



# PUTTING ON A RESILIENCE LENS

BOCO STRONG RESILIENCE ASSESSMENT FOR BOULDER COUNTY



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2016

[WWW.BOCOSTRONG.ORG](http://WWW.BOCOSTRONG.ORG)

**BoCo Strong was created with the purpose of building a culture of resilience throughout Boulder County.**

**BoCo Strong formed in the wake of the 2013 flood; beginning as a sub-committee of the long-term flood recovery group (LTFRG). After a natural disaster, the main focus is typically on restoring physical infrastructure and making it more resilient while social infrastructure is frequently ignored or forgotten. In recognition of the important role that relationships between family, friends, colleagues, and organizations play in recovery and resilience, BoCo Strong focuses on building social capital, increasing connections and fostering cooperation around already existing social networks.**

**BoCo Strong is comprised of representatives from Lyons, Jamestown, Boulder, Longmont and Boulder County, the Red Cross, Foothills United Way, InterMountain Alliance, Boulder Office of Emergency Management, and individuals residing in the county.**

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# INTRODUCTION



BoCo Strong's goal, in undertaking this county-wide resilience assessment, is to develop and apply a common resilience approach for use in accelerating learning and best practices development around resilience in Boulder County.

Understanding and prioritizing interventions to build resilience requires a shared understanding of what resilience is and how to identify it when we see it, a clear sense of what we're already doing to build resilience, and a common understanding of where we have opportunities to further build our resilience. This assessment addresses these needs. It introduces resilience and why we're interested in building it and presents a "Resilience Lens" that can be used to bring into focus what is and is not resilient in the world around us. Using this lens, we then explore, across sectors, scales, and geography, where we are resilient and where we face resilience challenges. Finally, we present resilience opportunities — places where people

around the county are already identifying a need for action to further build our resilience.

This document is not comprehensive — there is much more than can be said about and much more that is being done to build resilience in Boulder County. It is simply an introduction and a baseline that we can build from moving forward.

This document is also not a resilience plan. We don't identify specific actions that should be taken or particular actors that should be involved. Instead, our focus is on creating a shared understanding of resilience and providing encouragement for both individuals and organizations to incorporate resilience thinking in their future actions.

# WHAT IS RESILIENCE?

*In BoCo Strong's definition, "Resilience" is the capability to anticipate risk, limit impact, and bounce forward rapidly by adapting and learning in the face of disruptive shocks and stresses.*

## WHAT IT MEANS

In this definition:

A shock is an acute natural or man-made event that has the potential to cause major loss of life and damage to assets and negatively impact a community's ability to function and provide basic services, particularly for poor or vulnerable populations.

A stress is a chronic (ongoing) natural or man-made condition that renders a community less able to function and provide basic services, particularly for poor or vulnerable populations.

To "bounce forward" is an idea particular to resilience. It means we're not satisfied to return things to what they were pre-event. Instead, we want to be actively working to increase our capacity to address shocks and stresses so that the toll they take on us, as individuals and as a community, is smaller every time.

# WHY BUILD RESILIENCE?

*Resilience needs to become a way of life, not an individual event. Resilience is not something to achieve, like winning a race, it's more like good health, which depends on daily decisions, regular evaluations, and occasional intensive interventions.*

Building resilience allows us to better handle both things we're experiencing now and things that may happen in the future. These can be acute shocks – floods, fires, economic recession – or longer-term stresses – housing price increases, growing economic inequality, an erosion of social connectivity.

Things we're experiencing now we can plan for and act on, and we are. This report describes actions Boulder County communities are already taking, explores how we're building our resilience as a result, and describes how this is improving lives.

Things that may happen in the future are a little trickier. Some of them we can plan for — more floods, more fires, continued increases in housing prices, economic change — but how big, where, when, and how it will impact us as individuals

and as a community we don't know. And, for all our planning, what we might get is something completely unexpected.

As we work to build resilience we need to remember that resilience does not imply equity. There have been many highly inequitable but very resilient human societies through history. BoCo Strong is committed to a resilient Boulder County for all, as clearly stated in our Vision:

“By 2025 Boulder County communities will have access to the resources and connections needed to allow all residents to adapt and thrive in the face of community stressors.”

When building resilience, equity needs to be added in explicitly, by continuing to ask “resilient for whom”.

# THE NEED FOR RESILIENCE

As identified in the Boulder County Hazard Mitigation Plan, Boulder County is exposed to a wide range of shocks:

Primary shocks, from natural hazards, include wildfire, flood, winter storms, drought, windstorms, and tornados.

Other shocks include pandemic flu, emerging infectious disease, economic downturn, and human-caused hazards such as terrorism and communications or power blackouts.

The risks these shocks pose vary around the county. Wildfire is a more direct risk for those living in the mountains, but air quality, water quality and economic impacts can extend far beyond a fire's boundaries. Power and communications blackouts come as a greater shock to city residents than in unincorporated Boulder County where outages are a more regular occurrence. Based on our experience, location, preparation and capacities, shocks will impact different people differently.

Equally problematic are long-term stresses that erode resources, allowing even small shocks to become catastrophes. Key stresses for county residents include:

Economic stresses, such as housing affordability issues;

Social stresses, such as limited access to mental health services and an increasingly aging population;

Economic and social stresses such as age, poverty, disability, and race;

Environmental stresses, such as pollution, invasive species, and development in hazardous areas.

These stresses impact all of us from time to time, but are more problematic where they are chronic. Populations particularly vulnerable to these stresses include low-income, minority, and linguistically isolated households and the elderly, young children, and people with disabilities.

*“Because we’re one of the wealthiest counties in Colorado, it is easy to assume vulnerable communities aren’t here. However, income distribution in Boulder County is more unequal than that of the State of Colorado as a whole.”*

— TRENDS

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The roles Boulder County's vulnerable people play in our society are fundamental, filling many of the core service positions in the county. Yet these same people face regular challenges accessing affordable housing, healthy food, educational opportunity and other fundamental needs many of us take for granted. If we want our communities to continue to function well and be resilient in the face of shocks and stresses, we must find ways to improve access to fundamental needs. Otherwise, shocks and stresses that are particularly impactful on specific vulnerable populations may cascade out to impact the broader community in ways that are unanticipated and far more costly than preparation and prevention.

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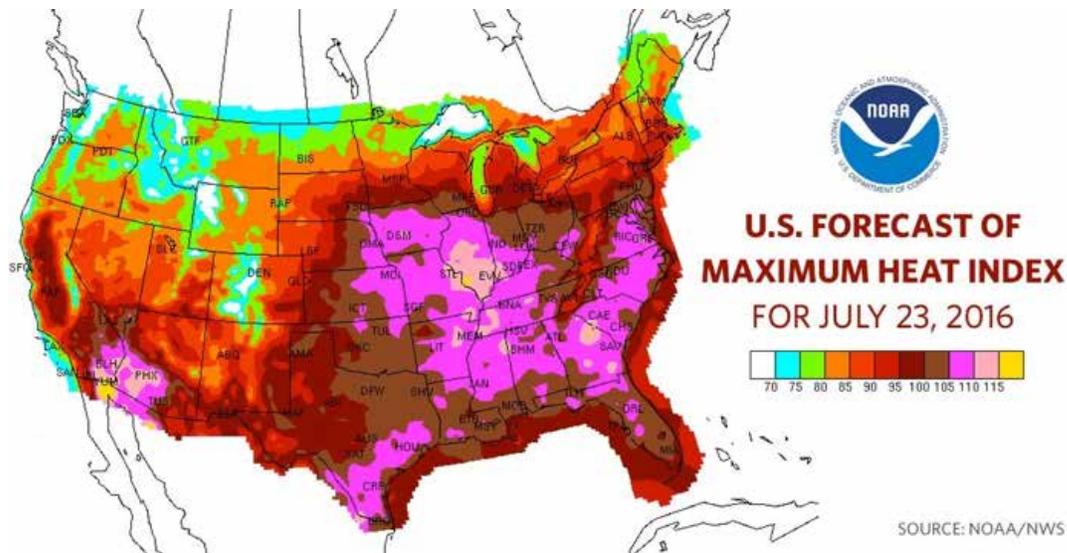


# SOCIAL NETWORKS AND RESILIENCE

BoCo Strong is particularly interested in the role of social networks in resilience. In July 2016, in response to a heat wave across the eastern half of the county, then President Obama tweeted the following:

particular on building the social capital aspects of resilience such as enhancing connections and networks between individuals, agencies and governments across the county.

Because of this focus, our take-away



*“This map says it all. Stay safe as it heats up: Drink water, stay out of the sun, and check on your neighbors.”*

What made this tweet particularly welcome was the last point: “Check on your neighbors.” It reflects BoCo Strong’s understanding that resilience is only partly about infrastructure, agency funding and governance; it’s also about community cohesion. It is vital to have the capacity to recognize and prepare for threats. But the response to a threat depends on connectedness, down to the level of a city block. (Andrew Revkin, July 21, 2016, [dotearth.blogs.nytimes.com](http://dotearth.blogs.nytimes.com))

In Boulder County, the importance of social ties was made very clear after the flood: communities with neighbor to neighbor support as well as strong connections to outside organizations and local government recovered much more quickly than those without similar social relationships. BoCo Strong has, as a result, chosen to focus in

recommendations for building resilience that focus in particular on the human element of the resilience puzzle. This is not because we don’t need robust infrastructure, healthy ecosystems, and equitable, transparent legal systems — those are essential to resilience. However, they are also a place where there is already action, in part because progress is more easily measured in these areas. Less attention and funding is directed toward building the networks and inter-linkages among people and organizations that will allow them to not only deliver their day-to-day jobs but to respond creatively to leverage the capacity and resources needed to address acute events. By investing in our people, and investing specifically in ways that support connection, diversity and inclusion, we will significantly further our resilience.

