AGRICULTURAL LAND AND WATER BUFFER FEASIBILITY ANALYSIS

December 2017

A Programmatic Approach to Preserving Irrigated Agricultural Lands in the South Platte River Basin in Colorado

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GLOSSARY OF TERMS

ATM—Alternative Water Transfer Methods

BRT—Basin Roundtable

BIP—Basin Implementation Plan

C-BT—Colorado-Big Thompson

CE—Conservation Easement

COL—Colorado Open Lands

CWCB—Colorado Water Conservation Board

CWP—Colorado Water Plan

GOCO—Great Outdoors Colorado

HCU—Historical Consumptive Use

M&I—Municipal and Industrial

NRCS—Natural Resources Conservation Service

OWF—Open Water Foundation

WWP—Western Water Partnerships

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AGRICULTURAL LAND AND WATER BUFFER FEASIBILITY ANALYSIS

A PROGRAMMATIC APPROACH TO PRESERVING IRRIGATED AGRICULTURAL LANDS IN THE SOUTH PLATTE RIVER BASIN IN COLORADO

INTRODUCTION

Irrigated agriculture in the South Platte River Basin is under significant pressures from development and permanent water transfers for municipal use. The Colorado Water Plan (CWP) explains that for the State to meet projected growth demand for municipal water, the most likely source is the supply serving existing irrigated agriculture along the Front Range through permanent water transfers. For example, the Colorado Water Conservation Board estimates that the South Platte River basin could lose nearly 50% of its 830,000 acres of irrigated acreage by 2050 if recent practices of drying up irrigated land to meet municipal water supply demands continue. The CWP also recommends exploring the potential to combine agricultural-municipal water sharing agreements with conservation easements to provide a perpetual water supply to cities and an additional revenue stream for farmers.

The project team's objective was to further this CWP recommendation by undertaking the following tasks:

1. Explore the concept of an "Agricultural Land and Water Buffer Program" where municipal water providers and the land conservation community work cooperatively to develop agricultural-municipal water agreements combined with farm preservation tools.
2. Analyze the legal questions regarding charitable rules and the flexibility involving new and existing conservation easements when combined with water sharing agreements. As part of this effort, a stand-alone handbook has been created: Sharing Water to Save the Farm: A Guide to Agricultural-Municipal Water Sharing for Colorado's Land Conservation Community.

Exploration of an Agricultural Land and Water Buffer Program

This effort evaluated the development of an agricultural land and water buffer program in the South Platte River Basin. The program would protect land and water rights to achieve multiple goals and leverage different types of interests and resources. Specifically, such a program could: 1) provide an important open space buffer between towns and cities, 2) support agricultural families and the larger agricultural economy and related industry of the region, and 3) create an interruptible water supply project that would operate during defined hydrologic conditions (i.e. dry year fallowing, drought recovery).

The approach included interviewing representatives from the land conservation community (land trusts and open space departments), water managers, elected officials, and funders to determine the interest and feasibility of the buffer. The analysis examined threshold issues related to the use of conservation easements that include interruptible supply agreements as well as the willingness for city, county, and water managers to participate in the program. Also examined were incentives for landowner participation

and recommendations for additional actions to advance the concept. The approach brings together many ideas that have been piloted across the state, but also focuses on how to combine the best ideas into a working program that would be scaled for implementation in the South Platte River Basin. In the South Platte River Basin Implementation Plan, the Metro and South Platte Roundtables expressed support for studies investigating methods for reducing the impacts of agricultural transfers. The plan states that "additional study of practices that allow for continued agricultural production, while at the same time permitting municipal uses, is encouraged." This feasibility project meets this expressed recommendation of the two roundtables.

The project study area is the South Platte River Basin and specifically the irrigated lands located in Northern Colorado, specifically Adams, Boulder, Larimer, and Weld counties. The analysis also included interviews of municipal water providers in the Denver Metro Area as it is expected much of the metro areas future water supplies will be through water transfers from farms located in Northern Colorado.

While the Colorado Front Range is the major economic engine for the state and the region, Coloradoans have indicated that they also want to protect agriculture, the natural environment, rural economies, and open spaces. The need to meet these future municipal water demands combined with the desire to keep water available to support agricultural and natural resources dictates that our state find alternatives to the status quo of water transfers. A key objective of this project is to provide guidance to those communities desiring to protect these important natural resources while obtaining water for the future growth of municipal and industrial uses.

In Colorado's water community, significant work has been done in exploring alternatives to buy and dry; however, some municipal water providers have indicated a preference for a permanent supply. Without a guarantee of a permanent supply, some providers are reluctant to commit to the adoption of an Alternative Transfer Method (ATM). Combining conservation easements with an ATM is an identified means to achieve the permanence desired by the water providers, at the same time, providing the open space benefits sought by the land conservation community. This project explores land and water protection tools for land trusts, municipal water providers, and local governments wishing to establish a program and will explore solutions to possible barriers to participation. In addition, this effort will also examine how this type of program can be incorporated into a water provider's system.

Legal Analysis of Combining Conservation Easements and Water Sharing Agreements

In Colorado's land conservation community, both private and local government conservation programs have worked toward the dual goals of protecting agricultural lands and creating community buffers, but no known work has been undertaken to develop an open space land preservation program with an interruptible water supply component. In part, this is because there are several threshold questions that need to be explored about the relationship between the charitable rules governing conservation easements and a more flexible approach to including water in an easement. Given the importance of the federal tax

code and conservation easement tax credit (enabled by the state statute which mirrors the Internal Revenue Code), Jessica Jay and Peter Nichols were engaged to provide a legal analysis of considerations for including an ability for municipal water leasing within a conservation easement on the qualification of such a conservation easement for tax benefits. They developed an opinion of land trusts' ability to amend existing conservation easements to allow for municipal water sharing in the context of private benefit.

The threshold topics addressed include: (1) an examination of the framework provided by Colorado's conservation easement enabling act to understand the potential for allowing municipal water sharing in future conservation easements; and (2) a review of the federal charitable tax laws that may affect the ability of conservation organizations to allow municipal water sharing in future and existing conservation easements. Finally, the handbook includes language for conservation easement deeds to allow for municipal water leasing, including appropriate policy recitals, specific findings regarding water sharing and the conservation values, and explicit authorization and parameters for water sharing.

With Colorado's land conservation community as the main audience, a stand-alone handbook has been created addressing these important questions about the charitable rules and the potential flexibility in new and existing conservation easements when combined with water sharing agreements.

The handbook, *Sharing Water to Save the Farm: A Guide to Agricultural-Municipal Water Sharing for Colorado's Land Conservation Community,* is included in Appendix A and a pdf-version can be downloaded from Colorado Open Lands website at http://coloradoopenlands.org/.

RECOMMENDATIONS

The project resulted in seven recommendations to advance an agricultural land and water buffer in the South Platte River Basin. These are further described at the end of the report.

1. Enact legislation to protect water right holders who choose to go to water court for an ATM.
2. Develop a Weld County Agricultural Land and Water Protection Fund.
3. Consider a potential ATM Involving Consolidated Ditches and Denver Water.
4. Create an ATM Fund.
5. Develop a Basin-Wide Infrastructure Project.
6. Examine Cities' Water Dedication Policies.
7. Conduct Education and Awareness Demonstration Projects.

ALTERNATIVE WATER TRANSFERS AND THE COLORADO WATER PLAN

The Colorado Water Plan (CWP) states as a goal to, "Respect the contributions of the agricultural industry by maximizing options to permanent buy-and-dry. Achievement of a sharing goal of 50,000 acre-feet could serve up to 350,000 people annually" by the year 2030.

The CWP states,

> *The Statewide Water Supply Initiative (SWSI) estimates that by 2050, Colorado may lose 500,000 to 700,000 acres of currently irrigated farmland to meet municipal growth demands. The IBCC and basin roundtables conclude that the current status-quo path of buy-and-dry is not the best path for Colorado. Across the state, water stakeholders want to minimize buy-and-dry in a way that respects property rights, recognizes the importance of agriculture in Colorado, and supports a sustainable agricultural industry—while identifying solutions to provide water for municipal needs. As numerous groups, including the Colorado Agricultural Water Alliance and the IBCC, have indicated, a variety of alternative options have the potential to appreciably decrease the projected permanent losses of irrigated acres in Colorado.*

In the CWP's section on agricultural viability, there is a call to realize more transactions that allow for Alternative Transfer Methods (ATMs). Some of the objectives include assisting young/new farmers entering the industry to work cooperatively with the land conservation community, utilizing land preservation mechanisms such conservation easements to protect and make farmland affordable for the next generation. The Interbasin Compact Committee (IBCC) calls for a program to facilitate agricultural viability with the following:

- Deals, contracts, and other options for sharing agricultural water.
- Strategies to remain market competitive.
- Ways to achieve long-term certainty for both water lessors and lessees.
- ATMs that allow the farmer to continue owning the land.
- Opportunities to overcome entry barriers for young growers.
- Perpetual agricultural agreements, such as conservation easements.
- Other similar contractual agreements that allow for more long-term flexibility.
- Funding opportunities for agricultural producers.

The approach described by the IBCC is generally the approach outlined in this report. The approach is market-based, partnership driven, and utilizes the existing tools available to provide for the permanent protection of the farm and ranch lands while providing for reliable and permanent water supplies for the cities and water districts. ATMs have been discussed for over 10 years, mostly on a theoretical basis. For ATMs to be a viable tool in Colorado, projects will need to demonstrate to cities, water managers, farmers, land trusts, and publicly-funded open space programs that ATMs can help these entities achieve their respective objectives in a cooperative manner and at a lower cost than if they were to act alone. As with any new technology or concept, to be accepted and adopted, potential users need to have confidence that it is worth their investment of time and money. This is especially critical considering the high value and

sometimes significant risks associated with land and water rights transactions. Through pilot/demonstration projects, the State can help encourage "innovators" and "early adopters" to consider utilizing ATMs to meet their organization's goals and objectives.

TYPES OF ALTERNATIVE WATER TRANSFER METHODS

Several variations of ATMs have been implemented, attempted, and discussed in Colorado to supply consumptive uses. We have chosen to group these methods into the agricultural practices that may be used to make water available and the legal mechanisms that can facilitate ATM projects. The feasibility of both the legal mechanism and agricultural practice must consider the needs and logistics of both users. For example, it may be more feasible to do rotational fallowing on grain crops whereas split season may be the only feasible option for alfalfa producers because of the reduced yield and recovery time following a fully dry season.

Agricultural practices:

- Rotational fallowing
- Deficit irrigation
- Crop change
- Split season irrigation
- Irrigation efficiency improvements

Rotational Fallowing may be practiced on a farm scale or on a system scale, such as by different farms on the same irrigation ditch (or multiple ditches, as discussed later in the case study of the Super Ditch). Rotational fallowing may allow a farm to continue agricultural production every year, but with the systematic fallowing of a portion of the historically irrigated land each year. The CWP notes that this method may provide base supply, drought supply, or drought recovery supply for a municipality.

Deficit Irrigation is practiced on a farm or ranch scale and involves the irrigator applying less water to a crop than the crop needs for optimal growth. Research conducted on USDA's Agriculture Research Service test plots near Greeley showed that a 50% reduction in water applied may still produce 75% of corn yield, if applied during the drought-sensitive stage of the crop.

Crop Change involves a switch from a crop that requires significant water application to one that requires less. For example, in the Fort Lupton area, the seasonal water use of alfalfa is 43.5 inches per season (consumptive use) while grain corn uses only 25.9 inches of water (Seasonal Water Needs and Opportunities for Limited Irrigation for Colorado Crops, CSU Extension, J. Schneekloth and A. Andales, Fact Sheet No. 4.718, February 2017). Similarly, Irrigation Efficiency Improvements involve a change in irrigation infrastructure that increases the efficiency of water delivery and application, such as that from center pivot to drip irrigation.

Split Season Irrigation is achieved by the irrigation of the full water right for part of the season and another use of the water during the remainder of the season to supplement late season flows, or vice versa to enhance spring flushing flows. Typically, historical irrigation occurs early in the season when water supplies are more plentiful, and another use may occur in the latter part of the season when junior rights are out-of-priority.

> **Example: Little Cimarron River Instream Flow ATM**
> The Colorado Water Trust purchased water rights on a ditch in the Gunnison Basin to help restore late summer flows to the Little Cimarron River. One of the goals of the project was to keep land in agriculture while keeping water in the river at a key time. To do this, the Water Trust and Colorado Water Conservation Board filed for a change of water right to a split-season right to be able to use the water in spring and early summer for irrigation and for instream flow use in late summer and early fall.

Legal Mechanisms to Facilitate ATMs

- Water Banking
- Lease-fallow Agreements
- Rotational Crop Management Contracts
- Flex water rights
- Substitute Water Supply Plans
- Interruptible Water Supply Agreements
- Water court adjudication of changes and plans of augmentation

The water court has adjudicated several changes of irrigation water rights and plans of augmentation that allow industrial and municipal users to use irrigation rights for other purposes, while continuing agricultural irrigation and production in most years.

> **Example: Lease between Xcel Energy and Fort Morgan Reservoir and Irrigation Company**
> The two parties entered into a 40-year lease agreement under which Fort Morgan delivers 2,500 acre-feet of consumptive use water to Xcel Energy's Pawnee Generation Station in exchange for an annual fee (designed to keep pace with inflation), that is then distributed to participating farmers. The ditch runs adjacent to the Pawnee station, which facilitates easy direct delivery. The fact that Fort Morgan has both direct flow and storage rights ensures delivery, even in drought years. Fort Morgan changed the use of its water rights in water court to enable agricultural or industrial use.

Water banks were enabled by the Colorado legislature in 2003, with the general concept that an irrigator may forgo the use of his or her water and "bank" that water, which would then be available for sale and use by other users. Rather than detailing the structure of water banks, the General Assembly granted the State Engineer the authority to promulgate governing rules that a water court must approve. According to the Water Bank Rules, stored water could not be used for instream flows or exports out of state and use of the bank must comply with all state and federal laws. Furthermore, the rules required any potential depositor to pay an application fee and provide information including, among other things, proof that depositing the water would not result in an expansion of water use and an engineering report estimating historical consumptive use. If the Water Bank deemed the water eligible, the depositor and Water Bank entered a deposit agreement that included the minimum price the depositor would accept for their water, a provision stating that the Water Bank had the exclusive right to lease the water, and a provision stating that the depositor could withdraw their water at any time. Subsequently, the Water Bank would list the water on its website for bids, and the depositor was required to accept any in-basin bids meeting the minimum price within the first ten business days. CRS 37-80.5-101 et seq.

Example: The Grand Valley Water Bank Pilot Project

The Nature Conservancy is in its first year of working with the Grand Valley Water Users' Association (GVWUA) on the Grand Valley Water Bank Pilot Project. Through the project, GVWUA will contract with 10 participating shareholders and implement four different water savings practices on approximately 1,250 acres. These practices include a full season of fallowing and three options for partial-season fallowing with irrigation water available after August 1, September 1, and October 1. Each practice has an associated estimate of reduced consumptive use and corresponding payment. Payments will go to both the participating farmer as well as to GVWUA for infrastructure upgrades. The total consumptive water savings for the 2017 participating acres is approximately 3,200 acre-feet. GVWUA will monitor contract compliance, account for and manage the conserved water savings within its system, and deliver this water to a section of the river that is critical habitat for four endangered fish species in the Colorado River. From there, the water will then make its way downstream to support reservoir levels in Lake Powell.

Lease-Fallow Agreements have been authorized through the Agricultural to Municipal Leasing-Fallowing Pilot Program created in 2013. The pilot program allows agreements between irrigators and municipalities, in which irrigators forego watering parcels of land and lease the water temporarily to cities. This program was extended in 2015 to include environmental, industrial, and recreational uses, and not just municipal uses and was authorized through the end of 2018. Through the pilot program, the Colorado Water Conservation Board may approve up to fifteen pilot projects lasting ten years, with no more than five in any major river basin. One goal of the program is to encourage cooperation among water owners such as irrigators, ditch companies, and cities. A key aspect of the pilot program is to evaluate the feasibility of delivering temporary water to municipalities through a streamlined approach for determining historical

consumptive use and injury. Additionally, the legislation requires projects to meet local land use regulations, prevent erosion, and comply with noxious weed requirements, which help mitigate the potential negative effects of fallowing land. CRS § 37-60-115(8)

Example: The Catlin Pilot Project

A lease-fallow program of the Super Ditch and the Lower Arkansas Valley Water Conservancy District, has been used successfully in the Arkansas River Basin to supply municipal water demands to the City of Fountain, Security Water District and Town of Fowler since 2015. Five farms, including one under a conservation easement with the Lower Ark WCD, currently supply up to 500-acre feet per year to the three municipalities, although Fountain, Security and Fowler may expand their leases up to 2,000, 500, and 250 acre-feet per year respectively. Other contemplated pilots include the City of Colorado Springs and the U.S. Forest Service's Lake Isabel recreation area.

Rotational Crop Management Contracts (RCMCs) are a statutorily specified mechanism that water owners may implement to change the use of water. The Colorado General Assembly authorized these contracts in 2006. Under an RCMC, owners of irrigation water rights may transfer the water to another use and rotate the lands that they fallow. This method avoids the permanent dry-up of agricultural lands by allowing the water owner to only fallow certain parcels at a time. Although authorized by the legislature, RCMCs must go through a water court proceeding. According to the Colorado Division of Water Resources, RCMCs have never been used since the passing of enabling legislation. CRS 37-92-103 (10.6)

Flex Water Rights are a concept which would allow for the change of use of a senior irrigation right to include multiple end uses. The idea was passed in a limited form through legislation that authorized water court applications for changes in use of absolute decreed irrigation water rights, in order to facilitate loans, leases, or trades within Water Divisions No. 1 (South Platte River Basin) and No. 2 (Arkansas River Basin). These new water court decrees for "agricultural water protection water rights" allow up to fifty percent of the quantified historical consumptive use portion of the irrigation right to be delivered to other types of beneficial use at other decreed locations within the specified water division but cannot be transferred out of the water division. The balance of the consumptive use water must continue to serve the property for which the irrigation rights were historically decreed, or another property served by the same ditch system. The owner of these water rights is required to participate in a federal, state, local government, or non-profit conservation easement program that conserves land historically conserved by the water right, or other conservation program that meets criteria and guidelines established by the Colorado Water Conservation Board. The legislation required the Colorado Water Conservation Board to develop criteria and guidelines for the program and the State Engineer to promulgate rules for the substitute supply plans. Agricultural Water Protection Water Rights were created through House Bill 16-1228.

Substitute Water Supply Plans and Interruptible Water Supply Agreements (CRS 37-92-308 and 37-92-309) are both legal mechanisms that emerged after the 2002 drought to grant the State Engineer authority to approve temporary changes to water rights. Although temporary, both mechanisms allow for contractual agreements between water rights holders and non-agricultural users.

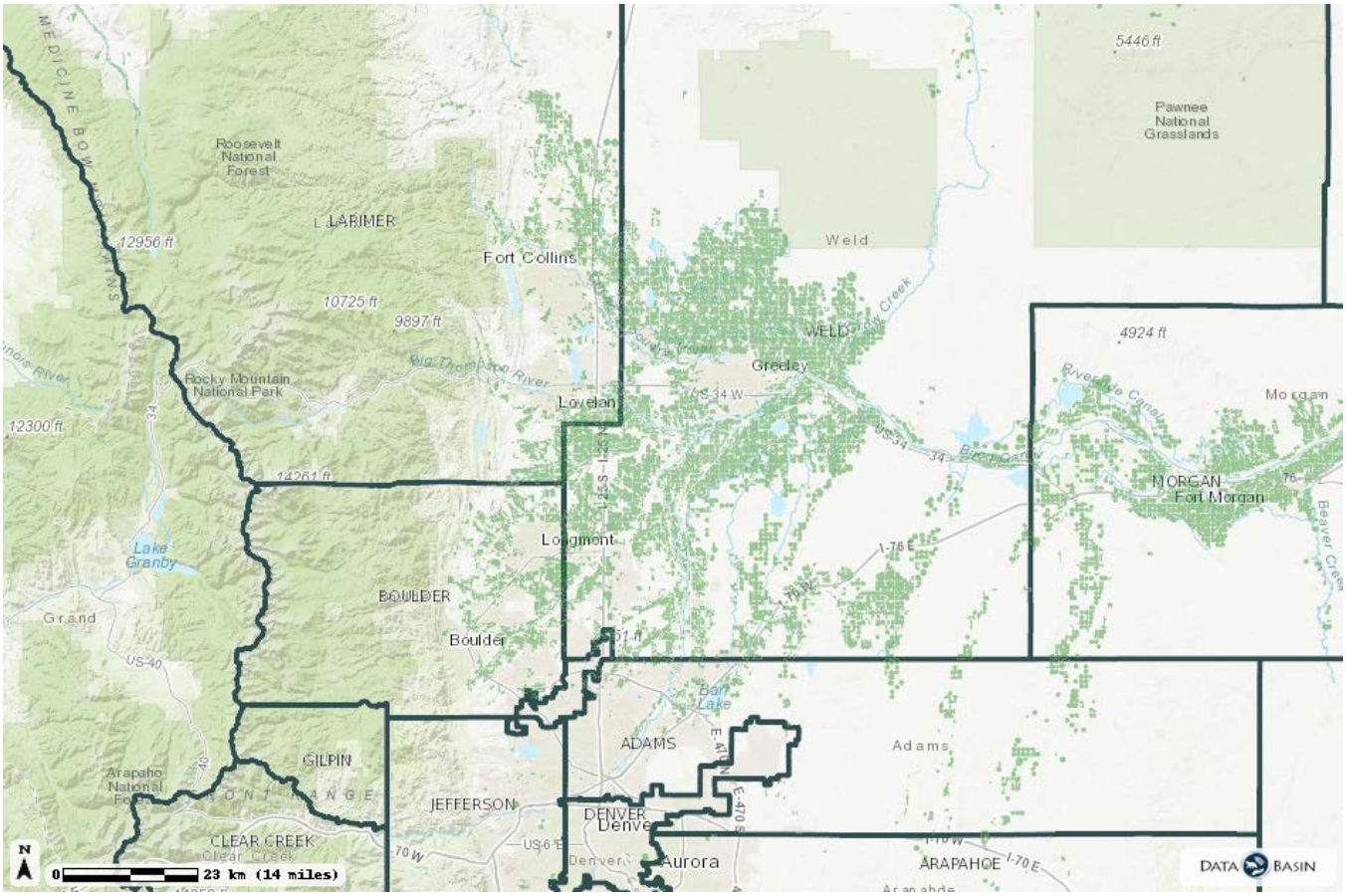
Substitute Water Supply Plans (SWSPs) may allow new or different uses of water rights while change-of-use applications are pending in water court, if such use does not injure other water rights. SWSPs were first used as an interim approval method for augmentation plans to replace out-of-priority diversions with senior direct flow irrigation or storage rights in the same amount, location, and time, and quality. SWSPs provide only an annual approval for an interim use and must be renewed by application each year while the water court adjudicates a permanent change.

There are two types of Interruptible Water Supply Agreement recognized in Colorado. The first is a temporary agreement and is allowed in Colorado Statute (CRS 37-92-309). This is basically a loan and allows the borrower to exercise an option to use the loaned water in accordance with the agreement while the owner of the water right stops using the water. IWSAs are limited to transferring water no more than three years in a 10-year approval period, with up to two renewals of the 10-year period. The amount of water available to loan is limited to the historical consumptive use. Since the enactment of the IWSA statute in 2003, no agreements have been put into operation.

The second type is an agreement or contract between non-agricultural water users and farmers. Water is transferred from agricultural use to another use, such as municipal or environmental. Irrigated lands are fully or partially fallowed during a specific period, and water is provided for a different use based on the historical consumptive use portion of the water right. In most cases, this type of arrange would have to go to water court to quantify the amount of water that is transferable (i.e. quantify the historic consumptive use) prior and to ensure protection of other water right holders. The benefit of this type of arrangement is that it can be perpetual in nature and thereby satisfying the municipality's interest in ownership and certainty.

DESCRIPTION OF NORTHERN COLORADO: ADAMS, BOULDER, LARIMER, AND WELD COUNTIES

Over the past several years, Northern Colorado as well as the Denver Metro Area have experienced significant growth that is expected to continue for the foreseeable future. These communities will require additional water to support expected population growth. Although all these communities are fast growing, their water needs differ. Some of these communities will seek to acquire base water supplies. Others may be looking to firm their existing water supplies to protect against droughts and uncertain future water supplies and increased demands due to climate change.



Map of Project Area

Limited Water Supply Options in the South Platte River Basin for Municipal Growth

The South Platte River Basin is an over-prescribed basin with very little unappropriated water available. Those unappropriated flows are typically only available during very high runoff periods or from sporadic high rainfall events. This reality makes it difficult to justify the development of new water storage projects due to costs and associated low yields (yields likely to be low due to the infrequency of available water to capture and fill reservoirs). Even if these projects were developed, their unreliable yield would not be acceptable to most municipal water managers, who are conservative in determining their firm yields. Further straining the South Platte River Basin available supplies, municipal water providers will continue to increase their efficiencies and develop reuse projects as permitted under Colorado water law.

Municipal water providers in the South Platte River Basin now import approximately 400,000 acre-feet of water from the Colorado River Basin and another 100,000 acre-feet from the Arkansas, North Platte, and Laramie River Basins. While there have been several new trans-basin projects (e.g. Flaming Gorge, Blue Mesa Pumpback, and the Yampa Pumpback), the likelihood of a new large scale trans-basin water project is low due to the permitting challenges and the resistance from West Slope communities and environmental interests that would be expected to oppose any additional projects. Aside from the great political challenges of new trans-basin projects, any proponent could expect expensive and time-consuming permitting processes, despite some attempts to streamline the permitting process by the State. For instance, while several projects including Colorado Spring Utilities' Southern Delivery System, Denver Water's Moffat Firming Project, and Northern Water's Windy Gap Firming Project have recently received their necessary permits, the permitting processes for these projects took decades to complete and have costs tens of millions of dollars in engineering and attorney fees. Based on limited unappropriated water supplies, opposition to new West Slope trans-basin projects and expensive and time-consuming permitting processes with new water projects, the likely source of water supply for the growing Front Range population will be the reallocation of water rights from agricultural use to municipal use.

In recent years, these transfers have predominantly been from agriculture to municipal use – a process known as "buy and dry" where agricultural water rights are willingly sold to municipalities to supplement their supply, resulting in the loss of irrigated agricultural lands. Although this method can help to address the projected water supply gap, there are negative economic and environmental impacts associated with "buy and dry" such as impacts to rural economies, loss of open space and associated wildlife habitat and reduction in local food production. Many water providers are planning on meeting much of their future water supply needs through traditional agricultural water transfers (i.e. buy and dry). These transfers are in the planning stages and will proceed, barring delays in water right transactions, permitting of conveyance infrastructure or other unexpected circumstances.

To illustrate the loss of irrigated agriculture in the region, the Figure 1 below depict irrigated acres in Water District 2 (Division 1) from 1960 to 2017. It should be noted that these maps reflect irrigated lands and do not account for any water rights that have been purchased by municipalities that have not yet been dried up.

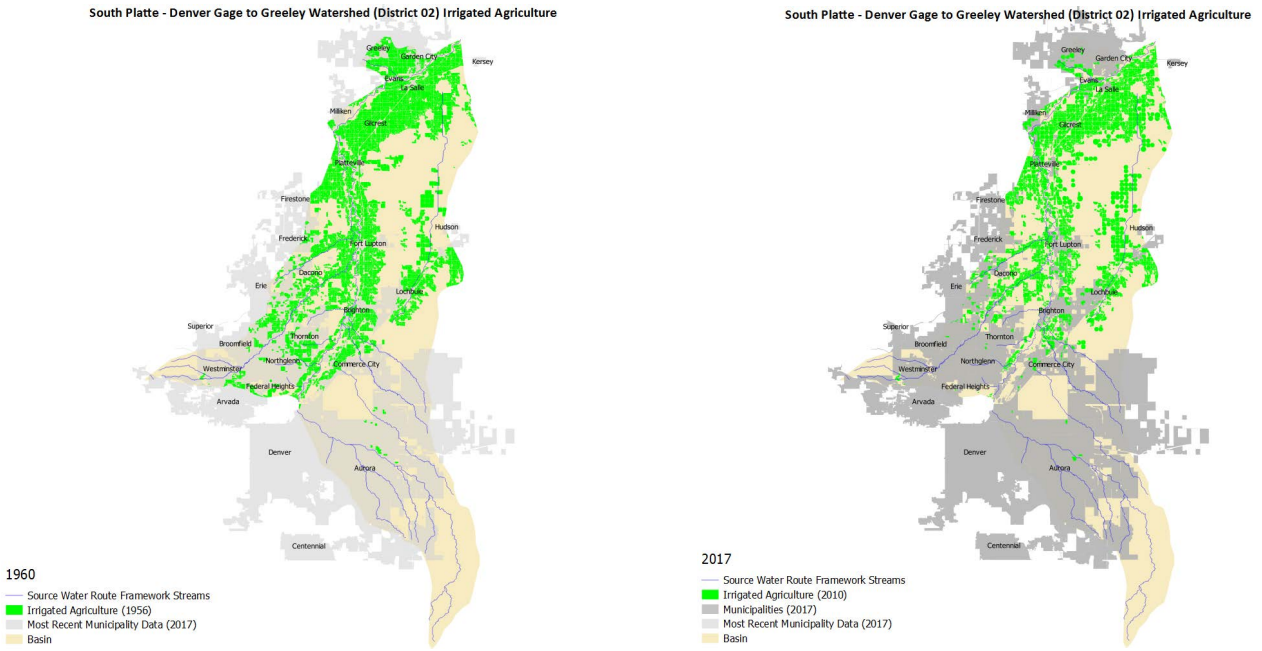


Figure 1: Changes in Irrigated Acreage in Water District 2 (1960 – 2017)
Graphic Credit: Open Water Foundation

NORTHERN COLORADO WATER MARKETS (C-BT AND NATIVE DITCH WATER)

Competition for additional water supplies is substantial in Northern Colorado, and in some cases, multiple providers have identified the same water supplies as future water sources. Competition increases the costs to water customers, and competition for the same water supplies could result in the chance that some providers will lack sufficient water in the future.

The Colorado-Big Thompson (C-BT) Project collects and delivers, on average, more than 200,000 acre-feet of water each year and has a total of 310,000 C-BT units. A C-BT unit averages 0.7 acre-foot each year. C-BT water is easily transferred to other uses as it does not require Water Court. Therefore, it is highly sought after by entities for municipal and industrial uses. As indicated in Figure 2, in 1957 when the C-BT Project started, the ownership of the water was 85% agriculture with 15% held by municipalities. In 2015, the ownership has switched dramatically with agricultural owners owning 31% and municipal owners, 69%. It is estimated that an additional 30,000 C-BT units will be transferred from agricultural to municipal entities.

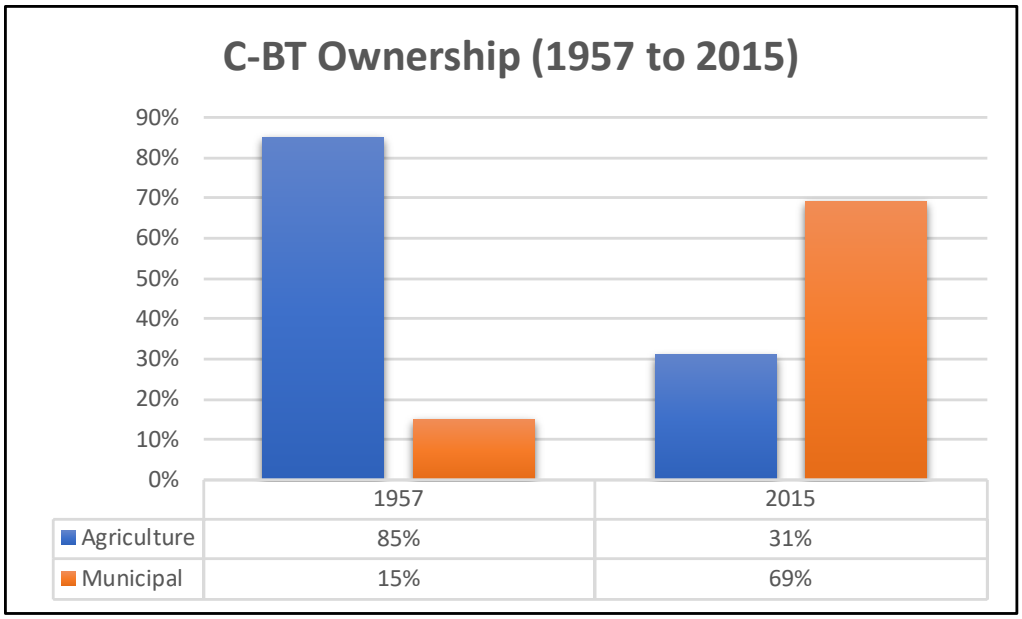


Figure 2: Changes in C-BT Ownership (1957 – 2015)

The municipal pressure on the water rights in Northern Colorado is significant and is responsible for most of the price increases over the past couple of decades. The price of C-BT water has seen an approximate 400% increase in price since 2010. The current price of a C-BT unit is approximately $30,000 compared to $7,000 per unit in 2010. Figure 3 below demonstrates the dramatic increase in C-BT prices from 1998 to 2017.

