

# [***Article: All We Really Need to Know We Learned in Kindergarten: Share Everything (Agricultural Water Sharing to Meet Increasing Municipal Water Demands)♣, ♣ With apologies to Robert Fulghum, author of All I Really Need to Know I Learned in Kindergarten. Robert Fulghum, All I Really Needed to Know I Learned in Kindergarten (2003).***](https://advance.lexis.com/api/document?collection=analytical-materials&id=urn:contentItem:5M46-YXX0-00CV-H065-00000-00&context=1516831)

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**Text**

**[\*200]**

[*I*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8T9R-T2X2-D6RV-H374-00000-00&context=1516831). INTRODUCTION

With continuing population growth and a changing climate, ***Colorado***'s finite water resources face unprecedented pressure. Current projections indicate that ***Colorado***'s population will increase from the current 5.2 million people to between 8.3 and 9.2 million by 2050. [[1]](#footnote-2)1 As a result of population growth, 2050 municipal water demand is predicted to swell by 600,000 to 1,000,000 acre-feet annually - a sixty to 100 percent increase - primarily to meet Front Range needs. [[2]](#footnote-3)2 ***Colorado***'s remaining undeveloped water resources are limited, however, and pose nearly insurmountable challenges for thirsty Front Range water providers to access. [[3]](#footnote-4)3 For decades, the primary municipal response to increasing water demands has accordingly been to acquire and convert agricultural water rights to municipal use, and dry up irrigated lands that then are permanently taken out of production. [[4]](#footnote-5)4 If this business-as-usual "buy-and-dry" continues to be the most viable means for municipalities to meet growing water demands, ***Colorado*** may lose between 500,000 and 700,000 acres of irrigated agricultural land by 2050. [[5]](#footnote-6)5 This would have significant adverse consequences for ***Colorado***'s rural communities as well as ***Colorado***'s society, economy, and the environment.

Currently, ***Colorado***'s legal and institutional structure unwittingly encourages buy-and-dry to meet growing municipal water demands and to respond to climate change and drought. Policymakers and stakeholders are aware that institutional changes are needed to provide viable alternatives to buy-and-dry, but to date, few legal and policy changes have truly shifted the pattern. Nevertheless, in the words of the great Bob Dylan, it appears that "the times, they may be a-changing." [[6]](#footnote-7)6 In December 2015, the state completed the first-ever ***Colorado***'s Water Plan, [[7]](#footnote-8)7 which recognizes that ***Colorado*** needs to develop means of reducing the legal and institutional barriers to implementing agricultural water sharing arrangements.

***Colorado***'s current legal structure is not effectively facilitating temporary agricultural sharing for two main reasons. First, ***Colorado***'s water law system, embodied in the water court process, poses significant barriers to creative temporary changes in water use. Second, to the extent **[\*201]** that some efforts have been made to reduce these barriers through statutory changes, these efforts have been largely unsuccessful because they did not go far enough to overcome institutional and legal barriers to water sharing.

This Article, in Section II, first describes the problem posed by drying up agricultural land in ***Colorado*** to meet growing municipal water demands. Section III discusses the current legal framework and water law in ***Colorado*** that impede implementation of agricultural water sharing as an alternative to buy-and-dry. Section IV analyzes ***Colorado***'s existing statutory mechanisms that may facilitate temporary water sharing arrangements and generally discusses the limits of their usefulness for those purposes. Section IV also discusses examples of effective mechanisms for water sharing in other Western states. Section V provides a case study of agricultural water sharing in the Lower Arkansas ***River*** Basin of ***Colorado***, the so-called Super Ditch. Section VI provides recommendations for the critical components for developing and instituting a viable agricultural water sharing program in ***Colorado***.

[*II*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8T9R-T352-D6RV-H379-00000-00&context=1516831). THE BUY-AND-DRY PROBLEM

Three major factors are driving permanent agricultural dry-up (buy-and-dry): continued population growth, the inaccessibility of new water supplies, and ***Colorado***'s water court system. [[8]](#footnote-9)8 As municipalities try to provide water to expanding populations from a limited supply, often their most viable option is to buy agricultural water rights and permanently take the associated agricultural lands out of production.

By 2050, ***Colorado***'s population is projected to be 9 million people, with a concomitant increase in demand for water. [[9]](#footnote-10)9 The ***Colorado*** Water Conservation Board ("CWCB") predicts that municipal demands will grow by 600,000 acre-feet to 1 million acre-feet by 2050 from their current levels. [[10]](#footnote-11)10 Such increases in demand have recently been met by acquiring agricultural water rights. [[11]](#footnote-12)11

Confounding the population growth issue, there is not enough unappropriated water [[12]](#footnote-13)12 in ***Colorado*** to meet future demands on the Front **[\*202]** Range. [[13]](#footnote-14)13 What additional water is available is primarily on the West Slope, and generally inaccessible to meet future Front Range municipal demands for myriad political, legal, and technical reasons. And ***Colorado***'s water challenges are likely to get worse as the gap between water supply and demand is projected to reach 500,000 acre-feet by 2050. [[14]](#footnote-15)14 Demands for nonconsumptive water for recreation and the environment will also likely increase, especially in response to climate change, warmer and shorter winters, and threatened and endangered species. [[15]](#footnote-16)15

Finally, water law in ***Colorado*** has largely developed to protect existing uses rather than facilitate new uses, such as agricultural water sharing, as discussed in Section III. Under the current system, if a municipality wants to secure the long-term ability to share the use of agricultural water on a temporary basis, it likely would have to navigate a change-of-use case in water court for essentially the same time and cost as permanently changing the water right.

The consequence of this situation is that past and current practice to develop water supplies for municipalities has been to purchase and then change the use of agricultural water rights permanently. Buy-and-dry remains attractive because municipalities can acquire a certain, permanent, and reliable water supply, which aids in long-term planning. [[16]](#footnote-17)16

There is widespread agreement that buy-and-dry has many negative consequences and is not the best way forward for ***Colorado***. [[17]](#footnote-18)17 Traditional buy-and-dry is causing agricultural land to disappear, negatively affecting rural economies, and could ultimately harm the future of ***Colorado***'s food security. [[18]](#footnote-19)18 If current trends and policies continue into 2050, when ***Colorado***'s population is expected to nearly double, this business-as-usual approach of buy-and-dry will also cause many adverse economic, social, and environmental effects statewide. [[19]](#footnote-20)19

**[\*203]** The ***Colorado*** General Assembly declared that "it is urgent to implement alternatives … to traditional transfers resulting in permanent agricultural dry-up." [[20]](#footnote-21)20 The Interbasin Compact Committee ("IBCC") believes "large-scale dry-up of irrigated agriculture has considerable adverse social, economic and environmental consequences." [[21]](#footnote-22)21 The IBCC, however, concluded that "alternatives to permanent agricultural water transfers represent a viable way to meet a portion of the [municipal & industrial] water supply gap." [[22]](#footnote-23)22

Governor Hickenlooper also acknowledged that the current rate of buy-and-dry is "unacceptable" when he ordered the CWCB to commence work on ***Colorado***'s Water Plan. [[23]](#footnote-24)23 One of the CWCB's principal goals for ***Colorado***'s Water Plan is consequently to "establish [] cooperative alternatives to the rapid removal of water from farms and ranches to supply urban growth." [[24]](#footnote-25)24 ***Colorado***'s Water Plan, in fact, set a goal of using alternative methods to share 50,000 acre-feet of water by 2030. [[25]](#footnote-26)25 This goal is not realistic unless ***Colorado*** authorizes an alternative statutory mechanism to allow and facilitate agricultural water sharing.

Variations in precipitation such as the wild swing from drought to floods in 2013 will further complicate the process of meeting water demands as these variations become the norm. [[26]](#footnote-27)26 Furthermore, large tracts of agricultural land around cities will be developed and water transfers from agricultural to municipal uses will increase. [[27]](#footnote-28)27 Although the willingness to pay for social and environmental mitigation of new water development might increase, constrained water supplies will make it difficult to meet increased demand. [[28]](#footnote-29)28

As more water is transferred out of irrigation and into cities, economic effects will extend well beyond the original water owner. First, lower production will directly decrease revenue from the sale of crops. [[29]](#footnote-30)29 Second, this falling production will lead to decreased demand for local **[\*204]** agricultural services, such as seed and fertilizer, reducing revenue for support industries. [[30]](#footnote-31)30 Third, less labor will be required to produce crops, reducing wage revenue and thus reducing spending throughout rural economies. [[31]](#footnote-32)31 Fourth, as land is converted from irrigation to dry land, its appraised value will decrease and erode local governments' tax base. [[32]](#footnote-33)32 This negative effect on local governments will be exacerbated if their costs increase to provide aid to unemployed farm workers and their families. [[33]](#footnote-34)33 In some areas, workers can find alternative employment, but in agricultural regions like the Arkansas ***River*** Basin, there are limited employment opportunities in the local economy. [[34]](#footnote-35)34

Permanent agricultural to urban water transfers also adversely affect the environment. Weeds may take over fields where crops were once grown and encroach on neighboring fields that are still producing. [[35]](#footnote-36)35 If revegatation of dried-up land is not maintained in perpetuity - a daunting challenge that perhaps no one has satisfied to date - exposed topsoil erodes away, which can also cause air quality deterioration due to blowing dust. [[36]](#footnote-37)36 Furthermore, transferring water to urban uses often reduces stream flows, which negatively impacts wildlife habitat, recreation, and water quality. [[37]](#footnote-38)37

[*III*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8T9R-T372-8T6X-731R-00000-00&context=1516831). ***COLORADO*** WATER DOCTRINES AFFECTING WATER SHARING ARRANGEMENTS

***Colorado***, like virtually all western states, allocates water under the prior appropriation doctrine. [[38]](#footnote-39)38 Under this doctrine, the first person (senior) to divert and put water to beneficial use [[39]](#footnote-40)39 has a superior right to **[\*205]** water compared to all later (junior) appropriators. [[40]](#footnote-41)40 This means that a senior appropriator may divert all of their water before any junior appropriator may divert any water, placing the burden of droughts and shortages on junior appropriators. [[41]](#footnote-42)41 This is particularly troublesome for municipalities, whose water rights are overwhelmingly junior to agricultural water rights.

A. Acquiring a Water Right: Adjudication

A person acquires a water right by diverting and putting the water to beneficial use, but he or she must adjudicate that right in water court for it to be administered in the priority system. [[42]](#footnote-43)42 A decreed water right includes a point of diversion, a rate of diversion, and type(s) of use. It may also specify the place of use and volumetric limits on diversion and use. [[43]](#footnote-44)43

***Colorado*** is the only western state to use the court system rather than an administrative agency to make water rights determinations. [[44]](#footnote-45)44 While water courts provide a great deal of protection to other water owners, the system is also costly, complicated, and time-consuming with unpredictable results. [[45]](#footnote-46)45

In order to obtain a new water right decree or change a decreed water right, the prospective water owner must file an application with the water court in the appropriate division. [[46]](#footnote-47)46 Each month, the water clerk in each of ***Colorado***'s seven major water basins must publish a resume listing all applications filed in their office. [[47]](#footnote-48)47 Any person may file a **[\*206]** statement of opposition within two months of the application. [[48]](#footnote-49)48 Thereafter, if no statements of opposition are filed, the water referee consults with the appropriate division engineer or state engineer and makes a ruling approving the application, disapproving the application, or re-referring the application to the water judge. [[49]](#footnote-50)49 If the referee approves the application, the water judge must sign the ruling to finalize the decree. [[50]](#footnote-51)50 If anyone opposes the application, the case may be resolved by stipulation or go to trial in water court before the water judge, and the applicant must wait for the case to be completed before receiving a final decree. [[51]](#footnote-52)51 This process can take as long as three to five years for a relatively simple case, and complex cases have been known to take five to ten years to resolve. Decades-long cases are not unheard of, depending on the complexity and level of opposition to an application. As a result, busy water courts cannot efficiently handle changing needs motivated, for instance, by droughts. [[52]](#footnote-53)52

Because the ***Colorado*** Constitution states that water belongs to the public subject to appropriation, "Property rights in water are usufructuary; ownership of the resource itself remains in the public." [[53]](#footnote-54)53 A water rights owner seeking to change a water right must accordingly prove to the court that her proposed change-of-use of the public's resource will not injure other water owners. [[54]](#footnote-55)54 In ***Colorado***, a "change of water right" is defined broadly as "a change in the type, place, or time of use," and also includes changing a point of diversion. [[55]](#footnote-56)55 Furthermore, a change of water right is limited to its historical consumptive use. [[56]](#footnote-57)56

In a change-of-use proceeding, the parties must:

(1) identify the original appropriation's historic beneficial use; (2) fix the historic beneficial consumptive use attributable to the appropriation by employing a suitable parcel-by-parcel or ditch-wide methodology; (3) determine the amount of beneficial consumptive use attributable to the applicant's ownership interest; and (4) affix **[\*207]** protective conditions for preventing injury to other water rights in operation of the judgment and decree. [[57]](#footnote-58)57

As described in more detail below, the strict requirements for changing a water right do not facilitate temporary water sharing arrangements and instead incentivize water users to purchase water rights and obtain permanent changes of use.

