

## KEYSTONE POLICY CENTER | COLORADO WATER AND GROWTH DIALOGUE

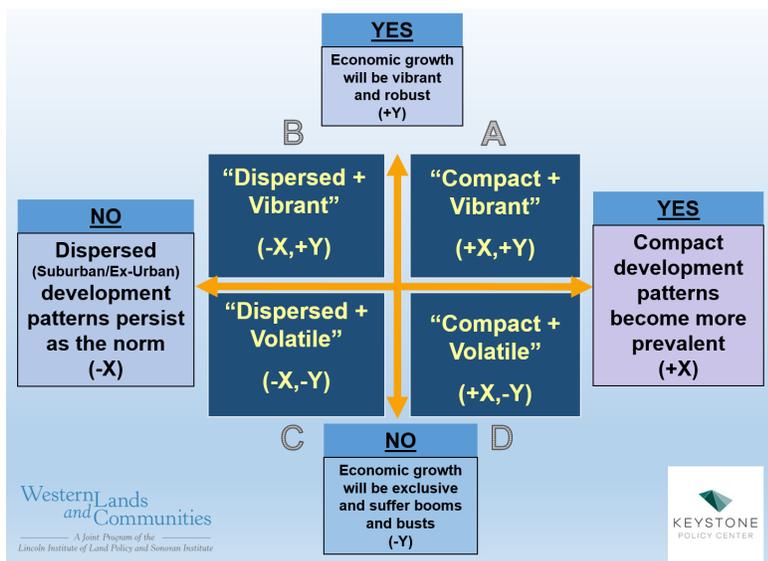
### EXPLORATORY SCENARIO PLANNING | NARRATIVES

The following narratives are derived from a series of conversations and workshops conducted by Western Lands and Communities (WLC) and the Keystone Policy Center’s Colorado Water and Growth Dialogue as part of an Exploratory Scenario Planning initiative. Exploratory Scenario Planning (XSP) is a strategic planning process adapted from the Global Business Network’s Scenario Planning method used by many Fortune 500 companies to thrive despite uncertainty. WLC, a joint-program of the Lincoln Institute of Land Policy and the Sonoran Institute, is testing the application of Exploratory Scenario Planning to plan and prepare for a range of plausible futures in order to embed and enhance robust, resilient strategies in the management of natural resources and delivery of municipal government services.

The exploration WLC and the Keystone Policy Center’s Colorado Water and Growth Dialogue are endeavoring on aims to answer the following Focal Question:

**How can changes in urban form and landscaping practices for new growth and redevelopment assist in meeting future urban water demand along the Colorado Front Range?**

### FOUR FUTURES TO GUIDE GROWTH



Four credible, compelling, divergent and challenging futures were identified through the first of two workshops in the XSP process. A list of critically important and uncertain drivers of change were noted and prioritized. The working group and steering committee decided to further study the implications of Urban Form and Economic Health on the ability to manipulate urban form and landscaping practices to better ensure future urban water demand can be met along the Colorado Front Range. The two drivers were placed on perpendicular axes to create end

states of four plausible futures (See above). The following narratives describe the conditions that these four futures would likely present. These futures will be used to explore and test which strategies may prove the most effective at “closing the Colorado Water Gap.” WLC and the Colorado Water and Growth Dialogue working group will study these futures in a second workshop to identify implications and develop robust, resilient strategies for communities across Colorado’s Front Range.