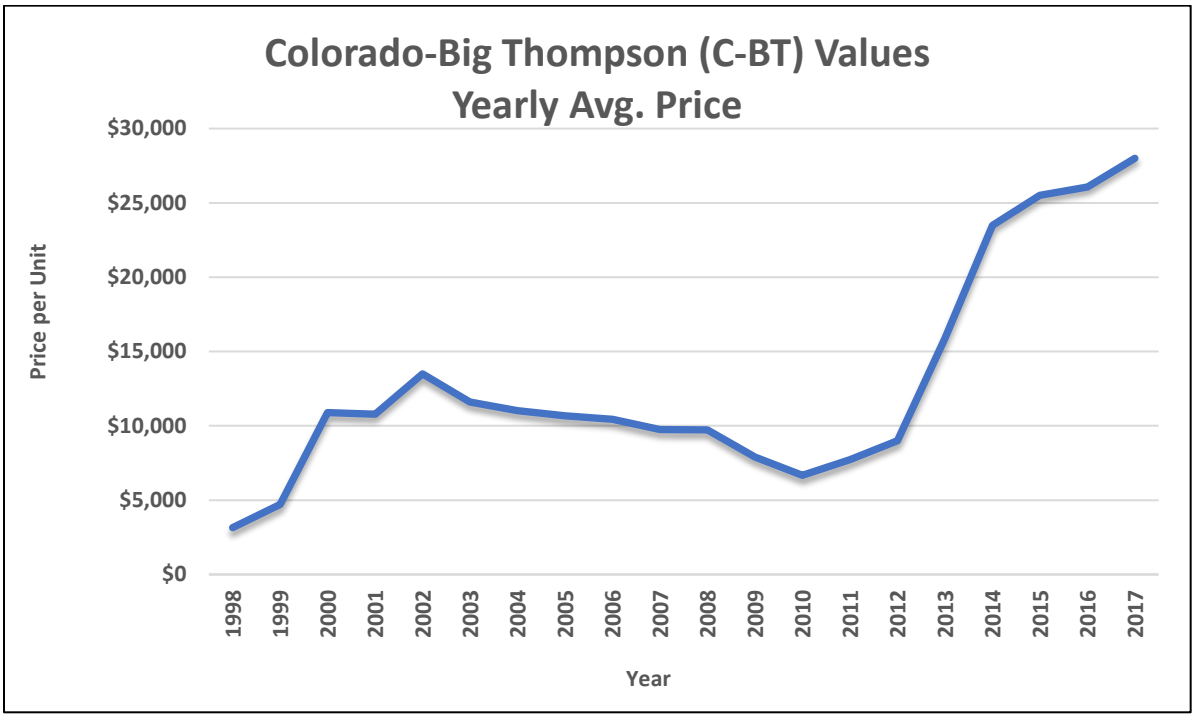


Figure 3: C-BT Prices (1998 – 2017)

C-BT water is not the only water rights that have seen a dramatic increased in value over time. In recent years, the native ditch water rights have seen a similar increase in sales activity and associated prices. In fact, comparing the sale prices of C-BT to the shares prices of the Home Supply Ditch indicates a very similar trend over time (Figure 4).

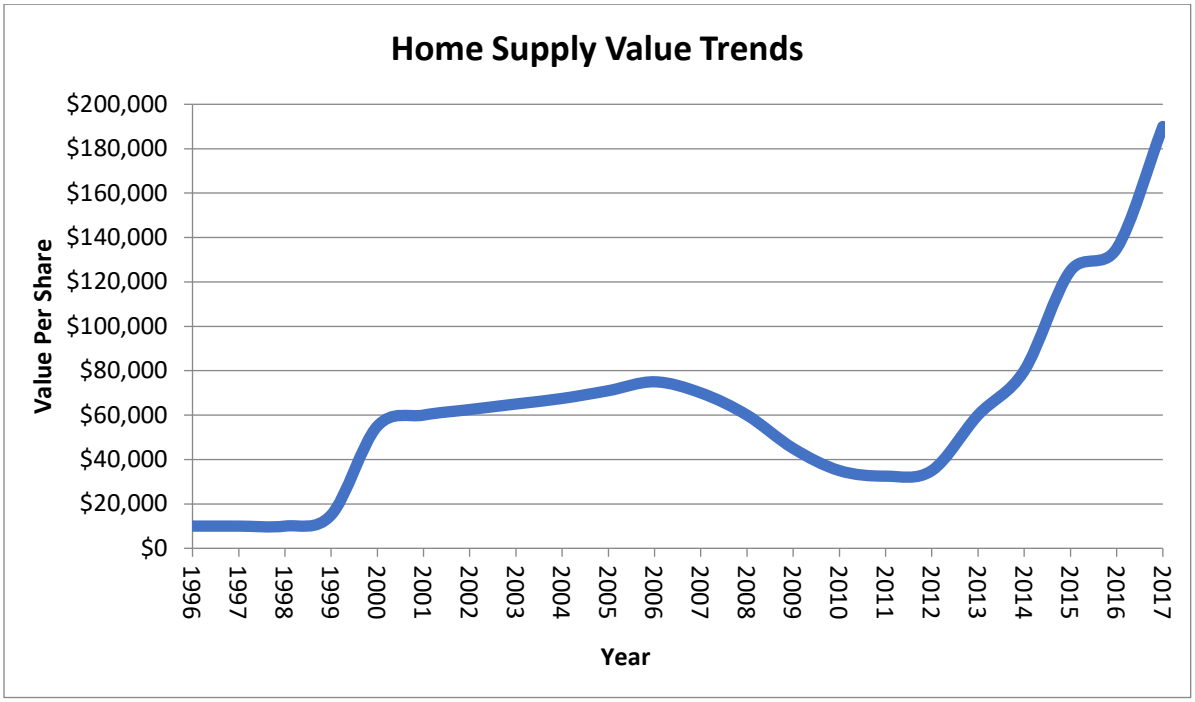


Figure 4: Home Supply Ditch Prices (1996 – 2017)

TYPES OF MUNICIPAL WATER PROVIDERS IN STUDY AREA

The irrigated lands in Northern Colorado are facing pressures from three main types of municipal water providers: (1) Metro Denver Area, (2) Northern Colorado Towns and Cities and (3) Rural Domestic Water Providers.

Metro Denver Area

For the purpose of this study, the Metro Denver Area includes Denver and its immediately adjacent suburbs, Aurora and the South Metro Water Supply Authority Communities (e.g. Parker, Castle Rock and Centennial). This region is the economic powerhouse of the State and expects to see continued growth. With this growth, the municipal water providers are tasked with finding the water supplies for this growth even after considering their planned municipal water conservation and re-use projects.

Northern Colorado Cities and Towns

Northern Colorado has a diverse group of communities, each with their own history, values, and resources. Many of these communities are currently bounded entirely or partially by agricultural lands but with

development pressures on the water rights and lands there is a risk that many of these communities will start to blend together as they lose their agricultural buffers.

Rural Domestic Water Providers

There are several Rural Domestic Water Providers (RDWPs) that provide potable water to residential customers that are in unincorporated areas and to smaller communities that do not have their own water departments. The RDWPs are special districts that typically have relatively small staffs, modest budgets, and have oversight by a board of directors.

A significant portion of the irrigated land within the project area is located within the boundaries of RDWPs. With that said, these districts typically have relatively narrow missions focused on providing the water to their customers and have very little control over land use within their boundaries aside from the ownership of access easements and condemnation powers associated with their water projects. Despite their lack of land use control, the fact that significant irrigated acreage is within the boundaries of these districts presents some interesting opportunities for implementing ATMs and preserving irrigated lands.

The major RDWDs are listed below and their district boundaries are depicted in Figure 5 below.

- Fort Collins-Loveland Water District
- North Weld County Water District
- East Larimer County Water District
- Left Hand Water District
- Little Thompson Water District
- Central Weld County Water District
- West Fort Collins Water District

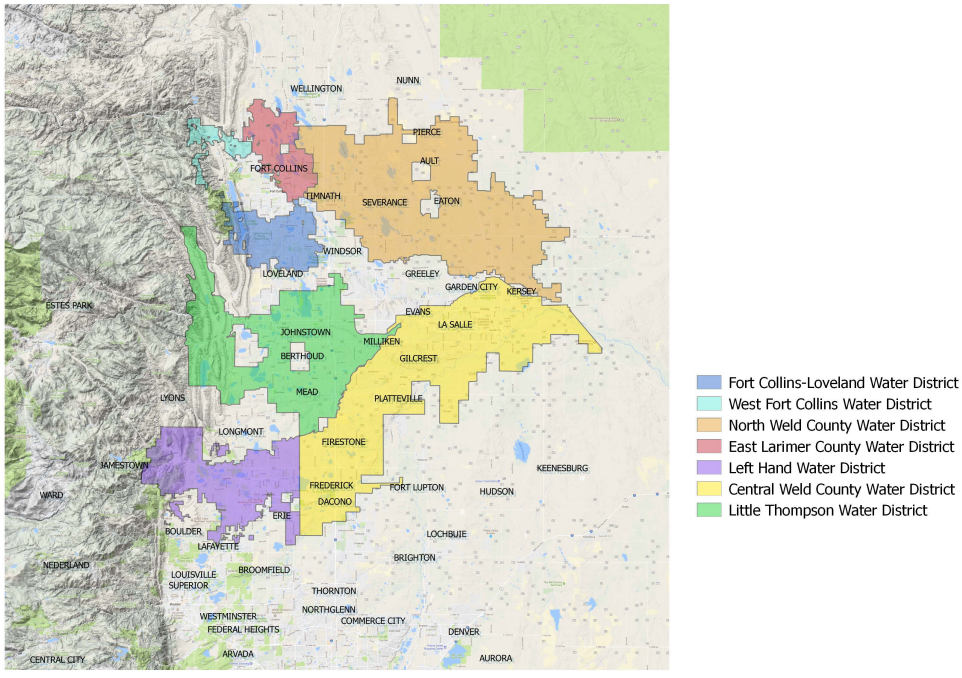


Figure 5: Rural Domestic Water Providers in Northern Colorado

OPPORTUNITY: WATER BANKING PROGRAM WITH RURAL DOMESTIC WATER DISTRICTS

By partnering with the land conservation community, significant ATM water supplies could be developed while preserving the rural, agricultural character of the region. Typically, each water district has certain surface water rights in its water supply portfolio which is largely a factor of their ability to deliver these water supplies to their raw water treatment facilities (directly or through exchange). Each water district's water rights portfolio is unique, but they typically have water rights from several ditches (in addition to various C-BT units).

Working cooperatively with RDWDs, a program could be created where farmers holding water rights that are in a RDWD's supply portfolio could be entered into an ATM agreement with the farmer. The ATM agreement could be an interruptible water supply agreement (IWSA) or a series of IWSAs to provide base water supplies on an annual basis. To provide certainty to the RDWD, a land trust and/or county open space program can work with the farmer to secure a conservation easement on the property (or other acceptable restrictions). Through this protection, the ATM agreement can be perpetual allowing the water district to incorporate this into its buildout supplies without the worry that the water supplies may be sold to a competing water provider.

There are opportunities for RDWDs to incorporate ATMs into their water supply portfolio. Several of the RDWDs interviewed indicated their willingness to explore ATMs as they believe needed water supplies might be able to be acquired at a lower cost than if acquired outright. Through discussions with numerous municipal water providers, a top priority with all of them is certainty of supply. Municipal water providers do not want to invest significant funds towards a water supply option that has the potential to be sold to a competing water provider or another buyer sometime in the future.

NORTHERN COLORADO MUNICIPAL WATER PROVIDERS

In interviews with Northern Colorado city and county staff including management, planners, and/or water managers, there is a near unanimous recognition that the region's irrigated agriculture is under high threat from development and permanent water transfers from agriculture to municipal use. Many of these communities have expressed a willingness to consider ATM projects with the understanding that they must be cost-effective relative to traditional ag-municipal water transfers.

- *Small and fast-growing municipalities.* These communities typically need all the water they can get as growth is occurring at a rapid rate. While drought water supplies are certainly needed, base water supplies are often the highest priority for the water managers. While some towns have in-house water managers, most of the communities have water resources consultants to assist in their water resources engineering, management, and planning responsibilities.
- *Fast growing rural-domestic water districts.* Like the small and fast-growing municipalities, the rural-domestic water providers appeared to be more interested in obtaining base water supplies than dry year water supplies. Further, these entities have boards of directors that generally have a low tolerance for risk and did not appear to want to consider straying from the standard practice of obtaining water supplies through dedications and/or purchasing water rights.
- *Municipalities with relatively secure water supplies.* These communities did not have the need for additional base water supplies and were generally supportive of the concept assuming the price was fair. These communities have successfully planned for their existing and future water supply needs but have the need or desire to increase their systems' firm yield or water supply reliability. Drought water supplies or drought recovery supplies may compliment their already sufficient water supply portfolio. Factors such as climate change may influence the water managers of these communities to rethink their systems' firm yield calculations.

We heard from some staff that even if their municipality had the resources to complete an ATM project, the need for the dry-year water, and the staff willing to negotiate a deal, many lacked the institutional support either from their leadership or boards or both to try something this new and different. It is possible that with more public awareness of the continuous buy-and-dry occurring across the state and the South Platte Basin, the public will pressure their water providers to acquire water without drying up farms, and the leadership at these organizations could become more willing to participate in an ATM project in the future. Pilot ATM projects can help provide concrete examples for the more risk-adverse communities to undertake a project of their own.

EXAMPLES OF COOPERATIVE PROJECTS AND EFFORTS WITHIN DENVER METRO AREA

While the Metro Denver Area is comprised of discrete communities that often work independently to secure water supplies, in the last decade there has been considerable coordination and cooperation between municipal water providers. A few prime examples of this type of regional cooperation are the Chatfield Reservoir Reallocation Project, the creation of the South Metro Water Supply Authority, and the WISE Project.

Chatfield Reservoir Reallocation

The Chatfield Reservoir Reallocation Project came about as the result of a growing demand for water along the Front Range and on Northeast Colorado farms. The U.S. Army Corps of Engineers determined Chatfield Reservoir can accommodate an additional 20,600 acre- feet of water storage for water supply without

compromising its flood control function. This additional storage space will be used by municipal and agricultural water providers to help meet the diverse needs of the state. Project participants will undertake recreational modifications and environmental mitigations at Chatfield State Park to address the impacts of additional water storage. The project's eight participants with their respective water rights ownership is provided below.

- Colorado Water Conservation Board – 6,883 AF, 33.41%
- Centennial Water and Sanitation District – 6,922 AF, 33.6%
- Central Colorado Water Conservancy District – 4,274 AF, 20.75%
- Castle Pines North Metro District – 1,006 AF, 4.88%
- Colorado Parks and Wildlife – 1,000 AF, 4.85%
- Castle Rock – 374 AF, 1.82%
- Center of Colorado Water Conservancy District – 131 AF, .64%
- Castle Pines Metro District – 10 AF, .05%

South Metro Water Supply Authority

The South Metro Water Supply Authority was founded in 2004 as a regional water authority providing more unified representation and coordinated planning amongst smaller water entities located in the south Denver Metro area. The water providers in this area have significant reliability on non-renewable aquifers that do not provide for a sustainable water supply and a large part of SMWSAs is to develop sustainable water supply strategies for its members. The water authority currently has 13 members which are listed below.

- Arapahoe County Water and Wastewater Authority
- Castle Pines North Metropolitan District
- Centennial Water & Sanitation District
- Cottonwood Water & Sanitation District
- Dominion Water & Sanitation District
- East Cherry Creek Valley Water & Sanitation District
- Inverness Water & Sanitation District
- Meridian Metropolitan District
- Parker Water & Sanitation District
- Pinery Water & Wastewater District
- Rangeview Metropolitan District
- Stonegate Village Metropolitan District
- Town of Castle Rock

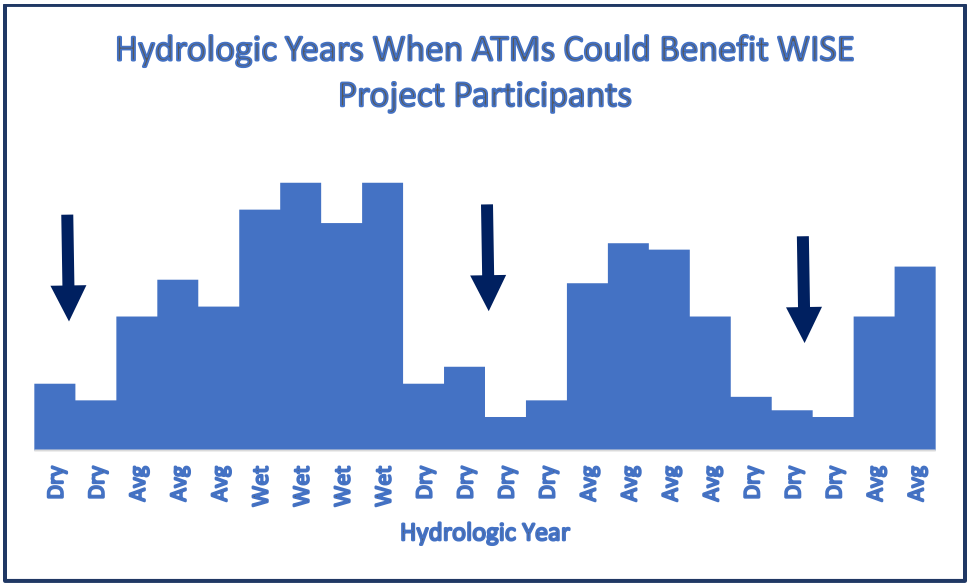
WISE Partnership

The WISE (Water Infrastructure and Supply Efficiency) Partnership combines available water supplies and system capacities among Denver Water, Aurora Water, and the ten members of the South Metro Water Supply Authority (SMWSA). The project allows participating water entities to share existing water supplies, infrastructure and other assets in the South Platte River basin in ways that are mutually beneficial. The participating SMWSA entities receive an additional source of renewable and reliable water supplies and the partnership helps to reduce reliance on nonrenewable groundwater. The project provides new emergency water supplies for Denver Water and creates more system flexibility, allowing Denver Water to reuse its imported water multiple times for multiple purposes (water imported from other basins can be 'reused to extinction' under Colorado water law). The project benefits Aurora by providing an additional revenue stream stabilizing rates for municipal customers while creating added value from existing water and infrastructure.

Aside from the agreement establishing the WISE Partnership, the participants are constructing new infrastructure and systems to allow the parties across the Denver metro area to combine water supplies and system capacities. Some of these include the purchase of a 20-mile pipeline to carry water from Aurora to Denver and South Metro, building a new water tank and connecting numerous existing pipelines to interconnect the participants.

OPPORTUNITY: ATM PROJECT WITH WISE PROJECT PARTNERS

The WISE partners have subscribed to 72,250 ac-ft every 10 years with an average delivery of 7,225 ac-ft/year. Water deliveries will vary and are interruptible, with annual deliveries ranging from zero to a maximum annual delivery of 18,063 ac-ft under the agreement. Subject to Denver Water and Aurora Water, the WISE participants may not receive water deliveries during dry hydrologic years. While there may be opportunities to firm the yield of WISE water through aquifer recharge and recovery or through storage in Rueter-Hess Reservoir by some participants, there are opportunities for ATM water to help provide water to the WISE participants during the dry years in which Aurora Water and/or Denver Water elect to take their water.



For an ATM involving the WISE participants, infrastructure is essential to transport water from Northern Colorado to the South Metro area. As discussed, the WISE project involves interconnecting underground pipelines to move water between most of the SMWSA's members. Aurora's Prairie Waters project is located near Barr Lake in Weld County and serves to deliver water to Aurora's raw water treatment plant, the Peter D. Binney Purification Facility, located near Aurora Reservoir. While participation with Aurora is necessary, the WISE participants could deliver ATM water via the Aurora's Prairie Waters project to their water systems and help provide water during the years Aurora Water and Denver Water do not deliver water to the WISE participants (i.e. dry years).

EXAMPLES OF KEY COOPERATIVE PROJECTS AND EFFORTS WITHIN NORTHERN COLORADO

There are also several good examples of regional cooperation amongst the communities in Northern Colorado. A couple of prime examples of this type of regional cooperation are the Windy Gap Firming Project and the Northern Integrated Supply Project (NISP).

Windy Gap Firming Project (WGFP)

The WGFP is a project designed to increase the reliability of the original Windy Gap Project that was built between 1981 and 1985. The Windy Gap Project consists of a diversion dam on the Colorado River, a pump plant and a 6-mile pipeline to Lake Granby, the largest storage reservoir in the Colorado-Big Thompson Project system. During wet periods when Lake Granby is full, the Windy Gap Pump Plant cannot operate due to the absence of reservoir storage for Windy Gap Project water.

The WGFP is a collaborative proposal between 11 Northeastern Colorado water providers and the Platte River Power Authority. The WGFP would improve the Windy Gap Project's reliability by constructing a new storage reservoir for Windy Gap water at Chimney Hollow near Carter Lake. The project participants include: the Platte River Power Authority, Broomfield, Erie, Greeley, Longmont, Louisville, Loveland, Superior, Central Weld County Water District, Little Thompson Water District, Lafayette and Fort Lupton.

Northern Integrated Supply Project

The Northern Integrated Supply Project proposal includes construction of the 170,000-acre-foot Glade Reservoir northwest of Fort Collins. It would be filled with water diverted from the Poudre River via the existing Poudre Valley Canal. The project will supply 15 Northern Front Range water partners with 40,000 acre-feet of new, reliable water supply. The project will serve eleven cities and towns and four water districts serving a combined population of 240,000 residents. The project participants include Dacono, Eaton, Erie, Evans, Firestone, Fort Lupton, Fort Morgan, Frederick, Lafayette, Severance, Windsor, Central Weld County Water District, Fort Collins-Loveland Water District, Left Hand Water District and Morgan County Quality Water District. The Corps is currently working to complete the Final Environmental Impact Statement for NISP. The Corps estimates completing the FEIS in 2018, with a Record of Decision scheduled for 2019.

Colorado River Cooperative Agreement

Recent agreements between multiple stakeholders, such as the Colorado River Cooperative Agreement, between Denver Water and more than two dozen western slope entities, and subsequent agreements with various entities, including the CWCB, illustrate the ability to work collaboratively and creatively within of Colorado's water administration system to achieve maximum use of the state's water resources for the greatest benefit. In Fall 2013, 18 parties that are reliant on water from the Colorado River completed the

Colorado River Cooperative Agreement (CRCA). The CRCA represents the culmination of years' worth of negotiation between Denver Water and several western slope entities. The goal of the CRCA is to protect Colorado River watersheds while allowing Denver Water to develop future, albeit limited water supplies.

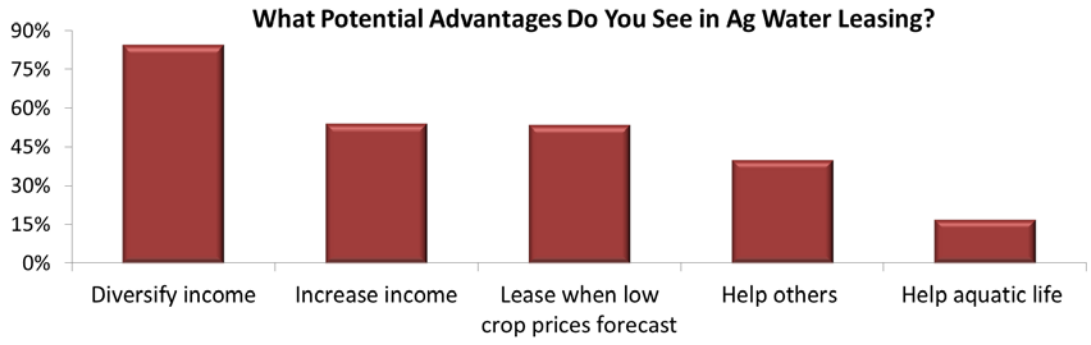
Lefthand Water District and Lefthand Ditch Company

In 2005, the Lefthand Water District (municipal water provider) and the Lefthand Ditch Company (agricultural uses) entered into a comprehensive agreement updating storage and operation issues between the two entities. The agreement also provides that in years where the water district has excess water supplies, the ditch company can add them to their system for irrigation purposes.

DITCH COMPANIES

The South Platte River Basin contains a multitude of ditch companies located in Adams, Boulder, Larimer, and Weld Counties. Each ditch company has its specific attributes including location, infrastructure, and decreed amounts and uses of water. These factors all contribute to the suitability of a particular water right being used for an ATM project for a municipal water provider. Further complicating matters, each ditch company can be very unique in their board membership and willingness to innovate.

Recently, Colorado Cattlemen's Association and the Partners for Western Conservation conducted a statewide survey of their members in 2016 to determine awareness of and interest in ATMs. Results, shown below, demonstrate that nearly all believed that leasing has the potential to diversify their income and one-fifth of respondents would be interested in entering into an agreement.



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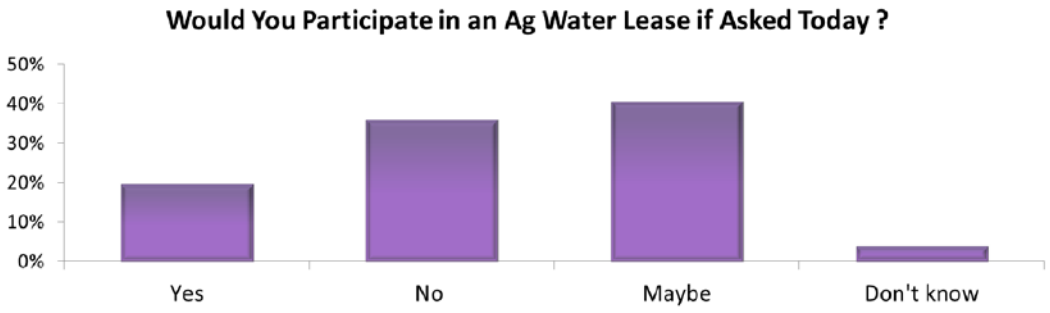


In addition to these surveys, several interviews with ditch companies were undertaken through this effort to determine the willingness to participate in an ATM project. As a whole, the responses mirrored the Cattlemen's survey where there was a willingness to consider an ATM project involving their water rights yet they could not make a determination until a specific proposal was provided to them to consider. While there is clearly landowner interest, there is still a need for more outreach and education on ATMs.

SURVEY OF LAND PROTECTION MECHANISMS

Citizens, agricultural groups, and governmental officials have long aspired to protect irrigated farm and ranch lands in Colorado in recognition of the benefits to our rural and tourism economies as well as our cultural heritage. When examining land use protection mechanisms, the underlining premise is that Colorado values local control. A prime example of the variation in how Colorado communities exercise their local governance is to compare Boulder and Weld Counties. These Front Range counties share rivers, a jurisdictional boundary, and similar growth pressures and yet have wildly different philosophies regarding their approach to farmland protection and land use control. And yet they are both highly regarded by their residents and other Colorado counties for their progressive solutions.

This section provides an overview of the various mechanisms available for protecting irrigated farm and ranch lands in Colorado. This list includes a spectrum of tools from highly regulated to market-based that may not be appropriate for every Colorado community. Some tools may achieve the objective of preserving the land from development but will not protect the water rights from being transferred for other uses. It may be necessary to combine one or more of the strategies to ensure long-term protection of irrigated lands.

Land Use Solutions for Preserving Agriculture

Since the 1970's, numerous land preservation tools have been developed and analyzed for their effectiveness by non-profit organizations, local, state, and federal governments. For the purposes of this report, Colorado examples are provided, where applicable. The tools are listed from highest level of regulation to most voluntary or market-based as follows:

- Effective Agricultural Zoning
- Urban Growth Boundary
- Cluster Development
- Comprehensive Planning
- Transfer of Development Rights
- Voluntary Statewide Farmland Protection Programs
- Voluntary Participation Agricultural Districts
- Conservation Easements
- Joint Ownership Programs
- Fee Simple Acquisition

Effective Agricultural Zoning

Zoning provides for stringent restrictions on the development of private property. Effective agricultural zoning requires the preservation of farmland and strictly limits the development of land uses that are incompatible with agricultural uses. Municipal zoning ordinances that employ effective agricultural zoning techniques should designate areas were agriculture is intended to be the principal use and establish regulations to constrain non-agricultural development and uses. Historically, municipalities have taken several different approaches to crafting an effective agricultural zoning, such as:

Exclusive Agricultural Zoning

Exclusive agricultural zones allow only agricultural and agricultural support operations. These zones allow the most protection but are not typically used because of the concern for being challenged as exclusionary with the resultant possibility of being struck down by the courts.

Large Lot Zoning

With large lot zoning the minimum lot size is specified (such as 35 acres) or a maximum residential unit per acre is established. Weld County, for example, has a requirement that generally limits development in areas zoned for agricultural use to one unit per 80 acres. Such restrictions may or may not be enough to support the needs of a working farm. They can result in 'checker-board' subdivisions producing new lots of 35 acres that become residential estates effectively removing a significant amount of prime farmland soil from production. Effective use of large lot zoning designations maintain rural character by requiring a land use pattern consistent with agricultural operations.

Area Based Allocation

Area based allocation allows for residential development to avoid an 'exclusionary' challenge. One dwelling might be allowed per a specified number of farm acres and the number of residential lots permitted is based on the size of the farm. As the size of a parcel increases, the number of dwellings allowed in relation to the total farm area decreases (e.g., a 40-acre parcel might be allowed three dwelling units, a 200-acre farm might be allowed eight dwelling units, and a 300-acre farm allowed ten dwelling units). In this approach, a maximum residential lot size such as two acres is specified to maximize the area available for agricultural production and minimize the area devoted to residential purposes. Additionally, many ordinances require residential units to be clustered on the least productive soils and located to minimize interference with agricultural production.

Zoning allows the most predictability to the agriculture and development communities and can help maintain a reasonable rate of growth in land and water costs. However, it is subject to change and a rigid adherence to agricultural zoning in areas experiencing growth pressures can raise issues of individual property rights and fairness. In addition, existing County zoning often becomes moot when municipalities annex unincorporated areas. Therefore, zoning should be supplemented with some of the other tools described in this section to be fully effective.

Urban Growth Boundary

An urban growth boundary is typically established to control urban sprawl by mandating that the area inside the boundary be used for urban development and the area outside be preserved in its natural state or reserved for agriculture. The Denver metropolitan area adopted a growth boundary to address growth, traffic congestion and loss of open space, with planning support from the Denver Regional Council of Governments. Currently, the Denver Urban Growth Boundary is voluntary and local, not regional. The counties surrounding Denver generally adhere to the principles, but it is considered unlikely that the boundary would be expanded to include the irrigated lands along the Front Range.

1041 Permit

In 1974, the Colorado General Assembly enacted measures to further 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 number of the bill of the proposed legislation (HB 74-1041). 1041 powers 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 for local governments to maintain their control over development projects even where the development project has statewide impacts. Once a designation of state interest is determined, a local government may approve or deny a 1041 permit based on whether the proposed activity complies with the local governments regulations and guidelines, such as those related to farmland preservation. 1041 permitting processes are typically similar to a NEPA-type review and can include an alternatives analysis and impact study.

Cluster Development

Clustering development to retain open space within a community has been part of the toolbox to preserve farmland for most of the past century. The Standard State Zoning Enabling Act of 1926 included

authorization for the use of cluster developments. Clustering has, from its inception, been distinguished by two characteristics: (1) homes grouped together on a tract of land, and (2) the presence of undeveloped land that is held for the common enjoyment of the community at large. Cluster layouts can preserve the rural character of the land by retaining undisturbed stretches of agricultural uses. Support for this planning tool has not always been positive, particularly in areas where agricultural land preservation is a primary goal because development is often clustered by project, which results in smaller areas for agriculture. The tool has been touted as a method to protect scenic quality, and variously recommended or disparaged as a farmland preservation tool.

