

The Imperative of Investing in Water Infrastructure

Colorado Water Congress Summer Conference

I. Introduction

Colorado's growth and prosperity are built on water infrastructure. In 1852, enterprising settlers dug the San Luis People's Ditch to support their farms.¹ Miners in the Pike's Peak Gold Rush constructed small dams to power water wheels. And the High Line Canal delivered water to irrigators throughout the Denver area, starting back in the 1880s. Developers of agriculture, industry, and residential communities have all built water infrastructure projects necessary to support the ways they work and live.

We stand in the footsteps of these historical developments, building lives inscribed by water. While the San Luis People's Ditch still runs, the High Line Canal travels only a fraction of its full length, largely replaced by more efficient conveyance methods.² Alas, like much of our conventional infrastructure, such as roads and bridges, much of our water infrastructure is outdated and needs to be replaced, updated, or improved.

The history of our water infrastructure bears reflection. Consider, for example, that over a century ago, from 1910 to 1914,³ the Rio Grande Reservoir was built to support agriculture in the San Luis Valley.⁴ Originally constructed to a height of 100 feet, the reservoir's dam was raised to 111 feet in 1982. Repairs and modifications continued through the 1990s. Despite these tweaks, there remained a major constraint on effective usage of water within the reservoir: the dam's outlet gate. The outdated outlet gate could let out only limited amounts of water at once without risking harm to the dam. As a result, water flows were arbitrarily throttled and the dam

¹ <https://coyotegulch.blog/2010/05/02/a-look-at-the-san-luis-peoples-ditch/>

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<https://web.archive.org/web/20090907070830/http://www.denverwater.org/Recreation/HighLineCanal/>

³ <https://www.uncovercolorado.com/activities/rio-grande-reservoir/>

⁴ <https://dnrweblink.state.co.us/CWCB/0/edoc/210397/21.pdf?searchid=a4968291-ca40-46bf-96c3-354ddd872834>

could not serve its intended use of providing greater resilience and adaptability based on local hydrological conditions.

Just last month, an important rehabilitation project of the reservoir was completed,⁵ marking a crucial milestone in the Rio Grande Cooperative Project. The San Luis Valley Irrigation District, representing water users on nearly 62,000 acres of agricultural land, contributed half of the funding, supported by a CWCB loan. The other half came from state-funded grants, via the CWCB Projects Bill. With a restored dam, agricultural users can now better utilize water from the reservoir and stream flows can be better managed to enable trout fishing, rafting, and the flourishing of wildlife.

Across Colorado, we need to both update antiquated water infrastructure projects and invest in new water infrastructure to support our continued growth. Consider, for example, that the average age of the state's major drinking water treatment facilities and conveyance pipes approaches 50 years—meaning they are nearing or at the end of their service life. The EPA estimated that, for drinking water infrastructure alone, \$10.19 billion is needed here in Colorado over the next decade.⁶ Similarly, the state has identified more than \$10.3 billion in projects eligible for the Colorado Drinking Water Revolving Fund,⁷ and more than \$10.9 billion in projects eligible for the Colorado Water Pollution Control Revolving Fund.⁸ As for dams across the state, more than 450 of them are considered “high-hazard potential”; stated simply, to maintain the safety and water storage capacity of these dams, we need to invest in repairs imminently.⁹ Across a range of project types, the 2015 Colorado Water Plan identified an estimated \$20 billion of priority water projects.

⁵ <https://www.schnabel-eng.com/schnabel-engineering-celebrates-rio-grande-reservoir-rehabilitation-completion/>

⁶ https://infrastructurereportcard.org/wp-content/uploads/2021/07/FullReport-CO_2020_web-UPDATE.pdf at pdf 35.

⁷ https://drive.google.com/open?id=11Dfr8ToVSRmrXq_tVMtkI-dyJzBEivtF at 63.

⁸ <https://drive.google.com/open?id=1RI8qkkjMz6hDUYZHhYDkoMW5Hl6mBInc> at 52.

⁹ <https://damsafety-prod.s3.amazonaws.com/s3fs-public/files/CO-Performance%20Report%202018.pdf>

We continue to make progress in advancing the infrastructure goals of the Colorado Water Plan, but there is much more to be done. As members of the Colorado water community, we now have a special opportunity—with funding from the American Rescue Plan Act and, should it become law, the pending federal infrastructure act—to identify specific and meaningful ways we can make progress on Colorado’s water needs. I will discuss those opportunities in a bit, but first, let me offer some examples of and context for why such investment is critical.

