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Economic Resiliency, July 2018

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The Knowledge Now *series features practical research on timely topics from the Colorado Municipal League.*

THE NEED FOR RESILIENCY IN CHANGING TIMES

By Rob Pressly, Colorado Department of Local Affairs resiliency program manager

CHANGE IS THE ONLY CONSTANT.

— Heraclitus, maybe

Colorado is in the midst of a series of major transformations.

Ask anyone who has lived here long enough to describe how the population has changed in recent years, and they will give a response ranging from traffic congestion, housing prices, and trail conditions, to a rise in new technology jobs moving to the state.[1] Although they may not be able to rattle off statistics such as how Colorado is expected to add 2.7 million new residents by 2040[2] (a 54 percent increase from the 2010 population), they sure feel this growth and its impacts on housing, transportation, and recreation. This growth is coming, and cities and towns statewide will need to find ways to successfully adapt to and sustainably manage this change to maximize on its benefits.

As another example of changing conditions, consider a handful of recent disruptions from natural hazards. Since 2012, fires, floods, debris flows, and hail storms have caused billions of dollars in damages, impacting not only landscapes, but families, homes, businesses, and communities as a whole. As a state, Colorado is not immune to disruptions such as the 2012–2013 wildfires and drought, 2013 floods, 2016 rockfall in Glenwood Canyon, or 2017 hail storm. With a predicted growth of 300 percent by 2030[3] in Colorado's wildland urban interface, communities statewide could be further at risk from these types of disruptions.

Then there is the changing climate. Between 1977 and 2006, average temperatures across the state rose 2°F.[4] It is predicted that temperatures will continue to rise another 2.5 to 5°F by 2050,[5] with a potential for hotter summers, decreased snowpack, and earlier runoff seasons. While no one disaster can be attributed to climate change, there is no doubt that rising average temperatures contribute to conditions that can result in devastating environmental and economic disruptions — such as when food kitchens are set up for seasonal workers in ski towns when snow conditions are bad,[6] or even more recently with the 416 Wildfire near Durango.

All of these changing conditions converge to change risk profiles in communities throughout Colorado, making the need to address resiliency now before the next economic, social, or environmental disruption all the more important.

Resiliency is defined in Colorado statute[7] as the ability of communities to rebound, positively adapt to, or thrive amidst changing conditions or challenges, including human-caused and natural disasters, and to maintain quality of life, healthy growth, durable systems, economic vitality, and conservation of resources for present and future generations. Resiliency, however, is context dependent, and may have different meanings to different individuals, communities, or regions. While sharing the common purpose of reducing vulnerability to any disruption, communities can define what it means to be resilient, aligning it with their specific goals, values, and needs.

Regardless of how each community develops its resiliency vision, getting there takes collaboration. Resiliency is a shared responsibility that requires thoughtful, coordinated planning and action between local and state governments, local businesses, community organizations, and committed individuals. With this partnership, communities can develop plans, policies, and programs to reduce current and future vulnerabilities to shock events[8] and long-term stresses.[9] No community is completely invulnerable to a major disruption of any sort, and addressing known vulnerabilities now may save significant costs in the future. Studies have shown that investing $1 today in

1 *www.denverpost.com/2018/01/23/strava-fitness-app-opening-denver-office*
2 *gis.dola.colorado.gov/apps/demographic_dashboard*
3 *dspace.library.colostate.edu/bitstream/handle/10217/44530/Colorados_Wildland_Urban_Interface_Current_and_Projected.pdf?sequence=1&isAllowed=y*
4 *cwcbweblink.state.co.us/WebLink/0/doc/196541/Electronic.aspx?searchid=243b8969-739b-448c-bd2d-699af9b7aea0*
5 *cwcbweblink.state.co.us/WebLink/ElectronicFile.aspx?docid=196541&searchid=243b8969-739b-448c-bd2d-699af9b7aea0&dbid=0*
6 *www.tetongravity.com/story/ski/snow-conditions-are-so-bad-aspen-has-opened-a-soup-kitchen-to-feed-lifties*
7 *leg.colorado.gov/sites/default/files/documents/2018A/bills/2018a_1394_rer.pdf*
8 *www.coresiliency.com/understanding-risk#shocks*
9 *www.coresiliency.com/understanding-risk#stresses*

risk reduction can save $6 in future avoided disasters.[10]

The Colorado Department of Local Affairs (DOLA), along with many of its partner agencies, has a number of resources to provide assistance in pursuit of a more resilient future. The CO Resiliency Resource Center (www.coresiliency.com) is the online hub for state resiliency resources, providing information and guidance for communities to better understand, plan for, and act on resiliency. In addition, the Planning for Hazards website (planningforhazards.com/home) provides Colorado-specific information and guidance for a community to assess its risk to hazards, with accompanying land use planning tools, strategies, and best practices for reducing risk.

