Water Transfers in the West

PROJECTS, TRENDS, *and* LEADING PRACTICES *in* VOLUNTARY WATER TRADING

DECEMBER 2012

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western states water council

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DEAR FRIENDS,

Westerners know the value of water. Not just because of its scarcity, although the arid or semi-arid nature of much of the West gives us a special appreciation for the water we have. But even more so, we know the value of water because we see water that irrigates our fields and orchards, flows through scenic rivers, supports unique fisheries, and quenches the thirst of our growing communities.

In many parts of the West, available water resources have already been allocated to designated users. Those in need of "new" water — farmers in a drought year, for instance, or housing developers — must often buy or lease water rights to satisfy new demands. These transactions are known as "water transfers," one of several strategies that western states use to adjust to changing conditions and meet new demands. Other strategies include building new infrastructure and encouraging conservation and re-use.

Voluntary water transfers have occurred for decades. But with so many new citizens and industries settling in the water-scarce West, now is the time to evaluate how we use transfers in our approach to providing water. On one hand, water transfers can be an efficient way of reallocating water: they allow buyers and sellers to work together towards a voluntary and mutually beneficial outcome, rather than forcing compliance through regulations. However, since farmers own a large portion of water rights in the West, much of the water transferred to satisfy new urban or other uses often comes from agriculture. This can impact agriculturally-based rural communities and economies in a number of ways.

Western Governors recognize the economic and social value of agricultural water use, an intrinsic part of our shared history and culture. To examine the issues associated with water transfers, we directed the WGA and its affiliate the Western States Water Council to identify the economic and policy drivers behind such transfers in the West, as well as how western states administer their transfer programs and what steps they have taken to mitigate or avoid adverse impacts. The goal of this report is to provide policy options and information that states can consider as they work to make the transfer process more effective. Importantly, the report recognizes that each state's individual circumstances will determine how it should address transfers and does not attempt to provide a "blueprint" for states to follow.

Water is a precious commodity for westerners — no matter the sector, no matter the citizen. With a sound approach to water transfers, our states will continue to grow and thrive.

Best,

GOVERNOR GARY R. HERBERT, Utah,
Chairman of Western Governors' Association

GOVERNOR JOHN HICKENLOOPER, Colorado,
Vice-Chairman of Western Governors' Association

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WHY THE GOVERNORS CARE ABOUT WATER TRANSFERS

The Western Governors have a tradition of working together to provide clean, reliable water supplies for the West. As new demands stretch the West's limited water resources, cities, industry, environmentalists and other water users increasingly turn to voluntary, market-based water transfers. The Governors passed a policy in 2011 specifically recognizing the potential benefits of water transfers as well as concerns about the impacts of shifting water uses on rural communities, stating:

> **"Western Governors believe states should identify and promote innovative ways to allow water transfers from agricultural to other uses (including urban, energy and environmental) while avoiding or mitigating damages to agricultural economies and communities."**
>
> **POLICY 11-7**

Western states play a primary and fundamental role in the management and allocation of water, including in the administration of water transfers. While water transfers are happening across the West as a result of voluntary agreements among water users, the leadership of the states and Governors is essential to carefully balance the benefits and drawbacks of these arrangements, to ensure sound administration of transfers, and to promote positive outcomes through water sharing.

This report identifies a set of leading practices for transferring water and highlights successful case studies from around the West. Western states and water users can take advantage of voluntary market-based water transfers as one tool to optimize the use of our precious water resources.

EXECUTIVE SUMMARY
Why Water Transfers?

Scarcity is the defining characteristic of water in the western United States. Freshwater is naturally limited to precipitation, runoff and aquifer storage. Climate variability and extreme weather events — especially drought — increase uncertainty across timescales, from days to decades. And yet demands for water continue to grow, along with the population and economy of the West. As cities, industry, energy developers and other users seek new secure water supplies, they increasingly turn to voluntary water transfers.

Water transfers are occurring throughout the West (Figure 1), and they will become increasingly important as new demands stress limited supplies. The goal of this report is to suggest ways to make water transfers more efficient and equitable, while not promoting or opposing individual transfer proposals. This report examines water transfer practices across the western states, highlighting successful models, analyzing case studies, and identifying leading practices. The goal is to share lessons and tools and to identify specific steps that states can consider in order to improve water transfer outcomes.

defined : **WATER TRANSFER**

A water transfer is a voluntary agreement that results in a temporary or permanent change in the type, time, or place of use of water and/or a water right.

Water transfers can be local or distant; they can be a sale, lease, or donation; and they can move water among agricultural, municipal, industrial, energy, and environmental uses.

THE HISTORY OF WATER TRANSFERS IN THE WEST

Policy makers and economists have long advocated for the use of voluntary water markets. As long ago as 1986, the Western Governors' Association promoted water transfers as a mechanism for efficient water use in its report, "Tuning the System." Current WGA Policy Resolution 11-7 reflects the continuing importance of this issue to the West.

Given the new demands and water management challenges facing the West, one might expect a higher level of transfer activity. But despite their important role in western water allocation for the past several decades, transfers can be time consuming, costly and contentious. The public and private benefits provided by transfers may be accompanied by concerns about impacts on third parties not directly participating in transfers, nor well represented by any public interest review.

Not all water supply needs will be met by water transfers. Western states will continue to pursue new storage and infrastructure, conservation and efficiency, water reuse projects, and other opportunities. That said, water transfers can complement these other strategies in a multi-faceted approach to meeting new demands in the West.

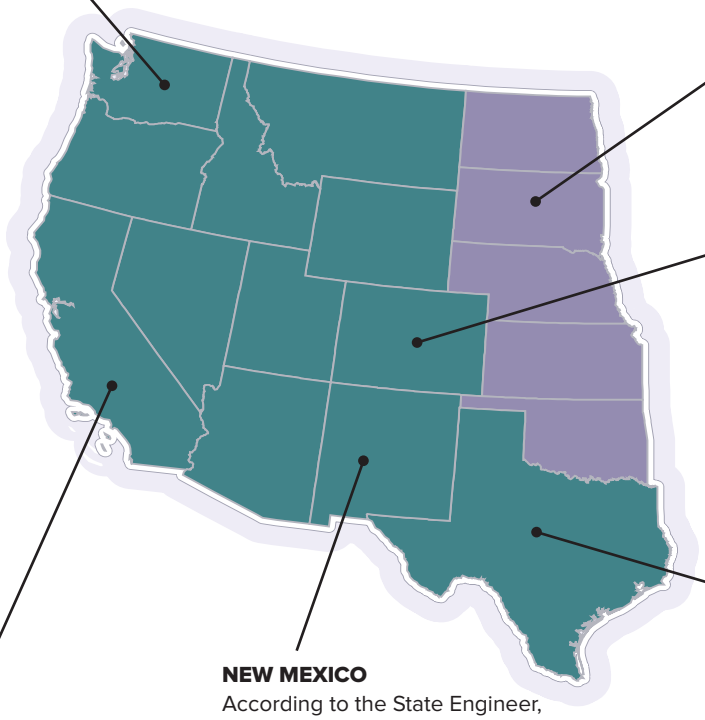
figure 1 **CURRENT AND FUTURE ROLE OF WATER TRANSFERS IN THE WEST**

WASHINGTON
Washington processed an average of 317 transfer applications per year between 2006 and 2011.

LEGEND

- Transfers occurring and likely to play a large role in the future.
- Transfers have occurred, but not at significant levels. Uncertain importance in future.

Information from surveys submitted by Western States Water Council members.



SOUTH DAKOTA
Though some transfer activity occurs in the Black Hills where surface water supplies are limited, water transfers on a statewide basis are insignificant.

COLORADO
To meet population growth demands, Colorado will need approximately 533 thousand AF of additional water statewide by 2050 for municipal and industrial needs.

TEXAS
The ongoing drought in Texas created higher demand for transfers; more than 1.7 million AF were transferred in 2011 as compared to an average of 150 thousand AF between 2007 and 2009.

CALIFORNIA
In years with high levels of water transfers, the total volume traded can reach up to 1 million AF.

NEW MEXICO
According to the State Engineer, transfers are the sole readily available means for meeting future demand.

THE BENEFITS OF WATER TRANSFERS

Ever since Adam Smith's "invisible hand," markets have been viewed as a tool to achieve an optimal allocation of a scarce resource. For private goods and services, markets generally set prices at the intersection of supply and demand. Public goods are typically harder to value and allocate using this supply and demand framework. Water is a complex mixed good, with both public and private attributes, and it provides myriad services to its users.

Recently, however, markets have been used to address public policy challenges, such as air quality emissions trading, open space protections, and oil leasing on federal lands. Voluntary water transfers offer an array of potential benefits:

- **VOLUNTARY:** The seller and buyer enter into a transfer agreement only when it is in each party's interest, and any conflicts are resolved through direct negotiation.
- **DECENTRALIZED:** Resource decisions are made by the resource users themselves, so that local conditions and unique needs are accommodated.
- **FLEXIBLE:** Water transfer markets provide flexibility to accommodate new and emerging uses over time, rather than locking water into a single use in perpetuity. They can be a mechanism for "real-time" adaptive management.
- **INCENTIVIZE CONSERVATION:** Prices established by transfers may provide an incentive for farmers to shift to lower water-using crops, invest in improved irrigation technology, and implement other water-saving practices.
- **ALLOCATE WATER TO NEW USES:** Transfers allocate water to meet emerging water demands through a voluntary market framework rather than regulations and mandates.
- **DRIVE INVESTMENT:** Prices for voluntary transfers will rise with increased demand for water. Higher market prices will support investment in water conservation, improved water resource management, and new infrastructure required to implement water transfers.

The voluntary nature of transfers is a distinct advantage. Non-voluntary water conservation or reallocation through regulation would be time and resource intensive. Mandates seldom promote the most efficient or effective resource management outcomes.

Water transfer markets provide **FLEXIBILITY**. They are a mechanism for 'real-time' adaptive management.

ADDRESSING WATER TRANSFER ISSUES

While water transfers offer a mechanism for reallocating water to its highest valued use, changes in water use patterns can have unintended consequences. The use of water is often not exclusive or exhaustive, and government intervention may be necessary to minimize externalized costs and avoid or mitigate injury to other parties. States should consider how to address these impacts in order to improve the outcomes of transfers:

- **IMPACTS ON OTHER USERS:** Other water users may depend on return flows from a particular water diversion. When water is transferred, those return flows could be affected. Other water users' rights are legally protected from "injury" caused by a transfer; but quantifying those impacts can be difficult and time consuming.

- **COMPLEX INSTITUTIONS:** While water rights can be owned exclusively by individuals, many rights are owned by organizations such as canal companies or irrigation districts. In such circumstances, transfers impact other shareholders and involve more than individual decision-making.

- **ENVIRONMENT:** Transfers can be used to enhance the river environment, as demonstrated by water trusts across the West that restore instream flows with water rights transfers and donations. However, transfers can also degrade the environment. For example, redirecting water to new uses can dry up streams or wetlands that depend on current irrigation practices, or allow invasive species to take hold in formerly irrigated farmland.

- **LOCAL ECONOMIES:** Many rural areas in the West depend on irrigated agriculture. For these places, agricultural water use is the backbone of the local economy and an important part of the cultural heritage. The impacts of a transfer to the local economy and community must be considered.

- **SPECULATION:** Transfer activity sometimes involves private investment in acquiring and developing water rights. As in any economic endeavor, private investors anticipate earning a future return commensurate with investment risk. But state water law and administrative practices are designed to limit speculation, assure that private investment promotes efficient solutions to water resource problems, and avoid negative outcomes such as artificial price increases.

One strategy to mitigate these third party impacts is to employ alternative transfer methods (ATMs). These can include a suite of tools, like leases, rotational fallowing, split-season uses, and water banks. The key and uniting feature is that they avoid the permanent dry-up of agricultural land, and many of the economic and environmental impacts that can occur when land goes out of irrigated agriculture forever. This report highlights alternative transfer methods that states can consider to support voluntary market-based water transfers.

THE ROLE OF STATES IN WATER TRANSFERS

Western states have a critical role in water transfers, as well as the management and allocation of water generally. As clearly set forth in the policy of the Western States Water Council, "western states have primary authority and responsibility for the appropriation, allocation, development, conservation and protection of water resources" (WSWC Resolution #331). Put simply, Western states administer and regulate water rights and water uses within their borders.

Like any other market transaction, a water transfer requires clearly defined property rights governing who owns or controls the water, any use conditions or protections, and terms under which it can be leased or sold to other parties. Because of the complexities of water as both a public and private good, the state plays a critical role in defining and enforcing property rights in water in order to ensure markets serve society.

Beyond that, states face important public policy decisions with respect to water transfers, as described in this report. Questions relate to the role of water transfers in meeting future water supply needs, balancing the demand for new water supplies with the preservation of the environment, agricultural economies and rural communities, and assessing the proper role for private sector investment in developing limited water resources. This report describes tools states may use to improve water transfer outcomes, and frames key policy questions for states to consider.

The state plays a critical role in defining and enforcing property rights in water in order to ensure markets serve society.

WHAT THIS REPORT SAYS

This report provides an overview of water transfers in the West. It looks only at intra-state water transfers, not transfers between states. Additionally, only voluntary transfers are considered; regulatory or other involuntary means of reallocating water are beyond the scope of this analysis. The report reviews the history of water transfers, flags the benefits and drawbacks of various types of transfers, surveys states and on-the-ground practitioners, examines leading case studies, and identifies tools to improve transfer practices and outcomes.

BACKGROUND AND HISTORY: Chapters 1 and 2 provide background on the WGA, the role of states in water transfers, and the history, drivers and trends in water transfers. These chapters review available data on water transfers and discuss the future of water transfers in the West.

PUBLIC POLICY CONSIDERATIONS: Chapter 3 reviews the potential impacts of water transfers to rural communities, local economies, agricultural production, the environment, and Indian tribes, and discusses how these issues can be addressed.

STATE ROLES AND PERSPECTIVES: Chapter 4 outlines the legal framework that states use to administer water right transfers. Additionally, this section highlights the programs that states use to facilitate effective transfers, such as water banks or grant programs for researching alternative transfer methods.

WATER TRANSFER MECHANISMS: Chapter 5 takes an in-depth look at some typical arrangements for transfer agreements: sales, long-term leases, one-year leases, and arrangements that allow changes to farming practices so that some irrigation water can be transferred.

CASE STUDIES: Three case studies in the report illustrate successful transfers from across the West, all of which employ stakeholder involvement in reaching a mutually beneficial outcome from a major transfer arrangement in the community. One case study, from the Deschutes River Basin in Oregon, shows how investing in new infrastructure on farms was able to increase the amount of water available for irrigation while also helping to restore instream flows.

APPENDIX: The Appendix is a resource for practitioners who want to quickly reference the legal requirements for transfers in their own state and across the West. State frameworks for water banks, conservation programs, temporary transfers and third party protections are all collected in this quick-reference section.

KEY FINDINGS

Water transfers have been occurring for decades, and a variety of programs and policies have evolved to administer these agreements. During the course of this project, a number of practices emerged that states can employ today to improve transfer outcomes:

- **PROVIDE BASIC DATA AND EFFICIENT ADMINISTRATION:** States can collect and share data on water uses and water rights and take steps to fairly and efficiently administer proposed water transfers. These steps can increase transparency, inform market participants, clarify injury and impacts, quantify mitigation, and reduce transaction costs associated with transfers.

- **ENHANCE INSTITUTIONS THROUGH FUNDING, CONNECTIONS AND COLLABORATION:** Transfers can be complex and unique. States can provide technical or financial support to water users contemplating agreements, particularly alternative transfer methods.

- **PROMOTE CONSERVATION AND EFFICIENCY:** Water transfers can provide a financial incentive for more efficient use of water. States can clarify policies regarding conserved, saved or salvaged water and provide incentives to reduce the consumptive use of water in agriculture.

- **PROTECT AND ENHANCE RURAL COMMUNITIES THROUGH TRANSFERS:** Water transfers can have negative impacts to the environment and economy of rural communities. States can seek to mitigate these impacts, and even enhance rural communities, by addressing issues such as local infrastructure needs associated with transfers, the tax base, and revegetation. Community mitigation funds have been used to enable local decision-makers to address local priorities.

- **DEVELOP INFRASTRUCTURE TO SUPPORT BENEFICIAL TRANSFERS:** Transfers often require infrastructure to move or treat water. States can promote access to existing infrastructure or support the development of new infrastructure that facilitates alternative transfer mechanisms.

- **COORDINATE WITH THE FEDERAL GOVERNMENT IN WATER TRANSFER PRACTICE:** The Bureau of Reclamation has a significant interest in water supplies and infrastructure in the West. Similarly, the Environmental Protection Agency (EPA) and the Army Corps of Engineers have a stake in water in the West. States can work with the federal government to clarify and improve policies and programs in order to facilitate voluntary and beneficial water transfers.

HOW THIS REPORT WAS DEVELOPED

This report is the result of a year-long project to provide the Governors information on how water transfers and their alternatives are used in the West. The Walton Family Foundation provided support for the project. The WGA and WSWC convened three stakeholder workshops with over 100 participants from July to December of 2011. These meetings drew state administrators, environmental and other non-governmental organizations (NGOs), farmers, academics, water managers and other water resource professionals from across the West, providing diverse perspectives on water transfers.

This report is based on the three expert workshops described above, a literature review, surveys of the western states, and a set of case studies. The report is intended to provide states with the tools and capacity to improve water transfers or water sharing practices in the West, while avoiding or mitigating damages to agricultural economies, rural communities, and environmental values. This report is not intended to make value judgments regarding individual transfer proposals, develop universal consensus, or establish a fixed "blueprint" for transfers. It is intended to recognize the potential benefits of voluntary market-based transfers, share lessons and tools, and identify specific steps that states may take to improve water transfer outcomes.

GLOSSARY

Acre Feet (AF)

The amount of water needed to cover 1 acre (43,560 square feet) 1 foot deep (equal to 325,851 gallons).[1] One acre foot provides enough water for two average-sized families over the course of a year. Note that volume is sometimes measured in million acre feet (MAF).

Alternative Transfer Method (ATM)

A structured agreement that allows for the transfer of water to a new use while minimizing the impact on the local economy, providing other funding sources to the agricultural user, and/or optimizing both the agricultural and nonagricultural benefits of the remaining lands.[2] ATMs are an option to contrast traditional "buy and dry" transfers, which do not provide for mitigation measures and may have more significant impacts on the local community and environment.

Area of Origin

The community or region where water involved in a transfer was historically used, typically for agriculture.

Beneficial Use

A purpose for water diversion recognized by the state as something beneficial for society and worthy of diverting water for its use (e.g., agricultural, domestic, mining, industrial, commercial, and other uses).

Consumptive Use

Of the water diverted for a water right, the amount of water used completely and not returned to the stream system.

Instream Flow

Water flows in a stream system that contribute to healthy ecosystem functions, such as water temperature regulation and wildlife habitat.

Prior Appropriation

The primary doctrine used by western states for allocating water rights. Includes recognition of seniority as well as beneficial use and continued use of the water right. (See Section 4.1.2 for details.)

Return Flow

The portion of water that is not consumed during water use, and that is returned to the waterway or basin.

Water Bank

A mechanism in which a water right holder can "deposit" a water use entitlement with a private or public entity (the bank) that can make the entitlement available for lease on a temporary basis by another person for use in another location.

Water Transfer

A water transfer is a voluntary agreement that results in a temporary or permanent change in the type, time, or place of use of water and/or a water right. Water transfers can be local or distant; they can be a sale, lease, or donation; and they can move water among agricultural, municipal, industrial and environmental uses.

CHAPTER 1
An Introduction to Water Transfers

Water has always been a scarce commodity for much of the West. The region's vast dry plains and high arid desert lands would have been uninhabitable if not for engineering marvels that brought water from near and far, from middling streams and mighty rivers — sometimes from deep, inaccessible canyons — to agricultural and urban areas. If it were not for the ingenuity and determination of the early settlers and the projects authorized and constructed through the Reclamation Act, the West as we know it now would not exist.

While the supply of water has often been scarce and highly variable, demand has risen rapidly in recent decades. Growth in western populations and economies has been a boon in many respects, but for a region with many fully or over appropriated water sources, that growth poses a potential problem. Building new storage can be costly, and most of the best dam sites have already been utilized. Urban water conservation is useful, but many "best practices" have already been implemented and total savings are unlikely to satisfy all future demands.

While we cannot create new water, supplies can be reallocated through **water transfers**. A water transfer is the sale or lease of the right to divert a certain amount of water. In the West, water rights are distinct property rights — not tied to the land — so they can be transferred among users and uses by voluntary agreement of the participants. Voluntary water transfers can generate significant benefits, including allocating water to new high-value uses, incentivizing efficiency and avoiding political or regulatory water allocation decisions.

Water transfers raise some concerns, however. Roughly 70% of freshwater withdrawals in the West are used for irrigation,[3] and the consumptive use of that water may be significantly higher. Many of the water rights held by farmers are *senior water rights*, the first to be fulfilled and reliable even in times of shortage. For these reasons, agricultural water rights are often the source of transfers to new uses, including municipal, industrial, and environmental. Farmers can legally sell or lease their water rights to cities, but then they can no longer use the water transferred to irrigate crops. These transfers can have impacts to food production and the local economy.

defined : **WATER TRANSFER**

A water transfer is a voluntary agreement that results in a temporary or permanent change in the type, time, or place of use of water and/or a water right.

Water transfers can be local or distant; they can be a sale, lease, or donation; and they can move water among agricultural, municipal, industrial, energy, and environmental uses.

Transfers can be structured in ways to minimize impacts to — or even enhance — rural communities.

Effects to farms, rural communities, and the environment must be considered when discussing transfers — that is a major element of this report. And yet, transfers can be structured in ways to minimize impacts to — or even enhance — rural communities, as this report demonstrates. Farmers may use their water rights as a tool for financial security and stay involved in the local economy, and large transfer deals can include mitigation funds for community improvement. This report aims to identify critical policy considerations and provide tools that states can employ to improve the practice and outcomes associated with water transfers.

1.1 THE POLICY OF THE WESTERN GOVERNORS

The Western Governors have a history of working together to provide clean, reliable water supplies for the West. In fact, the WGA weighed in on the issue of water transfers 25 years ago with a report called *Tuning the System* that highlighted the opportunities and obstacles to water transfers.