Comprehensive Planning

The comprehensive plan provides the policy framework for regulatory tools like zoning and subdivision regulations. A comprehensive plan promotes a community's vision, goals, objectives, and policies; establishes a process for orderly growth and development; addresses both current and long-term needs; and provides for a balance between the natural and built environment. Municipalities and counties in Colorado are authorized but not required to prepare comprehensive plans (See C.R.S. 30-28-106 and 31-23-206.). Elements addressed in a comprehensive plan may include natural and cultural resources, water supply and conservation, and sustainability. Although comprehensive plans set the vision for the community and may include specific policies as to the intended future use, they do not establish regulations on the land.

Right to Farm Nuisance Policies

Weld County Colorado includes a Right to Farm policy in its Comprehensive Plan. The County recognizes the importance of maintaining large contiguous parcels of productive agricultural lands in non-urbanizing areas to support the economies of scale required for large agricultural operations. Section 35-3.5-102, C.R.S., provides that an agricultural operation shall not be found to be a public or private nuisance if the agricultural operation alleged to be a nuisance employs methods or practices that are commonly or reasonably associated with agricultural production. The policy goes on to establish expectations around police and fire response times as well as municipal services, such as snow removal. Services in rural areas, in many cases, will not be equivalent to municipal services. Rural dwellers must, by necessity, be more self-sufficient than urban dwellers. (Weld County Code Ordinance 2002-6; Weld County Code Ordinance 2008-13).

Statewide Farmland Protection Programs

Under a statewide farmland protection program, all municipalities within the state would be incentivized to adopt planning and zoning measures to protect agricultural land. For instance, in July, the Oregon House and Senate passed a landmark bill launching a new farm and ranch land protection program for the state. HB 3249 establishes the Oregon Agricultural Heritage Program (OAHP), Oregon's first voluntary program to help farmers and ranchers protect working lands and the fish and wildlife habitat they support. Oregon's well-managed agricultural lands are the cornerstone of the state's rural communities. Yet farms and ranches are increasingly challenged by fragmentation of farmland, conversion of farmland to non-farm

uses, complex regulations, and planning for generational transfers. The OAHP provides voluntary incentives to farmers and ranchers to support practices that maintain or enhance both agriculture and natural resources such as fish and wildlife on agricultural lands. Statewide programs can be politically and logistically challenging, particularly in home-rule states, like Colorado.

Transfer of Development Rights Programs

Transferable development rights (TDRs): Transferable development rights allow landowners to transfer the right to develop one parcel of land to a different parcel of land. This tool may be used to shift development from agricultural land or open space to areas that are developed or prepared for development. It also allows the landowner transferring a TDR to realize tangible value from the transaction. The TDRs are typically transferred from a sending parcel of land to a receiving parcel of land and the sending parcel is subjected to a permanent conservation easement or other development restriction. The local government designates which areas are to be considered sending and receiving areas. Since TDR transactions generally occur between private landowners and developers, there is usually no need for local governments to raise large amounts of money to execute a TDR program, although some jurisdictions have established TDR "banks" from which development rights may be purchased. TDR programs allow preservation of rural lands while enabling higher density growth in urbanized or urbanizing areas. Communities are expressing a willingness to create denser urban areas to maintain agricultural lands and open spaces in their less developed areas. Transferable Development Rights (TDR) programs are typically established to promote the preservation of:

- Agriculture
- Rural open space and character
- Scenic vistas
- Natural features
- Environmental resources

The preservation and maintenance of these resources is ensured by encouraging the perpetuation of large areas of generally contiguous properties suitable for agricultural use through the transfer of development rights from parcels suitable for preservation to properties meeting the criteria for development. Municipalities and cities designated TDR sending and receiving sites within their jurisdiction based on the future land use designations in the Comprehensive Plan.

Agricultural Conservation Easements

A conservation easement is a binding restriction landowners voluntarily place on their property to protect resources such as productive agricultural land, ground and surface water, wildlife habitat, historic sites or scenic views by limiting or restricting things that would impact those resources. They are used by landowners to authorize a qualified conservation organization or public agency to monitor and enforce the restrictions set forth in the agreement. Conservation easements are flexible documents tailored to each property and the needs of individual landowners. The landowner usually works with the prospective

conservation organization or public agency to decide which activities should be limited to protect specific resources. In general, agricultural conservation easements limit subdivision, nonfarm development, and other uses of the land that are incompatible with farming. Conservation easements also typically require continued historic use of the water rights and prohibit sale or transfer (or in many cases, even leasing).

The donation or partial donation (sale at less than fair market value) of a conservation easement may qualify for both federal and state tax benefits. At the federal level, the donated easement value is treated like any other charitable donation – as a deduction against adjusted gross income. However, conservation easement donations are unique in that the value can be used over time (the year of the donation and up to 15 additional years up to the value of the donation) and qualified farmers and ranchers may deduct up to 100% of their adjusted gross income. Colorado is one of only a handful of states in the country that has a transferable state tax credit. Unlike a deduction, it is a direct credit against state income tax owed, and can be used over a period of years, up to 20 years. Conservation tax credits are transferable to other Colorado taxpayers and may be sold for cash at a discount. Brokerages exist to match sellers and buyers. A tax credit is based on 75% of the first $100,000 in appraised conservation easement value and 50% of the remaining conservation easement value up to a maximum credit amount of $1,500,000.

Voluntary Participation Agricultural Districts

Agricultural districts may be established by a county or group of landowners wherein a farmer may voluntarily join for a pre-established, renewable, length of time. Within these districts, state and local governments may be limited in their ability to restrict farm practices, take farmland by eminent domain, or allow construction of utilities. Sometimes, counties may grant additional incentives to farmers who join or create a district: cost-sharing for compliance with environmental regulations; soils and water conservation grants; exemption on state inheritance taxes; marketing support; and low-interest loans for farm operation and improvements. Creation of such districts helps promote the continuation of agricultural use, thus contributing to open space goals.

Joint Ownership

The City of Aurora Colorado is exploring a program to maintain joint ownership of irrigated lands and their associated water rights. For instance, Aurora could hold a long-term easement (i.e. ninety-year) on a farm property as well as a first right of refusal to purchase the water rights and land. The farmer would maintain most property rights and costs of ownership, yet Aurora develop and hold the right to interruptible water supplies (i.e. dry year water or 3 out of 10 years) and be responsible for acquiring the administrative approvals for use of the water.

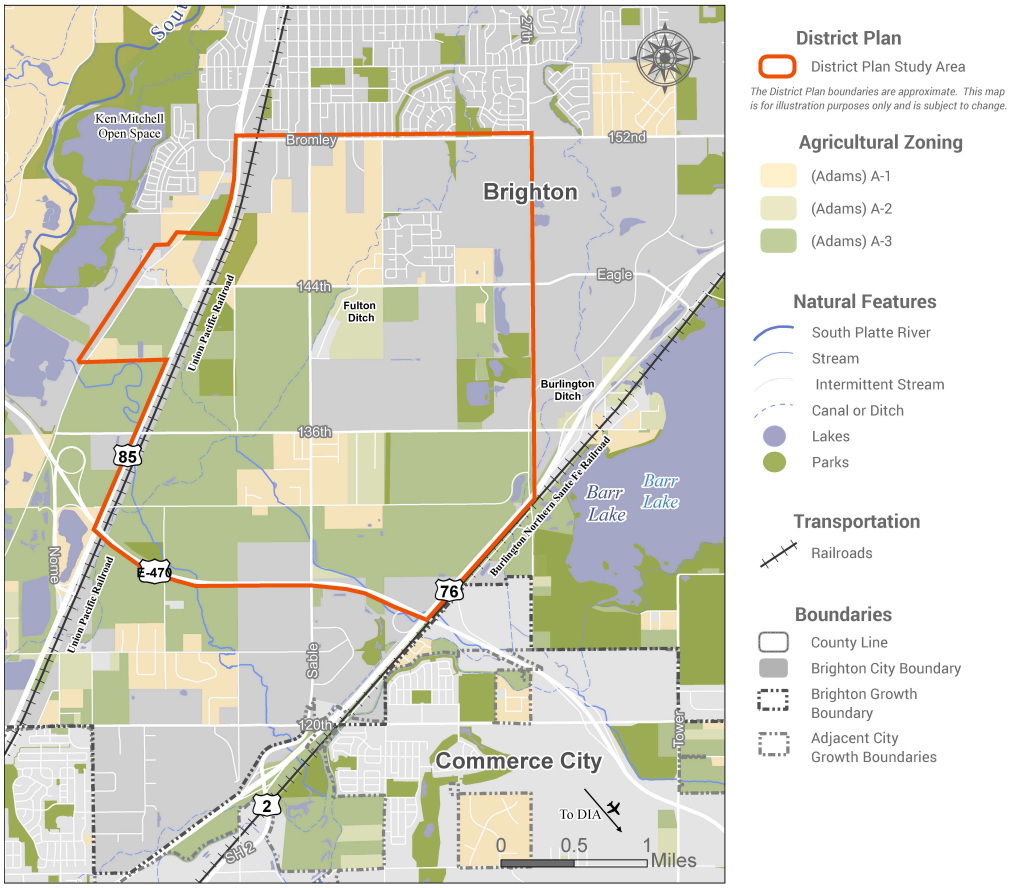
Fee-simple Acquisition

Municipalities and non-profit organizations in Colorado have a well-established history of purchasing land and water rights to preserve irrigated lands. Typically, these purchases are funded through a local tax but may be combined with private funding sources and/or donations. These purchases allow the full ownership

and protection of land and water rights while maintaining the farmer's ability to receive the fair-market value for their property.

Case Study: Adams County and Brighton's "District Plan"

Adams County and the City of Brighton have jointly developed "The District Plan" which is a vision document outlining the preservation of farmland in southern Brighton for food production, a range of development opportunities that consider the most efficient and sustainable use of the land. The area south of Brighton has seen significant development pressures (due in large part to E-470 that was completed in 2003), threatening its farming heritage, the local food economy, and the buffer that farmland provides between Brighton and the Denver region. Adams County and Brighton are committed to implementing through funding commitments and other efforts. If successful, the District will be a "local food hub", enhancing the local food economy and becoming a destination for food connoisseurs, promoting the distinctive image of a freestanding community that grows a significant portion of the region's produce.



Map of the District boundaries

LAND CONSERVATION COMMUNITY

In Colorado, there are two types of entities that work on open space protection: local government open space departments and land trusts. As discussed in the Colorado Water Plan and the South Platte Basin Implementation Plan, conservation easements or other land protection mechanisms can be coupled with ATM agreements to help provide the permanence and certainty of water supply to the municipal partner. Equally as important, ATMs provide the opportunity for both parties (land trust/open space department and the municipal water provider) to leverage their funds and achieve their respective objectives at a potentially lower cost.

Local Government Open Space Departments

Open Space Departments typically receive funding for land and water acquisition through an open space sales and use tax. Since they are largely self-funded, these local open space departments can purchase property in fee-simple or a property's development rights via conservation easements. Each county or community's open space programs vary in the amount of funding they receive based on the open space sales tax the voters approve. Further, some open space programs are well established and have been operating for many decades, while other communities have relatively new programs. For instance, both the City of Boulder and the County were amongst the first open space programs in the nation. Boulder voters made history by approving a 0.40 of a cent sales tax specifically to buy, manage, and maintain open space, the first time citizens in any U.S. city had voted to tax themselves specifically for open space. Together, these two programs have preserved approximately 150,000 acres of open space lands, with over 20,000 of those acres being irrigated working farms.

Over the years, additional Northern Colorado communities have established open space programs. While they vary in funding and amount and type of acreage protected, there is a solid foundation for future land protections within and surrounding these communities. The following list of open space departments in the study region was derived from the Colorado Open Space Alliance:

- Adams County
- Boulder County
- Larimer County
- City of Boulder
- City of Longmont
- City of Brighton
- City and County of Broomfield
- City of Boulder
- City of Fort Collins
- City of Lafayette
- City of Louisville
- City of Loveland
- City of Westminster
- Town of Berthoud
- Town of Erie
- Town of Firestone
- Town of Frederick

Case Study: Broomfield-Larimer County ATM Project

Larimer County (Larimer County Open Lands Program) was able to strike a deal with the City and County of Broomfield to save the Little Thompson Farm. Broomfield paid $3.77 million dollars for a package deal that included: (1) an interruptible water supply agreement on 80 C-BT units and (2) the purchase of 115 C-BT units with the ability for Larimer County to lease-back. For the interruptible water supply agreement, Broomfield can call for the water in 3 out of 10 years (can be increased in period of extended drought) and by contract is required to pay $18,000 during those years. The total payment Larimer County receives will cover almost half of the funding for the farm purchase. Some of the money will be used by Larimer County in drought years to acquire other water rights so the farm can still be productive when Broomfield does call for the water.

This project is significant in that it's Colorado's first agricultural-municipal ATM project and it's also the State's first ATM project involving a local open space program.

Little Thompson Farm
Photo Credit: Charlie Johnson

Colorado Land Trusts

A land trust is a non-profit organization (typically a 501(c)3 corporation) that works with landowners to voluntarily conserve land and water rights; some serve a particular geographic area, such as the Land Trust of the Upper Arkansas, while other may focus on a particular type of resource, such as Rocky Mountain Elk Foundation. There are approximately 30 land trusts in Colorado, including national organizations like the Nature Conservancy and Ducks Unlimited. There are two statewide organizations, Colorado Open Lands and Colorado Cattlemen's Agricultural Land Trust, and numerous local organizations. Land trusts are privately funded, often through individual donations and charitable foundations. Land trusts use a variety of tools to accomplish voluntary land conservation, primarily through the purchase or donation of conservation easements, but also sometimes through deed restrictions and or by purchase or gift to fee title to land. Land trust staff are experts at leveraging the various funds available for land and water conservation from local, state, and federal governments and other partners such as charitable foundations to craft the result that works best for the landowner and their community on each individual transaction. Across Colorado, land trusts hold approximately 2 million acres of land and associated water rights in conservation easements.

Land trusts can become accredited through the Land Trust Alliance, which is a national umbrella organization that establishes best practices for the industry. For a donor of a conservation easement to receive tax credits in Colorado, the entity to which the easement is donated (land trust or government entity), must be certified by the State of Colorado.

PARTNERSHIPS AND FUNDING RESOURCES

As the conservation community knows well, when looking at an expensive prospect outside of our expertise, partnerships become increasingly important. Consider looking to groups such as Ducks Unlimited, Trout Unlimited, or to your local water community to see whether they may be able to lend expertise. Land trust and local governments may also be able to share expertise or resources for a project of common interest. Below are some key funding sources for ATM proponent to consider when developing a project.

Colorado Water Conservation Board (CWCB)

The Colorado Water Conservation Board (CWCB) has various grant programs available; however, there are three that are most relevant: 1) the Alternative Agricultural Water Transfer Program, 2) the Colorado Water Plan Grants, and 3) the Water Supply Reserve Fund Grants.

The Alternative Agricultural Water Transfer Program is specifically designed to "assist in developing and implementing creative alternatives to the traditional purchase and transfer of agricultural water." As of the date of this report, there was $1,000,000 per year available in funds for this program and those funds could be used for research and/or implementation of specific ATM projects (technical analysis of consumptive

use, exploration of delivery, assistance addressing third party concerns, etc.), excluding any water court costs. The ATM program is funded through the CWCB's Projects Bill but is not automatically refreshed. Due to this, the grant funding has been inconsistent over the past several years.

Colorado Water Plan Grants are now available in the different categories that are outlined in the plan itself to further identified objectives. The categories are defined as:

- Supply and Demand Gap Projects
- Water Storage Projects
- Conservation, Land Use Planning
- Engagement & Innovation Activities
- Agricultural Projects
- Environmental & Recreation Projects

The total amount of Water Plan funding available in 2017 was $9 million, across the 6 categories.

Water Supply Reserve Fund requests must originate from a Basin Roundtable and can be requests of Basin Funds, Statewide Funds, or both sources of funds. Types of projects funded are varied but should further objectives identified in the Basin Implementation Plan and must be recommended by the Basin Roundtable in which the project would occur. Basin Roundtables may have different processes for consideration.

Great Outdoors Colorado (GOCO)

Since Colorado voters created the Great Outdoors Colorado (GOCO) in 1992, over $800 Million has been used to invest a portion of Colorado Lottery proceeds to help preserve and enhance the state's parks, trails, wildlife, rivers, and open spaces. The GOCO Board awards competitive grants to local governments and land trusts and makes investments through Colorado Parks and Wildlife. Over 1 Million acres has been preserved with the help of GOCO funding.

In October 2016, the GOCO Board discussed if their funds could be used to support projects with an ATM component. The board unanimously approved the following: "In response to the Colorado Water Plan and in furtherance of conservation in Colorado, GOCO will consider requests for open space funding for projects that allow temporary leasing of the water encumbered by a conservation easement in a manner that does not fundamentally compromise the conservation values. These projects will be evaluated on a case-by-case basis under GOCO's standard open space application criteria."

In October 2013, the Board of Great Outdoors Colorado decided that GOCO should not consider allowing municipal leasing of water, so any conservation project allowing an ATM would not have qualified for an ATM, unless a portion of the water rights were simply left out of the conservation easement. At the request of the authors and because of potential projects within the community, the GOCO Board considered the issue once again in October 2016, and this time unanimously voted for the following: "In response to the Colorado Water Plan and in furtherance of conservation in Colorado, GOCO will consider requests for open space funding for projects that allow temporary leasing of the water encumbered by a

conservation easement in a manner that does not fundamentally compromise the conservation values. These projects will be evaluated on a case-by-case basis under GOCO's standard open space application criteria."

As more land conservation organizations consider utilizing ATMS as a tool to help finance their conservation efforts, GOCO could prove to be significant funding to help make agricultural conservation projects successful and providing project proponents greater ability to leverage other funding such as CWCB Grants (e.g. ATM, CWP and WSRF grants).

Gates Family Foundation

The Gates Family Foundation (Foundation) supports projects that advance new tools, processes and ideas to realize a long-term, sustainable balance between future urban, agricultural, recreational, and environmental needs in the state's rivers. The Foundation works closely with all relevant stakeholders including policy leaders, agricultural interests, nonprofit advocates, scientists and water resource managers to identify high leverage, high impact investments to balance competing demands and protect the state's water resources. Aspects of this program may be complementary with Foundation activities focused on land conservation, stewardship, community development and ecosystem services. Looking forward, Foundation staff will continue to support models of cross-sector cooperation and market-based tools, connect land use and water conservation, support instream flows and healthy rivers, explore means to develop better water data and analysis, and advance implementation of the State Water Plan toward balanced water outcomes.

Walton Family Foundation

The Walton Family Foundation supports local and national efforts to ensure healthy rivers throughout the Colorado River Basin by addressing the region's overuse of water, creating a flexible market-based water management system, rewarding efficiency and restoring targeted flows and riparian habitat in both the Upper and Lower Colorado River Basins.

Social Impact Investment

Depending on the nature of the project, the authors believe there may be a role for social impact investment or program related investment (PRI). The concept behind social impact investment is for individuals or entities to invest in a project or enterprise that may provide a modest return on investment, but that will also achieve a beneficial social or environmental outcome in their area of interest. For some with philanthropic interest, this is a preferred approach, because it may allow for deployment of the same capital over and over (in contrast to a grant). The specific terms and rates of these type of investments are unique to the individuals or entities that offer them; however, these tools may take some of the following forms:

- Loan with below market-rate interest
- Investment with shorter horizon on return, but no to low return expectation (somewhat like a revolving loan fund)
- Investment with longer horizon on return but clear expectation of positive return on investment

One opportunity to work with impact investors may be for a land trust (or local government entity) to purchase a property with valuable water rights and high conservation value and work to structure an ATM where a portion of the water rights might be sold (see Larimer County case study), or where a municipal lease is put in place. The land trust could then conserve and resell the land to an agricultural producer, ensuring that the remaining water is permanently restricted, while the investment partner retains a portion of the lease income (or is repaid through the sale of a portion of the water, if that is the structure). The Gates Family Foundation offers Program Related Investments and the Colorado Impact Fund and Impact Finance Center are two organizations that provide helpful information to nonprofits about social impact investing.

The Park County Land and Water Trust Fund (LWTF)

The Park County Land and Water Trust Fund (LWTF) was formed in 1997 in the same election that formed the Center of Colorado Water Conservancy District (Center), and for the same reasons at the time -- to provide funds to pay the massive legal costs of the litigation in the South Park Conjunctive- Use Project (aka, Park County Sportsman's Ranch case). This case is the City of Aurora's project to pump water from the South Park aquifers to meet the city's demand in dry or normal years and replenish the aquifers in wetter years using surface water diverted and conveyed to a series of recharge basins to artificially recharge the aquifers.

The voters approved the formation of the LWTF funded by a 1% sales tax and the Center was formed as a Title 37 water conservancy district funded by a 1mil ad valorem levy on real estate. Currently the LWTF has revenues approaching $700,000, from a county that has only about 17,000 residents -- but much construction activity for second homes due the outdoor activities found in Park County. The 1% sales tax revenue goes into a special fund that was setup by the election ballot language, the money is administered by the Park County Land and Water Trust Fund Advisory Board). The Board consists of seven members, one from each Commissioner District and four at-large members, they are appointed by the County Commissioners to four-year terms. Traditionally, they are selected not only geographically; but, from the ranchers, water entities, environmentalists, and interested private citizens around the County.

Initially, in the years from 1997 thru 2001, the Board used the tax revenues to pay for the legal fees associated with litigating the SPCUP case(s), without much thought to saving the irrigated agricultural lands until the court cases were won, which would save the South Park aquifer which contained the majority of Park County's remaining unappropriated water. In the past, approximately 85% of Park County's surface water had been sold to Front Range water providers. In 2002, when SPCUP was finally resolved in the Colorado Supreme Court in favor of Park County and Center had unencumbered funds that could be used to fulfill the other parts of the charter that voted for in 1997: To preserve the lands and waters of Park County and historical, archeological, and environmentally-sensitive areas of Park County.

SUMMARY OF STAKEHOLDERS' RECOMMENDATIONS AND FINDINGS

Key stakeholders were interviewed to determine their willingness and acceptance of various land and water protection measures. The stakeholder subgroups included:

- City and county officials
- Municipal water providers in Northern Colorado and Metro Denver
- Representative ditch companies and water districts
- Land conservation organizations (land trusts and open space departments)
- Funders (e.g. government, bankers and foundations)
- Other entities such as agricultural nonprofit organizations.

A key component of the interviews was to determine the acceptance of an ATM project from different regions within the South Platte River Basin, specifically in Northern Colorado where the at-risk irrigated lands are located and the Denver Metro Area, where a significant amount of demand will come from. Building on findings from previous ATM studies on the following key issues, synthesizing previous research stakeholders were interviewed to gain a better understanding of the key issues surrounding ATMs. These key issues tended to focus on:

- Ownership of land and/or water rights
- Frequency of water transfer
- Water court transfer issues
- Infrastructure needs
- On-farm management and financial issues
- Long-term agriculture production viability
- Environmental and Recreational benefits
- Multi-benefit projects

RECOMMENDATIONS

1. Enact legislation to protect water right holders who choose to go to water court for an ATM

   Currently, many irrigation companies fear quantifying their historic consumptive use in water court due to the possibility that their water rights may be significantly diminished due to findings of fact (e.g. FRICO and Jones Ditch cases). It was recommended to consider legislation protecting water right holders who seek to implement an ATM and receive an undesirable outcome in water court. This is in line with the Colorado Water Plan that recommends that Legislators should consider legislation that allows water right holders who go to water court to operate an ATM. The CWP states:

   After a thorough outreach and stakeholder process, consider legislation to protect existing municipal, transferred water-rights owners that choose to undergo the court process to demand that their permanent agricultural transfers operate as ATMs. Such legislation could help ensure that a water-

rights owner could revert to its previously adopted stipulations, if the water court process for an ATM option yields an unfavorable outcome.

Related to the recommendation above, it would be helpful for the implementation of ATMs on a larger scale if the CWCB were to provide grants to help support ditch-wide historical consumptive use (HCU) analysis.

2. Develop a Weld County Agricultural Land and Water Protection Fund

Weld County is very supportive of agriculture and proud to be the top agricultural producing county in Colorado and consistently ranked in the top ten producing counties in the nation. In its comprehensive plan, the County has agricultural goals that are intended to support all forms of the agricultural industry and, at the same time, to protect the rights of the private property owners to convert their agricultural lands to other appropriate land uses. The County recognizes the importance of maintaining large contiguous parcels of productive agricultural lands in non-urbanizing areas of the County to support the economies of scale required for large agricultural operations.

While the County does have some tools such agricultural zoning, large lot zoning. and the ability for landowners and developers to transfer development rights, these tools are likely insufficient to protect significant parcels of farm land as the pressures on Weld County farmers' water rights and from development increase.

Unlike Adams, Boulder, and Larimer County, Weld County does not currently have an established fund that could help towards the protection of agricultural lands in the county. Although there have been informal discussions about using oil and gas revenue for a water fund to purchase water rights to keep in agriculture in the County, the concept lost interest after the downturn in oil and gas production. While oil and gas revenues will always see highs and lows due to the cyclical nature of the global industry, it is recommended that Weld County elected officials consider establishing a fund to protect water rights and/or irrigated land in the County. Considering the cyclical nature of oil and gas production, it is feasible to invest a portion of the revenue during peak years to stabilize the funds available for project in any given year.

Like the Park County Land and Water Trust Fund highlighted in this report, Weld County could develop a fund using the County's oil and gas revenue (or other sources) that could be used for projects that help preserve irrigated agriculture in Weld County that protects its citizens' property rights and allows property owners the ability to sell their farm and/or water rights at fair market value. A 'Weld County Land and Water Fund' could mimic Park County's fund which does not have a staff, but a volunteer-member advisory board appointed by the County Commissioners that determines which projects to fund. Such a fund could help leverage other grant dollars (e.g. GOCO, CWCB, NRCS) to make a farm preservation project financially attractive to the land owner, especially when combined with an ATM project.

3. Consider the potential for an ATM Involving Consolidated Ditches and Denver Water

Denver Water has an agreement that was made in 1940 with the Consolidated Ditches of District 2 that requires Denver to not reuse the water imported from the Fraser River Basin via the Moffat Tunnel. This agreement was intended to offset the evaporation losses from Denver Water Reservoirs upstream of Denver on the South Platte River (Eleven Mile Reservoir and Antero Reservoir). Denver agreed to cease using effluent from trans-mountain water diverted from the Colorado River System and used in its municipal water system in lieu of making evaporation releases from certain streambed reservoirs (Cheesman, Antero, and Eleven Mile Reservoirs) in the South Platte River Basin.

A potential ATM project could occur if the parties agreed to amend the 1940s agreement to allow Denver Water the ability to reuse some of the Moffat Tunnel water that cannot be used in the winter months by the Consolidated Ditches. Denver Water could use water made available from IWSAs with the agricultural community for dry year water supplies. The consumptive use yield could be pumped to Ralston Reservoir from irrigation systems north of Denver.

**Consolidated Ditches of Water District No. 2 is an organization presently consisting of the following member ditch companies: New Brantner Extension Ditch Company, Brighton Ditch Company, Farmers Independent Ditch Company, Fulton Irrigation Ditch Company, Lupton Bottom and Lupton Meadows, Meadow Island No. 1, Meadow Island No. 2, Beeman Ditch and Milling Company, Platteville Irrigating and Milling Company, Platte Valley Irrigation Company, and Western Mutual Ditch Company.*

4. Create an ATM Fund

The creation of a sustainable fund, a "GOCO for ATMs", to help make ATMs economically attractive to potential participants would be a game-changer. Municipal water managers must be fiscally responsible and must weigh the costs of an ATM against the costs of other water acquisition options including permanent water transfers. If a sustainable and reliable fund were available, ATM proponents could use these funds to help leverage other grant funds such as charitable foundations, GOCO, open space programs, and federal programs.

While the CWCB's ATM and CWP Agricultural grant programs are meeting important needs, and are helping support some key pilot projects, the funding is not guaranteed from year-to-year and they tend to be for smaller grant requests. If there were a grant program with the ability to fund a significant portion of the overall project costs to bring down the costs for all participants, it is believed that larger-scale ATMs would be developed.

5. Develop a Basin-Wide Infrastructure Project

During the stakeholder interviews, many called for a coordinated, basin-wide project that would help facilitate smart water transfers, both traditional and ATMs, while respecting the agricultural community. The project would likely include storage, both surface and underground, pumps, pipelines and water treatment facilities. The idea is by planning comprehensively on a basin-wide basis, better decisions with less impacts to the region will occur as opposed to each community acquiring water rights individually at an overall lower cost. The State could play a key role, especially in the coordinating, financing and permitting of the project. The project could encourage and incentivize ATM projects and prioritizes them over traditional water transfers.

6. Examine Cities' Water Dedication Policies

Municipal water providers often have water right dedication policies that require water rights be dedicated for them to serve new development in their service area. Since water providers have certain water rights, these policies typically specify which water rights are accepted. In addition, some water providers allow for a 'cash-in-lieu" fee to satisfy the water right requirement. These policies should be examined to ensure they are not overly conservative and encourage more agricultural dry up than necessary. Policies that encourage 'cash-in-lieu' fees as opposed to water rights dedications may allow for a more strategic acquisition of water rights compared to developers acquiring them on an ad hoc basis.

7. Develop Education and Awareness Demonstration Projects

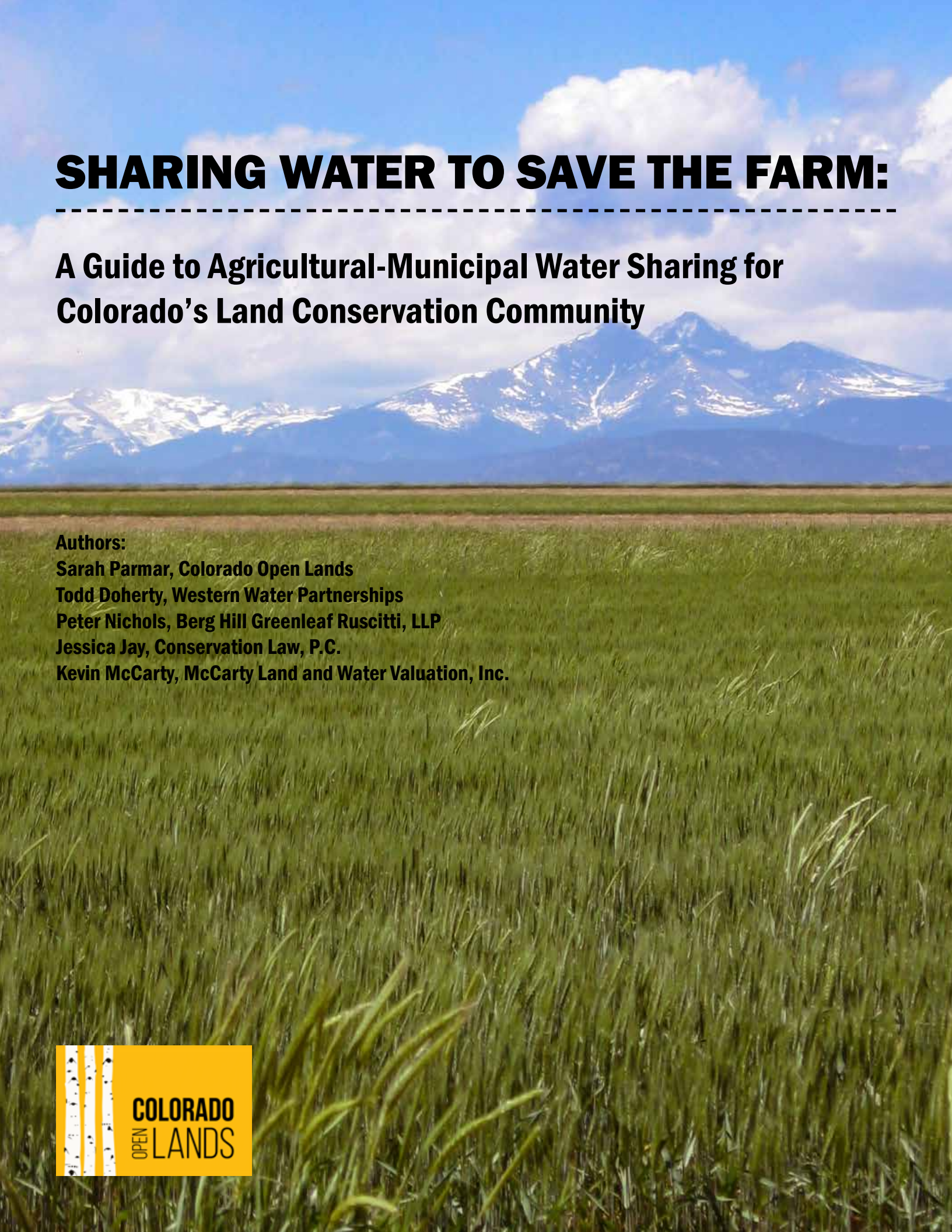
While municipal water managers are typically aware of ATMs, more pilot projects are necessary to demonstrate how an ATM could benefit their systems both financially and in drought water supplies. In addition to water managers, elected officials, planners, and other decision-makers should be educated on ATMs and how they can help protect agriculture in their region.