# RESILIENCE LENS

Resilience is fundamentally a way of looking at things – a “lens” through which the world comes into a different focus. The resilience lens we use for this assessment consists of 8 characteristics of people, institutions and systems. Taken together, these 8 characteristics define what makes something more or less resilient and, when used as a framework for analysis, can help identify areas of on-going activity and strength, as well as areas of weakness and opportunity.



## ABLE TO LEARN

People, communities and organizations learn from their experiences and use this learning in the future.



## DIVERSE

Systems and communities have a great deal of variety, and functions can be delivered in multiple different ways.



## FLEXIBLE

The physical landscape, people, and policy and culture can change, evolve and adapt in response to changing circumstances.



## INCLUSIVE

Processes are transparent, open and fair. Resources are available and accessible for all. Power dynamics and equitability are taken into account.



## INTEGRATED

Systems and people are interconnected. They share information and resources, are designed to function in complementary ways, and provide mutual support.



## REDUNDANT

There are multiple ways to achieve a need or function, and alternative options for when things go wrong. (However, redundancies that build resilience are intentional, cost-effective, and prioritized!)



## RESOURCEFUL AND CONNECTED

People have a range of ways to achieve their goals and meet their needs.



## ROBUST YET ABLE TO FAIL SAFELY

Systems are designed to withstand regular impacts and continue to serve their purposes. If impacts are so great that things break, they fail in ways that minimize impacts.

# RESILIENCE ASSESSMENT FRAMEWORK

Using the eight resilience characteristics, this lens is then applied to different aspects or sectors that make up our community. We used two descriptive community resilience frameworks already in use in the County as a way to inform and bound this assessment.

## STATE OF COLORADO

The State of Colorado’s Recovery and Resiliency Office introduced a Resiliency Framework in 2014 as part of a state-wide effort to build local resilience in communities impacted by the 2013 flood. The Resiliency Framework forms the foundation for this work.

## 100 RESILIENT CITIES

The 100 Resilient Cities *City Resilience Framework* already in use in the City of Boulder was integrated with the Resiliency Framework to develop a series of sector-specific resilience questions for each of the State’s resiliency sectors.



## THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

Additionally, the National Institutes of Standards and Technology (NIST) has recently developed a Community Resilience Guidebook that helps communities understand which facilities and systems need to have specific levels of service provision during and immediately after a devastating event to ensure life-safety operations. Because it is focused primarily on infrastructure and uses a definition of resilience that is focused on disasters specifically, it was not used as a framework for this analysis. However, Boulder County is doing cutting edge work as part of our flood recovery efforts, combining NIST’s “Time to Recovery” resilience metrics for infrastructure with the state’s Resiliency Framework and BoCo Strong’s Resilience Lens to provide a structure and process for designing, implementing, and monitoring resilient infrastructure projects.



# THE RESILIENCE LENS IN ACTION

Boulder County has seven main roads connecting the plains to the mountains. These roads are:

Robust — they're well built and meet standard engineering specifications,

Redundant — there are 7 of them,

Flexible — they offer various different routes to access the mountain,

Integrated — they are connected to the wider road network,

Inclusive — everyone has equal access to the roads and the roads are actively designed and maintained for both cars and other transportation options.

However, as we learned during the 2013 floods, our mountain access roads lacked diversity. Six of the seven roads shared the same point of failure — they were right next to creeks and when the creeks flooded, the roads were damaged.

By evaluating the road network through a resilience lens, we can quickly see that, for flooding, our resilience can be increased by increasing the diversity of types of roads into the mountains — Sunshine Canyon, on the ridge tops, stayed open — or by increasing the robustness of one or more canyon roads to withstand more extreme floods.

# METHODS



The assessment and recommendations that follow are based on over 60 in-person interviews with key stakeholders across the county, backed up by secondary data sources that include: city and county plans and data fact sheets; non-profit, private and government reports and studies; peer-reviewed journal articles; newspaper articles; census data; and internet data from primary sites.

Interviews were semi-structured, with the primary queries being “In the role you play in the county, what do you see as our most significant resilience strengths?” and “Where do we most need to build our resilience?” These basic interview questions were complemented by specific, targeted questions tailored to the person being interviewed and the

sector in which they work.

Core ideas and messages from the interviews and secondary data were compiled, coded by sector, and used to answer the sector-specific resilience questions posed by our assessment framework. The questions and their answers were used, in turn, to develop the sector narratives presented in this document.

A resilience assessment is not an end in and of itself. We anticipate that this assessment is the initial step in an ongoing refinement of the county’s understanding of its resilience and opportunities to build that resilience. The tools and process developed and data collected for this assessment are publicly available for use by anyone.

*Inequality affects our ability to trust and our sense that we are part of a community. For instance, in more equal countries or more equal states, two-thirds of the population may feel they can trust others in general, whereas in the more unequal countries or states, it may drop as low as 15 percent or 25 percent.*

*- Richard Wilkinson, British epidemiologist*



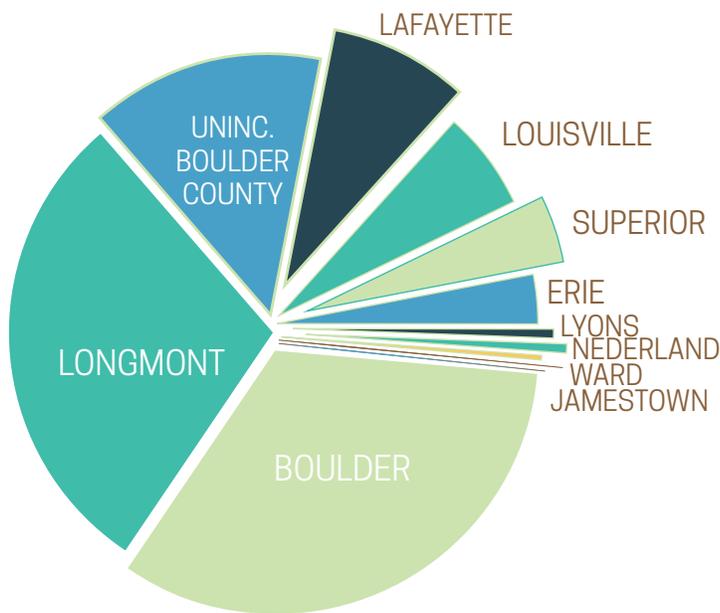


COMMUNITY

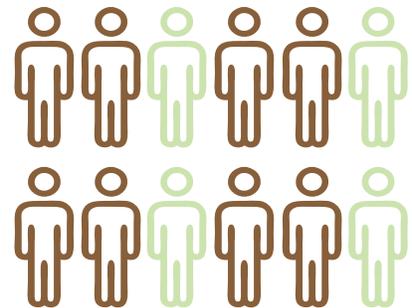
# WHAT IS A RESILIENT COMMUNITY?

In resilient communities community members are involved, have the information and tools needed to make informed decisions, are connected to one another, and are connected to decision makers. Changing hazards are understood, are clearly communicated to residents, and are addressed in local plans and policies. Tools such as land use, building codes, comprehensive emergency management and hazard mitigation work in concert and reinforce mutual goals. Government is coordinated across departments and scales and easily accessible to residents.

## LOCALLY SPEAKING



POPULATION BY COMMUNITY



One out of every three people in the county has attended a public meeting in the past year.

But only **7%** of the representatives serving on county boards and commissions are non-Anglo while 20% of the overall population identifies as non-white.

# HIGHLIGHTS & CHALLENGES



Local governments are learning — from past events, from other towns and cities, from participation in state, regional and national networks — and are proactive in implementing policies and taking action in response to that learning.



We have well-established county and municipal institutions. We have clean water, publicly funded open space and trails, the ability to talk personally with our elected representatives.

Our challenges lie primarily in the need for even greater integration and inclusivity of our governance.

For our smaller communities and municipalities, there is also a need for greater access to resources and for increased governmental recognition.



Jurisdictions collaborate as needed, and collaboration has increased in recent years, partially as a result of lessons learned from recent disasters.

*“People don’t get that the fabric of the community is about our teachers, our service workers, the secretary at the church. If these people are lost, we’re so vulnerable.”*

*– Robin Bohannon, Boulder County Community Services*

## WHAT WE'RE DOING

Town, municipal and county governments in Boulder County work hard to identify and be responsive to residents' needs and interests. Basic services in communities across the county are strong:

Water quality is excellent, both in municipalities and from most private wells;

Wastewater and solid waste disposal is efficient, effective and affordable;

City and county infrastructure is regularly assessed and, in general, adequately maintained;

Resident input on possible actions is solicited and incorporated into decisions.

There is comprehensive hazard and exposure mapping both within municipalities and at the county level. In particular, we work to understand and refine the location of floodplain boundaries, have developed and enforce floodplain regulations, and where possible have bought floodplain land for use as Open Space, providing public benefit as we reduce risk.

Building codes and standards in the county are continually reviewed and updated to assure that

structures meet national standards and will be robust against local shocks and stresses. Land use and building codes have been thoughtfully developed, are publicly disseminated, and are enforced for new construction and renovations.

We have a strong emergency response system, including a proactive county emergency management team, a state-of-the-art emergency operations center, strong coordination among first responders built through regular table-top and scenario planning sessions, warning sirens, information campaigns, and reverse 911 calls to alert specific geographies about specific immediate threats.

Following the 2013 flood, communication and collaboration between county governments has increased. In particular, the County Collaborative, composed of representatives from Longmont, Lyons, Jamestown, Louisville, Lafayette, Nederland, the City of Boulder, and Boulder County was formed to develop, prioritize and implement flood recovery projects. This has resulted in a significant increase in inter-jurisdictional communication.



# RESILIENCE OPPORTUNITIES

**Integrate emergency communications centers in the county.** There are multiple separate emergency communications centers – including the Cities of Boulder and Longmont, the University of Colorado, and Boulder County — that should be better integrated.

