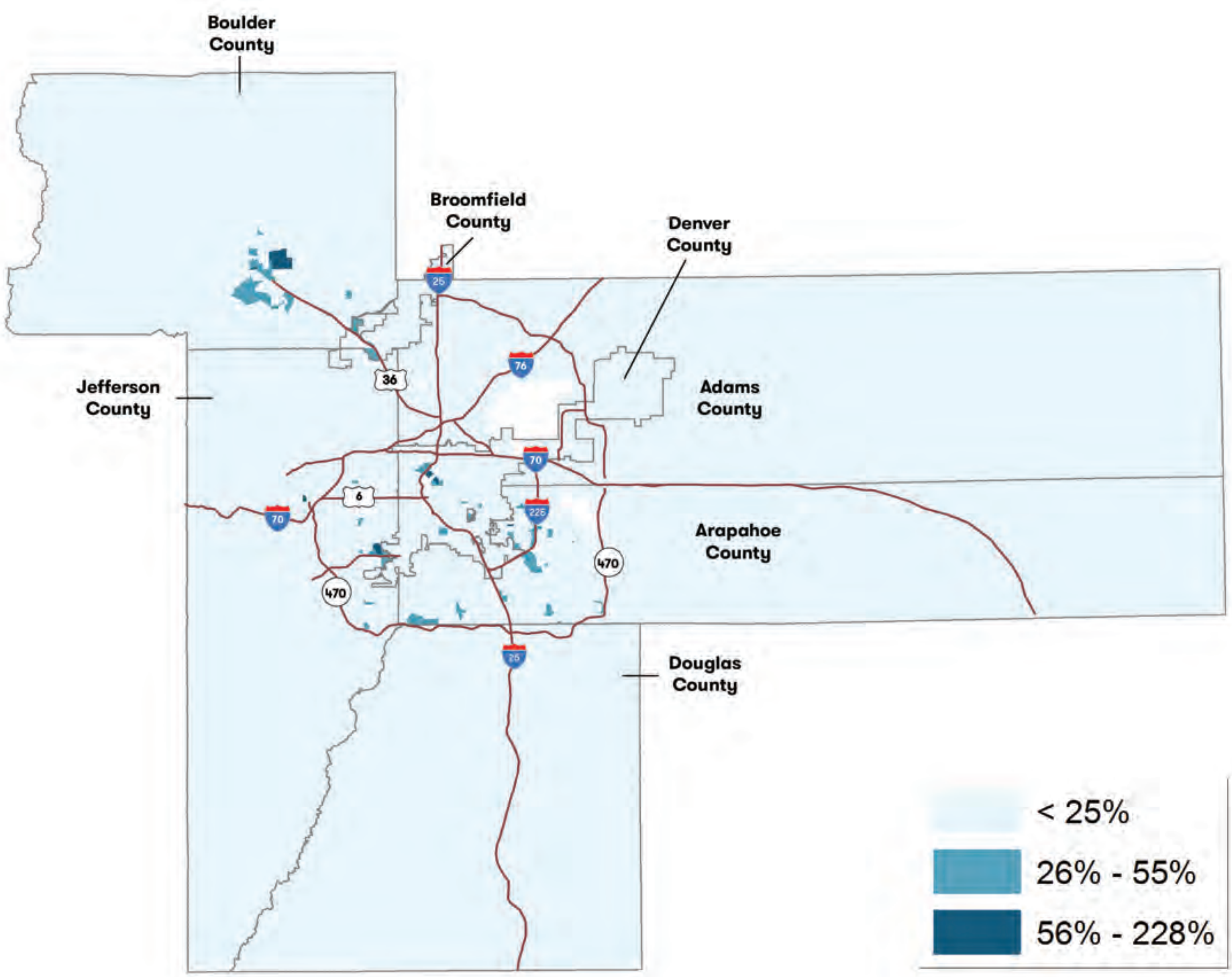


Source: Analyst calculation from County Assessor records; 2010, 2017

LAND VALUATION

When looking across metro Denver, the greatest land valuation increase since 2010 (the most comprehensive historical year available) is concentrated in downtown Denver and Boulder, areas where overall real estate values are high. These locations have seen overall land valuations increase in excess of 56 percent, mainly driven by multifamily apartment development. It should be noted that these increases do not account for properties that were not zoned for residential development in 2010. Many instances of recent apartment development have come by way of rezoning properties, and anecdotal reports reflect transactions at record prices per square foot. Notwithstanding these reports of record land prices, it is likely that the shortage of labor and/or pressure from other factors is limiting the amount of building. This serves to reduce the demand for developable land and dampen its price pressure.

