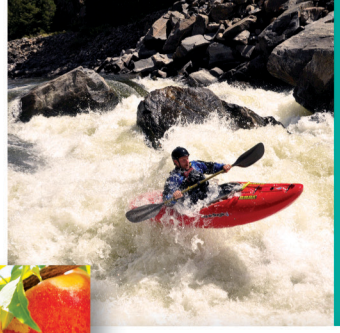
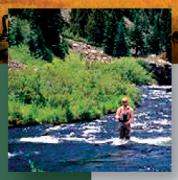
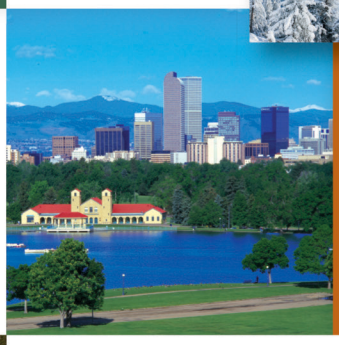






EXECUTIVE SUMMARY | DECEMBER 2014

COLORADO'S WATER PLAN

DRAFT

EXECUTIVE SUMMARY

COLORADO'S WATER PLAN

People love Colorado. Our population has ballooned from 1 million in 1930, to over 5 million today, and is projected to grow even faster in the future. Sustaining this growth requires water. How do we preserve what we love about our state alongside population growth?

Colorado's Water Plan has answers.

This plan offers a strategic vision for a productive economy that supports vibrant and sustainable cities, productive agriculture, a strong environment, and a robust recreation industry. It provides the strategies, policies, and actions by which Colorado can address its projected future water needs in a manner consistent with this vision. This plan will be accomplished through collaboration with basin roundtables, local governments, water providers, and other stakeholders. It represents a set of collaboratively developed policies and actions that all Coloradans and their elected officials can support and help implement.

Introduction & Our Goal

1

Colorado's water challenges are many. We have seen population growth, environmental stress, sustained and systemic drought, destructive wildfire, record flooding, climate change, costly and time-consuming permitting of water projects, federal intervention, downstream state demands on our water, and the permanent separation of water from agricultural lands.

Yet, now more than ever, we are positioned to meet these challenges with solutions that include grassroots plans designed to meet our gaps between supply and demand; more options for agricultural water users and thirsty municipalities; understanding and quantifying our environmental water needs; thoroughly understanding the benefits and tradeoffs of conservation; actions to protect our watersheds and ready responses to disasters; contingency planning to confront reduced water supplies; a pathway to state endorsement of water projects; and diligence in safe-guarding our compact apportionments and our primacy over water. These solutions come not from a solitary state agency or a small group of water experts; rather, they are the product of Colorado itself—the result of well over 850 meetings spanning 9 years and engaging hundreds of volunteer-participants statewide. Colorado's Water Plan has generated over 13,000 comments from members of Colorado's water community, interest groups, and the general public. But this draft is not the end of our story; rather, it marks the ***beginning*** of a new chapter in Colorado water.

Colorado is composed of vibrant and sustainable cities, viable and productive agriculture, a robust recreation and tourism industry, and a thriving environment. The goals of the water plan are to defend Colorado's compact entitlements, improve the regulatory processes, and explore financial incentives all while honoring Colorado's water values and ensuring that our state's most valuable resource is protected and available for generations to come.

Chapters 2 through 5 focus on the foundational elements that guide Colorado's water management. These include descriptions of Colorado's legal structure and critical facts about supply and demand.

Chapters 6 through 11 establish action steps to help Colorado respond to future challenges. These sections show how Colorado can advance conservation, reuse, alternative agricultural transfers, and multi-purpose and collaborative projects while protecting the health of rivers, streams, and watersheds. Chapter 9 addresses increased funding opportunities, more efficient and effective permitting, and enhanced education for citizens. Because the various factors affecting forecasts, hydrology, the economy, and the fields of science and technology will continue to be dynamic, Chapter 11 suggests updating the plan in the future.