More recently, the Governors indicated the importance of water resource management in the West through their Policy Resolution 11-7, passed in June of 2011. The Governors specifically recognized the potential benefits of market-based water sharing in as well as concerns for those who rely on current water sharing arrangements. The Governors directed WGA and WSWC staff to develop this report with a central tenet guiding the scope of the work:

> **"Western Governors believe states should identify and promote innovative ways to allow water transfers from agricultural to other uses (including urban, energy and environmental) while avoiding or mitigating damages to agricultural economies and communities."**
>
> **POLICY 11-7**

This report follows the directive of the Governors — as well as their legacy of leadership on water — to provide insight on the ways water transfers can effectively reallocate resources with minimal negative repercussions.

1.2 THE ROLE OF THE STATES IN WATER TRANSFERS

Western states have a unique and critical role in water transfers and the management and allocation of water more generally. As clearly set forth in the policy of the Western States Water Council, "Western states have primary authority and responsibility for the appropriation, allocation, development, conservation and protection of water resources, both groundwater and surface water, including protection of water quality, instream flows and aquatic species." Put simply, Western states administer or regulate water within their borders.

Like any other market, a water transfer market requires clearly defined property rights governing who owns or controls water supplies, how they are protected, and terms under which they can be leased or sold to other parties. Because of the complexities of water as both a public and private good, the states play a critical role in defining and enforcing property rights in water in order to ensure markets serve society. In addition, states face important public policy decisions with respect to water transfers, as described in this report. Policy questions relate to the role of water transfers in meeting future water supply needs, balancing the demand for new water supplies with the preservation of the environment, agriculture economies and thriving rural communities, and assessing the proper role for private sector investment in allocating limited water resources. This report frames these key policy questions for states and describes tools states may use to improve water transfer outcomes.

Because of the complexities of water as both a public and private good, the states play a critical role in defining and enforcing property rights in water in order to ensure markets serve society.

1.3 HOW THIS REPORT WAS DEVELOPED

In 2011, the Western Governors initiated a year-long project to address policies and practices on water transfers in the West. The Western Governors' Association and Western States Water Council were lead staff for the project, which was funded primarily by the Walton Family Foundation. The WGA and WSWC convened three stakeholder workshops with over 100 participants from July to December of 2011. The meetings drew state administrators, environmental non-governmental organizations (NGOs), farmers, academics, and water resource professionals from across the West, providing diverse perspectives on water transfers.

This report is based on the three expert workshops described above, a literature review of academic articles and relevant reports, surveys of the WSWC states, and a set of case studies. The report is intended to provide states with the tools and capacity to improve water transfer methods in the West, while avoiding or mitigating damages to agricultural economies, rural communities, and environmental values. This report is not intended to make value judgments, develop universal consensus, or establish a fixed "blueprint" for transfers. It is

intended to recognize the potential benefits of market-based transfers, share lessons and tools, and identify specific steps that states may take to improve water transfer outcomes.

1.4 WHAT THIS REPORT INCLUDES

This report identifies a "toolbox" of programs and policies that states can use when considering water transfer strategies. Case studies show how a mix of transfers, conservation, and collaboration can lead to successful water sharing. A survey of state water resource managers provides further insight into how the western states are using transfers today and how they plan to use them in the future.

Ultimately, this report offers guidance and background on how states can make the best of their limited water resources while mitigating adverse impacts to agricultural economies and communities and environmental values.

CHAPTER 2
History, Drivers, and Trends in Water Transfers

In an era of limited water supplies and growing demands, water transfers will be an increasingly important tool for water supply management in the western states. Many rivers are fully appropriated or over appropriated, meaning that newer water rights will yield water only during limited periods (*i.e.*, runoff season or wet years) or not at all.

Under a prior appropriation system, senior water right holders are entitled to receive their water prior to junior water rights. Since senior water rights in the West are predominantly used for irrigation and have a reliable supply, water users with a higher willingness-to-pay (WTP) — including cities, energy developers, and other new users — will often seek to purchase water rights to increase the volume and reliability of their water supply. Acquisition of senior water rights can provide new water users firm water supplies even in drought conditions.

As part of this project, the Western States Water Council (WSWC) conducted a survey of its member states on the subject of water transfers. (The full results of the survey are presented in Chapter 3 of this report.) Of the 17 states the WSWC surveyed, three-quarters indicated that transfers are important for water allocation and will likely be used to meet future water demand (see figure 4). Building new storage can be costly and most of the best dam sites have already been utilized. Conservation is useful, but some believe that much of the "low-hanging fruit" in urban water conservation — low-flow toilets and urban irrigation efficiency, for instance — has already been picked. Transfers are a way to redirect existing water supplies towards the emerging needs in the West.

2.1 WHAT IS A WATER TRANSFER?

For this project, the WGA and WSWC are using the following definition of "water transfers."

> **A water transfer is a voluntary agreement that results in a temporary or permanent change in the type, time, or place of use of water and/or a water right. Water transfers can be local or distant; they can be a sale, lease, or donation; and they can move water among agricultural, municipal, industrial and environmental uses.**

Note that this report only deals with voluntary, market-based transfers of water rights; involuntary transfers and regulatory mandates are outside the purview of this project. Additionally, this report does not address inter-state transfers, which raise cross-boundary legal issues beyond the scope of this project.

2.1.1 Permanent versus Temporary Transfers

Transfers occur via the sale or lease of a water right. Sales are often referred to as *permanent* transfers. Leases, or *temporary* transfers, generally occur in either short-term, one-year leases or long-term leases that vary between two and 100 years (though leases commonly range between 25 and 40 years). Many states have a streamlined approval process or specific programs (for example, for drought) to expedite leases, which do not have the lasting impacts of a permanent transfer.

2.1.2 Local Versus Distant Transfers

Some transfers move water within an irrigation district or a small watershed; other transfers move water hundreds of miles. Because of potential impacts to the local economy and environment associated with moving water, the distance of a transfer can be an important consideration.

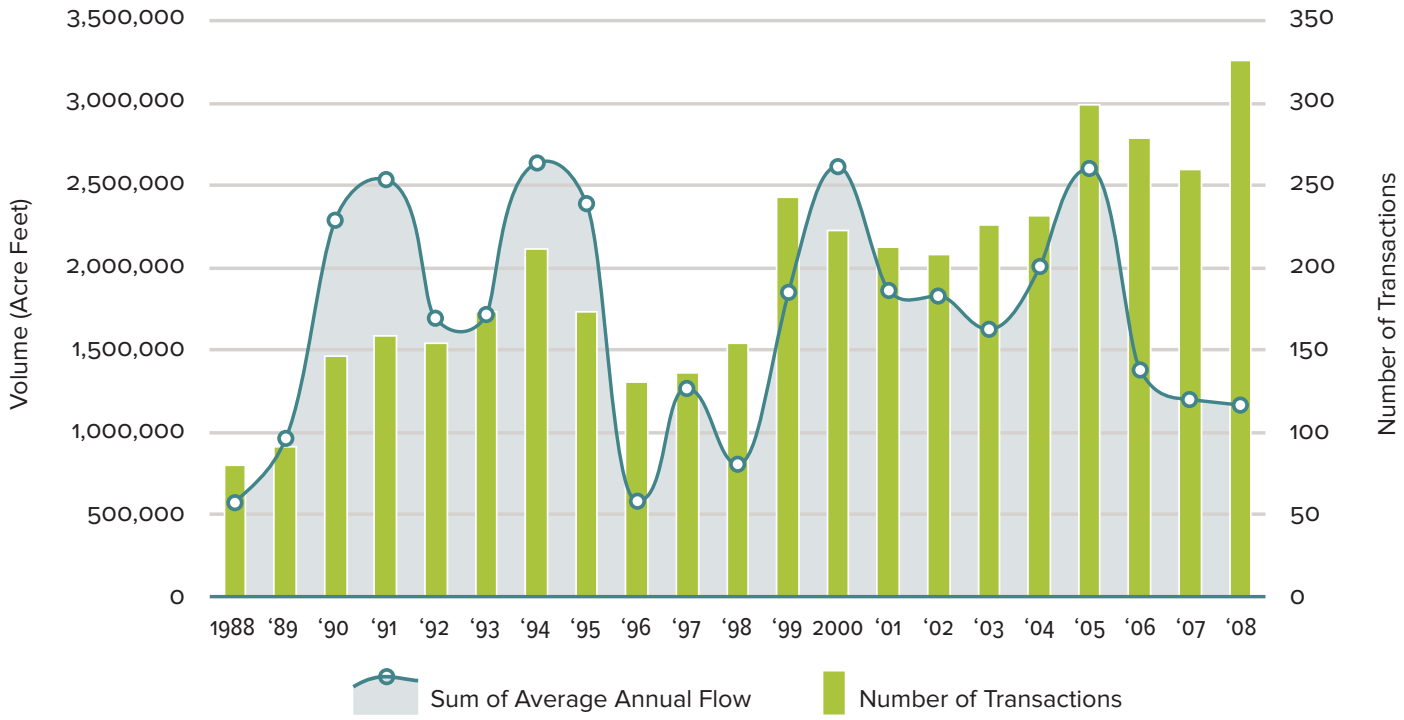
2.1.3 Changing the Type of Use

Transfers can change the way water is used. Often, transfers move water from agricultural to municipal uses. But transfers can also be used to direct water to energy development, environmental purposes, or for agriculture. Water is also transferred within the same use, for example from one agricultural user to another, or between nearby municipalities.

figure 1

VOLUME AND NUMBER OF TRANSFERS IN THE WEST

The water market has been active market for decades in the West. Please see the footnote for Figures 2 & 3 (page 14) regarding the data used for this figure.



2.2 DRIVERS OF WATER TRANSFERS

With limited water supplies in the West, three broad sectors compete for the same water resources: Urban (Municipal and Industrial), Agriculture, and the Environment.

2.2.1 Demand-Side Drivers

2.2.1.1 URBAN: Explosive population growth in the western US has forced municipalities to secure new water supplies. In its survey of members, the WSWC identified urbanization as a primary driver of transfers. In some cases, proximity to centers of urban growth increases the likelihood of ag-to-urban transfers, particularly in places where farmland itself is converted for development just as farm water is redirected for urban use. The Salt River Project in Arizona provides an example of an area with newly developed lands within the Salt River Project in Arizona. In other parts of Arizona, as well as in California and Colorado, transferred water travels long distances from places that are more water-rich to areas with increasing populations.

Municipal and industrial water users need long-term and reliable water supplies to support the economic base of their communities, including capital investments in business and public infrastructure. These water users may seek transfers in order to meet demand during drought or provide a new long-term reliable water supply to meet growing water demands.

2.2.1.2 ENERGY: A handful of states also cited energy development as a driver of water transfers. Across the West, proposed traditional and renewable power plants are projected to be a major driver of new water demand over the next decade.[4] In the western part of North Dakota, growth in oil production has prompted a handful of water transfers. In Nebraska, corn ethanol plants and petroleum exploration have also led to transfers. And in northwest Colorado, oil companies have acquired senior irrigation water rights for use in oil-shale development; if production ramps up, additional transfers from agriculture could occur.[5] Similar forces are in play across the border in Utah.[6]

Hydraulic fracturing, or "fracking," is another growing demand across the West. In Colorado, for example, current water use for fracking is miniscule at less than a tenth of a percent, but is expected to rise by 35% over five years.[7]

2.2.1.3 AGRICULTURE: Farmers use transfers to reallocate water in times of drought and scarcity as well as in response to market trends in the agricultural sector. For instance, in 1991, California instituted a drought bank that allowed farmers with lower-value annual crops to lease water to farmers with perennial crops (like fruit and nut orchards) that require uninterrupted water supplies and could not be fallowed.[8] Additionally, the higher value of these perennial crops allowed those farmers to spend more on water during this drought year; when water levels are normal or high, there is less incentive to trade.

Farmers sometimes also use transfers to comply with state or federal regulation. For example, between 2002 and 2007, more than 55% of the transfers of agricultural water rights the South Platte basin of Colorado were for augmentation purposes to cover the injurious depletions of junior irrigation wells.[9]

2.2.1.4 ENVIRONMENT: Environmental values have led several states to use transfers to preserve and enhance fish and wildlife habitat. These "instream" transfers are popular in Oregon, Colorado, Idaho, Montana and Washington, where state and federal agencies as well as water trusts buy senior water rights. Water trusts are independent organizations with the purpose of restoring damaged ecosystems, much like land trusts that buy land for conservation purposes. In some places, environmental transfers are driven by regulations or protections under the Endangered Species Act, for example in the Upper Snake Basin or California Bay-Delta.

2.2.2 Supply-Side Drivers

2.2.2.1 AGRICULTURE: Agriculture accounts for 71% of freshwater diversions in the West.[10] Farmers respond to market signals like all business professionals, and this drives the water transfer market to a large degree. Farmers evaluate the income a water transfer would bring as compared to farming with that water for irrigation. When agricultural products bring in high profits (as they have done in the past several years),[11] there is less of an incentive to transfer water. Even with favorable market conditions, farmers may choose to transfer water as a means to "diversify their portfolios," effectively using water as another crop.[2]

THE PUBLIC POLICY BENEFITS OF WATER TRANSFERS

- **VOLUNTARY:** The seller and buyer both benefit from transfers and any potential conflicts can be resolved through direct negotiation.
- **DECENTRALIZE DECISION-MAKING:** Resource decisions are made by participants in transfers so that local conditions and needs are accommodated.
- **FLEXIBLE:** Sellers and buyers can find mutually agreeable ways in which the water transferred may vary with hydrologic considerations or adapt to other management needs.
- **PROVIDE ECONOMIC INCENTIVES FOR WATER CONSERVATION:** Prices established by transfers provide incentive for farmers to shift to lower water-using crops, invest in improved irrigation technology, and implement other water-saving practices.
- **ALLOCATE WATER TO NEW USES:** Transfers reallocate water to meet emerging water demands, and prices compensate sellers for making water available to buyers.
- **DRIVE INVESTMENT:** Prices established by voluntary transfers will increase with increased demand for water. Increased water values will support investment in water conservation, improved water resource management, and new infrastructure required to implement water transfers.

Successional issues have also driven some farmers to sell or lease their water rights. As younger generations have moved away from home and out of the family business, retiring farmers will either sell their operations outright or their children will sell the farm for estate purposes. Selling or leasing water rights can offer another source of income for farmers selling (or in the process of downsizing) their agricultural operations.

2.2.2.2 URBAN: Transfers can originate from urban sources as well. Municipalities that have accumulated water rights to meet projected growth can lease out that water in interim years with low demand or wet conditions. Sometimes cities transfer water to agriculture but sometimes transfers go to other municipal or industrial uses. In one case on Colorado's Front Range, the city of Greeley was able to lease out roughly one thousand acre-feet of water at a price of $1.5 million dollars — mostly to oil and gas companies to use for hydraulic fracturing (or "fracking").[13]

2.3 THE ECONOMICS OF WATER TRANSFERS

2.3.1 The Benefits of Markets

Economists have long advocated for voluntary water transfers as a means to facilitate water resource management.* Transfers among willing buyers and sellers set prices that provide economic incentives for investment in improved water resource management and allocation of water to highest-valued uses. By relying on voluntary transfers, water managers can use market solutions to allocate limited natural resources, as has been done in other areas of natural resource management such as air quality emissions trading, open space protections, and oil leasing on federal lands.

As demand for water increases and new uses emerge, prices established by voluntary transfers will increase, thereby encouraging investment in conservation.

Like any other market, a water transfer market requires clearly defined property rights governing who owns or controls water supplies, how they are protected, and terms under which they can be leased or sold to other parties. The western states have established legal regimes that facilitate voluntary transfers (see Chapter 4). As demand for water increases and new uses emerge, prices established by voluntary transfers will increase, thereby encouraging investment in conservation. At the same time, such price increases may also lead to the permanent or temporary reallocation of water to higher-valued uses.

* The role of voluntary transfers and economic incentives has received growing emphasis in the literature dating from at least the 1980s. Bruce Driver, Western Water: Tuning the System (Report to Western Governors' Association from the Water Efficiency Task Force, June 23, 1986): endorsed trade in water and called for state/federal cooperation in removing any impediments to water transfers that remain legacies of past policies. Also see, Terry L Anderson (editor) Water Rights: Scarce Resource Allocation, Bureaucracy and the Environment (San Francisco: Pacific Institute for Public Policy Research) 1983; Howe, Charles W., Dennis R. Schurmeier, and W. Douglas Shaw, Jr. "Innovative Approaches to Water Allocation: The Potential for Water Markets."

The voluntary nature of transfers is a distinct advantage. Non-voluntary water conservation or reallocation through regulation would be time and resource intensive.

While economic incentives are motivators for change, water transfers and policy must be viewed within the context of the complexity of water as a natural resource, institutional settings of water organizations and — especially for interbasin transfers — the role of water in the local community.

2.3.2 The Complexities of Water as a Tradable Property

Defining property rights poses a challenge when it comes to water resources. Water defies traditional economic theory; a gallon of water is more complex than most commodities that are bought and sold. Water is legally considered both public and private. It can be reused multiple times by multiple users. The use of water holds the prospect of injury to other users and the environment. Additionally, the volume of water available varies between years and seasons. Because of these complexities, the water market differs from most markets for goods and services, and the transaction costs for transferring water are generally high. Transfers can incur high legal, engineering, and administrative costs and can take years to complete.

Water defies traditional economic theory; a gallon of water is more complex than most commodities that are bought and sold.

Since water can be used and reused by multiple parties, a water transfer that changes the time or place of diversion can impact water deliveries to other users and flows for the environment. It has been understood that water transfers cannot be based on an unqualified, private right.[†] Law and policy must define the degree of exclusivity of water rights, protect those rights against impairment and specify the terms under which rights may be transferred.[14] For example, to protect other water right owners reliant on return flows, western water law generally limits the right to transfer water to changes in the consumptive use of surface water.[15] Environmental consequences of transfers are addressed through mitigation and restoration obligations required by necessary approvals.

Complex institutional arrangements can also impede water transfers. While water rights are sometimes owned exclusively by individuals, water has been commonly developed through cooperation among individuals within the context of water organizations like canal companies, water districts, or ditch companies. In such circumstances, transfers involve more than individual decision-making, and considerations about the welfare, finances, and operations of the collective institution must be weighed.

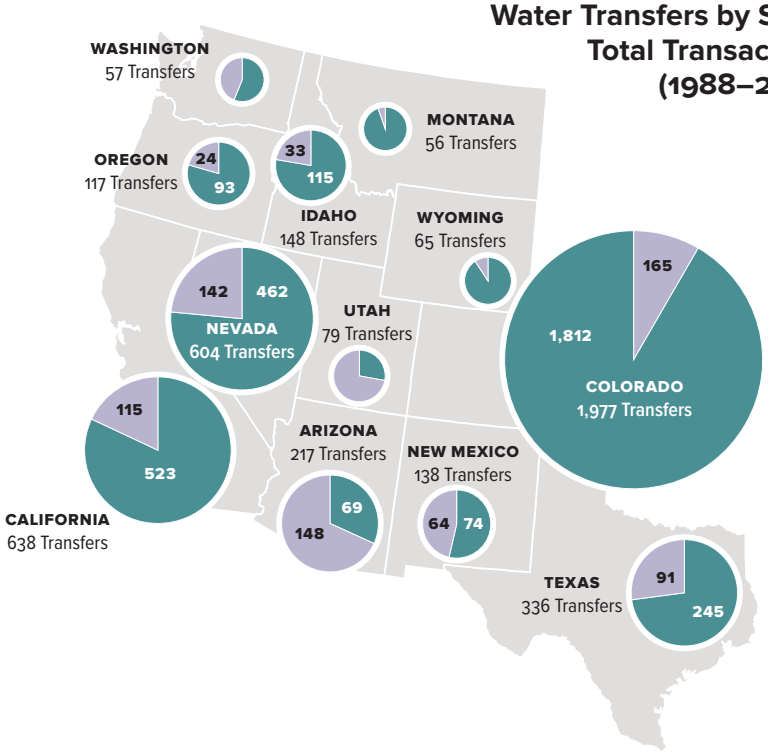
Perhaps the greatest challenge for water transfers involves the key role water plays in rural economies. For many areas in the West, water supply is the backbone of the local community. The economic base of rural areas is often dependent on irrigated agriculture. The impact of a transfer on the local economy depends on

[†] For more on the need for defined, qualified property rights, see Gary Weatherford and Steven Shupe, "Reallocating Water in the West", Journal of American Water Works Association (October 1986); Steven Burness and James Quirk, "Water Laws, Water Transfers and Economic Efficiency," Journal of Law and Economics (1980).

figures 2 & 3

WATER TRANSFER TRANSACTIONS AND VOLUME

Water Transfers by State: Total Transactions (1988–2009)



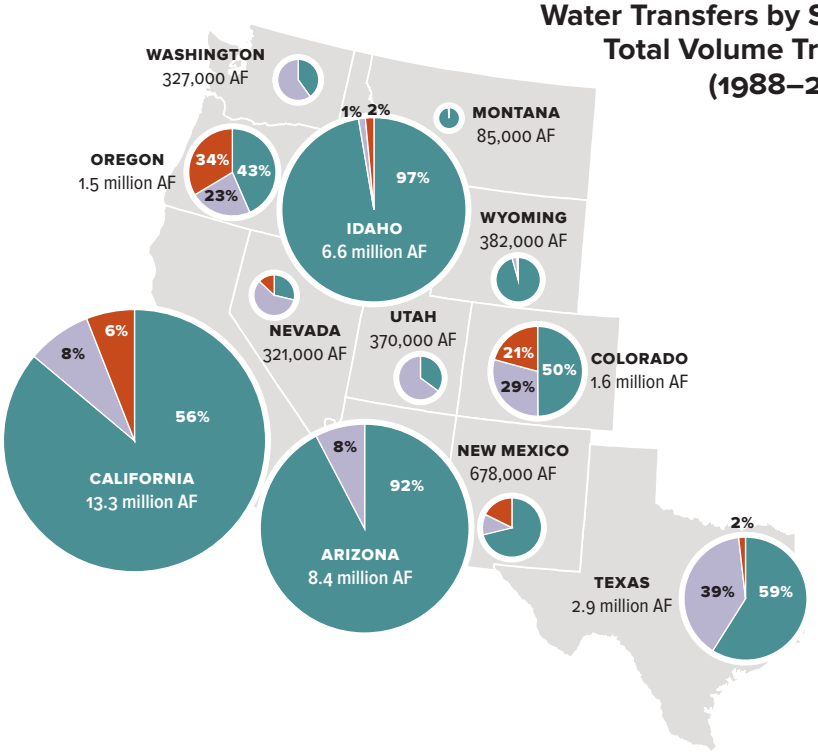
Data available for the Western states shows that all states have experienced water transfers, but some more than others. Colorado has a large number of smaller-volume transactions. California has the largest volume traded.