LAND VALUATION CHANGE 2010 - 2017 (PER SQUARE FOOT)



Source: Analyst calculation from County Assessor records; 2010, 2017

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Materials

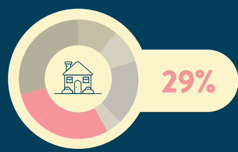
Constructing a housing unit requires a set of base materials that are consistent across most housing types. Typically these are concrete for the foundation, wood for framing walls and roofs, plywood for sub-flooring and roof underlayment, gypsum for interior wall surfaces, and copper for plumbing, among others. Any fluctuation in the pricing of these materials has a direct impact on the overall cost of the housing unit.

OVERALL PICTURE

Since the start of the Great Recession, two of these major materials, ready-mix concrete and gypsum, have demonstrated an increase in their price, followed by a modest increase in plywood. Wood for framing was relatively flat over that period, while copper measurably dropped.

QUICK OVERVIEW

Price trends for the typical base materials used in constructing new housing are not consistent. Since entering the Great Recession, material price inflation is extremely uneven. This can be attributed to the fact that these materials are largely influenced by macroeconomic conditions, not exclusive to homebuilding. Depending on what date is selected as the base year, the change in prices can render widely different results. Finally, as will be outlined in the Consumer Preference Factsheet, materials are contributing to the increased price of housing largely due to a shift in preferences rather than core inflation in base material prices.



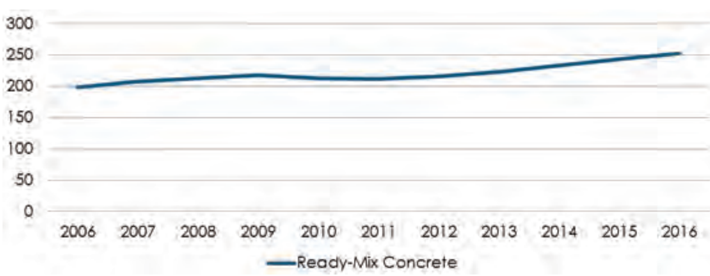
MATERIALS REPRESENT 29% OF COSTS FOR CONSTRUCTING A SINGLE-FAMILY HOME

MAJOR MATERIALS INFLATION: AS MEASURED BY THE PRODUCER PRICE INDEX	2007 - 2016
Ready-Mixed Concrete	↑ 21.9%
Softwood Cut Stock & Dimension	↓ -0.5%
Plywood	↑ 9.2%
Gypsum	↑ 24.1%
Copper Wire & Cable	↓ -20.3%

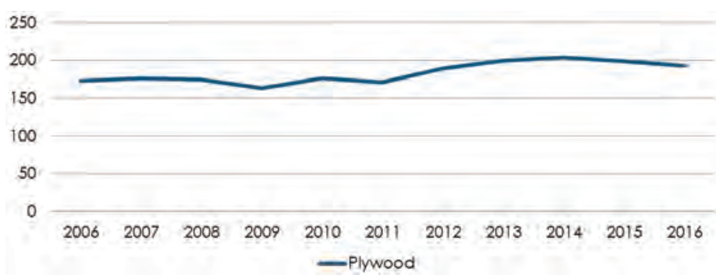
Source: Bureau of Labor Statistics

Across the five major materials analyzed, only ready-mix concrete has demonstrated a consistent increase in its price index, followed by plywood.