Appendix A

SHARING WATER TO SAVE THE FARM:

A Guide to Agricultural-Municipal Water Sharing for Colorado's Land Conservation Community

Note: This report is currently being peer-reviewed and is subject to change.



SHARING WATER TO SAVE THE FARM:

A Guide to Agricultural-Municipal Water Sharing for Colorado's Land Conservation Community

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COLORADO OPEN LANDS

INTRODUCTION

Land trusts have, out of necessity, developed a level of expertise and savvy about water rights. Early conservation easements in Colorado often referenced water rights generally as being encumbered by the conservation easement but usually didn't reference the specific water rights or explicitly set forth what that encumbrance meant, or didn't reference water rights at all. Land trust staff did not necessarily conduct any due diligence to determine the conservation need, historical use or ownership of water rights. As water attorneys became more familiar with conservation easements and organizations like the Colorado Water Trust stepped up to offer water expertise in land conservation transactions, the land trust community largely shifted its approach to encumber all water rights on a property and often developed narrow language perpetually limiting those

water rights to historic use on the property.

When we encumber water rights in a conservation easement, we are recognizing that they contribute to particular conservation values on that property. Generally, this means that we are legally restricting the water rights to their historic use in perpetuity. Practically speaking, if water rights have historically been used for irrigation, this means that we limit current and future owners use of the water to irrigate the property. There are, however, emerging issues for both and existing and future conservation easements that call into question the practice of encumbering all water rights associated with a property and forever limiting these rights to their historic use.

As easements age, ownership changes, and land trusts encounter a variety of situations in stewarding easements, there may be situations in which it becomes impractical, unnecessary, or undesirable to keep all water rights tied to a specific parcel of land in their historic use. For example, a situation recently arose in which a Colorado irrigator wished to enter into a short-term lease with the Colorado Water Conservation Board to augment instream flows for environmental use, but was prevented from doing so by the language of the conservation easement on the property, which prohibited leasing. A land trust may also face a situation in which a landowner has ceased irrigating because the costs of repairing or maintaining infrastructure are so prohibitive relative to the amount of water that can be applied that irrigation is no longer viable. Another scenario thus may arise in which increased irrigation efficiencies are realized, allowing conservation values to be maintained with less water. In each of these situations, the land trust may wish to have the option to at least evaluate the impacts of reduced irrigation on the conservation values and desire the the flexibility to consider alternatives to requiring historic irrigation, particularly where a change would provide a public benefit.

The publication Land Trusts and Water, released by the Land Trust Alliance in 2014, touches upon different scenarios in which land trusts may desire to 1) prohibit change of use of water rights, 2) allow for a change, subject to certain parameters, or 3) require a change of water right. Scenarios two and three contemplate change of use to instream flow or other uses that are consistent with the conservation purposes of the easement. Instream flow seems to be an acceptable realm of flexibility for the land trust community to experiment with flexibility because of its support of ecosystem function and species that may be in jeopardy. This handbook also considers that the land trust community should consider the same flexibility for projects that may provide municipal or industrial water use.

The first Colorado Water Plan (2016) underscores the reality that in order for the state to meet projected growth demand for municipal water, the most likely source of the majority of that supply will come from existing irrigated agriculture in eastern Colorado. For example, the Colorado Water Conservation Board estimates that the South Platte River basin could lose nearly 50% of its 830,000 acres of irrigated acreage by 2050 if recent practices of drying up irrigated land to meet municipal water supply demands continue. Agricultural water transfers (commonly known as "buy and dry") have been most prevalent in the South Platte and Arkansas River basins to supply municipal demands on the Front Range. The first large-scale instances of buy-and-dry occurred in South Park in the 1920s, when Denver Water purchased most of the irrigation water rights for its customers. The Cities of Colorado Springs, Pueblo and Aurora began purchasing senior irrigation rights in the 1950s, although public knowledge and concern with buy-and-dry did not arise until the Cities bought majority interest in the Colorado Canal around Otero and Sugar City in the Lower Arkansas River Valley and dried up nearly 50,000 acres. When City of Thornton similarly bought over 100 farms served by the Water Supply and Storage Company along the Cache la Poudre in the 1990s, buy-and-dry became an issue in the South Platte.

While these events provided a wake-up call regarding municipal strategies to meet growing population water supply demands, widespread public concern beyond the affected rural communities about the long-term effects on the future of Colorado developed slowly until the turn of the century. Colorado's Water Plan includes the diagram at right showing anticipated loss of irrigated acreage by river basin by the year 2050.

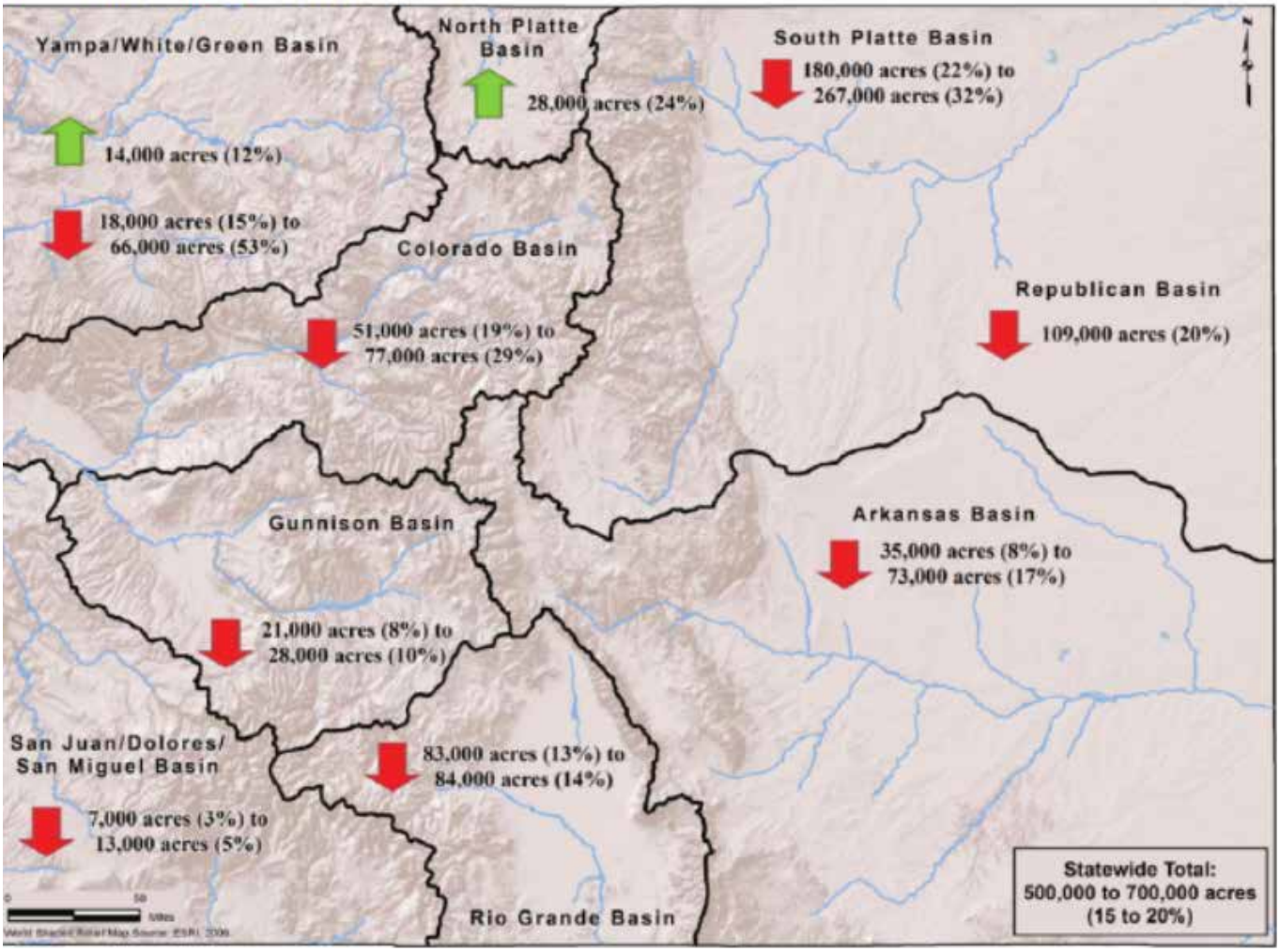
This scale of loss of irrigated farmland not only has the potential to radically shift rural economies and communities, but it drastically impacts many of the conservation values that many of us are working to protect. Well managed, working agricultural lands also contribute to watershed health, and conservation of these private lands and their associated water rights is critical to the maintenance of many native species of Colorado wildlife. Working agricultural lands also help maintain the open spaces and scenic vistas that Coloradans (and tourists) know and love.

Alternative transfer mechanisms (ATMs) have been touted as a solution to keep productive lands in irrigated agriculture. Examples of ATM projects include interruptible supply agreements and lease fallowing. However, some municipal providers contend that leasing water rights does not provide adequate certainty and they may worry that for valuable senior water rights, competing municipalities may purchase the water right at a higher price before the expiration of their lease, leaving them high and dry. Conservation easements coupled with perpetual municipal leases, however, may provide the permanence and enforceability necessary to give all parties comfort that the water rights can never be permanently severed from the property, while the municipal leasing structure remains in place.

The authors of this handbook believe that a permanent, if not full, supply of irrigation water for productive agriculture is more beneficial to conservation than the large-scale complete dry-up of irrigated lands that is the anticipated outcome of the status quo. Consequently, we believe it is in the interest of the land trust community to support ATMs as an alternative to buy-and-dry. This handbook explores the questions, challenges, and opportunities that may arise when trying to couple existing and future conservation easements with ATM projects.

FIGURE 6.2-1 **POTENTIAL CHANGES IN IRRIGATED ACRES BY 2050**[74]

(↑ = increase in irrigated acres; ↓ = decrease in irrigated acres)



BACKGROUND: DEVELOPING CONTEXT FOR ALTERNATIVE TRANSFER MECHANISMS

Why buy and dry?

Colorado's water belongs to the people of Colorado pursuant to the State's Constitution. Colorado water law, however, establishes a system of private property rights that govern the beneficial use of this public resource. These "water rights" can be bought and sold and are transferable. The quantity of a water right (the portion that someone is actually able to consume) is based on historic use, such as the irrigation of land. As a result, people seeking water rights for new or different uses, such as to meet municipal growth, have historically purchased the the land associated with the water rights. If the new owner wants to move the water to use it for a different purpose, in most cases, the user will have to adjudicate that change in the appropriate water court (there are seven; one for each major river basin), which have jurisdiction over the public's water resources, including changes to the type or place of use of existing water rights, such as from irrigation to municipal. In most cases, in order to change a water right, the applicant must demonstrate that the change will not result in injury to the water rights of those downstream. Depending on the river basin and the type of water right or change requested, it may take years and significant financial resources to successfully adjudicated a change of use of a water right. The level of investment required to change a water right accordingly creates a strong incentive for full ownership and control of that right.

Water providers strongly prefer to own the water rights they use to supply their customers to provide certainty and exclusive control. Municipalities turn to agricultural water rights as an affordable, reliable source of water, and purchase them from willing sellers in the absence of alternative sources of additional supply. In a 2011 Denver Post article (http://www.denverpost.com/2011/03/11/colorado-farmland-goes-dry-as-suburbs-secure-water-supplies/), Rod Kuharich, then director of the South Metro Water Supply Authority, representing fifteen groundwater-dependent Denver suburbs was quoted as saying, "If the farmers own it, and you have to rely on getting the water from farmers, what security do you have?" In the face of unprecedented growth projections in Colorado, water providers must work to develop water portfolios that meet the demand of current and future residents. However, the concept of joint interest in the water rights is gaining interest by municipalities. For instance, the City and County of Broomfield and Larimer County (which owns a farm with associated water) entered into a perpetual agreement for water supply within the last year. The city of Aurora has also been exploring the concept of co-owning farms coupled with water sharing agreements to provide them with the desired ownership of the water rights.

Understanding municipal needs and constraints

Not all municipal needs are the same. Colorado's communities are diverse in their geography, economies and cultures and societal values. Our state has cities with high density urban environments, suburbs, exurbs, rural towns and mountain resort communities with each community having specific water needs and water supply portfolios to meet their current and future water needs. Each community has a unique mix of land uses and associated water demands including those for commercial, residential, environmental, recreational, industrial purposes. Typically, municipal water providers have three overarching types of water rights needs – base supply, drought, and insurance. Base supply is the water needed to meet a variety of demands (e.g. commercial and residential) on a daily basis so that when someone turns on a tap, water flows out. The second type of need is drought or post-drought recovery water, which is only needed in the year of or years following a drought to replenish storage to prepare for the next drought. Insurance or redundancy water may be sought by a municipality to increase the reliability of a system and insure against unknown circumstances, such as those posed by climate change and identified in the table below in the Colorado's Water Plan. Thus, water providers must continually assess their current supplies and the risk that it may not be sufficient to meet future demands.

ELEMENT	PROJECTED CHANGES AND POTENTIAL EFFECTS	STUDIES THAT HAVE ASSESSED THIS VULNERABILITY FOR COLORADO
Overall Surface-Water Supply	Most projections of future hydrology for Colorado's river basins show decreasing annual runoff and less overall water supply, but some projections show increasing runoff. Warming temperatures could continue the recent trend toward earlier peak runoff and lower late-summer flows.	Colorado Water Conservation Board (CWCB) (2012); Bureau of Reclamation (BOR) (2012); Woodbury et al. (2012)
Water Infrastructure Operations	Changes in the snowpack and in streamflow timing could affect reservoir operations, including flood control and storage. Changes in the timing and magnitude of runoff could affect the functioning of diversion, storage, and conveyance structures.	CWCB (2012); BOR (2012)
Crop Water Demand, Outdoor Urban Watering	Warming temperatures could increase the loss of water from plants and soil, lengthen growing seasons, and increase overall water demand.	CWCB (2012); BOR (2012)
Legal Water Systems	Earlier and/or lower runoff could complicate administration of water rights and interstate water compacts, and could affect which rights-holders receive water.	CWCB (2012)
Water Quality	Warmer water temperatures could cause many indicators of water quality to decline. Lower streamflows could lead to increasing concentrations of pollutants.	Environmental Protection Agency (EPA) (2013)
Groundwater Resources	Groundwater demand for agricultural use could increase with warmer temperatures. Changes in precipitation could affect groundwater recharge rates.	
Energy Demand and Operations Costs	Warmer temperatures could place higher demands on hydropower facilities for peaking power in summer. Warmer lake and stream temperatures, and earlier runoff, could affect water use for cooling-power plants and in other industries.	Mackenick et al. (2012)
Forest Disturbances in Headwaters Region	Warmer temperatures could increase the frequency and severity of wildfire, and make trees more vulnerable to insect infestation. Both have implications for water quality and watershed health.	
Riparian Habitats and Fisheries	Warmer stream temperatures could have direct and indirect effects on aquatic ecosystems, including the spread of non-native species and diseases to higher elevations. Changes in streamflow timing could also affect riparian ecosystems.	Rieman and Isaak (2010)
Water- and Snow-based Recreation	Earlier streamflow timing could affect rafting and fishing. Changes in reservoir storage could affect recreation on-site and downstream. Declining snowpacks could affectc winter mountain recreation and tourism.	BOR (2012); Battaglin et al. (2011); Lazar and Williams (2008)

Our state's water supply consists of both surface water (83%) and groundwater sources (17%). How much of this water is available for use of any kind depends on variables including geography, weather, and laws and regulations. For any given municipality, water supply may consist of groundwater, appropriated surface water, and/or storage water rights. They may also include trans-basin water and transferred agricultural water which can be reused to extinction. Moreover, every municipal water system has unique existing and planned infrastructure to deliver water to its system, related to its sources of supply.

For example, most of the municipalities in northern Colorado hold shares in nearby agricultural ditch companies associated with urbanized land Available irrigated agricultural lands, however, are located downstream of Denver-metro cities, so that cities must either develop and adjudicate complex exchanges of water rights upstream, or pump water long distances uphill to deliver it to their water systems. For instance, the City of Castle Rock recently purchased an irrigated farm in Eastern Weld County, 80 miles away as the crow flies.

There is, however, the potential for cooperative agreements between water providers to share existing or planned infrastructure. For instance, the Water Infrastructure and Supply Efficiency (WISE) Partnership is a regional water supply project between Aurora Water, Denver Water and South Metro Water Supply Authority where the parties agree to share available water supplies and infrastructure capacity.

As many know, Colorado's West Slope contains 70 percent of the state's surface water, while the Eastern Slope consumes 70 percent of the state's water. The Colorado-Big Thompson project The Colorado-Big Thompson Project collects and delivers on average more than 200,000 acre-feet of water each year. Most of this water is the result of melting snow in the upper Colorado River basin west of the Continental Divide. The project transports the water to the East Slope via a 13.1-mile tunnel beneath Rocky Mountain National Park. C-BT water flows to more than 640,000 acres of irrigated farm and ranch land and 925,000 people in portions of eight counties. In addition to the delivery tunnel, the project infrastructure includes 12 reservoirs, 35 miles of tunnels, and 95 miles of canals.

Most of the municipalities in northern Colorado hold shares in the Colorado-Big Thompson Project (C-BT), which is administered by Northern Colorado Water Conservancy District (Northern Water) C-BT water is particularly valuable to municipalities because of the extensive Project infrastructure that facilitates delivery throughout Northeastern Colorado, Project storage increases its reliability, and a change in type or place of use it does not have to go through the water court process to change its use unlike native ditch water rights.

It is important to understand what the portfolio of a

municipality is - its existing rights, needs, and current and planned infrastructure – in order to understand what degree of flexibility and creativity might be possible. Municipalities located near (or with existing delivery infrastructure near) the irrigated agricultural lands are in a better position to incorporate irrigation water into their systems. For instance, communities such as Greeley, Loveland and Windsor with farmland in close proximity would have an easier task of delivering the alternative transfer water than Metro Denver communities would. Municipalities using agricultural water transfers (alternative or permanent transfers) will likely have to contend with poor water quality and will need to have advanced treatment facilities using reverse osmosis technologies.

What are ATMs, and how do they work?

ATM is short for alternative transfer mechanism and is an umbrella term for any method of using agricultural water to supply water for non-agricultural uses. The word "alternative" in the name suggests an alternative to the practice of buy and dry to meet non-agricultural needs, but increasingly suggests an alternative to the status quo of single beneficial use for a water right. While this handbook occasionally discusses environmental or recreational beneficial uses, the focus of this handbook is on ATMs related to municipal and industrial (M&I) uses. Proponents of ATMs believe that ATMs create the possibility of supplying water for M&I uses without permanently transferring agricultural water rights from the ranch or the farm and foster sustainable agriculture by supplementing farm/ranch income.

There are two main legal mechanisms available to those seeking to use ATMs: administrative approval or through water court. Some types of ATMs employ legal mechanisms outside the water court process to share water between an agricultural/irrigation water right owner and another user, either directly or through a third party. These ATMs generally require administrative approval by the State Engineer, or in some instances the Colorado Water Conservation Board, to manage the irrigation use and to supply water for another use pursuant the agreement, such as temporarily fallowing irrigated land.

ATMs can also utilize the water court process to allow for a permanent water sharing arrangement that is not currently available under administrative approvals. The idea is to change the use of a senior irrigation right to include additional uses such as municipal or instream flow. The goal of this approach is to allow part of the senior right to be used by municipal water providers through contractual arrangements. Through these contracts, joint use of a water right is established, allowing for both the municipality and the irrigator to rely on part of the water right.

Types of ATMs

As noted previously, ATM is an umbrella term encompassing a broad idea, rather than a specific mechanism. Several variations of alternative water transfer methods have been implemented, attempted, and discussed in Colorado to supply consumptive uses. We have chosen to group methods into the agricultural practices that may be used to make water available and the legal mechanisms that can facilitate ATM projects. The feasibility of both the legal mechanism and agricultural practice has to take into account the needs and logistics of both users. For example, it may be more feasible to do rotational fallowing on grain crops whereas split season may be the only feasible option for alfalfa producers because of the reduced yield and recovery time following a fully dry season (see Appendix A for Fallowing Impacts to Yield and Recovery).

Agricultural practices:

- Rotational fallowing
- Deficit irrigation
- Crop change
- Split season irrigation
- Irrigation efficiency improvements

Rotational fallowing may be practiced on a farm scale or on a system scale, such as by different farms on the same irrigation ditch (or multiple ditches, as discussed later in the case study of the Super Ditch). Rotational fallowing may allow a farm to continue agricultural production every year, but with the systematic fallowing of a portion of the historically irrigated land each year. Colorado's Water Plan notes that this method may provide base supply, drought supply, or drought recovery supply for a municipality.

Deficit Irrigation is practiced on a farm or ranch scale and involves the irrigator applying less water to a crop than the crop needs for optimal growth. Research conducted on USDA's Agriculture Research Service test plots near Greeley showed that a 50% reduction in water applied may still produce 75% of corn yield, if applied during the drought-sensitive stage of the crop. http://www.journal-advocate.com/sterling-local_news/ci_30637827/deficit-irrigation-still-worth-look

Crop Change involves a switch from a crop that requires significant water application to one that requires less. For example, in the Fort Lupton area, the seasonal water use of alfalfa is 43.5 inches per season (consumptive use) while grain corn uses only 25.9 inches of water (Seasonal Water Needs and Opportunities for Limited Irrigation for Colorado Crops, CSU Extension, J. Schneekloth and A. Andales, Fact Sheet No. 4.718, February 2017). Similarly, Irrigation Efficiency Improvements involve a change in irrigation infrastructure that increases the efficiency of water delivery and application, such as that from center pivot to drip irrigation.

Split season irrigation is achieved by the irrigation of the full water right for part of the season and another use of the water during the remainder of the season to supplement late season flows, or visa versa to enhance spring flushing flows. Typically, historical irrigation occurs early in the season when water supplies are more plentiful, and another use in the latter part of the season when junior rights are out-of-priority.

Example: Little Cimarron
The Colorado Water Trust purchased water rights on a ditch in the Gunnison Basin to help restore late summer flows to the Little Cimarron River. One of the goals of the project was to keep land in agriculture while keeping water in the river at a key time. In order to do this, the Water Trust and Colorado Water Conservation Board filed for a change of water right to a split-season right to be able to use the water in spring and early summer for irrigation and for instream flow use in late summer and early fall.

Legal Mechanisms to Facilitate ATMs

- Water Banking
- Lease-fallow Agreements
- Rotational Crop Management Contracts
- Flex water rights
- Substitute Water Supply Plans
- Interruptible Water Supply Agreements
- Water court adjudication of changes and plans of augmentation

The water court has adjudicated several changes of irrigation water rights and plans of augmentation that allow industrial and municipal users to use irrigation rights for other purposes, while continuing agricultural irrigation and production in most years.

Example: Lease between Xcel Energy and Fort Morgan Reservoir and Irrigation Company
The two parties entered into a 40 year lease agreement under which Fort Morgan delivers 2,500 acre-feet of consumptive use water to Xcel Energy's Pawnee Generation Station in exchange for an annual fee (designed to keep pace with inflation), that is then distributed to participating farmers. The ditch runs adjacent to the Pawnee station, which facilitates easy direct delivery. The fact that Fort Morgan has both direct flow and storage rights ensures delivery, even in drought years. Fort Morgan changed the use of its water rights in water court to enable agricultural or industrial use.

Water banks were enabled by the Colorado legislature in 2003, with the general concept that an irrigator may forgo the use of his or her water and "bank" that water, which would then be available for sale and use by other users. Rather than detailing the structure of water banks, the General Assembly granted the State Engineer the authority to promulgate governing rules that a water court must approve. According to the Water Bank Rules, stored water could not be used for instream flows or exports out of state, and use of the bank must comply with all state and federal laws. Furthermore, the rules

required any potential depositor to pay an application fee and provide information including, among other things, proof that depositing the water would not result in an expansion of water use and an engineering report estimating historical consumptive use. If the Water Bank deemed the water eligible, the depositor and Water Bank entered a deposit agreement that included the minimum price the depositor would accept for their water, a provision stating that the Water Bank had the exclusive right to lease the water, and a provision stating that the depositor could withdraw their water at any time. Subsequently, the Water Bank would list the water on its website for bids, and the depositor was required to accept any in-basin bids meeting the minimum price within the first ten business days.[1]

Example: The Grand Valley Water Bank Pilot Project

The Nature Conservancy is in its first year of working with the Grand Valley Water Users' Association (GVWUA) on the Grand Valley Water Bank Pilot Project. Through the project, GVWUA will contract with 10 participating shareholders and implement four different water savings practices on approximately 1,250 acres. These practices include a full season of fallowing and three options for partial-season fallowing with irrigation water available after August 1, September 1, and October 1. Each practice has an associated estimate of reduced consumptive use and corresponding payment. Payments will go to both the participating farmer as well as to GVWUA for infrastructure upgrades. The total consumptive water savings for the 2017 participating acres is approximately 3,200 acre-feet. GVWUA will monitor contract compliance, account for and manage the conserved water savings within its system, and deliver this water to a section of the river that is critical habitat for four endangered fish species in the Colorado River. From there, the water will then make its way downstream to support reservoir levels in Lake Powell.

Lease-fallow agreements have been authorized through the Agricultural to Municipal Leasing-Fallowing Pilot Program created in 2013. The pilot program allows agreements between irrigators and municipalities, in which irrigators forego watering parcels of land and lease the water temporarily to cities. This program was extended in 2015 to include environmental, industrial, and recreational uses, and not just municipal uses and was authorized through the end of 2018. Through the pilot program, the Colorado Water Conservation Board may approve up to fifteen pilot projects lasting ten years, with no more than five in any major river basin. One goal of the program is to encourage cooperation among water owners such as irrigators, ditch companies, and cities. A key aspect of the pilot program is to evaluate the feasibility of delivering temporary water to municipalities through a streamlined approach for determining historical consumptive use and injury. Additionally, the legislation requires projects to meet local land use regulations, prevent erosion, and comply with noxious weed requirements, which help mitigate the potential negative effects of fallowing land.[2]

Example: The Caitlin Pilot Project

The Catlin Pilot Project is a lease-fallow program of the Super Ditch and the Lower Arkansas Valley Water Conservancy District, has been used successfully in the Arkansas River Basin to supply municipal water demands to the City of Fountain, Security Water District and Town of Fowler since 2015. Five farms, including one under a conservation easement with the Lower Ark WCD, currently supply up to 500 acre feet per year to the three municipalities, although Fountain, Security and Fowler may expand their leases up to 2,000, 500, and 250 acre-feet per year respectively. Other contemplated pilots include the City of Colorado Springs and the U.S. Forest Service's Lake Isabel recreation area.

1 CRS 37-80.5-101 et seq.

2 CRS § 37-60-115(8)

Rotational Crop Management Contracts (RCMCs) are a statutorily specified mechanism that water owners may implement to change the use of water. The Colorado General Assembly authorized these contracts in 2006. Under an RCMC, owners of irrigation water rights may transfer the water to another use and rotate the lands that they fallow. This method avoids the permanent dry-up of agricultural lands by allowing the water owner to only fallow certain parcels at a time. Although authorized by the legislature, RCMCs must go through a water court proceeding. According to the Colorado Division of Water Resources, RCMCs have never been used since the passing of enabling legislation.[3]

Flex Water Rights are a concept which would allow for the change of use of a senior irrigation right to include multiple end uses. The idea was passed in a limited form through legislation that authorized water court applications for changes in use of absolute decreed irrigation water rights, in order to facilitate loans, leases, or trades within Water Divisions No. 1 (South Platte River Basin) and No. 2 (Arkansas River Basin). These new water court decrees for "agricultural water protection water rights" allow up to fifty percent of the quantified historical consumptive use portion of the irrigation right to be delivered to other types of beneficial use at other decreed locations within the specified water division, but cannot be transferred out of the water division. The balance of the consumptive use water must continue to serve the property for which the irrigation rights were historically decreed, or another property served by the same ditch system. The owner of these water rights are required to participate in a federal, state, local government, or non-profit conservation easement program that conserves land historically conserved by the water right, or other conservation program that meets criteria and guidelines established by the Colorado Water Conservation Board. The legislation required the Colorado Water Conservation Board to develop criteria and guidelines for the program and the State Engineer to promulgate rules for the substitute supply plans. Agricultural Water Protection Water Rights were created through House Bill 16-1228.

Substitute Water Supply Plans and Interruptible Water Supply Agreements[4] are both legal mechanisms that emerged after the 2002 drought in order to grant the State Engineer authority to approve temporary changes to water rights. Although temporary, both of these mechanisms allow for contractual agreements between water rights holders and non-agricultural users.

Substitute Water Supply Plans (SWSPs) may allow new or different uses of water rights while change-of-use applications are pending in water court, as long as such use does not injure other water rights. SWSPs were first used as an interim approval method for augmentation plans to replace out-of-priority diversions with senior direct flow irrigation or storage rights in the same amount, location, and time, and quality. SWSPs provide only an annual approval for an interim use and must be renewed by application each year while the water court adjudicates a permanent change.

There are two types of Interruptible Water Supply Agreement recognized in Colorado. The first is a temporary agreement and is allowed in Colorado Statute.[5] This is basically a loan, and allows the borrower to exercise an option to use the loaned water in accordance with the agreement while the owner of the water right stops using the water. IWSAs are limited to transferring water no more than three years in a 10-year approval period, with up to two renewals of the 10-year period. The amount of water available to loan is limited to the historical consumptive use. Since the enactment of the IWSA statute in 2003, no agreements have actually been put into operation.

The second type is an agreement or contract between non-agricultural water users and farmers. Water is transferred from agricultural use to another use, such as municipal or environmental. Irrigated lands are fully or partially fallowed during a specific period, and water is provided for a different use based on the historical consumptive use portion of the water right. In most cases, this type of arrange would have to go to water court to quantify the amount of water that is transferable (i.e. quantify the historic consumptive use) prior and to ensure protection of other water right holders. The benefit of this type of arrangement is that

3 CRS 37-92-103 (10.6)
4 (CRS 37-92-308 and 37-92-309)
5 (CRS 37-92-309)

Why aren't more ATMs happening?

The barriers to ATMs have been extensively discussed and documented, so the authors have summarized, rather than providing an exhaustive review of the factors inhibiting the widespread development of ATMs (see Appendix C for a suggested reading list).

Cost

Water court is a notoriously costly process. In all of the major basins, there are one and usually several to many users who object to a change of use case, in order to make sure that they are protected from injury by terms and conditions that may accompany a change of use decree. Water court cases may last years, depending on the number of objectors involved in an application. The legal fees for experienced water attorneys together with necessary engineering expertise can be staggering. Even temporary mechanisms which may not require water court have a burden of non-injury, which can be costly to demonstrate.

Risk (perceived and real)

All of the available legal mechanisms–whether a temporary loan or change approved by the state engineer or a permanent change approved by a water judge–rely on a calculation of the historical consumptive use (HCU) of the water right. Often HCU is quantified month-by-month by comparing the monthly irrigation water requirement (IWR) against the same month's diversion records for every month in the study period (intended to be a "representative period"). The IWR can be calculated from approved methods, using monthly temperature and precipitation values for the site. As part of the HCU analysis, the portion of the flow that is not consumed (a.k.a. return flows) must also be evaluated. Because HCU calculation is subject to challenge by objectors (who can contest data and assumptions in the model), there is a real concern that a calculation of HCU in order to pursue an ATM may lead to a reduction from the water right's original decree, although the laws authorizing administratively-approved ATMs all have "no precedent" language that at least theoretically protects water rights owners .

Additionally, some farmers and ranchers are concerned that by "opening their water books," information will be used against them by municipalities, who typically have more resources at their disposal.