B. Changing a Water Right: Legal Barriers

***Colorado*** water law is intended to "promote[] multiple use of a finite resource for beneficial purposes… . [through] priority administration." [[58]](#footnote-59)58 While the goals of prior appropriation "to guarantee security, assure reliability, and cultivate flexibility" [[59]](#footnote-60)59 are highly desirable, the system inherently impedes creative means of sharing water supplies and fosters permanent changes to accommodate drought and population growth. The three major barriers that the law regarding changes of water rights imposes on flexible water sharing arrangements are the prohibition on expansion of use, the no-injury rule, and the anti-speculation doctrine.

1. Expansion of Use is Prohibited and Historical Beneficial Use is Difficult to Quantify.

Changing the use of a water right is based on the historical beneficial use of that water right. [[60]](#footnote-61)60 Historical consumptive use is the actual amount of water beneficially used when measured over a representative time period, and may be less than the original decree. [[61]](#footnote-62)61 When related to irrigation water, this is the amount consumed by a crop. Furthermore, in the context of a change in use, water used for irrigation purposes is limited to the appropriator's original intent, the volume of water used and the acreage irrigated. [[62]](#footnote-63)62 Thus, if a water owner irrigated more acreage than originally decreed, the additional acreage may not be counted for historical consumptive use. [[63]](#footnote-64)63 Specifically, "a water right decreed for irrigation purposes cannot lawfully be enlarged beyond the **[\*208]** amount of water necessary to irrigate the lands for which the appropriation was made." [[64]](#footnote-65)64

In two cases, the ***Colorado*** Supreme Court strictly prohibited any expansion of use of a water right, a rule that the legislature subsequently softened. In Cent. ***Colo.*** Water Conservancy Dist. v. City of Greeley (so-called "Jones Ditch"), the Central ***Colorado*** Water Conservancy District ("Central") filed a change-of-use application for shares it owned in the Jones Ditch and claimed that the lawful historical use of those shares should include additional acreage irrigated by the appropriator after the 1882 decree. [[65]](#footnote-66)65 The ***Colorado*** Supreme Court held that "any use beyond that appropriation, for however long a period, is not "historic use" for purposes of establishing the lawful historic use of the Jones Ditch Water Right, and constitutes an unlawful enlargement." [[66]](#footnote-67)66 As a result, the court dramatically reduced Jones Ditch's lawful consumptive use from 1,100 acre-feet per year to 536 acre-feet per year. [[67]](#footnote-68)67 Although Central's change-of-use application was approved, it was for significantly less water than requested.

In Burlington Ditch Reservoir & Land ***Co***. v. Metro Wastewater Reclamation Dist., the applicant sought to change the use of an 1885 water right that had been used to irrigate land below Barr Lake for a century. [[68]](#footnote-69)68 However, the court found that the historical consumptive use only involved irrigating lands above Barr Lake per the original decree, and reduced the water right from 350 to 200 cubic feet per second. [[69]](#footnote-70)69 The court also held that water from the relevant irrigation system could only be applied to land above the lake and that other diversions constructed after 1885 were undecreed points of diversion and unlawful enlargements of use. [[70]](#footnote-71)70

In response to these two decisions, which severely limited changes of historical consumptive use even for century old irrigation practices, the ***Colorado*** legislature enacted a statute acknowledging that historical use practices should be recognized in change cases. [[71]](#footnote-72)71 Accordingly, now when determining historical consumptive use: "if a decree entered before January 1, 1937, establishes an irrigation water right and does not expressly limit the number of acres that the appropriator may irrigate **[\*209]** under the water right, the lawful maximum amount of irrigated acreage equals the maximum amount of acreage irrigated in compliance with all express provisions of the decree during the first fifty years after entry of the original decree." [[72]](#footnote-73)72 While this legislative change protects some senior water rights holders who fear exposing their historical water use to judicial scrutiny, it does not protect situations where an old water rights decree explicitly limited the acreage to be irrigated but the irrigation use was subsequently expanded, even if that expansion occurred over a 100 or more years ago. Thus, irrigators are wary of water court proceedings that may expose their water rights to scrutiny by other water rights owners or the court because few know the appropriator's original intent for the specific use of the water, or understand the extent of historical irrigation practices.

2. Proving No-injury can be Costly and Time-consuming.

In addition to demonstrating historical consumptive use, applicants for a change of water right must prove that their proposed change will not injure other users. ***Colorado*** law specifically provides that when applying for a change in water right, an applicant must establish the "absence of any injurious effect." [[73]](#footnote-74)73 Injury, and conditions levied to prevent it, encompasses more than just a quantity of water. "A classic form of injury involves diminution of the available water supply that a water rights holder would otherwise enjoy at the time and place and in the amount of demand for beneficial use under the holder's decreed water right operating in priority." [[74]](#footnote-75)74 Because injury includes time, place, and amount, water courts impose protective conditions such as foregoing irrigation of historically irrigated land, monitoring and maintaining return flows, and accounting for diversions and deliveries. [[75]](#footnote-76)75

In preventing injury to other water rights, applicants must refrain from altering return flows when changing a water right. [[76]](#footnote-77)76 In fact, "it has been fundamental law in this state that junior appropriators have rights in return flow to the extent that they may not be injured by a change in the place of use of the irrigation water which provides that return flow." [[77]](#footnote-78)77 Therefore, water owners must maintain these historical flows after a change-of-use to prevent injury to other owners.

**[\*210]** Calculating the historical consumptive use and return flows can be complicated and requires significant engineering work be performed that considers the amount of water diverted and the number of acres historically irrigated over an extended study period, cropping patterns, and groundwater flow patterns to determine return flows back to the stream, among other things. [[78]](#footnote-79)78

The applicant bears the burden of proving no-injury, before the burden shifts to the objectors to prove that existing water rights will in fact be injured. [[79]](#footnote-80)79 This framework requires the applicant to prove a negative - that their water use will not cause injury - which is exceedingly difficult. [[80]](#footnote-81)80 Furthermore, in some over-appropriated basins such as the Arkansas ***River***, the ***Colorado*** Supreme Court has held that there is a presumption of injury that the applicant must overcome. [[81]](#footnote-82)81 For these reasons, applicants often agree to onerous terms and conditions that may significantly reduce the amount of their water right available for the requested changed uses in order to avoid costly, protracted, and uncertain litigation. [[82]](#footnote-83)82 In turn, this discourages obtaining a change in use of a temporary water sharing arrangement where the costs may not justify the temporary use and the concessions needed to avoid protracted litigation over no-injury are too burdensome.

3. The Anti-Speculation Doctrine Prohibits Transferring Water to Unidentified Users or For Unspecified Uses.

***Colorado*** law prohibits appropriations of water that are based on a speculative sale or transfer of water to a third party. [[83]](#footnote-84)83 In the seminal case of ***Colo.*** ***River*** Water Conservation Dist. v. Vidler Tunnel Water ***Co***., the ***Colorado*** Supreme Court held that there was insufficient evidence to grant a conditional water right for future water use by municipalities and stated:

Our constitution guarantees a right to appropriate, not a right to speculate. The right to appropriate is for use, not merely for profit. As we read our constitution and statutes, they give no one the right to **[\*211]** preempt the development potential of water for the anticipated future use of others not in privity of contract, or in any agency relationship, with the developer regarding that use. [[84]](#footnote-85)84

This holding was subsequently codified in the ***Colorado*** Revised Statutes. [[85]](#footnote-86)85 In 2005, the ***Colorado*** Supreme Court ruled in High Plains A & M, LLC v. Southeastern ***Co***. Water Conservancy Dist. ("High Plains") that the anti-speculation doctrine and associated statutory requirements apply to applications seeking to change the use of a water right. [[86]](#footnote-87)86 Applicants for a change in use must demonstrate a vested interest in the land that benefits from the changed water rights and a plan to use the water for specific, actual, beneficial purposes. [[87]](#footnote-88)87 In High Plains, the court held that the change-of-use would violate the anti-speculation doctrine, because the applicant only identified a broad list of uses and a broad list of potential municipal water consumers, but had no contracts or firm plans. [[88]](#footnote-89)88 The court itself noted that "change proceedings can be extremely expensive to participants and consume many days of trial and appeal time." [[89]](#footnote-90)89 Furthermore, the court dismissed High Plains' argument that it could not enter into contracts with end users until it obtained court approval, reasoning that opposers must be given sufficient notice to comment on the application. [[90]](#footnote-91)90

Because water owners generally cannot change their water rights to other uses or places of use until a contract is in place, and even then both the end user and place of use will be limited to that contract, they cannot proactively seek to add additional uses to a water right to facilitate future temporary sharing of that water right. This doctrine accordingly discourages sharing where an irrigator may be willing to temporarily share her water with another user for a different type of use at a different place of use.

Historical consumptive use, the no-injury rule, and the anti-speculation doctrine are potential show-stoppers for anyone seeking to participate in agricultural water sharing. Furthermore, water court change-of-use cases are time-consuming because there are usually objectors, complex cases can last years, and appeals are frequent. [[91]](#footnote-92)91 Legal **[\*212]** and engineering costs in a change-of-use case can exceed the value of the water right, as water rights of any amount must go through the same procedure. [[92]](#footnote-93)92

[*IV*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8T9R-T3H2-D6RV-H37G-00000-00&context=1516831). ALTERNATIVES TO THE WATER COURT PROCESS

As discussed in Section II, current buy-and-dry methods are leading ***Colorado*** down a path of losing large amounts of productive irrigated agricultural land. In response, various stakeholders have attempted to create temporary transfer mechanisms and processes to facilitate temporary arrangements that allow for agricultural water sharing through temporary land fallowing and municipal leasing, often referred to as leasing-fallowing. [[93]](#footnote-94)93 These temporary transfer mechanisms are intended to offer opportunities for water rights owners to transfer water on either a long-term or short-term basis through leasing-fallowing. [[94]](#footnote-95)94 Importantly, temporary transfer mechanisms do not preclude a water rights owner from later selling their water rights, but rather present choices that protect private property rights while providing potential benefits to the environment, recreation, industry and overall sustainability. [[95]](#footnote-96)95

Temporary transfer mechanisms can provide benefits to water rights owners who are seeking to enhance financial stability while remaining in agriculture. First, temporary transfer mechanisms can be flexible, so water can be more easily directed to where it is most needed during times of shortage or unusual demand, such as post-drought storage replenishment. [[96]](#footnote-97)96 Second, these mechanisms can be simpler and cheaper because they rely on an administrative or streamlined process rather than traditional water court. [[97]](#footnote-98)97 Third, these mechanisms may be more transparent. [[98]](#footnote-99)98 Fourth, temporary transfer mechanisms provide income to farmers that may be reinvested to upgrade irrigation equipment or used **[\*213]** to pay debts to support continued agricultural operations. [[99]](#footnote-100)99 Fifth, these mechanisms offer options that are faster, cheaper, and less risky than adjudicating a change-of-use in water court. [[100]](#footnote-101)100 Finally, grouping together multiple water rights on different parcels of land allows more people to participate without giving up altogether on growing crops.