II. Examples of Water Infrastructure

As is often said, water in Colorado is used seven times before it leaves the state. Dealing with the challenges posed by climate change and drought while Colorado continues to grow requires that, when it comes to our water resources, we will need to do more with less. That means continued work on water efficiency—finding ways to avoid evaporation of stored water, for example—and water conservation. It also means that we need to find ways to manage our water so that we are more adaptable and resilient, as more extreme weather patterns are going to put added pressure on our use of this critical resource. The need to use water more adaptively means that we must ensure our water gets to the right place at the right time, and that along the way its benefits are shared with as many as possible.

To appreciate the imperative of investing in water infrastructure projects, consider the case of the aging Grand Valley Power hydroelectric plant in Palisade, originally constructed in the early 1930s.¹⁰ At present, the Orchard Mesa Irrigation District and the Grand Valley Water Users Association, which operate the current hydro plant, plan to replace the aging facility with a new more efficient plant capable of producing 1.5 times as much power. In addition to producing more clean electricity, their continued use of the water right will ensure that water flows into the 15-mile Reach, a critical stretch of river for four species of endangered fish. Many

¹⁰ https://www.gjsentinel.com/news/western_colorado/irrigators-look-to-replace-hydro-plant/article_397be72e-af57-11eb-b92f-df6377877546.html

local irrigators will also benefit from increased diversions at an upstream diversion point supplying the plant. Supporting projects like this one is critical for our future.

Often, successful water infrastructure projects need to bring together a number of different constituencies simply because of their size. The Chatfield re-allocation project brought together nearly ten different water providers to make more space available for water supply. Serving as a purchaser of last resort, the CWCB facilitated completion of the \$170 million project to convert the static reservoir into one that can rise and fall in response to user need, creating greater resilience and the ability for local water users to adapt to changing circumstances. The project also reserved a sizable portion of water storage for environmental uses, supporting both enhanced stream flows and downstream water use by agricultural producers. Overall, the project allowed a variety of water users to get the water they needed, when they needed it, while also providing support for environmental and recreational uses of the Chatfield Reservoir area.

Although water delivery infrastructure can bring to mind leaky city pipes, and there is much work to be done in that area, water infrastructure projects also play an essential role in supporting our agricultural economy. For a good example of such a project, consider the Lower Gunnison Project.¹¹ This project involves a series of reservoirs, pipelines, and headgates throughout the Gunnison basin, which operate to reduce conveyance losses while also enabling more effective irrigation in the community. The conveyance systems improved by this project will also help the community protect its water and soil quality.

It is hard to talk about water infrastructure in Colorado without talking about the Arkansas Valley Conduit.¹² This project was first envisioned in the 1960s. To say that funding this project is long overdue is a considerable understatement. Now that funding is in place, this project promises to help communities throughout the Lower Arkansas Valley have access to

¹¹ <https://gunnisonriverbasin.org/projects/lower-gunnison-project/>

¹² <https://www.secwcd.org/content/arkansas-valley-conduit>

clean drinking water. We owe it to this important community in Colorado to see this project through.

I recognize that, for a variety of reasons, water infrastructure projects can be controversial. The Chimney Hollow Reservoir groundbreaking just took place, after years of discussions and process. Together with other components of the Windy Gap Firming Project, the reservoir will increase water supply reliability for many different water suppliers.¹³ As finally instituted, a variety of environmental protections were included as part of this project. As we consider future water infrastructure plans, we can continue to work to bring all stakeholders to the table and enable the development of plans that happen as effectively, fairly, and efficiently as possible.

It merits emphasis that many water infrastructure opportunities will take place on a small scale in local communities across the state. Consider, for example, a \$158,000 grant for the Conejos Cooperative project, which facilitated study of a variety of options for construction of new storage or diversion routes that would increase flexibility for agricultural water rights holders, provide flood mitigation, and enhance riparian habitat and streamflow during the summer.¹⁴ Similarly, CWCB grant funding totaling about \$1,000,000 allowed the Five Ditches Project to revitalize headgates at a series of diversion ditches off the Rio Grande.¹⁵ The headgate improvements reduced maintenance-related impacts on the stream, connected several fisheries along the river, and allowed farmers across more than 35,000 acres of agricultural land to make more full use of their water rights. Or consider a recent \$215,000 grant to support the Telluride Valley Floor River Restoration Project,¹⁶ which enabled the removal or remediation of 23 acres of deposited mine tailings and 900 feet of channelization. The restored river section supports