## COLLECTED COGNITIVE HISTORY

Colorado's character is built on the strong western values of property rights, local control and a "live and let live" mentality. Growth brought rail to the western U.S. and nearly bypassed the Front Range, until local residents cooperated to raise capital and fund their own connection to the transnational system. The 1930's brought the Dust Bowl and Boulder oil boom, kick starting water development on the Front Range coupled with growth in agriculture, defense, mining and extraction industries. The Denver Federal Center near Lakewood began as the Denver Ordnance complex where 22,000 workers manufactured ammunition for the war. The complex is now the highest concentration of federal agencies outside of Washington, D.C. and federal operations contribute billions of dollars to the region. Soldiers from the 1<sup>st</sup> Mountain Infantry Division returned from World War II to found ski resorts and set the stage for the modern day ski industry. The 1950's witnessed sporadic, fragmented, decentralized growth of cities, towns and services on the Front Range. As roads were built and the region urbanized, industry lured people from farms to manufacturing, brewing and higher wages near desirable services and amenities. The region endured an oil and gas bust and a drought in 1953 that caused Denver to kick Aurora out of the Denver Water system but with negotiated water rights. The Air Force Academy was established in 1954, followed by the Denver Regional Council of Governments (DRCOG) in 1955. The Plum Creek and South Platte floods of 1965 prompted the Chatfield Reservoir as flood control storage to prevent future mass damage. The I-70 and I-25 were built between 1961 and 1977, opening to communities further from the region and enhancing transportation and oil and gas revenues. Oil and gas extraction ramped up through the late 1960's and 1970's. That period spurred the first speculation of oil shale reserves, bringing people from Texas and beyond. Rampant growth spurred Boulder to implement an urban growth boundary in 1970. The Poundstone Amendment (1974) was adopted in response to the City and County of Denver annexing suburban land and doubling in size to nearly 120 sq. miles in just over 31 years. It required voters in lands being annexed to approve annexation, limiting Denver's ability to expand. 1977 brought another drought, 1983, another oil and gas bust due to OPEC price adjustments. The Two Forks Reservoir concept failed in 1989, a historic symbol of Western Slope v. Front Range water tension and polarizing people in the region. The Taxpayer Bill of Rights (TABOR) passed in 1992 requiring state and local governments to obtain voter approval to raise tax rates or spend revenues collected under existing tax rates if revenues grow faster than the rate of inflation and population growth. Unless voters approve a revenue change in a referendum, "TABOR surplus," or revenue in excess of the TABOR limit, must be refunded to taxpayers. The state and region has continued to endure a culture war of Growth v. Anti-growth. The election of Mayor Pena (1983-1991) brought quality urban planning to the forefront of the debate, investing in DIA, RTD, FasTracks, LoDo and Coors Field. The closing of Stapleton Airport spurred the new-urbanist community of Stapleton to sprout. The drought of 2002 revealed Denver Water's and other city's vulnerabilities leading to drought restrictions that spurred a conservation movement. John Hickenlooper served as Mayor of Denver (2003-2011), pushing regionalism, and Greenprint Denver, an effort to reduce greenhouse gas emissions. The Great Recession of 2008 depressed housing but revealed the Denver economy had diversified and become less vulnerable to economic downturns outside the region. It also revealed how critical homebuilding and construction is to the economy. A magnet for Millennials, the Front Range

continues to blend Colorado into an even more “Purple” state.

### COMMON TO ALL [2040]:

It’s 2040, Colorado’s population is closing in on 10 million people. Most growth has occurred on the Front Range and the Western Slope. This growth demands ever more resources to sustain the social and economic identity that makes it popular, and the region competes for them on regional and global scale. The Colorado Water Conservation Board (CWCB) is trying to close a water supply gap of at least 538,000 to 812,000 AF to meet Municipal & Industrial needs even when calculating for passive conservation. The super sectors of the Front Range economy keep the region attractive to people both inside and outside the country desiring change or seeking relief from social, political, economic or environmental pressures. Embracing lessons learned from the 1980’s economic downturn, Denver’s economy continues to diversify for strength and stability and the influx of diverse people and skill sets feeds the supply of talent and labor to innovate and compete. Location of employment remains a dominant determinant in deciding what part of the region one will live but the online and sharing economy has allowed people to attain their needs through a vast array of arrangements. This helps float the Front Range through turbulent times, but is not a panacea. Front Range communities with less diverse economies endure the demographic trends associated with outmigration of people seeking stable employment conditions while attracting people seeking more affordable housing or who are less dependent on the local job market.

Technology continues to eliminate jobs and helps to transition the economy from dependence on fossil fuels. Compliance with federal and state laws surrounding environmental quality and resource efficiency encourages new technologies, generation facilities, transmission lines or distributed generation solutions. Renewable energy, primarily from wind and solar, supplies an increasing share of regional energy demand but Colorado’s abundance of fossil fuels fans the debate of when and where to invest in energy extraction or production.

Housing demand is on the rise and construction defects laws influence the supply of products that can expand *and* diversify the housing stock. Housing and property costs remain a critical driver of people’s decisions but desire for a higher quality of life and access to abundant resources and sources of inspiration or hope, encourage people to take a chance on the city and the region, even if it means compromise. Many want the gainful employment and urban lifestyle they see and hear about in the media. And many more want to live and work in places in convenient proximity to open, natural and wild places; the outdoor lifestyle remains a Colorado brand. Neighborhoods with access to high quality education remain attractive for families with school aged children. Cheaper land on the fringes of the region continues to present a harbor for people unable to afford areas in the desirable older parts of the city and those willing to commute. Older neighborhoods not caught up in the past growth have substantially declined resulting in substandard neighborhood conditions. Home ownership remains attractive, but rental housing is viewed as a necessary step to owning a home and better accommodates a more mobile and temporary workforce.