Temporary transfer mechanisms that are currently available for agricultural water sharing face numerous barriers in ***Colorado***, which frequently mirror water court obstacles: the no-injury rule, historical use, and anti-speculation. First, potential applicants are often deterred by high transaction costs related to the expensive and lengthy water court process. [[101]](#footnote-102)101 Second, alternative tools require different administrative procedures than traditional buy-and-dry, and there is uncertainty whether the State and Division Engineers or other administrators are preventing a water owner from expanding their water right or injuring other water owners. [[102]](#footnote-103)102 Relatedly, the no-injury rule classifies any impact, no matter how small or distant, as injurious. [[103]](#footnote-104)103 Thus, applicants for changes in water rights must "guarantee that essentially every drop of water is present at the same time, location and amount as before the change." [[104]](#footnote-105)104 Accordingly, applicants often take the cheaper, easier route of simply giving up part of their water rights rather than attempt to prove no-injury. [[105]](#footnote-106)105 Third, municipal planners need permanent and firm water supplies, and temporary transfer mechanisms are often perceived as insufficient for municipal water supply strategies. [[106]](#footnote-107)106 Fourth, there may be **[\*214]** insufficient infrastructure to deliver transferred water from a downstream provider to a municipality. [[107]](#footnote-108)107 Finally, municipalities often have more bargaining power and legal and technical resources than agricultural water owners, which deters irrigators from entering into agricultural sharing negotiations. [[108]](#footnote-109)108

A. Current Temporary Transfer Mechanisms in ***Colorado***

Currently, several temporary transfer mechanisms that are intended to facilitate agricultural water sharing through leasing-fallowing are statutorily authorized under ***Colorado*** law. Each of these will be discussed in turn, along with practical applications and their usefulness. Although temporary transfer mechanisms are available in ***Colorado***, current options are often as, or more, expensive than traditional water rights transfers and can also be more legally burdensome and time-consuming. [[109]](#footnote-110)109 The CWCB (and others) believe it is important to develop a variety of options, as different owners and users have varying needs and preferences. [[110]](#footnote-111)110 Accordingly, Section IV also explores why many believe existing alternatives are insufficient to significantly reduce future buy-and-dry.

1. Substitute Water Supply Plans Allow Temporary Transfers under Limited Circumstances.

The State Engineer may approve Substitute Water Supply Plans ("SWSPs") allowing junior water rights owners to use water while their applications are pending in water court, as long as they provide the **[\*215]** stream with a substitute water supply. [[111]](#footnote-112)111 SWSPs were first used as an interim approval method for augmentation plans, which replaced out-of-priority diversions with existing senior direct flow or storage rights of the same amount, quality, location, and time. [[112]](#footnote-113)112 Initially, the State Engineer approved SWSPs without requiring water rights owners to apply for a formal augmentation plan in water court. [[113]](#footnote-114)113 Subsequently, the ***Colorado*** General Assembly formalized the State Engineer's authority to approve SWSPs, subject to certain limitations. [[114]](#footnote-115)114

Under current ***Colorado*** law, the State Engineer may approve SWSPs in four circumstances: (1) during water court proceedings; (2) without a water court proceeding if the plan is for a limited (five-year) duration; (3) during emergency situations; and (4) to renew an SWSP approved prior to January 1, 2002. [[115]](#footnote-116)115 Moreover, applicants must meet specific statutory conditions in each circumstance, and in all cases, the SWSP must not cause injury to other water owners. [[116]](#footnote-117)116 SWSPs provide only an annual approval for an interim use and must be renewed by application each year.

The City of Aurora successfully leased water from the Lower Arkansas ***River*** using a substitute water supply plan in 2004 and 2005. [[117]](#footnote-118)117 Under the terms of the lease, the High Line Canal Company temporarily transferred 840 shares of irrigation water to Aurora and shareholders agreed to temporarily fallow a commensurate amount of acreage. [[118]](#footnote-119)118 Importantly, this lease was approved immediately following the severe 2002 drought, which left Aurora with only thirty-five percent of average raw water yields and vastly depleted reservoirs." [[119]](#footnote-120)119 The State Engineer approved this short-term plan with relatively standard terms and conditions after considering eight comment letters. [[120]](#footnote-121)120 It is doubtful that the terms of this SWSP, however, would pass muster in today's environment where concerns regarding expansion of use, injury and the precise maintenance of return flows in time, place, and amount have **[\*216]** been taken to the extreme. For example, as discussed in detail in Section V, the Lower Arkansas Valley Super Ditch Company, Inc. (the "Super Ditch") unsuccessfully attempted to implement an SWSP in compliance with unworkable terms and conditions as well as unprecedented opposition.

While SWSPs have been used for decades to authorize temporary new water uses, they are not a long-term solution to the buy-and-dry problem facing ***Colorado***. This is because SWSPs are primarily interim water supply tools that must be renewed annually while a change-of-use or other application moves through water court, or to address an emergency situation (such as what Aurora faced after 2002) or for uses that will not exceed five years. [[121]](#footnote-122)121 Therefore, SWSPs will not help in facilitating long-term water sharing arrangements, nor solve long-term issues with the water supply gap.

2. Interruptible Water Supply Agreements Allow the Temporary Transfer of Water under Limited Circumstances.

In 2003, the ***Colorado*** legislature granted the State Engineer authority to approve the use of Interruptible Water Supply Agreements ("IWSAs"). [[122]](#footnote-123)122 An IWSA is essentially 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. [[123]](#footnote-124)123 Additionally, the amount of water available to loan is the historical consumptive use. [[124]](#footnote-125)124 The State Engineer may approve IWSAs for up to ten years, but the option may only be exercised in three of those ten years. [[125]](#footnote-126)125 Two ten-year renewals are allowed, although the user may not rely on multiple IWSAs. [[126]](#footnote-127)126 Similar to SWSPs, these agreements cannot cause injury to other existing water owners. [[127]](#footnote-128)127

Since the enactment of the IWSA statute in 2003, no agreements have actually been put into operation. A group of potential participants submitted two ISWA applications to the State Engineer in 2012 that were approved, but the applicants ultimately cancelled their plans in 2013. [[128]](#footnote-129)128 Despite providing a more streamlined administrative approval process than traditionally changing or transferring a water right in water court, some believe IWSAs are not the solution to buy-and-dry due to a number **[\*217]** of problems. Primarily, the amount of water loaned out must be based on an individualized, water court style analysis of historical consumptive use, which is a complex and expensive analysis that requires expert engineers. [[129]](#footnote-130)129 Second, because IWSAs can only be utilized in three out of ten years, their usefulness is limited and cannot provide a reliable supply for drinking water and household uses. [[130]](#footnote-131)130 Similarly, cities may be reluctant to construct permanent infrastructure to transport agricultural water for a supply that can only be transported for three out of ten years. [[131]](#footnote-132)131 Finally, although IWSAs avoid the traditional water court process, State Engineer approval, which uses the same standards as water court, may still be time-consuming and is also subject to appeal in water court, with no deference to the State Engineer's decision. [[132]](#footnote-133)132

3. Rotational Crop Management Contracts Authorize Farmers to Fallow Land and Temporarily Transfer Water.

Rotational Crop Management Contracts ("RCMCs") are another statutorily specified mechanism that water owners may implement to change the use of water. The ***Colorado*** General Assembly passed a bill authorizing these contracts, which the governor signed in 2006. [[133]](#footnote-134)133 Under an RCMC, owners of irrigation water rights may transfer the water to another use and rotate the lands that they fallow. [[134]](#footnote-135)134 This method avoids the permanent dry-up of agricultural lands by allowing the water owner to only fallow certain parcels at a time. Like the previous water transfer methods, RCMCs must not cause injury to other existing water owners. [[135]](#footnote-136)135 RCMCs must, however, go through a water court proceeding, although an applicant may apply for an SWSP while the application is pending. [[136]](#footnote-137)136 According to the ***Colorado*** Division of Water Resources, RCMCs have never been used. This is likely because they require water court approval, so they do not provide a real alternative to the water court process. [[137]](#footnote-138)137 Furthermore, some may question whether RCMCs truly are **[\*218]** an alternative to buy-and-dry, since there is nothing that would prevent a municipality from converting an approved RCMC into a permanent transfer and buy-and-dry. [[138]](#footnote-139)138

4. Water Banks Allow Temporary WaterTransfers but have Failed in ***Colorado***.

***Colorado*** law has allowed the formation of water banks in each division since 2003. [[139]](#footnote-140)139 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. [[140]](#footnote-141)140 Subsequently, the Arkansas ***River*** Water Bank Pilot Program ("Water Bank") was created with the intention of simplifying and reducing the costs of loaning and exchanging water. [[141]](#footnote-142)141 This program only applied to owners of stored water within the Arkansas ***River*** Basin and was set to expire June 30, 2007. [[142]](#footnote-143)142 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. [[143]](#footnote-144)143 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. [[144]](#footnote-145)144 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. [[145]](#footnote-146)145 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. [[146]](#footnote-147)146 Originally, if no acceptable bids were received, the depositor was allowed to consider lower bids or offers **[\*219]** from out-of-basin users. [[147]](#footnote-148)147 However, due to concerns about trans-basin diversions, the statute was amended to disallow exporting water in 2003. [[148]](#footnote-149)148 Any interested parties could sign up for the Water Bank Notification List and would receive notice of pending lease or option agreements. [[149]](#footnote-150)149 Additionally, these parties could send comments, including claims of injury related to the pending agreements, to the State and Division Engineers for thirty days. [[150]](#footnote-151)150 The Engineers would consider these comments in determining appropriate terms and conditions before approving a lease or option agreement. [[151]](#footnote-152)151

Despite high hopes for the program, the Water Bank generated little activity, with only two depositors and zero transactions between 2002 and 2005. [[152]](#footnote-153)152 Furthermore, the Southeastern ***Colorado*** Water Conservancy District ceased operating the Water Bank in 2005. [[153]](#footnote-154)153 The State Engineer identified ten main reasons for the Water Bank's failure in his report to the General Assembly:

1. Eligible water was limited to decreed storage rights, which eliminated most water owners in the basin who held direct flow rights. [[154]](#footnote-155)154

2. Cities were essentially unable to lease water through the Water Bank because trans-basin diversions were prohibited, and the five-year pilot project was too short to allow for long-term municipal planning. [[155]](#footnote-156)155

3. SWSP legislation was passed that allowed temporary changes of water rights and included direct flow rights. [[156]](#footnote-157)156

4. Continued resistance of water bank operation by water owners concerned about expansion of use of banked water [[157]](#footnote-158)157

5. The water bank required a traditional historical consumptive use analysis, which can be expensive and time-consuming, and may have deterred some water rights owners from using the Water Bank. [[158]](#footnote-159)158

**[\*220]**

6. Some water owners took advantage of advertising their water right through the Water Bank's website, but then withdrew and dealt directly with potential buyers to avoid administrative fees. [[159]](#footnote-160)159

7. Some water districts and ditch companies expressed concerns about operating external to their boundaries, as their bylaws might restrict leasing shares outside the system. [[160]](#footnote-161)160

8. Water in the Arkansas ***River*** Basin is subject to the Arkansas ***River*** Compact, and there was anxiety that Water Bank agreements might violate the Compact. However, this fear was somewhat unfounded as the State Engineer had to review agreements prior to approval. [[161]](#footnote-162)161

9. Potential users lacked appropriate economic incentives as depositors could set the asking price at any level, and some viewed the prices as unreasonable. [[162]](#footnote-163)162

10. The farming community in the Arkansas ***River*** Basin may have been skeptical about new forms of water transfers, especially given the current process of permanently drying up agricultural land. [[163]](#footnote-164)163

Most water owners in the Arkansas ***River*** Basin have shares in the water rights of a collective mutual ditch or other similar organization. Thus, it has also been suggested that because water bank transactions required individual deposits of water rights, they may have been concerned about reputational harm in the community caused by advertising their willingness to lease their water right out of the mutual ditch. [[164]](#footnote-165)164

All of these reasons, many of which embody the same concerns associated with the water court process, contributed to the failure of the currently authorized water banking program as a functional temporary transfer mechanism.

