Alignment of State Resources and Policies

Chapter 9 explores the mechanisms by which the State of Colorado can help implement the BIPs and address Colorado's critical water strategies discussed throughout Colorado's Water Plan.

As Section 9.1 describes, continuing to support the solid foundation of Colorado's prior appropriation system, maintaining interstate agreements and compacts, and retaining local control are all critical to keeping Colorado whole. These systems are flexible enough to move forward with the actions Colorado's Water Plan describes; however, many of the strategies this plan and the BIPs describe require additional or more coordinated funding. Section 9.2 explains imminent needs for project funding, along with options for new and existing funding mechanisms that will be necessary for meeting Colorado's water future.

The State of Colorado holds numerous water rights, many of which aim to protect the environment or recreational opportunities. In addition, Colorado has purchased water rights in important multi-purpose projects to help with implementation of these water projects. Section 9.3 illustrates ways to improve coordination among state agencies that own water rights, and describes the possible acquisition of new water rights that more strategically address the State's water values.

Many of the projects and methods this plan describes will require permitting, and if the State of Colorado is to be adaptive in its approach to water management, the permitting process needs to be as effective and efficient as possible. Section 9.4 discusses emerging concepts for a more efficient permitting process.

Lastly, an educated public is necessary to Colorado's ability to continue engaging stakeholders in developing grassroots solutions—and moving them forward. However, few resources are available to meet this important need. Section 9.5 discusses the unprecedented educational effort the CWCB has initiated to build the first draft of Colorado's Water Plan, and offers a vision of the ways the CWCB can implement education and outreach efforts in a more sustainable and robust fashion. Together, these state actions will help Colorado implement the water strategies described in Chapters 6 through 8.

Looking up into the State Capitol Dome. The state Capitol houses the Governor's office and both houses of the General Assembly.

9.1 PROTECTING COLORADO'S COMPACTS AND UPHOLDING COLORADO WATER LAW

GOAL

Colorado's Water Plan upholds Colorado's water law system, interstate water compacts and equitable apportionment decrees, and local control structures. Colorado will focus planning efforts on maintaining healthy systems and avoiding a Colorado River Compact deficit, rather than focusing on the State's response to a compact curtailment.

As Chapter 2 describes, Colorado has an intricate legal and institutional framework, and the institutional setting is the starting point for all other conversations regarding Colorado's water future. Colorado's Water Plan recognizes the prior appropriation doctrine as the foundation of Colorado's water law system, and respects the importance of Colorado's interstate water compacts and other interstate agreements.

Additionally, this plan maintains Colorado's water allocations by respecting the designated roles of the State of Colorado and the federal government regarding water management within Colorado. Colorado's Water Plan continues to support state-based solutions to needs federal agencies have identified in order to best balance water needs in Colorado and ensure that water rights for environmental purposes can be appropriately administered within Colorado's water law. These state and federal partnerships have been successful in several instances, and this plan describes them in more detail below. This plan also recognizes Colorado's history of local control regarding water development, and will continue to uphold Colorado's commitment to supporting tribal water settlements with the Ute Mountain Ute and Southern Ute Tribes.

Section 9.1 reaffirms Colorado's commitment to these fundamental tenets, while advancing strategies for future water management.

The State of Colorado Demand will continue to uphold the prior appropriation doctrine.

Colorado's prior appropriation doctrine is based on language within the Colorado Constitution. The doctrine requires that water be put to beneficial use, and also requires efficient use to ensure the greatest utilization of Colorado's water resources.[1] These concepts are ever-evolving and will need to adjust appropriately. Over time, the doctrine has proven to be remarkably flexible, and this flexibility has been demonstrated by the recognition of new beneficial uses, such as environmental and recreational uses, under the law. While Colorado's Water Plan affirms the prior appropriation doctrine, there is room for improving water management within this allocation system.

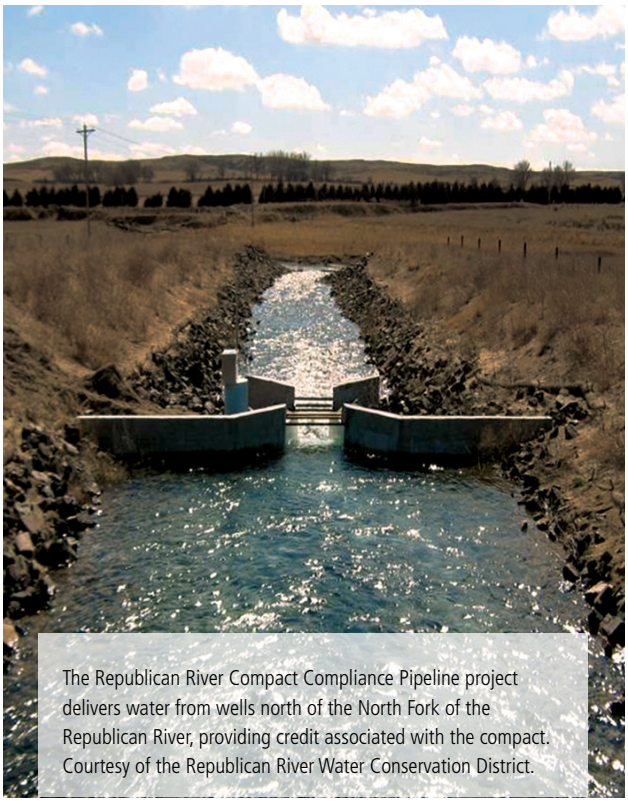
Colorado's water court system has often been criticized for being cumbersome and expensive.[2] Several years ago, a report from the Water Court Committee of the Colorado Supreme Court to the Chief Justice made recommendations to improve the efficiency and cost effectiveness of the water court system. The State has implemented most of these recommendations, but the Water Court Committee should assess whether these changes have had the desired effect of making the system more efficient and cost effective. In addition, the standing committee should explore whether additional recommendations could be made in the future.

The State of Colorado will continue to uphold and maximize the use of Colorado's water entitlements under Colorado's compacts, equitable apportionment decrees, and other interstate agreements.

For nearly a century, Colorado has led the development and protection of interstate water compacts as a method of allocating water on interstate streams and rivers. Colorado vigorously defended its water allocations when downstream states have alleged compact violations,[3] and has also been steadfast in defending water entitlements allocated to Colorado through equitable apportionment decrees.[4] Colorado's

Water Plan reaffirms Colorado's dedication to protecting its compact and decree entitlements.

Colorado has a litigation account that is available to the CWCB and the Office of the Attorney General for Colorado's defense of its water resources.[5] Importantly, this fund is available to: 1) Support water users whose water supply yield is or may be diminished as a result of conditions imposed, or that may be imposed, including but not limited to bypass flows by any agency of the United States on permits for existing or reconstructed water facilities located on federally owned lands; 2) oppose applications of a federal agency for an instream flow right that is not in compliance with Colorado law; 3) protect Colorado's allocations of water from interstate streams; and 4) ensure the maximum beneficial use of water for present and future generations by addressing important questions of federal law.[6] Colorado should continue to maintain a sufficient balance in this fund to ensure that the State has adequate resources to protect its water resources. In addition, Colorado should make every effort to comply with its compact and decree obligations. While interstate compacts have been a solid foundation upon which water allocation occurs, interstate compacts have also been flexible and are able to address issues in times of drought and other unforeseen circumstances.



The Republican River Compact Compliance Pipeline project delivers water from wells north of the North Fork of the Republican River, providing credit associated with the compact. Courtesy of the Republican River Water Conservation District.

In working to protect the state's valuable water resources, Colorado recognizes that federal agencies manage federal lands and have a role in managing water resources within the state. At the same time, the State of Colorado has vigorously defended Colorado's water allocation and management system. Colorado will continue to argue for an appropriate balance between state and federal roles in Colorado's water law and water management system. That said, it is important to balance and coordinate the state and federal agency roles and responsibilities in order to remain consistent with their respective authorities and obligations. Federal statutes such as the Wild and Scenic Rivers Act and the ESA may affect the ways in which water users develop Colorado's compact and decree entitlements. The State of Colorado is committed to working with federal agencies to fulfill their legal responsibilities in ways that respect Colorado's compact and decree entitlements, and authorities to administer waters within the state. An example of this type of compromise exists within the Upper Colorado River Endangered Fish Recovery Program, a multi-agency partnership that operates to help protect and recover endangered fish species while allowing water users to continue to develop the State's compact entitlements. The State of Colorado should continue to support such programs and explore ways to develop similar programs when appropriate.

In addition, Colorado's Instream Flow Program is an effective tool used in the Upper Colorado River Wild and Scenic Rivers Act Management Plan. This plan provides protection for flow-related "Outstandingly Remarkable Values" associated with the Upper Colorado River, while respecting the need for water managers to have flexibility in the future. It can also serve as a model for future endeavors in state and federal collaboration.

The State of Colorado will continue to ensure a proper balance between state and federal roles in Colorado's water law and water management system.

The State of Colorado has always vigorously defended Colorado's water allocation and management system, and is committed to ensuring that there remains an appropriate balance between federal and state roles in water management. Recently, certain federal agencies' decisions and proposed actions identified the need to improve communication and coordination among state and federal agencies to ensure mutual respect of state and federal roles. Some recent examples include

the USFS' position on water rights associated with Colorado ski areas; the USFS' proposed groundwater directive; the BLM's resource management plans; and USFS' management plans. In the context of these and other federal water-related issues, Colorado must work proactively with federal agencies to ensure that resource protection needs required by federal law are met in a way that respects water rights decreed and administered by the state. To the extent that bypass flows interfere with and potentially undermine water rights as decreed and administered within the state, Colorado maintains that bypass flows should not be a preferred method for meeting aquatic resource protection objectives on federal lands. Rather, federal agencies and the State should work together, whenever possible, to meet their common water resource objectives.

The State of Colorado will continue to work within Colorado's local structure.

Colorado's local governments have considerable authority in making water development and management decisions, and counties and municipalities exercise a broad range of powers—explicitly conferred to them by state law—to address the needs of their constituents. The range of local authorities includes broadly authorizing counties and municipalities to balance environmental protection with the need to provide for planned and orderly land use. Counties and municipalities have several tools at their disposal to make this happen, including the ability to create special districts, require master plans for development, assess impact fees to offset new development on existing infrastructure, and exercise 1041 powers, which allow local governments to regulate construction or extensions of major new water and sewage treatment systems. The State of Colorado will work collaboratively with local governments within this existing framework, and Colorado's Water Plan is a valuable tool for both levels of government in that work. Section 2.3 discusses the local control structure within Colorado in more detail.

The State of Colorado will support strategies to maximize the use of compact water while actively avoiding a Colorado River Compact deficit.

All Colorado River system water users have an interest in the security of Colorado's compact entitlement. Basins using Colorado River system[a] water emphasized the need to protect existing uses, while proposing some increment of future development. Ongoing interstate discussions, such as those about the Colorado River drought contingency-planning efforts the Upper Division states are developing (which Chapter 2 discusses), will inevitably affect water management within Colorado. These efforts include weather modification, extended reservoir operations (the release of water from upper Colorado River Storage Project reservoirs to protect critical reservoir elevations at Lake Powell), and management of demands to influence Lake Powell elevations. Hydrologic conditions in the face of climate change and increased demands will require Colorado water users to creatively and collaboratively manage the resources at hand. Intrastate efforts will be distinct from, but necessarily informed by, ongoing interstate processes and negotiations.

[a] As defined in the Colorado River Compact of 1922: "that portion of the Colorado River and its tributaries within the United States of America."

In early drafts of the IBCC Conceptual Framework, the IBCC discussed the concept of a collaborative program to protect existing uses and some increment of statewide future use. The IBCC placed the highest priority on working on a collaborative, programmatic approach to managing consumptive uses moving forward, with the end goal of avoiding a compact deficit. This programmatic approach would ideally involve water banking concepts, although at present this approach has not been sufficiently developed to provide full coverage for protected uses. While water banking may be an important part of the programmatic approach, it will likely be one piece of a multifaceted program.

The programmatic approach involves augmentation and storage management as initial tools, and demand management as a tool of last resort. Demand management efforts would be based on voluntary, temporary, and compensated reductions in eastern and western slope consumptive use. Willing water users would be temporarily compensated for voluntary reductions of consumptive use, and such reductions in use would be monitored and verified to ensure a benefit to the Colorado River system.

By definition, pre- and post- compact water rights are subject to distinctive levels of risk in a compact curtailment situation, and though the purpose of a collaborative program would be to avoid curtailment entirely, it is important for program participants to recognize the potential impacts of a curtailment on these different types of water rights.

Lake Powell lies across the border between Utah and Arizona. This reservoir serves as the Upper Basin States' "bank account" with regard to the Colorado River Compact.

ACTIONS

The following actions will promote continued collaboration among the State of Colorado and federal, state, tribal, and local entities regarding interstate and intrastate water management issues. These actions seek to protect Colorado's compact entitlements while encouraging collaborative solutions to protect existing and future uses within the state.

A. The State of Colorado will continue to uphold the prior appropriation doctrine.

1. The CWCB encourages ongoing efforts to make the water court system more efficient—including the work of the Water Court Committee of the Colorado Supreme Court. CWCB envisions that these efforts will make the prior appropriate doctrine process more efficient and easily navigated, while maintaining the protection of these important private property rights.
2. The IBCC's work on potential legislative solutions suggests that broad stakeholder input is needed to garner support for achieving process improvements through the legislative process. The CWCB will explore potential avenues for broad input on improvements to the water court process, whether through the roundtable and the IBCC process, or other mechanisms.
3. Using broad stakeholder input to garner support, the CWCB will explore potential avenues for achieving process improvements that will make Colorado's existing water law system more agile, effective, and efficient.

B. The State of Colorado will continue to uphold Colorado's water entitlements under Colorado's compacts, equitable apportionment decrees, and other interstate agreements.

1. The CWCB will continue to maintain a sufficient balance in the litigation fund to ensure that the State has adequate resources to protect its water resources.
2. The CWCB and the Division of Water Resources will continue to make every effort to comply with interstate compact and decree obligations.
3. The CWCB will continue to work with federal agencies to ensure that their responsibilities are implemented in a way that respects Colorado's compact and decree entitlements, and respects the State's authorities to administer waters within the state.

C. The State of Colorado will continue to ensure a proper balance between state and federal roles in Colorado's water law and water management system.

1. The CWCB will remain involved in maintaining the balance of state and federal roles within Colorado. As federal procedures and policies are developed and implemented, the State will defend Colorado's water allocation and management system to the extent that proposed federal actions may interfere with and potentially undermine water rights as decreed and administered within the state.

D. The State of Colorado will continue to work within Colorado's local structure.

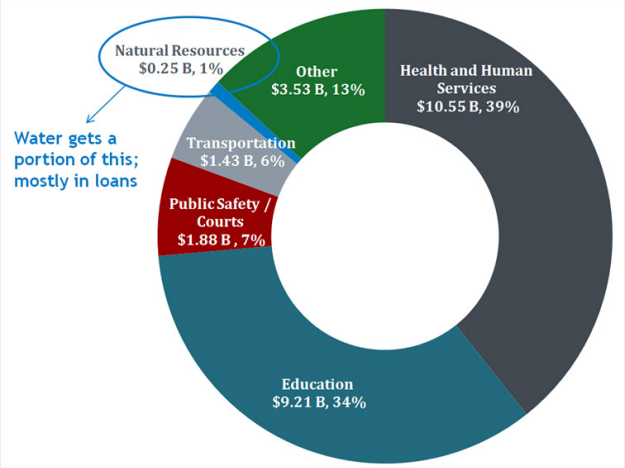
1. In proposing innovative strategies to meet Colorado's existing and future water needs, the CWCB will continue to work collaboratively with local governments, while recognizing the authority of counties and municipalities in making water development and management decisions.

E. The State of Colorado will support strategies to maximize use of compact water while actively avoiding a Colorado River Compact deficit.

1. The CWCB will continue to support water banking efforts and prioritize the development of the programmatic approach as described over the next several years. This development will require extensive statewide stakeholder participation and educational efforts.
2. The CWCB's future study and collection of collaborative stakeholder input will help the CWCB gauge the potential for a programmatic approach to meet existing and future needs, while maintaining equitable distribution of the reduced consumptive use. Multiple types of water users in locations on eastern and western slopes should share the burdens of demand management.
3. As the CWCB begins technical investigation of a potential collaborative program, a key issue to resolve will be the potential scope of demand management. The greater the number of existing uses such a collaborative program will cover, the greater the number of necessary voluntary reductions and amount of compensation.

9.2 ECONOMICS AND FUNDING

FIGURE 9.2-1 2015 COLORADO STATE BUDGET



GOAL

Colorado's Water Plan coordinates existing funding sources and explores additional funding opportunities.

Introduction

Investing in the long-term sustainable supply and delivery of water is critical to Colorado's future. Even in robust economic times, the difficulties inherent in financing large, long-term, sustainable water projects can create community apprehension and political controversy.

At the same time, the State of Colorado does not invest significant funds in water resources compared to other state priorities.[7] Figure 9.2-1 shows the State's overall natural resources budget compared to other state priorities.

Financing long-term, sustainable water supplies and infrastructure projects requires a collaborative effort involving water users and providers, as well as federal, state, and local entities. Over the years, the CWCB has partnered with various water providers throughout Colorado to conserve, develop, and protect Colorado's water for future generations. The CWCB has provided funding through grants and loans for critical multipurpose and multipartner projects, which have included the Chatfield Reallocation Project, the Animas-La Plata Project, the Rio Grande Cooperative Project, and the Elkhead Reservoir Enlargement Project. For these projects alone, the CWCB contributed over $200 million. These projects supplied over 100,000 acre-feet of water to help water providers meet their water supply and storage needs, while also improving stream health, promoting shared uses, sustaining agriculture, and providing long-term recreational benefits.[a]

To meet long-term water demands, Colorado will need to secure funding through a combination of legislation, partnerships, and state and federal grant and loan programs. It is the CWCB's intent to promote, and potentially financially and politically support, projects that evaluate water supply, storage, and conservation efforts on a regional, multipurpose, multi-partner, multi-benefit basis, and projects that evaluate the consolidation of services where practical, feasible, and acceptable. This section provides: 1)A description of existing financial need; 2) an overview of financial assistance programs; and 3) recommendations and suggested approaches for developing an integrated water infrastructure financing model that could assist in addressing Colorado's short- and long-term water needs.

[a] Chatfield Reallocation Project ($62 million CWCB investment, $80 million loans), Animas- La Plata Project ($37 million water purchase), Rio Grande Cooperative Project ($5 million grant, $15 million loan/grant), and Elkhead Enlargement Project ($11 million).

TABLE 9.2-1 PROJECT COSTS IDENTIFIED IN THE BASIN IMPLEMENTATION PLANS*

BASIN	SINGLE-PURPOSE PROJECTS AND METHODS			MULTI-PURPOSE PROJECTS	TOTAL
	ENVIRONMENTAL, RECREATIONAL, OR WATER QUALITY	MUNICIPAL AND INDUSTRIAL	AGRICULTURAL		
Arkansas	$345,000,000	$270,000,000	$10,000,000	$792,000,000	$1,407,000,000
Colorado	$1,500,000	$4,000,000	Forthcoming	$132,000,000	$137,500,000
Gunnison	$8,000,000	$46,000,000	$9,000,000	$423,000,000	$486,000,000
North Platte	Forthcoming	Forthcoming	Forthcoming	Forthcoming	Forthcoming
Rio Grande	Forthcoming	Forthcoming	$80,000	$130,000,000	$131,080,000
South Platte / Metro	Forthcoming	Forthcoming	Forthcoming	Forthcoming	Forthcoming
Southwest	$60,000,000	Forthcoming	Forthcoming	Forthcoming	$60,000,000
Yampa/White/ Green	$5,000,000	Forthcoming	Forthcoming	Forthcoming	$5,000,000
TOTAL	**$419,500,000**	**$320,000,000**	**$19,080,000**	**$1,477,000,000**	**$2,235,580,000**

* Costs were rounded to three significant figures. Most identified projects did not have associated costs. Therefore, additional cost estimating and refinement of existing project costs will be forthcoming to develop an overall statewide summary of water project funding needs.

Statewide Water Infrastructure Financing Need

The BIPs for Colorado's major river basins are a critical component of Colorado's Water Plan. In general, each BIP looked at balancing long-term municipal, industrial, agricultural, environmental, and recreational needs within and among the respective basins. As part of the BIPs, the basin roundtables identified a list of projects and methods they believe address the long term needs of their basins.

Table 9.2-1 features an initial summary of the costs the BIPs identified. It must be emphasized that costs were not associated with the vast majority of projects identified. In addition to these projects, the BIPs included other activities that require financial support, including education, outreach, conservation programs, flow agreements, alternative agricultural transfer methods, important legal investigations, and programs that manage various risks and vulnerabilities throughout the state.

The SWSI estimated that by 2050, municipal and industrial water infrastructure improvements will require between $17 billion and $19 billion in funding.[8, b] In addition, approximately $150,000 is needed per mile of stream for smaller-scale river restoration work, but substantial structural changes or channel reconfiguration could cost $240,000 or even $500,000 per mile.[9] Up to 90 watershed or stream management plans, at an estimated cost of $18 million statewide, will be necessary to help CWCB and stakeholders better determine the amount of river restoration work and other similar types of work that may be required.[10]

As basins and stakeholders identify their environmental and recreational needs, the basins will need to develop and fund further projects and methods to meet those needs. For planning purposes, however, one could estimate a $2 billion to $3 billion environmental and recreational statewide need, equivalent to approximately 10 to 15 percent of the municipal and industrial water infrastructure cost

[b] This number is based on an estimated $14 billion to 16 billion of identified M&I needs calculated in the Portfolio and Trade-off tool (CWCB, 2011), plus an additional $3 billion estimated need for maintaining existing M&I infrastructure. The numbers, however, are being refined in accordance with the BIPs.