Colorado Water Law & Structure

2

The legal and institutional system that governs the use and allocation of water in Colorado has three foundational elements: interstate compacts and equitable apportionment decrees, Colorado water law, and local control. Colorado's Water Plan is premised on these.

At the headwaters of the continental divide, all of our major rivers flow to downstream states. As Colorado and its downstream neighbors developed, disputes arose over the allocation of the waters of an interstate stream among states. Following early litigation in the U.S. Supreme Court equitably apportioning water in rivers beginning in Colorado, we negotiated nine formal agreements with downstream states. These interstate water compacts are federal law, state law, and legally binding contracts among the signatory states.

Colorado water law, rooted in the doctrine of prior appropriation, commands widespread respect. Not because of its longevity (older water law exists), nor its rigidity (it's undergone significant change over the years), and certainly not due to its clarity. Our water law is respected because it works. First, it provides that water rights are property rights that can be bought and sold by willing parties and transferred to new users. Second, it provides certainty among competing water uses by telling us which takes priority. Third, it has flexed each time we have asked it: during the growth of our mining and agricultural economies, during the growth of our municipalities on both sides of the continental divide, when we recognized the connection between groundwater and surface water, when we recognized the need for water for the environment, during energy booms and busts, and now, when growing demands threaten to eclipse diminishing supplies. But similar to the rest of our laws, the strength of our water law lies in our ability to change it to meet our needs.

Colorado's water is delivered by a network of water providers, public utilities, ditch and reservoir companies, individual water rights owners, and special districts. Each is unique but each is local; because Colorado's structure of control is local. Municipal, county, and district officials make day-to-day decisions on subjects ranging from water to emergency response. Colorado's Water Plan recognizes this structure as an asset – local control allows us to effectively respond to our water challenges. But this approach also requires heightened collaboration between state and local entities on water issues. To this end, we have engaged the Colorado Municipal League, Colorado Counties, Inc., and the Special District Association of Colorado to embark on a new era of collaboration between state and local government on water and land use issues.

Colorado administers over 170,000 water rights through over 55,000 diversion structures

Our Basins

Each river basin in Colorado faces unique challenges demanding customized solutions. So, who better than local water users and stakeholders to tackle these? Colorado's Water Plan draws heavily on the work of grassroots, local groups. Eight regional plans (Basin Implementation Plans), developed by communities in each basin, now allow us a comprehensive view of water statewide.

An acre-foot of water is the volume of water covering one acre to a depth of one foot. For scale, a football field is approximately one acre.

The average Colorado household uses less than half of one acre-foot of water per year (approximately 150,000 gallons).[1]