PRODUCER PRICE INDEX: READY-MIX CONCRETE



PRODUCER PRICE INDEX: PLYWOOD

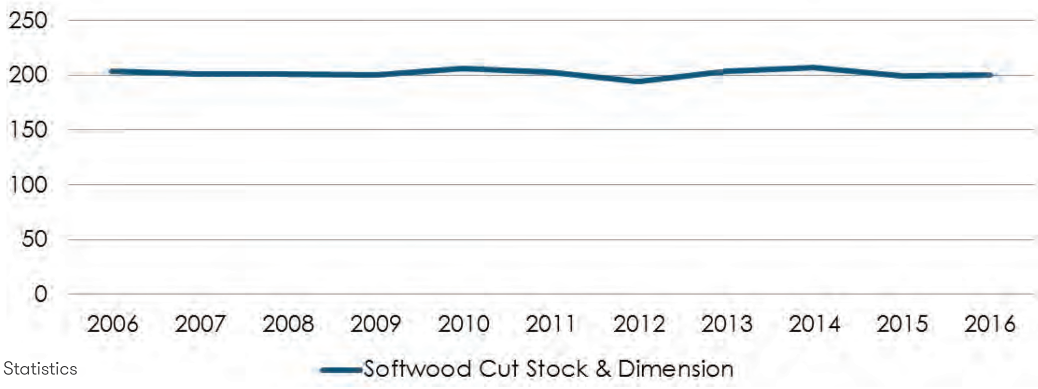


Source: Bureau of Labor Statistics

*For ready-mix concrete and plywood, 1986 = 100

Softwood has remained the most flat over the period, though industry players are anxious that this could change quickly should a Canadian lumber tariff be imposed. Time will tell what happens to this core material, but so far it has not contributed to increased costs.

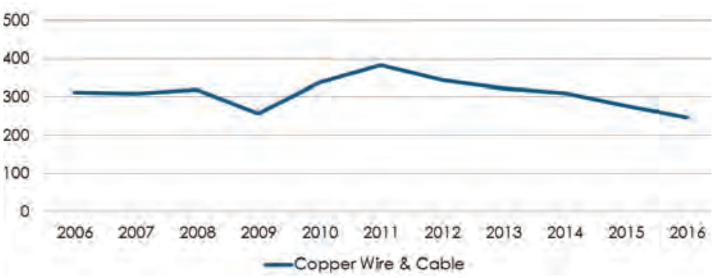
PRODUCER PRICE INDEX: CUT STOCK & DIMENSION (1982 = 100)



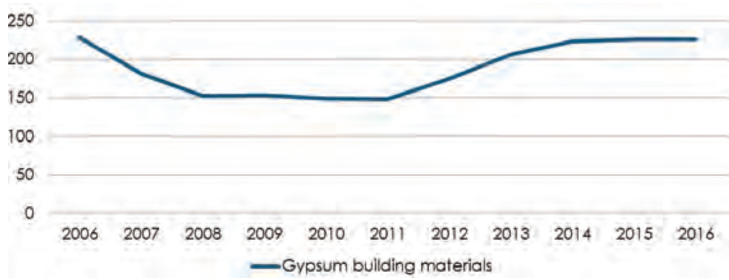
Source: Bureau of Labor Statistics

The most volatile materials of the five are gypsum and copper. These materials are very sensitive to external forces, such as copper's run up from China's building for the Beijing Olympics followed by the global financial crisis, then a further run up from the recovery of the Great Recession only to face softening demand against high inventories. Gypsum tends to move with demand, which is fueled by all building, including non-residential and residential remodel activities. Additionally, the concentration of gypsum manufacturing companies in the U.S. tends to allow for one price adjustment to be followed quickly by competitors.

PRODUCER PRICE INDEX: COPPER WIRE & CABLE



PRODUCER PRICE INDEX: GYPSUM



Source: Bureau of Labor Statistics

*For copper wire & cable and gypsum, 1986 = 100

While these base material price changes are important to account for when comparing a similar sized housing unit, it is critical to understand these changes in the context of the trend in the size of housing units that are being built. More materials are required for larger housing units, while smaller housing units need less materials. This relationship is fairly straightforward.

So, are we building smaller or bigger units since 2007? We invite you to explore the Consumer Preference Factsheet to learn more about this relationship.

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Regulatory

QUICK OVERVIEW

Colorado is well known for its local control. While that comes with advantages, it also holds many challenges with respect to uniformity and predictability in real estate development. Inherently, the regulatory environment has many layers, and within each layer varied complexity from jurisdiction to jurisdiction. Industry experts say that total regulatory costs, including those to entitle land and adopt updated version of the building code, have increased by as much as 50 percent over time.

While we could not evaluate the total impact of these regulatory costs, we were able to demonstrate that some elements, such as fee structures (tap and impact fees) have increased in the majority of the sample of cities we studied. Potentially more impactful in the future, and depending on the location, land in a use-by-right state is scarce (see the Land Factsheet) and will trigger a need to invest in the costly process to entitle non-residential land.