HEATHER DUTTON

RIO GRANDE RIVER BASIN

Heather works for the Rio Grande Headwaters Project and has become an expert at finding financial resources to implement collaborative and multi-purpose projects. She is a member of the Rio Grande Basin Roundtable. Heather is pictured standing next to old and new head gates at McDonald Ditch, outside of Monte Vista along the Rio Grande River.

My vision for Colorado's Water Plan is a living document that provides a baseline analysis of where we are and what is important to us as a State. The Water Planning Process has been eye opening and has provided a forum for people to come together and learn about each other. I hope the plan will be a springboard for action because I view the widening gaps in supply for agriculture, environment, and communities as the most urgent issue we are facing. One of our local water and wildlife managers said, "water is not life or death, it is more important than that..."

CONTINUED AT END OF CHAPTER

PROFILE

estimates. Additionally, basins will need to develop the long-term funding needed to support agricultural sustainability based on further identification of projects and methods. Funding for agriculture should not only include legal and engineering support alternatives to reduce agricultural dry-up, but also water infrastructure needed to deliver water from agricultural areas to urban areas on a shared basis.

As the State moves forward in improving Colorado's water infrastructure, it will need to further refine and identify water infrastructure financial needs through the BIP process. The CWCB will review the results of these efforts to develop a list of project priorities. For a project to be considered priority, the CWCB weighs several criteria—including the project's funding; whether it meets multiple purposes, has multiple partners, and provides multiple benefits; and whether it is regional in nature. The CWCB will identify projects that have the potential to move forward quickly, have cross-basin and statewide benefits, and have a possible funding plan, as further discussed below.

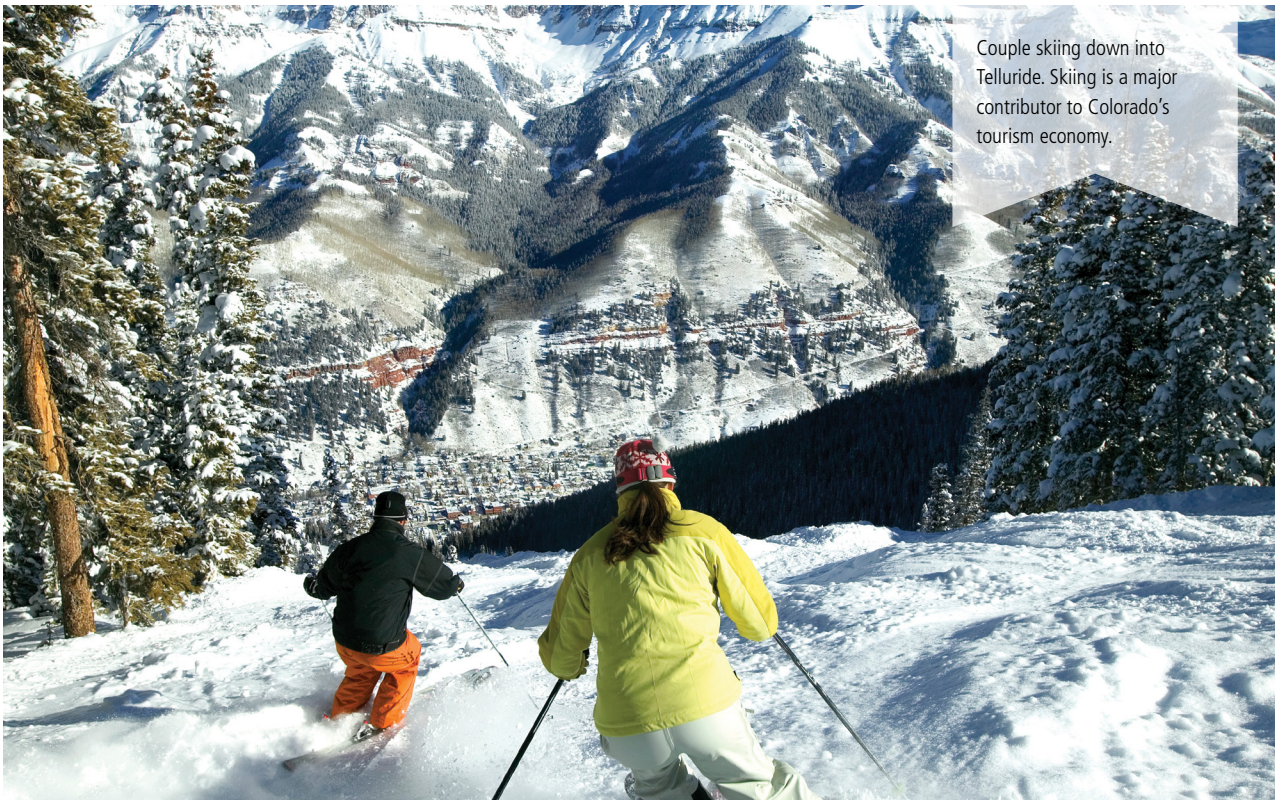
An estimated overall funding need of approximately $20 billion is associated with meeting the M&I gap and maintaining current infrastructure. Specifically, these funds would support:

1. The IPPs identified in the SWSI.
2. Short- and long-term maintenance needs of existing water delivery systems.
3. Alternatives to agricultural transfers.
4. Active water conservation.

Additionally, financial support is needed to address statewide environment and recreational needs and to support agricultural viability. And finally, the estimated $20 billion figure does not include treated water projects, such as drinking water treatment, distribution, and wastewater treatment.

Economics

When Colorado's land, labor, and capital assets combine with available water, the result is economic prosperity and opportunity. Nevertheless, managing water operations is challenging due to the wide variation in supply and demand. Water providers need to ensure the delivery of quality water to all customers as demand rises and falls, and they must do so at a cost people can afford and are willing to pay.



Couple skiing down into Telluride. Skiing is a major contributor to Colorado's tourism economy.

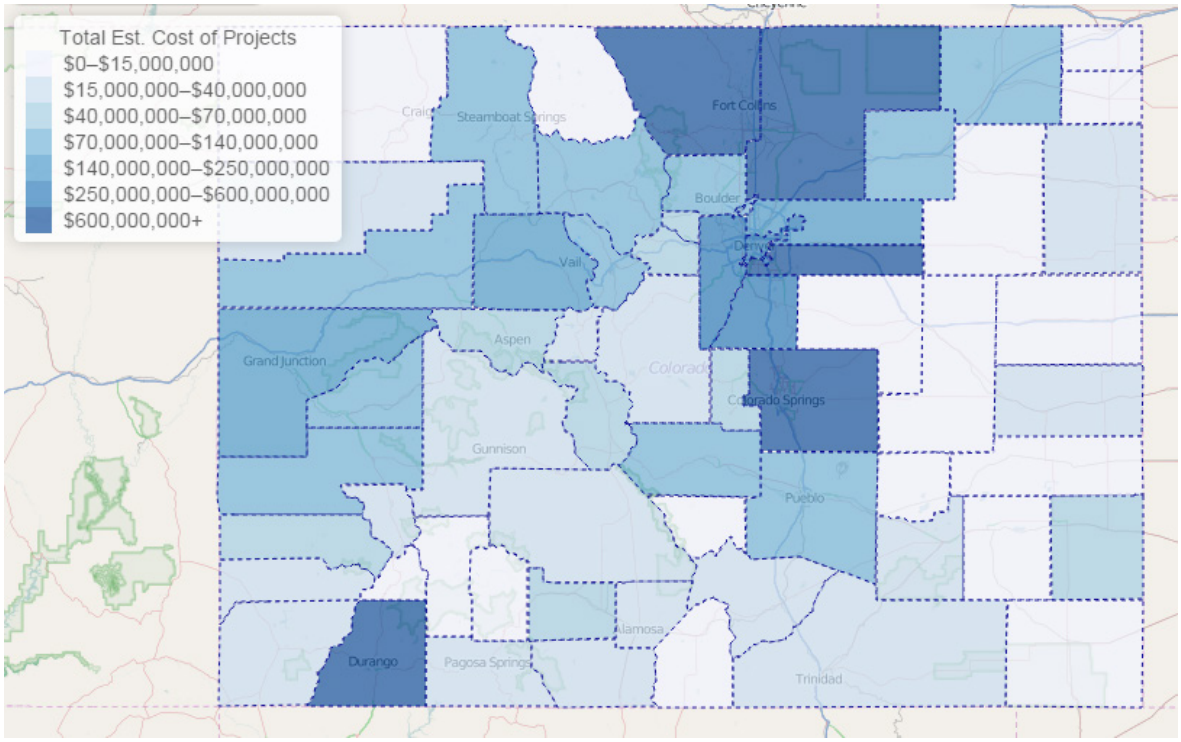
Water is also extremely mobile, and by the nature of its physical properties, it can move around in streams, seep into soils, move underground, evaporate, be stored in reservoirs, and even be bottled and transported. The inherent reality of mobility is that the same molecule of water can have many sequential uses, since it is rarely consumed fully by a particular user, and what is left is available for other uses. Water mobility is also described by its overall variability in terms of where it is located and for what duration, and its variability in quality and quantity. In Colorado, the mobility of water is very high, given that 89 percent of the state's population resides east of the Continental Divide, yet 70 percent of the state's water supply originates west of the Continental Divide.[11]

Water is considered both a private and a public good, making it difficult to assess its economic value. Compared to other public utilities such as natural gas and electricity, which are invisible and weightless, water is capital-intensive due to its weight, viscosity, and volume.[12] Despite being capital-intensive, the public perceives water as an affordable, accessible, and continually available resource.[13] On average, most families pay less than one percent of their household income for water, so many do not understand the true cost of water compared to other living expenses, such as fuel, electricity, and food.[14, c] Twelve ounces of bottled water at the store costs $1.00, but tap water that is treated and delivered across Colorado to a house costs approximately $3.00 per one-thousand gallons. The fact that the public is not willing to pay much for water could be a by-product of the lack of awareness about its true inherent value; alternatively, the lack of awareness about the true value of water could simply be a learned response to the historically low cost citizens have paid for treated water delivered to their homes.

Given the current demand and the increased future demands on water supplies, it is important to focus on education efforts. Water users need to be aware of the inherent true costs of providing water.

[c] Average household income in Colorado from 2008 to 2012 was $58,224. Based on 9,000-gallon monthly household water use (108,000 gallons/year) inside city limits, Denver paid $35/month, Longmont paid $22.50/month, and Ute Water Conservancy District paid $42.00/month in water bills. The combined average of the three entities equaled $33/month in water bills.

FIGURE 9.2-2 ESTIMATED NEAR-TERM INFRASTRUCTURE NEED[15]



State Funding Resources and Other Funding Opportunities

Current Funding Opportunities

Though the statewide funding need for both consumptive and nonconsumptive water projects is substantial, a planned, phased approach with existing and potential alternate funding sources could address a majority, if not all of the state's needs, depending on how aggressive and successful the approach is. The State recognizes that water providers are in control of their own short- and long-term capital investments, operation and maintenance costs, and customer base. Therefore, use rates and tap fees could be the primary source of funding where the end user is directly connected with the costs and investments. When broader public interests are in play, there are opportunities to combine financial resources and infrastructure in order to solve complex water supply challenges and accelerate the construction of a project. The WISE Project is a case that illustrates how several entities, including South Metro Water Supply Authority members, Denver Water, Aurora, and the CWCB, shared infrastructure, water, and financing to provide critical renewable water to offset well usage in Douglas County.[16]

Many existing state funding sources and programs can assist in meeting Colorado's long-term water infrastructure needs. These sources include the CWCB Water Project Loan Program, the CWCB's WSRA Fund, the Species Conservation Trust Fund, nonconsumptive funding programs as identified in SWSI 2010 Nonconsumptive Toolbox, and the Water Resources and Power Development Authority's Water Revenue Bond Program (WRBP). Although these programs cannot solely meet the state's financial water needs, they can assist in bridging funding gaps when combined with other funding sources.

The CWCB Water Project Loan Program

Recognizing the importance of funding raw water projects, the Colorado General Assembly in 1971 created the Water Project Loan Program. This program comprises two funds: the Construction Fund and the Severance Tax Trust Fund, codified at section 37-60-120 of the Colorado Revised Statutes.[17]

Annual revenues to the Construction Fund come from principal and interest (P&I) on existing loans and from a portion of federal mineral lease revenues that are paid to Colorado. Approximately $18 million to $20 million is available annually for water project loans from this fund.[18] In 1995, the Severance Tax Trust Fund was created under section 39-29-109, which directs 25 percent of the state's severance tax revenues into this fund. The fund is currently capped at $50 million annually,[19] and annual severance tax revenues provided to the CWCB range from $20 million to $50 million.[20] A portion of available Severance Tax Trust Fund revenues could be directed to assist in meeting investment return obligations on impact bonds issued in support of statewide environmental and recreation needs.

On average, the Water Project Loan Program has between $50 million and $60 million available annually for loans for various water projects throughout the state. The combined fund equity from the Construction Fund and Severance Tax Trust Fund exceeds $700 million.[21]

Water Supply Reserve Account

The WSRA grant program provides funding at the local basin level to address a variety of short- and long-term water needs. Current funding level is capped at $10 million annually, and is split between the statewide and basin WSRA accounts. Funding comes from annual severance tax revenues to the state, and has varied from $5.7 million to $10 million annually.[22] To date, this program has distributed over $40 million in grant funds for a variety of water-related studies and projects.[23]

The WSRA roundtable process has proven to be an effective grassroots platform for engaging local basin, regional, and cross-basin discussions on water issues. Continued support and additional funding should be considered to maintain and enhance this successful program. The existing process and structure of how the WSRA grant funds are distributed from the basin and statewide accounts should be reevaluated to encourage multi-benefit and multi-partnering projects, and to promote planning and technical support to smaller communities and water providers. A collaborative, regional approach should always be encouraged and considered in the planning process for projects that are funded through this program.

Watershed Restoration Program

The CWCB's Watershed Restoration Program provides grants for watershed and stream restoration and flood mitigation projects throughout the state. Over the years, the program has leveraged substantial outside-entity dollars to promote watershed health. While it has had an annual funding allocation of $250,000, it has recently seen a substantial increase in funding as a result of legislation approved for phreatophyte control and flood and fire mitigation. The 2015 CWCB Projects Bill also approved an additional $1 million in funding for this program to assist with funding stream management plans, as Section 6.6 discusses. If additional revenue sources are successfully developed to support environmental and recreational projects, this program can manage and disburse those funds.

Species Conservation Trust Fund

The Native Species Conservation Trust Fund was created in 1998 pursuant to HB98-1006. The CWCB and CPW use this fund for programs associated with recovering species listed as threatened and endangered under state law; recovering and protecting federal candidate species; conducting scientific studies related to the listing or delisting of any species; and evaluating genetic, habitat, and declining species baseline data. Through the annual Species Conservation Trust Fund legislation, the Species Conservation Trust Fund authorizes millions of dollars of work the CWCB and CPW conduct each year.

Water Resources and Power and Development Authority

The Water Resources and Power and Development Authority (Authority) is a quasi-governmental organization created by section 37-95-101 of the Colorado Revised Statutes to provide low-cost financing for water- and wastewater-related infrastructure projects to municipalities and special districts. The Authority has four main financing programs: the Drinking Water Revolving Fund, the Water Pollution Control Revolving Fund (WPCRF), the Small Hydropower Loan Program, and the WRBP.[24]

The WRBP provides funds up to $500 million for individual projects, without legislative review, to public entities for water and wastewater projects. The Authority's WRBP rates are consistent with private municipal bond market rates, with the distinction being that the WRBP rates provide bond issuance subsidies, up to a total of $250,000, for each of up to four projects in any given year. The WRBP can provide funding well above $500 million with legislative approval.[25]

The Drinking Water Revolving Fund and the WPCRF are both part of state revolving funds, which are operated in every state. These funds are primarily used for water quality projects, and are capitalized by state and federal funds whereby states contribute 20 cents for every federal dollar. Projects often use these funds to leverage other funds through the issuance of municipal bonds, and to finance the design and construction of water and water pollution control infrastructure. The Authority, the Colorado WQCD, and the DOLA jointly administer these funds.

The Small Hydropower Loan Program is a joint program operated in coordination with the CWCB. Loans from this program are limited to up to $2 million per governmental agency for eligible projects of five megawatts or less.[26] Agencies seeking more than the first $2 million available through the Authority can apply through the CWCB.

Additional Grant and Loan Programs

Water conservation system improvements, such as smart metering technology, more efficient cutomer billing and communication systems, and other related technologies used to influence behavior to achieve water conservation goals, are eligible for financial assistance from state revolving funds as part of a water system capital impreovement project.

The CWCB offers many grant programs for various water-related efforts, such as water efficiency, alternatives to agricultural transfers, emergency drought response, phreatophyte control, and others. Annual combined funding for these grant programs is in excess of $4 million.[27] A list of grant programs is available here.

The Nonconsumptive Toolbox contains a list of federal, state, and private funding opportunities for environmental and recreational needs.[28] The total amount of funds available from state resources dedicated to these efforts on an annual basis is approximately $11 million.[29] Some of these funds are extremely competitive, while others are hard to qualify for, and are therefore not fully utilized.

Currently, limited funding sources are available for education, outreach, environmental resource management, recreation, and other important water-related activities that do not involve construction of projects. Though these efforts have strong support from nongovernmental organizations, charitable donations (as opposed to tax revenue) typically fund them. Additionally, the WSRA program has funded much of this type of work, which requires approval by the basin roundtables and the CWCB. Therefore, it may be necessary to identify additional funding sources to fully meet the state's environmental and recreational water needs.

CWCB Program Overview

Initial estimates suggest that municipalities will primarily need state, federal, or bond market loans to fund their projects. Over the next 35 years, based on current funding levels, the State expects to have nearly $2 billion available in CWCB loans for municipal, industrial, and agricultural projects.[d] Compared to the statewide water infrastructure financing needs discussed above, this amount suggests a potential public financing gap. Consensus and additional state funds may be necessary to support innovative water projects, such as multi-use, alternative agricultural transfers, or a new TMD with a sufficient back-up supply on the eastern slope, as well as to support substantial environmental and recreational enhancements that meet the IBBC's criteria. Additionally, because environmental and recreational projects are not typically ratepayer-supported, they primarily rely on grants for financial support. Current capacity to fund environmental and recreational projects and methods over the next 35 years is $385 million, based on current funding levels.[e] This suggests

[d] $55 million average annual available CWCB loan funds x 35 years = $1.925 billion rounded to $2 billion.

that it may be difficult to fund projects that promote environmental and recreational interests. Beyond the CWCB loan programs, an additional $490 million is available from the WSRA and other grant programs for meeting future needs.[f]

Federal Funding Options

Federal funding options are a potential source for meeting financial needs. For scientific and research-based projects, the BOR's WaterSMART program, managed through Landscape Conservation Cooperatives, has funded several programs throughout the state. For certain agricultural efficiency projects, the Colorado River Basin Salinity Control Forum has brought a substantial amount of federal funding aimed at improving the water quality of the Colorado River.

In addition, the Upper Colorado River Basin Fund is a federal fund that comprises funds appropriated from the U.S. Treasury for capital projects, as well as proceeds from the sale of hydroelectric power, transmission services, and M&I water services. The Basin Fund funds important work associated with the Salinity Control Forum, the Upper Colorado River Basin and San Juan River Basin Endangered Fish Recovery Implementation Programs, and the Glen Canyon Dam Adaptive Management Working Group. These programs are described throughout Colorado's Water Plan.

A potential source of funding for future collaborative projects is the Regional Conservation Partnership Program (RCPP). This program of the Natural Resources Conservation Service (NRCS) encourages cooperation at the local level, and brings together multiple partners, such as local and tribal governments, nonprofit groups, farmers, ranchers, and landowners. In 2015 up to $235 million was made available nationwide for conservation projects that address local needs, focused on water quality, drought resiliency, enhanced soil health, wildlife habitat and agricultural viability.[30]

In addition, in 2011, the Upper Division Colorado River Basin states (Colorado, Wyoming, Utah, and New Mexico), BOR, the United States Department of Energy Western Area Power Administration, and the Colorado River Energy Distributors Association signed a memorandum of agreement (MOA). The MOA authorizes the use of the Basin Fund to further the purposes of the 1956 Colorado River Storage Project (CRSP) Act (Public Law 485) through fiscal year 2025. This MOA also authorizes additional uses for operational and maintenance on CRSP facilities, among other specified purposes, and provides more than $5 million that the CWCB can direct toward CRSP operation and maintenance activities.

Potential Future Funding Opportunities

Many stakeholder efforts, such as the IBCC, environmental groups, and the recently created Statewide Water Investment Funding Committee, have explored other avenues of funding to meet Colorado's future water needs. The IBCC explored several financial options in the No-and-Low-Regrets Action Plan. These are listed below:[31]

- A federal/state partnership similar to the Central Arizona Project.
- A state water project similar to the California State Water Project.
- A state/local partnership in which the State facilitates the project, but the end-users finance and manage it.
- A public/private partnership similar to those used to build transportation projects (e.g., E-470).
- Enactment of a "water" mill levy (the assessed property tax rate used to raise revenue).
- Additional bonding authority for the State of Colorado.
- Severance tax increases.
- A statewide sales tax.
- Federal loan guarantees.
- Expanded authority of Great Outdoors Colorado funding.
- Specific Farm Bill initiatives that appropriate funds for enhancing agricultural operations while supporting nonconsumptive needs.

[e] $11million available x 35 years = $385 million.
[f] WSRA Funding at $10 million + $4 million in grant funding = $14 million x 35 years = $490 million.

- Regional taxing.
- Statewide user fee.
- Statewide tax on internet-based transactions.
- Debt financing (debt backed by existing or newly created revenue source).