These figures are not definitive and do not include all of the western states or all transfers in the over the time period. At a minimum, this many transfers occurred over a 20 year period, but in some states substantially more have been processed. **(SEE NOTE BELOW)**

LEGEND

- Leases
- Sales
- Other/Unknown

Water Transfers by State: Total Volume Traded (1988–2009)



NOTE: WGA and WSWC only use this data to illustrate general trends in water transfers. At least this many transfers have occurred in the West, but this data does not include all transfers. This is the only publicly available data set on water transfers and is originally from *The Water Strategist*, a journal published by the private consulting group Stratecon, Inc. The data was cataloged and published by the University of California, Santa Barbara's Bren School of Environmental Management and made available online. *The Water Strategist* ceased publication in 2009, thus records for that year are incomplete.

While this data set has been used in multiple academic articles, it is not definitive and does not include all transactions over the time period. For example, in the review of this paper, Oregon WRD notes that they processed over 4,000 transfers during the subject period. Additionally, not all of the western states represented by WGA and WSWC are included in this data set. Only 12 states are included: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Utah, Washington and Wyoming. The incomplete nature of this dataset demonstrates the need for better data on water transfers.

whether or not it enhances the economic viability of agriculture and strengthens the local economic base, as well as any economic mitigation obligations required by necessary approvals.

These challenges will be addressed in greater detail in Chapter 3.

2.3.3 The Role of the Private Sector

Transfer activity sometimes involves private investment in acquiring and developing water rights. As in any economic endeavor, private investors anticipate earning a future return commensurate with investment risk. Private investment need not conflict with western water law concerning speculation. To realize investment returns, private investors must enter into agreements with new water users. Recent high-profile decisions suggest that these agreements should be secured before seeking approvals for changing the purpose or location of uses of agricultural water rights. Otherwise, approvals can be denied under anti-speculation doctrine of western water law.[16] Requiring agreements with new water users prior to seeking regulatory approvals need not deter private investment.

2.3.4 Infrastructure Financing

Water transfers often require infrastructure investment in conservation, storage, pipelines and treatment. Traditionally, state and federal financing has played a key role in infrastructure financing. Public debt and deficits will limit the scope of future state and federal financing. Even where local agencies take the lead in transfers, there may be a role for public-private partnerships for infrastructure financing where agencies retain ownership and operational control. Especially when transfers have a long development period and face significant project risks, private partners can bear the economic costs and risks provided that there is a pathway to receiving reasonable return for the patience and risk incurred in project development. Infrastructure funds have raised billions seeking projects with long-term investment horizons and inflation-protected returns. Successful transfer projects with infrastructure needs may represent an attractive investment opportunity for private funds.

2.4 TRENDS IN TRANSFERS

The process of selling or leasing water rights has become more commonplace since the 1980s. Data collected from *The Water Strategist*, a journal which recorded water rights transactions from 1988 to 2009, demonstrates this overall trend (Figure 1; see footnote at Figures 2 and 3). This data is based on self-reported transactions, so it is not considered all-inclusive, but it provides a sense of trends over 20 years of water trading. As Figure 1 illustrates, *The Water Strategist* has recorded between 150-300 transfers per year, and the amount of water traded has fluctuated within a range of 1 to 2.6 MAF over the last decade of the data set.

Water transfers have occurred in all 12 western states examined by *The Water Strategist* (Figure 2), though they are more common in some states as compared to others. Unsurprisingly, states with large populations and arid conditions tend to transfer more water by volume. California is a prime example of this phenomenon, with 13.3 million acre feet (MAF) of water transferred over the span of the data set (Figure 3). The other big players in terms of volume are Arizona, Idaho, and Texas.

In terms of the number of transactions, however, Colorado is the leader by far. Nearly 2,000 transfers occurred in Colorado over the span of the data set. Many of these were sales for a small volume of water, some for as little as half an acre foot annually. In large part, this is due to active trading in the Colorado-Big Thompson Project in Northern Colorado, where a unique system involving trans-basin water rights facilitates transfers. California, on the other hand, has a high number of one-year leases (Figure 3).

figure 4

CURRENT AND FUTURE ROLE OF WATER TRANSFERS IN THE WEST

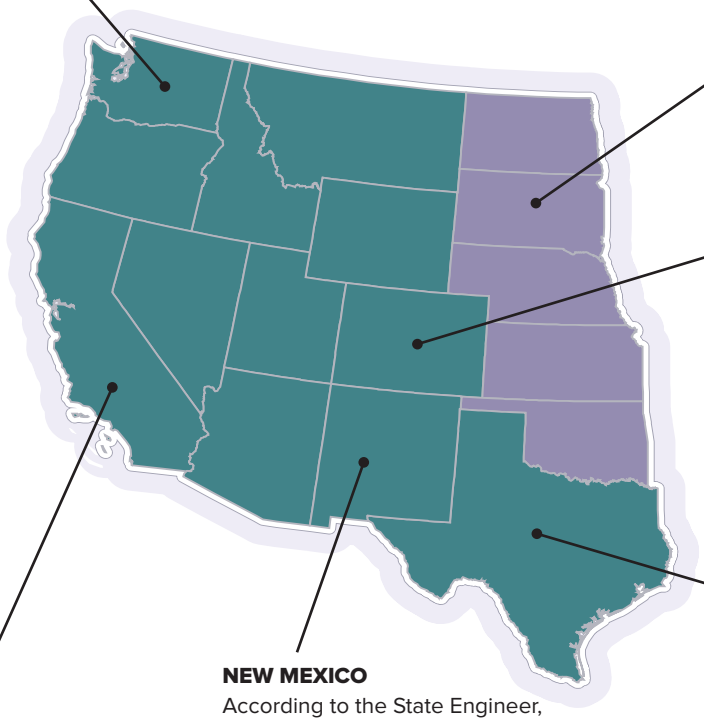
Though transfers are more prevalent in some states as compared to others, all of the Western states considered in this report experience some activity in the water transfer market.

WASHINGTON
Washington processed an average of 317 transfer applications per year between 2006 and 2011.

LEGEND

- Transfers occurring and likely to play a large role in the future.
- Transfers have occurred, but not at significant levels. Uncertain importance in future.

Information from surveys submitted by Western States Water Council members.



SOUTH DAKOTA
Though some transfer activity occurs in the Black Hills where surface water supplies are limited, water transfers on a statewide basis are insignificant.

COLORADO
To meet population growth demands, Colorado will need approximately 533 thousand AF of additional water statewide by 2050 for municipal and industrial needs.

TEXAS
The ongoing drought in Texas created higher demand for transfers; more than 1.7 million AF were transferred in 2011 as compared to an average of 150 thousand AF between 2007 and 2009.

CALIFORNIA
In years with high levels of water transfers, the total volume traded can reach up to 1 million AF.

NEW MEXICO
According to the State Engineer, transfers are the sole readily available means for meeting future demand.

2.5 PROJECTIONS FOR THE FUTURE OF WATER TRANSFERS

Many western states anticipate that water transfers will play a significant role in the allocation of water to existing and future demands. As part of the WSWC survey, western states water administrators were asked: *How does the reallocation of water through voluntary, market transfers fit into your state's plans for meeting future water demands?* Twelve of the seventeen states indicated that water transfers are occurring and will likely play a significant role in meeting new water demands (See Figure 4). (The remaining five states acknowledged that transfers are occurring to some degree but replied that they did not have a centralized planning process, had not formally adopted transfers as part of the water supply plan, or had no data to estimate the role of transfers.) Several states reported efforts to strengthen tools for water transfers or to build "water banks" to facilitate trading among water users in a specific geographic area.

A review of trends in western water suggests that water transfers will be a critical tool going forward.

A review of trends in western water suggests that water transfers will be a critical tool for water allocation in the future. Given that water is fully allocated in many basins and/or during certain times of year, many states see no alternative to water transfers as a source of "new" water supplies. This trend is reinforced by water supply uncertainty — due to climate, reservoir siltation, and forest health and fire risk — which may drive water users to secure drought protection through water transfer agreements and stimulate the development of institutions like water banks to smooth out the effects of variable supplies[17] In addition, transfers can be responsive to changing needs over time; as priorities evolve, transfers can provide flexibility to shift water among uses in a way that permanent infrastructure development may not.

2.6 STATE INSTITUTIONS

As transfers have become more prevalent, state institutions have evolved to deal with them. Today, western states have established regulatory and statutory authorities to accommodate changing demands on water resources. Although these efforts vary considerably across the West, states have generally focused on accelerating the review process for transfer applications, providing incentives for stretching available supplies, and modifying forfeiture and abandonment laws to allow for conservation and instream uses.[18] A number of western states have also enacted provisions to facilitate the temporary or short-term movement of water from one use or location to another.[19]

At the same time, states are working to provide adequate protections for environmental values and third parties impacted by transfers. In addition to ensuring that transfers do not impair other water rights, many states now consider potentially harmful impacts to environmental and economic values as part of the processes they use to review and approve transfers.[20] These considerations often fall under a "public interest" or "public welfare" review and are intended to protect public values and address public concerns involving the direct and indirect effects of transfers.[21]

In addition to regulatory and statutory conditions, states have also developed various programs, policies, and institutions to process or encourage transfers. These efforts not only include the state entities charged with regulating transfers, but also encompass state-sponsored water banks and other programs that facilitate the transfer of water by reducing transaction costs and matching willing sellers and buyers.[22]

Chapter 4 provides additional detail on state roles, institutions, and practices for dealing with water transfers. Identifying and sharing lessons about successful state transfer practices is a primary objective of this report.

case study

THE LOWER ARKANSAS VALLEY SUPER DITCH COMPANY, INC.

Farmers work together to meet growing urban demand while continuing an agricultural tradition

The Lower Arkansas Valley in southeastern Colorado has long been an agricultural center for the state, producing beef, grains, and specialty crops. But the region's irrigated agriculture has declined as cities on Colorado's Front Range have looked to the Lower Valley as a water source for their growing populations. A succession of "buy-and-dry" transfers from farmers to cities such as Colorado Springs, Pueblo and Aurora has taken roughly a quarter of the region's irrigated lands out of production since the 1950s.

The small rural community of La Junta has been largely untouched by "buy-and-dry" transfers and maintains a healthy downtown area. Photo by Carla Quezada.

The communities dependent on farming as an economic base have undergone a dramatic transition. Empty storefronts in small towns, from Sugar City to Rocky Ford to Manzanola, attest to the difficulties that buy-and-dry transfers can pose. The region has lost an estimated $33.5 million in annual economic activity. In addition, the former agricultural land has given way to weedy plant species that pose a fire hazard.

The Colorado Water Conservation Board estimates that municipal growth, if it follows historical trends, could dry up an additional 28 percent of the Lower Valley's irrigated land by 2050, leaving less than half of the historically irrigated acreage in production.

In 2002, residents of the Lower Valley voted two to one to create the Lower Arkansas Valley Water Conservancy District ("Lower District") to protect the Valley's water resources, and with them, their social and economic future. While the Lower District has aggressively fought additional buy-and-dry transfers to Front Range cities, it has just as steadfastly worked to promote alternative transfer methods that meet municipal demands while allowing farmers to continue to irrigate.

The Lower District has pursued a water leasing program for the Valley, an option which allows irrigated lands to remain in production while cities obtain water supplies. For farmers, water leasing creates a "new crop," one with a predictable cash flow that irrigators can use for on-farm improvements, debt reduction, and equipment

The Lower District has pursued a water leasing program for the Valley, an option which allows irrigated lands to remain in production while cities obtain water supplies.

upgrades. For municipalities, the irrigated fields in the Lower Arkansas Valley are functionally equivalent to a reservoir that the cities can tap (fallow) when needed to meet municipal demands.

"This is the best way to extend our farming operations as long as possible," said Dale Mauch, a farmer in the Lower District and a Super Ditch board member. "The Front Range continues to grow. On top of that, we just don't have the moisture we're used to—we're in our 12th year of drought."

To gain support from farmers, the Lower District sponsored conferences and field trips that familiarized its farmers with leasing programs in California and Idaho. Concurrently, the District supported detailed engineering studies to confirm the feasibility of a leasing program sponsored in part by the CWCB.

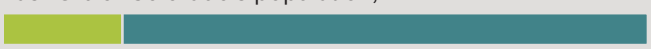
The leasing program was formally incorporated as the Lower Arkansas Valley Super Ditch Company in 2008. The Super Ditch negotiates on behalf of irrigators to make water available to other water users through leases, interruptible water supply agreements, and water banking. Valley irrigators represented by the Super Ditch include farmers from the Rocky Ford High Line Canal, Oxford Farmers Ditch, Otero Canal, Catlin Canal, Holbrook Canal, Fort Lyon Canal, and the Bessemer Ditch.

> *"This is the best way to extend our farming operations as long as possible."*
>
> —Dale Mauch, farmer

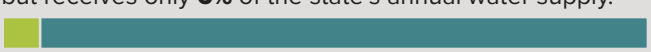
ARKANSAS RIVER BASIN:

is **1/3** of Colorado's surface area,

has **19%** of Colorado's population,



but receives only **6%** of the state's annual water supply.†



QUICK NUMBERS

- Population in the Arkansas River Basin is projected to increase by **78%** between 2008 and 2050.*
- The economic value of Lower Arkansas Basin irrigation is **$428/AC/YEAR**.‡

* See Endnote 120.

† See Endnote 121.

‡ See Endnote 25.

The Super Ditch expects it can lease up to 24,000 acre-feet in a dry year, 50,000 acre-feet in an average year, and 80,000 acre-feet in a wet or extremely dry year (like 2002 when there was not enough water to farm). The Super Ditch will deliver water into Pueblo Reservoir and then the lessees will be responsible for transporting the water for their use.

It will be up to individual farmers to decide whether, and to what extent, they want to participate. If there is more interest in leasing than demand, the amounts will be prorated. Irrigators may fallow land in rotation or on some other basis, and will be responsible for weed and erosion control on their fallowed land. Leases will constitute a legal encumbrance upon the ditch company shares leased by the irrigators, and constitute a continuing obligation of the owner, assignor, or successor to provide certainty of supply to lesees.

> *"Fallowing-leasing invites cities to work with, rather than against, farmers and rural communities."*
>
> —Peter Nichols, general counsel for the Super Ditch

Currently irrigated land on the Ft. Lyon Canal. Photo by Carla Quezada.

"Fallowing-leasing recognizes the reality that cities are going to need and obtain irrigation water to meet their future needs," said Peter Nichols, general counsel for the Super Ditch. "The advantage is that it invites them to work with, rather than against, farmers and rural communities."

In June 2010, the Super Ditch announced the terms of an agreement with members of the Pikes Peak Regional Water Authority for up to 8,020 acre-feet per year for 40 years. The Super Ditch subsequently reached a similar agreement with the city of Aurora, for up to 10,000 acre-feet per year in up to three years in ten, for a total of 140,000 acre-feet over 35 years. The agreements established the essential lease terms, e.g., a base rate of $500 per acre-foot delivered, adjusted every 5 years by a municipal water supply price index, and a right of renewal. In addition to municipal providers, the Super Ditch will also lease water to other irrigators who need additional water.

Though still in development, the Super Ditch has already taken the step forward from concept to reality. The City of Fountain and a smaller community, Security-Widefield, have signed the first two annual leases, which will automatically renew for 39 subsequent years. The providers may, however, convert the annual leases to 40-year term leases within the first 5 years, in which case the providers will get a right to renew for an additional 40 years. Deliveries of 250 acre-feet per year will begin in 2012, which the cities can increase up to 2,500 acre-feet per year.

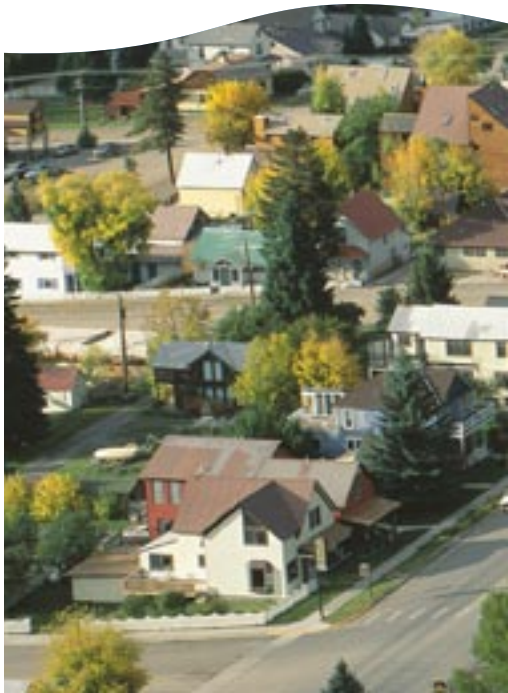
CHAPTER 3
Public Policy Considerations for Water Transfers

While transfers have the potential to reallocate water resources to emerging high-value uses, the movement of water from current uses to new demands can have impacts beyond the buyer and seller. While virtually all of the western states have legal provisions that prevent transfers from changing water deliveries to other water right holders, this so-called "no-injury" rule does not necessarily protect flows for the natural environment or for recreational enjoyment. Nor do state legal frameworks always account for unintended third-party impacts to communities with agriculturally-based economies.

Western Governors recognize the importance of avoiding or mitigating impacts to rural communities.[23] This section identifies public policy questions that governors, state water managers, transfer participants, and local communities may confront in evaluating water transfers and developing transfer practices.

3.1 LOCAL ECONOMIES

The transfer of water from traditional agricultural use can result in a loss of economic activity in rural communities. Irrigated crops tend to draw higher profits than dryland crops, so farmland without irrigation is less productive and profitable.[24] With less cash flow into the local economy through agriculture, small businesses that depend on farmers can suffer economically. Concerns about these economic impacts can contribute to local resistance to proposed water transfers from rural, agriculture-dependent areas.



The economic externalities of water transfers are hard to quantify, even on a local level. Economic effects can be categorized as *direct*, regarding a change in on-farm income; *indirect*, such as effects to a tractor salesman whose customer base shrinks; or *induced*, such as effects to a waitress who receives fewer tips as the community's economy weakens.[25] Capturing a firm number for indirect and induced effects is difficult, especially when other factors like urbanization and aging populations could contribute to changes in rural community structure.

Economic research has indicated that local economies can be affected by water transfers, though at widely varying degrees.

Some experts have attempted to put a number on those indirect and induced effects, with varying results. Many studies of water transfers in California have demonstrated only minor or negligible effects from land fallowing, normally resulting in losses between 2 to 5% of a county's agricultural income and less than 1% of total county income.[26] But communities that are particularly dependent on agriculture may bear higher costs from transfers — one study from Colorado State University projected that Colorado's Rio Grande basin alone could lose between 20% and 32% of its irrigated farmland, resulting in as much as $98 million in economic losses to the region. Because of the small population, per capita impacts of this reduction could be nearly $2,000 per person.[27] In general, economic research has indicated that local economies can be affected by water transfers, though at widely varying degrees.

Some states have legal protections for area of origin impacts. Those states that do account for externalities often describe the protections in broad language. Texas, for example, requires that for transfers which will send water out of one basin and to another, the projected economic impact on each basin must be considered in the application for the transfer. In Nevada, statutory protections are more specific: the county of origin may impose a fee of $10 per acre-foot per year on certain transfers of water out of county and approval of a transfer may be contingent upon monitoring, management, and mitigation plans. In some cases, voluntary, negotiated mitigation funds have been used to assist in an economic transition.[28] For an example, see the case study on the Metropolitan Water District-Palo Verde Irrigation District transfer on page 42.

3.2 STATE AND REGIONAL AGRICULTURE

Cropland and pasture make up more than a third of land use in 10 of WGA's 19 member-states. But pressure from an increasing population and economy is shifting land use away from agriculture: California saw a 2.2% decline between 2002 and 2008 while Wyoming's farmland dropped by 6.8%.[29] Accompanying this shift in land use is a similar change in water use; roughly half of water transfer transactions from 2005 to 2010 diverted water from agriculture for municipal and industrial use.[30]

3.2.1 The Economic Value of Agriculture

Agriculture makes an important contribution to the regional economy of the West, contributing $138 billion per year to the region's economy.[31] While it accounts for less than 2% of the gross economic product of the West, it is critical to the economy of many rural communities. The induced and indirect effects of farming — contributing to rural economies built around farmers and farmworkers — mean that the true value of the agricultural sector exceeds net income figures. Water adds significant economic value to agricultural production for pastureland and hay crops as well as for fruits, nuts and other high-value products. Consequently, water transfers can have a structural impact to the regional economy of the western states, in addition to the acute impacts to local communities.

3.2.2 Culture and Heritage

Agriculture is a critical element of the history and culture of the West. Much of the settlement of the West occurred around projects designed to provide water for mining and irrigation,[32] and the archetype of western independence and ingenuity is often associated with the application of water to the land to grow food. As western agriculture spread, ancillary benefits such as ecosystem services, the aesthetics of "working landscapes" in pastoral areas, and the enhanced flavor of locally-grown food add to quality of life throughout the West. Water transfers may be perceived to contribute to a cultural loss in terms of history, knowledge, and the aesthetics of the western agricultural landscape.

Water transfers may be perceived to contribute to a cultural loss.

3.2.3 Food Security

Some observers of water transfers are apprehensive about a loss of agricultural irrigation water leading to a reduction in the nation's capacity to feed itself (or, sometimes, concerns about states or regions feeding themselves). This concept is commonly known as *food sovereignty* or *food security*.* The logic is that with less water in agriculture, western farmers will ultimately lose their capacity to produce enough food to meet national demand. Water transfers are not the only stressor to agriculture, of course — the aging farmer population and urban encroachment also have also significantly changed the face of agriculture over the past several decades.[33] Water transfers, in conjunction with these other factors, contribute to a concern that we are undermining our ability to produce food.