REGULATIONS REPRESENT 4% OF COSTS FOR CONSTRUCTING A SINGLE-FAMILY HOME

TIMELINE - ENTITLEMENTS & PERMITS

In real estate, time is money, so land that is zoned for its intended use enables developers or builders to get right to the business of building, and ultimately housing new residents. However, not all residential development starts with land that is properly zoned. In many instances, developers purchase land zoned for another use than residential, triggering an entitlement (e.g. rezoning) process before building permits can be issued. As noted in the Land Factsheet, land available in a use-by-right state for residential development is scarce across the seven-county Denver region, creating an additional step in the development process.

Land use planning and building permitting is controlled at the local level in Colorado, making comprehensive analysis of how processes and timelines have changed over time difficult. Based on conversations with industry experts, the time it takes to get a project entitled has grown significantly over recent years, mainly attributed to navigating complex codes, and opportunities for adjacent property owners to initiate lengthy legal challenges. Additional time is not the only impact, as these processes require the involvement and expertise of executives and attorneys, who command some of the highest hourly rates in the field. In some jurisdictions, there are projects that have taken up to three years to get to construction. That is three years of carrying costs on the property, in addition to the expenses of ushering the project through the planning process. The implications are two-fold; translating to higher prices for the consumer, and limiting the ability for developers to deliver new units to the market in a timely manner.

BUILDING CODES

Going with the theme of local control, "building codes are primarily adopted and enforced locally" in Colorado.[1] At the time this report was published, versions of the International Building Codes (IBC) in place across the state range from the 2009 IBC to the 2015 IBC. Similar challenges exist in analyzing the cost impact that a new building code standard has on new construction; however, industry experts were unanimous in saying that the 2015 IBC has had a material effect on cost for projects. Depending on where a project is built, the final cost of construction could swing greatly due to the version of the IBC each jurisdiction has adopted.

2015 IBC	2012 IBC	2009 IBC
· State of Colorado	· Commerce City	· Arvada
· Englewood	· Lone Tree	· Steamboat Springs
· Denver	· Littleton	· Grand County
· Boulder		

Source: Municipal Building Departments

[1] https://www.iccsafe.org/about-icc/government-relations/map/colorado/, accessed on 1.22.18

TAP AND IMPACT FEES

Similar to zoning, there are many nuances to fees because jurisdictions have control over their budgets, albeit slightly easier to quantify. In order to generally understand how tap and impact fees have changed since 2007, we took a sample of jurisdictions across the seven-county Denver metro region, as well as a few others around the state. Fees were benchmarked to a standard for comparison on a single-family home and a multifamily building. Not surprisingly, results from the analysis are mixed, as noted in the two following tables. Interestingly, one jurisdiction's fees actually went down due to a comprehensive fee restructuring effort, although that same jurisdiction was noted to have exorbitant fees in the course of our conversations.

SINGLE-FAMILY HOME (1,800 SQ. FT. - 2017)	LOW (CO Springs, Denver, Englewood)	MODERATE (Aurora, Eagle, Ft. Collins, Thornton)	HIGH (Boulder, Broomfield, Erie)
Core Fees	$15,000 - $20,000	$16,000 - $27,000	$11,000 - $44,000
Impact Fees	$1,000 - $3,500	$3,000 - $20,000	$5,000 - $24,000
Total	$15,000 - $22,000	$29,000 - $38,000	$43,000 - $60,000
Growth 2007 - 2017	**0 – 27%**	**-12 – 41%**	**16 – 33%**

Source: Municipal Planning and Building Fee Schedules

MULTIFAMILY (PER UNIT)	LOW (CO Springs, Englewood, Parker)	MODERATE (Aurora, Erie, Ft. Collins)	HIGH (Broomfield, Brighton, Eagle)
Core Fees	$3,000 - $9,000	$6,000 - $16,000	$3,000 - $24,000
Impact Fees	$0 - $2,000	$0 - $13,000	$1,000 - $21,000
Total	$3,000 - $10,000	$11,000 - $20,000	$21,000 - $27,000
Growth 2007 - 2017	**0 – 25%**	**8 – 32%**	**17 – 48%**