**Provide emergency warnings and first responder services in English and Spanish.** Emergency warnings and response services are only provided in English. We have no Spanish reverse 911 capability and our first responders are, in general, not bilingual. This first step needs to be part of a larger effort to set-up, support and resource bilingual service provision, community education, and outreach.

**Increase integration of building codes and land use policy across jurisdictions.** There have been numerous issues during flood recovery where both homeowners and local jurisdictions have been unable to clarify how best to move forward due to conflicting policy information. Clarifying and integrating policy across jurisdictions (up to and including the state level), and improving communication of policies is needed.

**Build trust among county residents and improve public engagement in planning and decisions.** Though our governments work hard to be responsive to residents needs and interests, we still have significant populations unhappy with decisions that are made. We need to find ways to

engage the public that foster productive discussion of competing ideas, engage a broader cross-section of the population, use a broader range of communication avenues, support an atmosphere of collaboration and compromise, and increase public confidence that their views have been heard and considered.

**Institutionalize the County Collaborative and work to expand it to include representation from all governments within the county.** The County Collaborative, convened post-flood to coordinate county recovery, has resulted in a significant increase in inter-jurisdictional communication within the county. However, the future of this group beyond the flood recovery process is in question. County jurisdictions need to commit to maintaining the Collaborative, and to revitalizing and refocusing the group to address individual community and collective county needs.

**Develop a regional coordination body to develop and champion regional integrated land use, housing, and transportation planning.** Though the County Collaborative has been effective at connecting local jurisdictions for flood recovery and the Denver Regional Council of Governments (DRCOG) has been an effective platform for regional transportation issues, there is a gap in broader inter-governmental co-ordination and collaboration. In particular, a regional council

95%

*of Boulder County residents have internet in their homes as compared with 84% as a national average. This allows for greater access to information, but also means that local organizations and governments need strong digital engagement platforms that are available in multiple languages.*



of governments able to develop and champion a regional, integrated land use, housing, and transportation plan is lacking. In its absence, regional issues will continue to be locally addressed, solutions that could help mitigate challenges are likely to lack the scope and scale they need, and towns will continue to compete with each other, lowering the bar for zoning and tax requirements.

**Institutionalize the learning and cross-sectoral communication fundamental to both recovery and resilience.** Local governments, though proactive and interested in resilience, have yet to formalize support and resources to act on resilience. Governments need to move from being reactive to reflecting, planning, and aligning plans with other jurisdictions in preparation for both response and recovery.

**Identify ways to build in transitional support for transferring networks and knowledge as people leave jobs and new people come on.** Frequently, employee productivity and successful outcomes are dependent more on the

networks people can mobilize and the skills and capacities they can tap from that network than on their individual talents. Yet we rarely explicitly recognize the value of these networks, and consequently lose this capacity when people leave a job.

**Develop a new staffing model for disaster response and recovery.** Our current approach of “surging” for disasters has been pushed to the limit with the 2008 economic downturn, 2010 Fourmile Canyon Fire, and 2013 Flood. Asking our city staff to take on substantial response and recovery roles in addition to what they are already doing and maintain that extra load for months or years is burning people out. We are losing talented staff, and with them valuable institutional knowledge and networks. We need a more sustainable approach to disaster.



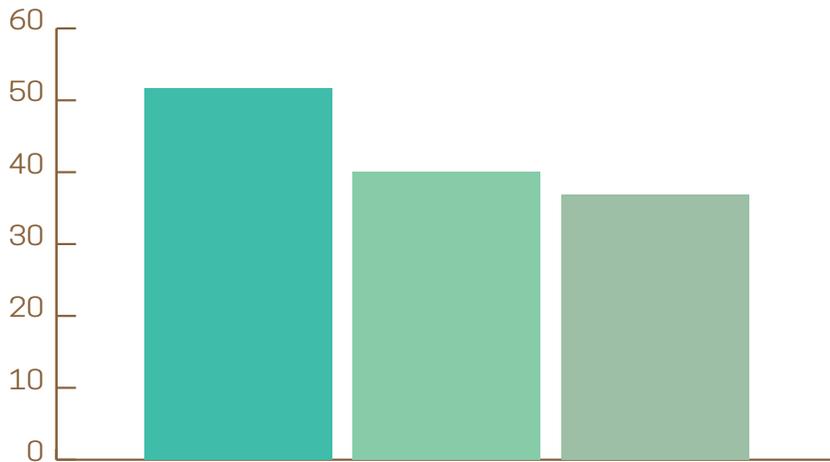


# ECONOMY

# WHAT IS A RESILIENT ECONOMY?

The economic system is resilient when there is a diversified base of industries not overly reliant on any one sector of the economy, when capital is readily accessible, when the workforce is healthy, well trained and mobile, when businesses have continuity plans, and when businesses and markets can maintain function and absorb and rebound from stress or shock quickly.

## LOCALLY SPEAKING



Half of all jobs (51.7%) in the county are “management, science, business, arts” compared to 40% for Colorado and 36.8% for the nation.

# 17

The County has 17 federally funded research labs, which bring in hundreds of millions of dollars of spending per year. For the decade from 2006-2016, unemployment in the area was a fifth lower than for Colorado overall.

In the first half of 2016, Boulder companies received

# \$29.5 million

in venture capital investment, representing approximately 24% of all investment in Colorado.

# HIGHLIGHTS & CHALLENGES



Many of the jobs in the county are high paying. Strong local incomes support local businesses.

Our concentration of small businesses puts us at higher risk in disasters. Small businesses have more limited resources to recover after a major shock. Small home-based businesses are particularly vulnerable, as damage to the home also damages the business, and they are less likely to have continuity plans in place than larger businesses.



There is high demand to live here because of the care taken on quality of life issues like transport, zoning, environmental protection and open space, making it easier to attract and retain workers.



Boulder County's economy ranges from agriculture and food processing to high tech industry to tourism. The economy is supported by a range of activity that allows it to weather economic downturns well.

The federal government is a major economic force in Boulder County, and as a result the federal budget cycle has significant impact on the local economy. In 2013, a year marked by federal budget sequestration cuts and the October 2013 shutdown, local economic growth was 0.6%; over the same period, Colorado's overall economic growth stood at 2%.



Nearly 90% percent of Boulder County businesses have 20 or fewer employees. Maintaining a high number of small businesses contributes to innovation and means that failure of one business is unlikely to broadly affect the workforce.

Rising housing costs are making it increasingly difficult for middle- and lower-income workers to live in the communities they work in. More commuters means increased stress on the transportation network.



The presence of the University of Colorado and federal government labs provides a strong foundation for innovation and start-ups. From 2010 through 2015, over \$1 billion in venture capital has been invested in firms in the City of Boulder alone.

For those without a college education we have a limited number of jobs that generate living wages, and this is getting worse as the economy grows and specializes. Local vocational training programs are limited, with no guarantee of employment.

## WHAT WE'RE DOING

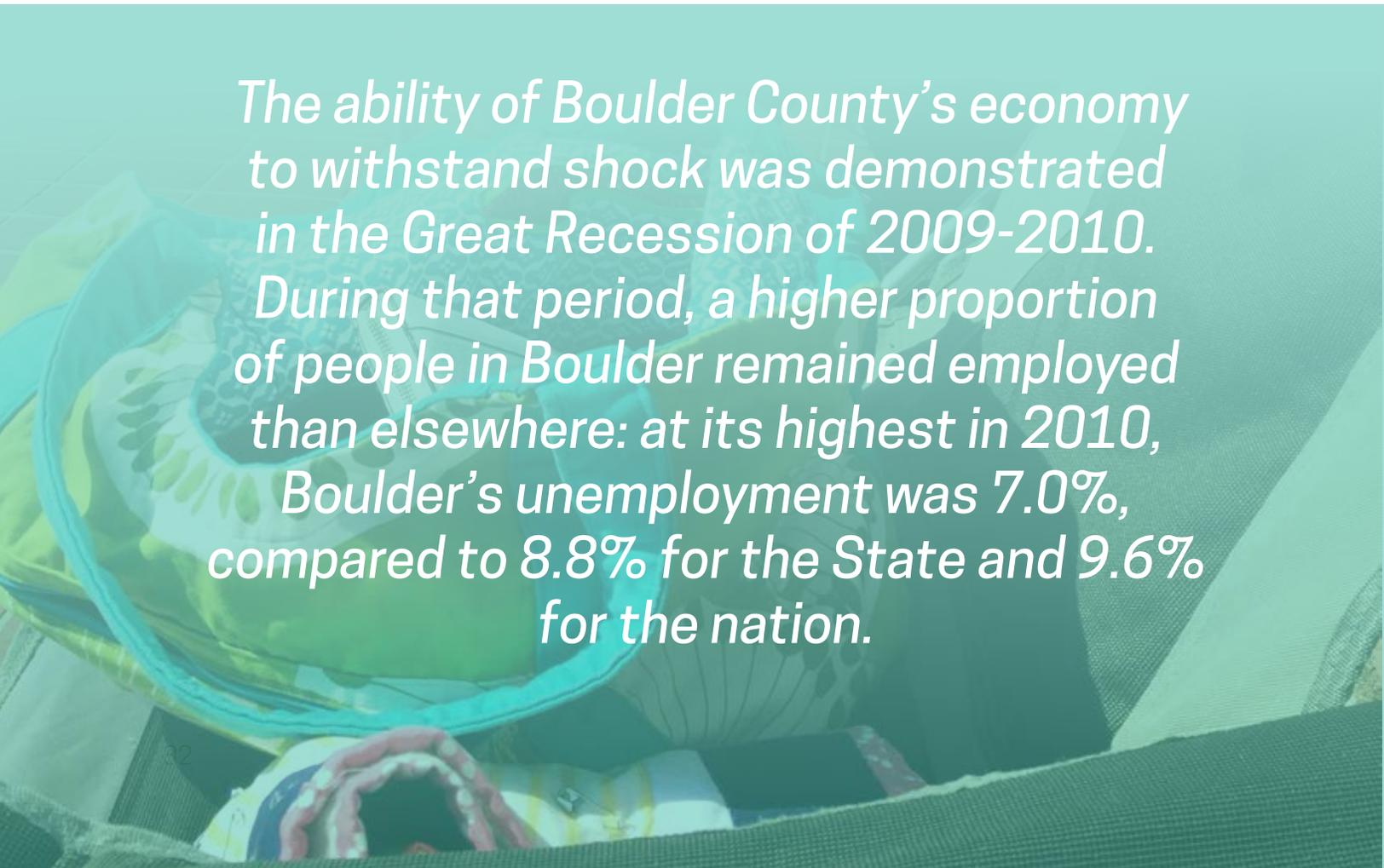
The County continues to grow economically and recover quickly from downturns. Local governments are fiscally healthy, despite the large public expenses incurred after the 2013 flood, and taxpayers approve sensible tax increases that support that fiscal health.