In addition, The Nature Conservancy, Colorado Chapter, and the Tamarisk Coalition assessed funding sources for environmental needs.[32] When additional funding sources become needed, some potential investment opportunities include:

Legislation: Water providers, the CWCB's recently created Statewide Water Investment Funding Committee, elected officials, and community leaders can work to develop legislation to create effective and efficient funding processes that will maximize the use of water within the state. Some specific examples of legislation that could be considered include:

- Remove federal mineral lease and Severance Tax Trust Fund cap limits, which could generate an additional $10 million per year.
- Increase the funding cap on the WSRA Grant Program account, currently limited to $10 million per year. An additional $10 million could greatly assist in meeting environmental and recreational funding needs.
- Investigate extending instream flow tax credits for water rights donations to the instream flow program beyond 2015.[33]
- Expand the CWCB's authority to improve the management and distribution of existing funds, enabling the CWCB to fund treated water facilities. This could alleviate gaps in funding raw water projects with treated components that are not funded by other sources.
- Investigate the use of conservation tax credits as a potential funding source. This could support efficient outdoor irrigation systems and replacement of residential outdoor turf with plants that use less water.
- Amend governing statutes to water providers, granting them specific authority to use public/private partnerships.
- Explore broadening the statutory authority of the existing program to allow for the protection of watershed health, instream flow benefits, and alternative transfer methods to mitigate dry-up of agricultural lands.
- Return remaining $123 million in General Fund transfers back to the Severance Tax Trust Fund. A total of $163 million was transferred from the Construction Fund and the Severance Tax Trust Fund to the General Fund to help balance the state's budget from 2008 to 2011. To date, $40 million has been returned.[34] These funds could be directed to various water projects, environmental and recreational projects, watershed and stream management, project management, and other uses.

Public/Private Partnerships (P3s): Provide funding to create a State-sponsored Center of Excellence, research the pros and cons of P3s, and develop a preliminary water infrastructure P3 model. The Center of Excellence would be a centralized clearinghouse to allow water providers and other entities to talk with experts in the field and obtain information about working P3 models. Based on their expertise, the basin roundtables, through the WSRA process, should assist with this discussion to provide guidance to project proponents regarding the potential value of P3s for specific projects they are considering.

In general, P3s have the potential to reduce both capital investment and risk, while drawing on the respective strengths inherent in both the public and private sectors. Nevertheless, care must be taken to achieve an appropriate balance among public and private resources, costs, control, and long-term revenue streams. Lessons can be learned from the transportation sector, which used public/private funding for a toll road, and which had to balance several P3-related challenges and opportunities such as social perception, the interaction of state and private contracting policies, ratepayer concerns, and long-term sustainability of the partnership. P3s can offer a considerable amount of working capital which, in certain circumstances, can accelerate the delivery of costly, technically complex projects.[35]

State Repayment Guarantee Fund: For larger water projects with many participating entities, it has proven difficult to develop an overall project financing package that equitably distributes risk and repayment. The involvement in a bundled financing package of smaller participating entities with lower credit ratings, minimal revenue streams, and small service areas can create a disincentive for larger water providers to participate, given they would be subjected to higher interest rates, repayment, and risk. To address this obstacle, the State could develop a repayment guarantee fund that would act as an overall repayment guarantee to the financial entity that is issuing the bond for the project. Such a State-managed repayment guarantee would reduce the level of risk to the lender and participating entities, while providing a mechanism for smaller water providers to participate in regional water distribution and supply projects, without negatively affecting larger water providers.

The CWCB and the Statewide Water Investment Funding Committee would recommend that this fund develop with a starting balance of $300 million. Lenders typically require a 10 percent repayment guarantee on a bond issuance, which would therefore support $3 billion in water project construction. Given that the amount of repayment guarantee diminishes over time once bonds are issued, those funds that are no longer needed to guarantee repayment on the original total bond amount could then be reinvested into other needed environmental programs.

Impact Investment Capital (Green Bonds): If a State Repayment Guarantee Fund is successfully developed, it could potentially support $3 billion in water infrastructure projects throughout the State. To assist in providing funding for environment and recreational projects that may or may not be attached to a specific water infrastructure project, it is recommended that the CWCB work with specific environmental groups to secure private capital through the issuance of bonds (Green Bonds), to provide meaningful, immediate funding for environment and recreation projects throughout the state. The Green Bonds could be issued in incremental amounts over time to support projects that have been identified previously; this would minimize debt investment return costs under one large bond issuance. Only bonds that can actually be spent in a specified time frame should be issued. The CWCB recommends that these funds be managed and disbursed through the CWCB's Watershed Restoration Program, requiring substantial reorganization of that program.

The long-term obligation and repayment of green bonds could come from a combination of revenues from the CWCB's Severance Tax Perpetual Fund, or from public initiatives, as further discussed below.

State Referendum: Any taxpayer-supported effort and accompanying long-term debt needs to be approached with care and consideration. There should be a clear and concise reason for the need, a comprehensive plan for how and where the funds will be expended, defined oversight and accountability, and a plan that addresses long-term challenges.

In 2003, Coloradans voted on Colorado Water Projects Referendum A, a ballot initiative that would have allowed the CWCB to borrow up to $2 billion by issuing bonds to construct water projects throughout the state. This ballot initiative was soundly defeated, with 67 percent of Coloradans opposed and 33 percent in favor. Though Referendum A was initiated to resolve long-term water challenges in the state, it was not accompanied by a comprehensive plan outlining how to address that challenge, a quantification of the magnitude of financial need, or where and how the money would be spent.

Since 2003, a substantial amount of time and resources have been spent developing a comprehensive overview of the state's current and long-term water needs. In 2005, HB 1177 was passed creating the Inner Basin Compact Committee, the basin roundtables, and the WSRA. In 2010, the State completed the SWSI that provided a detailed assessment of the state's current and future water needs. In 2011, the Colorado River Water Availability Study (CRWAS) was completed, and in 2015 the basins completed the BIPs, which identified basin-specific needs, and projects and methods.

The BIPs provide an excellent roadmap for what the State of Colorado needs to accomplish to address its long-term water supply needs. The development of the BIPs is the result of decades of discussion, debate, and collaboration among water users, providers, and the Colorado General Assembly. With prioritization and refinement, the BIPs could provide a necessary

framework for state referendum funding. A state referendum could generate hundreds of millions of dollars per year, phased over a defined period, generated from sale tax revenues, income tax, and other sources. Those funds could reside in a statewide water investment fund that would be distributed either as a loan, a grant, or a combination of the two, and managed and disbursed through the CWCB. A portion of the funds could also be reserved as repayment guarantees for water providers seeking bonds. Policy developed to manage and disburse money from this fund could include a zero-interest rate to market loans, security or repayment guarantees on bonds, environmental and recreational grants, permitting assistance, legal assistance, and expanded funding levels for existing programs. P&I returned to the fund would be invested in water projects or other areas of need within the state.

As a comparison, in 2013, the Texas Legislature authorized a transfer of $2 billion from the state's "Rainy Day Fund" to create a new loan program, later approved by Texas voters, to fund projects in the State Water Plan. This original investment in the State Water Implementation Fund for Texas (SWIFT) and the State Water Implementation Revenue Fund for Texas (SWIRFT) was designed to fund almost $27 billion in water supply projects over the next 50 years to ensure that Texas communities have adequate water supplies during drought. Additionally, in November 2014, the State of California approved Proposition No. 1, which allows the State to redirect $425 million in unsold bonds and sell $7.1 billion in additional bonds, for a total of $7.5 billion in general obligation bonds. The funds would be used to manage water supplies, protect and restore wetlands, improve water quality, and protect against floods.

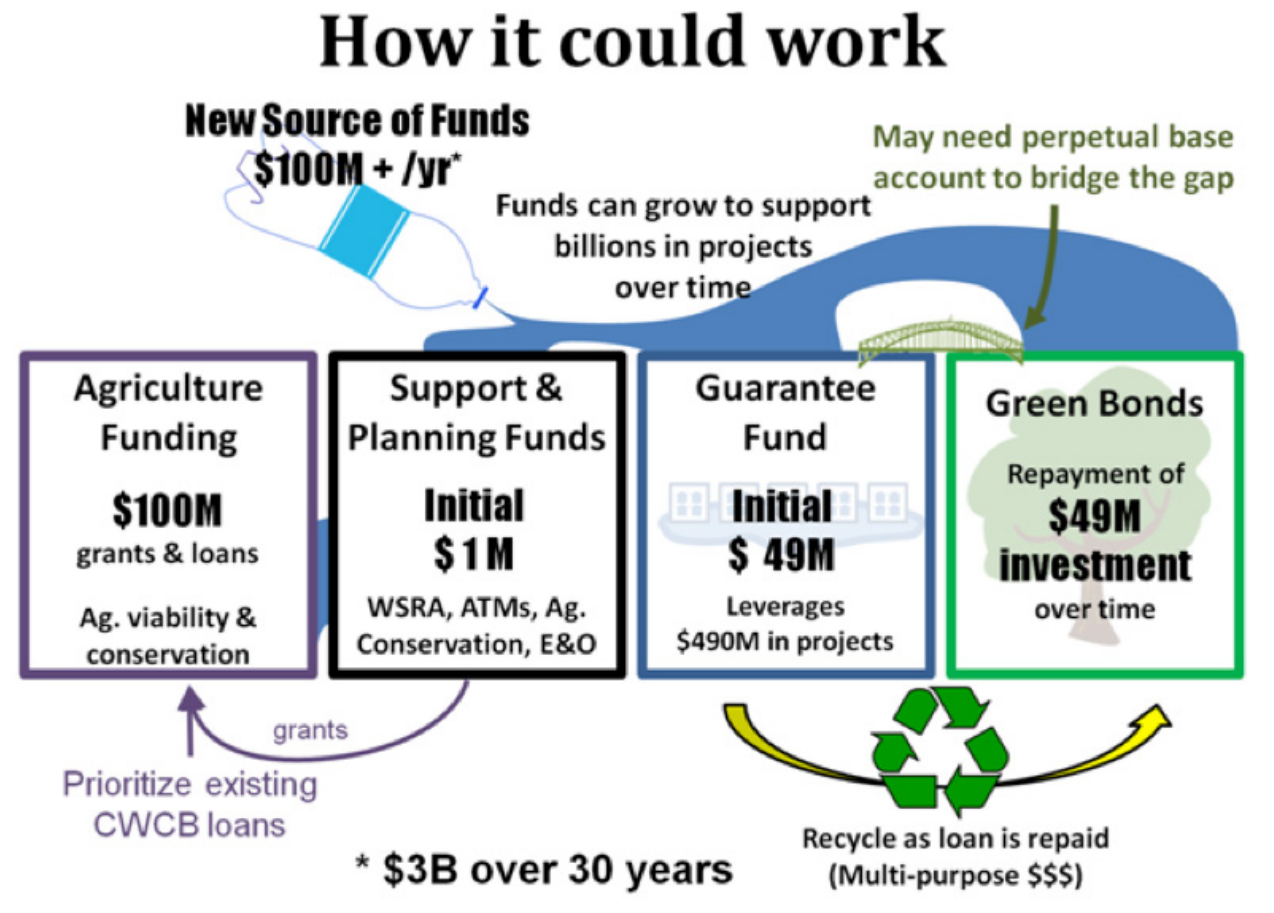
Mill Levy or Sales Tax: In lieu of a statewide referendum, a more targeted approach could help increase property or sales taxes in counties with large population bases along the Front Range—such as Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Jefferson, Weld, and Larimer Counties. These large population centers could be assessed an additional four to eight mills on their property taxes or increase sales tax to provide critical water project funding in their area and to offset distresses in other areas (for comparison, typical fire district revenues are based on eight mills). This could generate approximately an additional $215 million to $430 million dollars per year and reside in a water investment fund as described above.[g] This option might be better handled at local levels based on specific water provider needs within a given service area, although there may be a statewide option if benefits are spread across the state.

Container Fee Ballot: In 2010, two citizens filed a Ballot Initiative seeking a fee on beverages containers sold in Colorado. Unofficially captioned "Container Fee to Fund Water Preservation and Protection" by legislative staff for tracking purposes, the initiative was heard by the Ballot Title Setting Board in April 2010. The initiative title for the ballot was appealed to the Supreme Court on the basis that by naming the basin roundtables specifically the initiative was not a single subject. The Supreme Court granted the appeal and the initiative was dropped. This initiative has merit and should be reevaluated. It was estimated in 2010 that this initiative could generate in excess of $100 million per year and could finance water projects, environmental and recreational projects, and stream and watershed management efforts throughout the state.[36] It is an initiative that could help offset the negative environmental impact of plastic containers (i.e., bottled water). If the Container Fee Ballot were successful, it would play a key role in moving forward many of the funding issues identified in this section.

Securing additional funding to assist in the implementation of Colorado's Water Plan is one of the plan's most critical objectives. Colorado's Water Plan provides a realistic, achievable path forward to secure additional funds. First, the State plans to initiate the development of a Repayment Guarantee Fund and green bond program with an initial investment of $50 million from the Severance Tax Perpetual Fund. The Repayment Guarantee Fund would assist water providers in securing financing for regional multipartner and multipurpose projects guaranteeing repayment on bonds so that all the project participants can achieve financing, despite varying credit ratings. Issuance of green bonds would support large-scale environmental and recreational projects. These funds would be operated in a conjunctive manner, as funds would be released from the Repayment Guarantee Fund as debts on the project bonds are repaid. In

[g] Mill levy calculations based on 4 mills, Adams $18 million, Arapahoe $30.4 million, Boulder $22 million, Denver $40.4 million, Douglas $17.2 million, El Paso $23.2 million, Jefferson $28.8 million, Larimer $15.2 million, and Weld $18 million, approximate total = $215 million. Those figures are doubled for 8 mills or $430 million.

FIGURE 9.2-3 FRAMEWORK FOR HOW A NEW SOURCE OF FUNDING COULD BE MAXIMIZED



doing so, the initial $50 million investment would leverage half a billion dollars in regional projects and support nearly $50 million in environmental projects. In order to make this level of funding sustainable, the State will investigate options to raise an additional $100 million annually ($3 billion by 2050) to support implementation of the plan. Such funds would increase the Repayment Guarantee Fund and green bonds, while further supporting conservation, agricultural viability, alternative transfer methods, education and outreach, and other plan implementation priorities. Under a well-planned, phased approach, this investment could address a majority, if not all, of the funding needs described in Colorado's Water Plan, as Figure 9.2-3 further describes.

ACTIONS

According to studies conducted by the U.S. EPA, the Congressional Budget Office, and the Water Infrastructure Network, the cost of addressing our nation's clean water infrastructure needs over the next 20 years could exceed $400 billion, which amounts to roughly twice the current level of investment by all levels of government.[37] Colorado alone has nearly $20 billion in identified water project needs, including water supply and environmental and recreational projects.[38] While there is no easy or inexpensive way to provide Coloradans with a sustainable long-term water supply, the overarching goal is to provide clean, reliable water at an affordable price for many generations.

Action Summary

Realistic, long-term funding sources are essential to Colorado's ability to meet its future water funding needs. It cannot be assumed that existing programs and revenue streams are sufficient to address the state's long-term water supply and environmental needs, or to maintain existing water supply infrastructure. The actions and initiatives below could greatly assist in meeting Colorado's water funding needs over the next decade and in generating the momentum required to address long-term funding needs. The CWCB will work with the Statewide Water Investment Funding Committee to explore options for implementing these initiatives.

1. **Public funding sources:** Identify and determine a path to develop a new viable public source of funding (such as through a container fee ballot initiative) to support a repayment guarantee fund or green bonds, and to provide additional support grants and loans for the WSRA, education, alternative transfer methods, conservation, and agricultural viability.
2. **State repayment guarantee fund:** Establish a state repayment guarantee fund.
3. **Green bonds:** Develop issuance and repayment strategies needed to establish a green bond program to provide a funding source for large environmental and recreational projects.
4. **Water education and outreach:** Fund a water education and outreach grant program based on basin roundtable education action plans and the initiatives indicated in Colorado's Water Plan.
5. **WSRA:** Provide additional state account funds to the WSRA program.
6. **Public/Private Partnerships:** Modify Colorado's statutes to clearly allow for public/private partnerships for water projects.
7. **Conservation:** Explore a tax credit for home owners who install efficient outdoor landscapes and irrigation as part of the integrated funding plan.

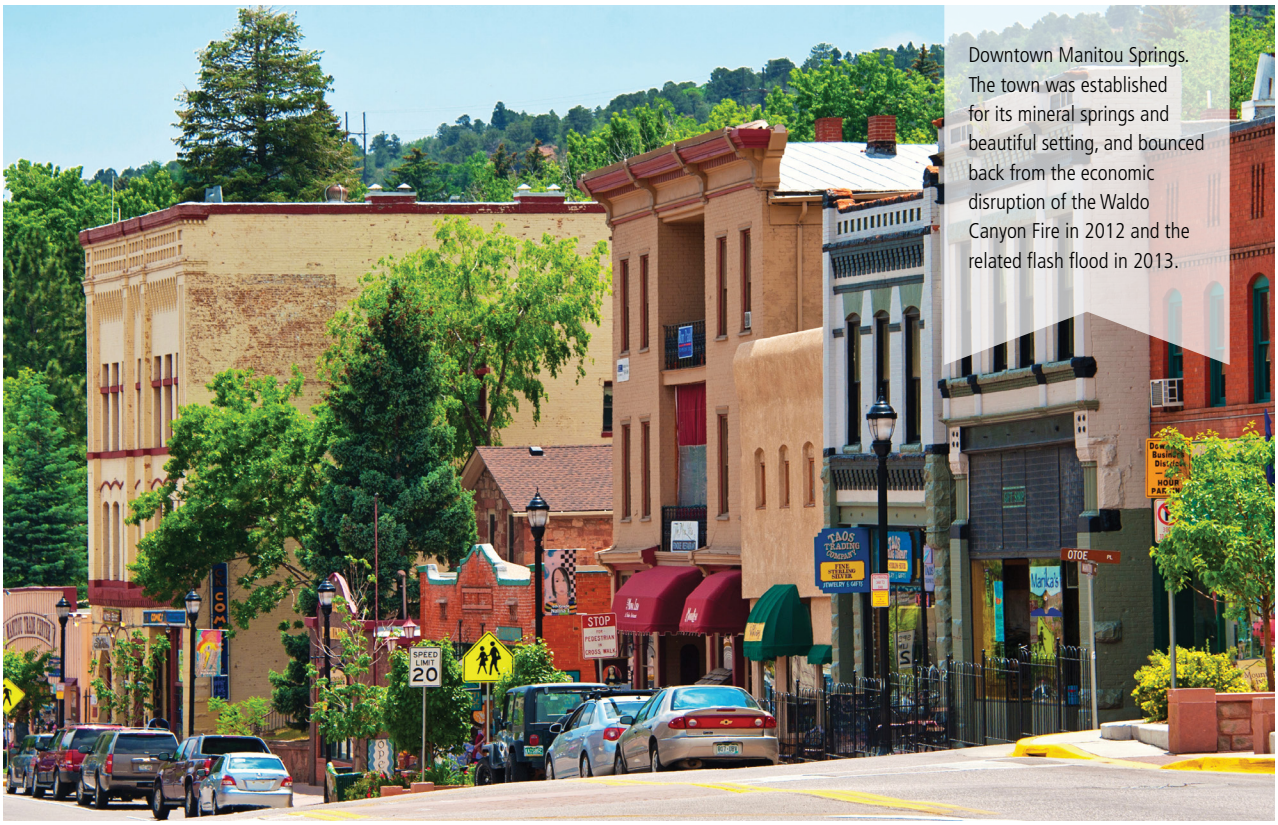
Colorado's Water Plan identifies the following actions:

1. The CWCB will work with the Statewide Water Investment Funding Committee to develop a sustainable funding plan that integrates a repayment guarantee fund, green bonds, and additional support grants and loans for the WSRA, education, alternative transfer methods, conservation, and agricultural viability.
2. The CWCB will assess funding needs across multiple sectors using the BIPs and other resources as guides. Needs may include municipal, environmental, industrial, recreational, agricultural, conservation, and education and outreach, among others.
3. The CWCB will determine the economic benefits and effects of meeting or not meeting Colorado's future water needs.
4. The CWCB will work with the General Assembly and state agencies to align state funding policies and promote coordination among state agencies in order to strategically support the values Colorado's Water Plan identifies. These values include the need for multipurpose and multipartner projects and methods.

The State will take the following actions:

- Develop a common grant-inquiry process to be coordinated across funding agencies for each sector, including environmental, recreational, municipal, and agricultural project proponents. This will include revisiting and reorganizing how agencies conduct the current state funding coordinators meeting.
- Review the CWCB's financial policies, taking into consideration providing financial incentives to move projects and methods forward and assisting small water providers in addressing upfront planning costs. Such policies may include reduced interest-rate categories and extended terms (40 years).
- Pursue additional funds to support the WEGP, which provides financial incentives for implementing conservation programs and planning for drought; investigate expanding the program's authority to provide grant funds to municipalities for documented water conservation and savings to help offset the economic impact of lost revenue due to reduced water usage; and develop funding recommendations.

- Assess whether there are additional loan opportunities for municipal conservation practices.
- Pursue funding to establish a water education and outreach grant program, and develop funding recommendations.
- Assess opportunities for additional WSRA grant funds, and work to amend the WSRA guidelines on how additional funding is allocated, approved, and disbursed in order to prioritize projects that provide the greatest benefit to Colorado.
- Seek an amendment to statutory language to expand the CWCB's loan program's authority to fund treated water supply, reuse, conservation, and environmental and recreational projects and methods.
- Continue to provide $1 million or more if needed on an annual basis to support stream management and watershed plans, and develop an established funding source.
- In partnership with the Water Investment Funding Committee and in coordination with the basin roundtable representatives, review and prioritize BIP-identified water projects to develop a funding plan for those that could move forward. Based on the identified funding level, develop funding strategies that use existing and new funding sources to move high-priority projects forward in one to three years.
- Develop policies for how and when the CWCB becomes a project beneficiary through an arranged partnership for projects that are central to fulfilling the goals of Colorado's Water Plan.
- Identify and develop, in two years, a single multi-benefit, multi-partner, shared infrastructure pilot project that is funded through a joint revenue stream of public and private funding. From this pilot project, develop a framework for how future water public/private partnership projects will move forward, taking into consideration best procurement practices, maintenance and operation, water administration and management, and other factors.