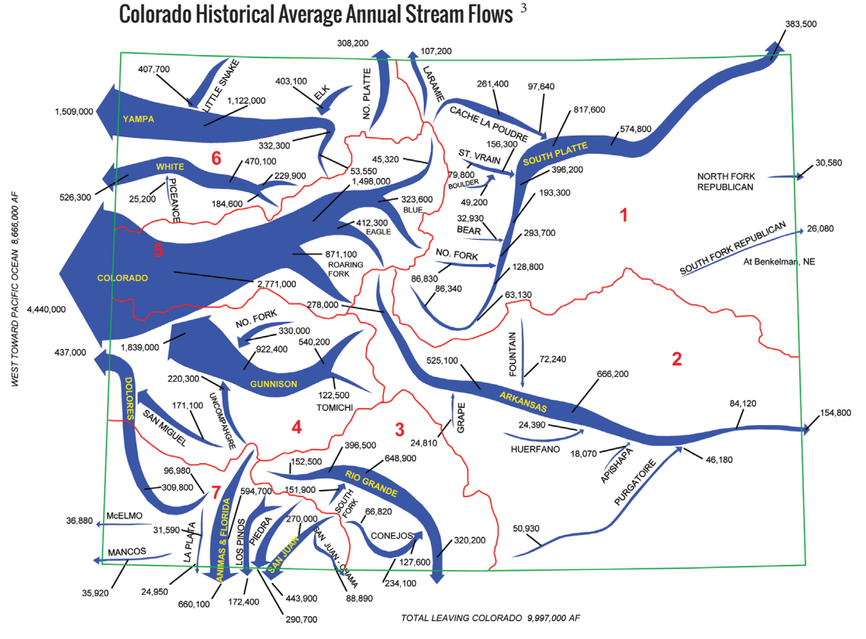
Supply & Demand

70 to 80 percent of Colorado's water falls west of the continental divide, while 80 to 90 percent of our population is east. 24 tunnels and ditches move an annual average of 500,000 acre-feet from the western slope to the eastern slope. Our average precipitation yields 14 million acre-feet of water annually in Colorado.

We consume over 5 million acre-feet of water annually; although we've reduced our consumption in certain areas by 20 percent since the 2002 drought. States downstream of us are legally entitled to water as determined by our 9 interstate compacts and 2 equitable apportionment decrees from the U.S. Supreme Court.

Since our projections suggest wide variability in future precipitation, we face the possibility of a significant water supply shortfall within the next few decades, even ***with*** aggressive conservation and new water projects.[2] Our legal and physical constraints open a gap between projected supply and demand in each basin.

Colorado Historical Average Annual Stream Flows [3]



Managing Our Water

To be clear, we have a ***de facto*** water plan of sorts—doing nothing would result in the removal of agricultural lands from production and leave important decisions woefully disconnected: land use planning from water planning, water quality from water quantity, and environmental water needs from human water needs. These are the primary water challenges Colorado faces:

- **Growing Water Supply Gap:**
  The gap between municipal water supply and demand is growing, and conservation savings and the completion of associated water storage projects are likely insufficient to address projected 2050 shortfalls that could total of more than 500,000 acre feet statewide.[4]
- **Agricultural Dry-up:**
  The purchase and permanent transfer of agricultural water rights from willing sellers, which is accommodated by Colorado water law and local control structure, are diminishing irrigated agriculture. At the current rate, there will be a major reduction in Colorado's agricultural lands in the future. This will impact Colorado's economy and food security. In addition, agriculture-dependent communities risk drying up alongside their agricultural economies.[5]
- **Environmental and Recreational Fragility:**
  One way or another, Colorado's environment and outdoor recreation require water—whether you're skiing or boarding, rafting or fishing, golfing or hunting. The relative youth of water rights associated with these activities places them at risk if we realize less water. Similarly, fish species and aquatic habitat are at risk in Colorado. These risks increase if agricultural, municipal, and industrial water needs are set up to clash with environmental and recreational water needs.[6]
- **Variable Climatic Conditions:**
  Climate change and associated impacts make it more difficult to meet Colorado's future water needs because of diminishing supplies, increased demand, and our increased potential for wide hydrologic variability.[7]
- **Watershed Health:**
  Destructive wildfire, forest epidemics (such as beetle kill), and flooding compromise the health of our watersheds by decreasing both water supply and environmental resiliency.
- **Increasing Funding Needs:**
  Solving our water challenges will require money. Similar to our water gap, we face a financial gap between necessary environmental, recreational, agricultural, and municipal efforts and the money to pay for them.

In the face of these large, complex challenges, Colorado water managers hope for the best, but plan for the worst. Colorado water supply varies enough as it is. Colorado's future needs will be affected by a multitude of scientific and economic factors as well as social values. These drivers shape Colorado's future but are largely beyond our control. While we cannot dictate ***whether*** we grow, or the rate of that growth, we can influence ***how*** we grow. This plan allows us to better prepare for whatever 2050 holds by finding the commonalities among markedly different futures. Drawing from basin roundtable discussions, Colorado's Water Plan enables us to intentionally pursue a balanced strategy of conservation and reuse; alternative agricultural transfers; environmental and recreational projects; and municipal, industrial, and agricultural projects.