Food insecurity raises a plethora of concerns, ranging from susceptibility to price shocks in global commodity markets to the inability to sustain local farmers markets. Some — including the US Department of Homeland Security — see agriculture as a domestic security issue.[34] For others it's a seemingly impossible math equation: with projections for a 40% population increase by 2050 accompanied by a 70% increase in demand for agricultural products,[35] how can we feed the world without ensuring as much water stays in agriculture as possible?

There are no easy answers to these questions, and thorough analysis of these global trends and their regional impacts is outside the scope of this report.† Nonetheless, states must recognize that transfers are perceived as undermining local food sovereignty.

* In academic circles, *food sovereignty* is a concept of self-sufficiency, referring to the right and ability of a nation to produce its food supply within its own borders. *Food security*, in academia, refers to individual or household access to safe, nutritious, and sufficient food. However, food security is sometimes discussed as a regional, national, or global concept in both academic and common vernacular. For an extensive discussion of these two terms, see: Lee, Richard. "Food Security and Food Sovereignty." Centre for Rural Economy Discussion Paper Series No. 11, March 2007.

† For a thorough global analysis, see Bruinsma 2009.

3.3 ENVIRONMENT

The limited nature of water resources in much of the West makes for a delicate balance between water for human and environmental use. Freshwater and riparian wildlife are dependent on adequate water resources — but then, the definition of "adequate" does not always garner consensus. Other environmental issues are equally difficult to quantify, including the tradeoff between groundwater recharge and transferring or conserving water. This section addresses three of the primary environmental concerns regarding water transfers.

3.3.1 Instream flows

As water diversions have increased over time, flows in rivers and streams have declined. Today, most states recognize instream flows as a beneficial use. For instance, Oregon established programs to reserve a minimum flow on priority streams for fish habitat in 1955, and Washington, Montana and Colorado created similar programs in the late 1960s and early 1970s. The late 1980s saw a second round of reforms in the Pacific Northwest that allowed water rights holders with senior rights to transfers those rights instream on a temporary basis without losing the underlying priority or reliability — first Oregon in 1987, then Montana in 1989 and Washington in 1989 for the Yakima Basin, then statewide in 1991.[36] (For more, see Table 3 for a listing of state instream flow laws.)

3.3.2 Groundwater Recharge

Groundwater recharge is, in some places, essential to maintaining adequate stores of groundwater.

Transferring water away from agriculture can have negative effects on aquifers. Some of the irrigation water not consumed by crops seeps into the ground and replenishes underground water tables. This process of *groundwater recharge* is, in some places, essential to maintaining adequate stores of groundwater. The largest managed groundwater recharge and storage projects in the U.S. are located in California, where some irrigation districts that have large-scale constructed infrastructure (basins) for recharge projects. [37] Recharge through canals and irrigation ditches is also limited when conservation methods such as impermeable linings and piping are used to save water.

3.3.3 Invasive Species

Invasive species can pose a problem when water is transferred. When irrigated farmland transitions to dry pasture after a "buy-and-dry" water transfer, the endemic grassland species are not always the ones to return to the land. Instead, invasive species often take over the property, which can have substantial changes in soil moisture or organic matter after years of intensive agriculture. The property then serves as a home for invasive species and sometimes a seed bank for weed species that can cause problems for other farmland in the area. In one extreme case, the non-native species that took over a plot of land in Colorado were particularly fire-prone and led to a strong fire that had the potential to cause devastating effects.[38]

3.4 THE OFF-RESERVATION TRANSFER OF INDIAN RESERVED WATER RIGHTS

Some have expressed interest in transferring Indian reserved water rights off-reservation for non-Indian uses as a way of increasing flexibility in supply, providing economic benefits for tribes, meeting non-Indian water demands, enhancing environmental benefits, and fulfilling the United States' trust obligations to tribes.[39] However, others have expressed concern that off-reservation transfers are inconsistent with the unique nature of Indian reserved water rights.[40]

3.4.1 The *Winters* Doctrine and Indian Reserved Water Rights

Most non-Indian water development in the West occurred after the federal government entered into treaties to establish reservations for tribes, which typically did not mention any water rights. The U.S. Supreme Court addressed this issue in its 1908 decision in *Winters v. United States*, holding that the treaties created implied water rights that the Congress reserved to meet the purpose of a tribe's reservation.[41]

Unlike prior appropriation rights, these reserved rights, or "*Winters* rights," are indeterminate in amount until quantified through a court adjudication or Congressionally-approved settlement. They also arise independently of beneficial use and are measured by the amount needed to fulfill the purpose of a reservation, rather than relying on past uses. Moreover, Indian reserved water rights cannot be lost to forfeiture or abandonment and have priority dates that correspond to the date the federal government created the reservation, which often predates non-Indian uses.

Quantification of the amount of water reserved has been subject to varying standards, one being the practicable irrigable acreage on a given reservation and another the amount needed to establish a permanent tribal homeland.[42]

3.4.2 Scope of Indian Reserved Water Rights

The scope of Indian reserved water rights remains unsettled and the U.S. Supreme Court has not determined whether tribes have a right to transfer their rights off-reservation. In particular, given that the *Winters* doctrine reserves Indian water rights for use on the reservation, it is uncertain whether transferring these rights off-reservation for use by non-Indian interests is consistent with the nature of the right itself.[43] Questions also exist as to whether tribes can transfer reserved rights across state lines.[44]

3.4.3 Water Settlement Acts

To address the uncertainty surrounding Indian reserved water rights, some tribes have secured approval for off-reservation transfers through Congressionally-authorized settlements that specifically allow for tribal leasing. These authorizations

vary considerably from settlement to settlement, but generally prohibit interstate transfers while also containing a number of other restrictions or limitations. For example, authorizations like the 2004 Arizona Water Settlements Act restrict tribes from marketing water out-of-state but allow for in-state marketing.[45] Others explicitly subject voluntary water transfers to state law.[46] A few require state approval of voluntary water transfers in addition to the approval required by the Secretary of the Interior.[47] Occasionally, states have sought voluntary water marketing provisions that allow tribes to lease water to specific cities[48] or counties within that state.[49]

Some settlements have also recognized "tribal water rights" that are separate and distinct from a tribe's federal reserved right.

Two specific examples of settlement acts that have allowed for the off-reservation transfer of Indian reserved water rights are provided below.

3.4.1.1 SALT RIVER PIMA-MARICOPA INDIAN COMMUNITY SETTLEMENT ACT OF 1988: The Salt River Pima-Maricopa Indian Community Settlement Act of 1988[50] includes leasing, storage and water exchange agreements between the Salt River Pima-Maricopa Indian Community, seven cities and multiple irrigation districts in Arizona. However, outside of these agreements, the settlement prohibits the marketing of water.

3.4.1.2 THE JICARILLA APACHE TRIBE WATER SETTLEMENT ACT OF 1992: The Jicarilla Apache Tribe Water Settlement Act of 1992[51] has slightly different provisions. While it allows for voluntary off-reservation transfers, it limits the tribe to 99 year leases so as not to permanently alienate tribal uses, and subjects the transfers to New Mexico state law. However, the settlement does protect leased water from state continuous use requirements and explicitly protects Indian reserved water rights from being forfeited or relinquished for nonuse.

3.4.4 Additional Considerations Regarding the Transfer of Indian Reserved Water Rights

Like any other category of water right owners, tribes have diverse and unique interests.

In addition to traditional lease transactions, some tribes may enter into deferral or waiver agreements with junior users in exchange for compensation. Some tribes may also enter into settlements in which they agree to accept a lesser quantity of water in exchange for development infrastructure or the ability to voluntarily lease water.

Like any other category of water right owners, tribes have diverse and unique interests. An entity entering into a voluntary water transfer with a tribe must understand the relevant federal and tribal laws and policies, just the same as if it was entering an agreement with a state, municipality, or other type of government. Such entities must also be familiar with the provisions of any applicable settlement agreement that provides specific authorization for the tribe to transfer its rights off-reservation.

3.5 STAKEHOLDER VIEWS OF TRANSFERS

Those who deal regularly with water transfers tend to have a pragmatic view on the role of water transfers in the West's water future. An informal survey by the WGA and WSWC questioned local water managers, state officials, irrigation district managers, and other water experts on their view of water transfers. The overwhelming majority of these water professionals said they view transfers as "mostly positive."* When asked what mechanisms should be used to meet future water demand, very few chose permanent transfers from agriculture; many supported alternative water transfer methods (outlined in Chapter 5) and conservation/efficiency.

A public preference for conservation and efficiency has also been documented in academic studies. One survey conducted by Colorado State University showed that the general public prioritizes "keeping irrigated farms in production." When cost was not a factor, those surveyed favored reservoir storage and reuse of water on public landscapes in order to meet new water needs. Respondents indicated some willingness-to-pay for maintaining irrigated agriculture, as well: two-thirds of respondents said they'd be willing to pay $5 more on their monthly water bill, and those respondents rated preserving irrigated agriculture as high among the services they would want that money to go to, ranking alongside reservoir construction and water reuse systems for public landscapes.[52]

It is more difficult to summarize what farmers themselves think of transfers — farmers are a very diverse group. Agriculture has long been central to the economy and culture of the West, and without irrigation the face of farming would be forever changed. Some farmers worry that transfers will lead to a dry up of the land and hinder the West from its ability to feed its citizens.[53] Others believe that alternative transfer methods (ATMs) can offer a way to work together with growing cities that will come looking for water regardless of the importance of agriculture to their region.[54] Still other farmers believe that their water rights are theirs to sell to the highest bidder and there should be no restriction to this right.

3.6 CONCLUSION

For all of these reasons, transfers are complicated. States must be aware of the impacts and public perceptions of transfers. The administrative process, when well-executed, facilitates transfers as efficiently as possible while also allowing for a public review and consideration of third party impacts, thereby avoiding litigation from opponents of transfers. The rest of this report outlines institutions, practices, and polices that states have used to address the impacts assciated with water transfers.

* 54% of respondents saw transfers as "mostly positive"; 36% reported their perception was "mixed."

CHECKLIST: BASIC WATER TRANSFER ISSUES

A checklist of issues that water resource managers can consider when evaluating transfers. Some questions may be especially relevant and others minimally so, depending on state regulatory framework.*

- **SIZE**
  How large is the volume of the water to be transferred in relation to supplies in the area of origin? Will sufficient water remain for existing farms and economic operations, or to cope with anticipated growth or drought conditions?

- **COST**
  Is a water transfer the most cost-effective means to meet demand?

- **TIMING**
  Will the transfer occur immediately or provide time for adaptation? And will the transfer happen every year or intermittently?

- **DISTANCE**
  Water may be transferred short distances and achieve local land use planning objectives, or it may travel farther and become a point of controversy. Local transfers that keep water within a community may minimize the economic impacts of transitioning the economy way from agriculture, or even enhance the local economy and tax base.

- **DURATION**
  Is the application for a temporary supply of water or will it permanently move water from the area of origin? If it is a sale, is there a lease-back option to ease the area of origin away from regular use of the water right?

- **MEANS OF CONVEYANCE**
  Does the infrastructure exist to move the water efficiently to its new place of use? Is new infrastructure needed to deliver water?

- **WATER QUALITY**
  Does the transfer at all decrease water quality? For instance, does a decrease in flows increase the stream temperature? Could those changes have unintended consequences for wildlife or recreational use?

- **GROUNDWATER RECHARGE**
  Will the transfer reduce the amount of groundwater recharge from irrigation reduction? Will farmers rely on aquifer resources for an alternative form of irrigation, and do sufficient resources exist?

- **LOCAL GOVERNMENT**
  Will a water transfer result in consequences—negative or positive—for the tax base? Might any social service needs arise as a result of the transfer?

- **ENVIRONMENT**
  Will a change in water timing or diversion lead to an adverse change in habitat for plant or wildlife species? Might the transfer lead to positive results? (See Chapter 3.3 for more.)

- **LOCAL ECONOMIES**
  Will the water transfer lead to unintended consequences in the local community due to a reduction in income from irrigated agriculture? Can any mitigation programs be established to lessen negative effects? (See Chapter 3.1 for more.)

- **MITIGATION PLANS**
  Does the transfer arrangement include any terms for economic assistance to the rural community or rehabilitation of farmland? If so, does it negate any of the concerns above?

* A group of diverse stakeholders in Southeastern Colorado called the Arkansas Basin Roundtable released a report in 2008 with a detailed decision-making framework called "Considerations for Agriculture to Urban Water Transfers." Much of this section is inspired and informed by that report.

CHAPTER 4
State Roles and Perspectives

Water law is a unique and complex area of law. Legally, water is viewed as both a commodity subject to private ownership and a public good for communal use. In the West, state constitutions declare water to be a common resource that the states hold in trust for the public. At the same time, state laws provide mechanisms for the private use of water, including methods to secure new water rights and transfer existing water rights. In addition, the types of laws, regulations, and policies that western states use to regulate transfers vary considerably across the region.

This chapter outlines the legal framework for water transfers and identifies many of the programs and practices that have been put in place to deal with water transfers.

4.1 LEGAL FRAMEWORK

4.1.1 Historical and Legal Precedent for Transfers

Water rights transfers are hardly new: the landmark legal cases that guide today's transfer policies were decided in the mid-19th century. A series of California cases decided between 1857 and 1867 established three basic tenets of water law that eventually made their way to other western states:[55]

- A change in the place of use is permissible under the same water right (*Maeris v. Bicknell*).
- An appropriative water right can be regarded as a property right — changes such as the point of diversion may be made as long as they do not cause "injurious consequences" to other right holders (*Kidd v. Laird).*

- A water right is maintained through continued physical appropriation of water and application to a beneficial use; the change in place or type of use does not cause a change in the right or its priority, so long as there is no injury to other water users (*Davis v. Gale*).

Water transfers as we know them today were not common in the 19th century West, however. Indeed, up through the 1960s, many states had restrictive laws concerning water transfers. In some states, rights were linked to the land where the water was originally used.[56] As the economics and demographics of western states changed, those laws were removed from the books and new statutes explicitly authorizing transfers came into place.

It was in the 1980s that transfers became a common instrument of water resource management. Academic articles examining the various western water markets emerged, and regional policy makers like WGA examined ways to improve water use efficiency through transfers (see WGA's 1986 report *Tuning the System*). The law changed, too; as water transfers gained ground, states started to develop institutions and provide protections for third parties who could be affected by transfers.

States took on even larger roles in the 1990s by beginning programs to promote and facilitate transfers. When California began its Drought Water Bank in 1991 in response to a multi-year shortage, it was the largest set of regional water trades to occur in the US. Today, all of the states represented by the WGA and the WSWC report some level of water transfer activity over the last five years, ranging from two transfers in South Dakota to well over 1,200 in Oregon.[57]

4.1.2 A Western Perspective on Water Allocation: The Prior Appropriation Doctrine

defined : **PRIOR APPROPRIATION**

The primary doctrine used by western states for allocating water rights. Includes recognition of seniority as well as beneficial use and continued use of the water right.

The prior appropriation doctrine is the predominant method used by western states to allocate and regulate the private use of water.[58] States define and utilize this doctrine somewhat differently, but there are certain elements that usually must exist to constitute a valid appropriation of water, namely: (1) an intent to apply the water to a "beneficial use" (e.g., agricultural, domestic, mining, industrial, commercial, and other uses);* (2) an actual diversion of water from its source to the place of use; and (3) timely application of the water to a beneficial use.[59] With some exceptions, most western states apply the prior appropriation doctrine to both surface and groundwater.[60]

One fundamental condition of an appropriative right is the principle of "first in time, first in right," in which the date a water right is established (priority date) determines who receives water in times of shortage. Under this concept, water right holders with older priority dates have a right to use their full appropriation

* Notwithstanding these requirements, it is important to note that most western states recognize instream uses as a beneficial use regardless of the traditional need for a diversion. *Id*. at 176—177 (discussing how states have modified the prior appropriation doctrine to accommodate instream uses). Beneficial use also incorporates the concept that the use must be reasonable and without waste as traditionally measured by local custom and practice. Lawrence J. MacDonnell and Teresa A. Rice, *Moving Agricultural Water to Cities: The Search for Smarter Approaches*, 14 Hastings W.-N.W. J. Env. L. & Pol'y 105, 120 (2008) (describing reasonable use in the West).

before junior users with later priority dates. Consequently, in times of shortage, senior users may divert all of the available water in an effort to take their full apportionment while junior users may receive no water at all.[61]

Another key condition is the principle of "use it or lose it," which requires water right holders to use water as prescribed or lose all or part of the right to its use through abandonment, forfeiture, or prescription.[†] This provision is meant to ensure that the water is applied to a beneficial use and not held for speculative purposes.

Water that has been diverted but not consumed, or "return flows," returns to a river, stream or aquifer and re-enters the public domain. At this time, downstream users can appropriate the return flows for their own use.[62] This allows scarce water resources to be used and reused multiple times. Moreover, return flows illustrate how changes in upstream or senior water rights can impact downstream and junior users.

defined **: RETURN FLOW**

The portion of water that is not consumed during water use, and that is returned to the waterway or basin.

4.1.3 Legal Framework for Water Transfers

Given the prevalence of water markets, all western states have developed a robust legal framework for integrating transfers into the prior appropriation doctrine. In general, states require those wishing to change the place of diversion, place of use, or purpose of an existing water right to obtain approval from the appropriate state authority (typically a state engineer, state agency, or water court). This basic regulation ensures that transfers do not affect other water rights. But states have broadened their review of transfers to consider a range of impacts — including to the environment and economy — and they have developed new procedures to streamline reviews, particularly for short-term transfers.

This section of the report provides an overview of the legal framework for water transfers; the report contains a detailed appendix that elaborates on the principles and mechanics of how transfers are evaluated by states.

4.1.3.1 INJURY TO EXISTING WATER RIGHTS: Although conditions for approval vary considerably across the West, the principles used by states to protect vested water rights from new appropriations also ensure that changes of existing water rights do not injure other vested water rights. This so-called "no injury" rule is perhaps the most important component of the process most western states use to review and approve water right change applications.

The "no-injury" rule ensures that changes in a water right do not adversely affect other water rights holders.

4.1.3.2 THIRD-PARTY IMPACTS: The no-injury rule does not necessarily ensure that non-right holding water users — such as environmental organizations or recreational users — will continue to enjoy regular water flows. Nor do state legal frameworks always account for the ways in which transfers may unintentionally cause *third-party impacts* in

[†] Abandonment occurs when a water right holder no longer uses the right and no longer intends to use it. In contrast, forfeiture does not require intent and results when a right holder loses his or her right after not using it beneficially for a specific period of time. Prescription basically refers to the adverse possession of water resources. *Id.* at 71.

communities with agriculturally-based economies. As one source explains, the goal of water policy in many parts of the West "is both to streamline the systems that impose superfluous restrictions, costs, and delays on the transfer process and at the same time, to devise new ways to account for important interests that are now left out."[63] Western states rely on a variety of methods to address these goals.

4.1.3.2.1 Public Interest Reviews: Most western states require some form of public interest review for proposed water transfers through statute, regulation, or case law. Public interest reviews assess impacts to environmental resources and local economies, as well as the net benefit of the transfer to the state.[64]

4.1.3.2.2 Environmental Protections: In addition to public interest reviews, western states utilize a variety of other approaches to protect environmental values. These can include prohibitions or conditions on transfers with negative environmental impacts, instream flow protections, and area of origin protections.

4.1.3.3 TRANSFERS AND GROUNDWATER: Some states use different regulatory regimes to govern the appropriation of surface water and groundwater, or provide varying levels of detail regarding groundwater transfers.

4.1.3.4 TEMPORARY TRANSFERS: Some states utilize a more streamlined or expedited review process to approve temporary, short term transfers. Expedited reviews are considered appropriate in these cases because the shorter duration of such transactions minimizes the risk for potential impacts. Any impacts that do occur can be more easily remedied. In addition, short-term transfers are often transient in nature and require rapid approval to address pressing water supply needs that exist at a certain time.[65]

4.1.3.5 INFORMAL AGREEMENTS: In some cases, parties may enter into informal "gentlemen's agreements" to voluntarily share water or forgo the exercise of a valid right to the use of water. These agreements are generally not regulated by the states and appear to be fairly limited or non-existent in most states. They are typically non-binding and subject to challenge by other water rights holders.[66] However, in some states they can represent significant opportunities to share water for a variety of purposes. For instance, in Utah, gentlemen's agreements are commonly used to provide water for instream purposes.[67]

4.2 COMMON ISSUES

Given this legal framework, states have faced a variety of common issues in dealing with water transfers.

4.2.1 State Information and Data Needs for the Transfer Approval Process

States require data to approve or deny a transfer request. The amount of "paper water" allocated under a right is rarely the same amount of water that a right holder has the legal right to consume, and in order to approve or deny a transfer, states must first determine how much water the right historically used. This analysis is an important component of the no-injury requirement and is needed to ensure that a transfer does not result in the enlargement of a water right that harms other right holders.

The amount of "paper water" allocated under a right is rarely the same amount of water that a right holder has the legal right to consume.

Determining consumptive use requires historical data on the method of irrigation, crops grown, climate, soil type, and seasonal water use.[68] Inadequate data or analysis regarding these factors can lead to uncertainty and confusion within the transfer process and dissuade creative transfer proposals.[69] As Montana noted in its survey response, "the biggest difficulty…in addressing water transfers is making a determination of the amount of water historically diverted/consumed by the original user.…"[70]

4.2.2 Regional Issues

Nine western states reported that the bulk of their transfers occur in areas close to or near growing population centers.* This is due in part to the fact that securing water from more remote areas where water supplies may be more plentiful often requires extensive conveyance networks to pump water over substantial distances at significant cost. As a result, many transfers are local, and they often transfer water from lands that may be affected by urbanization at the same time.

However, where conveyance networks exist, longer distance transfers can be more feasible. In California, which has an extensive conveyance system, many large transfers involve moving water substantial distances through the federal Central Valley Project and California's State Water Project.[71]

Because of the varying environmental and economic impacts of water transfers on the area of origin — regardless of whether the water travels locally or long distance — local issues are an important consideration for transfers policy.