Downtown Manitou Springs. The town was established for its mineral springs and beautiful setting, and bounced back from the economic disruption of the Waldo Canyon Fire in 2012 and the related flash flood in 2013.

- Continue to use the Water Investment Funding Committee—comprising representatives from each basin, the CWCB, the Water and Power Authority, the Executive Director's Office, large water providers, and the private sector—
to evaluate funding recommendations contained within Colorado's Water Plan and other plans. The goal of such evaluation will be to develop a well-planned, phased approach to provide funding for water projects, environmental projects, recreational projects, and stream and watershed management throughout the state. This committee met over the course of 2015 and will continue to meet to provide funding and implementation recommendations to the CWCB.
- Over the next year, continue to develop and fund a modern method for determining probable maximum precipitation for spillway sizing for dams in Colorado, with the intent to provide additional storage while minimizing capital investment.
- Consider allocating all or a portion of any surplus in the DNR's severance tax operational account revenues to efforts prioritized in Colorado's Water Plan.

5. The State will explore near-term opportunities to increase funding resources by implementing the following actions:
   - Develop preliminary support data for various public funding options, such as state referendums, individual county mill levy increases, insurance tax premiums, user fees, and other potential funding mechanisms.
   - Explore implementation of a Center of Excellence to create a working model of public/private partnerships for water projects and methods.
   - Explore how a water investment (public tax) fund could be created, managed, and disbursed.
   - Work with other applicable state agencies to develop a reserve fund that would act as a security or repayment guarantee by the State to water providers seeking bond funds through the Authority.
   - Explore the concept of a container fee ballot initiative.
   - Develop issuance and repayment strategies in issuing green bonds as early as 2016 for environmental and recreational projects. CWCB recommends that green bonds be issued incrementally, based on identified need, to minimize repayment costs.
   - Reassess the Instream Flow Tax Credit program to determine how to make it more usable.
   - Work with various stakeholders, the Department of Real Estate, the Department of Revenue, and appropriate legislative committees to develop strategies that maximize the conservation tax credit program.
   - Explore potential uses of conservation tax credit revenues for stream and watershed restoration.
   - Explore with water providers the possibility of issuing a state tap fee for future taps installed statewide. Funds developed could be used to support the CWCB Water Efficiency Grant Program and/or water education. The amount assessed per tap would be determined based on the estimated number of new taps issued statewide, and target revenue.
   - Assess funding and loan opportunities from the Water Infrastructure Finance and Innovation Authority (WIFIA) and the Rural Infrastructure Fund to rebuild aging water infrastructure. Encourage the U.S. Department of Transportation and other agencies to share lessons learned regarding innovative financing programs with the Army Corps of Engineers (Corps) and the EPA as they implement WIFIA.
   - Work collaboratively with foundations and nonprofits to support the environment, recreation, and education priorities through philanthropy.

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9.3 STATE WATER RIGHTS AND ALIGNMENT

GOAL

Colorado's Water Plan ensures that state agencies coordinate the uses of their current and future water rights and that they will uphold Colorado's water values, as Chapter 1 discusses.

Several Colorado state agencies hold and exercise water rights for various beneficial uses authorized by Colorado's constitution and statutes, and by permits and water court decrees. The DWR administers water rights, including state-held water rights, within the State's priority system; it does not own any water rights. As part of developing Colorado's Water Plan, the CWCB asked each state agency to develop an inventory of its water rights to the extent that it had not already developed one.

This section describes state agencies that hold water rights, including each agency's mission and the legal basis for each agency's water rights and their uses. It also summarizes the agencies' water rights inventories and describes how the State is aligning its water rights with the water values identified in Chapter 1 of Colorado's Water Plan. Finally, this section describes how state agencies will work to maximize the use of their water rights to realize the greatest benefits to the state as a whole. The inventory process is ongoing, and the CWCB will continue to incorporate information as it becomes available.

Inventory of State Agencies' Water Rights

The CWCB

Mission and Statutory Authorities

Colorado established the CWCB in 1937 with the mission *to conserve, develop, protect, and manage Colorado's water for present and future generations.*[39] Section 37-92-102(3), C.R.S. (2014) authorizes the CWCB to appropriate and to acquire water for instream flow water rights and natural lake level water rights to preserve and improve the natural environment to a reasonable degree. Section 37-60-106(n) authorizes the CWCB to take actions necessary to acquire or perfect water rights for projects it sponsors.

The CWCB Water Rights Inventory

The CWCB currently holds 1,595 decreed instream flow water rights that protect approximately 9,180 stream miles and 480 decreed natural lake-level rights.[40] The CWCB has also entered into 30 transactions by which it has acquired water, water rights, or contractual interests in water for instream flow use.[41] Pursuant to an agreement with the Corps, the CWCB owns two storage rights in Bear Creek Lake in Jefferson County. The storage rights equate to approximately 2,000 acre-feet, decreed absolute for piscatorial and recreational purposes, and conditional for municipal, domestic, industrial, and irrigation.[42] In 2012, the CWCB exercised its right to acquire its project water allocation of 10,460 acre-feet (supply) and 5,230 acre-feet (depletions) in the Animas-La Plata Project. Currently, the project is decreed for municipal and industrial uses only, but the CWCB may use this water for compact compliance, endangered species, and instream flow purposes.[43] The CWCB intends to sell or lease its water allocation to local water providers in southwest Colorado as demands dictate.

Finally, the CWCB is an active partner in the Chatfield Reservoir Reallocation Project. Its multiple roles include feasibility study sponsor, storage space shareholder, and financial lender for low-interest project loans. Furthermore, the Colorado General Assembly appropriated funding within two consecutive legislative cycles enabling the CWCB to hold, and later disperse for investment recovery, a certain

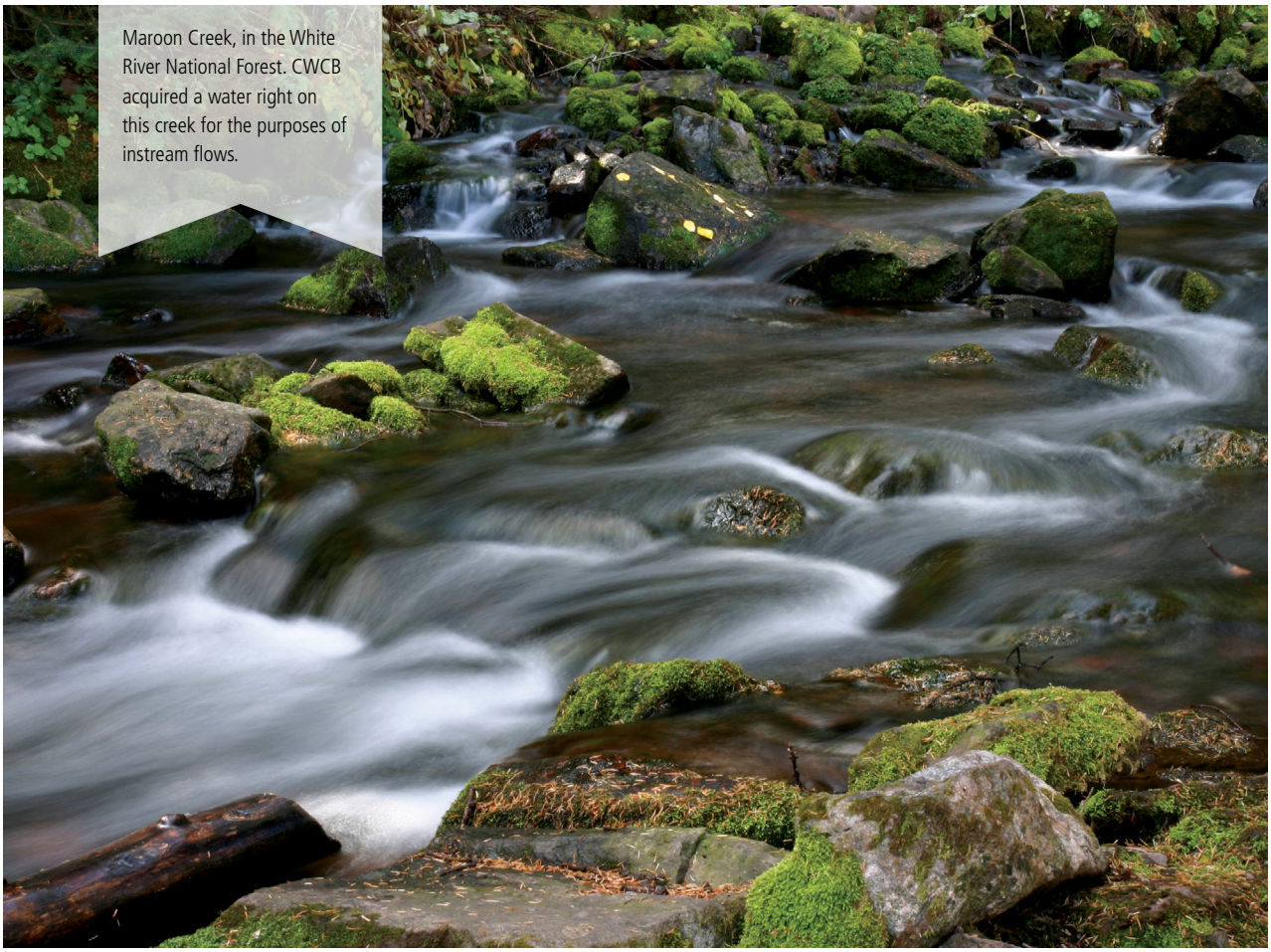
percentage of unused storage space commonly referred to as "orphan shares." In October 2014, following an approval letter and federal Record of Decision (ROD), the Colorado DNR executed a storage contract with the Corps to use up to 20,600 acre-feet of additional storage space in the reservoir.[44] The new space will be used to store water supply for multiple uses.

Uses of the CWCB's Water Rights

The CWCB uses its instream flow and natural lake-level water rights to preserve the natural environment to a reasonable degree. In some cases, the CWCB uses water acquired for instream flow use to improve the natural environment to a reasonable degree. These uses enhance healthy watersheds, rivers and streams, and wildlife. Additionally, through its water acquisitions, the CWCB can work with other entities on multipurpose projects, aligning water rights to meet consumptive and nonconsumptive needs.

One such example of a multipurpose project is the CWCB's acquisition, in partnership with the Colorado Water Trust and Skyland Metropolitan District, of an interest in the Breem Ditch in the Gunnison River Basin. The project resulted in multiple uses of the acquired water right. Those uses included preserving and improving the natural environment on Washington Gulch and the Slate River, with subsequent municipal use by the Skyland Metropolitan District to meet the needs of its constituents. In partnership with the Colorado Water Trust, the CWCB has also acquired an interest in the McKinley Ditch, located in the Gunnison River Basin. The CWCB will use the water in a split-season arrangement, under which a lessee will use the water to irrigate in the early season and the CWCB will use the water for instream flow use for the remainder of the irrigation season.

These creative and flexible approaches enable the CWCB to work with its partners to protect Colorado's streams (and the species that rely on them), sustain agriculture, and maximize beneficial uses of Colorado's water. The CWCB will use this water rights inventory process as a starting point for increased coordination with other state agencies to explore opportunities for sharing water.



Maroon Creek, in the White River National Forest. CWCB acquired a water right on this creek for the purposes of instream flows.

The legislation that authorized the CWCB to appropriate and acquire water for instream flow and natural lake level water rights recognized the need to "correlate the activities of mankind with some reasonable preservation of the natural environment."[45] The General Assembly imposed that balance by limiting instream flow appropriations to amounts the CWCB determines are "required for minimum stream flows to preserve the natural environment to a reasonable degree."[46]

The multipurpose projects described above are an innovative and important means of benefiting the natural environment while maintaining other uses of water. The CWCB acknowledges the many competing needs for water in Colorado, and will continue to work closely with stakeholders to ensure that instream flow protection and other water uses coexist harmoniously in order to achieve the balance needed to uphold the Colorado Water Plan water values.

Colorado Parks and Wildlife

Mission and Statutory Authorities

A merger of the Division of Parks and Recreation and the Division of Wildlife in 2011 created the CPW,[a] responsible for conservation, outdoor recreation, and wildlife management on behalf of current and future Coloradans.[47] CPW's mission statement is: "To perpetuate the wildlife resources of the state, provide a quality state parks system, and provide enjoyable and sustainable outdoor recreation opportunities that educate and inspire current and future generations to serve as active stewards of Colorado's natural resources."[48] CPW is authorized to acquire land and water—or interests in land and water—for wildlife, parks, and outdoor recreation purposes.[49]

CPW Water Rights Inventory

At present, CPW holds or manages approximately 1,320 decreed water rights. These were acquired primarily using sportspersons' dollars dedicated to preserving wildlife habitat, providing public access, and producing fish to stock state waters. Using general descriptors of these water rights, roughly 620 are direct-flow surface-water rights, 270 are groundwater rights, 220 are spring rights, and 210 are storage rights. The water rights are decreed for irrigation, piscatorial uses, direct flow for fish propagation, wildlife and recreation, and domestic rights. Domestic rights apply to employee housing and water supply for drinking and sanitary purposes at state parks. These numbers do not include some permitted wells, other water interests not associated with court decrees, and various other agreements.

Uses of CPW Water Rights

Through an executive order, Governor Hickenlooper required that Colorado's Water Plan reflect Colorado's water values (which Chapter 1 outlines).

CPW is the state agency charged with protecting wildlife and natural resources and providing recreation now and for future generations. Nearly all of the water rights the CPW owns or leases are dedicated to this purpose,[b] directly supporting the governor's goals and the agency's constitutional and statutory obligation to protect, preserve, enhance, and manage wildlife and recreation for the use, benefit, and enjoyment of the people of this state and its visitors.

There is statewide acknowledgement that supporting environmental and recreational attributes is vital to local economies and Coloradans' quality of life. The continued statewide environmental and economic benefits derived from Colorado's streams and lakes requires that the State protect environmental, wildlife, and recreational water needs. For example, endangered or threatened species and species of concern exist throughout Colorado; so, the State must ensure that there is water available to support these species. Conversely, while there are hotspots for recreation—such as rafting on the Upper Arkansas River and fishing on the Colorado River—the State benefits by supporting healthy multifaceted recreational economies on both the Front Range and on the western slope.

[a] House Bill 11-208 established the merger of the Division of Parks and Recreation and the Division of Wildlife. House Bill 12-1317 established the composition of the new Parks and Wildlife Commission.

[b] The 'Parks' side of CPW has some domestic water rights that provide water for bathing and drinking at state parks. These are the only rights that are not dedicated to protection and preservation of wildlife and natural resources.

Elk standing in shallow water. Colorado Parks and Wildlife is the state agency responsible for ensuring that wildlife in Colorado have the water resources they need.

CPW provides outdoor recreation, hunting, and fishing opportunities for more than 12 million state park visitors, 284,000 licensed hunters, and 733,000 licensed anglers. About 45 percent of Coloradans report that they regularly visit state parks. Recent studies indicate that roughly 18 percent of Coloradans are anglers and almost 5 percent of Coloradans hunt. Additionally, over 80 percent of all Coloradans use trails and over 50 percent participate in water sports. Overall, activities the CPW supports result in over 24 million recreation days per year in Colorado.

CPW's water use supports:

- Fisheries (rivers, reservoirs)
- Fish stocking (hatcheries)
- Recreation (fishing, boating, hunting, wildlife viewing)
- Habitat
  - Instream flows
  - Conservation pools in reservoirs
  - Wetlands, riparian habitat
  - Forage production, terrestrial habitat through irrigation
- Threatened and endangered species protection, recovery, and propagation
- Groundwater recharge
- Drinking water for visitors to state parks and wildlife areas

Partnerships are critical to CPW's mission. CPW works extensively with private landowners; local, state, and federal agencies; other public entities, such as water districts and municipalities; and nongovernmental organizations (NGOs) on a number of wildlife- and recreation-related projects. Some of the water-related projects include:

- Partnerships for protecting and restoring species of concern, such as the Colorado River cutthroat trout, roundtail chub, bluehead sucker, and flannelmouth sucker.
- General fishery management strategies regarding management classifications for all waters in the state. One example of such a strategy is the Basin Aquatic Wildlife Management Plan.
- Partnerships with agricultural water users to share and coordinate the use of water resources. Examples include the Rio Grande cooperative agreement and the Tamarack Ranch groundwater recharge project.
- Development of data to understand water quality issues and to support wise water quality management.
- Collaboration with the Habitat Partnership Program. This program is funded by revenue from the sale of big game licenses, and develops partnerships among landowners, land managers, sportsmen, the public, and CPW to reduce wildlife conflict—particularly conflict associated with forage and fencing. Habitat Partnership Program committees are responsible for finding local solutions to local problems. The program works with public and private landowners to develop distributed water features statewide, such as stock ponds, solar wells, and springs, that improve livestock or game distribution on the landscape and minimize riparian damage.

- Protection of water-dependent conservation values on easement properties, which helps to minimize agricultural dry-up and provide long-term benefits to wildlife and landowners.
- Investments that provide public access and recreational opportunities to and on otherwise private land and water rights.
- Continued work with the CWCB to protect and enhance streams and lakes through the Instream Flow Program. For example, in 2012, CPW loaned water to the CWCB from Lake Avery for instream flow use on Big Beaver Creek and the White River.
- Continued work with the CDPHE to ensure protection of water quality for fish, amphibians, wildlife, plants, and people.
- Provision of water to enhance wetlands on Natural Resource Conservation Service Wetlands Reserve Program easements in the San Luis Valley, benefiting both wildlife and agricultural operations.

CPW is committed to developing positive relationships in every area of the state. There is also potential to bolster CPW's work with other state agencies in order to develop and realize additional benefits from water assets. For example, CPW looks forward to working more closely with the State Land Board (SLB) to develop ways to use water assets that enhance wildlife habitat on state trust lands.

While some examples of projects with multiple benefits are listed above, the ability to use any particular water right for multiple purposes is generally a function of the individual water rights decree. CPW's water is first and foremost dedicated to environmental, wildlife, and recreational uses, as most of CPW's water rights are decreed for these uses. However, CPW actively works within the water basins to find opportunities to optimize the use of water to benefit Coloradans, without diminishing the protection of wildlife, habitat, and recreational facilities.

Colorado State Land Board of Commissioners

Mission and Constitutional/Statutory Authorities

The SLB protects, enhances, and manages Colorado's permanent endowments of assets to generate revenue for Colorado's public schools and public facilities. The SLB believes that economic productivity in perpetuity is dependent on sound stewardship, which includes the protection and enhancement of the beauty, natural values, open space, and wildlife habitat of those lands. Amendment 16 of the Colorado Constitution and Section 36-1-118, C.R.S. govern the SLB's management of its assets.

SLB Water Rights Inventory

The majority of the SLB's water assets consist of agricultural stock wells. Table 9.3-1 summarizes the water assets the SLB identified and verified.

TABLE 9.3-1 STATE LAND BOARD WATER ASSETS

TYPE OF WATER ASSET	QUANTITY	COMMENTS
Ownership Shares in Ditch Companies	9	Used to support agricultural leases located on state trust land.
Decreed Surface Water Structures	17	
Decreed Groundwater Structures	117	
Permitted Structures	55	
Agricultural Stock Wells (estimated)	3,000	Stock wells located on state trust land, used to support grazing leases and permitted at less than 15gpm.

Uses of SLB Water Rights

All water rights the SLB currently owns help support agricultural production on state trust lands. This directly supports the agency's constitutional and statutory obligation to "protect and enhance the long-term productivity and sound stewardship of state trust land held by the board" by promoting sound land management practices, long-term agricultural productivity, and community stability. This use of the SLB's water rights also supports Colorado's Water Plan goal to maintain viable and productive agricultural lands.

There are additional opportunities for the SLB to work with other state agencies to develop and maximize benefits from its water assets. These include:

- Leasing existing water assets to CPW or the CWCB to support projects that enhance wildlife habitat on state trust lands.
- Selling or leasing land to other agencies for the development of new water projects.
- Purchasing new water assets that the SLB can hold and lease to other state agencies.

History Colorado

Established in 1879, History Colorado is both a state agency under the Department of Higher Education and a 501(c)(3) charitable organization.[50] History Colorado is a trustee of the State and holds property on its behalf.[51]

History Colorado Water Rights Inventory

History Colorado's water assets are a mix of surface water, ground water, and leased storage rights. The decreed uses of these rights include domestic, irrigation, commercial, and industrial.

TABLE 9.3-2 HISTORY COLORADO WATER ASSETS

TYPE OF WATER ASSET	QUANTITY	USES
Leased Water Rights	2	Commercial, Domestic, Storage
Decreed Surface Water Structures	2	Augmentation
Decreed Groundwater Structures	7	Commercial, Domestic, Industrial, Irrigation, Geothermal

Uses of History Colorado's Water Rights

History Colorado uses its water rights in connection with the operation and maintenance of its museums and historic sites.

Colorado Department of Corrections

Mission and Statutory Authorities

The Colorado Department of Corrections (DOC) is governed by Article 17, C.R.S. (2014). The DOC's mission is "To protect the citizens of Colorado by holding offenders accountable and engaging them in opportunities to make positive behavioral changes and become law-abiding, productive citizens."[52] Section 37-88-101 authorizes the DOC to own ditches, canals, and reservoirs for irrigation and domestic purposes.[53] Section 17-24-106 authorizes the Division of Correctional Industries to own real and personal property, which includes water rights.[54]

The DOC Water Rights Inventory

The DOC owns a number of water rights, including surface and groundwater rights and one storage right, located in Water Divisions 2, 4, and 5. The decreed uses of these water rights include irrigation (including irrigation by reuse and successive use of treated wastewater), domestic, exchange, augmentation and recreational (including fish and wildlife), storage and subsequent application to beneficial uses, sanitary, commercial, industrial, stock watering, mechanical, horticultural, fire protection, and manufacturing.