Colorado's efforts to develop and use alternative agricultural transfer methods is imperative if we are going to influence the rate of permanent dry-up on our productive farm lands:

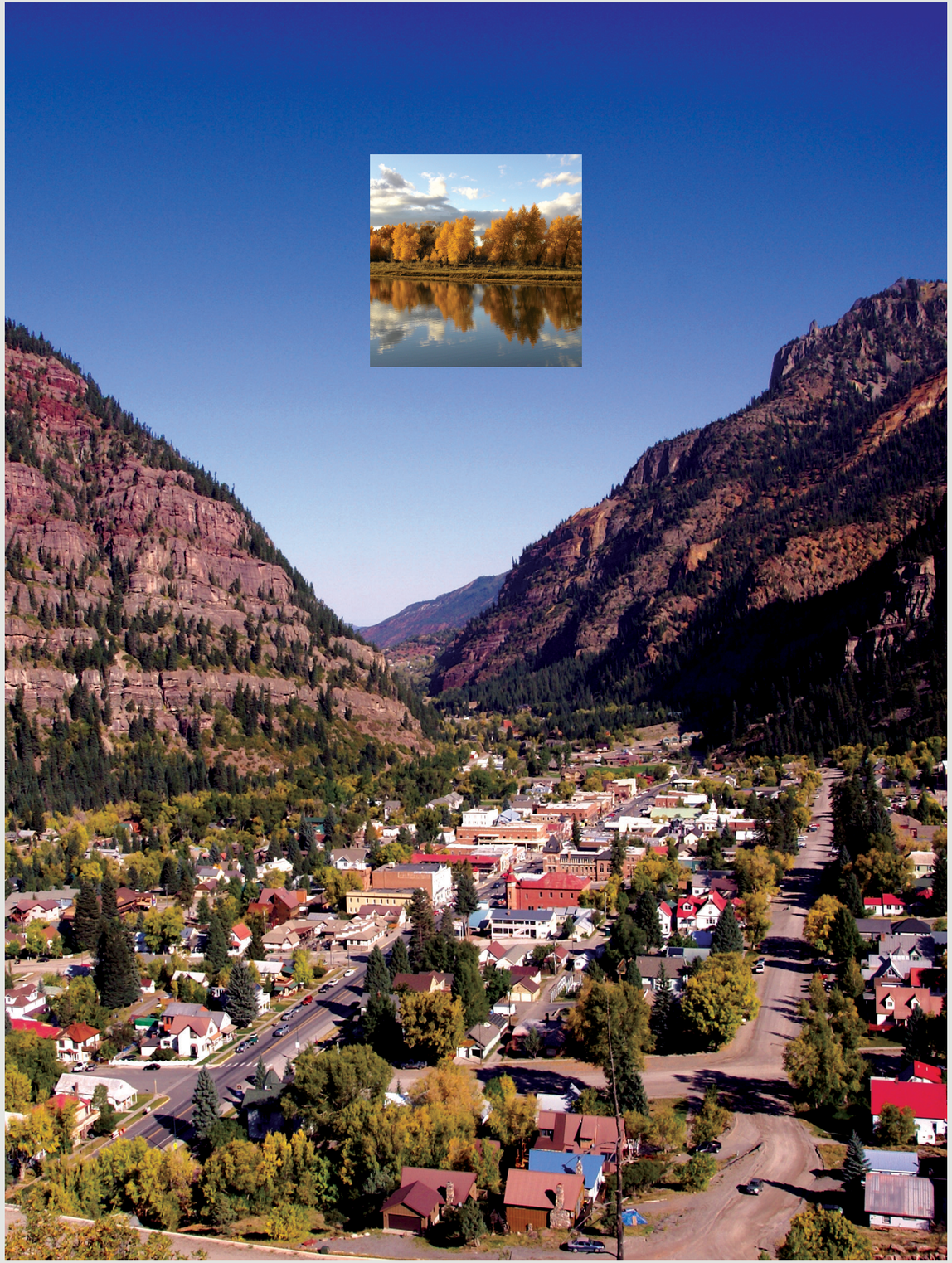
- water cooperatives that identify and use excess water for system optimization;
- rotational fallowing that keeps land in irrigated production mode while systematically fallowing specific plots for water leases to municipalities;
- water banks that act as intermediaries to help avoid a compact curtailment, for example, based on water supply arrangements with specific water rights owners.