---

More and more seniors, including the Baby Boomers (1946-1964) now advancing through their 80's, battle loneliness as friends move or pass away. Many disenchanted can't afford or fear a move. Seniors want to be nearer their children or families and the lifestyle, services and amenities that allow them to feel like they are truly *living*. Mobility remains their source of autonomy though many are forced by the laws of nature to put away their driving gloves. Cities with the biggest markets continue to compete for premium services like healthcare, senior housing and mobility options, making these places more attractive to people aiming to "age in place."

RTD's regional transit system is largely built out and the benefits of prioritizing multi-modal transportation options are prevalent across more areas of the region than in 2016. Some cities have implemented their own transit systems to supplement the regional system. Autonomous vehicle technology is available for both single-occupancy and high-capacity vehicles, expanding the pool of mode choices. Continued investment in multi-modal infrastructure better enables people to change their behavior and reverse the destructive trends of transportation seen through the first quarter of the century.

Groundwater depletion remains a global concern and the region is experiencing longer, more frequent and extreme droughts and weather events than witnessed through the first quarter century. Water is a lucrative commodity. The politics and economics of water affect people everywhere at every scale, locally, regionally, nationally and globally. Growth on the Front Range continues to stress supply on the Western Slope. Industries worldwide, are locating where there is an abundance of resources; efficiency is currency. Resources, like water, are invested where they generate the most revenue and at times, shared value. Demand is satisfied by allocation and usage patterns other than those seen in 2016.

The correlations between public health and the built environment are well understood. The value of ecosystem services is better understood and more tangible than it was in 2016. Technology has enabled great strides in energy production and consumption management. Global awareness and fear of population growth, resource constraints and disruptive climate impacts pervade the hearts and minds of Millennials (1982 – 2004) and much of mainstream society, influencing behavior *including* diets. The emerging twentysomething generation, children of Generation X (1965 – 1984) and early Millennials, shares these desires and more people are motivated to proactively behave in ways that mitigate the harm they cause to their own environment and others, *if* they are knowing *and* able.

---

## SCENARIO A: POLYCENTRIC PROSPERITY

---

### MORE COMPACT | VIBRANT GROWTH | ROBUST ECONOMY

Denver and the Front Range have become even **more compact** than in 2016. Gen Xers, Millennials, and many of their children continue to reject the suburban dream in which they grew up; they seek vibrant, dynamic, activated, connected places with people they can relate to and collaborate with to improve conditions for themselves, their families and/or the common good. Demand for housing and supply of employment in urban places along the Front Range has resulted in a number of rapidly growing urban centers, more frequent and broadly distributed than in 2016, creating a notably **polycentric region** of people who cherish connections with natural, open and wild spaces.

Most people have employment and entertainment opportunities within walking distance or a short mass transit ride from where they live. Thus the need for a car is greatly reduced, decreasing the cost of personal transportation and generating the **public and political will** to provide and maintain optimal levels of pedestrian mobility and transit service. Some places along the Front Range with an urban lifestyle focused more on residential and entertainment opportunities than employment. Many of these places have become havens for retirees and childless families looking to locate within a shorter commute to major employment centers and make the transition to retirement easier.

A concentrated yet varied talent pool has grown a **diverse, vibrant and robust economy** less vulnerable to the booms and busts of the past. Denver's economy is now diverse enough at both a regional and local level that the flowing sectors can make up for ebbing sectors. A vibrant economy over the last 20 years has created a wide range of regional employment opportunities, providing something for all age groups, education and skill levels but the Front Range is known for a highly skilled work force in a wide range of financial, medical, technology and industrial sectors.

Some industries that once powered the economy have crossed borders to access sufficiently or comparably educated but cheaper labor with less environmental oversight, spurring new growth and stronger competition for resources in those developing hubs. However, strategic land use and siting of manufacturing facilities supports the reshoring of manufacturing jobs and the Front Range is positioned to compete. A new American manufacturing sector has been emerging, stimulated by the maker and craft brewer movement that came out of the Great Recession and driven by a ready and able workforce and entrepreneurs dedicated to growing a **circular economy** that is intentionally restorative and regenerative, maximizing the value and efficiency of resources, like an ecosystem.