Uses of the DOC's Water Rights

Currently, the DOC uses most of its water rights for landscape irrigation and to support the Division of Correctional Industries' agribusiness program—for example, for raising pasture grass and hay to support cow-calf dairy herd development. The DOC uses the wells and reservoir associated with the Rifle Correctional Center in Garfield County to support all functions at the facility, including irrigation needs.

ACTIONS

Based on the information compiled in the state agency water rights inventory process, the state agencies this section discusses are currently using their water rights in ways that accomplish their respective missions, benefit the state, and further the water values underlying Colorado's Water Plan. To further align state water rights with these values, and to maximize the use of these water rights to realize all possible benefits to the state, the following actions are necessary:

1. The CWCB will continue to work with state agencies to compile and update inventories of their water rights.
2. The CWCB and other state agencies will use the information resulting from the inventory as a basis for coordinating agencies' water right uses and potentially sharing water to provide additional benefits to the state. To accomplish this, the CWCB and other state agencies will:
    a. Convene work groups comprising multiple agencies' staff members. These work groups will identify opportunities to align the agencies' water rights to achieve additional benefits and, where feasible, use those water rights to meet identified needs. For example, the CWCB and CPW can identify opportunities for releases from CPW reservoirs to be protected under Colorado's Instream Flow Program.
    b. Encourage sharing and optimal use of water among state agencies where efficiency savings might be realized.
    c. Conduct technical and legal feasibility analyses of identified opportunities for aligning or sharing agency water rights, and advance feasible projects in a timely manner.
3. The CWCB will identify State-owned water rights within the Colorado River Basin and evaluate opportunities for these rights to assist with Colorado River Compact compliance. For example, the Animas-La Plata Project contract between the BOR and the CWCB recognizes that the State's stored water rights in the project could be used for compact compliance purposes. There may be other state resources that could assist in complying with the State's obligations under the Colorado River Compact.
4. The CWCB will continue to schedule joint meetings with local governmental water management agencies around the state to facilitate information sharing and coordination on common water rights issues.
5. The CWCB will work with local stakeholder groups to determine where instream flow water rights could provide the greatest benefits, and assist such groups with the instream flow recommendation process.
6. The CWCB will partner in the early stages of future multipurpose projects as a water rights holder when such partnership is needed to ensure the success of the project, minimize environmental impacts of a project, or otherwise further the water values Chapter 1 outlines.
7. In coordination with the CWCB and interested stakeholders, CPW will take the lead on identifying opportunities to use CPW's water rights to help fill environmental and recreational gaps while maintaining consistency with its mission, statutory mandate, and rules/policies governing the use of CPW property.[c]

[c] CPW is funded primarily through the sale of hunting and fishing licenses, parks passes and permits, and the receipt of associated federal parks and wildlife funds. All real property interests, including water rights, purchased with wildlife cash, parks cash, or associated federal funds, are required to be used only for parks and wildlife purposes. See sections 33-1-112(1), 117, 118, and 119, 33-9-107 and 109, 33-10-108(1), 111, 112, and 113, C.R.S.; see also 16 U.S.C. 669 to 669i, 16 U.S.C. 777 to 777l, and 16 U.S.C. 460l-4 to 460l-11. As such, there is limited ability to use such water rights for any purpose other than the originally intended parks and wildlife purposes. Any secondary or shared uses must be consistent with, and not otherwise impair, the water rights' originally intended parks and wildlife purposes.

Sun sets near Fort Collins over Horsetooth Reservoir, part of the Colorado-Big Thompson Project. The reservoir provides drinking water, irrigation, recreational opportunities and hydropower generation to east slope communities and is jointly operated by the Bureau of Reclamation and the Northern Colorado Water Conservancy District.

9.4 FRAMEWORK FOR A MORE EFFICIENT PERMITTING PROCESS

GOAL

Colorado's Water Plan advocates for effective and efficient permitting in which State of Colorado agencies work together to complete their work early in the permitting process. This will provide the opportunity for State support without being pre-decisional.

Introduction

Governor Hickenlooper's May 2013 executive order reiterated that the gap between Colorado's water supply and water demand is real and looming. While conservation is a key strategy to narrowing the gap across the state, it alone cannot solve the problem. Scenario planning indicates that at least 80 percent (350,000 acre-feet) of already-planned projects need to be implemented, and many of these still need to go through the permitting process.[55] Ideally, the permitting process ensures the implementation of projects that best meet Colorado's water values—which are to support vibrant and sustainable cities, viable and productive agriculture, a robust tourism industry, efficient and effective infrastructure, and a strong environment. The current permitting process needs review, and the executive order directed the CWCB to "streamline the State role in the approval and regulatory processes regarding water projects."[56]

The objective of this section of Colorado's Water Plan is to explore how permitting in Colorado can be more effective and efficient. Tackling permitting is extremely difficult due to the complexity of the projects, the challenges in understanding and reducing environmental impacts, and the condition of many of the aquatic systems. This section describes the current permitting and licensing processes, challenges that arise during the process, and reforms that could make the process more efficient and effective for all parties involved. The solutions the CWCB proposes focus on how the State can be more effective and eliminate and reduce redundancies. This section also touches on the benefits of cooperation among federal agencies, local governments, and stakeholders. Finally, this section describes an approach that allows the State to support a project without predetermining the outcome of an environmental permit, certification, or mitigation plan.

Summary of Each Process Within Water Permitting

This section briefly explains the state and federal process that project proponents are required to follow in completing a project. Section 2.4 contains a description of entities involved in permitting.

National Environmental Policy Act Process

NEPA is a federal law that establishes and requires a structured planning and decision-making framework for any federal decision that has the potential to significantly impact the human environment. NEPA requires federal agencies to assess the environmental effects of their proposed actions before decision making. Importantly, NEPA provides opportunities for citizen involvement in government decision making through public disclosure, and formal opportunities for public input as the environmental effects of a project are evaluated.[57]

There are three situations in which a water supply project may trigger NEPA's procedural requirements:

- One or more project components will occur on federal lands, such as national forest or BLM lands.
- The project or its components will be funded in part or whole by federal funds.
- The project will require a federal permit or license.

For water projects in Colorado, the most common federal actions that lead to a NEPA environmental review are a BOR contract for storage of water in a facility managed by that agency, a Corps CWA Section 404 permit, a project component that will be built on federal land, or a FERC hydropower license.[58]

The NEPA process is intended to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.[59] Regulations instruct federal agencies to use the NEPA planning process "to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment" and to use all practicable means "to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions."[60] It is with public and agency input that these goals are to be achieved.

The NEPA process begins when the federal agency determines that there is a need to take action. The federal agency that needs to take action is the lead agency and is responsible for compliance with NEPA. Depending on the circumstances, a joint lead agency and/or cooperating agencies can be identified to share in the responsibilities of completing NEPA environmental review. For many state water projects that may have significant environmental impacts, an EIS process is required.[61]

To the fullest extent possible, NEPA regulations direct federal agencies to integrate NEPA requirements with other planning and environmental review procedures required by law or by agency practice, so that all such procedures run concurrently rather than consecutively.[62] Agencies often do not meet this goal and instead run consecutive permitting processes. This, in addition to other factors, often leads to an extended planning process. To successfully achieve the goal of concurrent planning, the NEPA process must start at the earliest possible time within the water supply project planning process and involve all interested parties in a meaningful way. Proponents should assess whether a project proposal is likely to trigger NEPA planning requirements at the start of planning, and immediately engage the relevant federal and state agencies, as well as local governments and other interested parties. Early involvement of all such parties may also avoid extended planning processes by reducing the need for supplemental NEPA documents.

Clean Water Act Section 404

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities this program regulates include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (for example, certain farming and forestry activities).

In summary, the Code of Federal Regulations (CFR) 40 Part 230 Section 404(b)(1)(Guidelines) states that no discharge of dredged or fill material may be permitted if:

- A practicable alternative that is less damaging to the aquatic environment exists.
- It causes or contributes to violations of any applicable state water quality standard.
- It violates any applicable toxic effluent standard.
- It jeopardizes the continued existence of species listed as endangered or threatened under the ESA.
- The nation's water would be substantially degraded, and unless steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Like NEPA, Section 404 requires that a program address specific, structured planning steps and information at the initial stages of project planning and development in order to increase efficiencies. Various federal agencies have different Section 404 roles and responsibilities.

The Corps administers the day-to-day permitting program, including individual and general permit decisions. The Corps issues individual permits and evaluates applications under a public interest review, as well as evaluates the environmental criteria defined in the guidelines and NEPA regulations, if they are applicable. For most discharges that have only minimal

adverse effects, the Corps issues a general permit. It issues general permits on a nationwide, regional, or state basis for particular categories of activities. Large-scale water projects require an individual Section 404 permit.[63] The Corps also conducts or verifies jurisdictional determinations, develops policy and guidance, and enforces Section 404 provisions.

The EPA develops and interprets policy, guidance, and environmental criteria used in evaluating permit applications. The EPA also determines the scope of geographic jurisdiction and evaluates the applicability of any exemptions, approves and oversees state and tribal assumptions, and reviews and comments on individual permit applications. The EPA has the authority to prohibit, deny, or restrict the use of any defined area as a disposal site under section 404(c), may elevate specific cases for further evaluation under Section 404(q), and enforces Section 404 provisions.

The USFWS evaluates the impacts of all new federal projects and federally permitted projects on fish and wildlife, including projects subject to the requirements of Section 404. The USFWS also elevates specific cases or policy issues about an individual permit that is required for activities that have potentially significant impacts.

401 Water Quality Certification

Under Section 401 of the CWA, if an activity that requires a federal license or permit may cause any discharge into navigable waters, the applicant for the federal license or permit must obtain a 401 certification to protect water quality. The WQCD is required by Colorado statute (C.R.S., §25-8-302(1)(f)) to review federal licenses and permits under Section 401 of the CWA. Regulation No. 82 (5 CCR 1002-82) authorizes the division to certify, conditionally certify, or deny certification of federal licenses. It also sets forth best management practices applicable to all certifications, with one exception.[64] Regulation No. 82 applies to division certification of CWA 404 permits issued by the Corps, licenses for hydropower projects issued by the FERC, and other federal permits involving a discharge, including CWA Section 402 discharge permits issued by the EPA.[65] The 401 certification process includes an antidegradation analysis as described in Chapter 7.3.

Exceptions apply to 402 discharge permits the EPA issues for facilities on tribal lands, Section 404 permits the Corps issues on tribal lands, and 402 permits the

LURLINE UNDERBRINK CURRAN

COLORADO RIVER BASIN

Lurline was the county manager for Grand County and currently serves as the vice chair of the Colorado Basin Roundtable. As the County's lead negotiator for recent transmountain diversion agreements associated with the county's 1041 permitting authority, she demonstrated that cooperation can be accomplished even in the most contentious of circumstances. She is pictured by the bridge at Grand Lake near the headwaters of the Colorado River.

Colorado's Water Plan will provide a template for cooperation and thoughtful decisions as demands increase on the waters originating in Colorado. There are many struggles to overcome between the East and West slopes, but the plan...

CONTINUED AT END OF CHAPTER

PROFILE

EPA issues for federally owned facilities on federal lands. For these facilities, the EPA issues the 401 certification.[66] Individual certification review is not required for Section 404 general or nationwide permits the Corps issues, except for activities covered by certain nationwide permits on tribal lands. Except for the activities on tribal lands, general or nationwide permits are certified under statute (C.R.S., §25-8-302(1)(f)) without additional conditions.

The WQCD issues a Section 401 water quality certification when it determines reasonable assurance that both the construction and the operation of the project will comply with state surface and groundwater water quality standards and requirements. If the WQCD concludes that the project will comply with the water quality standards and requirements, and if one or more conditions are placed on the license or permit, it will issue the certification with the necessary conditions included.

House Bill 15-1249 passed during the 2015 legislative session. It repeals and reenacts statutory fees for clean water and drinking water programs in the WQCD of the CDPHE. One of the many provisions of the bill authorized new fees for the CDPHE certifications related to projects affecting regulated water quality standards in jurisdictional waters of the United States; these are known as 401 certifications. The WQCC establishes 401 certification fees by rule according to a tiered schedule, and these fees will take effect in fiscal year 2016-2017.

Fish and Wildlife Mitigation Plans

Colorado State Statute 37-60-122.2 (C.R.S.), known as the Fish and Wildlife Resources Fund and Authorization, declares that fish and wildlife resources are a matter of statewide concern, and that applicants proposing water diversion, delivery, or storage projects should reasonably mitigate impacts on such resources. Applicants must submit a proposed mitigation plan to the CPW Commission for review and approval. If the applicant and the WQCC reach a mutual agreement, the WQCC forwards the proposed plan to the CWCB for adoption as the official State position. If the WQCC rejects an applicant's plan, it still forwards the plan to the CWCB. If the CWCB disagrees with the WQCC, the governor decides whether to approve the plan.

A mitigation plan is generally required when an applicant seeks a permit or license from the federal government for specified types of water projects, with some exceptions as noted in the statute.[67] The CWCB has grant funds available for applicants to help implement the mitigation plans, and has established criteria for such grants.[68] Examples of completed or in progress Section 122.2 plans include Southern Delivery System, Windy Gap Firming Project, Moffat Collection System Project, and Chatfield Reservoir Reallocation Project.

Claimed Water Regulation

The Colorado WQCC Regulation No. 84 (5 CCR 1002-84) and the WQCD's reclaimed water program are designed to promote the use of reclaimed water in Colorado. The regulation includes requirements and minimal standards for reclaimed water, and for treaters and users of reclaimed water, to employ best management practices in its use. These minimal standards are necessary to protect public health and the environment. Regulation applies to the use of reclaimed water for landscape irrigation, agricultural irrigation, fire protection, industrial, and commercial uses as detailed in Table 9.4-1. The treatment and best management practices required before and during use depend on the use of the reclaimed water. Regulation 84 requires treaters and users to obtain and comply with a notice of authorization, which the WQCD issues, and which contains the terms, limits, and conditions deemed necessary to ensure compliance with Regulation 84.

TABLE 9.4-1 RECLAIMED WATER USES AUTHORIZED IN REGULATION 84

	APPROVED USES
Industrial	Evaporative Industrial Processes
	Washwater Applications
	Non-discharging Construction and Road Maintenance
	Non-evaporative Industrial Processes
Landscape Irrigation	Restricted Access
	Unrestricted Access
	Resident-Controlled
Commercial	Zoo Operation
	Commercial Laundries
	Automated Vehicle Washing
	Manual Non-Public Vehicle Washing
Fire Protection	Residential Fire Protection
Agricultural Irrigation	Non-Food Crop Irrigation and Silviculture

Hot air balloons at Chatfield Reservoir. Reallocation of flood storage water received fish and wildlife mitigation plan and 404 permit approvals in 2014.

1041 Local Permits

In 1974, the Colorado General Assembly enacted measures to define the authority of state and local governments in making planning decisions for matters of statewide interest. These powers are commonly referred to as "1041 powers," based on the legislation bill number (House Bill 74-1041). These 1041 powers established under this "Areas and Activities of State Interest Act" allow local governments to identify, designate, and regulate areas and activities of state interest through a local permitting process. The general intention of these powers is to allow local governments to maintain their control over particular development projects, even where the development project has statewide impacts. The statute concerning areas and activities of state interest can be found in 24-65.1-101 (C.R.S.), The Local Government Land Use Control and Enabling Act (as described in Section 2.3) is another source of authority, along with others, which confers upon local governments the authority to regulate the development of water projects within their jurisdictions to ensure the protection of the environment and to provide for the planned and orderly use of land.[69]

Generally, development may only proceed if it is consistent with the local communities' environmental and developmental goals as outlined in their 1041 regulations.

Of particular interest to many local governments are impacts from the construction and operation of large-scale water projects. The Areas and Activities of State Interest Act authorizes local governments to designate as "activities of statewide interest" the site selection and construction of major new domestic water and sewage treatment systems, the major extension of existing domestic water and sewage treatment systems, the site selection and development of new communities, and the efficient utilization of municipal and industrial water projects. Local governments may not pass regulations that are categorically prohibitive of the building of municipal water facilities and expansion of existing projects. However, the Act allows the locality to deny a specific application or require a permit with designated conditions before construction. A permit may be denied for a specific water project that does not meet the standards or criteria of the local regulations.

Past and Existing Colorado Efforts

In the past, there have been several attempts to coordinate the permitting process. The General Assembly created the Colorado Joint Review Process (CJRP) in 1983 to improve the environmental permitting process, primarily as it pertained to energy development. The CJRP was never fully completed for any project.[70] It is not clear whether this is because the energy industry collapsed, or because the process was not considered helpful. Many projects failed to proceed for economic reasons. The CJRP also coordinated the State's combined responses to major projects, such as the review of the proposed Denver International Airport, the Two Forks veto, and Colorado's bid for the Super Conducting Super Collider. In 1996, the General Assembly allowed the CJRP legislation to expire.

Another attempt to coordinate the review process was initiated in 2003 when Colorado's General Assembly established the Colorado Coordination Council through HB03-1323. The executive director of the DNR was designated as the administrator of the council. The coordination process was voluntary; sponsors could choose to use it. The permitting areas allowed within the process included "extraction, use, conservation, transportation, or management of natural resources," which required permits, approvals, or compliance from federal, state, or local governments.[71] This process was never used, and the statutes supporting the council were allowed to expire in 2013. According to DORA, which reviews statutes set to expire, "Very few outside, or even inside, DNR were aware of the Council's existence. Indeed, most stakeholders contacted as part of this sunset review had never heard of the council. Those within DNR acknowledged that DNR conducted no outreach to inform the community of the Council's existence and, to the best of anyone's recollection, no one at DNR had ever suggested that a project sponsor utilize the Council."[72]

Recently, the State and various federal agencies have made progress toward coordinating review processes through the use of MOUs. No formal legislation was passed to initiate the development of MOUs. These documents assist in creating a structure under which the State and the respective agencies can work together, with the intention of developing a more coordinated permitting process.[a] Colorado and federal permitting

[a] Examples include the FERC MOU, concerning collaboration with other federal permitting entities, and the State and Forest Service MOU, concerning coordination with the Colorado Department of Natural Resources and the Forest Service.

TABLE 9.4-2 STAKEHOLDER INPUT

	Met with the CWCB	Provided Written Comments
Colorado Department of Public Health & Environment (CDPHE)	X	
Colorado Parks & Wildlife (CPW)	X	
Colorado Attorney General's Office (AGs Office)	X	
Division of Water Resources (DWR)	X	
Northern Colorado Water Conservancy District (NCWCD)	X	X
Trout Unlimited (TU)	X	
South Metro Water Supply Authority (SMWSA)	X	X
U.S. Army Corps of Engineers (Corps)	X	
Environmental Protection Agency (EPA)	X	
Bureau of Reclamation (BOR)	X	X
Federal Energy Regulatory Commission (FERC)	X	
Denver Water	X	X
Upper Yampa Water Conservancy District	X	
Northwest Colorado Council of Governments	X	X
Western Resource Advocates (WRA)	X	X
Colorado Springs Utilities	X	X
Water Reuse Association	X	X
Aurora Water		X
City of Thornton		X
Front Range Water Council	X	X
Conservation Colorado		X
Colorado Wastewater Utility Council		X
Colorado Oil and Gas Association		X
Pikes Peak Regional Water Authority		X
Fountain Valley Authority		X
Douglas County		X

agencies made progress on developing a Collaborative Approach to Water Supply Permit Evaluation (CAWS) through a series of facilitated conversations among several parties. As a result, the parties reached an informal agreement under which conservation could be treated either as a demand reducer or as an alternative to the project. The DNR initiated the process to mutually understand state and federal permitting processes and requirements, and to identify areas with potential for improved efficiencies.[b]

Despite the lack of an official coordinating statute for state and federal permitting entities, there is coordination. Recently, CPW and the WQCD have become cooperating agencies for several projects undergoing NEPA's EIS process. Project proponents have indicated that this has been a helpful, collaborative effort.[73]

In addition, there is increased coordination within the DNR.

[b] Collaborative Approach to Water Supply Permit Evaluation (CAWS) MOU: Beginning in 2010, the Colorado Department of Natural Resources, U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers met to educate federal permitting partners about state planning and permitting issues. Out of that process, the agencies developed an MOU concerning the use of conserved water. Rather than considering conservation as an alternative, the agencies agreed that conservation would be factored into reducing demands as part of the purpose and need of the project. While this MOU has not yet been finalized, the agencies have begun an important collaborative process to help each agency understand opportunities and constraints that may inform the MOU and streamline processes in the future. Additional efforts will take place to revise and/or finalize the MOU as appropriate.

In 2012, President Obama issued Executive Order 13604, "Improving Performance of Federal Permitting and Review of Infrastructure Projects."[74] Specific federal agencies reportedly applied an expedited review process to 50 pilot projects, each with an accelerated schedule, clear project review milestones, and a designated lead coordinating agency. Agencies tracked the project progress on a "Federal Infrastructure Permitting Dashboard," which contained an IT platform on which agencies could develop a cooperative schedule, share project documents, and quickly communicate with one another.[75]

Basin Roundtable and Interbasin Compact Committee Concepts Concerning Permitting

The IBCC's No-and-Low-Regrets Action Plan and the basin roundtables' BIPs discuss permitting in depth. Of the eight BIPs, six discuss challenges or solutions. Table 9.4-3 at the end of this section quotes these important stakeholder sources. While the individual statements in the table do not reflect the position of the State of Colorado, future discussions should incorporate careful consideration of the challenges and solutions.