**[\*221]**

5. House Bill 13-1248 Authorized Leasing-Fallowing Pilot Projects.

The ***Colorado*** legislature encouraged leasing-fallowing agreements by authorizing a pilot program in 2013 through House Bill 13-1248 for agreements between irrigators and municipalities, in which irrigators forego irrigating parcels of land and lease the water temporarily to cities. [[165]](#footnote-166)165 This program was extended in 2015 to include environmental, industrial, and recreational uses, not just municipal uses, and is authorized through the end of 2018. [[166]](#footnote-167)166 Through the Agricultural to Municipal Leasing-Fallowing Pilot Program, the CWCB may approve up to ten pilot projects lasting ten years, with no more than three in any major ***river*** basin. [[167]](#footnote-168)167 The purpose of House Bill 13-1248 is to develop and implement leasing-fallowing, hoping to stem permanent agricultural dry up. [[168]](#footnote-169)168 Furthermore, the pilot program is designed to demonstrate 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. [[169]](#footnote-170)169

The pilot program is operated pursuant to criteria and guidelines developed by the CWCB. [[170]](#footnote-171)170 The criteria and guidelines set forth the process and requirements for leasing-fallowing pilot project selection, application, and approval. [[171]](#footnote-172)171 In selecting pilot projects, the CWCB must give preference to projects that would use existing infrastructure. [[172]](#footnote-173)172 Project proposals must also contain sufficient information for the CWCB to evaluate the specific water rights involved, the land ownership and parcels to be fallowed, the water source used to meet return flow obligations, the process for delivering replacement and transferred water, and all necessary infrastructure. [[173]](#footnote-174)173 The full proposal must provide **[\*222]** evidence demonstrating the historical irrigation and include a historical consumptive use analysis. [[174]](#footnote-175)174 HB 13-1248 and the criteria and guidelines, however, require that applicants use the Lease Fallow Tool ("LFT") to evaluate historical consumptive use and return flows for leasing-fallowing projects. [[175]](#footnote-176)175 The LFT is a spreadsheet-based model developed from the Irrigation Systems Analysis Model ("ISAM") by the ***Colorado*** Division of Water Resources in collaboration with private consulting water engineers representing a broad range of water rights owners [[176]](#footnote-177)176 through an open public process. The LFT is a transparent, simple, and streamlined approach for calculating historical consumptive use and return flow obligations. [[177]](#footnote-178)177 Moreover, the LFT adopted conservative assumptions for factors such as irrigation efficiency that underestimate historical consumptive use and correspondingly overestimate historical return flows, which virtually eliminates the risk that leasing-fallowing projects will injure other water users or violate ***Colorado***'s intestate obligations. [[178]](#footnote-179)178

After submittal of an application incorporating this information, interested or affected parties may submit comments to the proposal. [[179]](#footnote-180)179 Additionally, projects must meet local land-use regulations, prevent erosion, and comply with noxious weed requirements, which help mitigate the potential negative effects of fallowing land. [[180]](#footnote-181)180 House Bill 13-1248 has been used successfully, as discussed in detail in Section V.

**[\*223]**

6. Other ***Colorado*** Initiatives to Address the Buy-and-Dry Problem are Unproven.

Many stakeholders recognize the current buy-and-dry problem and legal impediments to addressing it. Accordingly, some are developing geographically-specific initiatives to try and share agricultural water within the existing legal and institutional framework. These initiatives are in their infancy and have not yet demonstrated whether they will effectively facilitate water sharing using existing legal mechanisms. A few of these efforts are described below.

i. ***Colorado*** ***River*** Water Bank: Water Leasing to Avoid a Compact Curtailment

The ***Colorado*** ***River*** Water Bank is an initiative currently under development that would allow farmers on ***Colorado***'s Western Slope to lease water to meet compact obligations, thus avoiding a compact curtailment that would threaten existing transmountain water rights relied on by Front Range municipalities. [[181]](#footnote-182)181 This market-based approach could work well for ***Colorado*** ***River*** water, because, according to the ***Colorado*** ***River*** Compact, ***Colorado*** shares an obligation to Lower Basin (downstream) states that would deplete the ***Colorado*** ***River*** of more than 75 million acre-feet over any ten year period. [[182]](#footnote-183)182 Moreover, Western Slope water rights holders have more senior ***Colorado*** ***River*** water rights than Front Range water owners, so a compact call would have a more significant effect on the Front Range. [[183]](#footnote-184)183 Additionally, irrigation water on the Western Slope is worth around $ 28 to $ 100 per acre-foot, while Front Range municipalities pay upwards of $ 9,000 to $ 15,000 per acre-foot, or more. [[184]](#footnote-185)184 Therefore, a market for ***Colorado*** ***River*** water looks like a viable option in this state. This water bank would not require physical transfers of water, but rather Front Range cities could pay Western Slope irrigators to conserve water so the cities could continue to divert their junior trans-mountain water rights to supply their customers. [[185]](#footnote-186)185

ii. The Poudre Runs Through It: Regional Agricultural Water Sharing

In Northern ***Colorado***, a local organization called The Poudre Runs Through It Study / Action Work Group recently launched a new **[\*224]** initiative to study the feasibility of agricultural to urban water sharing. [[186]](#footnote-187)186 The group is investigating a regional cooperative approach that would allow water rights owners to sell their Poudre ***River*** water into an alternative market that would keep the water in the Poudre Basin for a variety of purposes, including agriculture. [[187]](#footnote-188)187 The current initiative builds upon a study conducted by the Poudre Water Sharing Group that investigated options for reducing buy-and-dry in the Poudre Basin. [[188]](#footnote-189)188 If successful, this initiative could encourage temporary agricultural water sharing in Northern ***Colorado***.

iii. South Platte Agricultural Buffer: Open Space Water Leasing

In 2015, the Open Water Foundation secured a grant from the State of ***Colorado*** to conduct a feasibility analysis of an Agricultural Land / Water Buffer Program in the South Platte ***River*** Basin. [[189]](#footnote-190)189 This program would create an open space buffer between cities while promoting agricultural production through the use of an IWSA. [[190]](#footnote-191)190 The purpose is to create an open space system with an IWSA component that allows cities to lease water for municipal use under specified conditions, such as drought years. [[191]](#footnote-192)191 Additionally, the feasibility study will examine how flexible water rights language can be incorporated into conservation easements. [[192]](#footnote-193)192 Because conservation easements can be perpetual, agreements like these can help alleviate municipalities' concerns about securing permanent water supplies while also allowing land to remain in agricultural production in perpetuity. [[193]](#footnote-194)193

iv. Proposed Flexible Water Decrees would have Allowed Beneficial Transfers to Unidentified Users for Unspecified Uses.

The ***Colorado*** General Assembly recently considered two bills that attempted to introduce more flexibility into water rights through the water court system. [[194]](#footnote-195)194 House Bill 14-1026 would have allowed water **[\*225]** owners to apply for a change in use to any beneficial use, rather than designating a specific use. [[195]](#footnote-196)195 The purpose was to enable water owners to obtain a change-in-use of a water right that could be exercised on a limited basis without identifying the end user or place of use. [[196]](#footnote-197)196 The bill would have allowed the water court to pre-approve a "flex consumptive use" as long as historical consumptive use was quantified, conditions were imposed to prevent injury, and a fixed delivery point for consumptive water and return flows was established. [[197]](#footnote-198)197

A water owner seeking a decree for flex use was required to complete the water court process, and a flex use decree was also subject to reconsideration by the water judge on the question of injury. [[198]](#footnote-199)198 Furthermore, if the water rights owner fallowed the entire property served by the flex use decree for longer than three consecutive years, the flex use would be automatically nullified. [[199]](#footnote-200)199 Ultimately, House Bill 14-1026 died in Committee. [[200]](#footnote-201)200 Opponents of the bill claimed that it allowed illegal speculation because water owners were not required to specify a beneficial use. [[201]](#footnote-202)201 More importantly, critics feared that the bill would actually encourage buy-and-dry by allowing municipalities to buy and change irrigation water rights without designating an end use for the water, which would discourage temporary agricultural water sharing. [[202]](#footnote-203)202

In 2015, a similar bill was introduced with additional provisions intended to address the opponents' speculation concerns. [[203]](#footnote-204)203 First, House Bill 15-1038 limited flex use to fifty percent of the historical consumptive use over a ten year period, and any overage would result in nullification of the flex use decree. [[204]](#footnote-205)204 Second, the bill only allowed for ten flex use decrees in any division at any one time. [[205]](#footnote-206)205 Similar to House Bill 14-1026, this bill also required a fixed diversion point and prohibited any diversions out of the water division where the water was historically **[\*226]** used. [[206]](#footnote-207)206 The Senate Committee on Agriculture, Natural Resources & Energy postponed this bill indefinitely on March 5, 2015. [[207]](#footnote-208)207

Critics remained concerned about two main issues. First, they wanted to protect agricultural water owners who intended to remain in full-time agricultural production from being forced to participate in even more water court cases. [[208]](#footnote-209)208 They reasoned that water rights owners would have to review all applications for flex use and potentially consult engineers and lawyers to prevent injury to their own water rights. [[209]](#footnote-210)209 The second primary concern was that despite the changes from the previous proposal, the 2015 bill did not strike the appropriate balance between valid concerns over speculation and providing bona fide irrigators a means to participate in temporary water sharing. [[210]](#footnote-211)210 Although these bills attempted to deal with the anti-speculation barrier, they did not address other impediments to temporary water rights transfers such as no-injury, expansion of use, and the water court process.

B. Examples of Successful Temporary Water Sharing

Although agricultural water sharing currently faces substantial hurdles in ***Colorado***, other states have successfully implemented similar programs. The next section describes four proven programs in California, Idaho, Washington, and Oregon that demonstrate that a water bank can successfully facilitate water sharing. Each of these states have administrative processes for determining water rights; their experience informs administrative approaches that could be more effective in implementing agricultural water sharing in ***Colorado*** than water courts. Three of the four programs are run by state agencies to implement policies of statewide importance, while the fourth is run by a political subdivision of the state pursuant to special state legislation.

1. Palo Verde Irrigation District, California

In California, a large-scale agricultural water sharing program has been thriving since 2005. There, the Palo Verde Irrigation District **[\*227]** ("PVID") entered into a thirty-five year agreement with the Metropolitan Water District ("MWD") of Southern California to supply up to 120,000 acre-feet of water annually to the city while fallowing some irrigated cropland. [[211]](#footnote-212)211 Over the life of the agreement, PVID will supply up to 3.63 million acre-feet of water to cities including Los Angeles and San Diego. [[212]](#footnote-213)212

One potential reason for the success of the PVID agreement is that, unlike ***Colorado***, California uses an administrative system to regulate water rights. [[213]](#footnote-214)213 Furthermore, California law explicitly allows the State Water Resources Control Board to approve temporary water transfers and also longer-term private agreements such as the one between PVID and MWD. [[214]](#footnote-215)214 The Board may approve petitions for long-term transfers as long as they do not cause "substantial injury" to other water owners. [[215]](#footnote-216)215 And this administrative permitting process can be more flexible, especially in times of drought. [[216]](#footnote-217)216

2. Idaho Water Supply Bank

In Idaho, the legislature created a Water Supply Bank that the Idaho Water Resource Board administers for the purposes of encouraging beneficial use of water, providing adequate supplies for new uses, and providing funding for water facilities. [[217]](#footnote-218)217 The Water Resource Board reviews and approves applications to rent banked water, and determines whether the use will be consistent with the Board's rules. [[218]](#footnote-219)218 The Director of the Department of Water Resources must also approve rentals from the bank. [[219]](#footnote-220)219 Furthermore, the Director may reject a rental or impose conditions if he or she finds that the use will injure other owners, enlarge **[\*228]** the original water right, conflict with the local public interest, or adversely affect the local economy. [[220]](#footnote-221)220

According to the 2014 annual report, the Water Supply Bank held 250,000 acre-feet of water and paid out over half a million dollars to water rights owners. [[221]](#footnote-222)221 Currently, the Bank processes more applications to lease water into the bank than to rent water out, but there is a growing trend of applications for combined lease-rental, meaning that the lessors specify a renter for their water. [[222]](#footnote-223)222 Additionally, four local rental pools are operating in Idaho, each with their own operating rules and pricing. [[223]](#footnote-224)223

3. Washington Water Banking

Similarly, Washington passed legislation in 2003 to allow water banking in the extensively irrigated and agriculturally productive Yakima basin, which it subsequently extended to the entire state in 2009. [[224]](#footnote-225)224 Banked water is held in the state Trust Water program and can be used for new purposes including instream flows. [[225]](#footnote-226)225 The Trust Water Program allows water rights owners to hold water rights for future use without relinquishing their priority dates, and in the interim, water can benefit groundwater, instream flows, or other uses. [[226]](#footnote-227)226 Applicants may use the water bank to mitigate the effects of using water for new purposes, hold the water for later beneficial use, help meet future supply needs, and sell or lease water to third parties. [[227]](#footnote-228)227 However, water banking must not injure existing water rights owners or be used for temporary potable water or federal projects. [[228]](#footnote-229)228 In Washington, water banking began as a pilot project in the Yakima ***River*** Basin, which now hosts fourteen different water banks. [[229]](#footnote-230)229 The most active of these banks approved 150 applications **[\*229]** between its inception in 2010 and the 2012 report. [[230]](#footnote-231)230 In the Walla Walla ***River*** Basin, the Walla Walla Water Bank allows water owners to conserve water and benefit instream flows and endangered species while preserving their water rights. [[231]](#footnote-232)231 As of 2012, this bank had ninety-two agreements in place representing 8,418 acre-feet annually. [[232]](#footnote-233)232 Another bank, the Walla Walla Mitigation Exchange, allows new residential water owners to purchase mitigation credits, so they can use well water for purposes such as watering lawns and filling swimming pools. [[233]](#footnote-234)233 Similarly, the Dungeness Water Exchange sells credits to homeowners to mitigate residential water use. [[234]](#footnote-235)234

4. Deschutes Water Alliance Water Bank in Oregon

In Oregon, the Deschutes ***River*** Alliance administers the Deschutes Water Alliance Water Bank for the purpose of assuring an adequate supply of water for agricultural, municipal, and environmental uses. [[235]](#footnote-236)235 Through this water bank, irrigation districts can reallocate conserved water to instream flows, cities, or new lands within the district. [[236]](#footnote-237)236 Additionally, the Deschutes ***River*** Conservancy leases water rights from irrigation districts and landowners for instream flows for one year, five year, or split-season terms. [[237]](#footnote-238)237 The water right retains its original priority date through this program. [[238]](#footnote-239)238

5. ***Colorado***-Big Thompson Project

***Colorado***-Big Thompson ("C-BT") units are often cited as the most efficient water market in the entire United States. [[239]](#footnote-240)239 This water market is operated by the Northern ***Colorado*** Water Conservancy District **[\*230]** ("Northern"). Importantly, C-BT units do not face any of the traditional challenges that the ***Colorado*** Water Court process imposes on most water sharing arrangements because C-BT units are derived from decreed transbasin water. As such, there are no associated return flow obligations. [[240]](#footnote-241)240 The Board of Northern sets the annual yield of C-BT units through a transparent public process. The range of future yield and long-term average yield is apparent from historical records. [[241]](#footnote-242)241 Furthermore, Northern Water provides C-BT Project rental water information to its constituents who want to rent C-BT water or have C-BT water available to rent, serving as an impartial and effective broker. [[242]](#footnote-243)242 The rental of C-BT water has been a success by any measure, and demonstrates that ***Colorado*** should be able to develop a similar temporary transfer mechanism to facilitate the same type of agricultural water sharing.