Emerging about the same time, consolidation of wealth and real estate from booming industries like marijuana and multi-family holdings consortiums spurred mass speculation, driving prices up as property was purchased and converted to growing facilities or rental housing. This has steadily increased the cost of warehouse space and housing, creating significant challenges to ensuring adequate affordable options for companies and families across the economic spectrum. Many employees can work remotely and people are seeking less space that requires less time and money to maintain so that time and money can be spent on experiences and creating memories.

Legal reforms have dampened the negative impacts of construction defect liability delivering more for-sale condos to the market. Though home ownership remains attractive, long term rental of housing is an increasingly attractive option and for many, the only option. The less affluent are relegated to the less desirable, more affordable neighborhoods of the Front Range, segregating the haves from the have nots.

A wide range of financing options offers a ladder for economic mobility. Sustained fiscal confidence has fed the growing economy; entrepreneurship rates are some of the highest in the country. Financial reforms and public policy innovations have increased the opportunities for both public and private capital needed to build new homes, start and scale businesses, replace aging infrastructure and meet the needs of a growing economy and region. The vibrant economy and innovative policy environment have helped to develop public and private programs to increase the supply and improve the quality of services and therefore life within the Front Range's urban centers. Tremendous growth on the Front Range has impelled a culture of personal and social accountability for the role of individuals in closing the water gap.

## SCENARIO B: SUBURBAN REVIVAL

### MORE DISPERSED | VIBRANT GROWTH | ROBUST ECONOMY

The Front Range has become **less compact** than it was in 2016. The suburban areas, especially those connected to transit, have grown at a faster pace, making the urban areas less significant to overall land use patterns. The desire among Millennials and the Gen Xers to live and work in places with an urban lifestyle changed as they got older, began to have children, began to take care of their parents, and were able to connect to and execute work remotely.

Now with growing families and more extended family households, they have begun to focus on finding the best schools, having more space for all the “stuff” their families acquire, having access to more *private* open space and investing less time in running errands with the evolution and convenience of the shipping/delivery sector. Thus they seek the **suburban lifestyle** in which they remember growing up and developing their properties as their own private “backyard resorts.” The emerging twenty something generation, children of Generation X and early Millennials, have become disenchanted with the congestion, competition and ills of the urban places of their youth and are seeking more “space” and “comfort”. Baby Boomers, finding change uncomfortable, plan to hold on to their suburban lifestyle as long as possible, even inviting their children home as a way to consolidate familial expenses, share the burden and avoid assisted living facilities.

The dense urban places developed through 2030 were planned and developed as **centralized employment and regional entertainment centers** with early remnants of luxury and rental units. Older neighborhoods not caught up in urban center growth have substantially declined resulting in substandard neighborhood conditions. There are significant challenges to ensuring there is adequate affordable housing for all ranges of incomes. Legal reforms have failed to dampen the negative impacts of construction liability. Most affordable housing is available in the older, run-down neighborhoods surrounding employment centers or at the farther fringes of the region not served by mass transit requiring longer, more expensive commutes, increasing the overall cost of living and consuming disposable income.

The **vibrant and robust economy** has continued diversifying over the last 20 years and is less vulnerable to the booms and busts of the past. The Front Range is known for a highly skilled work force in a wide range of financial, medical, technology and industrial sectors. Some industries that once powered the economy have crossed borders to access sufficiently or comparably educated but cheaper labor, spurring new growth and stronger competition for resources in these developing hubs.

Convenient proximity to a diverse array of talent, labor, strong industries and a desirable lifestyle has drawn **corporate investment** and created regional employment opportunities for a wide range of experience, education and skill levels. Jobs are concentrated in a set of employment hubs, each with its own unique purpose, form and function. Employees’ commitment to the commute mirrors trends seen since popularization of the automobile. Though some of these areas are served by mass transit and transit ridership has increased, the **percentage of total trips on mass transit has not changed much** over the last 20 years and freeways remain the dominant means of work trips. Freeway congestion has



---

increased but not as fast as seen through the early 2000s because technological innovations have helped increase freeway efficiencies and more and more office jobs can be done from almost anywhere.