* Western states reporting transfer activity near growing population centers include: Arizona, Idaho, Colorado, Montana, Nevada, New Mexico, Oregon, Utah and South Dakota.

4.2.3 Abandonment and Forfeiture

The abandonment and forfeiture — or "use it or lose it" — principle under the prior appropriation doctrine is intended to discourage speculation and promote the maximum beneficial use of a scarce resource. As technologies and more efficient water application methods have evolved, so has the concept of reasonable beneficial use. To accomplish these goals, abandonment and forfeiture provisions set forth procedures in which water right holders may lose all or portions of their water rights if they do not use water as prescribed.

Many states have adopted laws to protect leased or transferred water from a presumption of forfeiture, such as a statutory provision in Idaho that provides a defense to forfeiture for water deposited in and leased from a water bank.[72] Such protections can also function as a driver to motivate right holders to make their water available as a means of avoiding forfeiture.[73]

Nevertheless, concerns about forfeiture and abandonment can remain for some water right holders, who may fear losing a portion of their rights if they use less water to accomplish their traditional purpose. As one commentator has noted, water users may continue to express fears that leases or temporary transfers "will result in a loss of the underlying right under the law of abandonment or some other related legal doctrine…. No matter what the legislature now says, water users… often assume the rules will change in the future to meet practical demands."[74]* Such concerns may act as a disincentive for right holder who would otherwise use ATMs.

4.2.4 Statutory and Regulatory Issues

In some instances, the transaction costs of processing water transfer applications can be substantial and may act as an impediment for certain potential transfers. While lengthy protest periods and minimal standing requirements may provide added protection for existing water rights, they may also facilitate the filing of numerous or baseless objections that can add to the costs and time needed to process change applications. Change application backlogs — as well as staff reductions and budget cuts in state agencies that process change applications — can further exacerbate these problems.

The time and cost of a transfer application can be a significant impediment, particularly for low-volume or short time-frame transfers.

The time and cost needed to secure approval for a transfer application can be a significant impediment for transfers that are of smaller quantity or shorter duration. In many cases, these types of transfers must take place within a certain period of time to be feasible. Further, high transaction costs that represent a significant percentage of the total cost of a small volume transfer can threaten the financial viability of a project. As a result, these factors may make permanent and larger volume transfers appear to be more economically feasible in comparison.

In addition, statutory or regulatory requirements may provide additional hurdles, including statutory provisions that ban or limit the transfer of irrigation water to other uses or place conditions on such transfers.

* For further discussion of the policy implications of abandonment and forfeiture, please see Section 6.3.1.

4.2.5 Barriers to Alternative Transfer Mechanisms (ATMs)

In order to be effective, ATMs must be clear, measurable, and subject to administration. However, given that these types of transfers are relatively recent, a consensus may not always exist as to how they should be measured, calculated, monitored, or regulated to ensure non-injury to other right holders. In some cases, the methodology needed to evaluate and measure most ATMs likely requires more basic scientific research before they can gain acceptance in the water community.[75]

Further, the relatively recent growth of ATMs means that existing statutes and regulations may not adequately address them or that such transfers have not been fully tested in a state's water right change application process. This can increase the amount of uncertainty associated with ATMs and can serve as a disincentive to pursue them. Nevertheless, regulators and project sponsors will likely become more comfortable with the procedures and legal interpretations associated with ATMs over time as these transfers are more fully vetted through the legal and regulatory process.[76]

Even if these concerns were addressed, buyers and leasers of water may not feel comfortable with ATMs as a reliable source for water. Municipal providers have generally indicated that they are primarily interested in securing permanent and firm-yield water supplies. This can create challenges for ATMs or temporary transfers because municipal providers may have concerns about the certainty of supply from these types of transactions.[77]

4.3 STATE TRANSFER EFFORTS AND PROGRAMS

As the need for "new" water supplies increases in the West, many states have developed various policies, programs, and incentives to facilitate or promote transfers, including efforts to mitigate adverse impacts. These programs go beyond the standard state legal and regulatory framework described previously in this report to improve the water transfer process. For a list of these programs by state, please see Table 4 in Appendix C.

4.3.1 General Policies

Some states have instituted policies and programs to facilitate or support transfers. For instance, the California Code states that it is the policy of the state "to facilitate the voluntary transfer of water and water rights where consistent with the public welfare of the place of export and the place of import."[78] The California Legislature has also directed state agencies to facilitate the voluntary transfer of water and water rights, including but not limited to "providing technical assistance to persons to identify and implement water conservation measures which will make additional water available for transfer."[79]

4.3.2 State Water Supply Planning

Some states have developed broad programs or institutions to address long-term water supply planning and to foster collaboration among local stakeholders to preserve agriculture and other values. These bodies may address water transfers as a component of long-term water supply. For example, Colorado has established an Interbasin Compact Committee (IBCC) consisting of a broad range of stakeholders to facilitate conversations among the state's river basins and address statewide water issues. In 2010, the IBCC sent a letter to former Governor Bill Ritter and then Governor-Elect John Hickenlooper, stating that ATMs are preferable to the permanent transfer of agricultural water, and the latter should not be the "default approach" for meeting future demands.[80]

4.3.3 Water Banks

defined : **WATER BANK**

A mechanism in which a water right holder can "deposit" a water use entitlement with a private or public entity (the bank) that can make the entitlement available for lease on a temporary basis by another person for use in another location.

Water banks are a common mechanism states use to facilitate transfers, and almost every western state utilizes or has proposed the use of some form of water banking to facilitate transfers.[81] In general, a water bank provides a mechanism in which a water right holder can "deposit" a water use entitlement with a private or public entity (the bank) that can make the entitlement available for lease by another person for use in another location. Transactions can be either permanent or temporary. The underlying concept is that facilitating the purchase and sale of water through a free market system can help balance supply and demand for water and lead to an efficient allocation of the resource.[82]

In addition, most states have addressed concerns that water rights deposited in a bank could be lost as a result of non-use by including provisions in their banking programs that toll abandonment and forfeiture requirements.[83] For example, the Washington Department of Ecology's Trust Water Rights Program allows water right holders to "bank" unused water with the program without fear of relinquishing their rights. In turn, banked water can then be used for another purpose, such as improved stream flows. The program accepts water rights as donations, leases, or permanent transfers, and uses an expedited review process to determine historic use for temporary transfers in order to incentivize the program.[84]

Please see Table 4 in the appendix for examples of water banks in the West.

4.3.4 Water Conservation Programs

In general, water right holders who conserve water are not allowed to use the water themselves in new locations or lease or sell it to someone else because doing so could injure other water rights holders, who depend on the return flows from senior water rights to supply their demands.[85] This creates an economic disincentive for farmers who may want to implement conservation measures — more efficient irrigation methods may save water, but they are expensive and hold little appeal if no economic returns are expected. In response to this problem, some states have enacted programs to make conservation more appealing.

For example, Oregon's Allocation of Conserved Water Program allows water users that conserve water to use up to 75% of the conserved water on additional lands, or lease or sell the water, or dedicate the savings to instream flows.* In exchange for allowing the right holder to use the conserved water for new uses, the state requires 25% of the conserved be transferred to a state-owned instream right. The state then issues a new water right certificate to the right holder with the original priority date reflecting the reduced quantity of water following the conservation measures. The state also issues other certificates for the right holder's portion of the conserved water and for the state's instream water right, which have priority dates that are the same as the original right or one minute junior.[86] Of note, the program allows other water right holders to protest or comment on conserved water applications and includes a process for resolving disputes.† Please see Table 4 for other examples.

A number of western states have laws that allow for the temporary transfer of water to address drought emergencies.

4.3.5 Drought Preparation and Mitigation

A number of western states have laws and regulations that allow for the temporary transfer of water to address drought emergency conditions. The specifics of these mechanisms vary, but generally provide an expedited review process for transfers that satisfy certain conditions. For instance, during a declaration of a "drought emergency," the Idaho Department of Water resources can approve temporary transfers without publishing notice or making findings required for non-temporary transfers, although it must determine that the change can be properly administered and will not injure other water rights.‡

* OR. REV. STAT. §§ 537.455-.500 (2005). The amount of conserved water is the difference between the amount stated on the existing water right or system capacity, whichever is smaller, and the amount of water needed to satisfy the existing beneficial use stated in the original water right. Or. Water Res. Dep't., Using the Allocation of Conserved Water Program, 3 (March 2006), **http://www.oregon.gov/OWRD/PUBS/docs/reports/conserved.FAQs.pdf**.

† If protests are raised, the Oregon Department of Water Resources will convene applicants and protesting parties to discuss agreeable resolutions. In the event of an unresolved protest, the application will go to the state's Water Resources Commission for review and determination before approving or denying the application. The Commission may also conduct a hearing that will result in a final order approving or denying the application. Or. Water Res. Dep't., Applying for the Allocation of Conserved Water Program, 2 (March 2006), **http://www.oregon.gov/OWRD/PUBS/docs/reports/conserved.pdf**.

‡ Idaho Code Ann. § 42-222A. Written consent is required from irrigation districts for transfers that involve a right, diversion works, or delivery system in which the district has an interest. *Id*. If the water right to be changed is administered by a watermaster within a water district, the Department must obtain and consider the watermaster's recommendations before approving transfer. Kansas has a similar provision that allows the Chief Engineer to approve a temporary transfer not to exceed one year in cases where the governor has declared an emergency affecting public health, safety, or welfare. Kan. Stat. Ann. § 82a-1502(a). Texas law also allows for emergency transfers of an initial period of 120 days if emergency conditions exist that present an imminent threat to the public and health and safety that override the necessity to comply with established statutory procedures and there are no feasible practicable alternatives to the emergency authorization. Tex. Water Code § 11.139. Such transfers can only be renewed once for no more than 60 days. *Id*.

Some western states have taken other steps to address drought impacts, including efforts to facilitate water transfers. Examples range from administrative approval of temporary interruptible supply agreements in Colorado that may be triggered by dry-year and drought recovery needs,87 to a dry year leasing program that the California Department of Water Resources has operated during certain dry years.[88]

4.3.6 Tax Programs

Some states utilize tax incentives to encourage certain types of transfers. Under New Mexico law, donations of land — including water rights — to public or private conservation agencies for the purposes of creating a conservation easement are eligible for a state tax credit worth up to 50% of the appraised value of the donation.[89] Colorado law also provides an income tax credit to water users who donate their water rights to the state's instream flow program.[90] Other programs in other states are described in Table 4 of the appendix.

Colorado's ATM grant program allows the state to explore and promote alternatives to traditional water transfers while learning how to address the typical problems associated with ATMs, such as monitoring and measurement.

In contrast, some programs in Nebraska require the payment of property taxes on the pre-transfer value of the land, as a means to address concerns that changing water to a non-irrigation use will reduce local property values and related property taxes that support local governments and school districts.[91] These programs can serve to mitigate the local economic impacts of a water transfer, but they do add a new cost to a potential transfer and may deter new uses of water.

4.3.7 Grant Programs

In 2007, Colorado developed a grant program to facilitate the development and implementation of ATMs. Since its inception, the program has awarded $2.8 million to various water providers, ditch companies, and university groups for the funding of projects to study and further ATMs. Projects include rotational fallowing, interruptible service agreements, water banks, leasebacks, deficit irrigation, and changing cropping patterns and cycles.[92] The grant program allows Colorado to explore and promote alternatives to traditional agricultural water transfers while learning how to address the typical problems associated with ATMs, such as monitoring and measurement (see Section 4.2.5: Barriers to ATMs).

4.3.8 Access to State Data

Improving access to state water right records is another way states can facilitate transfers. For example, Utah and Washington make water rights records available through an Internet search engine, both of which allow the public to search for water rights through a web map.[93] Other states maintain records on transfers but do not collect them in one easily searchable database. Still other states have a tradition of monitoring transfer activity, but have been forced to minimize their data analysis on transfers in response to budget cuts.

Increased data availability on transfers could offer a number of advantages to states. An easily searchable database could help potential buyers, lessors, or sellers gauge market activity when considering a water transfer. Information about how others have reached deals on the volume, timing, or price of a transfer can provide a framework for creating a new transfer agreement.

Additionally, a public database could offer a quick way to gain perspective on which regions of the state are experiencing the most water transfers, which buyers are working to attain water rights in the state, and which water basins were benefiting most from instream flow donations. While some of this information may be a matter of common knowledge within state water agencies, its public availability could inform the work of non-profits, scholars, and others involved in water resources.

case study

THE DESCHUTES WATER ALLIANCE

Stakeholders unite for a grass-roots solution using innovative water transfers to provide resources for farmers, cities, and the environment.

In the face of a series of new environmental regulations and a rapidly growing population, water users and managers in Central Oregon realized that change was coming. But instead of a slow process of farmers begrudgingly selling off water rights, a proactive coalition of irrigation districts, cities, tribes, private utilities, counties, state and federal agencies, and conservation groups united under the Deschutes Water Alliance. By using water transfers, reservoir management, and conservation methods, **DWA will free up 260,000 acre feet of water by the year 2025.**

The Deschutes River Conservancy's water conservation project with the Three Sisters Irrigation District piped 3.8 mile section of their main canal located near Whychus Creek in Sisters, Oregon. Piping this section reduces water loss from leaking canal beds and enables the irrigation district to leave 6 cfs (3.8 million gallons of water per day) instream during the irrigation season. Photo courtesy of the Deschutes River Conservancy.

Photo by Lynn Howlett Photography.

The Deschutes River Basin is historically agricultural, and its location in the high desert east of the Cascades means farmers rely heavily upon irrigation.

"I had to deal with 100 years of tradition," said Marc Thalacker of the Three Sisters Irrigation District, which has been in operation since 1877. "Drying up the stream was my job — if any water flowed through town, I was in trouble."

Thalacker joined with a group of other irrigation district managers, Central Oregon cities, tribal groups, and the non-profit Deschutes River Conservancy to create the Deschutes Water Alliance. The Alliance's mission is to accommodate demands from agriculture, the environment, and urban users simultaneously.

"Drying up the stream was my job — if any water flowed through town, I was in trouble."

With booming populations, municipal needs grew dramatically: Deschutes County was the fifth-fastest growing county in the nation in 2006 and 2007. Getting more water to meet demand was not a simple process, said Patrick Griffiths of the City of Bend, OR. The city's application for increased groundwater withdrawal permits had taken 16 years to receive approval from the state.

In addition, environmental regulations including the ESA, Clean Water Act, and state groundwater mitigation rules necessitated a new paradigm of water management. Instead of meeting each set of regulations separately, the DWA pursued a more integrated approach to long term water planning and management.

"With Endangered Species Act, Clean Water Act and the State Groundwater Mitigation Program requirements coming at the same time water demands were changing, we knew this was something best addressed in one cohesive strategy — it's not that we are surpassing standards in all areas, but we are now looking at these regulations and water demands as one interwoven issue," said Steve Johnson, manager of the Central Oregon Irrigation District, who oversees more than 40,000 acres of irrigated lands.

The environmental requirements called for substantial increases in instream flows. With DWA's initial plan, about 75% of the water conserved could eventually be left instream to help endangered fish such as steelhead and salmon. The increases in instream flow will also help meet Oregon's groundwater mitigation requirements, particularly important because of the highly interconnected surface and groundwater in the basin.

There is no "new" source of water to meet the environmental, municipal, and agricultural demands in the Deschutes Basin. Roughly half of the 260,000 acre feet identified will be achieved through conservation measures, while 32% will come from water transfers (both sales and leases) and another 19% through reservoir management.

The emphasis on conservation has meant large strides forward in infrastructure, particularly for irrigation districts. Lining ditches and piping canals led to large gains in water for environmental uses as well as on-farm deliveries of water, with some farmers receiving 25% more water. These efficiency gains in irrigation water deliveries in turn decreased the amount of water that farmers and some districts needed to pump to irrigate, which has led to savings in energy as well as water.

Piping canals has also provided the opportunity to build and operate in-conduit hydroelectric generation facilities. 5.75 Megawatts of generation capacity has been constructed and operated to date with an additional 2.75 megawatts of projects in late stages of FERC application approval water.

The temporary and permanent water transfers are also designed to be beneficial to farmers. The DWA created a water bank to allow for voluntary transfers according to farmers' water needs and decisions. The bank has traded 6,000 acre feet so far.

Members of the Deschutes Water Alliance credit their success to the stakeholder collaboration. By approaching the issue as a local problem that they were willing to tackle head-on, the DWA was able to receive state support rather than state intervention. Oregon's conservation statutes backed the priorities of the DWA, and they had allies at the state's Water Resources Department, but decisions were made at the local level. A federal grant provided initial financial support, but conservation measures were handled locally.

Additionally, the DWA credits a Bureau of Reclamation study of the basin (Water 2025) which provided detailed projections on future supply and demand. The study informed the Alliance's water management strategy and catalyzed the cooperative, cost effective action that is taking place in the river basin.

Through the DWA, the Deschutes Basin has already seen substantive gains in flows on the Deschutes River. More than 200 cubic feet per second (cfs) had been restored throughout various reaches of the Deschutes River through 2010, and additional permanent and temporary

By approaching the issue as a local problem that they were willing to tackle head-on, the DWA was able to receive state support rather than state intervention.

(leased) gains are made nearly every year. There remains a significant need for continued funding for ongoing planning and capacity building for the group, as well as capital for large scale infrastructure projects. Still, the sustained conservation efforts and new strategies—such as water sharing within agriculture and changes in storage management—offer promise for the basin's future.

"A lot of great work has been accomplished over the past decade to increase water efficiency, and to improve water supply for landowners, rivers, and cities," said Alan Unger, Deschutes County Commissioner and Chair of the DWA. "Now the DWA is poised to take this effort to the next level, to work across jurisdictional lines and increase the scale and impact of its work throughout the Deschutes Basin."

Photo courtesy of the Deschutes River Conservancy.

Photo by Lynn Howlett Photography.

CHAPTER 5
Water Transfer Mechanisms & Agreements

Agricultural, municipal and environmental interests have taken several different approaches to water transfer agreements as a means to address water resource issues in the western United States. This chapter examines how transfer agreements differ to reflect the interests of participants in transfers, the benefits and drawbacks of alternative transfer agreements, and examples from across the western United States. The conclusion offers major themes for state policy-makers. The discussion focuses on intrastate transfers, which include interbasin transfers.

5.1 HOW TRANSFER AGREEMENTS DIFFER

Not all water transfers are the same. Transfers vary according to four major characteristics:

- *Duration of transfer*: A water right may be sold (permanent transfer) or leased (non-permanent transfer). For leases, there is a further distinction between annual leases and multi-year leases.

- *Arrangements for sharing water after the initial transaction*: In addition to straightforward sales and leases, other agreements exist that allow for continued water use by the original right holder. This includes *sale/lease back* arrangements, (sale of the water right, then lease back water to the original owner) and *option agreements* where water is leased as requested by the buyer.

- *Mechanism of availability:* Water rights are available for sale or lease through agricultural land retirement, rotational/periodic fallowing, on-farm water conservation (*e.g.* shift from flood irrigation to sprinklers, capture and reuse of tailwater, or crop shifting), use of alternative local supplies (*e.g.*, groundwater substitution and development of conjunctive use projects), and system conservation (*e.g.* infrastructure improvements to reduce system losses incurred by local water districts or canal companies).

- *Scale of transaction*: Some transfers involve large blocks of water (either through purchases of water rights or leasing of tens — if not hundreds — of thousands of acre feet) and others involve very small blocks of water (a few acre feet of water).

5.2 PARTICIPANT PERSPECTIVES

The actual form of a transfer reflects a balance between the interests of buyers and sellers.

5.2.1 Buyer Interests

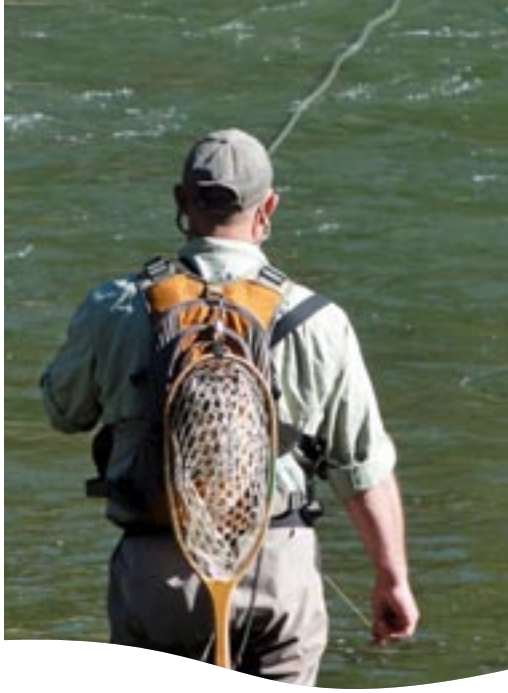
Water rights and water are acquired for many different uses and varying reasons: agricultural use, municipal/industrial uses, and environmental purposes. While the objectives for the use of a water right vary, water buyers and lessees look for similar characteristics when pursuing a water transfer: supply reliability, duration, and flexibility in delivery. Like the buyer in any transaction, the acquirer wants to secure the proper mix of resources with unique characteristics at the lowest price.

5.2.1.1 AGRICULTURAL USERS: Agricultural users actively participate in the transfer market as both buyers and sellers. Generally, agricultural users with junior or unreliable water rights acquire water from other agricultural users in one of two cases: (1) during dry years to offset the smaller availability of water due to their junior priority of their water right, or (2) to offset the loss of water supply from federal or state administrative actions. In the former case, transfers are short-term leases, often lasting one-year to resolve temporary shortages. In the latter case, agricultural users prefer longer-term leases or outright purchases of water rights. Like the municipal and industrial users discussed below, they want to acquire reliable water supplies (*i.e.* water rights that yield water in dry years or during extended drought conditions, as well as normal or wet years) to protect their investments.

Water users may seek transfers in order to "firm up" their existing water supplies or provide a new long-term reliable water supply to meet growing water demands.

5.2.1.2 MUNICIPAL/INDUSTRIAL WATER USERS: Municipal and industrial water users need long-term and reliable water supplies to support the economic base of their communities, including capital investments in business and public infrastructure. These water users may seek transfers in order to "firm up" their existing water supplies (*i.e.* meeting their demands during droughts) or provide a new long-term reliable water supply to meet growing water demands. This is all the more imperative for areas with projections for population growth and increasing water demands.