These temporary transfers provide successful examples for ***Colorado*** as the state addresses increasingly scarce water supplies. ***Colorado***, however, will need to address current legal and institutional impediments to implementing similar programs, such as having only short-term temporary transfer mechanisms, the strict no-injury rule, and the anti-speculation doctrine. In ***Colorado***, the only similar mechanism currently available is an SWSP, which is a much more limited and short-term agreement. Although the PVID agreement served as an inspiration for the Super Ditch leasing-fallowing project (discussed below), the legal landscape in ***Colorado*** has proven a significant barrier, as it has taken a number of years for the Super Ditch to get a small pilot project up and running. The ***Colorado*** legislature will need to change existing water law to authorize viable agricultural water sharing arrangements to meet ***Colorado***'s Water Plan goal of providing 50,000 acre-feet of additional water supply through alternative transfer mechanisms by 2030. [[243]](#footnote-244)243

[*V*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8T9R-T3X2-8T6X-731X-00000-00&context=1516831). CASE STUDY OF TEMPORARY TRANSFER MECHANISM AND AGRICULTURAL WATER **[\*231]** SHARING: THE LOWER ARKANSAS VALLEY SUPER DITCH

Of all of ***Colorado***'s basins, the Statewide Water Supply Initiative predicts that the Arkansas ***River*** Basin (the "Basin") will have one of the largest increases in municipal and industrial water demands by 2050. [[244]](#footnote-245)244 Demand in the Basin is projected to increase from 254,500 acre-feet per year to 432,500 acre-feet per year. [[245]](#footnote-246)245 The majority of this demand will be met with municipalities' existing water supplies, the full development of municipalities' conditional water rights, and the implementation of municipalities' other proposed projects and processes. [[246]](#footnote-247)246

Unfortunately, the Arkansas ***River*** is over-appropriated with no new reliable supplies available for development in the Basin. [[247]](#footnote-248)247 Under the status quo, this water will primarily be provided by transfers from irrigation.

In the Basin, agricultural to urban water transfers have been common. So far, the Basin has lost over 100,000 irrigated acres to buy-and-dry since 1955. [[248]](#footnote-249)248 The City of Pueblo initiated the first transfer in the region in 1955 by purchasing the Clear Creek Reservoir and storage rights from the Otero Ditch Company. [[249]](#footnote-250)249 Other cities including Aurora and ***Colorado*** Springs as well as private investors - who sold the water rights to Aurora, ***Colorado*** Springs and Pueblo - continued the trend. [[250]](#footnote-251)250 In addition to urban population growth, low economic returns to farming and the demise of the local sugar beet industry contributed to the dry-up of agricultural land and conversion of water for municipal use. [[251]](#footnote-252)251 Unfortunately, additional permanent transfers are looming in the future **[\*232]** and could dry-up an additional 73,000 irrigated acres in this basin by 2050. [[252]](#footnote-253)252

A. Agricultural Water Sharing in the Lower Arkansas Valley [[253]](#footnote-254)253

Irrigators in the Lower Arkansas Valley in southeastern ***Colorado*** are currently reaching agricultural water sharing agreements with municipalities to help stem the growing buy-and-dry problem in the region. This Section first describes the area, then discusses relevant agricultural water transfers, and finally explains the communities' solution to this problem.

1. The Lower Arkansas Valley

The Arkansas ***River*** arises above Leadville, ***Colorado*** and ultimately joins 1,450 miles later with the Mississippi ***River*** in Arkansas. [[254]](#footnote-255)254 The Basin is the largest of ***Colorado***'s six major ***river*** basins, covering one-third of the surface area and housing one-fifth of the population. [[255]](#footnote-256)255 However, the Basin's annual average yield is only six percent of ***Colorado***'s water supply, and much of this water must be delivered to Kansas by interstate compact. [[256]](#footnote-257)256 Accordingly, the Basin's population relies on trans-basin diversions from the ***Colorado*** ***River*** Basin to meet water supply needs. Mountain snow provides the vast majority of the ***river***'s water as spring runoff, and the Lower Arkansas Valley (the "Lower Valley") is semiarid between Pueblo, ***Colorado*** and Garden City, Kansas. [[257]](#footnote-258)257 As a consequence, streams on the eastern plains only provide an intermittent supply of water to the ditches along the Arkansas ***River***. [[258]](#footnote-259)258

Irrigation development in the Lower Valley began in the mid-1800s and increased dramatically in the late 1800s with the introduction of **[\*233]** sugar beet production in the area. [[259]](#footnote-260)259 Currently, there are twenty major irrigation ditches between Pueblo and the Kansas state line. [[260]](#footnote-261)260 However, multiple trans-basin diversions have been developed in order to meet growing needs, primarily from the ***Colorado*** ***River*** Basin. [[261]](#footnote-262)261 The major trans-basin diversion is the Fryingpan-Arkansas Project, which delivers on average 69,200 acre-feet per year. [[262]](#footnote-263)262

The Basin encompasses sixteen counties in ***Colorado*** and accounted for seventeen percent of the state's employment in 2000. [[263]](#footnote-264)263 In the Basin, agriculture was less than two percent of employment and agricultural sales value was 1.7 percent of the annual value of sales and services in 2002. [[264]](#footnote-265)264 However, in the Lower Valley (Baca, Bent, Cheyenne, Crowley, Kiowa, Otero, and Prowers Counties), agricultural sales accounted for thirty percent of this total, and the population of this area depends heavily on agricultural activities. [[265]](#footnote-266)265

In the Basin, over 500,000 acres are irrigated with approximately 1.7 million acre-feet of water per year. [[266]](#footnote-267)266 In the Lower Valley, approximately 340,000 acres are irrigated, and thirty percent of the land base is dedicated to agricultural use. [[267]](#footnote-268)267 Generally, downstream farmers grow salt-tolerant crops such as alfalfa, grain sorghum, and barley due to irrigation water salinity, while upstream farmers grow less tolerant crops including corn and onions. [[268]](#footnote-269)268

**[\*234]**

2. Agricultural Water Transfers in the Lower Arkansas Valley

Agricultural-to-urban water transfers began in the Basin as early as 1955, when the City of Pueblo purchased the Clear Creek Reservoir and appurtenant storage rights from the Otero Ditch Company. [[269]](#footnote-270)269 Pueblo further expanded its water supply with purchases in 1971, 1972, and 2009. [[270]](#footnote-271)270 Additionally, the Crowley Land and Development Company, a private investor, acquired fifty-five percent of the Twin Lakes Reservoir and Canal Company by 1972, promising to produce Christmas trees and lettuce. It subsequently sold the shares to the cities of Aurora, ***Colorado*** Springs, and Pueblo for $ 1,075 per share. [[271]](#footnote-272)271 Farmers also sold their interests directly to the cities, and by 1980, the cities owned ninety percent of the Twin Lakes shares. [[272]](#footnote-273)272

Economic conditions, including low farm profits and the demise of the sugar beet industry, also contributed to agricultural dry-up in the Lower Valley. [[273]](#footnote-274)273 For example, the last sugar beet factory in Rocky Ford, ***Colorado*** sold its water rights to Resource Investment Group, Ltd. in the 1980s, which made the private investors the majority shareholder in the Rocky Ford Ditch Company. [[274]](#footnote-275)274 Aurora ultimately acquired all of the ditch company's shares for over $ 2,000 per share and 8,250 acre-feet of water per year, which dried up 4,000 acres of farmland. [[275]](#footnote-276)275 By 2009, over 100,000 acres of irrigated acres in the Lower Valley were permanently dried up due to sales of water for municipal use. [[276]](#footnote-277)276 Furthermore, additional transfers are looming and could contribute to another 73,000 acres taken out of production by 2050. [[277]](#footnote-278)277

3. Super Ditch: Mechanism for Agricultural-urban Water Sharing

Driven by concerns about buy-and-dry, in 2002, sixty-four percent of voters in Bent, Crowley, Otero, Prowers, and Pueblo Counties approved the formation of the Lower Arkansas Valley Water **[\*235]** Conservancy District ("Lower Ark District"). [[278]](#footnote-279)278 The Lower Ark District's purpose is to assure the continued availability of water resources for the long-term economic viability of the Lower Valley. [[279]](#footnote-280)279 Some of the impetus for this initiative was the loss of Crowley County's rural community, businesses, and agriculture due to municipal water purchases. [[280]](#footnote-281)280 The Lower Ark District bought some farmland and acquired conservation easements but could not compete financially with thirsty cities, so the District started looking to agricultural water sharing as an alternative to buy-and-dry. [[281]](#footnote-282)281

Irrigators in the Lower Valley expressed positive reactions to agricultural water sharing following a workshop in 2006, focusing on innovative ideas including the Palo Verde Irrigation District model (discussed in Section IV). [[282]](#footnote-283)282 Subsequently, the Lower Ark District commissioned an engineering firm to study water available for leasing and potential eligible ditches. [[283]](#footnote-284)283 The report identified eight ditches that could participate, found that large amounts of water were available, and it concluded that forty percent of eligible irrigators could participate, assuming 25,000 acre-feet per year of demand and a three out of ten year crop rotation. [[284]](#footnote-285)284 Following a field trip for farmers to talk with farmers enrolled in the PVID leasing program, the Lower Ark District convened a steering committee of farmers in 2007 to develop an agricultural water sharing program for the Lower Valley. [[285]](#footnote-286)285

The Lower Ark District did not intend to manage the water sharing program, but rather helped establish the Lower Arkansas Valley Super Ditch Company (the "Super Ditch") for that purpose. [[286]](#footnote-287)286 In 2008, **[\*236]** shareholders of the Rocky Ford High Line Canal, Oxford Farmers Ditch, Otero Canal, Catlin Canal, Holbrook Canal, and Fort Lyon Canal (later joined by Bessemer Ditch) formed the Super Ditch, a ***Colorado*** for-profit corporation that is managed by a Board of Directors elected by Lower Valley irrigators. [[287]](#footnote-288)287 This corporate form was chosen to help address three main concerns: creating an organization secure from municipal takeover as cities bought ditch shares, maximizing short and long-term value of water, and fallowing some land continuously and other land rotationally. [[288]](#footnote-289)288 Moreover, individual irrigators needed an agency that would allow them to work in concert when negotiating with municipalities. [[289]](#footnote-290)289 The Super Ditch fulfills that need and can negotiate on behalf of irrigators to lease water to other water owners through long term leases, interruptible water supply agreements, and water banking. [[290]](#footnote-291)290 The Super Ditch planned to negotiate long-term lease terms and conditions with municipalities, which individual farmers could choose to accept and enter into agreements as lessors. [[291]](#footnote-292)291 If insufficient water was pledged, the Super Ditch would re-open negotiations to improve terms, while irrigators remained free to use their water or seek other leases. [[292]](#footnote-293)292 The goal of the Super Ditch was to facilitate concerted action by irrigators in the Lower Valley while maintaining individual freedom of choice. [[293]](#footnote-294)293

The Super Ditch immediately started negotiating with potential lessees, a process that proved difficult due to the experimental nature of the program. [[294]](#footnote-295)294 Municipalities were reluctant to agree to a price without knowing which irrigators would provide the water because they wanted to evaluate yield and reliability, while irrigators would not commit to a lease without knowing the price. [[295]](#footnote-296)295 Accordingly, the Super Ditch entered **[\*237]** into two nonbinding "terms sheets" in 2010 in addition to developing pilot programs. [[296]](#footnote-297)296 First, the Super Ditch and Pikes Peak Regional Water Authority signed a terms sheet for 8,020 acre-feet per year at $ 500 per acre-foot for lease terms up to forty years. [[297]](#footnote-298)297 Second, the Super Ditch and Aurora signed a terms sheet for 10,000 acre-feet per year for three years in any ten-year period, up to 133,197 acre-feet through 2048. [[298]](#footnote-299)298

The Super Ditch also tried and failed to secure an SWSP for temporary water leasing in 2012. The Super Ditch applied for a one-ditch, one-year SWSP in an effort to demonstrate proof of concept of a large-scale rotational leasing-fallowing program. [[299]](#footnote-300)299 Although the State Engineer approved the SWSP, it was subject to an unprecedented number of onerous conditions. Even with a panoply of protective terms and conditions, Tri-State Generation and Transmission and others sued, claiming that the SWSP would injure their water rights and that the State Engineer exceeded his authority in approving the application. [[300]](#footnote-301)300 The Super Ditch subsequently withdrew its application and the SWSP because the water ran out during the litigation and the plan consequently could not operate.