A **wide range of financing options** offers a ladder for economic mobility. Sustained fiscal confidence has fed the growing economy; home and business ownership rates are some of the highest in the country. Financial reforms and public policy innovations have cultivated both public and private capital to build new homes, start and scale businesses, replace aging infrastructure and meet the needs of a growing economy and region. The vibrant economy and innovative policy environment have helped to develop public and private programs to increase the supply and improve the quality of services and therefore life, sustaining remarkable growth on the Front Range and the libertarian, “live and let live” culture known since Denver’s initial days.

## SCENARIO C: SLUGGISH SPRAWL

### MORE DISPERSED | LIMITED + EXCLUSIVE GROWTH | VOLATILE ECONOMY

The Front Range has become **less compact** than it was in 2016. The suburban areas, especially those connected to transit, have grown at a faster pace, making the urban areas less significant to overall land use patterns. The desire among Millennials and the Gen Xers to live and work in places with an urban lifestyle changed as they got older, began to have children, began to take care of their parents, and were able to connect to and execute work remotely.

Now with growing families and more extended family households, they have begun to focus on finding the best schools, having more space for all the “stuff” their families acquire, having access to more *private* open space and investing less time in running errands with the evolution and convenience of the shipping/delivery sector. Thus they seek the **suburban lifestyle** in which they remember growing up and developing their properties as their own private “backyard resorts.” The emerging twenty something generation, children of Generation X and early Millennials, have become disenchanted with the congestion, competition and ills of the urban places of their youth and are seeking more “space” and “comfort”. Baby Boomers, finding change uncomfortable, plan to hold on to their suburban lifestyle as long as possible, even inviting their children home as a way to consolidate familial expenses, share the burden and avoid assisted living facilities.

Gas and real estate prices, coupled with fuel economy standards preserve a “drive till you qualify” culture. The percentage of total trips on mass transit has not changed much over the last 20 years and freeways remain the dominant means of work trips. Many Americans continue to shift transportation modes and locate in transit friendly cities, reducing demand for oil, but Suburban products and patterns are still in demand beyond one mile of high capacity transit routes. Failure to recover from global and regional economic downturns or employ new, alternative funding strategies is delaying completion of FasTracks. Temporary booms in the Oil and Gas industry are optimized by using revenue bursts to fund strategic development initiatives that help transition from a fossil fuel based economy but the scale and timing of these bursts is unpredictable and progress intermittent.

The dense urban places developed through 2025 gave way to market forces and have stopped expanding. Lifestyle is the dominant criteria for many people in deciding where to live. Outdoor recreation and connecting with nature remains a major regional pastime and major source of revenue. Neighborhoods with mature vegetation are in high demand but water restrictions from sustained drought and warmer winters make those few and far between.

Older neighborhoods not caught up in the past growth have substantially declined resulting in substandard neighborhood conditions. There are significant challenges to ensuring there is adequate affordable housing for all ranges of incomes. Most affordable housing is available in the older, run-down neighborhoods or at the farther fringes of the region not served by mass transit requiring longer, more expensive commutes, increasing the overall cost of living and consuming time and disposable income. Legal reforms have dampened the negative impacts of construction liability, bringing more multi-family product to market. Feigned fiscal confidence is fanning economic growth. The

consolidating effects of Federal legislation are being felt; community banks have mostly closed or sold to bigger banks, transferring lending and investment decisions to people outside the community. **Few financing options** offer a ladder out of poverty; **home ownership and entrepreneurship rates are lagging** behind top regions of the country. Starting and scaling businesses or buying a home is difficult without personal capital, equity, partners or angel investors. Efforts to address affordable housing needs have been limited more by a lack of resources than a lack of demand, forcing many to leave the region for a better quality of life, yet the region continues to grow, attracting those with the means or grit to give it a go.

The Front Range economies over the last 20 years have followed the patterns of their past. The scale of global growth has made the troughs of economic waves deeper and longer, eroding the diversity of the regional economic base. A “Post-OPEC” world fluctuates oil production, disrupting markets and consolidating industries as uncertainty persists in the Middle East and resource rich nations.

Drought and wildfires are boosting crop prices worldwide and challenging water allocation relationships as supply is stretched between demand for food, oil and energy production. Water is reallocated from staple irrigated crops to respond to world demand for meat, dairy and marijuana. Strategically sited fields of non-irrigated crops help keep feed prices low and large industrial farms are able to squeeze every efficiency out of the resources they have. Demand for organically grown produce is increasingly supplied by the new economies of scale afforded by the consolidation of agricultural operations.