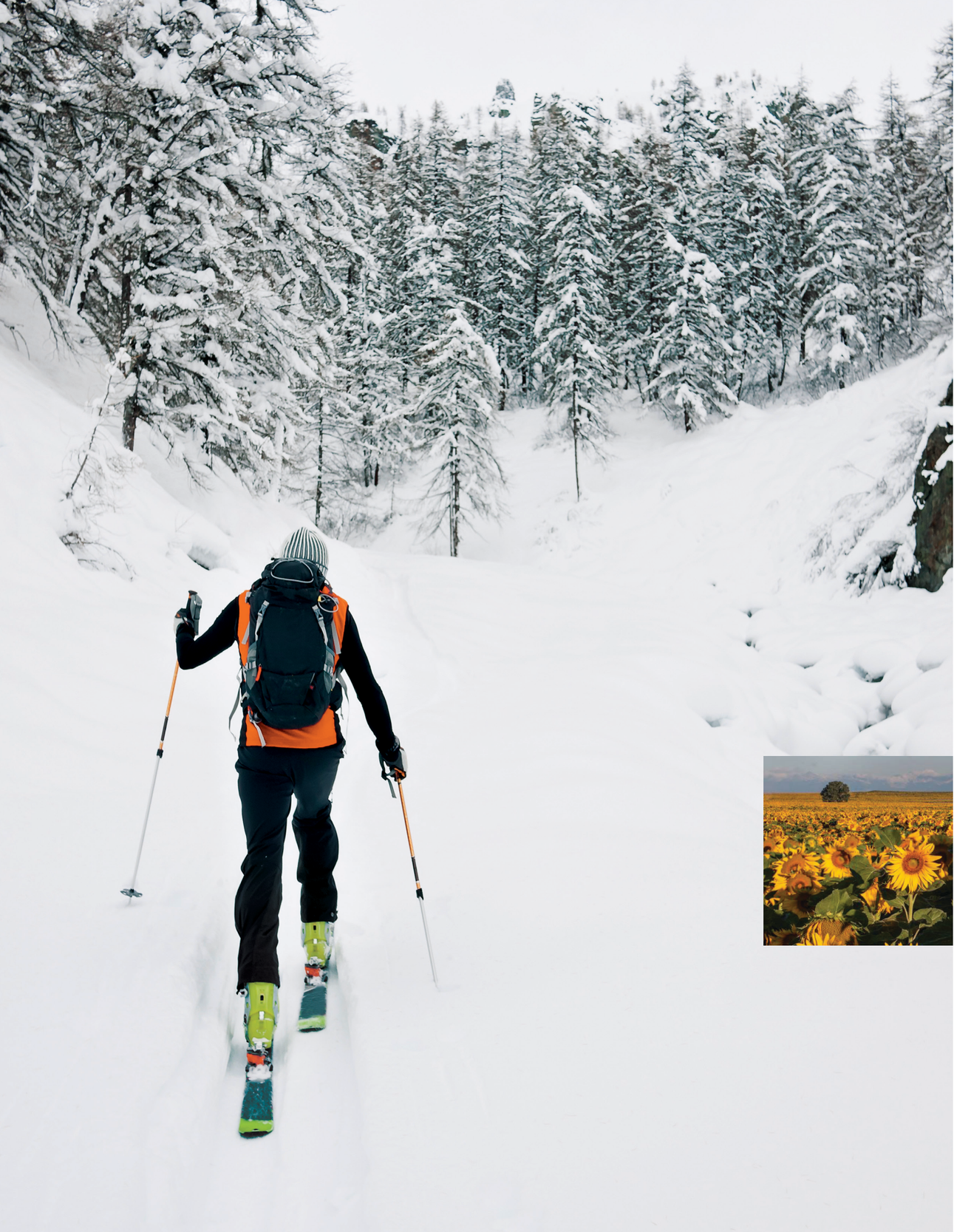
We simply must work together to close our existing supply and demand gaps responsibly. In the Basin Implementation Plans, each basin roundtable outlines goals and measurable outcomes to resolve the widening gap at a local level. This discussion is the first of its kind in Colorado. Never before have people in each basin had the opportunity to discuss issues around water resource management on an even footing with people in neighboring basins. Climate variability and change dramatically increase water supply uncertainty. Colorado's Water Plan is a map that will guide our decisions about demand in the face of reduced supply.