B. Catlin Pilot Project: A Successful Agricultural Water Sharing Arrangement

Pursuant to House Bill 13-1248, the Super Ditch and the Lower Arkansas Valley Water Conservancy District submitted an application for a leasing-fallowing pilot project called the Catlin Pilot Project, which the CWCB approved in January 2015. [[301]](#footnote-302)301 The Catlin Pilot Project uses shares of water from the Catlin Canal Company to provide up to 500 acre-feet annually of temporary municipal water to the Town of Fowler Wells and the City of Fountain. [[302]](#footnote-303)302 The thirty-five mile long Catlin Canal diverts water from the Arkansas ***River***, which has historically been used to irrigate between 17,000 and 18,660 acres of farmland. [[303]](#footnote-304)303 The six participating farms represent close to 1,000 acres of historically irrigated **[\*238]** land, and each will fallow no more than thirty percent of its acreage per year under this ten-year project. [[304]](#footnote-305)304 In order to calculate historical consumptive use, the participants used the third version of the LFT (discussed further in Section VI) provided by the Division of Water Resources, which indicated that acres fallowed in 2015 represented 477.5 acre-feet of consumptive use. [[305]](#footnote-306)305 In order to protect existing water rights, the LFT uses conservative assumptions that underestimate historical consumptive use and overestimate return flows. [[306]](#footnote-307)306 Accordingly, the use of the LFT reduced injury disputes and also engineering costs when used for the Catlin Pilot Project. [[307]](#footnote-308)307 Already after its first year in operation, the Catlin Pilot Project has provided 400 acre-feet of water for municipal uses without permanently drying up agricultural land or resulting in an expensive water court case. [[308]](#footnote-309)308

The Catlin Pilot Project demonstrates that temporary agricultural water sharing is possible in ***Colorado***. Moreover, ***Colorado***'s Water Plan directs the legislature to consider such options to limit future buy-and-dry.

[*VI*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8T9R-T4F2-D6RV-H37N-00000-00&context=1516831). RECOMMENDATIONS FOR TEMPORARY TRANSFER MECHANISMS FOR AGRICULTURAL WATER SHARING

Essentially, every existing or proposed temporary transfer mechanism for agricultural water sharing in ***Colorado*** contemplates a leasing-fallowing scenario where an irrigator would fallow irrigated land for some period of time and make the water's historical consumptive use available to another user, for instance, by a municipality. Agricultural water sharing arrangements can help minimize buy-and-dry because each historically irrigated field is generally fallowed for only a few years. The shared water allows municipalities to firm up their long term water supplies and to deal with future conditions, such as drought or post-drought storage replenishment. Essentially, an irrigated field can function as a reservoir that can be tapped (fallowed) when necessary to meet municipal or other demands.

**[\*239]** As discussed above at Section IV, many Western states have healthy, functioning water banks that facilitate water sharing to cope with unmet water demands and limited water supplies. Conversely, water users in ***Colorado*** - with the exception of those users who have C-BT units (discussed above) - still struggle to implement water sharing arrangements due to inflexible water right decrees, current water laws, the water court process, and entrenched water interests who use the law and the water court process to frustrate change. The primary challenge seems to be that proving no injury in a change-of-use case to the water court is prohibitively costly and time-consuming, and very risky for irrigators. [[309]](#footnote-310)309 Furthermore, to comply with the anti-speculation doctrine, applicants must specifically identify every new use and location of a change in water right. [[310]](#footnote-311)310 Scholars, however, have suggested that streamlined administration of agricultural water sharing could help address these hurdles. [[311]](#footnote-312)311 Specifically, suggestions include: handling agricultural sharing transactions administratively rather than in water court, shifting the burden of proving injury onto the opposers if an applicant employs an approved, conservative methodology to calculate historical consumptive use and return flow obligations to limit the risk of injury, and waiving anti-speculation requirements for temporary agricultural water sharing agreements. [[312]](#footnote-313)312 Many of these impediments either do not exist or have been removed to facilitate water sharing in other states (discussed above) and ***Colorado***'s current law would have to change to implement these proposals. The first two of these ideas are particularly timely, because they build on experience with temporary transfer mechanisms and do not challenge established legal doctrines. The discussion below explores their potential to facilitate agricultural water sharing in ***Colorado***.

A. Connecting Supply and Demand

A major challenge to implementing temporary transfer mechanisms is the absence of any market mechanism to connect interested irrigators with potential users. Buy-and-dry historically involved individual transactions between irrigators and municipalities, middlemen **[\*240]** functioning as brokers, often on behalf of municipalities, or municipalities actively seeking out potential sellers, frequently at times of economic stress in the local agricultural community. Irrigators are accordingly wary of negotiating individually with municipalities. In contrast, efficient markets are transparent so that prices reflect the fact that everyone has access to all relevant information. [[313]](#footnote-314)313

***Colorado***'s Water Plan, consistent with the many temporary transfer statutes adopted by the ***Colorado*** legislature, [[314]](#footnote-315)314 calls for widespread agricultural sharing to meet future municipal needs and minimize buy-and-dry. [[315]](#footnote-316)315 The CWCB, as the official body charged with setting the State's water policy [[316]](#footnote-317)316 as well as implementing ***Colorado***'s Water Plan, [[317]](#footnote-318)317 is a logical choice to nurture a temporary transfer mechanism to facilitate agricultural water sharing. The CWCB is charged with implementing other policies of statewide importance, including the instream flow program and recreational in-channel diversions (so-called RICDs). [[318]](#footnote-319)318 Moreover, the CWCB has demonstrated through its implementation of the House Bill 13-1248 Leasing-Fallowing Program that it has the expertise and credibility within the water community to wade more deeply into this essential sharing mechanism for the future of ***Colorado***.

A program established to facilitate temporary transfers and agricultural water sharing should be operated pursuant to formal rules that are promulgated by the CWCB and approved by a water court. While the House Bill 13-128 pilot program is operated under administrative policy, the formal rulemaking process for a permanent program will provide all interested parties an opportunity to actively participate in their development to ensure that agricultural sharing under such program will not result in injury. This will give the entire water community their day in court, as the community had with both the instream flows and RICDs. [[319]](#footnote-320)319 In addition, water rights owners may address their concerns about expansion of use and historical return flows **[\*241]** to prevent injury in one proceeding, rather than having to defend their water rights in multiple proceedings as required by water court change applications.

Irrigators may also be more likely to participate in water sharing if there is an uninterested agent that provides a level playing field with municipalities. This would help alleviate the issue of municipalities unilaterally setting unreasonable prices.

B. Analyzing Historical Consumptive Use, Return Flow, and Interstate Obligations

Another key attribute of a temporary transfer mechanism that will facilitate water sharing is having clearly defined and simplified means to determine historical consumptive use, return flow obligations, and interstate obligations. As discussed in Section IV, one of the main problems is the cost and time involved in calculating historical consumptive use and return flows to avoid injury, as a farm-by-farm analysis is necessary when seeking approval under existing mechanisms.

One notable exception to this is the House Bill 13-1248 pilot program. As discussed above, House Bill 13-1248 requires that applicants use the Lease Fallow Tool ("LFT") to evaluate historical consumptive use and return flows for leasing-fallowing projects. [[320]](#footnote-321)320 By using conservative assumptions for factors such as irrigation efficiency that underestimate historical consumptive use and correspondingly overestimate return flows, use of the LFT increases the amount of water in the ***river*** compared to historical use of a water right. This allays fears of injury and virtually eliminates the risk that leasing-fallowing projects will injure other water users or violate ***Colorado***'s intestate obligations. [[321]](#footnote-322)321 Although historical consumptive use analysis is still necessary for temporary sharing agreements, experience with the Catlin Pilot Project [[322]](#footnote-323)322 proved the LFT to be a comparatively simple, straightforward and transparent method to make these calculations. Furthermore, the CWCB not only allows, but actually requires the use of this tool in leasing-fallowing pilot projects initiated after 2015. [[323]](#footnote-324)323 Conservative, transparent calculations of historical consumptive use and return flow obligations will likely reduce concerns about injury and related conflict among water users by assuring there will be no enlargement of use.

**[\*242]** Development of the LFT by the State Engineer and CWCB with public input from practicing professionals enhanced its credibility. The State Engineer and CWCB not only are seen as objective but most also recognize that their statutory responsibilities ensure a conservative approach. The State Engineer is the logical choice to build on the experience of the LFT for a temporary transfer mechanism to implement agricultural sharing statewide. House Bill 13-1248 appropriately played to the State Engineer's strengths in engineering and administration, placing responsibility for policy implementation with the CWCB - an appropriate model for new temporary transfer mechanisms.

State Engineer approval, as with ubiquitous SWSPs, should alleviate concerns about expansion of use and return flows and violation of interstate obligations. However, to assure interested parties that agricultural sharing will not result in injury, the State Engineer should promulgate the methodology for calculation of historical consumptive use and return flow obligations by rule to give the entire water community their day in court, much as he did with the ISAM. [[324]](#footnote-325)324 Again, it is advantageous to allow water rights owners to address their concerns about expansion of use and historical return flows to prevent injury all at one time, rather than requiring the owners to defend their water rights in multiple proceedings as required by water court change applications.

In 2016, House Bill 16-1392 was introduced, which proposed enactment of these concepts in a new statute to establish a statewide water bank. [[325]](#footnote-326)325 The sponsors withdrew the legislation, however, in the absence of sufficiently widespread support from the State, the West Slope, and the South Platte ***River*** Basin.

[*VII*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8T9R-T4S2-D6RV-H37V-00000-00&context=1516831). CONCLUSION

***Colorado*** is at a crossroads of continuing the status quo of buy-and-dry, or embarking on a path that encourages agricultural water sharing in order to minimize the permanent dry-up of irrigated land. As discussed above, current temporary transfer mechanisms in ***Colorado*** are insufficient to truly meet the challenges to achieve widespread agricultural water sharing and minimize buy-and-dry.

Numerous initiatives demonstrate that it is possible for agricultural producers and municipal water providers to collaborate and share resources. Other states have successfully implemented water sharing **[\*243]** agreements, like the PVID/MWD contract that allows cities to obtain water during dry years without permanently removing agricultural land from production. In ***Colorado***, the Catlin Pilot Project shows that stakeholders are willing to enter into agricultural water sharing arrangements despite institutional and legal challenges.

To encourage agricultural water sharing in ***Colorado***, it is vital to create a friendlier institutional and legal structure that removes some of the barriers to these agreements. Lawmakers should facilitate this solution by allowing agricultural water sharing agreements to be handled administratively, requiring applicants to use conservative tools like the LFT to prevent injury, vesting authority in the State Engineer to approve agricultural water sharing terms and conditions to similarly prevent injury, and authorizing the CWCB to establish and operate a water bank to connect willing irrigators and interested water users.