Source: Municipal Planning and Building Fee Schedules

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Other Factors

FACTORS IMPACTING HOUSING AFFORDABILITY

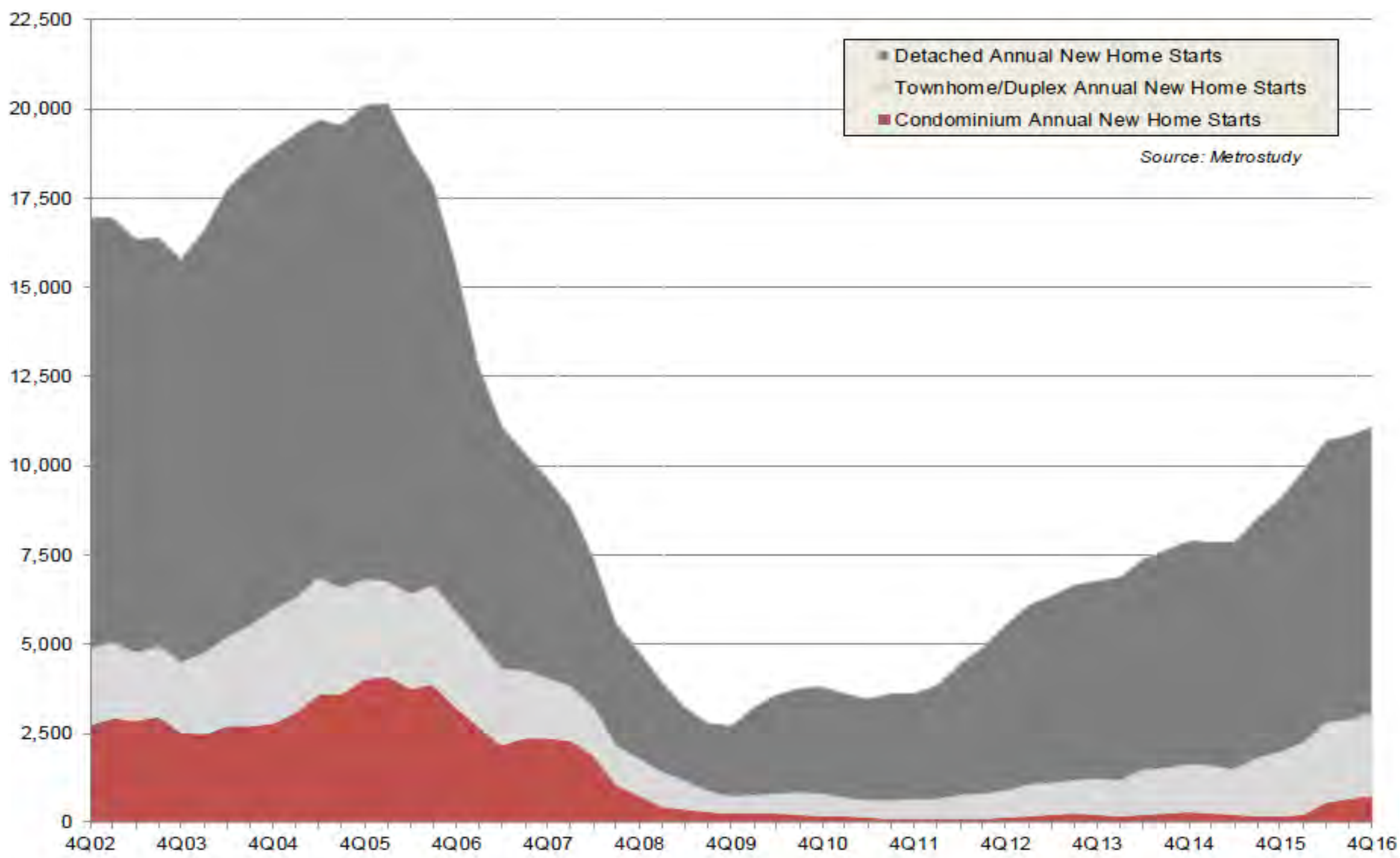
QUICK OVERVIEW

There are a number of other factors that likely have played a role in housing's price escalation, though potentially to a lesser extent. Some of their impact is more isolated within the market, either geographically, or within a specific segment, for instance smaller builders. Each of the factors listed here warrant deeper inquiry than time allowed in this study, and some require more time to pass before understanding their true effect. For example, time will tell if the recent construction defects legislation and state Supreme Court ruling are successful in reversing the record low-levels of condominium production in the seven-county Denver metro region. It should also be noted that other factors could exist or emerge over time, such as the latest tax reform bill.