Communities in the eastern part of the County are encouraging growth as high housing costs push people east from the larger towns. This is providing housing within the County for many who work in Boulder and Longmont.

The County and many municipal governments continue to devote resources to acquisition and maintenance of Open Space to maintain economic

and lifestyle values that voters say they want. This quality of life continues to draw new residents and businesses.

Maintaining balance among economic activity such as oil and gas development, high tech and agriculture on the one hand and environmental concerns on the other are central issues for the County and municipal governments, especially in the east. The Boulder Valley Comprehensive Plan, which is updated with public input every five years, makes development predictable and controlled, balancing economic, environmental, and lifestyle concerns.



*The ability of Boulder County's economy to withstand shock was demonstrated in the Great Recession of 2009-2010. During that period, a higher proportion of people in Boulder remained employed than elsewhere: at its highest in 2010, Boulder's unemployment was 7.0%, compared to 8.8% for the State and 9.6% for the nation.*

For the decade  
from 2006-2016,  
unemployment in  
Boulder County was

**1/5th**

lower than for  
Colorado overall.

## RESILIENCE OPPORTUNITIES

**Increase the preparedness of small businesses by helping them develop realistic business continuity and contingency plans.** This will require developing materials and tools with a clear value-add, actively taking them to businesses, and providing incentives for engagement.

**Develop improved emergency assistance for small businesses.** One of the gaps seen post-flood was the need for a business recovery or resource center separate from regular Disaster Recovery Center. Small businesses need both temporary space to work and also information about options – loans vs. grants, requirements for loans, and support in handling the paperwork.

**Improve agricultural disaster assistance programs at local and state level for farmers and ditch companies to manage economic downturns, drought, and flood, promote smooth emergency response, support local employment and tax generation, and protect health.** This segment of the economy generally has less economic flexibility and federal disaster aid is often unavailable to them due to lack of understanding about how western water systems work.

**Maintain predictable environmental regulation of the oil and gas industry to promote smooth emergency response, support local employment and tax**

**generation, protect health, and prevent damage to the natural environment.**

**Increase workforce training opportunities to help workers adapt to a constantly changing and evolving economy.** Help build capacity in communities that access workforce training to identify and avoid usurious training programs. Work with communities and businesses to identify opportunities to connect available labor with new business sectors.

**Coordinate local governments in the region around planning for transportation, housing, and employment.** Housing costs are beginning to affect employers. To maintain a robust economy and continued business development we need to connect jobs with housing.

**Prepare for likely future reduction in federal disaster response and recovery resources.** The National Flood Insurance Program is increasingly in debt and the cost of disasters is going up. The Federal government is likely to reduce response and recovery resources in the future. We, as individual residents, as communities, and as local, county, and state government, need to be prepared for this possible future by understanding the resources we have drawn on in the past — for floods, fires, droughts, tornadoes — and identifying ways to reduce future impacts and streamline recovery.





# HEALTH AND SOCIAL

# WHAT IS A RESILIENT HEALTH AND SOCIAL SECTOR?

Health and social resiliency means social cohesion, high quality of life, and healthy lifestyles are actively fostered. The criminal and civil justice systems are accessible, effective and equitable. There is access to preventative, physical and mental health care, health and social service programs are tailored to specific population needs, and extremes in social inequity are minimized.

Federal, state, non-profit, and private organizations work together in a coordinated fashion.

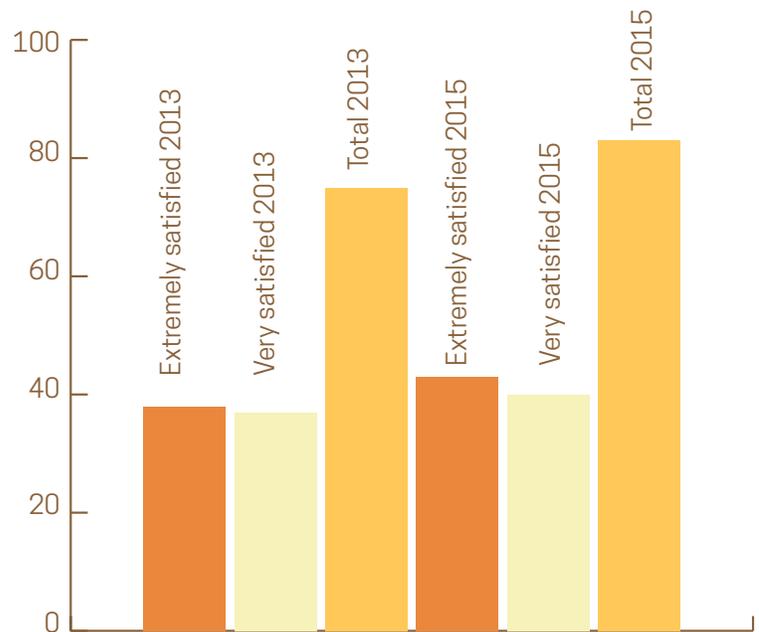
## LOCALLY SPEAKING

# 24%

of children in Boulder County ages 2-5 that are enrolled in the federal Women Infant Children program are overweight or obese vs 22% in Colorado as a whole.

# 58%

of Boulder County residents have a bachelor's degree or higher, compared with 37% in the rest of Colorado and 29% nationally.



COMMUNITY SATISFACTION SURVEY 2013 and 2015

# HIGHLIGHTS & CHALLENGES



We have a thriving arts community throughout the county that plays an important role in community cohesion and identity.

High cost of living means that as many as one third of county households — 30,000 households — are one paycheck or one medical emergency away from decline into poverty.



We have a social services network – both governmental and non-profit – that works together well to make effective use of available resources.

Cultural and linguistic gaps continue to separate us into discreet communities, and we struggle to integrate our different ethnic groups in our neighborhoods and schools.



We have a predominantly healthy, physically active population, educational levels and access to information are high, and our residents are engaged in their communities, as measured by voting rates and volunteerism.

There are large prosperity disparities across the county, particularly between white and Latino households. Household economic challenges affect educational attainment, information access, and health.

# WHAT WE'RE DOING

The Community Foundation Serving Boulder County catalyzes many early education efforts through the Engaged Latino Parents Advancing School Outcomes (ELPASO) and School Readiness Initiative.

The One Action 2016: Arts + Immigration Project engaged over 50 organizations county-wide for over a year in activities designed to catalyze, engage and inform county residents on both the historic and contemporary issues of immigration in order to foster greater understanding and make Boulder County a more welcoming and inclusive community.

The Emergency Family Assistance Association, in collaboration with Foothills United Way, Boulder County Housing and Human Services, and the Nederland Food Pantry, has a Mountain Resources Liaison to bring human services to mountain dwellers who may not otherwise have access to them.

Homeless student liaisons in the St. Vrain and Boulder Valley School Districts support homeless students, coordinating school and County services

for students and their families. 726 students in the St. Vrain Valley School District were homeless in the 2015-16 school year alone.

With the state commitment to implementing the Affordable Health Care Act, County Housing and Human Services staff have increase enrollment in health insurance. County residents without health insurance have dropped from 14 percent in 2013 to 8 percent in 2014.

A County VOAD (Voluntary Agencies Active in Disaster) formed following the 2013 floods and is working closely with local government to build networks and create protocols among non-profits, local government, and the state.

Gang violence in Longmont is substantially reduced due in big part to working with the schools to identify children at risk or showing gang affiliation and getting them involved in other activities.

The Boulder County Sheriff's Office has a Restorative Justice program aimed at helping youth stay out of the court system.