On the part of municipalities, there are perceived risks associated with term leasing rather than owning water rights. There is a concern that water will not be available in the place and time they need it and some are concerned that if they lease a water right for a specific term and invest in the due diligence process to prove HCU and non-injury, there is a possibility that another municipality might capitalize on their efforts and purchase the land and water rights with the intent to use them after the expiration of the lease term.

Social Framework

All users have some comfort with the status quo and understand how the process works. ATMs are new and there is additional time and uncertainty that accompanies any new tool. There is question as to who should shoulder the costs of exploring feasibility. Farmers and ranchers naturally want municipalities to pay both for expenses and high lease rates to accommodate foregone revenue in potentially high commodity price years. Municipalities, on the other hand, do not necessarily have an incentive to take on a more costly transaction which does not result in their ownership of the water, unless it can be shown that the resulting lease will supply the water they need with less expense over the long-term. Because few projects have been completed, there is also lack of data as to what market prices should or could be for water leases and so all parties are concerned about being taken advantage of by being an early adopter. Lastly, municipal water providers (especially larger ones) are increasingly taking on collaborative roles in order to develop shared infrastructure and storage, but being part of a collaboration takes a different set of skills and perspectives and is often more time-consuming than many smaller municipalities may be equipped to handle.

CONSERVATION AND ATMS: WHY SHOULD THE LAND TRUST AND OPEN SPACE COMMUNITY BECOME INVOLVED?

The authors tried to make a case in the introduction that there is a high price associated with the status quo – municipalities will continue to buy farms and irrigated land will permanently go out of production. In this chapter, we lay out some of the opportunities that we see for Colorado's conservation community, exploring both the why and the how of land trust involvement in ATMs.

Fulfilling the mandate of Colorado's water plan

The State Water Plan sets the goal of implementation of short-term or long-term ATM water-transfers that provide options that address concerns about permanent agricultural buy-and-dry. Program goals related to ATMs are aimed at specific objectives for various regions across Colorado. The plan recognizes it is highly unlikely that any one concept will be universally accepted in every basin. Rather than a one-size-fits-all approach, the plan recognizes that a variety of alternatives will be needed to meet specific needs. The goal of alternative water transfers is to benefit the agricultural community, as well as cities and towns that are seeking viable sources of water supply to keep up with demands. While much has been learned about developing, evaluating, and monitoring ATMs from pilot and demonstration projects, there is more to learn to fully understand the potential of ATMs.

Specifically, the State Water Plan's goal towards ATMs is the following: "Respect the contributions of the agricultural industry by maximizing options to permanent buy-and-dry. Achievement of a sharing goal of 50,000 acre-feet could serve up to 350,000 people annually."

Collaborative expertise

Land trusts and local government open space programs are highly collaborative both in an organized fashion through the Colorado Coalition of Land Trusts and Colorado Open Space Alliance, but much more often informally, with local and statewide or national organizations partnering to get a complicated acquisition or conservation easement (or both!) completed. We are used to talking about land use implications and working with the public and private sector to achieve identified objectives. We have worked hard to build trust with a large swath of the state's farmers and ranchers and have an ongoing relationship with many of them. Many land trusts are also beginning to develop relationships with water providers as those water providers become landowners in their operating areas. In the case of local government open space programs, the local government may be well-suited to develop cooperative agreements with the water providers in their geography to conserve land and meet future water supply demands. The conservation community has the skills and the relationships to play a meaningful role in how and where the state's water is used in the future.

Landowner options

In the basins where the greatest dry-up is anticipated, water rights are increasing in value. With certain water rights, this is very transparent, such as with Colorado-Big Thompson water rights, and in other situations, there may not yet be significant market activity, but there is a virtual certainty that the market will come. Landowners realize that their water rights may be their most valuable and appreciating property right and may be reluctant to place all of their water rights in conservation easement. If given the opportunity to protect their land and water such that water rights can never be permanently sold but leaving open the option of leasing a portion of their water,for municipal (or environmental) purposes, we may secure the interest of landowners in conservation easements who would otherwise be inclined to hold onto their land and water for possible sale for buy and dry.

Two surveys of agricultural producers highlight the increasing interest in participating in ATMs. The first survey is most limited in geographic scope. The survey was mailed in the fall of 2007 to farmers in the South Platte basin who had reported more than 50 acres of irrigated land in the 2002 Census of Agriculture. The following survey results were analyzed and reported on by DiNatale Water Consultants, Inc. as part of a report titled "An Evaluation of Alternative Agricultural Water Transfer Methods in the South Platte Basin."

Table 4-1. General View of Leases

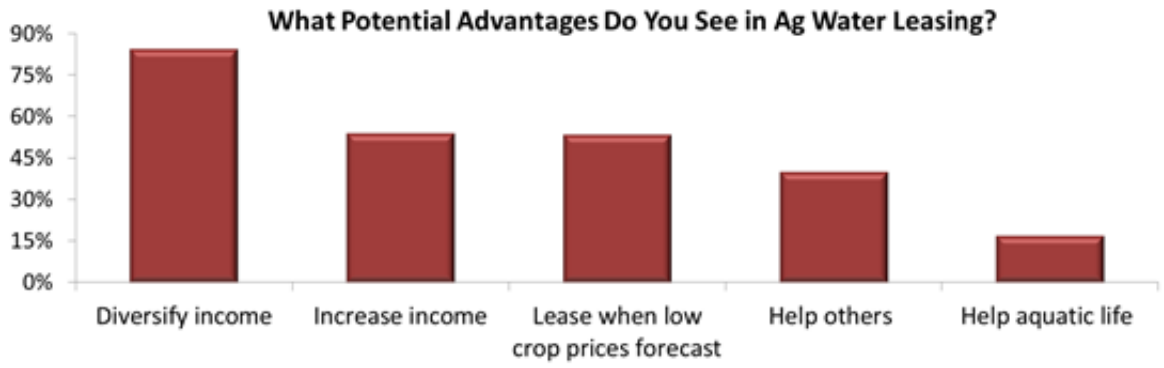
	Agree (%)	Disagree (%)	Average Rank
Water leases between agriculture and cities will help meet Colorado's future water needs.	53.4	31.0	3.2*
Water leases are more beneficial to rural communities when compared to the sale of water rights.	65.5	8.6	3.6*

Table 4-2. Willingness to Participate in a Lease

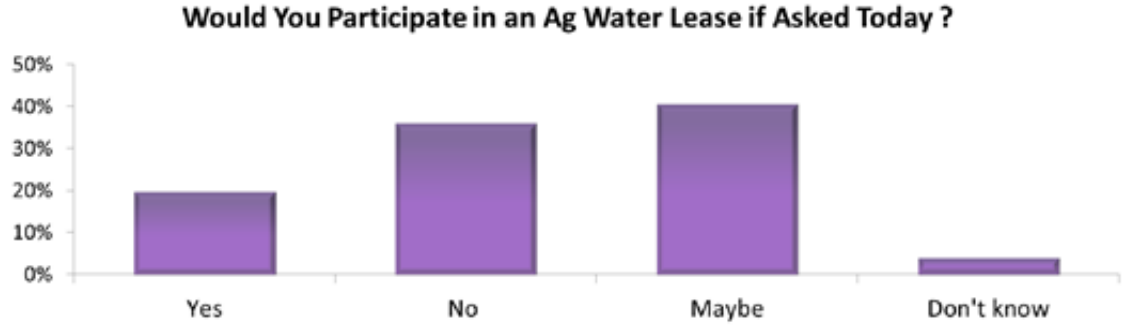
	Agree (%)	Disagree (%)	Average Rank
I am willing to participate in a water lease if paid enough.	56.9	19.0	3.4
I am willing to lease rather than sell my water rights.	56.9	17.2	3.4
I am willing to lease senior water rights and keep junior water rights.	34.5	25.9	2.9
I am willing to sign a lease in which the water is used to maintain instream flows for river system recreation.	24.1	48.3	2.4
I am willing to sign a lease in which water is used to maintain wildlife habitat.	29.3	37.9	2.7

These results reflect a recognition by the community that buy and dry negatively impacts rural communities and a majority whose preference is to lease, rather than sell, water rights.

More recently, Colorado Cattlemen's Association and the Partners for Western Conservation conducted a statewide survey of their members in 2016 to determine awareness of and interest in ATMs. Results, shown below, demonstrate that nearly all believed that leasing has the potential to diversify their income and one-fifth of respondents would actually be interested in entering into an agreement.



n = 234, nr = 32



Clearly, there is landowner interest and community need that may support Colorado's conservation community becoming more involved in water-sharing or other types of alternative water transfer mechanisms. At the very least, a land trust may want to consider introducing more flexibility into its water rights language for certain projects. In the next section, we explore how increased flexibility for water sharing fits into the legal structure of conservation easements.

Coupling conservation easements and ATMs

Given the importance of the federal tax code and conservation easement tax credit (enabled by the state statute which mirrors the Internal Revenue Code), Jessica Jay and Peter Nichols were engaged to provide a legal analysis of considerations for including an ability for municipal water leasing within a conservation easement on the qualification of such a conservation easement for tax benefits. Jay and Nichols also develop an opinion of land trust's ability to amend existing conservation easements to allow for municipal water sharing in the context of private benefit.

The threshold topics addressed by this chapter include: first, examining the framework provided by Colorado's conservation easement enabling act to understand the potential for allowing municipal water sharing under in future conservation easements; and second, reviewing federal charitable tax laws that may affect the ability of conservation organizations to allow municipal water sharing in future and existing conservation easements. Finally, the handbook will include language for conservation easement deeds to allow for municipal water leasing, including appropriate policy recitals, specific findings regarding water sharing and the conservation values, and explicit authorization and parameters for water sharing. (full memo in Appendix B)

How does the ATM concept fit in to state and federal law regarding conservation easements?

New conservation easements could define conservation values and public benefits to include ag-muni water sharing in support of agricultural sustainability through limited leasing of water for use off the property, if the separation would not diminish the agricultural conservation value of the land, and if the supplemental income would in fact further and sustain the property's agricultural uses. Furthermore, when conserved land permits ag-muni water sharing, the shared water satisfies municipal water supply demands in a corresponding amount and reduces the need for the municipality to buy-and-dry other irrigated land to obtain equivalent water to meet its water supply demands. This has the effect of conserving other (unencumbered) irrigated ag land -- likely to be squarely within the mission of the conservation organization – albeit indirectly and at no cost to the organization. This should give comfort to land trusts that ag-muni sharing furthers the organization's goals both with regard to specifically conserved properties as well as on a landscape conservation scale and river basin municipal water supply scale. This approach arguably would be consistent with aspects of Colorado state law, and possibly also consistent with federal tax law, see discussion below.

Exploring Colorado's Conservation Easement Enabling Statute

Colorado revised its conservation easement enabling statute in 2003 to include water and water rights as a qualified conservation value that can be encumbered by or released from a conservation easement, and further, to define such water and water rights as those beneficially used on the protected land, in support of agricultural or other conservation values. See CRS § 38-30.5-102:

"Conservation easement in gross"… means a right in the owner of the easement to prohibit or require a limitation upon or an obligation to perform acts on or with respect to a land or water area, … or water rights beneficially used upon that land or water area, owned by the grantor appropriate to the retaining or maintaining of such land, water, airspace, or water rights, including improvements, predominantly in a natural, scenic, or open condition, or for wildlife habitat, or for agricultural, horticultural, wetlands, recreational, forest, or other use or condition consistent with the protection of open land, environmental quality or life-sustaining ecological diversity…

The definition specifically defines the water rights beneficially used on the land as appropriate to retaining or maintaining (uses on) the protected property and other conservation values. This might seem like a barrier to recognizing benefits for uses off the property. However, consequent subsections introduce more flexibility. The definition of the residual estate in subsection 105 implicitly recognizes flexibility in the use of water and water rights by providing that all interests not bound by the easement remain with the grantor of the easement, including the right to engage in all uses of the lands, water, and water rights affected by a conservation easement that are not inconsistent with the easement or prohibited by law. Subsection 103 authorizes both the creation of a conservation easement encumbering water or a water right and the revocation of the encumbrance of water or a water right, if allowed within the conservation easement. See CRS §38-30.5-103(5):

A conservation easement in gross that encumbers water or a water right as permitted by section 38-30.5-104 (1) may be created only by the voluntary act of the owner of the water or water right and may be made revocable by the instrument creating it [emphasis added].

This language provides that the water or water right

attached to and bound by the conservation easement may be separated from such easement by the voluntary act of its owner, if permitted by the conservation easement. In sum, Colorado's enabling statute provides for revocation of the encumbrance or separation of the water or water rights from the conserved land, depending on the easement's specific language. However, because a conservation easement donation must qualify for a federal charitable tax deduction to be eligible for a state tax credit, the Internal Revenue Code (Code) is effectively the controlling tax law applicable to donations within Colorado.[1]

1 CRS §39-22-522(2)

Can the Federal Internal Revenue Code's definition of Conservation Values encompass ATMs?

Section 170(h) of the Code describes four distinct conservation purposes for which a conservation easement can be created in order to qualify for a federal deduction; one explicitly references agricultural land conservation either as pursuant to a clearly delineated governmental conservation policy and providing a significant public benefit, or as visually aesthetically pleasing to the public and providing a significant public benefit, as described in Section 170(h)(4)(A)(iii)(I) and (II). The open space conservation value described at Section 170(h)(4)(A)(iii) references the preservation of open space and defines the same expressly to include "farmland and forest land."

Government conservation policies

Using the factors provided by the supporting Treasury Regulations (Regulations) at Section 1.170A-14(d)(4)(ii)(A), farmland conservation pursuant to a clearly delineated government conservation policy is illustrated by an example provided in Section 1.170A-14(d)(4)(iii)(A) as "the preservation of farmland pursuant to a state program for flood prevention and control", which demonstrates a governmental policy furthered by agricultural lands' conservation with dedicated resources and benefits that cause the policy to amount to more than declaratory or aspirational." Both scenic and conservation policy prongs of the open space test must also create significant public benefit, which requirement is met by proving the public benefits of the continued agricultural use of the land, scenically, or as a matter of public policy, or both.

Governor Hickenlooper recently stated that "Coloradoans find that the current rate of purchase and transfer of water rights from irrigated agriculture (also known as "buy-and-dry") is unacceptable." Exec. Ord. D 2013-005, at ¶ II.A (May 14, 2013). The Governor then directed the Colorado Water Conservation Board to prepare the "Colorado Water Plan," which "must incorporate . . . a productive economy that supports vibrant and sustainable cities, [and] viable and productive agriculture . . ." to address the State's water supply "gap." Id. at ¶¶ II.A, III.A. The need to meet future municipal water demands paired with the desire to keep water available to support agricultural and natural resources mandates that Coloradoans find alternatives to buy-and-dry.

The Colorado General Assembly has funded CWCB's alternative transfer methods program to develop alternatives to agricultural buy-and-dry for the past six years, including this project. Further, the legislature affirmed "its commitment to develop and implement programs to advance various agricultural transfer methods as alternatives to permanent agricultural dry up. . ." HB 13-1248, at § 1 (May 13, 2013). The Colorado Water Conservation Board unanimously supported passage of HB 13-1248, believing that it is urgent to implement alternatives to traditional permanent ag to municipal transfers. See Premable to HB 13-1248.

Several Colorado policies address the governmental conservation policy objective (and prong) of the Code and Regulation's open space test. Colorado's enabling statute specifically discusses the encumbrance of water for agricultural uses and water sharing occurs pursuant to state laws explicitly enacted to permit such sharing. Furthermore, Colorado's conservation easement tax

credit is unquestionably a dedication of government resources that demonstrate that the state policy that encourages conservation easements is more than declaratory or aspirational, i.e., the tax credit is effectively an expenditure of state tax dollars to further the policies of the State's conservation easement enabling act.

Importantly, one example in the IRS Regulations clearly contemplates public benefits off the conserved land because the value of farmland for flood prevention and control is in allowing floodwaters to spread out, lowering flood crests and water levels, which reduces flood damage to off-farm developed areas. In agricultural-municipal water sharing, the public benefits similarly occur offsite. Finally, when conserved land permits agricultural-municipal water sharing, the shared water satisfies municipal water supply demands in a corresponding amount – a clear public benefit – and reduces the need for the municipality to buy-and-dry other irrigated land in fee to obtain equivalent water rights to meet its water supply demands.

Given the overlapping provisions of Colorado statute that reserve all interests not conveyed and authorize the revocation of an encumbrance on water and water rights, there doesn't seem to be any legal bar that would prevent an irrigator from reserving the right to participate in ag-muni water sharing in a conservation easement, so long as the conservation organization agrees that it is consistent with the conservation values it seeks to protect, and the deed. When drafting a new easement allowing agricultural-municipal water sharing, it may be wise to include a specific statement that the grantor reserves the right to share water with a municipality on terms to be negotiated between the two, and why agricultural-municipal water sharing is consistent with the conservation values.

Can existing conservation easements be amended to allow for ATMs?

The challenge with amending existing conservation easements is to create a public benefit without creating impermissible private benefit or private inurement to the current landowners for existing perpetual easements that received federal or state tax deductions or credits. In this section we explore how a land trust might amend an existing conservation easement to allow to allow the use of encumbered water or water rights through agricultural-municipal water sharing for use off of the protected property without creating impermissible private benefit that would put the organization at risk.

The purpose of the private inurement and private benefit rules is to ensure that tax-exempt organizations serve public interests and not private interests. Under both doctrines, an organization must establish that it is not organized and operated for the benefit of private persons, such as the creators of the organization, trustees, directors, officers, members of their families, persons controlled by these individuals, or any other persons having a personal and private interest in the activities of the organization, or other private individuals who are unrelated to the organization.

The sanction for violation of the private inurement or private benefit doctrine is revocation of tax-exempt status, or, in the alternative for private inurement, subjecting the organization and benefitting insider to intermediate sanctions, short of revocation of tax exempt status. The U.S. Supreme Court in interpreting and elaborating on the doctrine of private benefit has held that the presence of private benefit, if substantial in nature, will destroy an organization's exemption regardless of an organization's other charitable purposes or activities, even if the organization has many activities that further exempt purposes. Better Business Bureau of Washington, D.C., Inc. v. United States, 326 U.S. 279 (1945). The amalgamation of the Code, Regulations, and common law definition of impermissible private benefit is of non-incidental benefit conferred on disinterested persons (non-insiders) that serve private, rather than public interests.

However, incidental private benefit will not cause the loss of tax-exempt status. Our understanding of private benefit is that as long as any private benefit is both qualitatively and quantitatively incidental to the furtherance of the nonprofit's exempt purposes, the organization's tax exemption will not be in jeopardy. Any private benefit therefore must be: (a) (quantitatively)

insubstantial in comparison to the overall public benefit conferred by the activity, or an indirect economic benefit to the private individual; and (b) (qualitatively) incidental as a necessary side-effect of achieving the organization's charitable objectives through the activity that benefits the public, which benefits to the public cannot be achieved without benefitting private interests.

Applying the private benefit doctrine to an amendment allowing agricultural-municipal water sharing of agricultural water rights freed from perpetual use on the conserved land therefore requires us to answer whether the private benefit to the landowner is: (a) (quantitatively) insubstantial in comparison to the overall public benefit conferred by the activity of supporting and subsidizing the continued use of the protected property for agricultural purposes, or an indirect economic benefit to the private individual as a result of the public benefit of allowing agricultural uses to continue and thrive; and (b) (qualitatively) incidental as a necessary side-effect of achieving the organization's charitable objectives through the activity that benefits the public of allowing agriculture to continue and water supply to municipalities to increase, which benefits to the public cannot be achieved without benefitting the private interests of increasing the value to the landowner in proportion to the money received for sale, transfer, or lease of water rights.

In this situation, ag-muni water sharing satisfies municipal demands in a corresponding amount, thereby reducing the need for the municipality to buy-and-dry other irrigated land to acquire equivalent water rights to meet its water supply demands. This has the effect of meeting public municipal water supply needs while simultaneously and correspondingly reducing municipal demands that would likely lead to the buy and dry of other (unencumbered) ag land. From this perspective, the supplemental farm income provided by ag-muni water sharing is quantitatively insubstantial and an indirect private economic benefit compared to the overall public benefit – additional land conserved from buy-and-dry plus additional public water supplies – and a qualitatively incidental side effect of the organization's charitable objectives of sustainable agriculture.

Easement holders and landowners both bear the responsibility of ensuring their collective actions do not create impermissible private benefit without public benefit. Likewise, both government agency and land trust holders are barred from creating what amounts to impermissible private benefit--the Colorado government agency under the State Constitution Article 11, Section 2, which bars private benefit to individual constituents by government action in much the same way that the land trust is restricted pursuant to Code section 501(c)(3). In nearly every case of proposed water sharing, it is highly likely/foreseeable that the public benefit of additional land conserved from buy-and-dry plus additional public water supplies will outweigh any incidental private benefit because the supplemental farm income will be a qualitatively incidental side effect of the holding organization's charitable objectives as well as quantitatively insubstantial as an indirect private economic benefit compared to the overall public benefit.

VALUING ATM RESERVED RIGHTS WITHIN A CONSERVATION EASEMENT

Now that we have established that an allowance or reserved right for agricultural-municipal water sharing can legally be included within a conservation easement in such a way to qualify for state and federal tax benefits, we examine how such a right might impact the value of a conservation easement.

Conservation easement appraisals are conducted under specific guidelines and those guidelines can tend to constrain the effectiveness of protecting vulnerable water rights in Colorado. In order to obtain Colorado tax credits or claim a federal donation, appraisals must be conducted according to Treasury Regulations. Projects funded with Great Outdoors Colorado funds or federal funds are either appraised under the Uniform Appraisal Standards for Federal Land Acquisitions (UASFLA) or before and after appraisals conforming to the Uniform Standards of Professional Appraisal Practice (USPAP). Regardless of the type of methodology required, each standard requires the appraisal to consider the subject property "as is" as of the valuation date. This has important ramifications when it comes to the value of water rights.

Because appraisers must consider the contributory value of water right as of the valuation date when valuing a conservation easement that includes irrigation water, they have to support a value that could actually be obtained for the land and associated water as of that moment in time. If prospects to change a water right to municipal use are so imminent that sales are reflecting higher values because of that reality, an appraiser can take such market activity into account. However, any valuations based on municipal influences without market evidence to support such influences is not appropriate and would be speculative.

Highest and Best Use of Water Rights

The concept of highest and best use relating to transitional water rights (i.e., water which is transitioning from agricultural to municipal use, such shares in a ditch that a municipality(s) has or is actively acquiring), is often a matter of degree. Two categories of highest and best use are clearer, the first being agricultural water rights with low potential for a change of use in the near term, such as downstream location, junior priority or small water right, and the second being agricultural water rights that have been or are already in the process of being changed to municipal or other use. Transitional water rights falling between those extremes are worth of closer look relative the concept of highest and best use.

Highest and best use must be based on the probable uses in the foreseeable future and cannot be speculative in nature. Here is where the nature of transitional water rights can sometimes cause confusion in the description of highest and best use and ultimately the valuation of a particular water right. From a highest and best use standpoint, it is certainly appropriate to discuss potential for changes of use on water rights without demonstrable market evidence that contributory water values are being influenced by that potential. Regardless how those potential influences are described in highest and best use, the ultimate value conclusion must reflect current market responses to those potentials, if any, and cannot be speculative about what those values might be in the future.

Valuation of Water Rights in Conservation Easements

Water rights valuations must be based on the best available market evidence for determining such values. Sales of the same water right are preferred and if none

exist, the best available proxy should be sought. In many cases, water right comparable sales may be sales where the land and water are combined. In some cases, separate water sales are available and appropriate to use for comparison. Comparability should be based on such factors as decreed uses, existing municipal influences (or lack thereof), seniority and location among other factors. If differences exist between sales and subject that influence market value, the sales become less relevant and the appraisal is less reliable.

The nature of the water market is an important aspect of water valuation. Agricultural water rights tend to have an agricultural value up until the point at which a domestic water provider enters into the market. Once that takes place, values can increase rapidly. Numerous examples can be given of water rights have as much as three or four-fold value increases in one year once a municipal enters the market for a particular water right. For example, in early 1999, shares of the Home Supply Ditch were trading for approximately $10,000 per share. Johnstown then initiated a change of use for shares it purchased on the ditch and within one year, values had reached $60,000 per share.

From a valuation standpoint, even though a particular ditch system may appear vulnerable to municipal takeover, appraisers cannot speculate on when a shift to municipal use might happen and the extent to which values will be influenced. This situation obviously has a great downside for conservation efforts with the conservation community unable to get ahead of the situation, even though it may be obvious a particular water right is vulnerable.

One unique valuation issue related to transitional water rights are water rights contracts contingent on a change of use. These contingent contracts are sometimes available for appraisers and can be given some consideration with appropriate levels of adjustment. Given that these contracts are subject to some risk along with time value of money considerations, they do not reflect pure "as is" values. However, the fact these contracts may give a subject water right potential for higher values in the foreseeable future could well be influencing the contributory water value under consideration. As a result, it is ultimately incumbent on the appraiser to demonstrate how the market would respond to the existence of the contingent contract.

Conservation Easement Restricted Sales with Water Rights

The number of conservation easements in Colorado has reached a point where a substantial number of sales of conservation easement restricted properties are available, including easement restricted properties with water rights. The lesson has been that there can be a large value loss on water rights already municipally-influenced. Conversely, value losses are negligible on water rights without immediate municipal influence, even if such water rights appear vulnerable to change at some point in the future.

The unfortunate situation from a conservation standpoint is that these low value loss conservation easement restricted sales are the basis for after value conclusions. As a result, conservation efforts are regularly being thwarted involving these water rights, even though they may be vulnerable to an eventual change of use as warned by Colorado's Water Plan.

Water Leasing and the Impact on Water Valuation

Water leasing is relatively common in Colorado, but it most often involves agricultural leasing within the same ditch system. These agricultural leases are usually annual one-time or year-to-year leases at modest prices, often only the current ditch assessment. While these leases are common, they have little or no effect on the market value of the water rights. Effluent leasing, leasing of treated municipal or industrial wastewater, is also commonly practiced, but like agricultural leasing is often done on a single year or short-term basis. This short-term leasing is reflective of the desire of municipalities to maintain long term control over these water rights.

A few longer term industrial water leases exist around the state including a handful of leases in the South Platte Basin. When these leases are compared with market values for the water rights involved, historic capitalization rates have been on the order of 5%. That capitalization rate is not static and further analysis might reveal a slight different rate. However, because of the existence of low interest funds for water and

water projects available from the Colorado Water Conservation Board, it is logical that water capitalization rates would be relatively low in Colorado.

What Can We Expect for Municipal Water Lease Rates?

Lease rates will depend a great deal on specific lease terms, the water right involved, location and competing supplies among many other factors. Some of the fracking water leasing reached elevated levels, but that was often a function of having an industrial water user make the water available for the oil and gas industry in the exact location where it was needed. Thus, the highly variable nature of fracking leases probably does not give a good general picture of what may happen with municipal water leasing. However, it might show what could take place in a situation where a domestic provider is particularly desperate.

When we examine municipally-influenced water values in the South Platte, we see a low value of $10,000 per consumptive acre foot and a high value of $40,000 per acre foot of consumptive water on the northern edge of the Denver metro area; however, these values are for water rights that have already been changed to municipal use. We also see premiums being placed on dry year yields.

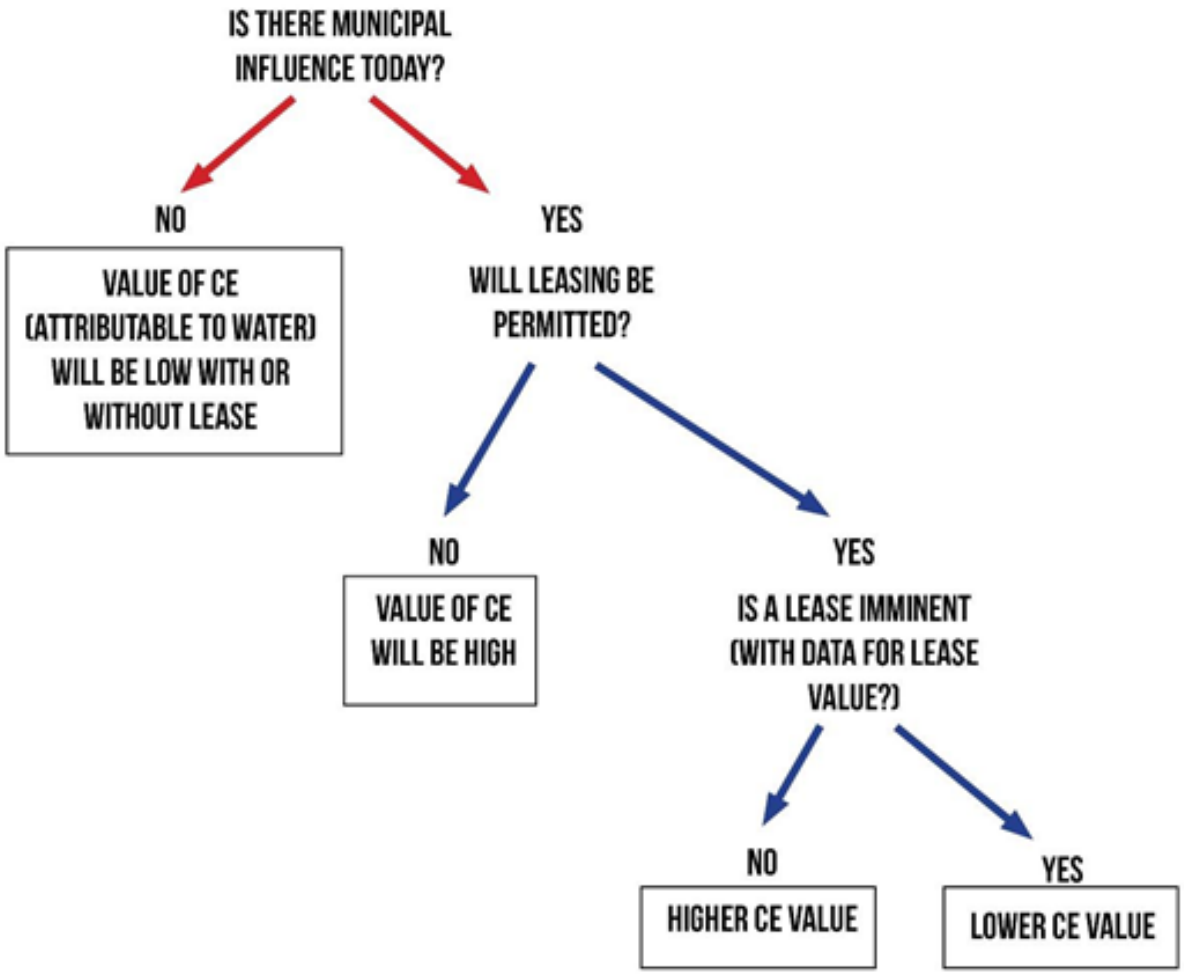
If we look at $10,000 per consumptive acre foot being at the bottom end of municipal values, a 5% capitalization rate would represent a $500 per acre foot lease rate. Perhaps not coincidentally, $500 per acre foot is the base lease rate for Super Ditch leases to Fountain, Security and Fowler. Based on current agricultural land lease rates, this would appear to provide adequate incentive for farmers to enter into municipal leases. For example, there is significant demand to lease water among farmers who did not volunteer for the first round of Super Ditch leases to Fountain and Security. If those capitalization rates hold at values in excess of $10,000, there would be even greater incentive. Dry year leases would also have significant upside in terms of lease rates.

Internalization of Leases into Market Value

If farmers are able to enter into stable long-term leases, the consistent predictable income will be internalized into the value of the water rights, particularly if the lease income exceeds anticipated agricultural income. The amount of market value increase will depend on the amount of added income and the level of certainty given by the specific lease. As an example, if the lease adds $500 income to the property 3 out of 10 years, the added average income of $150 per year, capitalized at say 5%, would add a market value of $3,000 to the property.

Conservation Easements on Properties with Retained Lease Rights

The same "as is" valuation issues will exist as they do with appraising water rights without leasing rights. If conservation easements with retained lease rights are done on agriculturally-decreed water rights with no immediate potential for municipal use, there will not be very much conservation easement value attributed to the water rights. If a lease is likely to be in place in the foreseeable future, then fully restricting the water right, as most land trusts have historically done, would certainly generate conservation easement value; however, if flexibility is retained to allow for leasing and the leasing is creating the value, then the conservation easement value associated with the water may be lower. The value of an easement with retained lease rights in an area of municipal interest may be low if there is clear data on leasing values that would demonstrate that little is being given up by the landowner. However, in areas where leasing seems likely and water values are rising, but there is no good data about the value of leases or few leases have actually occurred, then the conservation easement value may still be high even with retained lease rights. The relationship between municipal influence and easement value is illustrated below.