Given that agriculture developed before cities in the West, agricultural users generally hold the most senior surface water rights while municipal water users generally have the more-junior surface water rights in river systems. Unless they have sufficient water in storage, cities may be susceptible to significant losses due to limited water supplies during drought. This problem can be solved by entering into flexible temporary transfer agreements that allow the buyer to take water during times of drought, post drought to refill storage, or other reasons for the loss of water supply. In this situation, municipal users would prefer a transfer based on an option agreement where they can decide whether or not to take water in any given year.



5.2.1.3 ENVIRONMENTAL PURPOSES: Federal and state agencies and non-profit organizations acquire permanent water rights throughout the western United States to enhance streamflows (as state law allows) and provide water to wildlife refuges. Water is also leased for environmental purposes, especially in dry years. As with other water users, the parties prefer longer term leasing over shorter term leasing, although short term leases during times of low streamflows will help achieve environmental objectives.

5.2.2 Seller Interests

Agricultural users are the predominant supply source in water transfers. This results from the fact that farmers generally hold the most senior water rights and are the largest current users of water. Like any seller, farmers look for the highest price they can receive for the sale or lease of their water rights. Like water buyers, they have a diversity of interests, ranging from exiting agriculture to using transfers as a "new business line" that supplements farming income.

The permanent sale of water rights to exit farming represents a de facto retirement of land from irrigated agriculture, as opposed to dryland farming options. However, other transactions can strengthen the agricultural economic base (see Appendix B: Examples of Transfers, discussion of Imperial Irrigation District and San Diego County Water Authority transfer) where water is made available by periodic/rotational land fallowing, water conservation, substitution of the water sold with other local supply sources (commonly groundwater, but sometimes treated effluent), and infrastructure improvements to reduce system losses. To the extent that these actions involve capital investments financed by debt instruments, agricultural users would move towards long-term leasing of water with a firm commitment by the buyer to at least pay enough for water every year to cover the debt service whether or not the user needs the water in every year.

5.2.3 Scale of Transactions

Transfers generally involve either involve small or large volumes of water. The deciding factor for the volume of a transfer is often distance. Especially when delivery infrastructure is needed, transfers will need to be larger in volume to assure that transportation and storage costs are reasonable.

The deciding factor for the volume of a transfer is often distance.

As shown in some of the examples provided in the appendix, local transfers conducted within a framework established by contract, legislation or court order often involve small volumes of water transferred in land conversion from agricultural users to municipal uses. In contrast, transfers involving moving water significant distances often involve large volumes of water using either existing or new infrastructure for storage and transportation of water to the buyer. Transfers keeping water within an area involve less intense issues regarding the economic impact of transfers than transfers moving water out of an area of origin to a distant destination (refer to Chapter 2 for further discussion).

5.3 BENEFITS AND DRAWBACKS OF COMMON TRANSFER MECHANISMS

Each form of transfer mechanism has its benefits and drawbacks, according to the needs of the transfer participants (summarized in Table 1). This section weighs the benefits and costs of five common transfer arrangements. Where relevant, the discussion includes the implications of the nature of the commitment to make water available (annually during term of the lease or under an option where the buyer has the right to decide whether or not to take water in any given year). Transfers are subject to administrative review or a water court proceeding, although the specifics of the review may differ for the different transfers. The buyer generally arranges for the delivery of the water to the new place of use.

5.3.1 Sale of Water Right

- Form of Transaction: In a sale of water right, the water is transferred under a permanent agreement. Payment is made in a lump sum or series of payments; the buyer may have obligations for land maintenance (such as weed control), as well as the impact of the transaction on local property taxes and operations of a local water company or water district.

- Benefits: The benefit for the seller is that they cash out the value of their water right and the buyer has permanent control of the water supply. If the transfer is local and land and water are converted to higher-value uses, the transfer may actually boost the local economy, although the composition of the local economy will shift from agriculture and agricultural-related sectors to sectors related to urbanization or industry.

- Drawbacks: The drawbacks are related to the retirement of agriculture and the associated impacts on rural communities, assuming that there is no substitute local water source for the water right sold. This drawback is especially important for interbasin transfers.

5.3.2 Sale/Lease Back of Water Right

- Form of Transaction: This form of transaction combines the elements of the prior transaction (purchase of water right) with a lease of the water available from the water right back to the farmer at little or no cost. Depending on the circumstances, the lease back period may be a decade or longer depending on whether the purchase was motivated to firm up existing rights or provide a new supply to meet growing water demands.

- Benefits: (1) the seller cashes out the value of his water right at the time of the transaction, but continues to remain in farming during the lease back period; and (2) the municipal users can gain control of long-term water supplies ahead of water needs (which is useful for municipal water supply planning).

- Drawbacks: While this form of transaction defers the day of reckoning, some impact on the local economy will likely occur with time. The area of origin faces the potential for a reduction in its economic base, unless new industries arise to support the community.

- Buyers, too, face drawbacks in this arrangement: the buyer pays upfront for a water supply it will not use for years. For a municipal user, this form of transaction may be worth high upfront costs if there is reason to believe urban growth will necessitate the need for the water rights in the future.

5.3.3 Long-Term Leasing of Water (Fallowing)

- Form of Transaction: This form of transaction may involve *periodic* or *rotational fallowing*. *Periodic fallowing* gives the buyer the option to take water during some seasons/years, rather than an obligation to accept delivery of water for every year of the lease — thus, farmland can still be used for crops on a periodic basis. *Rotational fallowing* involves fallowing different plots of land over time, while using the same water right to irrigate those lands which are currently under production when not used by the buyer. This method maintains the long-term economic productivity of agricultural lands.

Rotational fallowing involves fallowing different plots of land over time, while using the same water right to irrigate those lands which are currently under production when not used by the buyer.

- Benefits: Sellers benefit by diversifying their income with payments received for fallowing (rather than solely relying on farming). Income from fallowing can be pledged as part of the collateral for financing farming activities, thus strengthening the farm balance sheet.

  The buyer benefits from an annual supply of water if there is an annual delivery commitment that can be used to meet firm demand (assuming that the underlying water right is reliable). If the lease provides the buyer with an option to accept delivery in any year, then the buyer can use the transaction to firm up the reliability of other supply sources by taking water when there is a shortfall in other water supplies.

- Drawbacks: The area of origin may suffer a reduction in its economic base whenever fallowing is triggered during the term of the lease. The impact depends on the balance between two factors: (1) farmers will earn greater incomes from voluntary transactions than farming that will strengthen the local economy, versus (2) fallowing reduces purchases of goods and services used in farming that will weaken the local economy. If the lease calls for delivery in every year, the buyer must take water even when surplus water from other sources is available. The buyer can manage this issue if they have sufficient storage. If the transaction gives the buyer an option to take the water, then there are no drawbacks for the buyer.

5.3.4 Long-Term Leasing of Water (Conservation and substitution of local water supplies)

- Form of Transaction: This form of transaction makes water available through on-farm conservation, system conservation, or substitution of a local water supply source for the farm and releases the water available under the water right underlying the transfer. A common form of supply substitution is the use of groundwater in place of surface water that is transferred.

Conservation-based water transfers can supplement and diversify the income of a farming operation.

- Benefits: The transaction is based on water conservation. Like a fallowing transaction, the lease supplements and diversifies the income of the farming operation. In addition, on-farm conservation may increase the economic productivity of the farming operation. For transfers based on capital investment in on-farm and system conservation, the transaction will involve annual delivery schedules due to the need to finance the necessary capital investments. This form of transaction has none of the drawbacks for the area of origin related to the forms of transactions discussed above. In fact, the transfer may provide an economic boost to the local economy.

  A long-term lease based on substitution of local supply sources, such as groundwater, is conceptually not as attractive. The sellers supplement and diversify their farming income and strengthen the farm balance sheet. However, since there are no necessary changes in farming practices, there may not be an increase in the economic productivity of the farming operation. At the same time, capital investment in water conservation is generally more intensive than capital investment in groundwater development. Therefore, the capital investment at risk in this type of transfer is lower than a transfer based on water conservation. Substitution of equally reliable water supplies has no drawbacks for the local economy. The economic boost may be smaller than a transfer based on water conservation because of the smaller capital investments and the lack of increased economic productivity of farming operations.

  The buyer benefits by receiving an annual supply over the term of the lease.

- Drawbacks: The buyer must take the water in all years even when there may be surplus water from other supply sources. As discussed above, the buyer may manage this issue if they have sufficient storage, which may include aquifer storage and recovery options. The development of groundwater sources may create or intensify groundwater overdraft unless pumping is regulated or otherwise controlled. Depending on the circumstance and method of conservation, water conservation may not represent a reduction in consumptive use. Instead, water savings may simply be reductions of return flows or groundwater recharge. Whether this situation creates a problem depends on (1) whether the initial water supply was imported into the basin,* (2) whether the conservation activity is legally protected under the salvaged water rule,† or (3) whether return flows or groundwater recharge benefit other water right owners.

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* A user who imports water into a basin can use or reuse at will. See Water Law, David H. Getches, p. 116.

† The general rule is that one may recapture and reuse "waste" water so long as it is recaptured and reused within the land to which the right is appurtenant. *Ibid*, p. 119.

5.3.5 Short-Term Leasing of Water (Fallowing and substitution of local water supplies)

- Form of Transaction: Short term leasing transactions involve making water available annually during the term of the lease. As a result, these transfers must be backed by fallowing or substitution of local supply sources for the water included in the transfer because, due to their limited duration, longer-term investments in water conservations are not economically viable. In addition, water may become available for transfer if the seller has water in surplus of current water demands.

- Benefits: By the very nature of the transaction, the benefits (supplement and diversify farming income for sellers and meet shortfalls in water supplies for buyers) are short term. Shorter-term leasing best serves temporary solutions to unexpected water problems like drought.

- Drawbacks: Due to their short-term nature, this form of transaction is unlikely to support capital investments. Fallowing transactions can create periodic disruptions of the local economic base. The impacts on the economic base can be avoided by transactions based on substitution of local supply sources to make water available under the lease. However, transactions based on groundwater substitution could cause longer-term consequences from groundwater overdraft.

Shorter-term leasing best serves temporary solutions to unexpected water problems like drought.

MAJOR THEMES FOR STATE POLICY MAKERS: *Transfer Mechanisms and Agreements*

There is no one preferred form for transfers. The form depends on the objectives of the parties.

Transfers can be facilitated by establishing the "**rules of the road**" for rights with defined geographic scope of a market. The success of many of the examples included here is based on this principle.

The mechanism for making water available is critical, especially for interbasin transfers. Development and dissemination of technical information on the cost and yield of conserved water from alternative conservation methods can facilitate transfers based on conservation rather than fallowing or land retirement.

Large transfers that move water completely out of a community or basin may merit economic mitigation. Communities can determine their own priorities for the use of these **mitigation funds**. Often, these communities find a sound strategy at the intersection between water resource management and rural economic development.

case study

METROPOLITAN WATER DISTRICT — PALO VERDE IRRIGATION DISTRICT

Communication between key players drives a successful large-scale transfer in Southern California

In Southern California, a large-scale transfer has reallocated water from agricultural to urban use with special attention to the farmers and local economy in Palo Verde Valley, the water's area of origin.

The transfer provides for 35 years of water supply to the Metropolitan Water District (MWD), which services six counties and 19 million people in Southern California. Through conservation in the Palo Verde Valley, **between 30,000 and 120,000 acre feet (AF) of water is made available to MWD customers annually.**

Temporarily Fallowed Land in Palo Verde Valley. Photo courtesy of the Metropolitan Water District of Southern California.

In addition to the demands of a growing urban population, MWD had to accommodate the changes demanded by the California 4.4 Plan, a program designed to reduce California's withdrawals from the Colorado River down to its basic apportionment of 4.4 MAF/year. Environmental demands also cut back on sources that had traditionally supported Southern California, such as water from the Los Angeles Aqueduct that is now used to restore Mono Lake.

The Palo Verde Irrigation District (PVID), where the farmland entered into the agreement with MWD is set, is home to sunny skies and a dry climate ideal for irrigated agriculture. Prior to the agreement with MWD, PVID used about 450,000 AF annually from the Colorado River for agricultural purposes. Now, water has become a crop for farmers in Palo Verde Valley, sending as much as a quarter of that water to Southern California cities with high returns.

Negotiations for the transfer agreement began in 2001 and farmers began signing up on a voluntary basis in 2004. The farmers received an up-front payment of $3,170 per acre to participate in the program and receive an annual payment for each acre that is fallowed each year. Only those farmers who originally entered into the agreement in 2004 may participate under the program; no new applications are accepted at this time.

Under the agreement, between 6,000 and 26,500 acres are fallowed in the irrigation district each year, according to MWD's needs—that is, up to 29% of the more than 91 thousand agricultural acres in the Palo Verde Valley. The amount of fallowed land per farm ranges between 10 and 35% of enrolled acreage per year. The conserved water from the fallowing program can be stored in Lake Mead behind Hoover Dam until MWD calls for the water.

"This is a highly reliable program that is flexible to meet our needs," said William Hasencamp, Manager of Colorado River Resources for MWD. "We save money in good years and the water stays in the Palo Verde Valley; in lean years, we have access to water."

Ed Smith, Manager for PVID, attributes the success of the transfer to direct communication between MWD and the farmers in the agreement.

CIF instituted a number of programs that proved successful in stimulating the local economy, including the funding of a truck driving school. CIF put 12 students through the school, nine of whom were directly impacted by the agricultural fallowing program. The program generated a huge amount of interest from the local community; CIF received 120 applications for the truck driving school.

"We were able to talk frankly about what each of us needed and wanted from the deal, and **WE WERE ABLE TO FIND AN AGREEMENT THAT WORKED** for the farmers and for Metropolitan."

—Ed Smith, Manager for PVID

"The bottom line is, we were able to talk frankly about what each of us needed and wanted from the deal, and we were able to find an agreement that worked for the farmers and for Metropolitan," Smith said.

Prior to the current agreement, MWD and PVID partnered on a pilot project between 1992 and 1994, transferring about 115,000 AF each year. The deal brought $25 million to farmers in payments for the water leases. Some negative economic repercussions were believed to have occurred, including the temporary loss of roughly 60 full-time agricultural jobs and an estimated $4 million lost in farm-related services. The lessons learned from this earlier pilot prompted MWD to establish a $6 million local development fund to mitigate the impact of the water transfer on the Palo Verde Valley.

These mitigation efforts took form with the establishment of the Palo Verde Valley Community Improvement Fund (CIF), a group comprised of volunteers throughout the Palo Verde Valley. The fund invests in workforce training, small business investment, and development of community resources. A key component of the CIF is that MWD does not have a say in where or how the money is spent in the Valley.

CIF manager Jay Abbs also noted that investment in small businesses had proven successful. Originally, the Improvement Fund looked to draw in large national chains

QUICK NUMBERS

- Program Objective: To develop up to **120,000 AF/year** flexible and reliable water supply for a **35-year** term.
- One time sign-up payment of **$3,170** per encumbered acre to landowner.
- **$710** per fallowed acre in 2012 (adjusted for inflation annually).
- **$6 million** for community improvement programs.
- CIF has given loans to **8** new businesses in the Palo Verde Valley, supporting **120** newly created jobs and **70** indirect additional jobs.

such as Wal-Mart and In-N-Out. They pursued the strategy for three years but yielded better results when CIF shifted its focus to smaller local businesses in 2010. Since then, the group has found success in providing loans to a local nursing home, furniture store, and pharmacy. Matching fund grants have gone to a community recreation center and multiple vocational scholarships.

For the State of California, the MWD-PVID transfer has been more of a hands-off matter. The Bureau of Reclamation plays a larger role as administrators of Colorado River water in California. But for the state, avoiding over-regulation was important in allowing the transfer to function well. Additionally, California's role in bringing together parties in the California 4.4 Plan to draw down Colorado River diversions to 4.4 MAF helped create a dialogue between MWD, PVID, and other Southern California water users.

The MWD-PVID water transfer offers an example of how water can be transferred to meet urban needs, while protecting both the interests of the farmers and the communities that could be affected by the transfer. To ensure that the program works effectively, MWD, PVID, and the CIF meet regularly and discuss any issues that arise, recognizing that all the agencies are in the partnership for the long run.

"Ed Smith (PVID) and I have regular dialogue to make adjustments to the program in order to meet our respective needs rather than fighting it out," said Hasencamp of MWD. "The long-term relationship between our agencies is more important that saving money one year or arguing over supplies."

One of Palo Verde Irrigation District's distribution canals. Photo courtesy of the Metropolitan Water District of Southern California.

CHAPTER 6
Tools, Programs and Policies for States

States can employ a variety of tools and policies in order to facilitate smart, innovative water transfers and water sharing practices. This chapter identifies a range of options that are available to states interested in promoting market-based agreements to assist in allocating water among multiple uses. As shown in Chapter 2, water transfers are already common throughout the West. Given the limits of available water supplies, uncertainty about drought and climate, and sustained growth in demands, water transfers will continue to be an essential tool in managing water supplies in the West.

While acknowledging that market-based water transfers can generate positive outcomes for current water rights holders, new water users, and the environment, this chapter identifies tools that states can use to mitigate the adverse impacts of water transfers on rural communities, agricultural economies, and environmental values.

Many of these practices are already being employed by Western states. As the WGA observed in its 1986 report *Tuning the System*, "…most western states have had in place for many years or have recently implemented one or more innovative policies," including clear procedures for water transfers or state water banks, to promote efficient water allocation. [94]Since that time, states, farmers, cities and businesses have continued to innovate and find new ways to allocate water through agreements among willing partners. The programs, policies, and mechanisms described here were identified through the WGA-WSWC Water Transfers Workshop Series* and were provided as successful or promising models by states or other workshop participants.

* The WGA and WSWC convened three stakeholder workshops with over 100 participants from July to December of 2011. The meetings drew state administrators, environmental NGOs, farmers, academics, and water resource professionals from across the West, providing diverse perspectives on water transfers.

6.1 EFFICIENT ADMINISTRATION OF WATER TRANSFERS

In the West, states manage the system for allocating and administering rights to the use of water. Consequently, states will play a critical role in establishing a framework that provides clarity, security, and transparency for market participants and affected parties. Most importantly, a clear and enforceable system of property rights promotes fluid and functional markets.[95]

High transaction costs — including engineering assessments, mitigation requirements and legal representation — are an impediment to water transfers. They are of particular concern to small or temporary water transfers, where the costs of the transfer process may exceed the value of the water itself, or the time it takes to complete a transfer may limit its ability to meet a short-term need. States can seek to minimize the transaction costs to complete voluntary water transfers.

Several factors warrant state review and regulation of proposed water transfers, first and foremost being the potential injury to other water rights holders. The policy options presented below offer ways intended to streamline the water transfer process while still allowing for the fundamental and essential review to protect other water rights.

6.1.1 Defining Enforceable Property Rights in Water

As WGA recognized in its 1986 report, "government must fill the role of ratifying property rights in water."[96] States generally provide clear and publicly available information identifying the point of diversion, location and purpose of use, volume, and ownership of water rights. Water rights are legally enforceable property rights, while contract rights to the use of water are also recognized. Given how essential a property rights system is to functional markets, this point bears emphasis.

6.1.2 Clear and Transparent Guidelines on Transfers

Many transferring parties, particularly current water rights holders, will or may be first-time participants in a market-based water transfer. Given that transfers may involve multiple federal, state, and local agencies, states can provide clear and simple guidelines (or a road map or check-list) for the water transfer process. Guidelines should include identification of third-party impacts and other considerations to be screened in the review process by appropriate state regulatory agencies. Transfer guidance could include timelines for agencies to process applications. To the extent possible, guidelines can be designed to promote transfers that minimize adverse socio-economic and environmental impacts, as determined by individual states.

6.1.3 Accelerated Transfer Review Processes

Regulatory requirements and guidelines for water transfers can be designed to favor negotiated resolution of conflicts or collaborative development of transfer projects. States can also consider venues other than administrative or judicial proceedings (e.g. state water court) to provide the initial evaluation of proposals.[97] For example, Washington law authorizes counties to establish local water conservancy boards to "expedite the administrative process for water rights transfers" at the local level.[98] These boards process water right transfer applications subject to final approval by the Washington Department of Ecology, and service on a board requires significant training.[99]

6.1.4 Quantification

States can assist in quantifying water rights, particularly with respect to their consumptive use and return flow components. Currently, market participants must generate most of the information on consumptive use and return flows themselves, and given how these factors may vary across the landscape, site-specific evaluation will continue to be needed. However, states may promote and provide fundamental research regarding crop consumptive use and return flow patterns that can serve as a foundation for site-specific analysis. Relatively new uses of technology, such as the use of remote sensing tools (such as Landsat thermal infrared imaging) can help quantify consumptive use.

Technology such as remote sensing tools can help quantify consumptive use.

6.1.5 Rebuttable Presumption

In some cases, states might consider the development of standard assumptions that can serve as a "rebuttable presumption" for water transfer cases to address both the consumptive use portion of a water right and the return flow requirements, as well as third-party economic impacts and voluntary mitigation strategies. A rebuttable presumption would shift the burden of proof to those objecting to the presumptive transfer standards, thereby reducing transaction costs for basic transfers, while allowing for closer examination in unique cases.[100]

6.1.6 Third-Party Participation

Third-party impacts — or effects to those who are not directly involved in the transaction — are perhaps the most challenging and costly aspect of water rights transfers. Third-party impacts include impacts to other water users, as well as to the local environment and community. As shown in Table 3 in the appendix, western states can employ a variety of mechanisms to fairly and promptly address third party and area of origin impacts.

6.1.7 Administrative Fees

As more new water users turn to water transfers to meet their demands and acquire water supplies, state administrators, water courts, and adjudication processes will see an increased workload. In order to reduce the time and expense associated with transfers, states may need to consider providing sustainable revenue sources

sufficient for administration of water rights to ensure they can efficiently process transfer requests in a timely manner. Options could include a small administrative fee on transfers, to be paid by the buyer of water rights, or a real-estate transfer or development tax, given that new development often drives the demand for transfers. If the transfer process is quicker and more efficient, transfer participants may be willing to bear the cost.

6.1.8 Programmatic Approaches

Rather than "reinventing the wheel" for each proposed transfer, a programmatic approach provides an established institution and set of standards.