*"In Boulder County the "self-sufficiency standard", the amount a family needs to earn to survive without assistance, is about 300% of the poverty level, or about \$75,000 for family of 4. But to qualify for federal food assistance like SNAP (food stamps) or free school lunch, a family must earn less than 130% of the poverty level (185% for Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)). Even if benefits are enough to help a family get by, for those who fall between eligibility and self-sufficiency, the space between these two is frequently filled by charitable response in the private nonprofit sector."*

*-Michelle Orge, Director, Community Food Share*

*There are 14,000 children living in poverty in the Boulder Valley & St. Vrain Valley School Districts.*

*– Community Food Share*

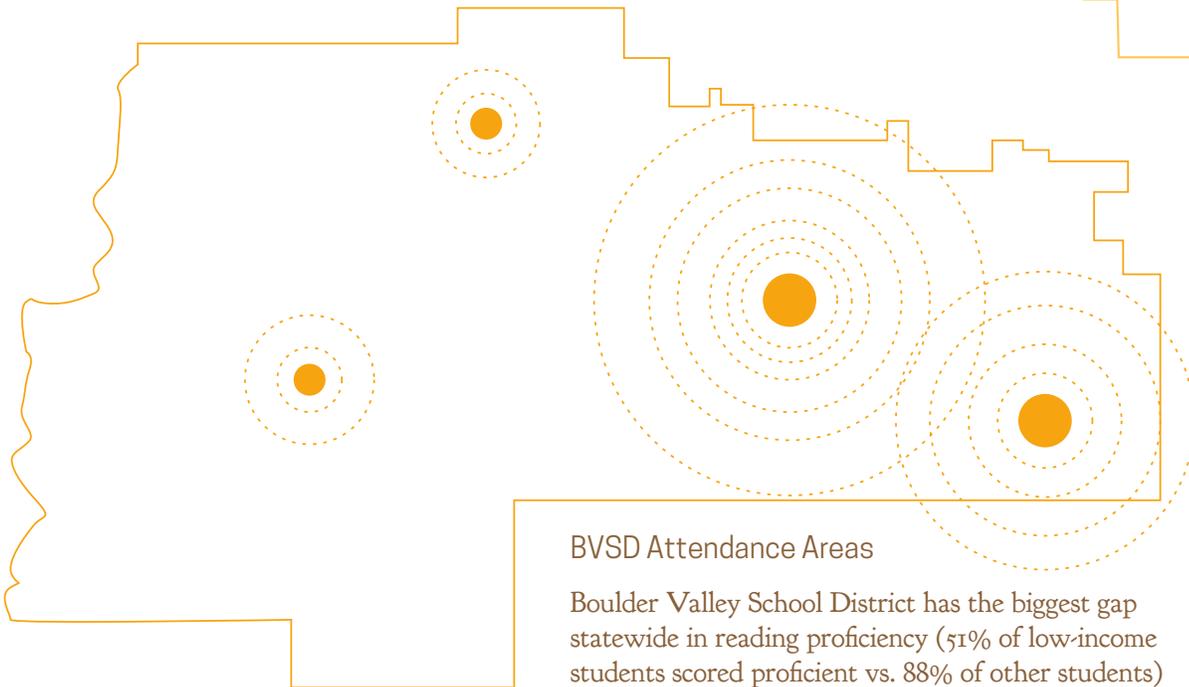
SVVSD Attendance Areas

St. Vrain School District has the third biggest gap statewide in reading proficiency (54% of low-income students scored proficient vs. 85% of other students)



BVSD Attendance Areas

Boulder Valley School District has the biggest gap statewide in reading proficiency (51% of low-income students scored proficient vs. 88% of other students)



*Cultural brokers actively seek opportunities to create bridges and increase networking and communication between minority communities and other communities, public agencies and private organizations. The trust and respect they hold in both settings makes them critical in resilience work because they raise issues that, in their absence, often remain unsaid.*

## RESILIENCE OPPORTUNITIES

**Open a homeless shelter for families in the county.** We have no family homeless shelter in the county, despite the fact that 50% of homeless are families with children.

**Increase access to mental health services locally and advocate for increased mental health action at the state and national levels.** Mental health services are lacking for those who cannot pay for private services, both following shock events and for those under chronic stress. Treatment for substance abuse, in particular, is available only through the criminal justice system unless you can pay the high costs. And increasingly, our police are being called on to address “crime” that really stems from mental health challenges. Money spent on treatment will be more effective than criminalization.

**Strengthen and expand connection with our undocumented community.** We need to identify and support our cultural brokers to build and maintain relationships with those who are undocumented. We need to increase the integration of the undocumented into our communities, provide them with equitable, sustainable access to resources and services and address the factors underlying the fear that prevents them from seeking help, especially in disasters.

**Support neighborhood-building efforts.**

County residents are engaged in broader community (e.g., they vote, write letters to editor, are part of leisure time groups), but not always in their neighborhoods. Support and expansion of neighborhood building efforts such as block parties, neighborhood associations, resident CERT and resilience trainings, and online communication platforms can build local connections that are fundamental to resilience.

**Learn from mountain community risk awareness, preparedness and social connectivity and develop ways to foster similar behavior in plains communities.**

This will require the development of related but different tools and methods as mountains and plains cultures are quite different.

**Enhance existing legal system advocacy, information dissemination, and communication.** Particularly for communities already burdened by language, cultural competency and cost challenges, navigating the judicial system is overwhelming.

**Share community best-practices for resilience.** There are exciting resilience-building activities underway in communities and municipalities across the county – too many to list in this assessment. We need to develop better ways to highlight, replicate and celebrate these efforts.

*“Eligibility requirements for aid from non-profits are getting increasingly more challenging. There is no emergency housing for families, no family homeless shelter. Your life has to totally unravel before you get help.”*

*-Anne Tapp, Executive Director, Safehouse Progressive Alliance for Nonviolence (SPAN)*





# HOUSING

# WHAT IS RESILIENT HOUSING?

Resilient housing is diverse, available at a wide range of affordability levels, and able to meet the varying needs of resident at different points in life. Housing is located out of high-risk areas, uses durable materials, and is designed to be safe, secure, and limit the impact of natural disasters. Housing developments and neighborhoods include access to community resources and are connected to labor markets. Those employed in the city have access to housing within the city, or are easily connected to the communities in which they work via a diversity of robust, affordable, accessible transportation options.

## LOCALLY SPEAKING

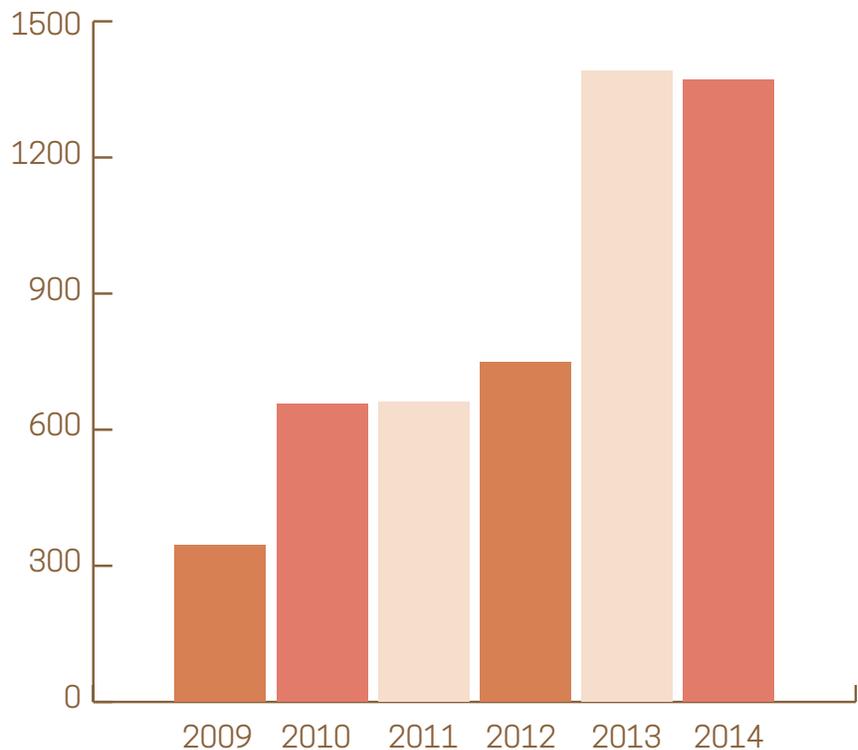
The Cities of Boulder and Longmont both have goals of

# 10%

of housing for low- to moderate-income residents and families.

# 30%

of homeowners and 59% of renters spent more than 30% of their income on housing in Boulder County.



NUMBER OF NEW HOUSING UNITS IN THE CITY OF BOULDER

# HIGHLIGHTS & CHALLENGES



Housing is considered in local land-use and transportation planning. Municipalities work to increase connectivity between housing, community resources, services, and jobs within their jurisdiction.



Municipal, county and non-profit agencies are working together to address the need for affordable housing.



Robust housing is supported by restricting development in floodplains, through strong building codes for development in the wildland urban interface, and through energy efficiency and materials requirements for new construction.

Rapidly rising housing costs are increasingly pricing out both low and middle class residents and families, and we have a number of long-term, local residents who are chronically homeless that we haven't yet found sustainable ways to shelter.

We lack the housing diversity needed for our current population, including an increasing elderly population driving a need for more housing suited to aging in place.

Our policy landscape has made Boulder County a beautiful place to live but has severely limited our options for building additional housing.

## WHAT WE'RE DOING

We have strong, locally relevant building codes that are enforced and regularly updated.

We have strong land use policies around flood plain development and actively work with builders in higher risk areas to build in ways that minimize that risk.

The county, through Wildfire Partners, works with homeowners to mitigate wildfire risk around mountain homes. Recent post-event studies, including an assessment following the Boulder County Cold Springs Fire in 2016, indicate that mitigation substantially reduces the risk of homes burning.

Government and non-profit groups in the county provide support systems, classes and information for renters and new home buyers.

There is oversight and enforcement of rental

housing standards.

There are multiple entities in the county, both governmental and non-profit, focused on providing affordable housing for our most-vulnerable populations. This is supported by city policies in Boulder and Longmont establishing targets for city-wide affordable housing units and requiring a percentage of all new development to be affordable.

We have piloted a Housing First residence in the county (housing designed to get the chronically homeless off the streets for good), and have successfully housed 32 chronically homeless local residents.

We have a few highly successful housing experiments within the county that have created vibrant, economically and culturally diverse communities.

*Home values have increased 29% since 2010 in Boulder County. In this same time period, median household income has increased just 4%.*

*– Boulder County Planning Commission*

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**Having medical providers, first responders (fire, police), city staff, school personnel and similar core employees living locally provides them with more connection to community, means they're immediately present in emergency situations, incentivizes their active engagement in the community outside their jobs, and disincentivizes turn-over.**

**When people can live near their work, public transportation can be more effectively provided and traffic is reduced.**

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# RESILIENCE OPPORTUNITIES

## **Create an environment where we can learn.**

We have the money to pilot innovative housing projects, but the current policy landscape leaves us with no place to use it. We need to provide incentives and opportunity to innovate. This could include: incentivizing homeowners to add Accessory Dwelling Units; expanding our affordable housing programs to include a wider demographic; and expanding what constitutes “acceptable” housing to include options such as micro-houses, micro-apartments and co-ops.