This plan supports the development of watershed master plans that address needs from a diverse set of local stakeholders in each major watershed. These plans will further efforts to address the gap while balancing storage needs with the environment. Throughout the development of Colorado's Water Plan, the Colorado Water Conservation Board is working with its sister agency at the Colorado Department of Public Health and Environment to help representatives from each major river basin establish environmental water quantity and quality goals.

While not a "silver bullet," conservation measures should work hand-in-glove with measures to increase storage. We've learned much about how we can conserve from the most recent period of drought. Many water providers reduced per capita consumption by 20% or greater from pre-drought levels and have maintained those reductions. Well funded incentive programs, implementation of tiered rate structures, enactment of landscape and irrigation ordinances, and creation of comprehensive education programs have all contributed to these reductions. The fact that most of these reductions have held is a testament to a shift in attitudes and a maturing water conservation ethic across Colorado. The recent USGS water use report illustrates this trend nationwide showing public supply (which contains municipal and industrial users) withdrawls have been reduced by 5% since 2005.[8] We will continue to increase conservation in Colorado.

Colorado's Water Plan also supports closer integration of water supply planning and land use planning. Whether we incorporate water supply and demand planning into local comprehensive land use plans or persue concerted cross-training for land use and water supply professionals, Colorado benefits from integration. The land use water supply planning nexus is precisely where Colorado can manage ***how*** we grow as a state.





The Colorado Way Forward

Colorado's Water Plan focuses on collaboration. The basin roundtables not only provide grassroots insight into each river basin's challenges and solutions, but are a mechanism to resolve conflicts between basins. Why does it matter if we get along? Our water challenges are great and demand our united focus. Other states, sovereign tribes, and the country of Mexico watch Colorado's water positions closely.

Discordant infighting weakens Colorado's position in interstate and international arenas, invites unnecessary federal intervention in our water affairs, and dulls our responsiveness. Instead, our water challenges require us to pull together and become more agile.

Fortunately, we are positioned to do better as a result of a recent paradigm shift in Colorado water. Indeed, this shift helped galvanize Colorado's Water Plan. The western slope position has long been that "not one more drop" of its water would be diverted over the continental divide. The eastern slope strategy has long been to "see you in water court" if anyone dared challenge its constitutional right to appropriate water. In the past decade, these adversarial views have shifted toward: 1) the benefits of collaborating on win-win projects that benefit both sides; 2) putting money to work solving problems instead of escalating litigation; and 3) capitalizing on the regional connections that tie Colorado together economically and hydrologically instead of ignoring them.

Colorado's Water Plan calls for the Colorado Water Conservation Board to play an active role in brokering agreements among parties on transmountain water. In this role, the State will promote eastern slope-western slope collaboration and consideration of interstate compacts. This role will be informed, not constrained, by the 7 points of consensus described by the Interbasin Compact Committee.