Seeking a Change of Use Prior to Doing a Conservation Easement

Because of the restriction on valuing a water right "as is," which is typically as an agriculturally-decreed water right, there could be an opportunity for a landowner to work proactively with a land trust to change all or a portion of a water right to increase the value of that water right and realize increased easement value by then encumbering the right. Alternatively, a land trust could either contract with a landowner, own a water right outright or engage an intermediary owner to hold a water right with the intention of seeking a change of use. In any of these scenarios, the expense and time involved in seeking a change of use may be prohibitive. If this strategy is utilized, an end user would need to be identified, unless Agricultural Water Protection Water Rights were sought (see page X). Ideally, an end user who will stand to gain by the change of use will participate and help shoulder some of the costs of the change. One cautionary note is that a change in use could also pave the way for other changes of use within the same ditch system, running counter to the intended conservation goals, unless there has been coordinated conservation planning across the ditch system.

Future Value of Water Rights

Another method that has been discussed relating to agricultural water rights preservation is an attempt to determine the future value of a given water right. There are certainly a number of water rights in both

the Arkansas and South Platte basin that appear to have some long term or even short term potential for a change to municipal use. The use of market data from already changed water rights to predict those potential values might one strategy to determine compensation. However, the speculative nature of this strategy and inability to arrive at consistent values would likely undermine this approach.

Implementing a land conservation project with an ATM

Depending on your service area and mission, you may decide that water rights are so important that you may take a proactive strategic approach and meet with municipal water providers, talk to local water conservancy districts, have conversations with your division engineer, and attend your basin roundtable meetings to begin to understand the larger context of water pressure and identify ditches or specific properties that have critical water rights and may be optimal for ATMs. Perhaps your organization decides to wait and see whether there is a specific project that comes along where a landowner expresses interest in an ATM. Whatever your approach, the authors have attempted to provide some guidance on how you might think about implementing a project that involves an ATM, recognizing that every water right and ATM will be different.

Evaluating for feasibility and fit

Knowledge is power, the saying goes, and this is certainly true in the world of water. If you are evaluating a potential land conservation project and the property has water rights, then the more you understand the water rights historically used on that property, the better position you will be in to consider different opportunities. The Water Rights Handbook for Colorado Water Professionals has an excellent checklist for understanding water rights for a conservation transaction that we will not duplicate here, however, we will spotlight the following questions that may be particularly helpful when considering the feasibility of an ATM:

- What is the seniority and amount of water used on the property?
- Have any of the water rights that serve the property or others in the area seen any changes of use in water court?
- Is there any talk of municipal interest in water rights in the area?
- Is there any planned municipal investment in water storage or delivery infrastructure occurring in the area?

Additionally the following questions may be helpful when considering the compatibility of an ATM:

- What is the organization's mission? What are the primary conservation values that our organization is interested in and which of these are supported by or dependent on water rights?*
- Are all of the water rights necessary to support the conservation values?
- Would the conservation values be supported by all of the water some of the time or some of the water all of the time?
- What are the implications for the landowner? Neighbors?
- Does an ATM open the door for partnerships or community cooperation/collaboration?

When contemplating whether to attempt agricultural municipal sharing, an easement-holding organization or agency might fret that such an endeavor is outside the scope of their mission of protecting open space, per se. It would be helpful for land trusts and government agencies to address this issue head on by considering whether the water sharing is consistent with their mission or requires some form of mission deepening to accomplish the objectives. Moreover, examination of the pertinent/preferred conservation values consistency would also be prudent/recommended at the outset of a proposed project.

One of the most challenging things about these projects is that simply evaluating options may be a costly venture, particularly if it is the first examination of water rights in an area, and depending on the landowner's knowledge and documentation of their water rights. If agricultural open space is the primary

conservation value of interest for a property, then you may want to engage an agronomist to scope the viability of production and impact to soils of different water scenarios. If scenic open space is important, it may be ideal to have some of the water every year, rather than having a few years where a property is completely dry. If there are irrigation-supported wetlands or other water-dependent wildlife habitat, then you may want a biologist to work in conjunction with an agronomist or water engineer. The scale of your need for expertise is driven by your interest in the property and the relationship between the conservation values of interest and the current water availability and management.

A viability analysis or plan may be helpful for a land trust to analyze an ATM and develop scenarios on how the farm would operate during normal years, ATM years and recovery years. Such an analysis may be performed by an agronomist or agricultural consultant and may also require the input of a water engineer or attorney. This consulting team would provide recommendations on water management with a potential ATM and could provide a determination of the type of the optimal ATM to be pursued in order for the property to be economically viable and support the conservation values. Such analysis could be formalized into a Farm (or Ranch) Water Operations Plan, which could guide the development of an ATM (and the land trust approval process) in the short or long-term.

A Farm (or Ranch) Water Operations Plan would provide operational recommendations from a water supply and irrigation perspective so that combined agricultural sales revenues and water lease revenue will sustain the operational costs of the farm in the long term. The plan will also provide recommendations for operations for multiple water supply scenarios, including years with a full water supply and years that the municipality uses some of the water for off-farm uses pursuant to the ATM.

The plan should be used as a guide for the management of the water and land with the ATM water agreement and may provide guidance on mitigation needed to prevent erosion and minimize production loss when water is returned to the land. The intent of the plan is to provide guidance on how to maximize the use and management of the water and land in such a way that it benefits all parties and fulfills the multiple purposes for which the land and water were conserved.

Conservation easement language

Most land trusts utilize a template conservation easement, which is used as a starting point for all conservation projects. Some land trusts may feel comfortable including some level of flexibility for off-site water use (municipal water-sharing or instream flow leasing) within their template. This approach may make sense if your geographic area of interest is relatively homogeneous or if your mission clearly supports ATMs. The approach that Colorado Open Lands has taken is to develop recommended language to allow for an ATM, but to not include this in our template, and rather to determine on a case-by-case basis whether flexibility is aligned with the conservation values or even feasible, given the location, type, or seniority of the water right.

In either approach, if flexibility for an ATM is included in the conservation easement, then the recital of conservation purposes (conservation values), the authors recommend that the following language (together with any local government language that may support the ATM concept) be included:

The timing of an ATM (whether the structure of the ATM will be known prior to the completion of the conservation easement) may influence the degree of flexibility that a land trust feels comfortable allowing as a reserved right and particularly, the level of approval or involvement that the land trust may want to require.

Below are some examples of language which can be tailored and inserted into the water rights section of a conservation easement.

Temporary Use of Water Rights. The Parties specifically anticipate and intend that the Grantor may enter into legally-enforceable interruptible supply contracts, water leases, fallowing programs, emergency water loans, or other similar agreements to allow the temporary municipal, commercial, industrial or environmental use of the Water Rights, provided that the Grantee has given specific prior written consent to each such arrangement. No more than one-third of the Water Rights shall be committed or used for such purposes on a rolling 10-year average without a written determination by the Grantee that such use will not jeopardize the long-term Conservation Values of the Property. The parties agree that the provisions of this paragraph constitute an independent contract enforceable under law, in addition to any other remedies available under this Deed.

Temporary Use of Water Rights. The Parties agree that Grantor may enter into into legally-enforceable interruptible supply contracts, water leases, fallowing programs, emergency water loans, or other similar agreements to allow the temporary municipal, commercial, or industrial use of the Water Rights, not to exceed three consecutive years or five out of every ten years, provided that: (1) Grantee has given its prior written consent to such arrangements; (2) that such use, in the opinion of Grantee, would not jeopardize the long-term Conservation Values of the Property; (3) that such arrangements do not permanently separate the Water Rights from the Property; and (4) that such arrangements comply with current law.

Permitted Use of Water Rights. The Parties agree that the Water Rights are hereby dedicated and restricted primarily for continued agricultural use and future viability and related Conservation Values of the Property, and that Grantor shall continue to maintain their historic beneficial use. Grantor may enter into legally enforceable water leases, contracts, emergency water loans, or similar agreements including, but not limited to: (A) an interruptible water supply agreement as authorized by C.R.S. Section 37-92-309, up to three years in every rolling ten year period; (B) participation in a water conservation program not to exceed 5 out of every 10 years, pursuant to C.R.S. Section 37-92-305(3)(c); or (C) other temporary transfers of water rights as authorized by law, including any temporary transfers authorized by modifications to the laws authorizing the temporary transfers described in subparagraphs (A) and (B), above ("Water Agreement"), provided that in each case: (1) Grantee has given its prior written consent to the Water Agreement in its discretion; (2) that such use, in the opinion of Grantee, would not jeopardize the long-term Conservation Values of the Property, including soil health and agricultural viability; (3) that such arrangements do not permanently separate the Water Rights from the Property; and (4) that such arrangements comply with current law.

Evaluating a Proposed Water Agreement

If a land trust has done significant evaluation prior to the inclusion of flexible water language, such as to develop an agreed upon Farm (or Ranch) and Water Operations Plan, then the land trust may need to do minimal work to evaluate whether a specific proposal is consistent with the Operations Plan. If a permanent ATM is done prior to or simultaneous to a conservation easement, then a land trust may provide for a specific allowance for the ATM in its agreed upon form within the body of the easement.

However, in each of the examples above, the easement holder has the right of approval and the need to determine whether the proposed water agreement would have a long-term negative impact on the Conservation Values. Again, ideally if a land trust has included this language, then there is also language recognizing an ATM as aligned with Colorado's public policy goal of avoiding buy and dry, but a land trust is still tasked with documenting a decision about a specific proposal. Depending on the complexity of the agreement, amount of water, and duration of the agreement, a land trust may be able to utilize information that is being produced as part of the creation of an agreement (and if applicable the water court process or Division Engineer's approval) or a land trust may need to engage its own expertise to make a determination. If the latter, then it may be prudent to determine (and possibly include in the conservation easement language) which party will bear the costs of expert consultants, or to create a calculation in your stewardship reserve (or endowment) that reflects the staff time and possible expense of reviewing a proposed agreement.

Example: Yahn Ranch Conservation Easement (North Sterling Irrigation/Xcel ATM)

The Yahn Ranch is in Logan County, just east of the North Sterling Reservoir, adjacent to parts of the North Sterling State Park, and just slightly north of the South Platte River. A portion of the ranch is irrigated for alfalfa, winter wheat, or corn and the remainder of the property is used for grazing pasture. The Property's location between the riverine habitat provided by the South Platte Platte and the deep-water habitat of the North Sterling Reservoir provides fresh-water marshes and canals that offer alternate food sources and thermal cover for a diverse array of species. Most of the wetlands on the Yahn Ranch are associated with the presence of the North Sterling Outlet Canal which meanders along the southern boundary. In addition to the canal, Cedar Creek is located just to the west and provides significant waterfowl habitat.

Landowner Jim Yahn, is a leader in the water community. Jim currently sits on the Colorado Water Conservation Board and serves on the leadership team of the South Platte Basin Roundtable. As President of the North Sterling Irrigation District, Jim helped facilitate one of the state's first ATMs. The North Sterling Irrigation District has two storage decrees, a 1908 storage decree for 69,446 acre feet and a 1915 decree for an additional 11,956 acre feet (for more than the reservoir can actually hold at any given time) as well as a direct flow water right. In 2006, the District changed a portion (15,000 acre-feet) of their water rights so that they could be used for purposes other than agricultural irrigation. The District (via an LLC it formed called Point of Rocks Water Company) entered into a 25 year lease with Xcel Energy that allows the Public Service Company the ability to utilize up to 10% of the consumptive use associated with these District Acres for cooling purposes at the Pawnee Generating Station.

In 2010, the Yahns began exploring a conservation easement with Colorado Open Lands. Jim wanted to ensure that the water rights could never be permanently severed from the land, but that water could continue to be leased. From a land trust perspective, the analysis was easier in that there was an existing agreement to consider. At the time of the easement, the 25 year agreement with Xcel had been in place for 7 years and Xcel had never exercised their rights under the lease, therefore water availability during the irrigation season has not been impacted.

However, even if Xcel did exercise its right to delivered water; there are aspects of the agreement and Irrigation Company water rights that minimize potential impacts to farmers. Xcel can only take water during the storage season, November 1 through the end of March. This allows farmers to know the potential impacts to their operation before planting. In addition, even though the farmers may forgo the diversion of some of their stored water during the storage season, there is still the opportunity to fill the reservoir in a free river situation during the spring snowmelt and therefore farmers would not realize an impact to the amount of water available for irrigation.

As of the time of the conservation easement, a total of 99.77 acres of the Property was included within the boundaries of the North Sterling Irrigation District, which entitled the ranch to receive a pro-rata delivery of water from the water rights owned by the District, including North Sterling Reservoir Water Rights ("storage Water Rights"), based on the relatively acreage of the Property that are located within the District boundaries ("District Acres"). Jim Yahn irrigates approximately 90 acres of the property, 60 under sprinkler and 30 by flood. He rotates his crop between corn and alfalfa hay. Corn requires multiple irrigations over the growing season to finish, depending on the precipitation. Alternatively, Jim can put up three to four cuttings of hay over a typical season, each usually requiring an irrigation, once again depending on precipitation. Jim's preference is not to allow any of the land to fallow under a lease situation (although we have not decided this). Assuming this lease limitation, one scenario is that a lease would limit the range of potential crops that could be grown on the property (i.e. it might not be possible to grow corn). Under a hay scenario, he might be restricted to two cuttings rather than three or four.

In addition to recognizing the current lease agreement with Xcel, Colorado Open Lands and the Yahns agreed on the following language:

Jim Yahn

Grantor reserves the right to enter into any leases or agreements for use of up to a total of 35% of the historical yield of Grantor's storage Water Rights associated with Grantor's District Acres each year, for use off the Property, subject to the following terms of this Easement: (1) Grantor shall consult with and obtain Grantee's written consent that any additional future change will be consistent with the permitted uses and will not impair the Conservation Values; (2) The total amount of water to be used off the Property each year under all agreements combined shall not exceed 35% of the average amount of water available from Grantor's storage Water Rights, unless Grantee agrees in writing that the reduction in water deliveries to the Property, together with Grantor's management plan, will not adversely affect any of the Conservation Values; (3) No more than 35% of the District Acres on the Property shall be removed from irrigation each year; (4) any lands temporarily removed from irrigation pursuant to such agreements shall be managed to avoid erosion and damage to the soil; and (5) the term of the lease or other agreement shall not exceed 30 years. The average amount of water available from the storage Water Rights shall be determined at the time of entry into such agreement based on the District's storage records for a period of years prior to entry into the agreement equal to the length of the term of such agreement. If Grantor enters into more than one agreement for use of Grantor's storage Water Rights off the Property, the average amount of water available for all agreements shall be recalculated based on the District's storage records for the relevant number of years immediately prior to entry into each subsequent agreement. Any of Grantor's storage Water Rights used off the Property as described in the Water Company agreements listed above in Section 5.7.2 shall count toward the 35% total limit set forth in this section.

Important components of this language include: 1) the fact that the water is based on the District's storage water rights because the historical yield for the storage rights is more conservative, 2) the average amount of water available is re-calculated for each new agreement, such that any long-term changes in the river conditions will be captured, and 3) management objectives for any fallowing are addressed.

Partnerships and Funding Resources

As those of us in the conservation community know, when looking at an expensive prospect outside of our expertise, partnerships become increasingly important. Consider looking to groups such as Ducks Unlimited, Trout Unlimited, or to your local water community to see whether they may be able to lend expertise. Land trust and local governments may also be able to share expertise or resources for a project of common interest.

Great Outdoors Colorado (GOCO)

In October 2013, the Board of Great Outdoors Colorado decided that GOCO should not consider allowing municipal leasing of water, so any conservation project allowing an ATM would not have qualified for an ATM, unless a portion of the water rights were simply left out of the conservation easement. At the request of the authors and because of potential projects within the community, the GOCO Board considered the issue once again in October 2016, and this time unanimously voted for the following: "In response to the Colorado Water Plan and in furtherance of conservation in Colorado, GOCO will consider requests for open space funding for projects that allow temporary leasing of the water encumbered by a conservation easement in a manner that does not fundamentally compromise the conservation values. These projects will be evaluated on a case-by-case basis under GOCO's standard open space application criteria."

Colorado Water Conservation Board (CWCB)

The Colorado Water Conservation Board has various grant programs available; however, there are three that are most relevant: 1) the Alternative Agricultural Water Transfer Program, 2) the Colorado Water Plan Grants, and 3) the Water Supply Reserve Fund Grants.

The Alternative Agricultural Water Transfer Program is specifically designed to "assist in developing and implementing creative alternatives to the traditional purchase and transfer of agricultural water." As of the date of this handbook, there was $1,000,000 per year available in funds for this program and those funds could be used for research and/or implementation of specific ATM projects (technical analysis of consumptive use, exploration of delivery, assistance addressing third party concerns, etc.), excluding any water court costs.

Colorado Water Plan Grants are now available in the different categories that are outlined in the plan itself to further identified objectives. The categories are defined as:

- Supply and Demand Gap Projects
- Water Storage Projects
- Conservation, Land Use Planning
- Engagement & Innovation Activities
- Agricultural Projects
- Environmental & Recreation Projects

The total amount of Water Plan funding available in 2017 was $9 million, across the 6 categories.

Water Supply Reserve Fund requests must originate from a Basin Roundtable and can be requests of Basin Funds, Statewide Funds, or both sources of funds. Types of projects funded are varied, but should further objectives identified in the Basin Implementation Plan, and must be recommended by the Basin Roundtable in which the project would occur. Basin Roundtables may have different processes for consideration.

Gates Family Foundation

The Foundation supports projects that advance new tools, processes and ideas to realize a long-term, sustainable balance between future urban, agricultural, recreational and environmental needs in the state's rivers. The Foundation works closely with all relevant stakeholders including policy leaders, agricultural interests, nonprofit advocates, scientists and water resource managers to identify high leverage, high impact investments to balance competing demands and protect the state's water resources. Aspects of this program may be complementary with Foundation activities focused on land conservation, stewardship, community development and ecosystem services. Looking forward, Foundation staff will continue to support models of cross-sector cooperation and market-based tools, connect land use and water conservation, support instream flows and healthy rivers, explore means to develop better water data and analysis, and advance implementation of the State Water Plan toward balanced water outcomes.

Walton Family Foundation
The Foundation supports local and national efforts to ensure healthy rivers throughout the Colorado River Basin by addressing the region's overuse of water, creating a flexible market-based water management system, rewarding efficiency and restoring targeted flows and riparian habitat in both the Upper and Lower Colorado River Basins.

Social impact investment

Depending on the nature of the project, the authors believe there may be a role for social impact investment or program related investment (PRI). The concept behind social impact investment is for individuals or entities to invest in a project or enterprise that may provide a modest return on investment, but that will also achieve a beneficial social or environmental outcome in their area of interest. For some with philanthropic interest, this is a preferred approach, because it may allow for deployment of the same capital over and over (in contrast to a grant). The specific terms and rates of these type of investments are unique to the individuals or entities that offer them; however, these tools may take some of the following forms:

- Loan with below market-rate interest
- Investment with shorter horizon on return, but no to low return expectation (some somewhat like a revolving loan fund)
- Investment with longer horizon on return but clear expectation of positive return on investment

One opportunity to work with impact investors may be for a land trust (or local government entity) to purchase a property with valuable water rights and high conservation value and work to structure an ATM where a portion of the water rights might be sold (see Larimer County case study), or where a municipal lease is put in place. The land trust could then conserve and resell the land to an agricultural producer, ensuring that the remaining water is permanently restricted, while the investment partner retains a portion of the lease income (or is repaid through the sale of a portion of the water, if that is the structure). The Gates Family Foundation offers Program Related Investments and the Colorado Impact Fund is an organization that provides helpful information to nonprofits about social impact investing.

Example: Larimer County Open Space ATM on The Little Thompson Farm

Through various public planning efforts from 2012-2015, Larimer County Open Lands Program heard from citizens emphasizing the importance of acquiring water rights to protect prime agricultural lands, providing land for emerging farmers and small-acreage farming, and conserving working farms and ranch lands as important conservation goals for us to pursue. The owners of a prime farm with excellent water rights along the Little Thompson, just west of Berthoud began discussions with the County in 2014 They wanted to learn how they could go about conserving the family farm, but needed to sell outright and therefore were not interested in a conservation easement. Larimer County recognized that the farm had many conservation values and met many of its conservation criteria, however Larimer County also acknowledged that the farm was out of its price range and it would need to do something creative if it was going to have a chance at conserving the farm. In exploring options and potential tools for conserving this irrigated farm and its valuable water at a reduced cost, the County learned of water sharing tools that were being promoted by the state through the Colorado Water Plan and Colorado Water Conservation Board. The County began discussing the concept in local water groups like Poudre Runs Through it, the Poudre River Sharing Group, and the South Platte Roundtable. Before the County could get funding and implementation plans in place, the farm went on the market and was advertised by the realtor as developable land and water and essentially slated for buy-and-dry. The Colorado-Big Thompson ("C-BT") water associated with the farm was highly transferable to municipal and industrial uses and thus commanded a premium that only developers or municipalities could afford. Native surface water rights from the Handy Ditch could also have been dedicated permanently to Little Thompson Water District for residential use and could have served 112 new urban or 56 new rural residences. The threat of development was evident when the farm immediately went under contract to a developer. Although Larimer County still needed to go through lots of process, fundraising, and partner searching, it placed a backup contract on the property as it continued to learn and come up with a strategy.

> ***"By successfully piloting this agreement, Larimer County and the City and County of Broomfield are demonstrating that, by working together and sharing valuable resources, it is feasible to preserve fast-disappearing farmland at a reduced cost and secure a perpetual source of drought firming water for Colorado's growing cities."***
>
> - Alex Castino, Larimer County Open Space

In August of 2016, Larimer County purchased 211 acres of productive farmland and water for $8.4 million. The acquisition included 240 units of Colorado-Big Thompson (C-BT) and 16 shares of Handy Ditch water as well as 20 shares of Dry Creek Lateral (delivery rights), along with the minerals and farm and water infrastructure. The Town of Berthoud, using their share of the county open space sales tax dollars, contributed $100,000 toward the acquisition and the remaining funds were provided by LCOLP through an interdepartmental loan to bridge the gap until a municipal water partner was identified. The

farm was conserved for its high agricultural, historic, scenic, community buffer and educational values. There were at least two additional backup contracts behind the County's, both from developers and water brokers. The County received a CWCB Alternative Agricultural Water Transfer Methods Grant to hire a consultant team to provide the expertise we needed to explore ATM options and implement a deal. Ultimately, the County was able to work with the City of Broomfield and sold a portion of the C-BT shares, but also negotiated a water-sharing agreement. With the water sharing agreement in place, the farm has 125 units of C-BT available to it most years, with 45 available every year and 80 units available at least 7 out of every 10 years, plus the native Handy Ditch water available every year. Between the sale and lease agreement, Broomfield has paid nearly $4 million, and the County has done the planning to demonstrate the viability of the farming operation with the remaining water. Please see Appendix for Q&A with Larimer County Open Space staff on this project.

RECOMMENDATIONS: INCREASING INCENTIVES AND IMPACT

Water Rights Compensation Structure

The limitations on valuing water rights in a conservation easement have been outlined by the authors. Determining "as is" values before and after restricting water rights has proven ineffective for many water rights. One method for dealing with the lack of indicated value loss under certain vulnerable ditch systems would be to establish a set percentage for conservation easement compensation as a percentage of the market value of water rights within a specific area.

While not based on market value of the water per se, the Lower Arkansas Water Conservancy District (LAWCD) has internally determined a set level of compensation for purchasing conservation easements, using its funds from its special tax district status. Several years ago, LAWCD engaged an appraiser and engineer to study property along a primary canal with direct flow water rights. The analysis determined that while the market value of the property was $4,000/acre, agricultural production could only support a value of $2,000/acre. LAWCD decided that for properties with similar water rights, they would pay landowners approximately $2,000/acre for a perpetual conservation easement with the right reserved to participate in the Super Ditch lease-fallowing project.

Currently, this type of compensation determination (or any not based on a qualified appraisal) would not qualify for Colorado conservation easement tax credits or for federal conservation easement charitable tax deduction benefits.

If the technique of establishing a set percentage of market value was used as a basis for generating tax credits, a number of issues would have to be carefully considered. First, how would compensation levels be determined? Would a set percentage of market value be available statewide or would it just be available for specific geographic areas or specific property types such as irrigated farms?

If this percentage approach were to only be used in certain situations, some mechanism would have to be in place to determine the geographic area and/or property type where this would be utilized. One avenue for determining where the approach could be used would be to have the Conservation Easement Oversight Commission involved in approval of the alternative approach.

Areawide Valuation Models and Set Percentage Compensation

The use of a set percentage to determine compensation would still involve considerable appraisal overhead if each potential conservation easement property were to be appraised. Therefore, this conservation strategy would still involve significant costs and if the compensation was somewhat marginal, it might be worthwhile to consider ways to reduce that overhead and increase levels of compensation.

The Natural Resources Conservation Service has used the concept of "Areawide Valuation Models" and that continues to be an option under the new farm bill. In fact, the NRCS has used areawide model for Wetland Reserve Easements throughout the country. In the case of the NRCS, the valuation models were intended to replicate before and after market value, although that wasn't always the case. In fact, WRP transactions have often gravitated towards locations where above market compensation occurred.

If a funder such as GOCO were to utilize an areawide

model, a defined market area could first be identified (say a ditch system or group of ditches). Full "as is" market values could be determined. A set percentage could then be the basis for compensation. This approach certainly deviates from pure market values, but it would allow for vulnerable water rights to be identified and to possibly be protected in advance of looming municipal influences.

Potential Advantages of Using a Percentage of Market Value

A major problem with the tax credit program relating to irrigated lands is that based on the current value spread between unrestricted and conservation easement restricted sales. Due to a limited spread between these values, there is little incentive to do conservation easements in many locations. This has been the most obvious in the Arkansas Valley where numerous easement restricted farms have sold with limited value loss. These sales essentially prevent the tax credit program from being an effective preservation tool in spite of the fact these irrigated farms are threatened with conversion to municipal use over the long term.

Paying landowners based on a percentage of market value has been an effective tool for Lower Arkansas Water Conservancy District and could be an effective tool for the state if tax credits could be issued for such transactions. If this was part of the tax credit program it could allow land trusts to preserve water rights in advance of the sudden value increases that occur when a municipality begins purchasing water in a given ditch system. An alternative approach to the tax credit could also lead to pooling money from other sources such as Great Outdoors Colorado or county open space taxes.

Conservation ATM Funding

It is abundantly clear that GOCO funded projects and the Colorado state tax credit are not always adequate tools for preserving water rights and those tools will continue to be inadequate for many water rights.

Local government sale tax initiatives

While residents of the South Platte Basin are likely to be most familiar with the county sales tax programs that fund Larimer County and Boulder County's Open Space programs, the basin offers another example in the Park County Land and Water Trust Fund. Unlike Larimer or Boulder Counties which have fully staffed open space programs, the Park County Land and Water Trust Fund is administered by a Board of Directors to competitively fund projects cultivated and implemented by third-party partner entities, such as land trusts. Founded in 1998, the Park County Land and Water Trust uses revenues derived from a 1% sales tax to preserve, protect, acquire, improve and maintain Park County's remaining water resources as well as lands in Park County containing water rights and resources. While the Fund does utilize a portion of one County staff member's time as a liaison to the County Commissioners, this model is very low-cost to the County and shifts funds from administration and staffing directly to protection of water rights. For a County of modest size, the sales tax has generated an average of $640,000 per year, over the last five years. By leveraging funds brought from third-party partners, the County's investment of $5.8 million over the last 29 years has made $22.3 million of projects possible, including the protection of approximately 20,000 acres and associated water rights. This model could be of interest to other counties or municipalities.

Statewide funding

The higher transaction costs associated with structuring more creative alternatives to buy and dry and the long-term (or indefinite) costs associated with leasing water supplies might be one area for water leaders in Colorado to address in order to incentivize participation by municipalities in ATM projects. Reducing the cost of leased water supplies might be explored through a number of ideas including: direct subsidies, creation of an institution (such as a water bank) to both reduce transaction costs and motivate participation by agricultural users by reducing lease terms, and/or development of shared infrastructure projects that could benefit water supply—all of these activities would benefit from dedicated water funding. Colorado's land conservation and recreation funding through Great Outdoors Colorado is the envy of the nation and perhaps Colorado should look to a similar type of funding structure to incentivize the types of water projects that will encourage creative solutions that smooth the path for combined conservation and water-sharing arrangements that collaboratively approach water management.

Scale – moving beyond parcels

While landscape scale planning is common in the conservation community, most conservation projects are still implemented at the parcel level. Given both the pace of water development and the costs associated with a change of use, it may be time for the conservation community to take a page from the water community's playbook and, like the Super Ditch and Northeast Colorado Water Cooperative, begin experimenting with project scale. Land trusts and local government open space programs might work with ditch companies to implement multi-parcel, or at least simultaneous conservation easement/ATM agreements across multiple owners. While each conservation easement and lease agreement may differ, some efficiencies of scale could be realized in terms of both conservation easement costs and ATM costs. This would have the additional benefit of providing a larger amount of water to a municipal water provider, creating a greater incentive for their partnership and investment.

Parting thoughts

If we do not pursue more innovative land preservation techniques when it comes to water rights, the no action future is clear. We need go no further than the ditch systems on the main stem of the Lower Arkansas or South Platte rivers to see the steady and continuing conversion to municipal uses. Few South Platte ditches had municipal influences in 2000, while today almost every ditch between Brighton and Greeley has some municipal ownership.

Water leasing has potential to be a great benefit for farm incomes and while this may attract outside investment, it will surely help to keep more farmers on the farm and more farm income within rural communities as opposed to conventional buy and dry. Municipal water leasing may reduce total crop acres and that will certainly have some consequence, but the capital infusion could well be an offsetting factor, and perhaps/likely a net gain in terms of the impact on many agricultural communities and higher farm income could lead to positive investments in the land and farm infrastructure, as it has elsewhere. The conservation community has a unique opportunity to be part of a solution that reduces buy and dry, making water available for more diverse needs, while ensuring that it is permanently available in most years to support agricultural production and the myriad of conservation benefits that Colorado's agriculture provides.

APPENDIX A

Fallowing of Alfalfa and Grass Hayfields: Impacts to Yield and Recovery Times

To generate water for conservation projects, producers must reduce or stop irrigation on participating fields. This can be done by either choosing to not irrigate at all for an entire growing season (full-season non-irrigation), or to only irrigate for a certain part of the season (spilt-season irrigation). Reducing irrigation saves water because it reduces overall crop yield; the price of the water transaction is intended in part to offset this loss. Depending on the practice, reduced irrigation may conserve anywhere from 0.5 acre-feet of water/acre (in high-elevation pastures) to 3.4 acre-feet/acre (in lower elevation alfalfa fields).

To better understand the potential benefits and impacts to producers that reduce their irrigation for a conservation project, the Conservancy has partnered with Colorado State University (CSU) on multi-year field studies to:

1. Determine the impacts to yield and forage quality from different reduced irrigation practices on alfalfa and grass fields.
2. Gain a better understanding of the recovery period for these crops and any carry-over effects.
3. Assess the amount of water that might be available for water transactions through reduced irrigation.

Detailed Overview of Fallowing Field Studies

In 2016, we completed a three-year study to evaluate the agronomic impacts from reduced irrigation. We set up nine field sites throughout western Colorado where we did a side-by-side comparison of business-as-usual irrigation with a number of different reduced irrigation treatments for both alfalfa and grass. Each grass site had one year with no irrigation followed by two years of recovery under full irrigation. Each alfalfa site had a fully irrigated reference plot and then one to two treatment plots that received normal irrigation in the beginning of the season and then no irrigation after the first or second cutting. This study helped answer a number of important questions about impacts to yield and forage quality, but also raised other questions, including: Would the results hold at larger field sizes? What about other types of split-season irrigation arrangements? How can we best measure water savings?

To answer those questions, we embarked on a larger, five-year field study, also with CSU. For this study, we have seven field sites that also compare a variety of full- and reduced-irrigation treatments. These treatments include: cutting off irrigation in June, July, and August; not starting irrigation until June; as well as, taking an irrigation pause in July during the hottest part of the summer. For each field site we are continuing to look at yield and forage quality as well as weed pressure and other agronomic factors. We also have each site fully instrumented to measure all water applied, surface runoff, and soil moisture content at multiple depths. This will help us make measurements of water savings that would be available for a potential water transaction. This study is entering its third year. We have had two years of reduced irrigation and will be evaluating recovery and potential impacts on crop rotation for the next three years.