¹³ <https://www.northernwater.org/Home/NewsArticle/efb3744d-e61a-4ded-9eed-feca839f31cc>

¹⁴ https://dnrweblink.state.co.us/cwcb/o/edoc/206720/17-Aug-Conejos%20Water%20Conservancy%20District-Conejos%20Cooperative%20Project_Application,%20Budget,Schedule,Map.pdf?searchid=9d5ffc54-36e6-4921-b4b7-ca5f3c7a04d2

¹⁵ <https://riograndeheadwaters.org/five-ditches>

¹⁶ <https://www.erccolorado.net/projects/san-miguel-river-telluride-valley-floor/>

better water quality by avoiding heavy metal contamination while also supporting aquatic life and the connection between the river and the surrounding environment. And there are many more such projects around the state.

III. ARPA and other Grant Funding Streams

The American Rescue Plan Act (ARPA) provides a unique opportunity for Colorado to address its water infrastructure needs while maintaining Colorado's legacy of locally driven water infrastructure development. The Colorado Water Conservation Board's Water Project Loan Program and the federal government's Drinking Water State Revolving Fund provide important support for water projects. As the examples noted above demonstrate, however, grant funding can be crucial to get a project off the ground or across the finish line.

Colorado has already pre-committed much of the ARPA funding we have received. Within those commitments, and consistent with other important priorities, there remains flexibility and an opportunity to invest a meaningful portion of these funds in water infrastructure. In my view, it is essential that we do so. As I wrote in a recent op-ed with Senator Bob Rankin in the Daily Sentinel,¹⁷ we should invest at least \$100 million of such funds on important water projects. And the pending federal infrastructure bill and rising state revenue collections offer additional options for us to make such critical investments.

When considering additional funding, it is important to remember that water infrastructure projects are both an investment in our future and a direct investment in Colorado communities. In the case of the Rio Grande Reservoir Restoration Project, for example, engineering and construction services were provided by local firms, and 25 people from the area were employed for two winters in physically fixing the dam. More broadly, investing in water

¹⁷ https://www.gjsentinel.com/opinion/columns/a-land-where-life-is-inscribed-in-water/article_4503d072-eb66-11eb-a35b-ef8dca86b9fo.html

infrastructure is a sound way to support Colorado's continuing economic recovery, particularly in underserved areas.

We need to continue looking for ways to develop funding sources and investment opportunities in water infrastructure. To that end, Proposition DD is projected to provide \$5 to \$10 million per year from gambling revenues for water projects. Those projects can even go beyond traditional water infrastructure to include education, planning efforts, and watershed restoration projects. HB 21-1260 provides \$20 million in funding for implementation of the Colorado Water Plan. Moreover, HB 21-240 provides \$30 million for watershed restoration in response to wildfires, including funding for flood prevention and mitigation. These are important steps. We should bear in mind, however, that these funding sources constitute a down payment on the level of infrastructure funding that is necessary and appropriate.

Unfortunately, ARPA funds are restricted for use in projects eligible to be funded by either the Clean Water State Revolving Fund or Drinking Water State Revolving Fund.¹⁸ This means that ARPA funding cannot be used for dams, reservoirs, and agricultural needs. To ensure that, consistent with the principles and example projects I outlined above, state water projects effectively support the full range of agricultural, recreational, environmental, and municipal uses we need, I recommend that the state consider allocating additional grant funding for projects that would not be eligible for ARPA funding. This additional funding would allow us to continue the momentum generated by existing state funding streams for water projects. Ideally, the federal infrastructure bill will provide additional support for projects ineligible under ARPA. In all events, the state is now positioned to invest in this area given the recent, dramatic, increases in forecasted funding—both state funding and federal stimulus dollars—after the initial hit to our state budget caused by COVID-19.

¹⁸ <https://www.govinfo.gov/content/pkg/FR-2021-05-17/pdf/2021-10283.pdf>

IV. Conclusion

In the Colorado Water Plan, we have a roadmap for investing in Colorado's water future. Along with work already done to identify high-priority projects, refinement of that plan in the coming years will help us to prioritize among the many worthy projects. But our biggest challenge is funding. With continued growth on the horizon, planning for the future of water management will become even more important. And to fulfill the Plan's vision, it will take billions of dollars. Together, we can make this vision a reality, avoid water infrastructure horror stories, and lead Colorado to a resilient water future. By doing so, we can ensure that our water resources are preserved for all Coloradans for years to come.