Additional Stakeholder Outreach

To further understand the needs, issues, and potential solutions regarding the permitting process, the CWCB staff met with and interviewed a variety of water providers, environmental groups, and state and federal partners. Table 9.4-3 indicates the list of organizations with which the CWCB met or from which it received comments from concerning permitting (not including several individuals who provided comment).

Stakeholders across many industry and government sectors desire improved coordination and increased early involvement, regardless of whether those stakeholders represent environmental or utility interests. In many cases, stakeholders believe that improved coordination and increased early involvement would shorten permitting time while upholding the environmental protections that permitting secures. Multiple stakeholders also express interest in reducing duplication, increasing resources, lowering costs, unifying methods, increasing clarity, examining reuse permitting, improving quality of draft EISs, and encouraging multi-purpose projects.[76]

One common concept these meetings have uncovered is to revive a program akin to the CJRP described above. The establishment of a joint NEPA review process, which would begin before land use authorization applications are submitted for new water projects, may prove to facilitate a more efficient process. The BLM's experience is that applicants who are willing to have pre-application discussion of potential impacts and perform analysis of alternatives before submitting land use authorization applications experience much shorter wait times.

The Northwest Colorado Council of Governments envisioned the process in the greatest detail. This process is summarized below:

Because it is expensive, time consuming, and sometimes "work for the sake of work" for the applicant, regulators, local governments, and other stakeholders to participate in a NEPA process, the State should facilitate a joint review process before and during the NEPA process. This sort of "front loading" minimizes the costs to the applicant and other stakeholders because as early as possible, the applicant and regulators understand what concerns, impacts, and potential for mitigation are relevant in the areas affected by the project; and what will be necessary to satisfy federal, state, and local laws and regulations.

This approach also improves the likelihood that alternatives, reports, and studies that are generated during NEPA will be more focused and responsive to actual, real world concerns, rather than reports and studies that are off the mark. Agreement can be reached on the scope of alternatives, reports, and studies before the applicant/regulators spend money on consultants to prepare pounds of paper that ultimately are not necessary to satisfy NEPA, the regulators, or affected stakeholders.

Another important result of the process is that for each project, the joint review process would define the regulatory framework and where the overlaps between state, local, and federal processes are, so that they could be coordinated rather than duplicative or contradictory. This saves money for the applicant, the regulators, and the public concerned about the project as well as ensuring that permits can be issued more quickly.

Finally, it provides a forum to formulate agreements, like the Windy Gap Firming Project IGA, that result in projects that benefit the project proponent, the environment, and affected interests.

In order to be part of the joint review process, participants would have to agree to certain principals regarding rules of engagement. Those rules would require that the parties work in good faith, explain interests rather than take positions, among others.

The local governments from the areas that would be affected by the project should be responsible for identifying the appropriate local stakeholders and coordinating local input.

Critical input points during the process are during:

1. *Scoping*
2. *Developing alternatives*
3. *Determination of methodologies and data gaps*
4. *Mitigation and enhancement plans*

The Front Range Water Council suggests that Colorado use, or modify, the expedited federal permitting procedures and dashboard developed as a result of Presidential Executive Order 13604 described above.

Permitting Issues and Potential Process Improvements

Several common potential process improvements, as well as comments from water providers, the conservation community, and various state and federal agencies, emerged after the CWCB reviewed the work of the IBCC and the basin roundtables. Based on these discussions, the CWCB identified the following process improvements to explore further:

1. Improve Coordination

- Coordinate review efforts by different state agencies.
- Coordinate EIS document review across state agencies with the goal of increasing efficiency.

2. Increase Early Involvement

- Examine opportunities for state agencies, local governments, stakeholders, and federal agencies to get involved earlier in the NEPA process.
  - Involve NEPA and CWA Section 404 lead agencies (if applicable) at the very initiation of project planning to ensure a concurrent (vs. sequential) planning process. This will facilitate early identification of required planning steps and information needs.

3. Coordinate Technical Methods

- Reduce duplication of technical methods across state agencies, while respecting the various authorities and obligations within existing law.

4. Increase State and Other Resources

- Shorten the length of time needed to complete the required environmental reviews, while maintaining a robust decision-making process.
- Evaluate potential future State staff demands and associated resources needed to complete the reviews in a timely manner at the beginning of the permitting process.

5. Increase Clarity

- Increase the understanding of the information required for environmental reviews.
- Identify required technical elements, assessment methodology, and reporting results of environmental parameters, including hydrology, conservation, scenario planning, water quality status and designated uses, modeling applicability, and risk tolerance.
- Understand the role of conservation in purpose and need development.
- Develop a State certification and mitigation handbook for project proponents and stakeholders.

6. Improve the Quality of Draft EIS Documents

- Enhance efficient completion of State certification, federal permitting, and mitigation plan processes.
- Emphasize issue identification earlier in the EIS process by involving all parties with a decision-making role, and by collecting baseline environmental data.

7. Encourage Multi-Purpose Projects

- Facilitate projects with multiple objectives, such as municipal, industrial, hydropower, environmental, recreational, and agricultural objectives, by increasing sources and availability of funding for these types of projects.

- Explore with project proponents and other beneficiaries opportunities to streamline permitting processes, equitably allocate mitigation responsibilities, and provide State support for these types of multi-purpose projects.

Many of these process improvements will be addressed by conducting a series of lean events with state and federal partners and consulting with stakeholders. Lean events (also called Kaizen events) are short term improvement projects with a specific goal or set of processes to improve.[77] These events are attended by the owners and operators of a process with the intent of making efficiency improvements to that process. The events will accomplish the following:

- Gather operators, managers, and owners of a process in one location;
- Map the existing process;
- Improve on the existing process; and
- Solicit buy-in to the process improvements from all involved parties.

Framework for State of Colorado Support for a Water Project

The State of Colorado could develop a more effective and efficient pathway for a water project to receive State support (Figure 9.4-1, page 9-45) while continuing to uphold state and regulatory review responsibilities. The State will identify milestones and decision points at the beginning of the process to make the regulatory process more efficient and effective.

Figure 9.4-1 (page 9-45) explores a framework for how the State could be involved in the Federal 404 permitting process.

1. Pre-permit work has been shown to resolve many of the issues prior to a project proponent's permit application submittal.
2. The CDPHE and DNR cooperating agency involvement will focus on impacts, analysis, mitigation, and enhancements for water quality and fish and wildlife.
3. In order for the CDPHE and DNR to evaluate the project in a contingent manner, the Draft EIS must a) identify the preferred alternative, and b) detail mitigation and enhancements for water quality and fish and wildlife.
4. The process clarifies the time at which the State's fish and wildlife mitigation plan would happen.
5. Based on the information in the Draft EIS, the Wildlife Mitigation Plan, and public comments, the CDPHE and DNR would provide their recommendations to the Governor's Office. The definition of state support is below.
6. If 401 certification occurs before the ROD, it will automatically be a conditional certification. The first condition would be that if the underlying assumptions of the FEIS change or if the preferred alternative changes as part of the ROD, the 401 certification must be completed again after the ROD.

Pre-Permitting Work (Initial Studies and Stakeholder Involvement)

If a project proponent is seeking State technical or financial support for initial planning, baseline environmental studies, alternatives analysis, feasibility studies, or initial stakeholder involvement, priority will be given to projects that:

- Meet the goals and measurable outcomes identified in the BIPs;
- Identify a project proponent;
- Meet an identified need; and
- Can be built within the next 15 years, assuming a more efficient and effective permitting process as suggested below.

State Support for Projects Aligned with Colorado's Water Values

Importantly, Colorado's Water Plan does not require proponents of water projects to take any action. A project proponent can, however, voluntarily qualify for State support in the form of state engagement, facilitation, or funding by ensuring the project aligns with Colorado's water values (Chapter 1). The State will use the following criteria to determine alignment with these values.

- Does the project proponent demonstrate a **commitment to collaboration?** Does the project proponent:
  - address more than one type of need;

- involve multiple participants where appropriate;
- consult with a broad set of local stakeholders and local governments before or early in the regulatory process (examples of stakeholders include relevant basin roundtables, water users, conservation groups, and community groups); or
- provide meaningful opportunities for input?

- Does the project proponent **address an identified water gap?** Is the project:
  - included in a BIP;
  - identified as meeting a defined need in a basin needs assessment;
  - identified as meeting a defined need identified in the SWSI; or
  - identified as part of the no-and low-regrets scenario planning process?

- Does the project proponent **demonstrate sustainability?** Does the project proponent:
  - adopt an integrated plan or plans geared toward implementing the conservation best practices at the high customer participation levels, as defined in the SWSI;
  - avoid adverse effects to environmental and recreational interests or adopt environmental, watershed health, and recreational mitigation in the planning phase of the project, prior to consideration in the permitting phase of alternatives that minimize or avoid adverse effects (project proponents should consider use of existing tools if available, such as stream management plans that follow state guidance, instream flow water rights, water leasing, restoration, infrastructure upgrades, and consumptive use efficiencies);
  - avoid impacts to, mitigate, or enhance water quality, such as exceeding water quality standards or impairment of classified uses;
  - mitigate or avoid economic and social impacts on agricultural and rural communities;
  - maximize the use of water resources (through reuse, firming the yield of existing supplies, water sharing arrangements, improving or modernizing aging infrastructure, or aquifer storage and recharge projects);
  - partner with the local government(s) being served by the water project to incorporate best water use practices into land use planning efforts (these practices are included in water and land use trainings offered by CWCB and DOLA as described in Section 6.3.3); or
  - demonstrate that the project will not unreasonably increase the risk of non-compliance with any interstate compact or the curtailment of existing water rights (projects depending on water from the Colorado River system can demonstrate this commitment by agreeing to participate in the collaborative contingency planning efforts discussed in Chapter 8 and Section 9.1)?

- Does the project proponent establish the **fiscal and technical feasibility** of the project? Does the project proponent demonstrate:
  - over-all cost-effectiveness;
  - local investment or contribution;
  - financial capability to repay debt (bonds, loans, or other debt instruments);
  - an intent to leverage any state grant or loan with private, local, or federal funding;
  - technical and legal availability of water supplies for the project; or
  - readiness to proceed upon receipt of necessary funding and permits (i.e. completed preliminary planning and design work, obtained necessary water rights, secured necessary financial commitments)?

State Resource Prioritization

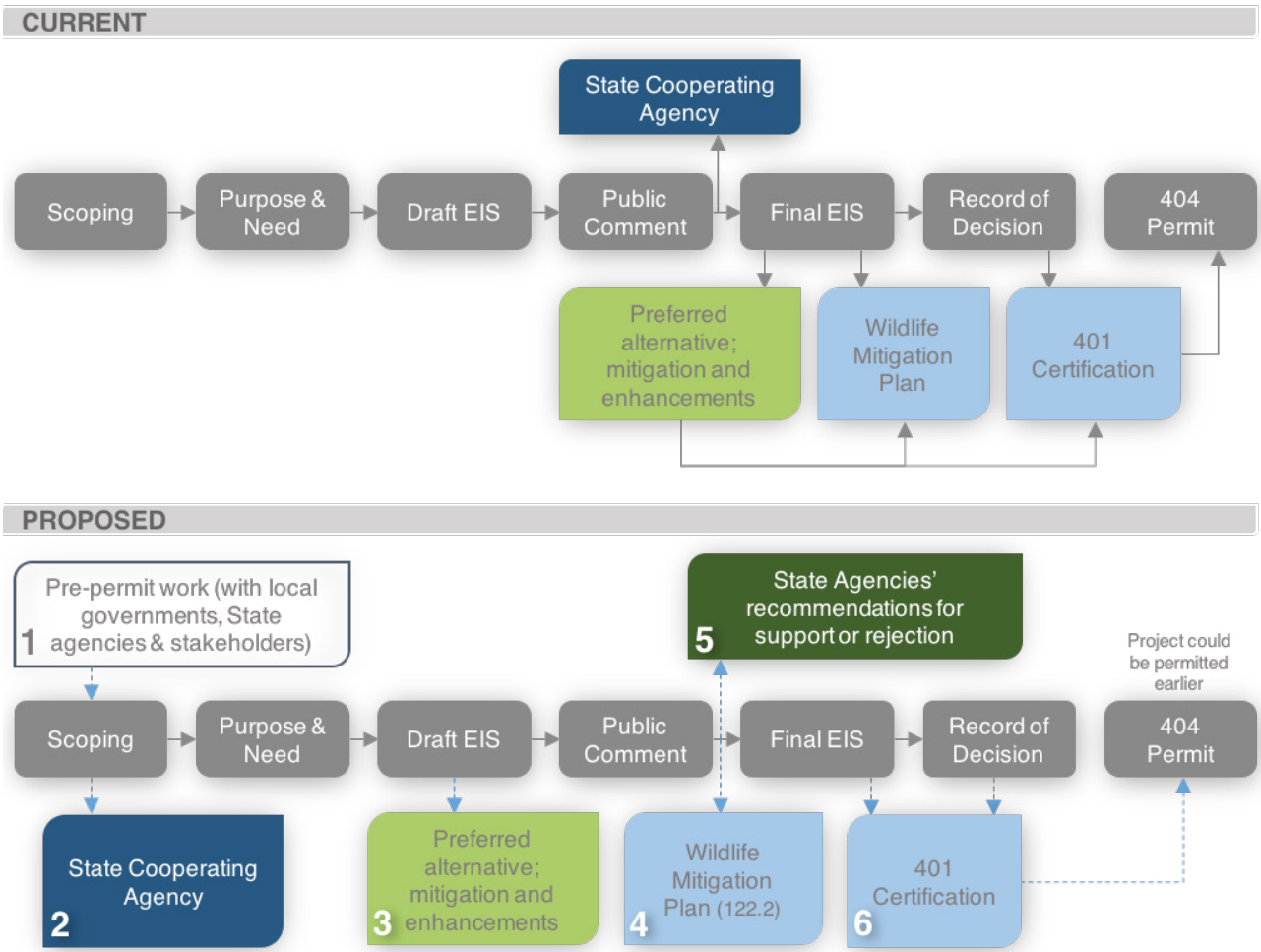
With the above criteria satisfied, the State will commit to front-loading State efforts at the beginning of the permitting process as available resources allow. This approach enables the State to coordinate with local governments and stakeholders and engage as a cooperating agency through the federal permitting process. Cooperation would need to occur at critical decision points, including scoping, methodological review, alternatives analysis, and development of mitigation and enhancement opportunities. In addition, this process

could use a coordinated dashboard approach to define goals, timelines, and necessary permits. Existing regulations suggest that a coordinated approach is allowable under existing state law. For instance, regulation number 82.5(C)(2) states, "Where possible, the 401 certification process should be coordinated or consolidated with the scoping and review processes of other agencies which have a role in a proposed project in an effort to minimize costs and delays for such projects."[78] Federal recognition of the need to increase permitting efficiency also signals the potential for improvement of a process that is widely viewed as broken by stakeholders form multiple sectors.[79]

Preliminary Technical Review for State Processes

Figure 9.4-1 summarizes the current state processes for involvement in the federal 404 permitting process. The DNR's wildlife mitigation process is guided by C.R.S. 37-60-122.2. In 1987, the Colorado General Assembly passed HB 1158, which created a process by which agencies within the DNR come to consensus

FIGURE 9.4-1 STATE INVOLVEMENT IN FEDERAL EIS PERMITTING PROCESS



1. Pre-permit work has been shown to resolve many of the issues prior to a project proponent's permit application submittal.
2. The CDPHE and DNR cooperating agency involvement will focus on impacts, analysis, mitigation, and enhancements for water quality and fish and wildlife.
3. In order for the CDPHE and DNR to evaluate the project early, the Draft EIS must a) identify the preferred alternative, and b) detail mitigation and enhancements for water quality and fish and wildlife.
4. The process clarifies the time at which the State's fish and wildlife mitigation plan would happen.
5. Based on the information in the Draft EIS, the Wildlife Mitigation Plan, and public comments, the CDPHE and DNR would provide their recommendations to the Governor's Office. The definition of state support is below.
6. If 401 certification occurs before the ROD, it will automatically be a conditional certification. The first condition would be that if the underlying assumptions of the FEIS change or if the preferred alternative changes as part of the ROD, the 401 certification must be completed again after the ROD.

A bald eagle and mallard duck on Harriman Reservoir in Littleton with wetlands in the background.

regarding the impacts of water resource development projects on fish and wildlife, and the mitigation of such impacts. Among other things, the statute establishes a process that involves a project's proponent, the Parks and Wildlife Commission, and the CWCB. The process results in the State's official position on the mitigation of impacts on fish and wildlife associated with the development of water resources for Colorado's citizens.

Historically, the project proponent's presentation of a draft mitigation plan to the WQCC initiates this process, after which CPW staff members have 60 days to review the proposed plan and provide further input to the WQCC. At the end of a 60-day period, the WQCC and the project proponent must agree upon a plan; alternatively, the WQCC forwards different versions of the plan to the CWCB for separate deliberation and decision. If the WQCC and proponent agree, the CWCB simply endorses that agreement, and that becomes the official State position. If the CWCB disagrees with a plan and modifies it in any way, that plan goes to the governor for affirmation or modification, resulting in the official State position. Irrespective of the route that a plan has taken, the official State position is then transmitted to each local, state, and federal governmental entity. The statutory process is constructed to encourage agreement between the project proponent and CPW—greatly reducing the amount of time for the process to occur and resulting in an expedited state regulatory process.

The CDPHE's involvement as a cooperating agency in the federal 404 permitting process has typically occurred toward the end of the permitting process, after a draft EIS is issued. Additionally, the CDPHE has typically waited until the project's ROD has been completed before embarking on its official 401 certification review process.

As discussed above, with resources prioritized

for earlier state agency involvement in the federal permitting process, state agencies could implement improvements. The State has an obligation to not be pre-decisional in 401 certification and wildlife mitigation plan processes. Earlier state agency involvement in the EIS process would allow for early identification and resolution of State concerns which should result in a higher quality draft EIS. Figure 9.4.-1 (page 9-45) highlights the steps that could help accomplish this early state agency involvement, including early involvement of the CDPHE. Additionally, much of the State's review work could be done prior to, during, and immediately after the draft EIS process.

More specifically, the CDPHE could begin its involvement shortly after the project proponent has established the project objective, or as the project proponent develops evaluation criteria for the EIS alternatives analysis. The CDPHE's input on the evaluation criteria is critical, as the State's methodologies for assessing water quality should be used in the EIS process. In addition, with early involvement, the draft EIS could include the CDPHE's input on mitigation and enhancements.

Once the federal permitting authority has completed the draft EIS, the CDPHE and CPW's review of comments from stakeholders and local government would give the State a good indication of support for or opposition to the project, as well as any outstanding issues related to it.

As a result of early involvement in the project's development or scoping, the CDPHE would be able to evaluate whether the preferred alternative adequately addresses water quality impacts, and whether it includes sufficient mitigation and enhancements for water quality. Likewise, through early communication and collaborative efforts with the project's proponents, CPW staff can have already initiated work on the framework of a mitigation plan for the project. At the appropriate time (following the publication of the draft EIS and after the 122.2 process has been completed), each agency would provide its project recommendations to the Governor's Office. The CDPHE's recommendation would most likely be in letter form, and would specify whether the CDPHE could certify the preferred alternative identified in the draft EIS. The CDPHE would provide this recommendation after the draft EIS public comment period.

Because the specific project that ultimately receives a 404 permit must be certified with a 401 certification, and because the 404 permit cannot be issued before completion of the EIS, 401 certification needs to occur after the final EIS. In all cases, the CDPHE will retain full authority to issue a 401 certification and conduct an independent antidegradation analysis. However, if state processes are coordinated during the draft EIS, the 401 certification could be completed after the EIS is issued, provided that all required processes for public notice and review per WQCC Regulations #21 and #82 are followed (unless the preferred alternative changes or underlying assumptions of the draft EIS change). If the 401 certification is completed before the ROD, it is automatically a conditional certification. The conditions are that, if the underlying assumptions of the EIS change, or if the preferred alternative changes as part of the ROD, the 401 certification process will have to be conducted again after the ROD.

Potential Fish and Wildlife Mitigation Process Changes

The legislation that created the 122.2 process for the mitigation of fish and wildlife impacts associated with water project development is somewhat constraining in that the project proponent and CPW staff do not initiate official communications with one another until after the release of a draft EIS. Furthermore, 122.2 has some rigid timelines that make it difficult for project proponents and CPW staff to jointly develop a quality, comprehensive mitigation plan. It is also difficult to engage stakeholders early in the process, and currently, there is little written guidance (beyond the words in

the statute) for either the project proponents or the stakeholders. Therefore, the DNR and the Parks and Wildlife Commission should develop a written policy, administrative directive, or formal rules regarding the implementation of the provisions of 122.2. This written policy should encourage and provide an avenue for early communication and collaboration between project sponsors and CPW staff regarding impacts and mitigation strategies. The policy should provide an avenue for early stakeholder engagement regarding the mitigation of impacts.

State Support

The State could provide project support prior to the Final EIS if:

1. The State implements improvements to its involvement in the permitting process as described above;
2. The draft EIS includes a clear alternative with mitigation and enhancement;
3. The State Fish and Wildlife Mitigation Plan is complete; and
4. Analyses associated with water quality indicate that with the suggested alternative, a conditional 401 certification would likely be issued.

Any level of support will be based on a specific alternative, and if the alternative changes, support would need to be reevaluated. Each state agency would provide its recommendations to the Governor's Office, which could communicate to the appropriate federal agency that the State supports or does not support a particular water project. Such support will not require additional justification beyond already accepted state processes – the State Fish and Wildlife Mitigation Plan, 401 certification, and an integrated water resource plan. However, to the extent the project addresses the criteria described above, they will be included in communications to the Governor's Office. The State support described herein encourages early stakeholder engagement so that comments and concerns are addressed at the front-end of the process.