What did we find?

Multiple variables, including elevation, soil type, and precipitation, led to large variations in yield reductions in our test plots. While this makes it difficult to predict exact impacts to individual properties, preliminary results are as follows:

Full-season non-irrigation of grass hayfields and pastures:

- Although there is variability between locations, climates, and seasons, producers can expect significant yield reductions in both the non-irrigated year and first year of recovery.
- Based on the data collected to date, most grasses will recover to nearly normal productivity after two years of normal and sometimes sooner.
- Although producers can expect an increase in forage quality (lower fiber, higher crude protein) which is a positive outcome from an animal nutrition standpoint, these improvements do not offset the loss in production.

Split-season fallowing of grass hayfields:

- Producers can expect yield reductions during the non-irrigated months, especially summer and fall.
- Producers should expect modest yield reductions in the first harvest yield following water stress in the previous year
- Some grasses with higher drought tolerance (smooth bromegrass, orchardgrass) exhibit good recovery following water stress in the previous year, so forehand knowledge of grass species is advised.
- Fields where deeper rooting occurs are also likely to support stronger recovery following irrigation reductions

Split-season irrigation of alfalfa hayfields:

- Alfalfa is very resilient and adapted to water stress, which makes it a good choice for saving water.
- As with grass fields, producers can expect an increase in alfalfa forage quality but it does not offset the loss in production.
- Although there is variability among sites and years, when irrigation was stopped after the first cutting, yield reductions ranged from 42 to 71%. When irrigation was stopped after the second cutting, yield reductions ranged from 0 to 54%.
- After two years in the study, the split-season irrigated fields yielded the same amount or more than the control field during the beginning of the year when both were fully irrigated. CSU is continuing to investigate this, but potential reasons include: reduced pressure from stem nematodes, reduced disease pressure, less weed competition, and an accumulation of carbohydrates as a response to drought stress.

Conclusions and recommendations:

- Based on the results of the field tests, The Nature Conservancy recommends split-season irrigation of grass hayfields for conservation projects.

- **In general, we have found that while there are impacts to crop yield from reduced irrigation, most producers are able to find options that work for their operation that have a manageable risk and a positive economic benefit.**

APPENDIX B

AG WATER SHARING UNDER CONSERVATION EASEMENTS TO SUSTAIN AGRICULTURAL PRODUCTIVITY, CONSERVE OTHER AG LANDS, AND TO MEET MUNICIPAL WATER SUPPLY NEEDS

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Background:

The Statewide Water Supply Initiative forecast that Colorado's population will double from 5 million people to nearly 10 million by the year 2050. As many as 80% of the new citizens will be located within Colorado's Front Range. And much of that growth is expected to occur in northern Colorado, particularly Boulder, Larimer, Weld, Adams and Morgan counties. As a consequence of this growth, the Colorado Water Conservation Board estimates that the South Platte River basin could lose nearly 50% of its 830,000 acres of irrigated acreage by 2050 if recent practices of drying up irrigated land to meet municipal water supply demands continue.

Governor Hickenlooper recently stated that "Coloradoans find that the current rate of purchase and transfer of water rights from irrigated agriculture (also known as "buy-and-dry") is unacceptable." Exec. Ord. D 2013-005, at ¶ II.A (May 14, 2013). The Governor then directed the CWCB to prepare the "Colorado Water Plan," which "must incorporate . . . a productive economy that supports vibrant and sustainable cities, [and] viable and productive agriculture . . ." to address the State's water supply "gap." *Id*. at ¶¶ II.A, III.A. The need to meet future municipal water demands paired with the desire to keep water available to support agricultural and natural resources mandates that Coloradoans find alternatives to buy-and-dry.

Agricultural-municipal ("ag-muni") water sharing has broad-based support, including the Governor, the Colorado General Assembly, the Department of Natural Resources, the CWCB, and the Interbasin Compact Committee (IBCC). For example, the Colorado General Assembly has funded CWCB's alternative transfer methods program to develop alternatives to agricultural buy-and-dry for the past six years, including this project. Further, the legislature affirmed "its commitment to develop and implement programs to advance various agricultural transfer methods as alternatives to permanent agricultural dry up. . ." HB 13-1248, at § 1 (May 13, 2013). The CWCB unanimously supported passage of HB 13-1248, believing that it is urgent to implement alternatives to traditional permanent ag to municipal transfers. *See* Premable to HB 13-1248.

Noting that agriculture is the third largest component of our economy and vital to the State's culture and quality of life and rural communities, the IBCC believes "[l]arge-scale dry-up of irrigated agriculture has considerable adverse social, economic and environmental consequences." Letter to Gov. Ritter and Gov.-Elect Hickenlooper, at 4 (Dec. 15, 2010). The IBCC concluded that "[a]lternatives to permanent agricultural water transfers represent a viable way to meet a portion of the M&I water supply gap. However, there are significant hurdles to implementing these programs . . ." *Id*. at 10

Coupling perpetual conservation easements on irrigated land with municipal water supply agreements is a means of sharing agricultural water to achieve the security of supply desired by municipal water providers, while sustaining long-term agricultural production.

However, most of the charitable entities that hold conservation easements (generally known as land trusts) are bound by federal tax laws requiring that their actions serve public, and not private, interests. Some of these private nonprofit (501(c)(3) land conservation organizations are therefore concerned that federal tax laws limit their ability to permit ag-muni water sharing in conservation easements, particularly regarding changes they can allow to existing conservation easements to allow ag-muni water sharing.

The threshold topics addressed by this chapter include: first, examining the framework provided by Colorado's conservation easement enabling act to understand the potential for allowing ag-muni water sharing under in future conservation easements; and second, reviewing federal charitable tax laws that may affect the ability of conservation organizations to allow ag-muni water sharing in future and existing conservation easements. Finally, the handbook will include language for conservation easement deeds to allow ag-muni water sharing, including appropriate policy recitals, specific findings regarding ag-muni water sharing and the conservation values, and explicit authorization and parameters for ag-muni sharing.

Legal Queries:

As set out in The Colorado Lawyer:

> To explain the nature of a conservation easement, it is best to resort to the familiar law school analogy of the "bundle of sticks," or rights. Before granting a conservation easement, the owner of the unencumbered land owns the entire bundle of property rights which pertain to that land and which determine the lawful acts that may be performed on the land. The landowner may sell or give away this entire bundle of rights or may choose instead to dispose of one or more of the rights while retaining all of the others. For example, while retaining fee ownership, a landowner might nevertheless dispose of the right to (1) construct buildings on the land, (2) exclude the public from the land or (3) harvest timber or remove natural resources from the land.
>
> When a landowner grants a conservation easement, the landowner gives up certain rights so that particular acts can no longer be performed on the land or can be performed only subject to certain restrictions. . .
>
> The landowner has great flexibility in selecting which rights to relinquish and which restrictions to impose. . .
>
> [ ]
>
> All interests of the landowner which are not conveyed away in the easement document remain the landowner's property. Thus, after the easement is granted, the landowner may engage in all lawful uses of the land which are not prohibited by or inconsistent with the easement.

Robt. C. Cutter, "Conservation Easements: A General Practitioners Guide," 19 Colo. Law. 221 (Feb. 1990).

Common examples of reserved rights in conservation easements on irrigated agriculture land include _____.

(1) What is the legal framework for new conservation easements in Colorado?

a. How does the ag-muni concept fit in to our conservation values language? Can/does it qualify as a public benefit?

New conservation easements could define conservation values and public benefits to include ag-muni water sharing in support of agricultural sustainability through limited leasing of water for use off the property, if the separation would not diminish the agricultural conservation value of the land, and if the supplemental income would in fact further and sustain the property's agricultural uses. Furthermore, when conserved land permits ag-muni water sharing, the shared water satisfies municipal water supply demands in a corresponding amount and reduces the need for the municipality to buy-and-dry other irrigated land to obtain equivalent water to meet its water supply demands. This has the effect of conserving other (unencumbered) irrigated ag land -- likely to be squarely within the mission of the conservation organization – albeit indirectly and at no cost to the organization. This should give comfort to land trusts that ag-muni sharing furthers the organization's goals both with regard to specifically conserved properties as well as on a landscape conservation scale and river basin municipal water supply scale. This approach arguably would be consistent with aspects of Colorado state law, and possibly also consistent with federal tax law, see discussion below.

b. Colorado's Conservation Easement Enabling Statute

Colorado revised its conservation easement enabling statute (the Act), Colorado Revised Statutes (CRS) Section 38-30.5-101, *et seq.*, in 2003 to include water and water rights as a qualified conservation value that can be encumbered by or released from a conservation easement, and further, to define such water and water rights as those beneficially used on the protected land, in support of agricultural or other conservation values. Colorado courts upheld challenges to the 2003 statutory changes in *Allen v. Mesa Land Conservancy*, 318 P.3d 46 (Colo. App, 2012); *cert denied* (Aug. 5, 2013).

The Act does not specifically address the use of water rights separate from the land in support of agriculture uses, but instead defines the water rights beneficially used on the land as appropriate to retaining or maintaining (uses on) the protected property and other conservation values. *See* CRS § 38-30.5-102:

> "Conservation easement in gross"… means a right in the owner of the easement to prohibit or require a limitation upon or an obligation to perform acts on or with respect to a land or water area, … *or water rights beneficially used upon that land*

> *or water area, owned by the grantor appropriate to the retaining or maintaining of such land, water, airspace, or water rights*, including improvements, predominantly in a natural, scenic, or open condition, or for wildlife habitat, *or for agricultural,* horticultural, wetlands, recreational, forest, *or other use* or condition consistent with the protection of open land, environmental quality or life-sustaining ecological diversity…

The definition of the residual estate in subsection 105 implicitly recognizes flexibility in the use of water and water rights by providing that all interests not bound by the easement remain with the grantor of the easement, including the right to engage in all uses of the lands, water, and water rights affected by a conservation easement that are not inconsistent with the easement or prohibited by law. CRS §38-30.5-105. Moreover, Section 38-30.5-103 authorizes both the creation of a conservation easement encumbering water or a water right, as well as specifically authorizing revoking the encumbrance of water or a water right by a conservation easement. *See* CRS §38-30.5-103(5):

> A conservation easement in gross that encumbers *water or a water right* as permitted by section 38-30.5-104 (1) may be created only by the voluntary act of the owner of the water or water right *and may be made revocable by the instrument creating it*.

This language provides that the water or water right attached to and bound by the conservation easement may be separated from such easement by the voluntary act of its owner, as permitted by subsection 104(1), which allows for a conservation easement in gross to be created by "the record owners of the surface of the land and, *if applicable, owners of the water or water rights beneficially used thereon* by a deed or other instrument of conveyance specifically stating the intention of the grantor to create such an easement under this article."

The reference in subsection 104(1) to water and water rights is separate and distinct from the right to *revoke* the encumbrance of water or water right by the conservation easement referenced above in subsection 103(5). Furthermore, subsection 104(5) underscores the right to separate or revoke water from a conservation easement because it requires 60-day notice to ditch companies of intent to bind *or revoke* water rights with or from a conservation easement. Subsection 111(2) similarly provides that any conservation easement affecting water rights created prior to August 6, 2003 is a binding, legal, and enforceable obligation if it complies with the requirements of the Act. Both of these subsections underscore the validity of easements binding water and water rights created before August 6, 2003, while at the same time allowing separation of encumbered water and water rights through revocation under the statute if such revocation or separation is consistent with the language of the easement and applicable law. The Colorado Court of Appeals specifically upheld the validity of pre-2003 conservation easements that encumbered water and water rights in *Allen v. Mesa Land Conservancy*.

In sum, whether the revocation of the encumbrance or separation of the water or water rights from the conserved land is consistent with the easement depends on an easement's specific language. Whether such revocation or separation of water or water rights form the land in an existing conservation easement is consistent with applicable law, however, directs us to consider federal tax laws applicable to land trusts for charitable gifts of conservation easements.

c. Federal Internal Revenue Code

Conservation values. A conservation easement donation must qualify for a federal charitable tax deduction to be eligible for a state tax credit, so the Internal Revenue Code (Code) is effectively the controlling tax law applicable to donations within Colorado. CRS §39-22-522(2) The federal charitable tax deduction in Section 170(h) of the Code describes four distinct conservation values the protection of which may yield a federal charitable tax deduction for qualifying donations; one explicitly references agricultural land conservation either as *pursuant to a clearly delineated governmental conservation policy and providing a significant public benefit*, or as visually aesthetically pleasing to the public and providing a significant public benefit, as described in Section 170(h)(4)(A)(iii)(I) and (II). The open space conservation value described at Section 170(h)(4)(A)(iii) references the preservation of open space and defines the same expressly to include "farmland and forest land."

Government conservation policies. Using the factors provided by the supporting Treasury Regulations (Regulations) at Section 1.170A-14(d)(4)(ii)(A), farmland conservation pursuant to a clearly delineated government conservation policy is illustrated by an example provided in Section 1.170A-14(d)(4)(iii)(A) as "the preservation of farmland pursuant to a state program for flood prevention and control", *which demonstrates a governmental policy furthered by agricultural lands' conservation with dedicated resources and benefits that cause the policy to amount to more than declaratory or aspirational*." Both scenic and conservation policy prongs of the open space test must also create significant public benefit, which requirement is met by proving the public benefits of the continued agricultural use of the land, scenically, or as a matter of public policy, or both.

Several Colorado policies address the governmental conservation policy objective (and prong) of the Code and Regulation's open space test. The Colorado conservation easement enabling act expressly authorizes the creation of conservation easements on land and water for agricultural use, CRS § 38-30.5-102, recognizes the retention/reservation of all rights not granted, CRS § 38-30.5-105, and contemplates the revocation of encumbrances on water and water rights, CRS § 38-30.5-104(1). Moreover, ag-muni water sharing occurs pursuant to state laws explicitly enacted to permit such sharing. *See e.g.,* CRS §§ 37-60-115(8), 37-92-103 (10.6), 37-92-308, 37-92-309, Furthermore, Colorado's conservation easement tax credit is unquestionably a dedication of government resources that demonstrate that the state policy that encourages conservation easements is more than declaratory or aspirational, i.e., the tax credit is effectively an expenditure of state tax dollars to further the policies of the State's conservation easement enabling act. What is more, the example in the Regulations clearly contemplates public benefits off the conserved land because the value of farmland for flood prevention and control is in allowing floodwaters to spread out, lowering flood crests and water levels, which reduces flood damage to off-farm developed areas. In ag-muni water sharing, the public benefits similarly occur offsite. Finally, when conserved land permits ag-muni water sharing, the shared water satisfies municipal water supply demands in a corresponding amount – a clear public benefit – and reduces the need for the municipality to buy-and-dry other irrigated land in fee to obtain equivalent water rights to meet its water supply demands, thus indirectly conserving other ag irrigated land.

Scenic farmland preservation for the scenic enjoyment of the general public if development of the property would "impair the scenic character of the local rural … landscape or would interfere with a scenic panorama" that can be enjoyed from a public place also qualifies for a charitable donation under the Code. 26 CFR §1.170A-14(d)(4)(ii).

Inconsistent uses. Beyond expressly defining agricultural lands as part of the open space conservation value of the land conservation tax benefit, the Regulations also address inconsistent uses of land proposed for or subject to perpetual conservation easements under subsection 1.170A-14(e), which might be fertile ground to explore the concept of allowing agriculture to continue on a protected property while sharing the water and water rights with a municipality. The "exclusively for conservation purposes" subsection 14(e) of the Regulations sets out a test for inconsistent uses that states "no inconsistent uses of the land will be allowed which would accomplish the enumerated conservation purposes if such uses would harm 'other significant conservation interests'" pursuant to Section 1.170A-14(e)(ii). The drafters of the subsection provide two agricultural examples of this inconsistent use concept as not permitted and permitted, respectively:

> the preservation of farmland pursuant to a State program for flood prevention and control would not qualify under paragraph (d)(4) of this section if under the terms of the contribution a significant naturally occurring ecosystem could be injured or destroyed by the use of pesticides in the operation of the farm. However, *this requirement is not intended to prohibit uses of the property, such as selective timber harvesting or selective farming if, under the circumstances, those uses do not impair significant conservation interests*.

Ag-muni water sharing is analogous to selective farming in the example because it's necessary to either fallow land or limit crop irrigation to less than crop demands (aka "deficit irrigation") for a farm to have water to share. We might thus be able to surmise then in the context of inconsistent uses of protected property that the sharing of water and water rights pursuant to public policies, as discussed above, would be permissible as a non-destructive, albeit arguably inconsistent, use. This conclusion requires that sharing the water and water rights from the property would not defeat the overall agricultural open space objective and, in fact, arguably might further that objective by supplementing farm income to support sustainable agricultural productivity.

For donated conservation easements, the Code and Regulations also define agriculture as an expressly qualifying protected conservation value, the inconsistency of use of which is fairly flexible if the end result – supplemental farm income to support sustainable agricultural productivity – is further protection of the conservation values that are the subject of the conservation easement. (26 USC 170(h)(4)(A)(iii); 26 CFR 1.170A-14(d)(1)(3), (d)(4)(i).

Other significant conservation interests. Another Code/Regulation requirement is that ag-muni water sharing would not result in damage or harm to "other significant conservation interests" on the property, such as other "unprotected" but significant interests, such as habitat values (although perhaps not articulated or defined as conservation values in the conservation easement). Regardless, inconsistent uses are expressly permitted by subsection (14)(e)(iii) of the Regulations if such inconsistent use is "necessary for the protection of the conservation interests

that are the subject of the contribution," even if such uses are destructive of other (undefined) conservation interests. Applying this somewhat nebulous test to ag-muni water sharing that might impact habitat values, sharing would be permitted if it was necessary to protect the agricultural conservation interests which are the subject of the conservation easement, such as sustainable agricultural productivity. Nonetheless, it may be prudent in this context to include explicit findings in the conservation easement deed and perhaps environmental baseline report that address what otherwise might appear to be inconsistent uses.

d. Conclusion

Given the overlapping provisions of Colorado statute that reserve all interests not conveyed and authorize the revocation of an encumbrance on water and water rights, there doesn't seem to be any legal bar that would prevent an irrigator from reserving the right to participate in ag-muni water sharing in a conservation easement, *so long as the conservation organization agrees that it is consistent with the conservation values it seeks to protect, and the deed.* Indeed, many conservation organizations have long permitted ag-muni water sharing in their conservation easements, e.g., Lower Arkansas Valley Water Conservancy District, and _____.

When drafting a new easement allowing ag-muni water sharing, prudence would suggest including a specific statement that the grantor reserves the right to share water with a municipality on terms to be negotiated between the two, and that ag-muni water sharing is consistent with the conservation values and why, such as the rationales described above.

(2) What is the legal framework for amending existing conservation easements, including risks and possible options – if any?

The challenge with amending existing conservation easements is to create a public benefit without creating impermissible private benefit to the current landowners for existing perpetual easements that received federal or state tax deductions or credits.

a. Land trusts, not taxpayers, assume the risk of creating impermissible private benefit without public benefit, unless changes are made beyond three years after a gift

The principal legal issue and constraint associated with amending existing conservation easements is as follows: impermissible private benefit or private inurement may be created if a land trust amends an existing perpetual easement, which was given for tax benefits at the state or federal level, in order to allow the use of encumbered water or water rights through ag-muni water sharing for use off of the protected property in order to sustain that property's agricultural uses.

b. Private Benefit and Private Inurement Defined and Distinguished:

The purpose of the private inurement and private benefit rules is to ensure that tax-exempt organizations serve public interests and not private interests. Under both doctrines, an organization must establish that it is not organized and operated for the benefit of private persons, such as the creators of the organization, trustees, directors, officers, members of their families, persons controlled by these individuals, or any other persons having a personal and private interest in the activities of the organization, or other private individuals who are unrelated to the organization. The sanction for violation of the private inurement or private benefit doctrine is revocation of tax-exempt status, or, in the alternative for private inurement, subjecting the organization and benefitting insider to intermediate sanctions, short of revocation of tax exempt status.

Private inurement. The Internal Revenue Code (Code) Section 501(c)(3) explicitly prohibits private inurement, as derived from the requirement that exempt organizations be organized and operated exclusively for charitable purposes of which "… no part of the net earnings of which inures to the benefit of any private shareholder or individual…." While private inurement lacks precise definition, it is generally understood to forbid the flow or transfer of income or assets of a tax-exempt organization through or away from the organization, and the use of this income or assets by one or more persons associated with, or for the benefit of one or more persons with some significant relationship to the organization, for nonexempt purposes. The IRS states further in its General Counsel Memorandum 38459 that private inurement is "likely to arise where the financial benefit represents a transfer of the organization's financial resources to an individual solely by virtue of the individual's relationship with the organization, and without regard to accomplishing exempt purposes".

Private benefit. The Code does not explicitly mention "private benefit," rather, it requires that an entity be "organized and operated exclusively for religious, charitable, scientific" and other specified purposes. Although the concept of private benefit is not explicitly stated in the Code, it is referenced in the attendant Treasury Regulations (Regulations). Regulation Section 1.501(c)(3)-1(c)(1) provides that an organization will be regarded as operated exclusively for exempt purposes only if it engages primarily in activities which accomplish one or more exempt purposes, and that an organization will not be so regarded if more than an insubstantial part of its activities is not in furtherance of an exempt purpose.

Moreover, Regulation Section 1.501(c)(3)-1(d)(1)(ii) provides that an organization is not organized or operated exclusively for exempt purposes unless it serves "a public rather than a private interest." Last, the U.S. Supreme Court in interpreting and elaborating on the doctrine has held that the presence of private benefit, if substantial in nature, will destroy an organization's exemption regardless of an organization's other charitable purposes or activities, even if the organization has many activities that further exempt purposes. *Better Business Bureau of Washington, D.C., Inc. v. United States*, 326 U.S. 279 (1945). The amalgamation of the Code, Regulations, and common law definition of impermissible private benefit is of non-incidental benefit conferred on disinterested persons (non-insiders) that serve private, rather than public interests.

This means that even if a nonprofit pursues activities that further its exempt purposes, it may lose its tax exempt status if it ultimately serves private interests. However, *incidental* private benefit will not cause the loss of tax-exempt status. Our understanding of private benefit is that as long as any private benefit is both qualitatively and quantitatively incidental to the furtherance of the nonprofit's exempt purposes, the organization's tax exemption will not be in jeopardy. Any private benefit therefore must be: (a) (quantitatively) insubstantial in comparison to the overall public benefit conferred by the activity, or an indirect economic benefit to the private individual; and (b) (qualitatively) incidental as a necessary side-effect of achieving the organization's charitable objectives through the activity that benefits the public, which benefits to the public cannot be achieved without benefitting private interests.

Applying the private benefit doctrine to agricultural water rights freed from perpetual use on the conserved land therefore requires us to answer whether the private benefit to the landowner is: (a) (quantitatively) insubstantial in comparison to the overall public benefit conferred by the activity of supporting and subsidizing the continued use of the protected property for agricultural purposes, or an indirect economic benefit to the private individual as a result of the public benefit of allowing agricultural uses to continue and thrive; and (b) (qualitatively) incidental as a necessary side-effect of achieving the organization's charitable objectives through the activity that benefits the public of allowing agriculture to continue and water supply to municipalities to increase, which benefits to the public cannot be achieved without benefitting the private interests of increasing the value to the landowner in proportion to the money received for sale, transfer, or lease of water rights.

Ag-muni water sharing satisfies municipal demands in a corresponding amount, thereby reducing the need for the municipality to buy-and-dry other irrigated land to acquire equivalent water rights to meet its water supply demands. This has the effect of meeting public municipal water supply needs while conserving other (unencumbered) ag land. From this perspective, the supplemental farm income provided by ag-muni water sharing is quantitatively insubstantial and an indirect private economic benefit compared to the overall public benefit – additional land conserved from buy-and-dry plus additional public water supplies – and a qualitatively incidental side effect of the organization's charitable objectives of sustainable agriculture.

NOTE TO CO-AUTHORS: We can investigate further the qualitative analysis of the private benefit (through Kevin's research) and also in the meantime speculate that the private benefit of any increase in value to landowners subject to perpetual conservation easements is a necessary side-effect (and in fact is the point) of allowing sharing the use of water and water rights off of the protected property, and increasing the public's benefit by sustaining agricultural uses and meeting the public's need for additional municipal water supplies. We can speculate further qualitatively that the benefits to the public of the sustainability and continuation of agricultural uses protected by perpetual conservation easements cannot be achieved without benefitting the private interests of the associated landowners through increased income from the sharing of water and water rights. The quantitative analysis of whether and to what extent there is any increase in value to the landowners of ag-muni water sharing remains important to the comparison of the qualitative analysis of the private benefit to the public benefit, and therefore, the complete analysis cannot be accomplished without the valuation component, although the framework for analysis can be and is established here.

Colorado Revised Statutes

38-30.5-101. Legislative intent.

The general assembly finds and declares that it is in the public interest to define conservation easements in gross, since such easements have not been defined by the judiciary. Further, the general assembly finds and declares that it is in the public interest to determine who may receive such easements and for what purpose such easements may be received.

38-30.5-102. Conservation easement in gross.

"Conservation easement in gross", for the purposes of this article, means a right in the owner of the easement to prohibit or require a limitation upon or an obligation to perform acts on or with respect to a land or **water area**, **airspace above the land or water, or water rights beneficially used upon that land or water area**, **owned by the grantor appropriate to the retaining or maintaining of such land, water, airspace, or water rights**, including improvements, predominantly in a natural, scenic, or open condition, or for wildlife habitat, **or for agricultural**, horticultural, wetlands, recreational, forest, **or other use or condition consistent with the protection of open land,** environmental quality or life-sustaining ecological diversity, or appropriate to the conservation and preservation of buildings, sites, or structures having historical, architectural, or cultural interest or value.

38-30.5-103. Nature of conservation easements in gross.

(1) A conservation easement in gross is an interest in real property freely transferable in whole or in part for the purposes stated in section 38-30.5-102 and transferable by any lawful method for the transfer of interests in real property in this state.

(2) A conservation easement in gross shall not be deemed personal in nature and shall constitute an interest in real property notwithstanding that it may be negative in character.

(3) A conservation easement in gross shall be perpetual unless otherwise stated in the instrument creating it.

(4) The particular characteristics of a conservation easement in gross shall be those granted or specified in the instrument creating the easement.

(5) A conservation easement in gross that **encumbers water or a water right** as permitted by section 38-30.5-104 (1) may be created only by the **voluntary act of the owner of the water or water right and may be made revocable by the instrument creating it**.

38-30.5-104. Creation of conservation easements in gross.

(1) A conservation easement in gross may only be created by the record owners of the surface of the land and, **if applicable, owners of the water or water rights beneficially used thereon** by a deed or other instrument of conveyance specifically stating the intention of the grantor to create such an easement under this article.

(2) A conservation easement in gross may only be created through a grant to or a reservation by a governmental entity or a grant to or a reservation by a charitable organization exempt under section 501 (c) (3) of the federal "Internal Revenue Code of 1986", as amended, which organization was created at least two years prior to receipt of the conservation easement.

(3) Repealed.

(4) Conservation easements relating to historical, architectural, or cultural significance may only be applied to buildings, sites, or structures which have been listed in the national register of historic places or the state register of historic properties, which have been designated as a landmark by a local government or landmarks commission under the provisions of the

ordinances of the locality involved, or which are listed as contributing building sites or structures within a national, state, or locally designated historic district.
(5) **If a water right is represented by shares in a mutual ditch or reservoir company, a conservation easement in gross that encumbers the water right may be created or revoked only after sixty days' notice and in accordance with the applicable requirements of the mutual ditch or reservoir company,** including, but not limited to, its articles of incorporation and bylaws as amended from time to time.

38-30.5-105. Residual estate.
All interests not transferred and conveyed by the instrument creating the easement shall remain in the grantor of the easement, including the right to engage in all uses of the lands or water or water rights affected by the easement that are not inconsistent with the easement or prohibited by the easement or by law.

38-30.5-106. Recordation upon public records.

Instruments creating, assigning, or otherwise transferring conservation easements must be recorded upon the public records affecting the ownership of real property in order to be valid and shall be subject in all respects to the laws relating to such recordation.

38-30.5-107. Release - termination.
Conservation easements in gross may, in whole or in part, be released, terminated, extinguished, or abandoned by merger with the underlying fee interest in the servient land or **water rights** or in any other manner in which easements may be lawfully terminated, released, extinguished, or abandoned.

38-30.5-108. Enforcement - remedies.
(1) No conservation easement in gross shall be unenforceable by reason of lack of privity of contract or lack of benefit to particular land or because not expressed as running with the land.
(2) Actual or threatened injury to or impairment of a conservation easement in gross or the interest intended for protection by such easement may be prohibited or restrained by injunctive relief granted by any court of competent jurisdiction in a proceeding initiated by the grantor or by an owner of the easement.
(3) In addition to the remedy of injunctive relief, the holder of a conservation easement in gross shall be entitled to recover money damages for injury thereto or to the interest to be protected thereby. In assessing such damages, there may be taken into account, in addition to the cost of restoration and other usual rules of the law of damages, the loss of scenic, aesthetic, and environmental values.

38-30.5-109. Taxation.
Conservation easements in gross shall be subject to assessment, taxation, or exemption from taxation in accordance with general laws applicable to the assessment and taxation of interests in real property. Real property subject to one or more conservation easements in gross shall be assessed, however, with due regard to the restricted uses to which the property may be devoted. The valuation for assessment of a conservation easement which is subject to assessment and taxation, plus the valuation for assessment of lands subject to such easement, shall equal the

valuation for assessment which would have been determined as to such lands if there were no conservation easement.

38-30.5-110. Other interests not impaired.
No interest in real property cognizable under the statutes, common law, or custom in effect in this state prior to July 1, 1976, nor any lease or sublease thereof at any time**, nor any transfer of a water right or any change of a point of diversion decreed prior to the recordation of any conservation easement in gross restricting a transfer or change shall be impaired, invalidated, or in any way adversely affected by reason of any provision of this article**. No provision of this article shall be construed to mean that conservation easements in gross were not lawful estates in land prior to July 1, 1976. Nothing in this article shall be construed so as to impair the rights of a public utility, as that term is defined by section 40-1-103, C.R.S., with respect to rights-of-way, easements, or other property rights upon which facilities, plants, or systems of a public utility are located or are to be located. **Any conservation easement in gross concerning water or water rights shall be subject to the "Water Right Determination and Administration Act of 1969"**, **as amended, article 92 of title 37, C.R.S., and any decree adjudicating the water or water rights.**

38-30.5-111. Validation.
(1) Any conservation easement in gross created on or after July 1, 1976, but before July 1, 1985, that would have been valid under this article except for section 38-30.5-104 (3) is valid and shall be a binding, legal, and enforceable obligation.
(2) **Any conservation easement in gross affecting water rights created prior to August 6, 2003, shall be a binding, legal, and enforceable obligation if it complies with the requirements of this article.**

APPENDIX C

Q&A with Larimer County Open Space about the Little Thompson Farm Acquisition and Open Space

Question: Can you provide background on Larimer County's Open Space program? When was it created and what is its budget and staffing?

Answer:

Larimer County Department of Natural Resources (LCDNR) was created in 1954 to manage recreation on the Colorado-Big Thompson project that brings water from the Colorado River on the west slope of the Continental Divide through a tunnel under the Rocky Mountains to reservoirs on the east, the most well-known of which are Horsetooth Reservoir and Carter Lake. The project provides a supplemental water supply to the dry but fertile Northern Colorado landscape and highly populated front range cities. In 1981, a 6-month sales tax was passed by the citizens of Larimer County to purchase Horsetooth Mountain Open Space west of the reservoir, and its management was assigned to LCDNR. In 1995, a ¼-cent sales and use tax initiated by the citizens was passed by voters to preserve open space in Larimer County. As a result, the Open Lands Program was formed within LCDNR to preserve and protect significant open space, natural areas, and wildlife habitat, and develop parks and trails for present and future generations. Funded through the tax and guided by a 12-member citizen advisory board, the Open Lands Program has conserved over 26,000 acres in fee acquisitions, and over 10,000 in conservation easements to date. The sales and use tax has been renewed twice by the voters, most recently for another 25 years by 82% of the voters, and is now scheduled to sunset in 2043. Last year, Larimer County's Open Lands Program had actual operational expenses of $3.6 million and collected just over $6 million in sales tax dollars. These funds support acquisitions as well as staff and management and development of existing properties for public recreation.