In July 2017, the Colorado Municipal League published a KnowledgeNow white paper on the topic of resiliency with regard to hazard mitigation, land use solutions, and reducing risk of geologic hazards. One year later, CML follows up with a look at the economic aspect of resiliency. With pressures from both a changing climate and a growing population, communities across the state are facing economic impacts related to wildland fire, drought resiliency, and variable weather patterns that are making both ski seasons and agricultural seasons unpredictable. One theme runs consistently through these challenges and is at the root of the solutions: proactive planning and management of our most precious resource, water.

Colorado has faced numerous significant challenges over the years, and has shown the will and strength to overcome them. Collectively, we are building relationships, forming strategic partnerships, and taking actions now that not only make the state a national leader in resiliency, but puts Colorado on the path toward a more resilient future. By becoming more resilient today, Coloradans are not just prepared to survive another major event, but are poised to adapt to changing social, economic, and climate conditions, which in turn will keep communities safe, healthy, and vibrant for future generations.

10 *www.nibs.org/page/mitigationsaves*

MAKE YOUR COMPREHENSIVE PLAN "WATER SMART"

By Drew Beckwith, Western Resource Advocates water policy manager

A GROWING POPULATION AND EXPANDING ECONOMY ARE OFTEN WELCOMED SIGNS OF COMMUNITY vitality. However, rapid growth can strain increasingly limited natural resources such as water, if that growth is not matched by thoughtful planning initiatives. Colorado's statewide population is projected to double between 2010 and 2050, setting up a tremendous opportunity to shape new development in ways that are water-smart from the start.

Better integration of water and land use planning is critically important for long-term water sustainability in Colorado, especially in the face of climate change. Improved integration can enhance the consistency between a local government's community development goals and the use of its water supplies. Yet local policy makers in Colorado are not regularly prioritizing sustainable water management actions as an integral part of the land use planning process.

Integrating water resource management issues into local comprehensive plans is a concrete first step that local leaders can take to translate water management goals into land use planning actions. Embedding water into comprehensive plans ensures cohesion between planning documents and the community's vision for the future, informing the development patterns, land use, and urban form that ultimately will drive future water demand. The public outreach process that informs comprehensive plan development also improves awareness of water issues among residents and government staff at all levels. A comprehensive plan that integrates water should include a water element, section, or chapter, and include water considerations in other plan subject areas and policies as appropriate.

Several Colorado communities already have recognized the benefits of, and taken steps to increase, water and land use planning integration. The City of Aurora, for example, offers the opportunity for developers to meet with land use and water staff early on in the development review process, which helps developers integrate water efficiency options into their submitted plans. The City of Westminster has developed water-use data for each of its major land use types, and it uses this in combination with the community's zoning map to estimate future water demands with geographic specificity. This combined data is then used in long-range water infrastructure planning to ensure the city maintains a sustainable water supply.

Workshop: Incorporating Water-saving Actions into Land Use Planning

Aug. 23, CML offices in Denver

To register for a day-long workshop to learn more about the principles of water conservation and land use planning, visit *www.cml.org* under Events and look for "Incorporating Water-saving Actions into Land Use Planning."

IS YOUR LOCAL ECONOMY READY FOR A RAINY DAY — OR A DRY YEAR?

By Melissa Mata, Colorado Municipal League municipal research analyst

IN FEBRUARY 2018, NONPROFIT ORGANIZATION PROTECT OUR WINTERS RELEASED *THE ECONOMIC Contributions of Winter Sports in a Changing Climate* (*protectourwinters.org/2018-economic-report*). Founded in 2007 by professional snowboarder Jeremy Jones and based in Boulder, Protect Our Winters (POW) uses educational initiatives, political advocacy, and community-based activism to mobilize the outdoor sports community to take action on climate change. The 2018 report is at once both a warning and filled with hope. There is real uncertainty in planning for the economic impacts of a changing climate on an outdoor recreation- and tourism-based economy, but there is also resolve. There is resolve in the elected officials, municipal staff, community volunteers, and residents at large to consider their roles in the causes of the changes, as well as resolve to work together to firm up the local economy in preparation of unpredictability in the weather and corresponding tourism seasons.