This plan is also an opportunity for the State to deploy its resources to address the needs articulated in the Basin Implementation Plans while upholding our water values. These are actions we can and will take immediately.

FIRST, the State will safeguard Colorado's water by vigilantly protecting our interstate compacts and decrees. The State will also continue to rely on the Doctrine of Prior Appropriation. This requires us to recognize that water rights are property rights whose owners are free to respond to the economics of the marketplace and to continue to work within our local-control structure. However, rather than dogmatically or blindly applying our water law, Coloradans must continually evaluate and strengthen our water laws so that we are better positioned to meet our needs and honor our water values.

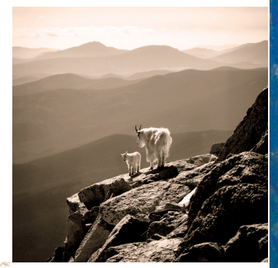
SECOND, we will continue to stress that every water conversation begin with conservation—the less we use, the smaller our gap becomes.

THIRD, the State will examine existing water funding programs and identify new funding mechanisms to address more than $20 billion in projected municipal, industrial, agricultural, environmental, and recreational needs by 2050.[9] While we do not know what the future holds for state revenues, we do know that the earlier we invest, the more we lower the total bill for future generations. We will explore concepts like public-private partnerships to determine the benefits and costs of using private financing in water projects.

FOURTH, the State will examine and use its water rights portfolio to ensure alignment with Colorado's water values. State agencies will coordinate their uses of water to achieve multiple benefits that include environmental flows, irrigation important to wildlife habitat, and compact compliance. Like the Rio Grande Cooperative Project and the Animas-La Plata Project, we will encourage projects that enhance the environment, provide recreation, increase supplies, and meet compact compliance. Like the Chatfield Reallocation Project, the State will continue to purse and support projects that can creatively move water through various uses and through shared facilities.

FIFTH, the State will increase efficiency and effectiveness in water project permitting while mitigating negative environmental impacts by front-loading the State role in the permitting process and establishing a path to state endorsement of water projects without being pre-decisional.

FINALLY, the State will continue and strengthen water outreach, education, and public engagement to equip Coloradans with the necessary information to make informed water choices. Colorado's Water Plan has generated momentum on Colorado water as a worthy statewide issue—over 13,000 comments from across the state and input from over 100 diverse entities helped shape the plan. We should leverage this momentum to both educate a wider band of Coloradans on water as well as tap them for good ideas and discussion.



Actions & Future Updates

The draft of Colorado's Water Plan should not be considered final for the purposes of recommending legislation during the 2015 legislative session. Legislative recommendations will arise out of discussion of the draft plan and development of the first final water plan.

The Colorado Water Conservation Board looks forward to continuing to collaborate with the General Assembly during the 2015 session and may seek to support legislation that is in keeping with the direction of the water plan. Following additional public input and evaluation that will occur during 2015, legislative recommendations will be addressed in the final water plan for the 2016 legislative session.

As we address known obstacles in the way of our water values, new challenges will arise. For this reason, we will continually examine Colorado's Water Plan and our situation to ensure appropriate and timely updates. While we rightly allow (and even encourage) failure to occur in water innovation, when it comes to confronting our major water challenges, failure is not an option.

"Failure is not an option."

—Gene Kranz,
Apollo Mission Flight Director

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2014 ACKNOWLEDGEMENTS

"We embark on Colorado's first water plan written by Coloradans, for Coloradans."

Governor Hickenlooper's May 2013 executive order to create Colorado's first water plan was a monumental task in a tight timeframe given Colorado's water history. Seventeen months later, with a draft plan in hand, we would like to express our sincere gratitude to the thousands of individuals and hundreds of organizations that helped us build Colorado's Water Plan. Your passion for water in Colorado is at once both humbling and energizing!