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3. 3 Id. [↑](#footnote-ref-4)
4. 4 Id. at 5-11. [↑](#footnote-ref-5)
5. 5 Id. at 1-9. [↑](#footnote-ref-6)
6. 6 Bob Dylan, Times They Are A-Changing (Warner Bros. Inc. 1963). [↑](#footnote-ref-7)
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24. 24 ***Colorado***'s Water Plan, supra note 1, at 1-4. [↑](#footnote-ref-25)
25. 25 Id. at 6-111. [↑](#footnote-ref-26)
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35. 35 Teresa A. Rice & Lawrence J. MacDonnell, Agricultural to Urban Water Transfers in ***Colorado***: An Assessment of the Issues and Options, Completion Report No. 177 11 (***Colorado*** Water Resources Research Institute, 1993). [↑](#footnote-ref-36)
36. 36 Id. [↑](#footnote-ref-37)
37. 37 See Mark W. Rosegrant & Claudia Ringler, Impact on Food Security and Rural Development of Transferring Water Out of Agriculture, 1 Water Pol'y 567, 576 (1998). [↑](#footnote-ref-38)
38. 38 ***Colo.*** Const. art XVI, § 6; [*Coffin v. Left Hand Ditch* ***Co****., 6* ***Colo.*** *443 (1882).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RRR-30P0-0040-03G0-00000-00&context=1516831) [↑](#footnote-ref-39)
39. 39 Beneficial use "means the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made. Without limiting the generality of the previous sentence, "beneficial use' includes: (a) The impoundment of water for firefighting or storage for any purpose for which an appropriation is lawfully made, including recreational, fishery, or wildlife purposes; (b) The diversion of water by a county, municipality, city and county, water district, water and sanitation district, water conservation district, or water conservancy district for recreational in-channel diversion purposes; and (c) For the benefit and enjoyment of present and future generations, the appropriation by the state of ***Colorado*** in the manner prescribed by law of such minimum flows between specific points or levels for and on natural streams and lakes as are required to preserve the natural environment to a reasonable degree." [***Colo.*** *Rev. Stat. § 37-92-103(4)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:689F-SY73-CGX8-03R2-00000-00&context=1516831) (2015). [↑](#footnote-ref-40)
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47. 47 [***Colo.*** *Rev. Stat. § 37-92-302(3)(a)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G0-00000-00&context=1516831) (2015). [↑](#footnote-ref-48)
48. 48 [***Colo.*** *Rev. Stat. § 37-92-302(1)(b)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G0-00000-00&context=1516831)-(c) (2015). [↑](#footnote-ref-49)
49. 49 [***Colo.*** *Rev. Stat.§§37-92-303(1)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G1-00000-00&context=1516831)-(2), 37-92-302(4) (2015). [↑](#footnote-ref-50)
50. 50 [***Colo.*** *Rev. Stat. § 37-92-304(5)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G2-00000-00&context=1516831) (2015). [↑](#footnote-ref-51)
51. 51 [***Colo.*** *Rev. Stat. § 37-92-304*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G2-00000-00&context=1516831) (2015). [↑](#footnote-ref-52)
52. 52 Wang, supra note 44, at 552. [↑](#footnote-ref-53)
53. 53 ***Colo.*** Const.art. XVI, § 5; [*Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson, 990 P.2d 46, 54 (****Colo.*** *1999).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3Y27-KN70-0039-40TN-00000-00&context=1516831) [↑](#footnote-ref-54)
54. 54 [***Colo.*** *Rev. Stat. § 37-92-305(3)(a)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G3-00000-00&context=1516831) (2015); [*Santa Fe Trail Ranches Prop. Owners Ass'n, 990 P.2d at 54.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3Y27-KN70-0039-40TN-00000-00&context=1516831) [↑](#footnote-ref-55)
55. 55 [***Colo.*** *Rev. Stat. § 37-92-103(5)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:689F-SY73-CGX8-03R2-00000-00&context=1516831) (2015). [↑](#footnote-ref-56)
56. 56 [*Farmers Reservoir and Irrigation* ***Co****. v. Consol. Mut. Water* ***Co****., 33 P.3d 799, 807 (****Colo.*** *2001).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4477-08N0-0039-43BM-00000-00&context=1516831) [↑](#footnote-ref-57)
57. 57 Id. [↑](#footnote-ref-58)
58. 58 [*Empire Lodge Homeowners' Ass'n v. Moyer, 39 P.3d 1139, 1146-47 (****Colo.*** *2001).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:44PW-3160-0039-4363-00000-00&context=1516831) [↑](#footnote-ref-59)
59. 59 [*Id. at 1147.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:44PW-3160-0039-4363-00000-00&context=1516831) [↑](#footnote-ref-60)
60. 60 [*Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson, 990 P.2d 46, 53 (****Colo.*** *1999).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3Y27-KN70-0039-40TN-00000-00&context=1516831) [↑](#footnote-ref-61)
61. 61 [*In re Water Rights of Central* ***Colo.*** *Water, 147 P.3d 9, 14 (****Colo.*** *2006).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4M94-WGT0-0039-41MT-00000-00&context=1516831) [↑](#footnote-ref-62)
62. 62 Id. [↑](#footnote-ref-63)
63. 63 [*Id. at 16.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4M94-WGT0-0039-41MT-00000-00&context=1516831) [↑](#footnote-ref-64)
64. 64 [*Id. at 14.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4M94-WGT0-0039-41MT-00000-00&context=1516831) [↑](#footnote-ref-65)
65. 65 [*Id. at 12.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4M94-WGT0-0039-41MT-00000-00&context=1516831) [↑](#footnote-ref-66)
66. 66 [*Id. at 14.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4M94-WGT0-0039-41MT-00000-00&context=1516831) [↑](#footnote-ref-67)
67. 67 [*Id. at 12.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4M94-WGT0-0039-41MT-00000-00&context=1516831) [↑](#footnote-ref-68)
68. 68 [*Burlington Ditch Reservoir & Land* ***Co****. v. Metro Wastewater Reclamation Dist., 256 P.3d 645, 655 (****Colo.*** *2011).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:530B-V381-F04C-300J-00000-00&context=1516831) [↑](#footnote-ref-69)
69. 69 Id. [↑](#footnote-ref-70)
70. 70 [*Id. at 654-655.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:530B-V381-F04C-300J-00000-00&context=1516831) [↑](#footnote-ref-71)
71. 71 S.B. 13-074, 69th Gen. Assemb., 1st Reg. Sess. (***Colo.*** 2013). [↑](#footnote-ref-72)
72. 72 [***Colo.*** *Rev. Stat. § 37-92-305(4)(a)(I)(B)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G3-00000-00&context=1516831) (2015). [↑](#footnote-ref-73)
73. 73 [***Colo.*** *Rev. Stat. § 37-92-304(3)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G2-00000-00&context=1516831) (2015). [↑](#footnote-ref-74)
74. 74 [*Farmers Reservoir & Irrigation* ***Co****. v. Consol. Mut. Water* ***Co****., 33 P.3d 799, 807 (****Colo.*** *2001)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4477-08N0-0039-43BM-00000-00&context=1516831) (emphasis added). [↑](#footnote-ref-75)
75. 75 Id. [↑](#footnote-ref-76)
76. 76 See [*City of Thornton v. Bijou Irrigation* ***Co****., 926 P.2d 1, 80 (****Colo.*** *1996).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX3-YVT0-003D-916Y-00000-00&context=1516831) [↑](#footnote-ref-77)
77. 77 Id. [↑](#footnote-ref-78)
78. 78 Trout, Raley, Montano, Witwer & Freeman, P.C., Acquiring, Using, and Protecting Water in ***Colorado*** § 11.2.1 (2011). [↑](#footnote-ref-79)
79. 79 [*City of Thornton, 926 P.2d at 88.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX3-YVT0-003D-916Y-00000-00&context=1516831) [↑](#footnote-ref-80)
80. 80 Britt Banks & Peter Nichols, A Roundtable Discussion on the No-Injury Rule of ***Colorado*** Water Law, 44 ***Colo.*** Law. 87, 90 (2015). [↑](#footnote-ref-81)
81. 81 See, e.g., [*Empire Lodge Homeowners' Ass'n v. Moyer, 39 P.3d 1139, 1158 (****Colo.*** *2001)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:44PW-3160-0039-4363-00000-00&context=1516831) (holding that opposers did not need to prove injury where water rights applicant made out-of-priority diversions in the Arkansas Basin without adjudicating an augmentation plan). [↑](#footnote-ref-82)
82. 82 Banks & Nichols, supra note 80, at 90. [↑](#footnote-ref-83)
83. 83 [***Colo.*** *Rev. Stat. § 37-92-103(3)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:689F-SY73-CGX8-03R2-00000-00&context=1516831) (2015). [↑](#footnote-ref-84)
84. 84 [***Colo.******River*** *Water Conservation Dist. v. Vidler Tunnel Water* ***Co****., 594 P.2d 566, 568 (****Colo.*** *1979).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1F60-003D-928V-00000-00&context=1516831) [↑](#footnote-ref-85)
85. 85 § 37-92-103(3). [↑](#footnote-ref-86)
86. 86 See [*High Plains A & M, LLC v. Se.* ***Co****. Water Conservancy Dist., 120 P.3d 710 (****Colo.*** *2005).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4H5W-07R0-0039-427V-00000-00&context=1516831) [↑](#footnote-ref-87)
87. 87 [*Id. at 720.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4H5W-07R0-0039-427V-00000-00&context=1516831) [↑](#footnote-ref-88)
88. 88 [*Id. at 721.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4H5W-07R0-0039-427V-00000-00&context=1516831) [↑](#footnote-ref-89)
89. 89 [*Id. at 722.*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4H5W-07R0-0039-427V-00000-00&context=1516831) [↑](#footnote-ref-90)
90. 90 Id. [↑](#footnote-ref-91)
91. 91 Nichols & Kenney, supra note 45, at 420. [↑](#footnote-ref-92)
92. 92 Id. [↑](#footnote-ref-93)
93. 93 ***Colorado***'s Water Plan, supra note 1, at 6-97. [↑](#footnote-ref-94)
94. 94 Id. at 6-98. [↑](#footnote-ref-95)
95. 95 Id. at 6-97 to 6-98. [↑](#footnote-ref-96)
96. 96 See Ryan McLane & John Dingess, The Role of Temporary Changes of Water Rights in ***Colorado***, [*17 U. Denv. Water L. Rev. 293, 297 (2014).*](https://advance.lexis.com/api/document?collection=analytical-materials&id=urn:contentItem:5CYC-2F10-00SW-50BB-00000-00&context=1516831) [↑](#footnote-ref-97)
97. 97 See Wang, supra note 44, at 552. [↑](#footnote-ref-98)
98. 98 See Western Governors' Association, Water Transfers in the West 59-60 (2012), [*http://www.westgov.org/images/dmdocuments/Water\_Transfers\_*](http://www.westgov.org/images/dmdocuments/Water_Transfers_) in\_the\_West\_2012.pdf. [↑](#footnote-ref-99)
99. 99 The ***Colo.*** Water Conservation Bd., Alternative Agricultural Water Transfer Methods Grant Program Summary 4 (2011), [*http://www.coagwater.colostate.edu/docs/ATM\_Final\_*](http://www.coagwater.colostate.edu/docs/ATM_Final_) Report\_5\_3\_11.pdf. [↑](#footnote-ref-100)
100. 100 See Timely, Fair and Effective Water Courts: Report of the Water Court Committee to Chief Justice Mary J. Mullarkey, ***Colorado*** Supreme Court 7-9 (2008), [*https://www.courts.state.****co****.us/userfiles/File/Court\_Probation/*](https://www.courts.state.co.us/userfiles/File/Court_Probation/) Supreme\_Court/Committees/Water\_Court\_Committee/ Final\_Report\_August\_1\_2008.pdf. [↑](#footnote-ref-101)
101. 101 Statewide Water Supply Initiative, supra note 13, at 7-19. [↑](#footnote-ref-102)
102. 102 Id. [↑](#footnote-ref-103)
103. 103 Banks & Nichols, supra note 80, at 87-91. [↑](#footnote-ref-104)
104. 104 Id. at 88 (internal quotations omitted). [↑](#footnote-ref-105)
105. 105 Id. [↑](#footnote-ref-106)