The 2018 report outlines the impact of warming temperatures on winter sports tourism from 2001 to 2016 and uses this information to extrapolate best and worst case scenarios for the future. While the report highlights certain Colorado resort destinations, it also looks at the nation at large. The report noted that in the winter season of 2015–2016, more than 20 million people spent a total of 64.4 million days downhill skiing, snowboarding, and snowmobiling, supporting more than 191,000 jobs and adding an estimated $11.3 billion to the U.S. economy. Economic value comes through spending at ski resorts, hotels, restaurants, bars, grocery stores, sporting goods stores, and gas stations.

During the same season, Colorado saw skiing and snowmobiling support more than 43,000 jobs and generate $2.56 billion in economic value, surpassing the next highest state, California, by more than 100 percent in both categories.

It may not surprise readers that years when the ski season experienced more snow were also the years when resort towns saw higher economic value, and an increase in jobs created, while low snow years resulted in fewer jobs and less economic value. A perhaps less expected finding, however, is that the negative impact of low snow years was approximately 45 percent more dramatic than the positive impact of high snow years. While high snow years result in an extra $692.9 million in added economic value compared to average, low snow years saw $1 billion less in added economic value than the average year. Colorado displayed an even more troubling pattern, where the negative impact was 100 percent that of the positive: top snow years saw a 2 percent increase in skier visits over the average, whereas the bottom snow years saw a 4 percent decrease compared to the average.

According to the report, 89 percent of ski resorts use snowmaking and a small minority use snow harvesting to extend their seasons. As winters continue to warm and the ski seasons to shrink, these practices will face diminishing returns. The resorts are already planning for that impact as well. Arapahoe Basin Ski Area in Keystone is featured as a case study, sharing its work broadening its tourism draw. In addition to adding a Kids Center building, A-Basin has increased its non-winter attractions, including weddings, disco golf, and concerts. It also has stepped up its sustainability efforts and have seen an increase in tourists who appreciate that work.

While planning events in the shoulder seasons of spring and fall, municipalities across Colorado face the challenge of unpredictability and variability in weather — and water — and are demonstrating flexibility in response. The Uncompaghre Watershed Partnership, for example, is a coalition of local and regional governments, federal and state agencies, nonprofits, and concerned community members. This year, it celebrated the 11th Annual Ridgway RiverFest, choosing which events to feature with careful consideration of what works well with a low-flow year. Should 2019 feature a loud and rushing river once more, the organizers will be prepared to go with the flow and select the appropriate events to match.

Even while other outdoor recreation options such as mountain biking, zipline and canopy tours, ropes courses, and music festivals will continue to excite the classic Colorado tourists, city and town officials and economic development professionals across the state are dreaming up new ways to diversify their local economy. In 2014, the Town of Breckenridge developed a nonprofit organization, Breckenridge Creative Arts (more commonly called BreckCreate) to develop and manage programs, properties, and events featuring performing and visual arts and promoting the community as a year-round creative destination.

By its second year, BreckCreate had doubled the number of ticket-buyers, class registrants, and events attendees, and in 2017, the organization's two largest events, Wave Festival and Breckenridge International Festival of the Arts generated an estimated $798,000 to the Town of Breckenridge.

Ultimately, while Colorado will continue to be known for its winter sports and recreation options for years to come, municipal leaders across Colorado are preparing their local economies for a shifting climate, so that residents and tourists alike can enjoy this great state, no matter the weather.

PLANNING FOR TOMORROW'S HARVEST IN NEW AND OLD WAYS

By Marv Falconburg, Brighton assistant city manager

THE CITY OF BRIGHTON'S STRONG AGRICULTURAL HERITAGE IS THE CENTERPIECE OF ITS UNIQUE identity. Many residents are quick to share stories of why they moved to the area: to enjoy open landscapes, get relative peace and quiet, and enjoy the rural qualities of life found when nestled between the Rockies and the Great Plains. Even the City's logo shows a bright sun rising over neatly kept rows of a freshly sown field.