Programmatic approaches to water transfers can help to streamline the transfer process in critical areas, for example in a specific river basin, aquifer, or water district. Rather than "reinventing the wheel" for each proposed transfer, a programmatic approach provides a process with an established institution, mechanism and set of standards. Under a programmatic approach, administrators may be able to use common assumptions about the amount of water available to transfer, impacts to other water users, and mitigation requirements in order to expedite common transfers.

Transfer participants can work with regulatory agencies to establish programmatic environmental compliance for recurring transfers that meet certain criteria with respect to location, volume and timing. Such a programmatic approach may also serve as a venue or public forum to bring together buyers and sellers. The overall goal is to reduce the time and cost of individual transfers, particularly when the same or similar transfers will be recurring in a particular basin or district over time. Water banks — such as those in California, Washington and Oregon — offer insight into a successful programmatic approach to water transfers.* [101]

States may also consider a preemptive environmental impact review in order to identify the volumes of water that could be transferred within a specific region. As proposed by Hanak et al. in their 2011 report, *Managing California's Water: From Conflict to Reconciliation*, this approach could minimize administrative costs for environmental review for individual transfers. Instead, states could pre-approve a range of water transfer volumes so applicants could avoid a lengthy and expensive approval process (depending on market conditions).[102]

6.1.9 Executive Direction to Facilitate Water Transfers

Governors could provide direct support for efficient and timely transfers in the form of explicit policy or high-level leadership and advocacy. Several federal, state, and local agencies have a role in the transfer process, and a Governor-level policy or a well-placed advocate could result in a more coordinated approach to addressing water transfers. Efforts could focus on facilitating interagency coordination, timely response to applications, and ensuring successful outcomes for proposed transfers.

* See Hanak, Ellen, et al., *Managing California's Water: From Conflict to Reconciliation*, p333-336 for a description of programmatic approaches to environmental review in California.

For example, Colorado Governor John Hickenlooper appointed John Stulp, former Commissioner of Agriculture for the state, as a "Special Policy Advisor to the Governor on Water." Stulp's role is to provide leadership from the Governor's office in resolving challenging water resource issues. A similar position may be of value to other western states facing the same supply and demand challenges.

6.2 TOOLS

States can provide an array of tools to empower transfer participants and address public policy concerns, including third party impacts.

6.2.1 Provide Funding Assistance

Innovative water transfer projects can be complex and participants often are inexperienced in designing deals. In many cases, projects require hydrologic, financial, administrative, and/or legal research to understand the opportunity and to develop agreements.

- *Policy Option:* States can provide funding assistance through a variety of programs, including but not limited to grants, low interest loans, principal forgiveness, and other options to promote the development of innovative and beneficial water transfers.

- *Example:* In 2007, the Colorado Legislature authorized an "Alternative Agricultural Water Transfer Methods Grant Program" to explore alternative transfer methods, or ATMs, that provide opportunities to stretch water supplies among users while avoiding the "buy-and-dry" method that has been more common in past Colorado transfers.[103] Since its inception, the program has awarded over $2.8 million to various water providers, ditch companies, and university groups for the funding of a variety of projects to study ATMs. Projects have included rotational fallowing, interruptible service agreements, water banks, purchase and leasebacks, deficit irrigation, and changing crop types.

Innovative water transfer projects have flourished where solutions are driven from the grassroots.

6.2.2 Foster Local Solutions and Flexibility

Innovative water transfer projects have flourished where solutions are driven from the grassroots, ground up. First and foremost, potential participants must get to know one another. There may be legitimate concerns about proprietary information or financial negotiations, but in general, transparency and good communications within the local community are critical. Further, locally-driven and developed solutions can provide local stakeholders, who are often most affected by transfers projects, a sense of control or ownership in the final outcome.

- *Policy Option:* States can provide support, accommodate and facilitate locally-designed water transfer solutions.

- *Example:* In Oregon's Deschutes River Basin, the City of Bend teamed up with the Deschutes River Conservancy, the Confederated Tribes of Warm Springs, and local irrigation districts to form the Deschutes Water Alliance. The group collaborated on plans for long term water resource management in the basin by jointly identifying water demands for a variety of purposes. The DWA then designed programs — including a water leasing program — to use market tools to accommodate multiple objectives for irrigation, municipal use, and the environment. The participants credit the state for supporting the implementation of a locally-developed plan. For more, see the case study on the DWA on page 42.

6.2.3 Bring Together Sellers and Buyers

In under-developed markets, potential buyers and sellers may have a hard time finding one another. In many areas, water markets are "thin" — meaning there are few market participants — and there is no central location or brokerage where interested market participants can come together to develop deals. As a result, opportunities to promote efficient water transfers may be hindered.

- *Policy Option:* States can help foster locally-driven water transfer projects by providing forums for potential buyers and sellers to come together. This can be as simple as a "bulletin board" where interested participants can post information, to more formal institutions that could include state clearinghouses and/or water banks.

- *Example:* The Northern Colorado Water Conservancy District allows Colorado-Big Thompson project water users to engage in seasonal or permanent water transfers. The NCWCD provides simple notecards that interested participants can complete; the District then uses this information to match buyers and sellers. The District charges a nominal fee for permanent transfers and provides this service free of charge for seasonal transfers. Because of the way that CBT water is administered, particularly with respect to return flow requirements, transfers can occur quickly and with minimal review.[104] However, by performing the simple function of providing a mechanism to match buyers and sellers, the NCWCD creates a more liquid market for transactions.

Markets function best when there is transparent, publicly available information on transactions, including the location and price.

6.2.4 Collect and Share Basic Data on Transfers

Markets function best when there is transparent, publicly available information on transactions, including the location and price. In real estate, information is disclosed through counties and made publicly available. In the case of water transfers, information is not publicly disclosed. As a result, there is a lack of understanding of where water may be available for transfer, at what price it may be available, and how transfers are affecting regional water use patterns. While the *Water Strategist* published self-reported data for many years, and private buyers often hire consultants to estimate the value of water, greater public disclosure of water transactions could stimulate efficient trading and sharing strategies.

- *Policy Option:* States could develop programs to promote transparency in water markets through voluntary or mandatory disclosure of the location, volume, water right validity, and price of water transfers. (Business confidentiality and

private negotiations must be recognized in some circumstances.) In addition to facilitating efficient transfers, disclosure can allow communities and policy makers to assess and respond to the impacts of transfers.

- *Example:* The Washington Department of Ecology has developed an online "Water Rights Web Map" that uses a geographic interface to provide information on over 230,000 active water right and claim records throughout the state. Individuals researching rights or claims, including those seeking transfer opportunities, can search water rights records by the document/record number or by the name of the person to whom the right was issued. Prior to the website, those seeking this information needed to contact Ecology staff, complete the public disclosure process, or conduct an individual search at Ecology's office.[105]

6.3 POLICIES

As discussed in this report, transfers raise a set of challenging policy questions for governors and state water managers. States can consider a range of policy options to address these issues.

6.3.1 Promote Conservation & Efficiency

Allowing current water right holders to transfer conserved consumptive use water or water gained through improved efficiencies can create a powerful incentive for irrigators to implement on-farm improvements or change farming practices.* But transferring this conserved water may be complex — or even non-permissible — under state water law. The "use it or lose it" provision of the prior appropriation doctrine may cause water right holders to fear jeopardizing the unused portion of their rights as a result of conservation measures.†

In reality, the forfeiture of an unused water right is rare. However, it is true that when evaluating water transfer applications, a state must determine the actual continuing consumptive use in quantifying the amount available for transfer. The amount of water saved can be hard to measure, and measurement must be able to distinguish between reductions in consumptive use (or other irrecoverable losses) and reductions in return flows, given that return flows serve downstream water users and ecosystems and are generally not available to transfer. Despite these challenges, several states have statutes and programs to remove disincentives and promote the conservation and transfer of water.[106]

6.3.1.1 SALVAGE POLICY: As WGA recommended in its 1986 report, states can "clarify unequivocally that a user conserving or salvaging water from the consumptive use portion of his water right has the senior right to use, lease, or sell that water as he wishes, subject to the constraint that valid

* 'Conservation' is often defined as reducing the amount of water used, lost or wasted, while 'efficiency' is often defined as using less water to accomplish a specific task. The two are often used interchangeably.

† For a more thorough discussion, see Section 4.2.3 — *Abandonment and Forfeiture*.

vested rights and public values are protected."[107] As discussed previously, a number of western states have enacted programs to accomplish this goal and such programs provide an additional means of furthering conservation.*

6.3.1.2 INCENTIVES TO REDUCE CONSUMPTIVE USE: Existing water rights holders can use several promising methods to reduce consumptive use and maximize net farm income. In addition to simply reducing irrigated acreage, water users can consider planting a less water-consumptive crop, practicing deficit irrigation (applying less than the optimal amount for maximizing production), or shortening the growing season (including using a "split-season" approach). These approaches must emphasize the reduction in *consumptive use* of water.[108]

6.3.1.3 TAX INCENTIVES TO ENCOURAGE INSTREAM FLOW DONATIONS: Some transfers in the West involve voluntary instream flow donations for environmental and conservation purposes. Certainty that such donations are tax deductible under state and federal law could provide a greater incentive to supplement instream flows.

6.3.2 Protect Rural Communities

Western Governors' policy promotes innovative water transfers that avoid or mitigate damages to rural communities, agricultural economies, and environmental values. While other water right holders are shielded from direct impacts of water transfers by regulation in most states, other impacts — including those to rural economies, the natural environment, or regional food security† — may be underserved or even neglected. Most states include a public interest review in the transfer approval process and can employ a range of tools to evaluate and address these impacts.‡ However, in many states, the public interest criteria for consideration are either lacking or not well defined.

States can develop programs to ensure re-vegetation and dust suppression on lands that undergo a water transfer.

6.3.2.1 RE-VEGETATION, WEED CONTROL, EROSION CONTROL AND DUST SUPPRESSION: The transfer of water from agriculture can result in the encroachment of noxious weeds to land that was formerly irrigated, as well as dust from fallowed lands. States can develop statutes or programs to ensure re-vegetation and noxious weed management on lands that undergo a water transfer, and other mechanisms to encourage dust suppression.

- *Example*: Colorado law requires that the terms and conditions regarding the transfer of water rights from agricultural irrigation to other beneficial uses should include "reasonable provisions designed to accomplish the re-vegetation and noxious weed management of lands from which irrigation water is removed."[109]

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* See Section 4.3.3 — *Water Conservation Programs*.

† See Chapter 3 for more information.

‡ States should recognize that these provisions add costs to a transaction and reduce the negotiating space between buyers and sellers of water rights. Programs should be designed carefully to promote successful transfers rather than impede beneficial transactions.

6.3.2.2 COMPENSATION TO TAX BASE: The transfer of water from agriculture can also reduce the local tax base and/or prevent repayment of bonded indebtedness. States can require buyers of water rights to compensate communities for the reduction in tax revenues or the bonded indebtedness of lands that are removed from agriculture.[110]

6.3.2.3 COMMUNITY MITIGATION FUNDS: In many cases, a transfer of water can have real or perceived impacts on local businesses and the economy. States can support voluntary arrangements between transferors of water rights and the local community that are designed to compensate for the impacts of a water transfer. Generally, these are negotiated between the buyer and the community, although they could be determined by a "rebuttable presumption."§ Investment decisions are often directed by a community board.

- *Example:* In a transfer agreement between Southern California's Metropolitan Water District and the Palo Verde Irrigation District, Metropolitan provided $6 million in funding to develop a Palo Verde Valley Community Improvement Fund, a non-profit organization intended to offset the economic impacts associated with the fallowing required by the agreement. Among other things, the fund provides grants for community projects, vocational training, business loans, and other services. See the case study on page 52 for more information.

6.3.2.4 DEVELOPMENT OF LOCAL INFRASTRUCTURE: The impacts of water transfers to local agricultural users can be mitigated or avoided by the development of new irrigation infrastructure or facilities. For example, improvements to ditches or canals can ensure that transfers don't impair the delivery of water to ongoing, local agricultural uses even after a transfer has occurred. Further, targeted development or enhancements of local storage capacity may serve to bolster local agricultural water supplies even with simultaneous water transfers. States can support strategic investments in local infrastructure enhancements as part of a broader approach to beneficial water transfers.

6.3.2.5 BASIN-WIDE HEARINGS: As discussed in Section 6.1.8 (*Programmatic Approaches*), states could hold public hearings to engage the local community in a comprehensive examination of the economy-wide impacts of transfers. [111] The state could support these efforts by providing technical and economic expertise to facilitate discussions. The hearings would be held to address basin-wide impacts of transfers, rather than to evaluate the impact of an individual transaction.

States can hold hearings to address basin-wide impacts of transfers, rather than to separately evaluate the impact of each individual transaction.

§ Alternatively, mitigation of economic impacts could be funded through a state tax on transfers. (See *Tuning the System*, page 68.) However, given the difficult of administering a tax and the negative impacts it would have on transfer activity, we do not recommend this approach. Local and voluntary agreements would be preferred.

States can accommodate creative approaches to protect and enhance environmental values through the water transfer process.

6.3.2.6 INSTREAM FLOW STANDARDS: Water transfers can affect instream flows and environmental values in rural communities. Many states have programs that secure water rights to maintain instream flows and the public values associated with rivers; in these instances, instream flow water rights will be protected as any other water right in the consideration of the transfer. In some cases, minimum flow standards for threatened or endangered species, e.g. in the Upper Colorado River Recovery Program, may limit the exercise of a transferred water right that conflicts with a USFWS biological opinion. In addition, local communities or conservation interests can themselves use markets to acquire water for instream flow purposes; in some instances, they may partner with other new users to find acquisition opportunities that enhance flows and meet new water supply needs. States can find ways to accommodate creative approaches to protect and/or enhance local environmental values through the water transfer process.

6.3.3 Promote Infrastructure to Support Transfers

Transfers are often recommended as an alternative to new water supply infrastructure, particularly large storage projects. However, transfers often require infrastructure of their own to move water to the new use or to treat water to address water quality concerns. States can consider ways to promote the use or development of infrastructure to support mutually beneficial water transfers.

6.3.3.1 ACCESS TO EXISTING INFRASTRUCTURE: Many places where transfers may occur already have infrastructure, specifically canals or pipelines, to move water from sources to uses. This infrastructure can be used to deliver transferred water when parties can agree on appropriate access agreements. States may wish to encourage or promote access to existing infrastructure when it does not impair its current purpose. Infrastructure sharing can reduce the impacts and costs of new infrastructure development, and can be part of a broader strategy to promote regional collaboration in water supply and delivery across a patchwork of municipal water providers. In 1986, the WGA recommended: "States may wish to assure that conveyance facilities are open to any transferor who can pay the price by considering regulation of major conveyance facilities as common carriers."[112]

- *Example*: The California Water Code requires the state and other public agencies to make water conveyance facilities with unused capacity available for a "bona fide transferor of water," subject to fair compensation and other conditions.[113]

6.3.3.2 SUPPORT FOR NEW INFRASTRUCTURE: In other cases, water transfers may require new infrastructure to store, convey or treat water in order to move it to its new use. In general, this infrastructure would be less expensive and have fewer environmental impacts than the infrastructure required for new water supply development. States can seek to promote the development of new infrastructure for beneficial water transfers through existing funding and finance mechanisms and by supporting the review and approval of permitting for infrastructure that serves regional water sharing priorities.

6.3.3.3 SUPPORT FOR PRIVATE SECTOR INVESTMENT: Federal and state funding constraints may limit the feasibility of water transfers that are capital intensive and require the construction or rehabilitation of infrastructure. Public-private partnerships and private sector investment may represent a possible way of providing needed capital for water transfer projects. States can seek to promote mutually-beneficial private investment in water transfers while also discouraging speculation.

6.3.4 Coordinate with the Federal Government

A number of federal agencies have water-related responsibilities in the West, including the Environmental Protection Agency, the Army Corps of Engineers, and the Bureau of Reclamation. The Bureau of Reclamation is particularly significant, providing water to one-fifth of irrigated farmland in the West and operating projects in the 17 contiguous western states.[114] In many cases, the Bureau controls water rights and infrastructure that could be employed in beneficial water transfers. Current Bureau policy supports voluntary transfers and conversions of project water from existing to new uses in accordance with state and federal law.[115] The Bureau is revising its policy on water transfers (a sale or exchange between users) and conversions (a change in use of water, irrespective of ownership).[116] Specific issues of interest to the states include:

6.3.4.1 SUPPORT FOR WATER TRANSFERS: In the draft policy, the Bureau reiterates its support of voluntary water transfers or conversions of project water in order to promote flexible water management and in accordance with state and federal law.[117]

6.3.4.2 PRICING: Reclamation allows buyers and sellers to negotiate prices. The Bureau draft policy also states, "Reclamation will avoid burdening transfers and conversions of project water with unnecessary costs, but will ensure that transfers and conversions it approves will in no way diminish the Federal government's associated financial status."[118] The Bureau will evaluate project costs and market rates in determining its rates for transfers or conversions of water. It will also recover administrative costs, including for environmental compliance. Excessive pricing or fees from the Bureau could discourage beneficial water transfers. While recognizing a concern about Federal subsidies for water, states could urge the Bureau to minimize costs so it does not impede market-negotiated transfers.

6.4 ENGAGE THE PUBLIC AND EDUCATE STAKEHOLDERS

Transparency and public awareness can foster beneficial water transfers.

Water transfers are of interest not just to willing sellers and buyers, or even to proximal water users in the local community, but to citizens throughout the West. States can consider developing public outreach programs to educate citizens on the benefits and challenges of water transfers and what states are doing to improve the water transfer process. Public awareness and procedural transparency will foster beneficial water transfers.

States can also create programs to proactively reach out to stakeholders. For instance, states could sponsor mock trading programs to familiarize potential buyers and sellers with the water transfers process. This type of program could facilitate market development with little risk to participants who are unsure whether or not they want to engage in water transfers.[119]

CHAPTER 7
Conclusion and Next Steps

Water transfers are occurring across the West. Throughout this project, water transfer experts—including state water resource managers, cities, farmers, and conservationists—acknowledged that transfers will be employed to meet the growing demands for water in the West. But a change in a water right's place, type, or timing of use can impact other water users, local communities and the environment. States are actively exploring methods to facilitate transfers while also mitigating impacts of changing patterns of water use. This report has shown effective tools and strategies, successful on-the-ground case studies, and innovative practices that states and transfer participants can consider going forward.

This report has also revealed places where additional research, practitioner networking, or continued education and outreach could be useful to the states. With further direction from the Governors and state water resource managers, as well as key stakeholders in the water transfer arena, WGA and the WSWC will refine a workplan to strengthen transfer practice and outcomes in the West. Key potential elements of that workplan are described here.

7.1 KEY MESSAGES FROM THIS REPORT

7.1.1 Water Transfers are Occurring Across the West

Water transfers are occurring across the West. In some states, transfer happen as infrequently as once a year; in others, hundreds of transfer applications are processed annually. Though the framework for administering water transfers varies by state, several key elements remain true across the board: transfers are voluntary, decentralized, flexible, and create incentives for efficiency/conservation. With more competing demands for water than ever before, water resource managers in several western states cite transfers as an important component of long-term water supply planning.

7.1.2 Drivers of Water Transfers

Several sectors vie for water in the water-limited West. Growing demands in the municipal and industrial sectors are a key driver of water transfers. For instance, growing communities or new energy development activities often use transfers in basins where streams and groundwater are at- or near-full appropriation.

Transfers are also used to provide flexibility and allocate resources among farmers, especially in times of drought or due to new regulations. Increasingly, transfers are being used to enhance the natural environment and provide water-based recreational opportunities, often with the help of a water trust.

7.1.3 The Role of States in Managing Water Transfers

States manage the water supplies within their borders and create the framework for water transfers to occur. Because of the complexities of water as both a public and private good, the states play a critical role in defining and enforcing property rights in water in order to ensure transfer markets serve society. In addition, states must balance the demand for new water supplies with the preservation of the environment, agriculture and thriving rural communities, and assess the proper role for private sector investment in allocating limited water resources.

7.1.4 States Recognize the Role of Transfers in Water Supply Planning

Limited water supplies — combined with new and growing demands — mean that water will probably need to be reallocated over time; transfers offer a voluntary, market-based solution to this challenge. Some states have special programs in place to facilitate transfers, such as water banks, grant programs, and drought relief programs.

7.1.5 Mitigation of Impacts to Areas of Origin

Since roughly three-quarters of water use in the west is agricultural, some states have accommodations for the rural communities and third parties that are supported by irrigated agriculture. The Western Governors also recognized the importance of mitigating impacts to rural communities in a 2011 policy resolution. This report offers some examples of how third-party impacts can be accounted for in transfer agreements.

7.1.6 States Can Share Insights and Practices for Managing Transfers

Every state has a unique transfer system, so this report does not attempt to prescribe solutions for any or all of the western states. Instead, this report is intended to help states learn from one another. This report has identified education and public outreach, administrative practices, programmatic support, data development and sharing, and mitigation strategies that are being used across the West and may assist states or practitioners in executing successful transfers in the future.

7.2 IMPLEMENTATION ACTIVITIES

During the course of this project, the WGA and WSWC identified a set of activities that would support on-the-ground implementation of the concepts and policy options highlighted in this report. These activities are designed to support state efforts to promote fair and efficient practices with respect to transfers in the West. WGA and WSWC will continue a dialogue among the states and with affected stakeholders to determine the most critical elements for future work.

7.2.1 Research

WGA and WSWC could engage in research and exploration of related issues, as deemed most important by the Western Governors and Water Council members. Examples include:

- *Improved Data on Water Transfers:* While it's clear that transfers are occurring throughout the West, we lack consistent and comprehensive data to quantify the timing, location, and volume of those water transfers. This information is essential to understanding the need and opportunity for improvements in the transfer process. WGA and WSWC could work with the states (and researchers) to improve our understanding of the status and trends in water transfers.

- *Agriculture and Food Security:* One pressing but under-explored facet of water transfers is their impact on food security. How do water transfers affect our ability to grow food to feed the West, the nation, and the world? WGA could work with agricultural economists to examine this question, which has significant implications for how states view water transfers.