Quicker Regulatory Process

State support also encourages federal agencies to allocate the appropriate resources needed to complete the final EIS and ROD in a timely manner. The federal prioritization of resources is not intended to circumvent the protections or transparent processes associated with federal permitting processes.

ACTIONS

One of the main goals of Colorado's Water Plan is to find ways to support the implementation of the BIPs. The above permitting process enhancements support the statutory and regulatory requirements of each permitting agency without predetermining outcomes. While a particular agency permitting decision could be "yes" or "no," a more efficient means to reach that decision benefits all project participants, stakeholders, and the State's planning process.

The actions below help determine efficiencies, where possible, and increase coordination. These actions will also provide an incentive that encourages multi-purpose projects with many partners, especially for projects that meet Colorado's water values, such as enhanced conservation and efficiencies. In addition to Colorado's Water Plan, the state and federal permitting partners will develop a handbook detailing the status quo and an updated joint review process. The following actions are needed to support these efforts:

1. The CWCB will host a series of lean events with relevant permitting agencies and stakeholders to examine current processes and determine how to make them more efficient and effective. Specifically, the lean events will examine how to eliminate redundant review efforts, reduce duplication of technical methods, and increase clarity on the required technical elements, as well as coordinate assessment methodology.
2. In partnership with local, state, and federal agencies, the DNR will coordinate the development of a permitting, certification, and mitigation handbook to reflect the updated permitting process.
3. State agencies with permitting authority will

actively participate as cooperating agencies from the outset of the regulatory process, and will encourage parallel processes.

4. Where more than one agency has jurisdiction over a particular issue, the agencies will work together to identify a lead state agency, and a memorandum of understanding will be agreed to by both agencies to assist in the coordination.
5. The State of Colorado will explore options for adding CDPHE and DNR staff and other resources to support a more efficient and effective permitting process.
6. State and federal partners will work together to encourage cooperation through the CAWS MOU process, which factors in conservation as a demand-reducer.
7. State agencies with permitting authority will work with local governments and stakeholders to determine how Colorado will express support for or rejection of a project at the appropriate time during the review process in order to encourage the completion of the federal permit process in a timely manner.
8. In order to encourage stakeholder work prior to a project proponent applying for a federal permit, CWCB will serve as or fund an impartial facilitator between stakeholders as part of pre-application work when requested by a project proponent.
9. The State will coordinate with federal partners to determine if there are opportunities to improve the federal permitting process that stem out of the BIPs or efficiencies identified by the lean process.

TABLE 9.4-3 SUMMARY OF THE IBCC NO-AND-LOW-REGRETS ACTION PLAN AND THE BIP COMMENTS ON PERMITTING[80]

IBCC & Basin Roundtables	Challenges	Solutions
IBCC No-and- Low-Regrets Action Plan	"Needs assessment work conducted as part of the SWSI determined that every basin in Colorado will have a gap in water supply by 2050… Expedited permitting processes for IPPs that are in line with the values of the CWP will ensure that important projects move forward in a timely manner."	As part of the No-and-Low-Regrets Action Plan, the IBCC considered several potential actions in relation to permitting: "Streamline state permitting processes for IPPs that meet values of the CWP: The Executive Order directs the CWP to help expedite permitting at the state level. The State should develop an approach to permitting IPPs that efficiently moves projects through the process and toward an outcome, whether positive or not, while ensuring sufficient protection of nonconsumptive and other values. Public engagement and community outreach regarding water supply needs may need to increase in affected communities to facilitate an efficient permitting process." "Continue state coordination with the federal permitting entities: The State should continue to meet with federal agencies and look for opportunities, including entering into MOUs, to make NEPA and permitting processes more efficient, especially for projects that meet the values of the CWP and are needed across multiple scenarios. Efficiency would not dictate whether the outcome of the positive is positive or not." "Support local permitting authorities to identify, as requested, multi-purpose components up front in a project planning to incorporate county and local concerns." "Upon request of a project proponent, encourage legislative resolutions in support of IPPs that meet the values of the CWP: the CWCB and the IBCC should work with the Legislature to develop and pass resolutions in support of specific IPPs that meet the goals and values of the CWP and have demonstrated broad stakeholder support. However, legislative resolutions supporting specific IPPs should not occur until the project 1) aligns with the goals of the CWP, 2) has broad stakeholder support, and 3) has substantively completed the state permitting process. These resolutions can be simple statements of support or more complex efforts to help specific projects through the permitting process, but they should not seek to override or supplant local decision-making or the protection of nonconsumptive or other values." "Publicly advocate for IPPs that meet the values of the CWP and have stakeholder support: the CWCB, members of the IBCC and the basin roundtables, and the Governor should actively and publicly advocate for IPPs that meet the values of the CWP and have demonstrated broad stakeholder support. However, public advocacy for specific IPPs should not occur until the project 1) aligns with the goals of the CWP, 2) has broad stakeholder support, and 3) has substantively completed the state permitting process. This advocacy should seek to convince decision-makers at all levels and the general public that permitting and implementing these IPPs is critical to meeting Colorado's water supply needs while maintaining our agricultural heritage, healthy environment, and recreational economies." "Water providers that meet a certain threshold of conservation savings or best practices implementation could be offered state support and/or the facilitation of certain permitting approvals."
Arkansas BIP	"Significant challenges exist to achieving the storage goals of the Arkansas Basin, including government permitting, regulation, competing stakeholder interests, and reluctance of storage site owners to take on further responsibility."	No permitting solutions mentioned.

Colorado BIP	"Regulatory restrictions, high costs and variable geologic conditions have prevented proceeding with these conditional storage rights." "Water providers must recognize the change in permitting that has occurred and that has resulted in the lengthy and costly regulatory requirements for reservoirs. Rather than undertake this risk with no assurances of approval, water providers should consider other alternatives."	"This BIP recommends that State, Federal and Local regulatory jurisdictions work collaboratively to improve the permitting process." "Improvements to the permitting process to support new water supply projects are imperative in securing safe drinking water in the future." "Secure 401 certification for specific places prior to a ROD by the Corps, through a coordinated permitting process that includes all permitting agencies, including local government." Measurable Outcome: "Reduced average permitting time for reservoir project to under 10 years." "Improve inefficiencies in reservoir permitting process between federal agencies and promote revisions and BMPs to improve process timeline and cost." "Further research needs to be conducted that will evaluate the reservoir permitting process and provide recommendations on improvements."
Gunnison BIP	Several of the project sheets list permitting as a constraint and challenge. In these cases, the text typically reads: "Issues limiting project implementation may include: Regulations – permitting requirements may limit construction activities and potentially increase cost and timing."	"Due to the numerous benefits to future water resource projects, the Gunnison Basin Roundtable recommends the reinstatement of a process similar to the CJRP or Colorado Coordination Council." In Strategies to address regulations, the following bullet points are included to streamline permitting or develop collaborative solutions: • Collaborate with the CWCB to identify technical support mechanisms for Federal permitting activities • Identify methods to proactively address potential regulatory pitfalls that generate excessive time delays and added costs • Identify methods to streamline regulatory processes between multiple agencies with proactive, time-dependent deadlines • Collaborate with the CWCB to identify financial support mechanisms for Federal permitting activities "Better management tools will optimize projects to meet multiple needs, minimize cost, and protect public health and safety. An example of this is the Extreme Precipitation Analysis Tool (EPAT). Reservoir storage restrictions currently cost the state some 74,000 acre-feet in lost storage opportunities. An updated EPAT would provide cost savings by minimizing necessary dam spillway sizes and would streamline the permitting process."
North Platte BIP	Regulations can be a constraint to securing acceptance of a project. Since a large amount of the land in the North Platte Basin is under federal ownership, permitting issues can impact project feasibility, cost, and schedule.... Regulatory bureaucracy and environmental impact requirements may significantly delay project timelines, increase costs and ultimately limit the ability of a project sponsor to implement a proposed project, regardless of the relative size of project scope. Regulatory streamlining and cooperative strategies may help address regulatory constraints."	In Strategies to address regulations, the following bullet points are included to streamline permitting or develop collaborative solutions: • Collaborate with the CWCB to identify technical support mechanisms for Federal permitting activities. • Identify methods to proactively address potential regulatory pitfalls that generate excessive time delays and added costs. • Identify methods to streamline regulatory processes between multiple agencies with proactive, time-dependent deadlines. • Collaborate with the CWCB to identify financial support mechanisms for Federal permitting activities.
Rio Grande BIP	No permitting challenges mentioned.	No permitting solutions mentioned.

South Platte and Metro BIP	"In order to be developed, water supply, infrastructure, and treatment projects must go through a myriad of federal, state and local permitting processes which are both time and resource intensive. Improving the efficiency of current federal and state permitting requirements has the potential to save the public money while providing the same assurance of quality and due diligence. The Executive Order cites this issue and calls for the identification of potential areas of improvement in CWP. The intent is not to reduce existing environmental protections but to obtain permitting decisions in a more timely and cost effective manner with a more predictable process for federal and state engagement."	"The State of Colorado could support a more efficient EIS process for water supply projects.... Greater efficiency, cooperation, predictability, and consistency in the permitting process could be achieved by establishing guidelines for what the lead federal agency and all state and federal agencies involved in the process require for approval. Efficiency and predictability of the permitting process could be further enhanced by the State compiling agreed upon ranges, tools, and methodologies for assessing contentious topics such as hydrology modeling, system risk, conservation as a demand reducer, and others." "To increase the efficiency, consistency, and predictability of the EIS process, the State could work cooperatively with Federal agencies to develop a Programmatic EIS. Colorado's Water Plan could be used as the platform for a Programmatic EIS. Under a Programmatic EIS, no specific projects are approved, but it would create an analysis from which future specific approvals can rely." "Starting in 2010, the Corps, the DNR including the CWCB, and the US EPA embarked upon a process called CAWS. The major outcome of CAWS was an informal agreement among the three parties that conservation should be used as a demand reducer in analyzing the purpose and need for a project rather than during the alternatives analysis portion of the NEPA process. Though this informal agreement was not publicly documented, an important policy tool going forward could be the use of conservation as a demand reducer in the purpose and need segment of the EIS process. By doing this, water providers will have greater incentive to implement proactive conservation strategies to demonstrate decreased demand and strain on existing resources." "Scoping for 404 or NEPA permitting must follow federally required processes. Delays often result when new areas of analysis are identified late in the permitting process after scoping has occurred. By ensuring that regulating agency concerns are addressed in their entirety during the scoping process, applicants can more accurately plan for the costs associated with the analysis and avoid delays." "The State of Colorado could encourage the Corps and EPA Region 8 to revise their 1990 MOA on sequencing. Their current MOA says that the Corps must determine the Least Environmentally Damaging Practicable Alternative (LEDPA) first and then look at compensatory mitigation to authorize the LEDPA. A revision would enable public works projects to use compensatory mitigation in the identification of the LEDPA. This revision could be limited to public works projects." "The State of Colorado's requirement for 401 certification and an approved Wildlife Mitigation Process could be improved to provide project proponents greater certainty in project planning. Earlier starts for these approval processes could effectively utilize information from the Federal Process to save project proponents and the citizens of Colorado time and money while allowing for greater certainty of project implementation."
Southwest BIP	Permitting is mentioned as a constraint associated with Southwest Basin measurable outcomes.	No permitting solutions mentioned.
Yampa/ White/Green BIP	No permitting challenges mentioned.	"Develop methods to assist with streamlining permitting in a cost-effective manner." "Success in permitting and constructing in-basin storage projects."

9.5 OUTREACH, EDUCATION AND PUBLIC ENGAGEMENT

GOAL

Colorado's Water Plan provides technical and financial assistance for high-quality, balanced, and grassroots water education and outreach efforts that inform Coloradans about the issues so that they may engage in determining Colorado's water future.

To achieve a sustainable water future, Coloradans must be sophisticated water users. Colorado's Water Plan expands outreach and education efforts that engage the public and promote well-informed community discourse regarding balanced water solutions. The plan addresses a number of topics that benefit water consumers, including increased conservation, reuse, preservation and enhancement of the natural environment, multi-purpose water projects, and other efforts to meet our state's future water supply gap. Section 9.5 focuses on the extensive work that occurred to help educate and engage over 30,000 local stakeholders and the public in the formation of BIPs and Colorado's Water Plan. Moreover, this section charts a path to expand this work in the future.

Coloradans are paying more attention to water issues today, and are becoming increasingly aware of the limitations of Colorado's water supply. In a recent survey, more than two-thirds of those polled believe that Colorado does not have enough water for the next 40 years.[81] Despite concerns, most Coloradans are unaware of the main uses of water in the state, and are uncertain about how to best meet our state's future water needs.[82]

Outreach creates public awareness of policies and processes, whereas **education** promotes a deeper understanding of these topics. Both are prerequisites to **public engagement.**

Natural disasters—including more than a decade of systemic drought, catastrophic wildfires in 2012 and 2013, and flooding on the Front Range in 2013—have increased the public's sense of urgency and its desire to get involved in water issues. Outreach, education, and public engagement help ensure that Coloradans have access to accurate information and are empowered to participate in stakeholder decision-making processes.

The development of Colorado's Water Plan is a unique opportunity to build on past efforts. In conjunction with the CWCB's recent statewide outreach and education, over the past 10 years, the nine basin roundtables held more than 1,000 meetings to engage the public, and each roundtable held additional public meetings as it developed its BIP. Additionally, many water providers, watershed groups, schools, districts, and authorities offer many ongoing water education activities. Currently, several nonprofits are solely dedicated to water education, and water providers are working with school districts to engage younger generations in smart water use. This section of Colorado's Water Plan offers recommendations and strategies designed to continue to advance these outreach, education, and public engagement efforts and enhance the overall water supply planning process.

Overview of Outreach, Education, and Public Engagement

Colorado has a long history of water education. As early as the 1800s, explorers on the Pike Expedition and the Long Expedition shared their experiences in the Colorado region and warned westward settlers of the limited water supply.[83] Following John Wesley Powell's historic 1869 journey down the Colorado River, Powell brought his concerns about water supply "west of the hundredth meridian" to Congress.[84] Now, more than 150 years later, water education is evolving to meet the needs of a population whose direct interactions with water resources and supply are very different than in the past.

Previous and Ongoing Efforts and Research

In 2002, the General Assembly created the Colorado Foundation for Water Education (CFWE) to promote a better understanding of Colorado's water resources and issues. The CFWE is a nonpartisan, nonprofit organization that provides, "basic water information and educational programming, but also enhances leadership among water professionals, creates networking opportunities, helps advance the water planning dialogue in the state, and reaches out to those who aren't already involved in the world of Colorado water."[85]

The Public Education, Participation, and Outreach (PEPO) Workgroup was established in 2005 through the *Colorado Water for the 21st Century Act* to support the IBCC process. The PEPO Workgroup, comprising IBCC representatives, education liaisons from each basin roundtable, and other key stakeholders in the water education community, operates by basin. It informs, involves, and educates the public about the activities and negotiations of the IBCC and basin roundtables.[86] In addition, the workgroup is tasked with creating a mechanism for providing public input to IBCC and roundtable members. With the CWCB's direction and funding, the CFWE facilitated the PEPO Workgroup from 2008 to 2015. In July 2015, the CWCB started managing the PEPO Workgroup directly.

Led and funded by the CWCB, several PEPO Workgroup members and the Colorado Watershed Network joined forces with the Colorado Alliance for Environmental Education and other water outreach specialists in 2008 to form a group called the Water Education Task Force. The task force sought to better understand the status of water education in Colorado, and published a report containing recommendations for improvements in water education in Colorado. These recommendations include:

1. Support a statewide public education initiative.
2. Develop information and communication tools that can be used statewide.
3. Establish long-term funding for intrastate and interstate collaboration opportunities.
4. Coordinate efforts across state agencies.
5. Increase coordination with the Colorado Department of Education on K-12 water resource content.[87]

MARSHA DAUGHENBAUGH

YAMPA/WHITE/GREEN RIVER BASIN

Marsha is the Executive Director of the Community Agricultural Alliance and plays a critical role in coordinating the education and outreach efforts of the Yampa-White-Green Basin Roundtable. Marsha is pictured with horses on her ranch.

I hope there will be enough water supply for the future! Conservation and efficient use of water are mandatory. Understanding the future is everyone's responsibility. We can no longer allow ourselves the luxury of wasting either our water or our time. The process leading to the development of Colorado's Water Plan has been phenomenal and I have great respect for everyone involved. The discussions have not always been easy but they are necessary that agriculture will be respected and revered for...

CONTINUED AT END OF CHAPTER

PROFILE

A Community Soil Health Tour in the Rio Grande Basin, Brendon Rockey presenting. Courtesy of Rio de la Vista.

The CFWE assumed management of the Water Education Task Force following publication of the report in 2008. It established a partnership workshop that implemented several recommendations through the Colorado Water 2012 campaign, which celebrated water—past, present, and future. The Colorado Water 2012 campaign leveraged hundreds of passionate volunteers, nonprofits, and other organizations to raise awareness about water, increase support for the management and protection of Colorado's water, showcase exemplary models of cooperation and collaboration, connect Coloradans to their water, and motivate them to participate in planning the future of their water resources.[88] The group commented on the Colorado Department of Education's revision of state content standards, developed a teacher training program, and set the stage for the Value of Water project, which the CWCB commissioned. That project consisted of a statewide survey and report of public opinions, attitudes, and awareness regarding water in Colorado.[89]

Numerous efforts are addressing public engagement in Colorado's water supply issues; below are just a few examples. As the CWCB finalized Colorado's Water Plan and as the plan is implemented, the groups listed below (in addition to other groups not included here), have served or will serve as critical resources in implementing the outreach, education, and public engagement actions the plan identifies.

State Agencies: Many Colorado state agencies conduct water education. These agencies also offer funding for outreach and education efforts, and have developed their own programs.

- The WQCD, an agency of the CDPHE, funds outreach efforts to improve water quality through Section 319 of the Clean Water Act of 1972.
- CPW has many education programs that focus on engaging youth in water issues. The agency funds the Colorado River Watch program in partnership with the Colorado Watershed Assembly, which supports student volunteers who collect data on water quality and watershed health throughout the state.[90] CPW also supports Project WILD, which engages students in environmental education and conservation.[91]
- The CWCB funds and coordinates stakeholder outreach through the basin roundtable process. The CWCB provides education funding through the WEGP for water conservation projects and the WSRA grant program, and also helps to fund the CFWE. In 2013, the CWCB hired an outreach, education, and public engagement specialist to manage these efforts.

Statewide NGOs: Several nonprofit organizations with a statewide reach have water education programs. These groups have specific target audiences and distinct objectives related to water supply planning. These objectives are that:

- The CFWE is a source of balanced water education for all Coloradans.
- The Colorado Water Congress provides leadership on key water resource issues and is the principal voice of Colorado's water community.
- The Colorado Watershed Assembly collaborates with diverse stakeholders to protect and improve the conservation values of land, water, and other natural resources of Colorado's watersheds.
- The Colorado WaterWise Council provides resources to stakeholders in the water efficiency and conservation community.
- The Colorado Foundation for Agriculture provides Colorado educators with current information about state agriculture and natural resources.
- Many membership-based environmental and recreational NGOs, such as Conservation Colorado, Trout Unlimited, Audubon Society, The Nature Conservancy, and Western Resource Advocates provide outreach and education to their members on many environmental issues. (This list is not fully inclusive.)

Universities: Several institutions of higher education are actively involved in water supply planning, research, dialogue, and education.

- The Colorado Water Institute and the Colorado Climate Center at Colorado State University, Western State Colorado University, the One World One Water Center at Metropolitan State University of Denver, and the Water Center at Colorado Mesa University are all engaging students, faculty, and the greater community in water issues.
- The Water Center at Colorado Mesa University assisted the Colorado and Gunnison Basin Roundtables in outreach and educational efforts.

Regional and Local: Many of Colorado's conservancy and conservation districts, water providers, and water utilities operate public outreach and education programs to inform and educate a variety of audiences—including customers, news media, and elected officials—about water supplies, conservation, drought, regulations, rebates, watershed protection, capital improvement projects, water quality testing, and many other important local issues.

- Denver Water has developed a successful water conservation and public education program that encourages reduction in daily water use through behavior change and permanent-fixture and landscape retrofits. Denver Water uses community-based social marketing and media in addition to more traditional campaign methods such as advertising.
- Colorado Springs Utilities currently reaches over 5,000 adults through xeriscape classes, water system tours, business partnerships, and landscape efficiency training programs.
- The City of Grand Junction, Ute Water Conservancy District, and Clifton Water District collaboratively run a conservation-based outreach program known as the Drought Response Information Project. This project helps water providers conduct public outreach and education activities about drought and the Drought Response Plan.
- The Rio Grande Watershed Conservation and Education Initiative provides conservation education to the San Luis Valley community to promote stewardship of natural resources.
- The Roaring Fork Conservancy brings people together to protect rivers through watershed action and education in their respective areas of the Colorado River Basin.
- The Water Information Program is sponsored by water districts and agencies in the Dolores/San Juan River Basin and provides general information to the public on water topics. The Water Information Program assisted the Southwest Basin Roundtable in educating the region about local and statewide water issues, and is the longest-standing program of its kind.

- The Rio Grande Watershed Conservation and Education Initiative assisted the Rio Grande Basin roundtable in its engagement efforts, in addition to many other education programs.
- Aurora Water's Water Conservation Program offers its customers web-based instructional material and in-person classes in xeriscape landscaping, irrigation systems, landscape maintenance, alternatives to turf grass, and vegetable gardening.
- The Community Agriculture Alliance, a nonprofit organization in Steamboat Springs that promotes agriculture, assisted the Yampa/White/Green Basin Roundtable with public education and outreach on the BIP throughout the basin.