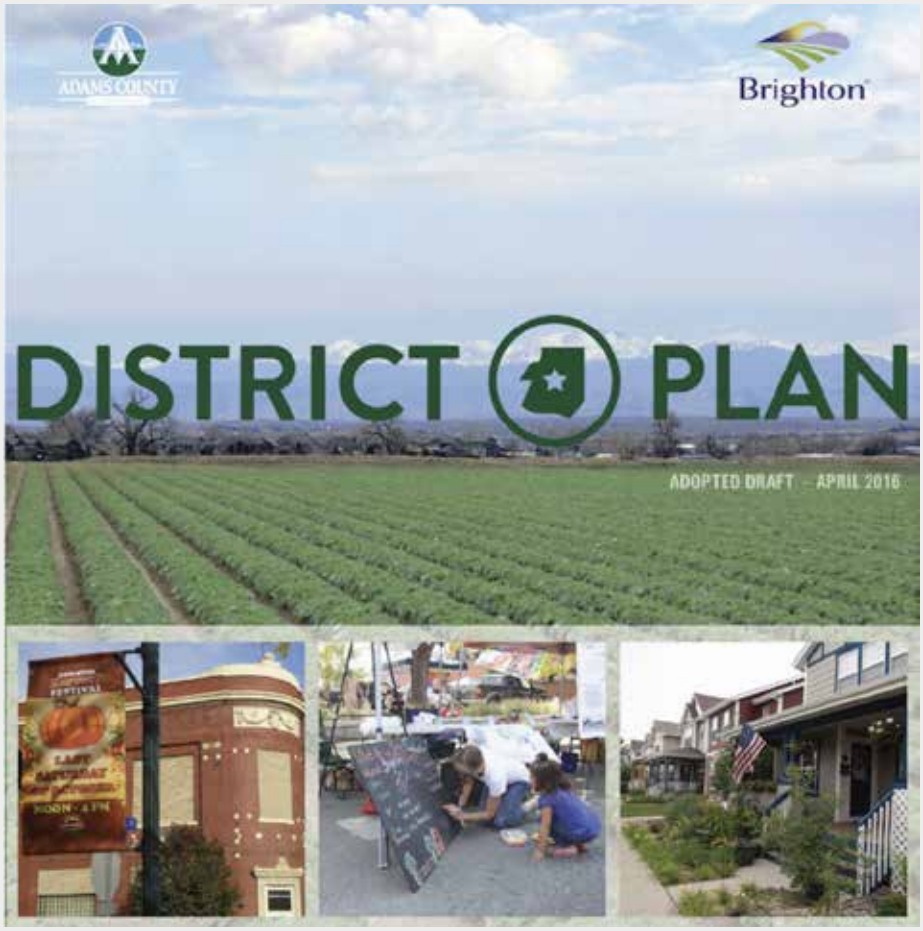
It was only a few years ago when the future of agriculture in Brighton was becoming more uncertain with each passing season. Climate change, proximity to the rapidly growing Denver metro area, labor shortages, and rising irrigation costs all threatened the economic viability of local growers.

Community leaders were adamant that agriculture would not die on the vine. In spring 2016, a plan was adopted to promote agricultural sustainability and resilience in Brighton. It is called *District Plan* and focuses on agritourism.

District Plan was funded and adopted jointly between the City of Brighton and Adams County, making it even more important to the overall economic and cultural landscape of the region. Through this partnership, staff members from both local governments were delegated to focus on sustainable agritourism, making collective efforts to reach areas of the community some only dreamed was possible. Part of this focus led to the creation of a new commission, filled with city and county residents, to implement the goals of the District Plan.

In creating the plan, it became apparent that climate change was affecting water availability in Brighton. Civic leaders learned that the use of subsurface drip irrigation systems in smaller scale organic farming could dramatically reduce water consumption, so that became a part of the *District Plan*. Likewise, the area's climate and water availability limit the growing season and the types of crops that can be grown in the area. This may reduce crop diversity and profitability, so the plan shifted the focus from simply protecting agriculture to boosting agritourism, thereby expanding the alternatives and viability of the district.

The plan does not stop with the environment. Economic resilience is becoming an increasingly critical factor facing agricultural areas in the path of growth. Incorporating the farming heritage into future development opportunities not only ensures the success of the district, it also preserves agriculture in new ways. For example, having local, more specialized farms that support area businesses, farm-to-table restaurants, and the local food system has lessened the need to transport food over large distances and promoted health and nutrition while providing food security for the community.



The cooperation between the City of Brighton and Adams County provides a shared vision and plan of action to save the local agricultural heritage while also providing an avenue for funding preservation of open space and farmland that is so vital to the community's future and wellbeing. The long-term success of this region and the agritourism *District Plan* will be the result of deliberate partnership between Adams County, its county seat, and those private investors who see value in Brighton's agritourism opportunities. Brighton's leaders believe those combined efforts will ultimately bring the best harvest many in the area have ever seen.

THE WATER-BASED ECONOMY OF STEAMBOAT SPRINGS

By Kelly Romero-Heaney, Steamboat Springs water resources manager

THE CITY OF STEAMBOAT SPRINGS PROVIDES DRINKING WATER TO ITS CUSTOMERS AND IRRIGATION TO its parks. But unique to some municipalities, the City also supplies irrigation to its agricultural open space and golf course, snow to its Howelsen Hill Ski Area, and streamflow to the Yampa River for recreation and water quality. Not only does Steamboat's water rights portfolio keep residential yards green, it also has to keep the river wet and its ski area white.