**Create loan or grant programs to incentivize those working in the city to buy homes locally.** People who work in a town should be able to live in that town. Fractured communities impair resiliency.

**Increase mixed-use development tailored to local values and design standards.** Housing that is integrated with retail and services is vibrant, more efficiently uses space, and is easier to connect via public transportation.

**Incentivize the construction of housing that supports community interaction.** Housing and infrastructure can be designed to support and foster community interaction and promote social

cohesion.

**Develop effective outreach for residents around housing and experimentation.** We need to help our residents see how experimenting with and increasing the resilience of our housing will improve their lives by increasing stability, character and interconnection within and between neighborhoods.

**Develop more housing for the chronically homeless.** The Housing First model, which combines supportive housing integrated with individually tailored supportive services, has been successfully piloted by the City of Boulder. Housing First saves taxpayer dollars at the same time that it addresses core needs of some of our most vulnerable populations.

**Support and expand renewable energy and Smart Grid initiatives.** By providing households with more information about energy-management and conservation, and by improving the ways we generate and deliver power, we can achieve reductions in household energy use that financially benefit county residents at the same time that they reduce carbon emissions and benefit the environment.

*“NIMBYism is pushing people further and further out to the margins – this doesn’t create a more resilient community. We’re either inadvertently or directly pushing those with lower incomes and homeless individuals out of the county entirely or into more hazardous settings, such as mountain encampments. This hinders their ability to access needed resources and form valuable connections within the larger Boulder community.”*

— Jamie Vickery, Natural Hazards Center



SANCHEZ INTERNATIONAL  
Community  
Garden





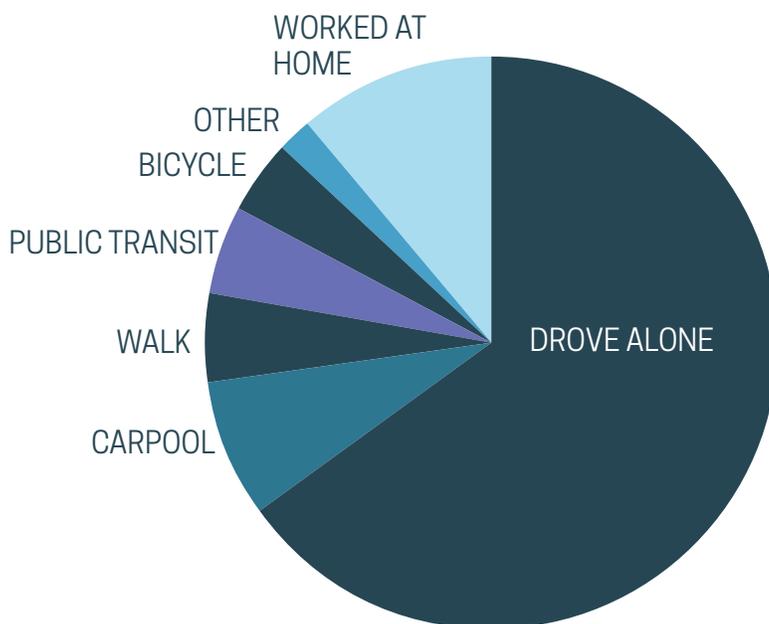
INFRASTRUCTURE

# WHAT IS RESILIENT INFRASTRUCTURE?

Resilient infrastructure, both public and private, is designed to maintain critical services such as communications, evacuation routes, power, and water during sudden shocks, including man-made threats, accidents, and extreme weather events. It incorporates redundancy and back-ups as needed to minimize disruptions. When resilient infrastructure fails, it fails safely in ways that minimize cascading failures (e.g. the water supply goes down when the power goes down) and support rapid recovery.

Resilient infrastructure is also designed to support strong quality of life, sustainable livelihoods, and successful economic activities on a day-to-day basis. It delivers the services needed, services are integrated for smooth, efficient operation, and access to those services is equitable.

## LOCALLY SPEAKING



BOULDER COUNTY COMMUTE TO WORK

# 150

miles of roadways were damaged or destroyed in Boulder County during the 2013 flood.

# \$8,528,948

was generated by existing EcoPass programs in Boulder County in 2013

# HIGHLIGHTS & CHALLENGES



Our communications network includes multiple communications avenues, including television, radio, landline phones, cell phones, ham radio, internet, and, in some locations, emergency warning sirens.



We have clear design and construction standards meant to keep infrastructure safe and functional, and those standards are enforced.



An interconnected system of paths and greenways in urban areas provide transportation alternatives and doubles as space for floodwater routing.

Our roadways are prone to flood damage, and our infrastructure is aging and will require increasing investment to maintain and improve.



As communities, we actively look for the weaknesses in our infrastructure systems and work to strengthen them.

Our infrastructure is designed for our historic climate, in particular with respect to extreme high temperatures. As temperatures increase, we will increasingly need to retrofit buildings and add active cooling. New building techniques and materials may be needed for roads, communication infrastructure, and buildings.

Our mountain and unincorporated Boulder County residents have weaker infrastructure than the county as a whole, with more reliance on personal cars for transportation and a more limited, more vulnerable transportation infrastructure.



Both Boulder and Louisville have two potable water plants, redundancy that was critical in the 2013 floods.

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**We're currently seeing transformation in the infrastructure sector, and with it opportunities to build resilience. New building techniques and materials have the potential to revolutionize construction. Autonomous vehicles have the potential to redefine both transportation and how we use urban spaces. More powerful computers and advances in software are allowing us to better understand flood, fire and climate dynamics, giving us a deeper understanding of our risk landscape and allowing us to improve zoning and codes and make better informed decisions. Internet and cell phones are changing how we communicate and increasing our access to information. New energy technologies are changing how we light, heat and cool spaces and power vehicles.**

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## WHAT WE'RE DOING

Fundamental to resilient infrastructure are building codes and land use that provide the foundation for robust infrastructure location, design, construction and maintenance. County and municipal governments have been proactive about acquiring water rights, buying land for open space, and changing zoning and codes as we gain new knowledge concerning our risk landscape.

Truly resilient infrastructure needs to take into account the needs of the current population as well as the likely needs and desires of the future population, to support and integrate diverse activities and communities, and to be equitably accessible to everyone. The County as a whole and most of the municipalities within the county are already taking steps in this direction through sustainability plans and activities focused on structuring current and future development to be

energy efficient, preserve the environment, and deliver increased quality of life for inhabitants.

Boulder County's "resilient design performance standards" that the County Collaborative has developed for flood recovery projects is receiving national recognition as a model for resilient infrastructure design. These design standards push governments within the county to work together, to restructure how we're thinking about what we're trying to achieve, and to look at interdependencies between systems. By applying the design standards checklist to new infrastructure projects, we better assure a design will support bouncing forward to a more resilient, more optimal state, rather than simply bouncing back to our previous level of functionality.



*“Housing is being built in Johnstown, Erie and Fredrick, but there is a lack of good public transit options between those locations and employment opportunities in Boulder and Longmont.”*

*– Chris Hagelin, City of Boulder Transportation*

# RESILIENCE OPPORTUNITIES

**Review structures for their ability to function as desired in a warmer, more variable climate and plan for retrofitting as needed.** Much of our infrastructure was built 20 or more years ago, for the climate of 20 years ago. Temperatures are increasing, creating challenges both for buildings with no active cooling and for those with inadequately sized cooling systems. Over the next several decades, retrofitting buildings for a warmer climate will be a growing expense.

**For infrastructure that does not meet current code, be aware of how code non-conformity affects risk.** We have many older structures that met code when they were constructed, but codes have been updated to address a better understanding of risk and structures are grandfathered in until they are renovated. Where feasible, reduce vulnerability by addressing aspects of sub-standard construction.

**Use infrastructure to build community.** Nationally, there are exciting models for new

development that supports social interaction and builds community. We need to increase public understanding of and demand for this type of development, provide incentives for developers, and develop plans, codes, policy and zoning that incentivize this type of construction.

**Address the need for additional infrastructure system redundancies in roads, energy, drinking water and sewage treatment.** These are critical systems, without which towns and cities are significantly challenged to remain habitable. Jamestown and Lyons were effectively shut down for weeks while temporary potable water systems were set up and roads were repaired post-flood.

**Support and expand efforts to develop multiple power generation options and island-able power facilities.** Power outages are often the starting point of high impact, expensive, cascading failures. Having backup systems, a variety of power sources and delivery paths, and individual buildings or areas that can maintain

*In many metro-areas, potable water service areas have developed interconnections as backup in emergency situations. A pipe connection to a neighboring service area was critical in maintaining water service in Columbia, South Carolina in their 2015 flood.*

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**One of the places we, and the entire front-range region, must focus is on changing RTD’s incentive structure. RTD is funded primarily out of sales tax (80%, vs. 20% of operating expenses collected at the fare-box). Consequently, increased ridership is a problem for RTD; their funding increases only one fifth as fast as their service demand. We need to restructure RTD funding to incentivize and financially reward increased ridership, while still providing base funding for service in places where ridership is more limited.**

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power independent of the local and national power grids provides critical flexibility during power outages. The City of Longmont’s not-for-profit electric and broadband services utility, the City of Boulder municipalization efforts, and solar installation by in private business and government buildings are all valuable initial steps in this direction.

**Assure that in disaster critical transportation corridors remain functional or can be rapidly reinstated.** As more of our workforce moves to outlying communities in search of more affordable housing, transportation infrastructure becomes increasingly important, particularly maintaining functional primary transportation corridors during the most extreme events and prioritizing getting roads up and running again immediately following events.