K-12 Education: Water providers across the state administer several K-12 programs. All of these programs use education and outreach to help address specific water supply issues, many of them aimed at educating the public on how to reduce municipal and agricultural water use. Other numerous water conservancy district efforts reach thousands of students each year at children's water festivals and special initiatives within area school districts. Below are a few examples:

- The South Metro Water Supply Authority's Water Ambassador Program trains high school students to teach fifth-graders about watershed health.
- Aurora Water reaches more than 6,000 students per year with K-12 education programs that provide classroom presentations, assemblies, and field trips.
- Boulder and Aurora school districts partner with the USFS to train teachers on water education through the "Forests to Faucets" workshops.
- Project WET (Water Education for Teachers) is a national program that trains Colorado teachers how to educate their students about water. Several local organizations sponsor Project WET trainings throughout Colorado, and the national program has developed curriculum that is specifically applicable to different regions in Colorado.
- Ute Water coordinates the state's largest children's water festival, reaching over 2500 fifth-graders in the Grand Junction area each year.

Funding Outreach, Education, and Public Engagement Activities

FIGURE 9.5-1 CWCB EDUCATION FUNDS USED PER FISCAL YEAR

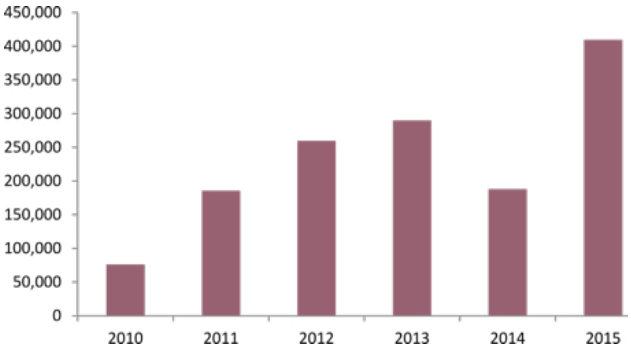


Figure 9.5-1 includes the total amount of CWCB funds allocated for education, including PEPO funds, education action plan funds, WSRA funds for educational projects (not including BIP contract funds), WEGP Public Education and Outreach Grants, and annual funds given to the CFWE. The chart does not include outreach and education funds consultants use for BIPs.

Despite the immense efforts of various organizations, projects, and partnerships, existing programs need to improve coordination to maximize their effectiveness. Collaboration creates new opportunities for water education, outreach, and public engagement activities to reach new and diverse audience groups statewide. Moreover, there is a need to reassess existing statewide programs that focus on water supply requirements and solutions. To address these needs, the Water Plan builds upon efforts such as the Colorado WaterWise Education Toolkit, the Colorado Watershed Assembly Network, and the CFWE's ongoing Water Educator Network. Additionally, a collaborative working group, led by CWCB, should update the 2008 Water Education Task Force Report recommendations in the near future; this will allow the community to determine which unmet needs exist and identify the most effective strategies to address them.

The Funding Gap

During the development of Colorado's Water Plan and the BIPs, it became clear that the $2,000 in funding available to each roundtable could not fully support and sustain educational programs. To meet each basin's

unique outreach and education goals, the roundtables leveraged a creative mix of resources, including WSRA grants and work performed by their consultants. The basins also relied on partnerships with the CWCB, the PEPO education liaisons, the roundtable education committees, and the BIP consultant teams to plan and execute public engagement. Figure 9.5-1 illustrates CWCB funds allocated to education and outreach through the PEPO Workgroup, the basin education action plans, the WEGP Public Education and Outreach grants, the annual allocation from CWCB to CFWE, and related WSRA grants.

State funding for the roundtables is not sufficient for the level of outreach roundtables need in order to succeed. On average, costs for outreach activities have amounted to between $15,000 and $50,000 per roundtable over the past year—and most roundtables have indicated that given their level of current BIP outreach, this amount is insufficient. The Rio Grande Basin Roundtable spent an additional $40,000 on outreach beyond what was originally planned in 2014, and estimated that with increased funding, it could spend at least an additional $10,000 for activities outlined in its 2015 education action plan alone.[92] Without securing this additional funding from state and local sources, implementation of the long-range education action plan activities may not occur, and education and outreach cannot sustainably rely on a dedicated volunteer base alone—although using a volunteer base has been the approach of many basin roundtables over the past five years. For example, volunteers organized and ran all 17 of the Arkansas Basin Roundtable's outreach meetings.[93] Impressively, despite insufficient funds, each roundtable increased its outreach activities.

In the future, the roundtables may struggle to maintain these levels of outreach due to a few factors. First, they will not likely be able to rely on assistance from the BIP consultants. Additionally, WSRA funds were not intended to fund many types of educational projects, and several restrictions are placed on the types of educational programs that are eligible. Therefore, despite the prevalence of planned programming related to outreach, education, and public engagement, many potential projects do not have sufficient funding support to move forward.

Furthermore, the Water Education Task Force report stated that the annual amount of revenue for water education across the state was $7.3 million, and survey respondents indicated that $1.6 million of that amount came from state sources.[94] Respondents cited monetary and time limitations as the largest barriers to implementing education programs; more than half of the water education providers surveyed indicated that they conduct water education for less than $5,000 annually. The report also stated that the reality of limited resources should provide an additional incentive and focus for federal and state funding agencies.[95] Should funding become available, the State should allocate some of it to basin roundtable work, as well as other important efforts.

With completion of the BIPs and Colorado's Water Plan in 2015, it will be imperative that the Colorado water community sustain momentum for outreach and education activities, and that funding for such activities increase as the community implements water supply solutions.

The CWCB's Role in Water Outreach, Education, and Public Engagement

Outreach, education, and public engagement efforts during the development of Colorado's Water Plan were unprecedented and built on a decade of stakeholder involvement. Between September 2013 and September 2015, the CWCB received over 30,000 comments before it released the final plan in December 2015. Because Colorado's Water Plan relies upon stakeholder engagement, it is critical to highlight the education and outreach efforts to date. Appendix F includes a summary of activities completed and input received during development of the plan. As the initiative was a grassroots effort, the appendix also outlines the high level of local and volunteer efforts to involve the public in the process.

Outreach, education, and public engagement related to the State's water supply planning efforts, including Colorado's Water Plan, the BIPs, and SWSI, are ongoing, iterative efforts. The CWCB needs to continue the leadership it demonstrated regarding outreach, education, and public engagement activities during the development of Colorado's Water Plan by continuing to aid in research, coordinate efforts, and provide funding and guidance for water education projects statewide.

The CWCB, the PEPO Workgroup, and the basin roundtables will continue education and outreach activities for Colorado's Water Plan and the BIPs throughout 2015 as implementation begins. In the long

term, the partnerships and communication channels these entities have developed over the past several years will be crucial for public outreach and education activities and for soliciting input for balanced solutions. Each BIP articulated long-term goals and strategies for cultivating a supportive and engaged citizenry. These are a few selections from basins across the state:

1. Identify milestones and changes in Colorado's Water Plan and the BIP process that need additional media coverage and public participation.
2. Identify the necessary institutional changes, and the related cultural and economic adaptations in Colorado lifestyle, to address increasing water demands.
3. Ensure a diverse and active basin roundtable membership, and provide communication tools to inform roundtable constituents and enable constituents to deliver meaningful feedback to the roundtables in return.
4. Maintain a steady presence throughout the basin via traditional, online, and social media.
5. Engage respected community leaders to champion the solutions the roundtables set forth in the BIPs.
6. Work closely with organizations that specialize in the facilitation of public education and outreach programs in order to leverage existing resources within each basin and increase overall impact.
7. Enhance coordination and financial support that enable watershed groups and other grassroots organizations to effectively engage the public and increase participation.
8. Develop leadership programs that enable college students to explore water careers through scholarships or training opportunities in water supply planning projects and processes.
9. Establish metrics to evaluate the success and effectiveness of statewide and basin-level communication and education programs, and modify strategies as needed.

The lack of financial support and professional resources is a large barrier to implementing these goals. To maintain the momentum of Colorado's Water Plan beyond 2015, outreach and education projects need a dedicated grant fund for information and communication tools that address Colorado's water challenges. While the basin roundtables serve as key forums to address water supply issues through conversation and planning, the creation of a new fund will open up the opportunity for stakeholders interested in water outreach, education, and public engagement to help move important projects forward.

Through this new fund, and as recommended in the actions set forth at the end of this chapter, the CWCB should work with state, local, and federal partners to develop a water education and outreach strategy. Such a strategy should include, but is not limited to, the topics listed below as they relate to Colorado's Water Plan. The Colorado Water Plan explicitly mentions these topics; however, the CWCB will likely add other topics to the education and outreach strategy as it is developed:

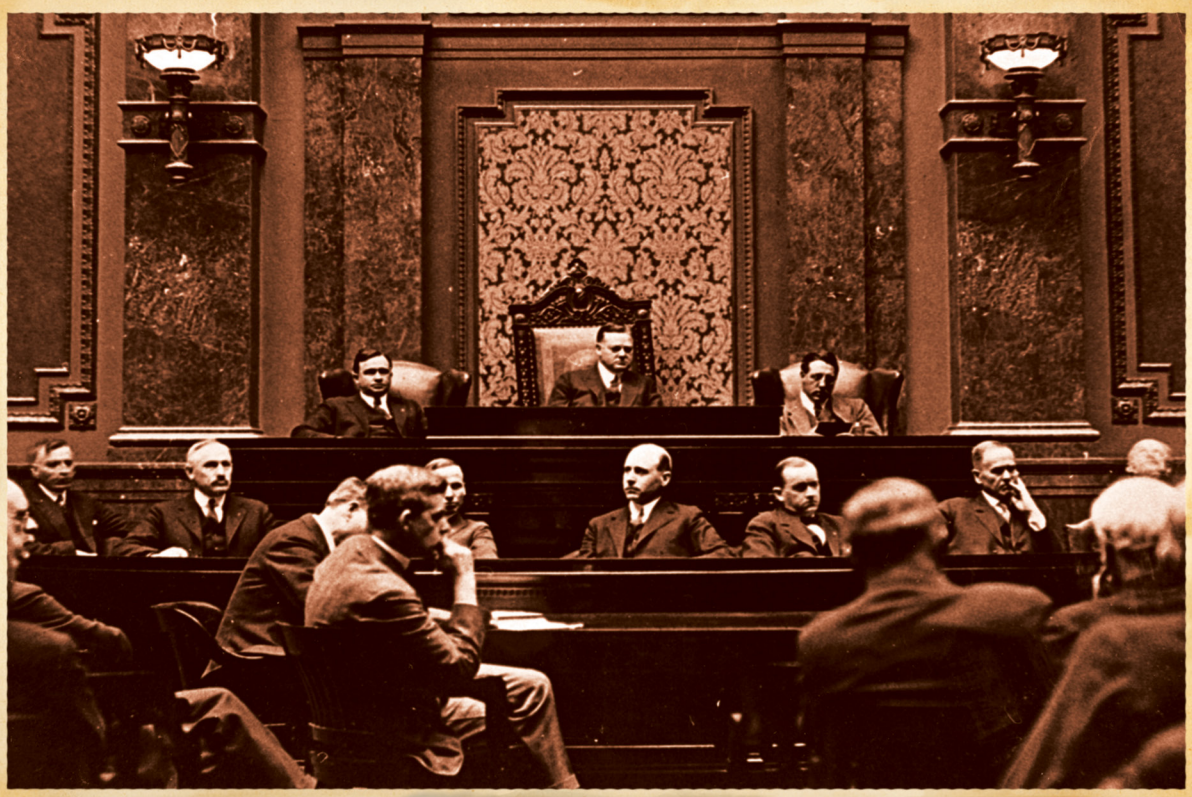
- Colorado's Water Plan.
- Colorado's eight BIPs.
- Colorado's water challenges, solutions, and the need to be adaptable to changing conditions.
- Connection between climate change and water.
- Water conservation and reuse.
- Integration of land use and water supply.
- Water quality ("use a watershed approach for outreach and community engagement").
- Agricultural viability options, ATMs, education for farmers on available incentives for on-farm implementation of agricultural conservation measures, water sharing opportunities, and other tools available to growers.
- Education and outreach to support environmental and watershed strategies, such as those designed to protect imperiled warm-water fish species and forest health.
- Outreach to energy companies to encourage and promote the most water-efficient technologies for energy extraction.

Wetland Landowner Workshop on the Rio Grande. Courtesy of Rio de la Vista.

ACTIONS

Based on the analysis this section presents, the CWCB makes the following recommendations, which will enhance Colorado's water outreach, education, and public engagement and advance the water supply planning process.

1. **Create a new outreach, education, and public engagement grant fund:** As part of the funding package Section 9.2 discusses, the DNR will evaluate a new outreach, education, and public engagement grant fund, which the CWCB would administer through the basin roundtables. Specific attributes of the grant fund could include the following:
   - Similar to WSRA funds, these funds could be available for eligible outreach, education, and public engagement projects that meet specific CWCB-developed criteria and guidelines that align with Colorado's Water Plan goals.
   - The funds could be considered for the proposed outreach, education, and public engagement projects already outlined in the BIPs and each basin roundtable's PEPO Education Action Plan.
   - Guidelines could prioritize grants dedicated to projects that assist the basin roundtables with communication, outreach, and public education efforts related to issues that Colorado's Water Plan or the BIPs addressed.
   - Guidelines could stress the importance of measuring success and targeting specific audiences and approaches, and could include other education and outreach best practices that lead to successful public engagement.
2. **Create a data-based water education plan:** Over the next two years, the CWCB will create a data-based water education plan by:
   - Conducting a survey to update the Water Education Task Force Report, which assessed water education programs across the state.
   - Determining critical gaps in water education, both geographically and topically.
3. **Improve the use of existing state resources:** The CWCB:
   - Will work with stakeholders to identify five water challenges that Colorado's innovation community could help solve, develop an award program, and engage Coloradans in the challenge:
     - Will work with Colorado's innovation community, education and outreach experts, research institutions, and the governor's Colorado Innovation Network (COIN) to address Colorado's water challenges with innovation and "outside the box" creativity.
   - Will incorporate education and outreach components in the WSRA grant criteria and guidelines.
   - Will initiate efforts to improve coordination between state agencies on outreach and education activities. This will include the development of performance metrics and a database to track efforts.
   - Intends to foster continued engagement of the Water Education Task Force and use the network of existing water educators in a coordinated fashion to educate the various and diverse audiences in Colorado.



A LOOK AT HISTORY

Members of the Colorado River Compact Commission are pictured here in 1922 at one of their sessions.
The Commission chairman, Herbert Hoover, is in the center, top row.
Colorado's Delph Carpenter is in the center of the second row, directly below Hoover.

SOURCE: Colorado State University Libraries, Archives and Special Collections,
Water Resources Archive, Carpenter Papers #97.

caption: Thomas V. Cech, J William McDonald, Defened and Develop:
A Brief History of the Colorado Water Conservation Board's First 75 Years,
[Denver: Wellstone Press and the Colorado Water Conservation Board, 2012.]

HEATHER DUTTON, CONTINUED FROM PAGE 9-11

I grew up in the San Luis Valley, where my family has lived for 5 generations. After college, I was fortunate to get my job working for the Rio Grande Headwaters Restoration Project (RGHRP), improving the Rio Grande in Colorado. I am married to a great guy, Tanner, who works for the US Forest Service and shares my passion for managing natural resources and exploring the Rocky Mountains.

Growing up on a potato and barley farm I, like most people in the San Luis Valley, am rooted in water. In the Valley, our ability to harness and manipulate the natural hydrology and ecosystems is the only reason we can live here. Some of my fondest memories are driving around checking fields with my dad, trying to start siphon tubes with my brothers, skiing with my family, and camping along high mountain creeks during horse and llama pack trips. My parents showed us early on how important water is to both our way of life and weekend recreation. Now, I see the connectivity between the watershed, wildlife, and water users that I didn't understand as a child, but those early experiences were the foundation for my connection for water.

In the same way that we use our surrounding ecosystems to live in this harsh alpine valley in Southern Colorado, we have to respect the local ecology. It has been a privilege to work with members of the community to improve the Rio Grande for the farmers, wildlife, families, and fun lovers that cherish this beautiful area. Every time I help bring together a diverse group of partners to complete a project, big or small, I feel the same satisfaction and pride from being able to make a difference. I hope we can find ways to benefit as many water users as possible in every project. I also hope we can grow the State in a way that protects the very reason it is such a great place to live: water. I am committed to being completely engaged in the projects I am fortunate to be a part of, being respectful of other ideas, and being willing to explore new strategies so we can be very deliberate and thoughtful in the way we use water in the future.

I was photographed at the McDonald Ditch Project. This is a partnership between the McDonald Ditch Company, Natural Resources Conservation Service, and RGHRP. The project includes removing the old, poorly functioning and dangerous diversion dam and building a new, more efficient dam with fish and boat passage, and automated headgates. We also restored a nearby wetland and will restore about 2,000 feet of streambanks. The result will be improved riparian and aquatic habitat, water quality, diversion efficiency, and recreation opportunity. We would not have been able to complete the project without all our wonderful local and state partners, and assistance from NRCS, Rio Grande County, and CWCB - the project was partly funded with a CWCB Water Supply Reserve Account grant and loan. The project will be completed in 2015! This project was one of the top 12 projects identified in the 2001 Study, our restoration master plan for the Rio Grande from South Fork to Alamosa, and it is very exciting to see it come to fruition.

LURLINE UNDERBRINK CURRAN, CONTINUED FROM PAGE 9-36

provides opportunities for all to be heard, and Grand County's efforts provide a success story for how our water resources can be directed for benefit for all.

I was raised in Grand County and have worked for Grand County for 33 years. I have two children, and eight grandchildren, all living in Grand County. I served as the Director for the Planning Department for 17 years and have been County Manager for 15 years. I have a BA from Regis University in Religious Studies and an MA in Psychology. My personal connection to water is being raised where the Colorado, Blue and Muddy rivers come together, recreating on all of them and forming a love for their contributions to my way of life. Professionally, I began my foray into the water world by reviewing the Wolford Mountain Project for Grand County and continuing to work on water matters as they arose over the years. Water is the life blood of Colorado, but especially to Grand County since we are the county in the state most impacted from transmountain diversions. Trying to retain and maintain a way of life that is precious to us has been a struggle and a passion.

My key accomplishments are tied to water. I had the honor of being selected the lead negotiator on the Colorado River Cooperative Agreement and Windy Gap Firming Project by the Board of County Commissioners. They gave me their trust and support. The components of both agreements are complex and extensive. The challenge is implementation. I am currently involved on the Learning by Doing Committee (an adaptive management program established by the Colorado River Cooperative Agreement and the Windy Gap Intergovernmental Agreement), the Windy Gap Bypass effort, Grand Lake Clarity, and the Big Lake Ditch Study. As a founding member of the 1177 Colorado River Basin Roundtable, I have been a part of many efforts, but most importantly Colorado's Water Plan.

I hope that the water future of Grand County will not only be secured, but improved due to our agreements as well as the partnerships and cooperation we have and are continuing to build. These partnerships will grow and strengthen as younger people assume their places and a new way of managing our finite resource will be created that will pay benefits.

One of my fondest wishes is that my grandchildren and great grandchildren will be able to enjoy the experiences and beauty that the mighty Colorado River and its tributaries have provided to me and my children. My grandchildren are river rats and love being on the river. I hope that someday when I am older and more gray, and in the assisted living center here in Kremmling, they will be able to say, "Grandma wasn't as crazy as we thought she was, she was part of a very important process that Grand County championed and defended."

MARSHA DAUGHENBAUGH, CONTINUED FROM PAGE 9-54

our wise handling of water, that water rights will continue to hold a sacred place in Colorado's water plans and that collaborative efforts will strengthen between all water users.

I am part of a five-generation family owned cattle and hay ranch on the Elk River, the largest tributary of the Yampa. I worked with the United States Department of Agriculture Farm Service Agency for 25 years and currently serve on the Colorado Farm Service Agency State Committee. I am the Executive Director of the Community Agricultural Alliance, an organization whose goals are to promote local agriculture, educate about the critical importance of agriculture and develop partnerships throughout the Valley between agriculture and consumer interests. The organization collaborates with the community's resort, recreation, business, and agricultural entities to assure agriculture's longevity throughout the Yampa Valley for future generations.

Our family has water rights from the Elk River dating back to the late 1890's and I understand the critical importance of water availability for crops and livestock for our agricultural long-term sustainability. My professional connection with water started to develop in 2003 when Community Agriculture Alliance began to present water education forums and tours for the Steamboat Springs area. In 2010 CAA became the educational arm for the Yampa-White-Green Round Table. We work with regional partners in Routt, Moffat and Rio Blanco Counties to develop and implement forums and workshops on water related issues important to the specific locale, the basin and the State. Water is important to me because it runs through my veins. My parents taught me early the significance of stewarding our natural resources to assure their longevity. Now I feel I have a responsibility to share my personal experiences, knowledge and beliefs to help others understand why we should protect and conserve our water and land. Agriculture, urban and recreation interests have to work together to maintain the quality and quantity of our resources. My involvement with water education started by chance. My commitment to presenting unbiased, fair information evolved through the years and now my passion is to assure everyone has access to factual information. We can make the right decisions when we know the facts.

My family is an integral part of my life. My husband and I are pleased that both of our adult children returned to our Valley and our ranch after receiving their educations. All of us are active in our community serving on a variety of committees in the Steamboat area because we recognize agriculture must be involved with economic development, recreational opportunities, civic decisions and cultural protection. My activities and accomplishments related to water include that our ranch has been recognized by the Colorado Riparian Association, the Colorado Wildlife Commission, the Colorado Division of Wildlife, the Yampa River Legacy Committee and Environment 2000 for our efforts in soil, water and wildlife management. Professionally I feel good when someone comes to me after we finish a water education event saying they learned something and are glad they attended. Our grandchildren are being raised to appreciate and respect our natural resources through hard work and hard play. Yep, when you live in the Yampa Valley you also get to ski, hike, fish and recreate on a regular basis.

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