CONSTRUCTION DEFECTS

As with every other factor, construction defects legislation is merely part of the story, and upon exploration appears to be far more minor than previously portrayed. Certainly, availability of condominium product is vital to ensuring a healthy mix of housing types. Based on data from Metrostudy, it is unclear if the previous law had a material influence on the choice not to build condominiums. As the market entered the Great Recession, condominium starts fell off along with townhomes and single-family units. Lackluster recovery in the condominium market was countered with an uptick in apartment development, as a windfall of renters emerged in the aftermath of the foreclosure crisis, followed by an influx of single-headed households drawn to the opportunities of Denver's recovering market.

DENVER NEW HOME STARTS BY TYPE



Reprinted from: [*Restrictions on the Supply of Affordable, Entry-Level Housing Colorado, http://commonsensepolicyroundtable.com/wp-content/uploads/2017/03/Affordable-Housing-REMI-Study-2017.pdf*], accessed on 1.22.18

As the influx of apartment development stabilizes, it will be essential that condominium development can proceed in a more cost-effective manner. The legislative resolution struck in 2017 and state Supreme Court ruling, in theory, will temper not only insurance costs, but the lesser understood expenses, such as hiring third party inspectors and managers (in an effort to ensure material installations are code compliant), as well as additional contingency to cover legal expenses in the event an HOA took action. Time will tell if the market will have to make up for lost production. Already, there are glimpses of properties converting to condominiums once the seven-year statute of limitation has passed, potentially swinging the property type mix pendulum back the other direction.

INVESTOR OWNED PROPERTIES & THEIR CONTRIBUTION TO THE LACK OF RESALE INVENTORY

It is not news that investors entered the market in the aftermath of the foreclosure crisis. But what role do investors currently play? In an effort to lend insight to this question, we analyzed property records in the seven-county Denver metro region, and in 2016 approximately 4 percent, or almost 35,000 single-family properties were held in an LLC or LLP. Using LLC or LLP serves as a proxy for investor-controlled properties. Analysis is not yet complete for a comparison of the inventory held by investors coming out of the foreclosure crisis; however, comparison can be made between the investor and resale inventories. Using the just over 7,000[1] June 2016 resale listings, the investor inventory amounts to approximately five times the listed inventory. In a small way, these investor units have reduced the opportunity for more properties to be active in the marketplace.

IN THE SEVEN-COUNTY DENVER REGION, 4% OR ALMOST 35,000 OF THE SINGLE-FAMILY PROPERTIES ARE HELD IN AN LLC OR LLP.

BANK LENDING/INTEREST RATES FOR DEVELOPMENT

Mainstream advertising is still promoting historic low interest rates for buyers. What is less clear is how favorable lending, and therefore interest rates, is for the cross-section of developers and builders. Based on conversations with industry experts, it warrants further inquiry to understand the role financing plays in the ability for smaller firms to deliver cost-efficient product, or deliver units at all. Uneven access to financing can only exacerbate the issue, further limiting the number of developers and builders that could provide much-needed supply to the market.

VERY LOCALIZED POLICIES

How many times, either during the middle of the day, or in the evenings, have you driven by an empty parking lot or structure? In plain sight, that is money being left on the housing table for many households. Great opportunity exists in the local policies, and shared parking is one that could render very real cost savings. According to a report issued in Seattle, "A range of studies show that the more parking is decoupled from residential rent, the lower the cost of housing."[2] Locally, more than one project has been unable to maximize density due to the parking requirements. Exploring ways where shared parking arrangements with adjacent properties can suffice to conform to zoning ordinances could provide yet another opportunity to contribute to a more cost-efficient housing market.

ECONOMIC DEVELOPMENT HEADLINES

While it hasn't been tested in this study, it is clear that attention given to the economic development announcements have disproportionately emphasized the high-pay executive roles and the perceived impacts on demand in the housing market. In each notice about a new firm relocating or expanding operations, only the high-paying positions appear to be featured, leaving a lack of understanding of the full impact the new primary jobs have on the market. Clearly, the employees holding these featured positions have to get their cars serviced, dry cleaning done, and be waited on at their favorite restaurants. All of this contributes to a multiplier, or ratio, of how many service-based occupations must exist to support the lifestyle of those who are featured in the economic development headlines. These service workers have to live somewhere, but what can they afford?

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[1] http://www.metrostudy.com/denver-housing-2q17-record-prices-push-activity-attached-product-resale-market-becomes-affordable-option/, accessed on 1.22.18

[2] Governing: When Height's Not Right: Do we have to build tall to pack in more residents? Not always. February 2016, p. 22.

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