Community outreach is needed to assure both employers and employees are aware of where to get information on transportation system condition and how to use that information.

**Continue expanding transportation options, both within the county and regionally.** This includes: improving education, marketing and communication to increase the inclusiveness of access so that everyone has the opportunity to benefit; leveraging both existing and newer options — including Via, car share programs, and Uber/Lyft; identifying whether changes in the regulatory landscape could incentivize private options such as commuter van pools; and promoting community engagement and commitment to solutions, such as Nederland’s recently passed RTD tax to fund bus passes for all residents.





# NATURAL ENVIRONMENT

# WHAT IS A RESILIENT NATURAL ENVIRONMENT?

Resilient natural environments can withstand disturbances over time while retaining their structure and function. They work in harmony with communities, protecting infrastructure and providing economic benefit, while also providing recreational opportunities and supporting human health.

## LOCALLY SPEAKING

**62%**

of county floodplain is open space.

**58 & 32**

are respectively the number of rare and imperiled plant and animal species have been identified in Boulder County. The intact foothills and piedmont grassland communities provide vital habitat in the north and southeast of the county.

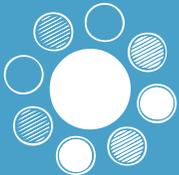
**115**

miles of trail are managed by Boulder County Parks and Open Space.

**6-20%**

projected Upper Colorado River Basin streamflow reduction by 2050 due to climate change.

# HIGHLIGHTS & CHALLENGES



Public land holdings by municipal, county, state and federal governments preserve open space and provide easy opportunities to enjoy nature.



Local agriculture is recognized, valued and supported by county residents, organizations and governments.



Water supplies are generally of excellent quality. Air quality on the plains, which used to be poor during winter inversions, has substantially improved due to intentional policy and regulatory changes.



Public lands in the mountains limit development in high-risk areas and provide healthy, intact ecosystems for a broad range of native species.

We are heavily dependent on snowmelt for our water supply. Increasing temperatures and increased variability in precipitation due to climate change are likely to make that supply more variable and increase the risk of drought.

Invasive species such as cheatgrass, increased insect activity, decades of fire suppression, and increasing temperatures are changing our natural environment and the ecosystem services it provides us.

# WHAT WE'RE DOING

Municipal and County comprehensive plans specifically focus on “avoiding the placement of people and structures” in areas at high risk of natural disaster, particularly flood and fire. These plans are supported at the county and municipal levels by hazard mapping, risk planning, risk communication, and ongoing risk reduction actions.

One of the primary tools used across the county to mitigate flood risk is leaving space for water – through greenways, open space purchases, and buying out and retiring high-risk properties. This not only mitigates flood risk, it provides beautiful natural spaces woven through our communities and is the backbone of a growing, county-wide path network.

Saws and Slaws, a resident-led, all volunteer group supports mountain homeowners in conducting their own fire mitigation work. Work sessions are followed by pot-luck lunches to foster community building. This model is increasing social ties in the

mountain communities and is attracting growing national interest.

Boulder County manages 100,000 acres of open space for parks, wildlife, and agriculture, municipalities manage additional open space properties, and most of the land west of the Peak to Peak is National Forest, National Wilderness and National Park land. This formally designated open space:

Provides buffer zones between residential and non-residential development and between urban and rural areas;

Preserves ecosystems and natural resources;

Provides recreational opportunities;

Maintains cultural, historic and aesthetic areas;

Preserves agricultural land for farming, which in turn supports agricultural lifestyles and a local food economy.

*The Boulder County Parks and Open Space program has acquired 25,000 total acres of productive farm land, and the City of Boulder Open Space and Mountain Parks an additional 14,000 acres.*

*– Northern Colorado Regional Food System Assessment*

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**Climate change adds an extra dimension to our natural environment challenges, by changing the “natural” behavior of our environment. Responding to likely changes in water availability, flood, drought, wildfire frequency and severity, and other similar changes in our environment will require learning, the development of flexibility in both our built infrastructure and policy landscapes, and integration across departments and disciplines to allow us to maximize the effectiveness of our actions and resources.**

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# RESILIENCE OPPORTUNITIES

## **Transform land use patterns in the mountains to support forest health and fire mitigation and simplify wildfire response.**

We live in a historically fire-adapted environment, and temperatures are increasing and with them fire risk. Yet we continue to develop in the wildland-urban interface. This leads to housing in areas of high risk, limits the ability to let wildfires burn, and makes fire suppression dangerous and expensive. We need to increase our ability to conduct development rights transfers, swapping lower-risk public lands for high-risk private lands. Where we build in the wildland-urban interface, we need to transform land use patterns so that structures are easier to mitigate and defend.

**Increase understanding among all county residents of the county-wide impacts of wildfire.** Fires are not just of concern to mountain residents. Fires are one of our top four natural disasters, and they increase flash flood and landslide potential, impact water quality and water supply, and have significant economic impacts well beyond their boundaries. We need all county residents to

understand our interconnection with the mountain forests and commit to investing in wildfire mitigation, response and recovery.

## **Further integrate our understanding of and approach to the natural environment.**

Though natural environments are fundamentally interconnected – for example, changes in land use affect water, plants, erosion, and response to fire, flood and drought – too often we still interact with the natural environment in ways that deliver one service at the cost of others. By viewing the environment at an ecosystem level, working collaboratively with public and private entities and federal land management agencies, and intentionally looking for how the services that we want are interconnected, we can identify actions that deliver multiple benefits simultaneously while ensuring the ecosystem as a whole is addressed.

**Support farmer livelihoods to preserve land in agricultural production and provide healthy local food.** Agricultural land and water are at risk from economic pressures. If unchecked,

*If global carbon emissions remain high July highs in Boulder by mid-century are projected to average 94° (92° to 96°), 2° hotter than the July average of El Paso, Texas, in 1970–1999. By late century, Boulder’s July highs are projected to average 99° (97° to 103°), approaching the recent average in Tucson, Arizona, of 100.5°.*

*— Future Climate Extremes in Boulder County, 2016.  
Rocky Mountain Institute.*



transfer of water and land to alternative uses may severely prohibit agricultural production in perpetuity. One of the simplest ways of preserving agricultural land is to preserve agricultural livelihoods. Current support for local farmers markets, farm-to-restaurant and farm-to-school sales and promoting buy-local initiatives are a strong start.

**Begin identifying now the significant planning and investment in water infrastructure, resident conservation and reduction initiatives, and water transfer flexibility that will be increasingly needed by a warmer, lower-snowpack future.**

Municipalities in the county have been proactive about securing robust water supplies for their existing and projected populations. However, likely reductions in mountain snowpack, earlier spring runoff, increased water demand with higher temperatures, and increased potential for drought require ongoing need for significant planning and investment in water infrastructure by governments, increased commitment to

conservation and reduction in use by residents and businesses, and for increased flexibility in water use by agriculture.

**Develop strong environmental regulations for energy development.** The energy industry can be a robust element of our economic sector, but should not come at the expense of our natural environment and the services provided by that environment. We need strong local regulation and enforcement, and to advocate for strong state regulation and enforcement, that supports economically successful development without damaging the environment.

**Continue and expand efforts to restore native vegetation to maintain ecosystem and species diversity, mitigate potential impacts of climate variability, and enhance adaptation to climate change.** Healthy, diverse ecosystems are better able to withstand stress and disturbance while continuing to provide the ecosystem services we expect, such as clean water, agricultural productivity, and resilience to fire, drought and erosion.



A blue-tinted photograph of a snowy forest path. The path is covered in snow and leads through evergreen trees, likely pines or firs, which are also heavily laden with snow. The overall scene is serene and wintry. The word "RECOMMENDATIONS" is overlaid in white, bold, uppercase letters in the center of the image.

# RECOMMENDATIONS

# CROSS-SECTOR RECOMMENDATIONS

There is significant overlap in the sector-specific recommendations in this report. That is because a key aspect of resilience is acknowledging and understanding how systems and actions are interconnected and deliberately strengthening both individual components and their interconnection.

The recommendations that appear in more than one sector are highlighted below. These are places where action can create multiple benefits.



Support experimentation and learning around housing, transportation, alternative energy and within municipal and county government systems, business and non-profits, and among residents. Only by learning from multiple small-scale actions across the county and across sectors will we develop the range of tools, techniques, and capabilities we need to address our future shocks and stressors.



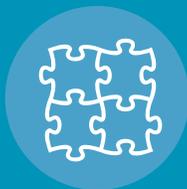
Maintain and expand inter-jurisdictional collaboration, such as that fostered by the County Collaborative, beyond recovery from the 2013 floods. Work within and beyond county borders to build an effective council of governments positioned to address regional planning, land-use and transportation questions. This type of regional coordination is critical to our long-term resilience, as communities, as a county, and as a region.



Work with front-range governance entities to develop a more sustainable funding model for public transit, one that will incentivize increased ridership and support expansion of regional services to integrate housing, employment, retail centers and recreation.