The hallmark of Colorado's Water Plan is collaboration. It would not be possible without the participants in the basin roundtables and the Interbasin Compact Committee. The hours you volunteered to spend in community centers, candidly discussing water issues, and the hard work you put into mapping out your basin's water needs and solutions are the heartbeat of Colorado's Water Plan.

Thank you to numerous members of our sister state agencies: the Office of the State Engineer, the Colorado Department of Public Health and Environment's Water Quality Control Division and Commission, the Colorado Attorney General's Office, the Colorado Supreme Court Water Court Committee, the Department of Local Affairs, the Colorado Water Resources and Power Development Authority, the Division of Colorado Parks and Wildlife, the State Land Board, the Colorado Department of Agriculture, the Colorado Energy Office and our neighbors in the Department of Natural Resources' Executive Director's Office. We are proud to serve Colorado alongside each of you.

Thank you to those who took time out of their busy schedules to submit comments on Colorado's Water Plan. We received over 13,000 comments from individuals and organizations on sections of the draft plan before it was released in its entirety in December 2014. Thank you to the Colorado General Assembly's Water Resources Review Committee who traveled across the state to solicit additional public comments through the Senate Bill 14-115 hearings. Each comment was reviewed and your thoughtful recommendations helped shape the draft plan.

Thank you to Colorado Water Conservation Board members and staff. Burning the midnight oil, working through weekends, and traveling across the state, you brought this document to life. The entire 45-person staff lent their talents to ensure on-time delivery of the first draft of Colorado's Water Plan. Section authors were Tamara Allen, Linda Bassi, Jacob Bornstein, Tom Browning, Lindsay Cox, Tim Feehan, Taryn Finnessy, Craig Godbout, Ted Kowalski, Kate McIntire, Steve Miller, Rebecca Mitchell, Brent Newman, Kevin Reidy, Lauren Ris, Nicole Rowan, and Chris Sturm. Our review team was Meg Dickey-Griffith, Stephanie DeBetitto, Carolyn Fritz, Mara MacKillop, Britton Marchese, Bill McDonald, and Erik Skeie.

Finally, thank you to the support systems at home who were counting down the days to December 10, 2014 with us!

COLORADO'S
WATER PLAN

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Colorado Water Conservation Board
Department of Natural Resources

Cover photos, top to bottom: Colorado's State Flower–the Columbine, Kayaker in the Colorado River's Gore Canyon–Jessica Marsan, Mesa County Peaches, Western Slope Ranch, Fishing on the Taylor River–Peter Kasper, Boulder County Farm, Blue Mesa Reservoir (Colorado)–Peter Kasper, Snowboarding, Moonlight Camping, City of Denver –Denver's Convention & Visitors Bureau, Glacier and Stream in Rocky Mountain National Park

Back cover photos, top to bottom: Dream Lake in Rocky Mountain National Park, Wheat in Ft. Collins, Upper Gunnison Basin Rancher–Peter Kasper, Colorado Autumn, Gunnison Hay Field, Enjoying the Sunny Slopes

Opening spread: Cattle Drive

Introduction & Our Goal: A Water Plan for Colorado's Generations–Josh Johnson, Fishing on the Taylor River–Peter Kasper, Irrigating Alfalfa in North Central Colorado

Colorado Water Law & Structure: A Barn in near the Front Range Foothills, Denver Skyline at Twilight / **Our Basins:** Lake San Cristobal–Peter Kasper

Managing Our Water: Rio Grande Sunset in Alamosa County–Rio de la Vista, Confluence Park in Denver, Irrigated Agriculture–Coyote Gulch, Enjoyment on the Yampa River–Scott Franz, Rio Grande Reflection–Rio de la Vista, The Town of Ouray

The Colorado Way Forward: Backcountry Skier, Four Corners Sunflowers, Mountain Goats–Stephanie Cox, Rafters on the Taylor River–Peter Kasper, The Iconic Crystal Mill near Marble, Glowing Tents of Denver International Airport–Stephanie Cox, Western Slope Ranch