Other industries that once powered the economy have moved overseas to access sufficiently or comparably educated but cheaper labor, spurring new growth and stronger competition for resources in these developing hubs. Denver’s economic growth in information technology, bioscience and financial services slowed dramatically and the region remains heavily dependent on a narrow range of sectors: energy, regional healthcare, aerospace, food and beverage production and tourism. While some reshoring of manufacturing has occurred, most continues to site overseas, accessing cheaper labor and optimizing new shipping efficiencies. Most manufacturing is related to food production, wind energy, bicycle, and aerospace industries which continue to endure the dynamics of climate change and geopolitics. Transportation and Warehousing make up a larger percentage of the economy than in 2016 as technology nourishes the shipping/deliver and online retail sectors. Highway capacity remains an issue requiring funding for widening and expansion as support for rail still struggles to achieve consensus.

## SCENARIO D: LIVIN' ON A PRAYER - WE GOT TO HOLD ON TO WHAT WE GOT

### MORE COMPACT | LIMITED + EXCLUSIVE GROWTH | VOLATILE ECONOMY

Denver and the Front Range have become even **more urbanized and compact** than the first quarter century when existing cores began expanding from across the plains, becoming larger, taller, more expensive and exclusive. Growth is responding to demand for housing and employment in urban places. Economic volatility is impacting local economies, inhibiting growth of urban centers in other areas around the region; the **same number of cores** exist as 2016.

The Front Range economies over the last 20 years have followed the patterns of their past. The scale of global growth has made the troughs of economic waves deeper and longer, eroding the diversity of the regional economic base. A "Post-OPEC" world fluctuates oil production, disrupting markets and consolidating industries as uncertainty persists in the Middle East and resource rich nations. The consolidating effects of Federal legislation have forced community banks to close or sell to bigger banks, transferring lending and investment decisions to people outside the community. Sustained uncertainty and volatility have made long term financing opportunities rare. **Feigned fiscal confidence** is fanning economic growth; entrepreneurship and failure rates are some of the highest in the country.

Public policy reforms have created negative impacts on public and private capital generation, which has created a crisis in maintaining or replacing decaying private and public facilities, services and infrastructure. Denver's economic growth in information technology, bioscience and financial services slowed dramatically and the region remains heavily dependent on a narrow range of sectors: energy, regional healthcare, aerospace, food and beverage production and tourism and sporadically, oil and gas. While CO has made moves to reduce energy consumption, global oil and energy demand supports the extraction of CO mineral, oil and gas resources. While this remains controversial, the Denver-Julesburg Basin is still one of the largest resources in the nation for both crude and dry natural gas and the pressure is on to capitalize on the opportunity.

Livestock was once a top agricultural revenue generator but droughts have suppressed herd size, driving the price of cattle up and creating barriers to entry for and threatening survival of farm operations short of capital and land. Strategically sited fields of non-irrigated crops like corn, sunflowers, dry beans and millet is helping to keep feed prices low and large industrial farms are able to squeeze every efficiency out of the resources, reaching remarkable economies of scale. Rail capacity is stressed and mainly distributed between food and oil.

Consolidation of wealth and real estate from booming industries like marijuana and multi-family holdings consortiums spurred mass speculation, driving prices up as property was purchased and converted to growing operations or rental housing. This has steadily increased the cost of warehouse space and housing, creating significant challenges to ensuring adequate affordable options for companies and families across the economic spectrum. Each new boom brings more luxury products to market, pushing those of fewer means further out. Affordable options tend to expand out, not up.

Location of employment is the dominant criteria for many people in deciding where to live. Finding and keeping living wage jobs in close proximity to home can be difficult. Some urban places along the Front Range focused more on residential and entertainment opportunities than employment. These places see less contraction during economic downturns and have become havens for prosperous retirees and childless families looking for independent mobility within a short commute to well-established and cost prohibitive employment centers in Denver.

Legal reforms have dampened the negative impacts of construction defects liability, bringing more multi-family product to market but few financing options offer a ladder for economic mobility; home ownership rates are lagging behind top regions of the country. Economic downturns displace people, disrupting neighborhood cohesion and investment as dwelling units are converted from owner-occupied homes to rental housing. Though home ownership remains attractive, long term rental housing is an increasingly attractive option and for many, the only option. The less affluent are relegated to the less desirable, more affordable neighborhoods of the Front Range, segregating the haves from the have nots. Efforts to address affordable housing needs have been limited more by a lack of resources and will than a lack of demand.