City Council Water Goal

The warming trajectory of our mountain climate poses a threat to the City's ability to supply these water needs that are foundational elements of Steamboat's mountain resort economy. To address these threats, the Steamboat Springs City Council set a goal to identify and implement strategies to promote water supply resiliency by preparing for growth, planning for drought, wildfire, and a Colorado River Compact Call, by implementing water conservation, and by developing redundant supplies.

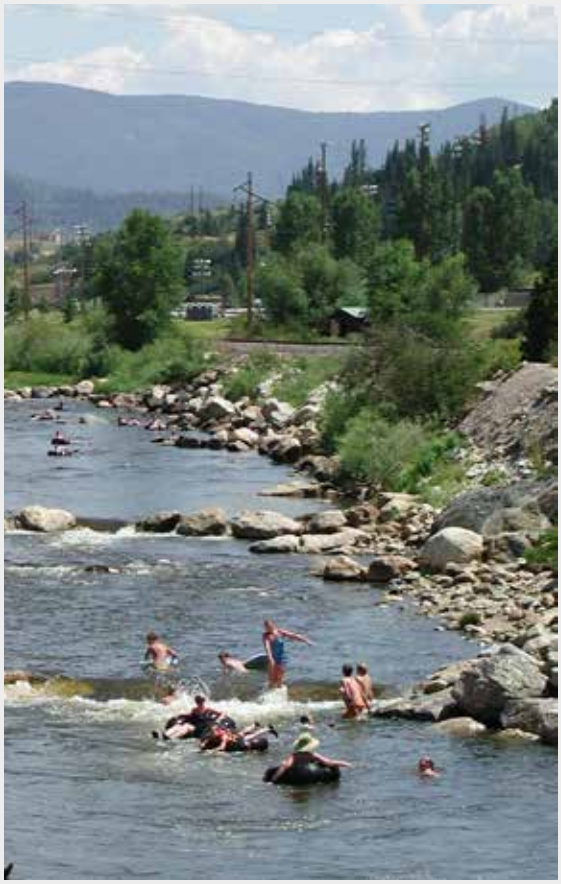
Wildland Fire & Water

The Fish Creek Basin holds two municipal reservoirs and supplies 93 percent of the City's treated drinking water supply. It also contains a steep and heavily forested watershed that was impacted by the beetle epidemic. The risk that wildfire could impact the Fish Creek drainage and, ultimately, the Fish Creek Water Treatment Plant, is relatively significant according to data from the Colorado State Forest Service Wildfire Risk Assessment.

If a changing climate leads to greater weather extremes — low snowpack followed by rainless summers — then planning for the short- and long-term impacts of fire to drinking water supplies is critical to building resilient communities. Even a temporary interruption in the Fish Creek supply would put the entire City on indoor-use only water restrictions, leaving the backyards, ballfields, and botanic parks to whither. So, the City and Mount Werner Water District are developing a Critical Community Wildfire Watershed Protection Plan (CWP^2) for the Fish Creek Basin with funds from the Colorado Water Conservation Board Water Plan Implementation Grant. The Fish Creek CWP^2 will predict what can be done to prevent fire, respond to fire, and recover from fire impacts to water quality and infrastructure as quickly as feasible to avoid interruptions to supply.

Drought Resiliency & the River

Water supply planners layer municipal, agricultural, and industrial water rights portfolios with drought contingency plans, but the pressures of growth and climate change warrant drought resiliency plans for our rivers. With the Colorado Water Plan setting a goal to put Stream Management Plans in place on 80 percent of the prioritized streams by 2035, the City saw the opportunity to pioneer a plan for the Yampa River through town that would assess its health while identifying alternative water use and management strategies to support recreation uses and ecosystem function.



The assessment found that the Yampa's relatively natural flow-regime — it has no transbasin diversion reservoirs — has helped to preserved its ecosystem function overall. But drought, warming temperatures, and the loss of riparian habitat have emerged as recent threats to this notably healthy river. Through a robust stakeholder process with an advisory committee of subject matter experts at its core, the Stream Management Plan identified action items to help buffer the river against climate change. These action items included volunteer-coordinated tree planting along the river to reduce the warming effects of solar radiation and incremental flow releases from storage reservoirs in the dry late summer months.

By recognizing that healthy, flowing rivers are as much a part of water and tourism infrastructure as treatment plants, pipelines, ski areas, and trails, the City of Steamboat Springs hopes to move its water-based economy into a more resilient future.