106. 106 Statewide Water Supply Initiative, supra note 13, at 7-19. While beyond the scope of this paper, one potential solution to addressing a municipality's need for a perpetual water supply while avoiding buy-and-dry is the pairing of conservation easements with municipal leasing option agreements. See, for example, ***Colorado*** Water Conservation Board, Grant Agreement with Open Water Foundation, Contract No. CTGG1 2015-3419 1, 18 (2015). In these arrangements, the purpose of the conservation easement is to conserve irrigated land by tying irrigation water rights to the land itself. The easement can permit temporary water transfers if they foster the preservation and protection of the appurtenant land. Furthermore, predictable yields and price supports for crops help support long term agricultural viability. The municipal option agreement functions as a purchase by the municipality of a perpetual option to lease water from irrigators under defined circumstances, such as drought or post-drought storage replenishment. Importantly, these arrangements help farmers by providing a source of income during drought when there is not enough water for a viable crop, and help municipalities by providing an additional water supply. Moreover, conservation easements provide a legally enforceable mechanism for municipalities to rely on to ensure they will be able to access water when they need it. This effectively addresses municipal concerns regarding the permanence of a water supply while avoiding the expensive and time-consuming water court process if coupled with a temporary transfer mechanism to use the water encumbered by the conservation easement. [↑](#footnote-ref-107)
107. 107 Brown & Caldwell, Completion Report: Development of Practical Alternative Agricultural Water Transfer Measures for Preservation of ***Colorado*** Irrigated Agriculture 2-14 (May 2011), [*http://cwcbweblink.state.****co****.us/WebLink/0/doc/195709/Electronic.aspx*](http://cwcbweblink.state.co.us/WebLink/0/doc/195709/Electronic.aspx). [↑](#footnote-ref-108)
108. 108 Id. Furthermore, leasing-fallowing agreements should allow irrigators within a ditch system to lease water to cities outside of the system to create more flexibility. [↑](#footnote-ref-109)
109. 109 ***Colorado***'s Water Plan, supra note 1, at 6-117. [↑](#footnote-ref-110)
110. 110 Id. [↑](#footnote-ref-111)
111. 111 [***Colo.*** *Rev. Stat. § 37-92-308*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G7-00000-00&context=1516831) (2015); Michael F. Browning, Substitute Supply Plans: Recent Water Law Developments, 31 ***Colo.*** Law. 67, 67 (2002). [↑](#footnote-ref-112)
112. 112 Browning, supra note 111, at 67. [↑](#footnote-ref-113)
113. 113 Lain Strawn, Comment: The Last Gasp: The Conflict Over Management of Replacement Water in the South Platte ***River*** Basin, 75 U. ***Colo.*** L. Rev.597, 619 (2004). [↑](#footnote-ref-114)
114. 114 [***Colo.*** *Rev. Stat. § 37-92-308*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G7-00000-00&context=1516831) (2015). [↑](#footnote-ref-115)
115. 115 Browning, supra note 111, at 69-70. [↑](#footnote-ref-116)
116. 116 [***Colo.*** *Rev. Stat. § 37-92-308*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G7-00000-00&context=1516831) (2015). [↑](#footnote-ref-117)
117. 117 McLane & Dingess, supra note 96, at 305. [↑](#footnote-ref-118)
118. 118 Id. at 310-11. [↑](#footnote-ref-119)
119. 119 Id. at 306-07. [↑](#footnote-ref-120)
120. 120 Letter from Office of State Eng'r to John M. Dingess, Duncan, Ostrander & Dingess, P.C. (Jan. 30, 2004) (on file with author); McLane & Dingess, supra note 96, at 310. [↑](#footnote-ref-121)
121. 121 [***Colo.*** *Rev. Stat. § 37-92-308(4)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G7-00000-00&context=1516831), (5) (2015). [↑](#footnote-ref-122)
122. 122 [***Colo.*** *Rev. Stat. § 37-92-309*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G8-00000-00&context=1516831) (2015). [↑](#footnote-ref-123)
123. 123 [***Colo.*** *Rev. Stat. § 37-92-309(2)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G8-00000-00&context=1516831) (2015). [↑](#footnote-ref-124)
124. 124 [***Colo.*** *Rev. Stat. § 37-92-309(1)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G8-00000-00&context=1516831) (2015). [↑](#footnote-ref-125)
125. 125 [***Colo.*** *Rev. Stat. § 37-92-309(3)(c)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G8-00000-00&context=1516831) (2015). [↑](#footnote-ref-126)
126. 126 H.B. 13-1130, 69th Gen. Assemb., 1st Reg. Sess. (***Colo.*** 2013). [↑](#footnote-ref-127)
127. 127 § 37-92-309(1). [↑](#footnote-ref-128)
128. 128 McLane & Dingess, supra note 96, at 296 n.22. [↑](#footnote-ref-129)
129. 129 Id. at 314. [↑](#footnote-ref-130)
130. 130 Id. at 296. [↑](#footnote-ref-131)
131. 131 Id. at 326. [↑](#footnote-ref-132)
132. 132 Completion Report: Development of Practical Alternative Agricultural Water Transfer Measures for Preservation of ***Colorado*** Irrigated Agriculture, Prepared for ***Colorado*** Water Conservation Board 2-12 (May 2011), [*http://cwcbweblink.state.****co****.us/WebLink/DocView.aspx*](http://cwcbweblink.state.co.us/WebLink/DocView.aspx) ?id=195709&page=1&dbid=0. [↑](#footnote-ref-133)
133. 133 H.B. 06-1124, 65th Gen. Assemb., 1st Reg. Sess. (***Colo.*** 2006). [↑](#footnote-ref-134)
134. 134 [***Colo.*** *Rev. Stat. § 37-92-103(10.6)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:689F-SY73-CGX8-03R2-00000-00&context=1516831) (2015). [↑](#footnote-ref-135)
135. 135 Id. [↑](#footnote-ref-136)
136. 136 [***Colo.*** *Rev. Stat. § 37-92-308(4)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G7-00000-00&context=1516831) (2015). [↑](#footnote-ref-137)
137. 137 Interview with Jeff Deatherage, Chief of Water Supply for ***Colo.*** Div. of Water Res. (Aug. 31, 2015). [↑](#footnote-ref-138)
138. 138 See § 37-92-103(10.6) (no limitation on later permanent transfer after securing an RCMC). [↑](#footnote-ref-139)
139. 139 [***Colo.*** *Rev. Stat. § 37-80.5-102*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J36D-00000-00&context=1516831) (2015). [↑](#footnote-ref-140)
140. 140 Id. [↑](#footnote-ref-141)
141. 141 Statement of Basis and Purpose: Rules Governing the Arkansas ***River*** Water Bank Pilot Program 1 (2002), [*http://water.state.****co****.us/DWRIPub/Documents/arkriverbasis.pdf*](http://water.state.co.us/DWRIPub/Documents/arkriverbasis.pdf). [↑](#footnote-ref-142)
142. 142 Rules Governing the Arkansas ***River*** Water Bank Pilot Program, Rule 2(A) (2002), [*http://water.state.****co****.us/DWRIPub/Documents/arkpilotrules052302.pdf*](http://water.state.co.us/DWRIPub/Documents/arkpilotrules052302.pdf). [↑](#footnote-ref-143)
143. 143 Id. at Rule 4. [↑](#footnote-ref-144)
144. 144 Id. at Rule 5(A). [↑](#footnote-ref-145)
145. 145 Id. at Rule 5(C), 6(B). [↑](#footnote-ref-146)
146. 146 Id. at Rule 6. [↑](#footnote-ref-147)
147. 147 Id. at Rule 6(C). [↑](#footnote-ref-148)
148. 148 Hal Simpson, State Engineer, Report to the Governor and Legislature on the Arkansas ***River*** Water Bank Pilot Program 3 (2005), [*http://hermes.cde.state.****co****.us/drupal/islandora/object/****co****%3A11475*](http://hermes.cde.state.co.us/drupal/islandora/object/co%3A11475). [↑](#footnote-ref-149)
149. 149 [*Rules Governing the Arkansas* ***River*** *Water Bank Pilot Program, supra*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1F60-003D-928V-00000-00&context=1516831) note 142 at Rule 6(F). [↑](#footnote-ref-150)
150. 150 Id. at Rule 7(C). [↑](#footnote-ref-151)
151. 151 Id. at Rule 7(D). [↑](#footnote-ref-152)
152. 152 [*Simpson, supra*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3Y27-KN70-0039-40TN-00000-00&context=1516831) note 148, at 2. [↑](#footnote-ref-153)
153. 153 Id. [↑](#footnote-ref-154)
154. 154 Id. at 3. [↑](#footnote-ref-155)
155. 155 Id. [↑](#footnote-ref-156)
156. 156 Id. at 4. [↑](#footnote-ref-157)
157. 157 Id. [↑](#footnote-ref-158)
158. 158 Id. at 5. [↑](#footnote-ref-159)
159. 159 Id. [↑](#footnote-ref-160)
160. 160 Id. at 6. [↑](#footnote-ref-161)
161. 161 Id. [↑](#footnote-ref-162)
162. 162 Id. at 6-7. [↑](#footnote-ref-163)
163. 163 Id. at 6. [↑](#footnote-ref-164)
164. 164 John Wilkins-Wells & Troy Lepper, Water Banking and Traditional Irrigation Enterprises: How Lessons from the Past Lead to Successful Water Banking and Marketing, ***Colorado*** State University Agricultural Experiment Station Technical Report TR06-11 17 (2006), [*https://dspace.library.colostate.edu/bitstream/handle/10217/39225/*](https://dspace.library.colostate.edu/bitstream/handle/10217/39225/) tr06-11.pdf?sequence=1&isAllowed=y. [↑](#footnote-ref-165)
165. 165 [***Colo.*** *Rev. Stat. § 37-60-115(8)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:654T-YC03-CGX8-04R8-00000-00&context=1516831) (2015); H.B. 13-1248, 69th Gen. Assemb., 1st Reg. Sess. (***Colo.*** 2013). House Bill 13-1248 was built on the ashes of House Bill 11-1068, a similar idea that ignited a firestorm of opposition, including calls for one of the authors' heads by a major newspaper. [↑](#footnote-ref-166)
166. 166 S.B. 15-198, 70th Gen. Assemb., 1st Reg. Sess. (***Colo.*** 2015). [↑](#footnote-ref-167)
167. 167 § 37-60-115(8); H.B. 13-1248. [↑](#footnote-ref-168)
168. 168 H.B. 13-1248. [↑](#footnote-ref-169)
169. 169 The ***Colo.*** Water Conservation Bd., Criteria and Guidelines for Fallowing-Leasing Pilot Projects 2 (2013), [*http://cwcb.state.****co****.us/water-management/water-projects-programs/*](http://cwcb.state.co.us/water-management/water-projects-programs/) Documents/FallowLease/FallowingLeasingCriteria%2020131119.pdf [hereinafter Criteria and Guidelines for Fallowing-Leasing Pilot Projects]. [↑](#footnote-ref-170)
170. 170 Id. [↑](#footnote-ref-171)
171. 171 Id. [↑](#footnote-ref-172)
172. 172 Id. at 6. [↑](#footnote-ref-173)
173. 173 Id. at 7-8. [↑](#footnote-ref-174)
174. 174 Id. at 9. [↑](#footnote-ref-175)
175. 175 The ***Colorado*** Water Conservation Board, Lease Fallow Tool, [*http://cwcb.state.****co****.us/water-management/water-projects-programs/*](http://cwcb.state.co.us/water-management/water-projects-programs/) Pages/LeaseFallowTool.aspx (last visited Mar, 8, 2016) [hereinafter Lease Fallow Tool]. [↑](#footnote-ref-176)
176. 176 ISAM is a peer-reviewed computer program developed by the ***Colorado*** Division of Water Resources ("DWR") to compare monthly water budgets of surface water irrigation systems with and without an improvement in order to evaluate the impacts of an improvement to a surface water irrigation system located in the Lower Arkansas Basin. DWR developed ISAM over a couple of years with input from an advisory committee of over a dozen water engineers. It has been in use for five years to analyze irrigation changes for over 100 farms annually, and eliminated the need for individual modeling of each farm. In re the Proposed Compact Rules Governing Improvements to Surface Water Irrigation Systems in the Arkansas ***River*** Basin in ***Colorado***, Case No. 09CW110 (Water Div. No. 2, Oct. 25, 2009). [↑](#footnote-ref-177)
177. 177 Lease Fallow Tool, supra note 175. [↑](#footnote-ref-178)
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322. 322 Supra Section V(B). [↑](#footnote-ref-323)
323. 323 Criteria and Guidelines for Fallowing-Leasing Pilot Projects, supra note 169, at 9. [↑](#footnote-ref-324)
324. 324 In re Proposed Compact Rules Governing Improvements to Surface Water Irrigation Systems in the Ark. ***River*** Basin in ***Colo.***, Case No. 09CW110 (Water Div. No. 2, Oct. 25, 2009). [↑](#footnote-ref-325)
325. 325 H.B. 16-1392, 70th Gen. Assemb., 2nd Reg. Sess. (2016). [↑](#footnote-ref-326)