Today, with support from Open Space tax dollars and many partners, LCDNR employs 46 permanent and over 100 seasonal staff members who provide support for and implement development, maintenance and management of our various properties, including reservoir parks, open spaces, and trails from Estes Park in the west to the County's northern border with Wyoming, east to Weld County, and to Boulder County in the south. The staff members who brought the water sharing project to fruition include the property acquisition team that constitutes a portion of the Open Lands Program, with support from the land stewardship program, and 11 other departments within the County, including the County Attorney's office.

The acquisition team in the Open Lands Program works with willing landowners to conserve private properties throughout the County using various conservation methods, including placing conservation easements on privately held lands and acquiring fee title to land when appropriate, with the purpose of protecting the natural resource values including agriculture, scenic and open space, habitat and wetlands, historic and maintaining buffers to communities as well as a rural sense of place, as well as others. Historically, the Open Lands Program has leveraged sales tax dollars through grants and donations to the tune of 47 cents to every Help Preserve Open Spaces sales tax dollar.[1]

Question: With an $8 million price tag, why did the County decide to make such an investment in irrigated farmland? How did staff secure necessary buy-in for such a substantial investment?

Answer:

[1] 2015 Open Lands Master Plan, Page 19

Larimer County is in north-central Colorado and is the sixth largest county in Colorado by population. The County encompasses 2,640 square miles that include some of the finest irrigated farmland in the state. Approximately 1,760 farms and ranches cover nearly a half-million acres or 30 percent of the county's total land area. Over 50% of Larimer County is publicly owned, most of which is in the foothills and mountains of Roosevelt National Forest and Rocky Mountain National Park, while most of the privately-held lands are in the plains and prime farmland areas.

Of the approximately 37,000 acres conserved by Larimer County's Open Lands Program since the sales tax was established in 1995, less than 1,000 acres is irrigated farmland because the associated water rights have been cost-prohibitive. At the same time, Larimer County's farmland has and continues to be converted to other uses at a rate of 4,500 acres each year. Between 1997 and 2007, 8.4% of farmland in Larimer County was converted to a non-agricultural use. Overall the county is losing farmland due to residential and commercial development and the purchase and transfer of valuable water rights from agricultural to urban uses. This loss not only threatens a way of life in Larimer County, but also threatens a major component of the local economy.

Through various public planning efforts from 2012-2015, Larimer County Open Lands Program heard from citizens emphasizing the importance of acquiring water rights to protect prime agricultural lands, providing land for emerging farmers and small-acreage farming, and conserving working farms and ranch lands as important conservation goals for us to pursue. The Larimer County Agricultural Advisory Board, a citizen board of local farmers and ranchers, has also been advocating the protection of irrigated agricultural land in Larimer County. As a result of this feedback, the 2015 Open Lands Program Master Plan set a specific goal of conserving irrigated agricultural lands.

The Little Thompson Farm project was part of a greater vision identified in the 2015 Larimer County Open Lands Master Plan to conserve irrigated agricultural lands for local food production, crop production, as well as other values of wildlife habitat, scenic views, cultural values and rural character. A key part of irrigated agricultural conservation includes protecting associated water resources. Specifically, the master plan highlights investigating innovative approaches to conserving water with partners that also meet multiple purposes. The Farm, and associated water rights, were acquired in August 2016, with the specific intent to protect the agricultural, cultural and scenic resources, while providing future agriculture-based public educational opportunities.

County staff with the support of our expert team of consultants were able to secure the support of County leadership through thorough and consistent informational meetings and strategizing sessions. This allowed us to negotiate the best possible deal with the benefit of a wide range of subject matter and political expertise helping us navigate this entirely new and innovative conservation project. Strong political support was an important factor for the County to even attempt to implement this project given the large investment of staff time and resources. County decisionmakers were driven by the citizen's support and pressure to find a way to conserve irrigated farmland while also stewarding public resources responsibly. Staff researched the approaches other conservation entities had taken to accomplish farm conservation and found that they had either made very large financial expenditures to keep all of the water and farm intact, and displace the impacts of growth and water supply needs on other farming communities, or they made a smaller investment that left much of the farm's historic water supply to be sold off separately and resulted in a farm on the fringes of viability. ATMs were an emerging tool that we learned of and thought could conserve the farm as a viable operation at a fraction of the cost and address a partner's water supply needs without finding another farm to dry. Given these options, leadership and the public were supportive of exploring this tool that had the possibility of

conserving the most viable farming operation through a creative partnership, meeting multiple conservation and water supply objectives that serve the whole front range, minimize impacts to the farm and agricultural community, and responsibly steward county tax dollars by spreading our dollars further. These conversations always included a well-vetted "Plan B" and assurances that should negotiations fail on a water-sharing agreement, most of the County's investment in the project was in the very fungible and valuable water rights that were not decreasing in value. In addition, the outcry of support we received from outside entities helped sway the political will toward trying something brand new, including financial backing and partnerships from the Town of Berthoud, Gates Family Foundation, the Colorado Water Conservation Board, as well as written support from the local Future Farmers of America, the Young Farmer's Coalition, the Handy Ditch board, the Dry Creek Lateral board, the farm lessee, the former landowners and realtor, the Agricultural Advisory Board, and others. These variables bought staff the time and resources it needed to thoroughly explore the water sharing concept.

Question: Can you provide some background on the conservation values of this particular farm?

Answer:

In August of 2016, Larimer County purchased 211 acres of productive farmland and water for $8.4 million, just southwest of Berthoud. The acquisition included 240 units of Colorado-Big Thompson (C-BT) and 16 shares of Handy Ditch water as well as 20 shares of Dry Creek Lateral (delivery rights), along with the minerals and farm and water infrastructure. The Town of Berthoud, using their share of the county open space sales tax dollars, contributed $100,000 toward the acquisition and the remaining funds were provided by LCOLP through an interdepartmental loan to bridge the gap until a municipal water partner was identified. The farm was conserved for its high agricultural, historic, scenic, community buffer and educational values.

The stewardship team with the help of the team of experts funded by the CWCB documented the conservation values on the farm thoroughly in a 5-year Stewardship Plan that will be replaced by a more thorough Management Plan through a public management planning process in the near future. This will determine the long-term management policies and approach for the farm. Below are a few snippets from the Stewardship Plan summarizing the conservation values.

Agricultural:

The farm has about 180 irrigated acres, including about 141 irrigated under a 2003 Zimmatic center pivot. The Land Evaluation-Site Assessment tool developed by the Natural Resources Conservation Services and adopted by our Agricultural Advisory Board was used to evaluate the farm based on soils, specific site characteristics such as farm size, water availability, proximity to city annexed boundary, weed and erosion issues, and visual and natural values. These helped characterize the overall quality of this parcel for meeting the agricultural conservation goals of the Department. The overall rating for this farm was good-excellent primarily due to highly productive soils and water availability.

The farm has historically been irrigated with 16 Handy Ditch and Reservoir Company (Handy) shares and 240 Colorado-Big Thompson (C-BT) units. Both sources of water are diverted from the Big Thompson River at the Handy Ditch head gate and are delivered to the farm via the Handy Ditch and then the Dry Creek Lateral which is unlined and is approximately 8 miles long. The farm is the second-to-last head gate on the Dry Creek Lateral, which ends just on the east side of Highway 287.

Both corn and sugar beets have been the predominant crops grown on the farm. The corn yields have ranged from 210 bushels/acre in wet years to 170 bushels/acre in dry years and the beet yields have ranged from 42 tons/acre in wet years to 29 tons/acre in dry years. The pivot-irrigated field has most recently been planted in corn or half sugar beets and half corn, on a rotational basis. The south end of the farm is level to gently sloping bottomland. The southern area, separated from the center pivot by a ditch and row of cottonwood trees, has historically been planted to alfalfa and flood-irrigated, depending on the water supply, and may be somewhat sub-irrigated by the river. In recent years, the lessee has planted this area in Sudan grass or dryland wheat to avoid the need for irrigation.

Habitat:
Raptors and songbirds use the large cottonwood and planted trees for roost and perching sites. There is an active red-tailed hawk nest in a cottonwood tree in the northeast corner of the property. Another large nest, in a cottonwood just west of the beet shack does not appear active. Black bears and their cubs have been known to frequent the property, feeding on sugar beets.

Scenic:
Located one mile south of the town of Berthoud and just two miles from the Larimer/Boulder county line, about ¾-mile of the property is adjacent to Hwy 287 and is highly visible to the public. The property's visual appeal includes an iconic red barn, large cottonwood trees along the Handy Ditch and gently rolling agricultural fields. Views from the Farm include a largely uninterrupted view west to the mountains and south to the Little Thompson River corridor.

Historical:
The Farm has a rich cultural history. There are several historic buildings on-site including the barn, chicken house, beet shack, and two houses, one of which may have once been a saloon associated with the Cherokee/Overland Trail. There is an unmarked gravesite on the east side of the pond thought to be that of a traveler who died in the 1850's/1860's along the Cherokee/Overland Trail route. The route bisected the Farm north-south, just east of the existing holding pond. The beet shack was donated to the Berthoud Historical Society and is located in the south-center of the property. Built by Germans from Russia, it was used as seasonal housing during the sugar beet harvest. The Ditch cross the south field called the Eaglin Ditch is also said to be one of the oldest active ditches in Larimer County.

Question: When and why did the idea for some type of ATM emerge?

Answer:
Discussions began between Larimer County and the three siblings that owned the Berthoud farm in 2014 . They wanted to learn how they could go about conserving the family farm as a working landscape but needed to sell outright and therefore were not interested in a conservation easement. Larimer County recognized that the farm had many conservation values and met many of its conservation criteria, however Larimer County also acknowledged that the farm was out of its price range and it would need to do something creative if it was going to have a chance at conserving the farm. In exploring options and potential tools for conserving this irrigated farm and its valuable water at a reduced cost, we learned of water sharing or ATM tools that were being promoted by the state through the Colorado Water Plan and Colorado Water Conservation Board and discussed in our local water groups like Poudre Runs Through it, the Poudre River Sharing Group, and the South Platte Roundtable. Before we could get any solid plans together for how to implement something like that

with minimal water and farming expertise, one of the siblings passed away and the two remaining put the farm on the market to settle the estate. The farm was advertised by the realtor as developable land and water and essentially slated for buy-and-dry. The Colorado-Big Thompson ("C-BT") water being highly transferable to municipal and industrial uses by a mere contractual transfer demanded a corresponding premium that only developers or municipalities could afford. The Handy Ditch shares could also have been dedicated permanently to Little Thompson Water District for residential use, and could've served 112 new urban or 56 new rural residences. The threat of development was evident when the farm immediately went under contract to a developer. Although Larimer County still needed to go through lots of process, fundraising, and partner searching, it placed a backup contract on the property as it continued to learn and come up with a strategy. There were at least two additional backup contracts behind the County's, both from developers and water brokers. Larimer County was the only offer the farm family received that would have kept the land in active farming.

Fortuitously, in August of 2015, the first contract fell through and the family worked out a temporary financial arrangement to allow Larimer County some time to try and conserve their family farm. Larimer County got under contract with the family to close on the purchase of the farm and water in 6 months time, with many ambitious steps along the way that were contingencies to the closing. These steps included successfully receiving a CWCB ATM grant to hire a team of water and agricultural experts to help vet out an ATM and securing a water sharing partnership that would share the cost of the acquisition to the tune of at least four million dollars.

Larimer County was awarded the CWCB ATM grant for just over $178k in December and had the consultant team on board soon after the new year. With the team, Larimer County began to propose some ideas to the Northern Colorado Water Conservancy District ("Northern Water") about what it might do with a water sharing agreement on the farm, which initiated a 6-month rulemaking regarding rules for entering into ATMs with C-BT water. Ultimately, as the rulemaking was wrapping up and after a year of negotiating exclusively with Larimer County water providers, the County had no viable water sharing partner, and the family was out of time on their financial arrangement. The County had to make a decision at this point, whether to abandon the project and let the property go to development and the farming operations come to an end, purchase the farm with a small portion of the water and let the expensive C-BT be sold off separately, or try something different and a little risky by purchasing the land and water in hopes that we could still find a partner and negotiate an ATM that would allow for the conservation of a viable agricultural operation and provide a good first example for ATMs going forward that could be used as a model and built upon.

The County decided to close on the property on our own with the goals of conserving the farm as a working landscape in perpetuity and seeking out a partner that we hadn't yet spoken with to enter into a first-of-its-kind water sharing partnership with a water provider. The County expanded its search to all water providers within Northern Water's district boundaries in hopes of finding a partner with the right water needs, financial resources, and the will to try something new in acquiring water for its constituents. We decided then and there that if we couldn't negotiate an ATM that we could hold up as a successful example of a viable water partnership that served the needs of a viable farm and also served the needs of a water provider, then we would not enter into an ATM at all. We'd rather fail to negotiate a deal worth closing on, than close on a deal that failed to meet our goals and that would undermine ATMs as a viable tool going forward.

Question: How did you explore the feasibility of an ATM?

Answer:
The Little Thompson Farm and Water Viability Plan was created with the expertise of the consultant team to address the sustainability and future viability of the farm from an economic, water, and agronomic perspective. The plan provides operational recommendations from a water supply and irrigation perspective so that combined farming sales revenues and water lease/sales revenues will sustain the operational costs of the farm in the long-term. The plan also provides recommendations for operating under multiple water supply scenarios, including years with a full water supply and years where the ATM agreement is exercised depending on environmental and hydrologic conditions. The plan provides guidance to the County and farm lessee about farm operations in years when the ATM is exercised by Broomfield, years following the prolonged exercise of the ATM (2 or 3 years in a row), and years with a full water supply under varying hydrologic conditions based on historic data. This plan shows that the cropping pattern may primarily remain much the same, with some years fallowing (2 or 3 out of 11), with the possibility of a lower water crop such as sorghum or Sudan grass, or a water-short corn crop under the center pivot. There is also the possibility for the farm to be partially or completely fallowed and the water leased on the market as an alternative income stream in ATM years or under poor crop market conditions. The intent is to provide guidance on how to maximize the use and management of the water and land in such a way that it benefits all parties and fulfills the multiple purposes for which the land and water were conserved. This document is available upon request.

Question: Who was the "team" who made the ATM happen?

Answer:
LCOLP received $178,425 in September of 2015 from the CWCB Alternative Agricultural Water Transfer Methods Grant to hire a consultant team to provide the expertise we needed to complete this project. Larimer County selected the team of experts through an RFP process and includes Western Water Partnerships (project management), Harvey Economics (economics), Brown and Caldwell (water engineering), Ag Skill (agronomy), and Fischer Brown Bartlett & Gunn (water law) which all served as experts to help successfully implement the ATM project. We also engaged actively with the farm lessee, the local ditch boards, and Northern Water, which allowed us to check our assumptions, our math, and our deal with multiple different stakeholders, identify the types of concerns or obstacles we might face, and be sure that we were not overlooking any major perspectives on the deal that we might not inherently have from a land conservation perspective without farming or water expertise.

Question: How did you evaluate impacts to the conservation values of the property important to Larimer County?

Answer:
The LCDNR stewardship team evaluated each of the conservation values on the property and did not identify any specific water supply needs to exclusively serve the habitat, cultural, educational or scenic values on the property. The agricultural values were evaluated by the expert team to ensure that our goal of conserving a viable irrigated farm in perpetuity would be met by the water portfolio. Therefore, the water portfolio was a primary concern in negotiating the ATM as well as protections for the farm lessee that increase farm viability under a varying water supply portfolio. The farm lessee was also consulted multiple times throughout the negotiations and confirmed various water supply scenarios and terms that would provide him with the resources he needs to run a viable farming operation on the property.

Ultimately, with the water sharing agreement in place, the farm has 125 units of C-BT available to it most years, with 45 available every year and 80 units available at least 7 out of every 10 years, plus the native Handy Ditch water available every year. We will also have the possibility of leasing 115 C-BT units back from Broomfield at a set price during years when it is not being used. We included various other terms in the agreement meant to serve the goal of farm viability. In years when Broomfield intends to exercise its option to use the ATM units, Broomfield must notify LCOLP of its intention prior to January 31st of that year. However, Broomfield may also exercise its option after January 31st up until June 1st, which allows Handy Ditch plenty of time to request the appropriate number of C-BT units to be delivered through their system. In that case, Broomfield would notify Larimer County of its intent to exercise its option as soon as it makes the determination to use the water to allow for easier farm planning. Also, Broomfield would reimburse the lessee farmer for all expenses incurred resulting from the late notice, including but not limited to the purchase or planting/application of seed, fertilizer, labor expense, equipment use/rental, and such other reasonable expenses. To activate the seasonal transfer to the M&I provider, the Handy Ditch Company will need to submit a CD4 card to Northern Water which can be done at any time during the year, and Larimer County will assist with as needed. Also, the ATM year "lease" payment that Broomfield will pay in years that it takes the ATM water acts as a disincentive to Broomfield taking the water when they don't need it, and can be used to cover on-the-farm expenses or even replace lost incomes in the years when the farm receives a smaller water supply and likely sees reduced yields.

We are also managing farm viability and operations through the agricultural lease agreement with the farm lessee. It ensures that the tenant farmer understands all of the terms of the ATM agreement, and specifically defines what happens in an ATM year (the second rent installment does not become due) and how the reimbursement of expenses from late notice will work between the County and the lessee. This is in addition to the typical farm lease terms that include terms to ensure the tenant farmer manages the farm's multiple conservation resources in accordance with the County's rules and regulations and sound stewardship practices. It also addresses the maintenance and repair of the various features, particularly around the water infrastructure and equipment.

Question: What were the greatest hurdles to this project?

Answer:

Legalities:

One of the main hurdles to ATMs is the legality of tying up water rights into an ATM. The intensity of this hurdle varies depending on the type of water and rules surrounding that type. We set out to execute an ATM on C-BT water, which is uniquely fungible because it does not require water court to change or add a different use (municipal) from what it has traditionally been used for (agriculture) as native ditch water would require through water court. However, C-BT's uniquely flexible nature also drives the higher cost of this water. In addition, Northern Water administers this water, and while Northern allows year-by-year leasing of water from one user to another with a simple filing, a perpetual "lease" agreement that transfers the water from one use to another and back again for the foreseeable future prompted Northern to conduct a rulemaking. This unanticipated bump cost our negotiation efforts about 6 months and limited our flexibility in striking the deal. Throughout the rulemaking, we advocated together with our potential water partners for as much flexibility in the rules as possible and we also requested incentives that could apply to ATM water and increase its marketability to municipal water partners and would ideally make ATMs more attractive than outright sales that are quick and uncomplicated and generally result in the permanent dry-up of farmland. Ultimately, the incentives we requested did not make it into the rulemaking for the most part. We were offered some flexibility to go

up to 5 out of every 10 years with the ATM if hydrologic conditions justified it. However, that did not provide enough of a carrot to our municipal partners to do an ATM over an outright purchase of C-BT. Some of the incentives we requested and we would encourage Northern's Board to take another look at would be the flexibility on the cap calculation for ATM water, favorable annual assessments for ATM water, and flexibility on carry-over water by the ATM user in or after ATM years. Should these have been provided, we likely could've realized more value from the ATM and would not have sold as many C-BT units outright.

Native ditch water has its own rules and flexibility issues to contend with that will be a barrier to ATMs being implemented on water like Handy Ditch and others like it. To utilize ATMs more broadly, we will need to find a way to make these direct flow rights more fungible. Currently, this would require a lengthy and somewhat unprecedented water court case to add a municipal use to an agricultural water right and allow it to move back and forth between uses on a yearly basis. This is both expensive and risky for municipalities and farmers to undertake and we think drastically reduces the likelihood of ATMs being adopted more broadly. Unfortunately, the short-term solutions that allow a 10-year non-renewable ATM by state statute would not have met the goals of either Larimer County or Broomfield in this deal, that were both looking for a reliable, long-term solution. WE are hopeful that the water courts will be more receptive to water sharing as an alternative to dry-up covenants and short-term arrangements, particularly with the Colorado Water Plan's promotion of ATMs as a solution to the projected water supply gap and the resulting political nudge and funding to support alternatives to drying up farms for water supply.

Negotiations:

Establish and pursue your goals with an open mind about implementation: There were various approaches that helped us ultimately settle on a water sharing arrangement that served our multiple goals but looked very little like what we expected or anticipated that we might settle on at the time that we proposed this project and even when we began searching for a water sharing partner. What ultimately helped us get to the finish line on a deal was to have clear project goals that everyone up and down the ladder agrees on. Then, with your goals in mind, stick to those goals and don't budge on proposals that might accomplish other things for your entity but do not serve the goals for this project (as much as you can help it). Once you have your clear goals in mind, you might have a clear path for implementing those goals. Do not stick firmly to that path but be flexible with how those goals are achieved. Your partner's goals will have to drive the method for implementation as well, and things might be important to them that you hadn't even thought about, and rather than having a knee-jerk "no" to something you hadn't considered before, explore those ideas further and continue to evaluate them with your goals in mind. Be flexible on the tradeoffs that might get you to a final deal. This might also require you to provide an incentive to your partner that you hadn't planned on and move some things around. Keep your leadership updated and forge forward with a new plan if needed, so long as it serves your goals. Also, pursue a partner whose goals are not going against your goals. They may not be obviously complimentary, but be open to exploring that until it is clear they are not compatible.

Minimize the cooks and trust your team: Once you are down to negotiating the details, make sure your team is informed about your goals and the range of possibilities you are open to in achieving those goals, and then step back and trust your team. Having too many cooks in the kitchen, which can include staff, supervisor, program manager, department head, attorney, etc., will kill a deal. Get everyone's buy in to your general strategy and parameters and then put two people in a room to hammer out the details. Those decisionmakers will all have a say down the line, but getting something on paper to work

from is absolutely critical to getting anywhere. Also, having too many people in the room retards creativity and thinking outside of the box (or at least sharing those thoughts) which can be the solution to some of those seemingly contrary goals that two entities have. Give your representative (ideally one) the room to work it out with the other representative.

Terms:

Sale vs. ATM: One example of what we compromised on to meet both partners' goals was to sell some water outright, put some in an ATM, and keep some entirely out of the deal. Each of these pieces served a different goal that we had with the non-sale or ATM water helping with farm viability, the sale generating the majority of the upfront financial investment that we needed from the partnership to repay our internal loan, and the sale also provided the carrot and flexibility for Broomfield to enter into an ATM with lots of terms that protect farm viability in the long-term. We also compromised to commit to purchase more native water that has better deliveries to the farm in average years and as a result, will nearly replace the water supply removed by the sale of the C-BT for a fraction of the cost. This will also preserve those water supplies in agriculture, even though some C-BT units were transferred to municipal uses.

Up front vs. annual payments: Another example is the payment structure in that we initially wanted a much higher payment up front for the ATM than our partners were willing to give. With all of the farm viability terms in there, we realized the ATM was not worth as much to our partners as we had initially thought. We decided that if we were going to compromise on the upfront payment for the ATM, we wanted a higher lease payment when the ATM is utilized by the municipality, which offsets the irrigator's costs when water supplies are lower because of the ATM, and it also provides a disincentive to our partner using the ATM if they don't need it, both of which contribute to long-term viability of the farm and will help us minimize our long-term costs on the farm and be more likely to secure a willing farmer, which both serve the County's economic and farm viability goals.

Notice: In addition, Broomfield wanted as late a deadline as they could get for notifying us that they needed the water in any given year. We wanted as early a deadline as possible to allow the farmer to plan as far ahead of the season as possible, as later planning costs the farmer more money for seed, fertilizer, and other supplies. So, we came to a compromise of a fairly early deadline, and then later "late notice" deadline that Broomfield can exercise so long as they reimburse the farmer for his costs that he incurred as a result of their late notice, including expenditures and labor. This gave both parties what they wanted to some extent while acknowledging the needs of the other.

Question: Have there been any political implications for the program?

Answer:

Perception of Buy and Dry: We had to overcome, to some extent, the public perception that doing an ATM agreement was essentially buying and drying a farm. A strategy we used with the public and leadership was to lay out the options we had in front of us when we decided to explore an ATM to conserve the farm juxtaposed with the financial realities of the farm and water and our program. We always had the option of conserving the farm and water the way it was, but that would essentially have bankrupted the program for several years and prevented us from pursuing any other conservation opportunities in the county during that timeframe, and several of these other projects were ongoing and had strong public support as well. We also described that the programs that have taken a purist

approach to farm conservation had much more tax funding than we do, and accomplished that conservation before prices on water had skyrocketed, and generally no longer conserve the expensive C-BT with farmland because of the cost. We chose the option that had the greatest chance of keeping the most viable farming operation possible through a creative partnership, meeting multiple conservation and water supply objectives that serve the whole front range, minimize the impacts to the farm, and responsibly steward county tax dollars by leveraging to spread our dollars further.

Out of County: We also received criticism from entities and individuals within Larimer County for partnering with a water provider that is outside of our county. We pursued a partnership with Larimer County water providers exclusively for a year before turning our attention to potential partners outside of the County. Ultimately, we were unable to negotiate a deal with the entities within Larimer County that met our goals for the project, which were to conserve a viable farm in perpetuity, obtain a strong financial partnership, and execute an ATM that could be used as a model in pushing ATMs forward as a viable tool for farmers and municipalities to pursue with our without a conservation entity intervening. We would advise any other entities that pursue this sort of arrangement to begin as local as possible to the farm and exhaust those opportunities before moving outward. The intrinsic value of keeping viable farmland close to the community doing the water sharing deal may also add to the value of the arrangement, particularly in municipalities that typically have multiple different objectives such as those with an open space initiative that also have unmet water needs, or a water district with board members that also farm in the same ditches as the farm you're conserving. We also remind folks that although Broomfield is out of our County, it is still within Northern Colorado's Boundaries and the South Platte Basin, which means supplying them with firmer water benefits our basin as a whole and prevents more farms in our county from being targeted for buy and dry.

Continued education: We are hopeful that those who attend our educational programming, public presentations, or take the time to learn more about it on their own will come to understand that we brokered the best deal we could for this farm and our number one goal all along was to conserve a viable farm in perpetuity. It has also been important to acknowledge as we receive feedback or criticism from the public about the final deal that what we landed on is in no way perfect but it is a start in an otherwise uncharted area and we hope others will take what we did and improve upon it, and citizens will continue to be engaged on this issue and pressure their water provider to make a concerted effort to enter into water sharing arrangements rather than buy and dry to obtain their water supplies.

The closing of this important first ATM provides a model for others to follow and its operation over time will provide valuable insights into successful aspects and areas for improvement in future ATMs. This project has been under the watchful eye of many entities to see what the final deal looks like and we have received various inquiries since its closing for copies of the final ATM. We hope that this catalyzes more conversations between municipal and agricultural interests that are not exclusively buy-and-dry.

Northern Water developed policies and procedures specifically for these types of agreements and has indicated they may look at incorporating some more flexibility into their rules to incentivize more ATMs to come to fruition with C-BT. The Handy Ditch Board was also supportive of the concept and appreciated the county's pursuing alternatives to the traditional buy-and-dry that was a potential outcome for the Little Thompson Farm.

While the 80 acre feet in this ATM certainly contributes to the South Platte Basin and Statewide goals for water in water sharing agreements, we are hopeful that the impact of a successful model ATM will generate the sharing of several thousand acre feet in a period of years, given that a good chunk of C-BT

water still remains in farm ownership and this project has already generated interest in further farmland conservation.

Question: Is there anything you would do differently if another opportunity came up tomorrow?

Answer:

For more than a decade, ATMs have been in discussion in Colorado but mostly on a theoretical level. For ATMs to be a viable water resources management tool in Colorado, projects like this will need to demonstrate to cities, water managers, farmers, land trusts and publicly-funded open space programs that ATMs can help these entities achieve their respective objectives in a cooperative manner and at a lower cost than if they were to act alone. As with any new technology or concept, to be accepted and adopted, potential users need to have confidence that it is worth their investment of time and money. This is especially critical considering the high value and sometimes significant risks associated with land and water rights transactions. Through the successes of pilot projects, funders throughout the State can help encourage "innovators" and "early adopters" such as Larimer County and Broomfield to consider adopting ATMs to meet their organization's goals and objectives. By successfully piloting this agreement, Larimer County and the City and County of Broomfield are demonstrating that, by working together and sharing valuable resources, it is feasible to preserve fast-disappearing farmland at a reduced cost and secure a perpetual source of drought firming water for Colorado's growing cities.

Ultimately, what contributed to our success was: dedicating the staff time to get it done right, having a Plan B, getting help from the experts, educating decisionmakers and anticipating obstacles along the way, be willing to compromise but stick to your goals, and ultimately accepting that you can't please everyone. In the end, even if your work only moves a new tool one tick on the needle, nothing will ever change if we don't try new things.

Additional Project Information:

Larimer County's Open Lands Program (LCOLP) sought to be part of a unique and cutting-edge land conservation project near Berthoud to conserve viable, irrigated farmland in perpetuity, to develop a new model for land and water conservation that can be used statewide contributing to the goals of the Colorado Water Plan, and fostering new partnerships with organization and municipalities along the way.

Larimer County and its consultant team of water and agricultural experts supported by the Colorado Water Conservation Board (CWCB), sought and successfully implemented the State's first perpetual agricultural-to-municipal ATM. This fall, Larimer County and the City and County of Broomfield entered into an innovative, novel water partnership, which allows Larimer County to conserve a working farm in perpetuity and Broomfield to bolster the water supply for its citizens without drying up a farm. This alternative to buy-and-dry, or Alternative Transfer Method (ATM) is promoted in the 2015 Colorado Water Plan as a means of addressing the predicted water supply gap in Colorado without drying up farmland. The Intergovernmental Agreement between Larimer County and the City and County of Broomfield is enclosed along with this report. Below are the basic terms of the agreement:

1. Larimer County sold 115 units of C-BT water to the City and County of Broomfield outright with a reserved first right of refusal to lease it back in any year Broomfield isn't using it. Broomfield paid $25,500/ unit and a supplemental grant from the CWCB ATM Grant Program contributed $450/ unit to bridge the negotiation gap and bring the total purchase price of the water to $26,000/ unit.
2. The water sharing arrangement on 80 units of C-BT water will allow the City and County of Broomfield to use the water 3 out of every 10 years for a 40% upfront cost (or $10,400/unit) plus an additional dry-year payment of $225/ unit when the water is utilized by Broomfield to help cover the costs on the farm during those years.
3. Larimer County retained 45 units of C-BT plus the native water to be used on the farm every year.

Ultimately, the farm will have 45 units of C-BT water and the native Handy Ditch water available to it every year, plus 80 units of C-BT water available 7 out of 10 years, and the possibility of leasing 115 C-BT units from Broomfield during years when it's not using the water.

Tenant Farmer Lease Agreement: This agricultural lease agreement was created by Larimer County and agreed upon by the tenant farmer. It ensures that the tenant farmer understands the terms of the ATM agreement and can operate the farm accordingly. It also ensures that the tenant farmer abides by the rules and regulations set forth by the County as it relates to the farm's structures and equipment, premises and water, property management, maintenance

and repairs. Additionally, it outlines the tenant farmer's responsibilities for rent and other payments, covenants and insurance payments.

FINANCIALS:

Through this municipal agreement, Larimer County was able to achieve its goal of reducing the cost of acquiring the farm by nearly 50% while also ensuring the farm will be viable into the future. Additionally, Larimer County was awarded an Alternative Agricultural Water Transfer Methods grant, in the amount of $178,425 that funded the team of experts that was instrumental in the successful completion of the ATM.

Little Thompson Farm ATM – Financial Report

Farm & Water Rights Acquisition	
Sale Price:	$8,400,000
Town of Berthoud	$100,000
Larimer County	$8,300,000
Total Project Cost	**$8,400,000**
Partnership Funding	
City and County of Broomfield	
115 Units of CB-T	$2,938,250
80 C-BT (ATM)	$832,000
CWCB ATM Grant	$51,750
Gates Family Foundation	$100,000
Total Funds Raised	**$3,922,000**
(CWCB Grant for Team of Experts)	($178,425)
Final Larimer County Cost:	**$4,378,000**

NEXT STEPS

The media coverage of the ATM agreement in August 2017 has provided enormous catalyst value and sparked an interest in farm conservation resulting in numerous conversations with landowners along the Little Thompson Watershed. Colorado Open Lands has assembled a team of partners to include Larimer County, Trust for Public Land and Colorado Cattleman's Agricultural Land Trust to continue land and water conservation in this area.

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