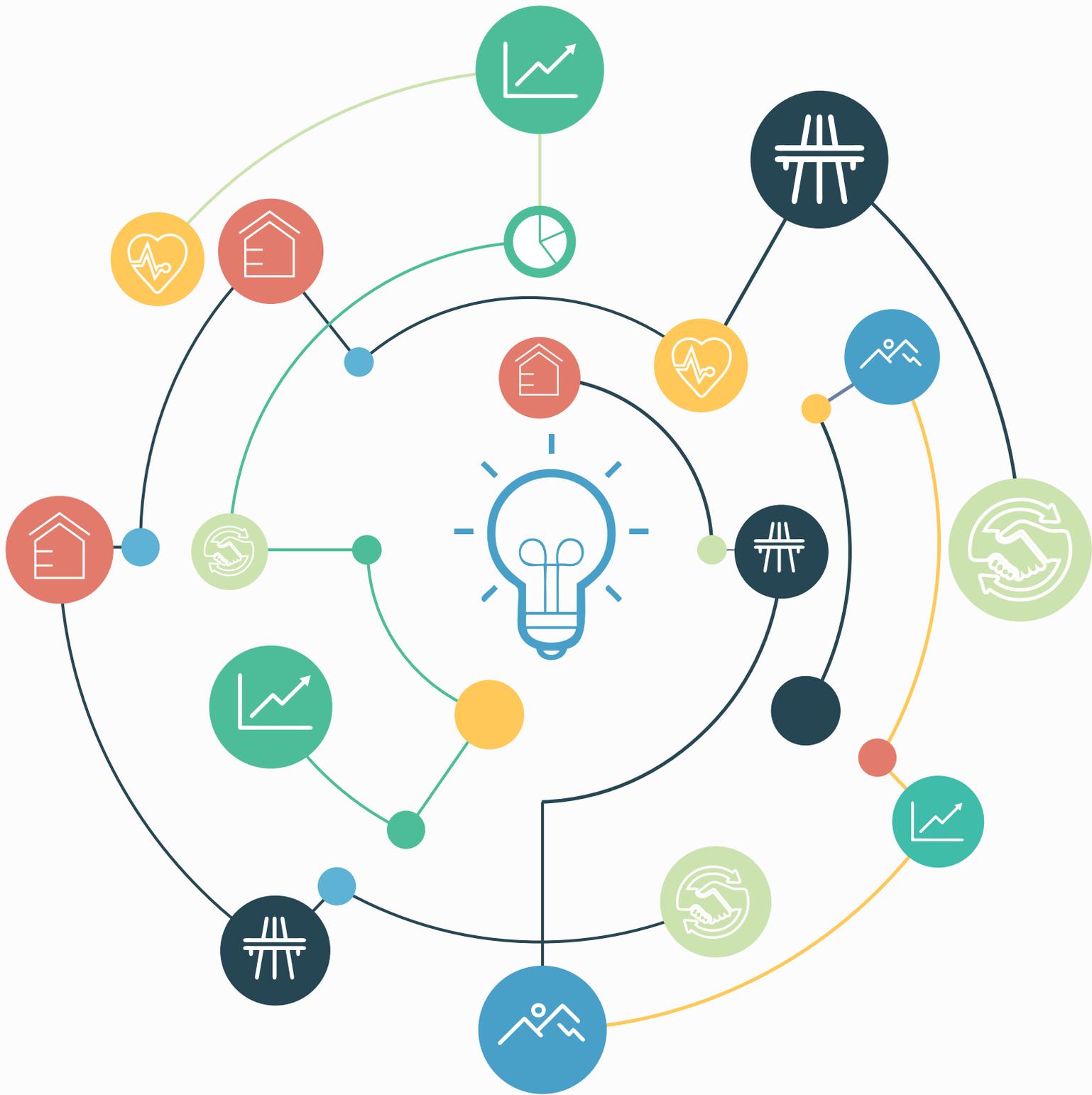
Work to document the cost benefit of mental health care and models like Housing First for the chronically homeless, and to develop the policies, programs and infrastructure needed to reduce taxpayer costs while providing more humane solutions and services for residents in need.



Commit to meaningful, quantitative targets for bilingual services. Set up and resource broader community education, outreach and marketing in Spanish. This includes all government and judicial interactions, home-buyer and renter support and resources, financial literacy education, public transportation access and use, and navigating and working with the education and health systems. Having systems that enable us to communicate in two languages will support the transition to multiple languages, a challenge we will likely face in the near future as our communities continue to grow in diversity.

A final cross-cutting recommendation relates to measuring our progress as we build resilience. The Boulder County Community Foundation's TRENDS report provides a wealth of indicator data that can be tapped to track county resilience progress, particularly in the Community and Health and Social sectors. Efforts should be made to maintain key indicators over time, and critical indicators that have been discontinued, such as domestic violence reports, should be reinstated.





## SUMMARY OF SECTOR-SPECIFIC RECOMMENDATIONS



## COMMUNITY



Integrate emergency communications centers in the county.

Provide emergency warnings and first responder services in English and Spanish.

Increase integration of building codes and land use policy across jurisdictions.

Increase connection between county residents and government and improve public engagement in planning and decisions.

Institutionalize the County Collaborative and work to expand it to include representation from all governments within the county.

Develop a regional coordination body to develop and champion regional integrated land use, housing, and transportation planning.

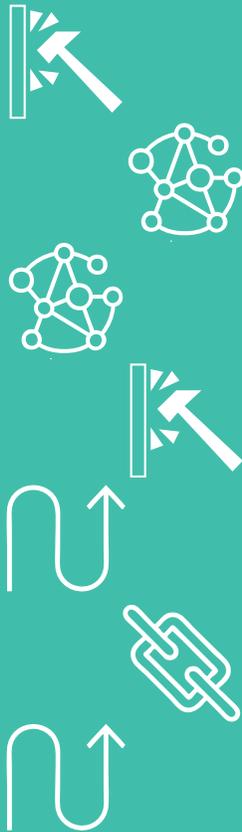
Institutionalize the learning and cross-sectoral communication fundamental to both recovery and resilience.

Identify ways to build in transitional support as people leave jobs and new people come on.

Develop a new staffing model for disaster response and recovery.



## ECONOMIC



Increase the preparedness of small businesses by helping them develop realistic business continuity and contingency plans.

Develop improved emergency assistance for small businesses.

Improve agricultural disaster assistance programs at local and state level for farmers and ditch companies.

Maintain predictable environmental regulation of the oil and gas industry.

Increase workforce training opportunities.

Coordinate local governments in the region around planning for transportation, housing, and employment.

Prepare for likely future reduction in federal disaster response and recovery resources.



## HEALTH AND SOCIAL



Open a homeless shelter for families in the county.

Increase access to mental health services locally and advocate for increased mental health action at the state and national levels.

Strengthen and expand connection with our undocumented community.

Support neighborhood-building efforts.

Learn from mountain community risk awareness, preparedness and social connectivity and develop ways to foster similar behavior in plains communities.

Enhance existing legal system advocacy, information dissemination, and communication.

Share community best-practices for resilience.



## HOUSING



Create an environment where we can learn.

Create loan or grant programs to incentivize those working in the city to buy homes locally.

Increase mixed-use development tailored to local values and design standards.

Incentivize the construction of housing that supports community interaction.

Develop effective outreach for residents around housing and experimentation.

Develop more housing for the chronically homeless.

Support and expand renewable energy and Smart Grid initiatives.



# INFRASTRUCTURE



Review structures for their ability to function as desired in a warmer, more variable climate and plan for retrofitting as needed.

For infrastructure that does not meet current code, be aware of how code non-conformity affects risk.

Use infrastructure to build community.

Address the need for additional infrastructure system redundancies in roads, energy, drinking water and sewage treatment.

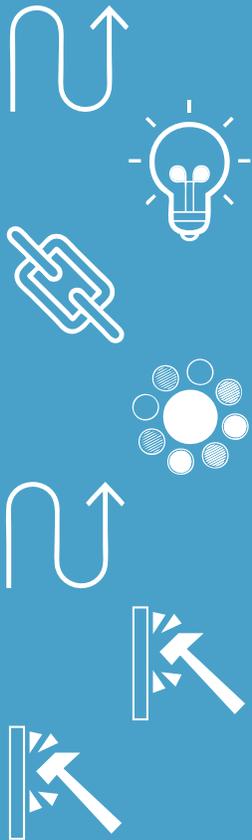
Support and expand efforts to develop multiple power generation options and island-able power facilities.

Assure that in disaster critical transportation corridors remain functional or can be rapidly reinstated.

Continue expanding transportation options, both within the county and regionally.



## NATURAL ENVIRONMENT



Transform land use patterns in the mountains to support forest health, support fire mitigation, and simplify wildfire response.

Increase understanding among all county residents of the county-wide impacts of wildfire.

Further integrate our understanding of and approach to the natural environment.

Support local farmer livelihoods to preserve land in agricultural production and provide healthy local food.

Develop strong environmental regulations for energy development.

Continue and expand efforts to restore and maintain native ecosystems.

Begin identifying now the significant planning and investment in water infrastructure, resident conservation and reduction initiatives, and water transfer flexibility that will be increasingly needed by a warmer, lower-snowpack future.

# NEXT STEPS

This document is a broad-brush picture of resilience around the county today, not a detailed action plan. Consequently, though it is possible to create monitoring indicators for each sector, developing those indicators is beyond the scope of this work.

Yet, what a resilience lens shows us is that we can look at the big picture and identify key qualities of engagement, interaction and design that increase our ability to handle shocks and stresses. This then allows us to identify the questions we can ask ourselves at any point to give us hints about whether we're on the right track or not. These include:



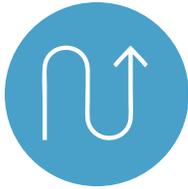
Are we making connections across sectors that didn't exist before?



Have our institutions – government, non-profits, schools, etc. – increased their cultural competence to work with the diverse communities we have?



Do we hear from most groups in discussions about public policy, or are there notable gaps in representation?



Are we working in ways that incentivize integration across sectors and organizational boundaries and that encourage experimentation?



Are we making the time to learn, both from our successes and from our failures, and are we prioritizing the incorporation of that learning into our future actions?



Are we engaging new players and expanding the network of stakeholders involved in resilience work, and is that increased connection allowing us to better utilize information and resources?

**If we are serious about building resilience, we need to create pre-set opportunities to discuss these questions, at least once a year. But we can also ask ourselves these questions informally at any time as yardsticks to judge any action we are thinking about.**



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This report was authored by Karen MacClune. She has done her best to reflect the input and interests of the report sources, contributors and BoCo Strong Steering Committee members. However, the opinions and perspectives expressed in this report remain those of the author alone.



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