- *Managing Drought:* The widespread drought of 2012 provided a stark reminder of water's vital role in western agriculture and state economies. Moreover, the drought illustrated the value in proactive disaster response from state leaders. WGA can examine the use of transfers as drought response tools.

- *Community Mitigation Strategies*: Addressing the economic, environmental, and other 'community' impacts of water transfers will be critical to the continued implementation and effectiveness of transfers. WGA and WSWC could identify the critical impacts of water transfers, examine mitigation strategies that have succeeded and failed, and make recommendations for how states can work with transfer parties and local communities to address these impacts going forward. Considerations may include limitations on the amount of water that can be transferred from any one district, basin or area of origin.

- *Conservation and Salvage Policies:* The "use it or lose it" aspect of the prior appropriation doctrine is often cited as an impediment to water transfers. However, most western states have provisions that allow water to be conserved or transferred without being subject to abandonment or forfeiture proceedings. To better understand how this perception can influence water transfers, the

WGA and WSWC could review efforts by the western states to encourage water conservation. This research could assess policies based on participation, effectiveness, and improvements over time.

- *Federal Statutes, Regulations, and Permitting:* WGA and WSWC could work with federal agencies responsible for water-related federal policy in the West, including but not limited to the Bureau of Reclamation, the Environmental Protection Agency, and the U.S. Army Corps of Engineers, to identify ways for state and federal agencies to work more cooperatively on water transfers.

7.2.2 Active Transfer Network: Cross-State Learning for Water Transfers

WGA and WSWC can support continued cross-boundary learning on innovative water transfers. WGA and WSWC could work with states to build a network of active water transfer projects across the West. Projects would be selected in consultation with the states. The network would track progress and innovation at projects, share lessons learned (including both successes and failures), and connect and support staff from the projects. The project inventory and updates would be posted on a website. WGA and WSWC would consider annual or as-needed meetings of project or program staff to share lessons, and would use this network to provide periodic updates to the transfers report. Given that practices in this field are still evolving and new innovations still emerge, this network would serve to support and promote transfer successes.

7.2.3 Education and Outreach

Throughout the course of this project, participants found near-consensus on the need to promote a better understanding of the benefits, challenges, and promising strategies to improve water transfer outcomes. WGA and WSWC will develop outreach materials to educate potential transfer participants, as well as the broader public, on water transfers. WGA and WSWC will work with partners and employ a range of venues for educating policy makers and the public. Strategies include:

- Developing outreach materials on water transfers and a standard presentation on the results and policy options presented in this report. The presentation will include an overview of the West-wide situation with respect to transfers, and it will include a module with specifics on each state that can be further tailored for local applications.

- Establishing a WGA-hosted website featuring proceedings of the stakeholder workshops that helped formulate this report, one-pagers that provide quick facts on issues like data availability, state protections for instream flow, and mitigating impacts to rural communities, and real-time updates on the leading examples and cutting-edge policy developments with respect to water transfers from across the Western states.

- Convening a workshop of policy makers and stakeholders following the distribution of this report in order to discuss findings and refine useful next steps. The workshop would include state-level policy makers and on-the-ground practitioners, and it would focus on conveying outcomes from the report and how policy-makers can begin to support needed advances.

Western Governors recognize the economic and social value of agricultural water use, an intrinsic part of our shared history and culture... With a sound approach to water transfers, our states will continue to grow and thrive.

- Delivering presentations on water transfers at state-sponsored venues and meetings across the West. WGA and WSWC will target at least 10 events where the audience and subject matter indicate an opportunity to advance lessons and policy options from this project. WGA and WSWC will solicit effective messengers, with a focus on WSWC members, to deliver presentations.

7.4 CONCLUSION

The Western Governors provided guidance for this report with their 2011 Policy Resolution (11-7):

> **Western Governors believe states should identify and promote innovative ways to allow water transfers from agricultural to other uses (including urban, energy and environmental) while avoiding or mitigating damages to agricultural economies and communities.**

Water transfers are already a key part of resource management in most western states. As demand for water grows in basins that are already at or near full allocation, states can use this report to consider how transfers figure into their state's water future. With the leadership of the Governors, western states will continue to find means to provide water for new users with provisions that properly value the importance of traditional uses of water.

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Water Transfers in the West

PROJECTS, TRENDS, *and* LEADING PRACTICES *in* VOLUNTARY WATER TRADING

APPENDICES

APPENDIX A:
State and Federal Regulation of Transfers

In general, states require those wishing to change the place of diversion, place of use, or purpose of an existing water right to file an application and obtain approval from the appropriate state authority (typically a state engineer, state agency, or water court). Most states will also issue public notice of a proposed appropriation and provide the public with opportunities to voice objections to the proposed use. If an application satisfies the necessary criteria, a state will issue a permit specifying the amount of water an appropriator can use, where he or she can withdraw the water (the place of diversion), where the water is to be applied (the place of use), and the purpose of the use.

As transfers have become more prevalent, western states have enacted regulatory and statutory authorities to accommodate changing demands on water resources. Although these efforts vary, states have generally focused on accelerating the review process for transfer applications, providing incentives for stretching available supplies, and modifying forfeiture and abandonment laws to allow for conservation and instream uses.[1] A number of western states have also enacted provisions to facilitate the temporary or short-term movement of water from one use or location to another.[2]

At the same time, states are working to provide adequate protections for environmental values and third parties impacted by transfers. As discussed below, every western state ensures that transfers do not impair other water rights and many now consider potentially harmful impacts to environmental and economic values when reviewing and approving transfers.[3]

In addition to regulatory and statutory conditions, states have also developed various programs, policies, and institutions to facilitate the process for transfers. These efforts not only include the state entities charged with regulating transfers, but also encompass state-sponsored water banks and other programs that facilitate the transfer of water by reducing transaction costs and matching willing sellers and buyers.[4] Detailed information is available in Table 4, State Policies and Programs Impacting Transfers.

A-1 INJURY TO EXISTING WATER RIGHTS

Although conditions for approval vary considerably across the West, the principles states use to protect vested water rights from new appropriations also apply to ensure that changes of existing water rights do not injure other vested water rights. This so-called "no injury" rule is perhaps the most important component of the process most western states use to review and approve water right change applications.

Because appropriators have a vested right to have stream conditions maintained as they existed at the time of their appropriations, changes in a water right must not injure other right holders by altering stream conditions. Moreover, most states require applicants to show that the proposed transfer will not injure other water users before approving a transfer.[5] As with applications to appropriate water, states typically publish notice of a proposed change and provide opportunities for the public to raise objections. If objections are raised, the cost and time required to obtain a transfer can increase and the transfer may be denied. Consequently, the time and costs needed to prove an absence of injury and the potential for objections can serve as a disincentive for some parties to pursue transfers.[6]

Another key requirement of the no injury rule is that right holders can only transfer the amount of water that they have beneficially consumed in the past, even if this consumed water is less than the volume that their water right entitles them to divert. States use a variety of methods and consider a number of factors to calculate historical consumptive use. For instance, when calculating the historic consumptive use for agricultural use, many states will consider the type of irrigation used, the types of crops grown, climate, soil type, and seasonal water use.[7]

A-2 PUBLIC INTEREST REVIEWS

Most western states require some form of public interest review for proposed water transfers through statute, regulation, or case law. Although the specifics of these reviews vary considerably, common considerations include impacts to environmental values and local economies, as well as the net benefit of the transfer to the state.[8] For example, Nebraska law lists eight factors that must be considered when determining whether a groundwater transfer is in the public interest, including considerations related to the economic benefit of the proposed use, effects on interstate compacts or decrees, and the availability of alternative sources of water, among others.[9] Nebraska law also lists seven factors to consider when determining whether an interbasin transfer is in the public interest, including "economic, environmental and other benefits of the proposed interbasin transfer and use."[10]

However, not every state has specific criteria on how to determine whether a transfer is "in the public interest," sometimes leaving this determination to the applicable state permitting authority.[11] This lack of specific criteria, as well as the subjective nature of the analysis, has the potential to discourage some transfers by making it difficult to predict whether a particular reallocation will be determined to be in public interest.[12]

Nevertheless, it appears that public interest concerns are playing an increasingly important role in the transfer approval process. However, most decisions to approve, deny, or condition a transfer remain rooted in the traditional "no-injury" standard.[13] As some commentators have noted:

[V]ery few agricultural to urban transfers have been conditioned or denied for public interest reasons. Many of the public interest issues that are raised during transfer proceedings are not expressly incorporated into the final order approving or denying the application. Moreover, some public concerns may be addressed through outside negotiations that do not become part of the transfer record.[14]

As compared to public interest considerations, the no-injury standard may also provide state decision makers with a less-subjective and therefore more legally defensible foundation for decisions approving or denying a transfer.[15] Consequently, it is possible that decisions approving or denying transfers may not accurately reflect the extent to which the decision maker considered public interest factors.[16]

A-3 ENVIRONMENTAL PROTECTIONS

In addition to public interest reviews, many states reported that they have specific statutes or regulations that require state permitting entities to consider adverse environmental effects associated with certain types of transfers. See Table 3 for examples.

A-4 AREA-OF-ORIGIN PROTECTIONS

Area-of-origin statutes are closely related to public interest reviews. These laws are intended to ensure that state permitting entities consider the environmental and economic impacts that transfers may pose to third parties and local interests in those areas where the water subject to a transfer originates. While these interests do not own the underlying water rights subject to a transfer, they can experience a number of adverse effects when water is transferred away from their community. Not every western state utilizes an area-of-origin statute, but those that do rely on a range of approaches that provide varying amounts of protection.[17] Reference Table 3 for examples.

States also rely on public objections, the influence of local water districts, and requirements limiting transfers to historic consumptive use to protect areas-of-origin. For instance, New Mexico allows acequias or qualifying ditch companies to adopt bylaws requiring their approval as a condition to surface water transfers.[18] Likewise, under certain circumstances, Arizona requires the written consent and approval of an impacted water users' association, agricultural improvement district, or irrigation district for the severance and transfer of surface water rights from lands within their boundaries.[19] Thus, it is possible that water transfers will not receive the consent of potentially impacted parties without minimizing or mitigating impacts.[20]

A-5 TRANSFERS AND GROUNDWATER

Some states utilize different regulatory regimes to govern the appropriation of surface water and groundwater. This means provisions that govern surface and groundwater may not be the same in every state. Perhaps most notably, Arizona regulates surface water and groundwater separately

under different statutes and the degree to which the state regulates groundwater use depends largely on whether the area from which the water is withdrawn is located inside one of the state's five active management area (AMA). Within AMAs, there are different types of groundwater rights, each with their own transfer requirements. Outside of AMAs, groundwater may be withdrawn and put to a beneficial use without a right or permit but may not be transported to another basin or AMA, with certain exceptions.[21]

The legal frameworks of some states also provide varying levels of detail regarding groundwater transfers. For instance, Oklahoma reports that it relies on administrative rules to regulate such transfers because its laws do not specifically mention how to change or transfer groundwater rights.[22]

A-6 TEMPORARY TRANSFERS

Some states utilize a more streamlined or expedited review process to approve temporary, short term transfers. In many cases, such processes allow state authorities to approve these types of transfers without providing notice or holding a hearing if they determine that the transfer will not injure other rights and comply with statutory requirements.[23] The underlying reasoning is that expedited reviews are appropriate because the shorter duration of such transactions minimizes the risk for potential impacts. Those impacts that do occur can also be more easily remedied.

Requiring short-term transfers to comply with the same process required for long term transfers may also not be practical in many cases. This is because shorter-term transfers are often transient in nature and require rapid approval to take advantage of specific water supply needs that exist at a certain time.[24]

Additionally, some states have adopted provisions to facilitate temporary transfers for certain purposes. See Table 3 for more on temporary transfers and expedited review.

A-7 INFORMAL AGREEMENTS

In some cases, parties may enter into informal "gentlemen's agreements" to voluntarily share water or forgo the exercise of a valid right to the use of water. These agreements are generally not regulated by the states and appear to be fairly limited or non-existent in most states. However, in some states they can represent significant opportunities to share water for a variety of purposes.

For example, Utah reported that informal sharing agreements have provided water for instream purposes "because Utah's law on instream flows is very restrictive."[25] Further, water right holders in New Mexico often informally share water supplies in districts where the state engineer has appointed a water master. In these districts, water masters have broad statutory authority to protect against waste and commonly invite those with unneeded water to share it with another water right holder who can beneficially use it. Ditch riders and mayordomos in New Mexico can also allow for informal sharing.[26]

Notwithstanding these examples, informal sharing agreements are subject to a number of obstacles, including the fact that they are typically non-binding and subject to challenge by other water rights holders.[27] The territorial nature of water providers in some areas may also inhibit the ability of some providers to recognize the potential for increased efficiencies through collaboration.[28]

Federal Laws and Policies

The majority of western states report that federal laws and policies have had a limited impact upon the transfer of water within their borders. Nevertheless, although federal laws and policies have not prevented transfers from occurring, they can increase transaction costs and the amount of time needed to implement certain transfers. Specifically, federal agencies can protest transfer applications impacting federal facilities or resources and some transfer applications may trigger National Environmental Policy Act (NEPA) review requirements, including the development of an Environmental Impact Statement.

A-8 THE ENDANGERED SPECIES ACT

The impact of federal laws on transfers is particularly evident in California's Bay-Delta, where federal Endangered Species Act protections for listed fish species have greatly reduced the amount of water transferred from the Delta to the southern and central portions of the state. Further, many transfers in California require conveyance through the federal Central Valley Project or the state-owned State Water Project. ESA requirements are a controlling factor with respect to the use of these facilities and California notes

that there are some years in which it is not operationally possible to wheel water that would otherwise be available for transfer.[29]

A-9 CONVEYING NON-BUREAU OF RECLAMATION PROJECT WATER THROUGH FEDERAL FACILITIES

The Warren Act authorizes the United States to contract with water users for the conveyance and storage of non-Bureau of Reclamation project water through federal facilities when excess capacity exists. Although the Act can facilitate certain types of transfers, it also includes conditions and limitations that can affect the feasibility and cost of a transfer project. In particular, the Act provides that "water so impounded, stored, or carried shall not be used otherwise than as prescribed by law as to lands held in private ownership within Government reclamation projects."[30] Certain contracts may also be subject to limitations on the amount of water that can be conveyed.[31]

Reclamation policy regarding the conveyance of non-project water further dictates the use of the NEPA process to address the environmental and socio-economic impacts of proposed conveyances, and requires appropriate changes for the use of excess project capacity.[32]

All of these requirements have the potential to dramatically increase transaction costs, and discourage water transfers (as well as new water projects).

A-10 BUREAU OF RECLAMATION TRANSFER POLICIES REGARDING PROJECT WATER

The Bureau of Reclamation provides water to one out of five western farmers and delivers irrigation water for 10 million farmland acres.[33] Thus, as with Reclamation policies regarding the conveyance of non-project water, the agency's policies regarding the use of project water from its facilities can have a significant impact upon certain types of transfers in the West.

The objective of Reclamation's current transfer policy is to facilitate voluntary transfers of project water between willing parties in a timely and economical manner pursuant to state and federal law. Among other things, Reclamation policy requires agency approval for "transfers of project water," including conversions of irrigation water to municipal and industrial (M&I) use. Such conversions must comply with all applicable federal, state, tribal, and local laws, and may be subject to certain charges and costs.[34]

Current Reclamation policy states that project water converted from the irrigation of commercial crops to the irrigation of other vegetation (e.g., lawns, ornamental shrubbery, gardens, golf courses, parks, etc.) does not qualify as a "transfer of project water" requiring Reclamation approval.[35] However, proposed changes to this policy would specify that deliveries of project water to lots of less than 10 acres for non-commercial irrigation purposes would be assumed to be an M&I use subject to payment of market rates, which can be substantially higher than irrigation rates.[36] Although the changes would be prospective, existing users renewing, amending, or supplementing their contracts would need to do so under the new contract, which could re-classify some uses as M&I. This more narrow definition of "irrigation" could impact market-based water transfers and water sharing arrangements by requiring additional steps to formalize conversions of some types of agricultural uses to non-agricultural uses. Moreover, reclassifying uses that currently qualify as "irrigation," especially urban uses, could make such conversions financially infeasible in some instances.[37]

A-11 FEDERAL TAX DEDUCTIBILITY OF DONATED WATER RIGHTS

Many streamflow restoration efforts rely on donations of water rights for instream flows and other conservation purposes. However, there is some uncertainty as to whether donated appropriative water rights qualify for a tax deduction under state law and the Internal Revenue Code. Although some parties have claimed donated water rights as a tax deduction without incident, these instances appear to be limited and the lack of clear guidance from some states and the Internal Revenue Service may serve as a disincentive to potential donors.[38]

APPENDIX B:
Examples of Transfers

Eleven transactions were selected to illustrate the diversity of transfers occurring in the western United States. They represent a sample from the hundreds of transfers that have occurred over the past 20 years. They were selected because they are either examples of mature transfer markets, illustrate how setting up the "rules of trading" through statutory, contractual, or adjudication facilitates transfers, or they were major transactions. One trend that emerges from these examples is that other than the long term leasing of water (which involves significant volumes of water), individual transactions generally involve small volumes of water. Table 2 summarizes the information for each transaction.

B-1 PERMANENT SALE OF WATER RIGHTS: SURFACE WATER RIGHTS

B-1-1 Colorado Canal Companies

The shares in Colorado canal companies represent a pro rata claim on water available from a canal company's water rights. Shareholders may sell their shares to other shareholders or outsiders in accordance with rules and regulations established under Colorado law and the bylaws of the companies. There has been continuous trading in the shares for many years. Many of the transactions involve a small number of shares traded among agricultural users within the service area of the company. Shares purchased by outside municipal users are occasionally leased back to the original shareholder. A water user taking the water available under their purchased shares outside of the company's service area enters into contracts that include dry-up covenants and agreements with the company to address impacts of the transfer on company operations.

The canal companies with the most transactions in recent years are the Bessemer Irrigation Ditch Company, Left Hand Ditch Company, Highland Ditch Company, Louden Irrigating Canal & Reservoir Company, Windsor Reservoir & Canal Company, Water Supply & Storage Company, and North Poudre Irrigation Company. The City of Greeley also accepts shares dedicated for development requirements from the Greeley Irrigation Company, Greeley-Loveland Ditch Company, Loveland Lake, and Seven Lakes Reservoir Company.

B-1-2 Truckee River

The sale of Truckee River surface water rights in Northern Nevada is driven by land use regulations requiring developers to acquire water rights for their projects that they in turn dedicate to local water providers in exchange for water service. Extensive adjudication of rights on the Truckee River ultimately resulted in rules regarding the transfer of water rights in the region. Transactions normally involve a few acre feet of water. As a result, the water rights are made available by agricultural water users who can continue farming with a few less acre feet of water rights. This market demonstrates the steady transfer of agricultural water rights within a basin to meet new municipal water demands. With established rules, the transactions are routine and without controversy. In fact, land development in the area heavily relies upon the operation of this transfer market.

B-1-3 California State Water Project

Over the past 15 years, sales of contractual entitlements to water from California's State Water Project (SWP) have occurred in the state. These sales have all been agricultural-to-urban transactions. Some of the transferred water has been used for new urban development in areas that did not have a reliable water supply. This market is enabled by the fact that urban water agencies can better afford the cost of SWP water in comparison to some agricultural agencies.

B-2 PERMANENT SALE OF WATER RIGHTS: GROUNDWATER RIGHTS

With the implementation of the 1980 Groundwater Management Act, Arizona defined groundwater rights in areas of severe overdraft (called Active Management Areas). "Type 2"non-irrigation grandfathered groundwater rights were awarded to non-irrigation users, where the size of the right equaled the maximum amount of groundwater pumped in any year between 1975 and 1980. The rights may be sold in their entirety to other non-irrigation users in the same Active Management Area. A steady stream of transactions occurs, especially in Phoenix and Tucson, although transactions commonly involve small volumes of groundwater rights.

Irrigation grandfathered rights within Active Management Areas may be retired in exchange for "Type 1" non-irrigation grandfathered rights. Type 1 rights are appurtenant to the formerly irrigated land and may be used to supply a specified amount of groundwater for non-irrigation use on or off the appurtenant land, with some restrictions. All grandfathered groundwater rights may be extinguished in exchange for extinguishment credits, which allow a specified amount of groundwater pumping by new subdivisions or municipal providers that have been designated as having an Assured Water Supply. Extinguishment credits may be conveyed within the same Active Management Area.

Transactions involving groundwater rights and extinguishment credits occur as the product of negotiations between willing buyers and sellers. Since legislation and administrative rules set up the framework for the transfer of groundwater rights and extinguishment credits within Active Management Areas, the transfers occur without major transaction costs. Arizona's Active Management Areas show that transfers can be used successfully for groundwater, provided that rights are established and the rules of trading are clear.

B-3 MARKETS WITH SALES AND LEASING OF WATER RIGHTS OR WATER

The examples involving surface water illustrate how transfers can involve federal project water, state water rights in a river system subject to an international treaty, and achieve environmental purposes in accordance with state law. The groundwater rights examples illustrate how regulatory of pumping through adjudication or statute includes a role for transfers.

B-4 SURFACE WATER RIGHTS

B-4-1 The Colorado Big Thompson Project

This federal project located in Northern Colorado is the premier example of the transfer of rights to surface water. At the project's inception in the 1950s, water users acquired "units" that represented a pro-rata share of project water available in a given year. There are a total of 310,000 units outstanding. The board of the Northern Colorado Water Conservancy District declares a quota regarding the availability of water in any year. The quota generally varies between 50% and 80%, averaging 70% over the past 10 years (2002-2011). Therefore, the units outstanding represent claims on 155,000 acre feet to 248,000 acre feet, averaging 217,000 acre feet over the past 10 years.

These units can be leased or sold among water users within the project's service area. There has been a regular market for CBT units since at least the 1970s. Parties negotiate the terms of the transfer and report the transaction to the Northern Colorado Water Conservancy District. The board reviews and approves transfers at its monthly board meeting in accordance with rules established for transfers.

At the project's inception, municipal users owned 15% of the project's units and agricultural users owned 85%.[39] With the sale of CBT units over time, reflecting the growth in municipal demands and conversion of agricultural lands to municipal uses, municipal users now own about 67% of the project's units and agricultural users now own about 33% of project units.[40] Since municipalities commonly acquire units and lease back acquired units to farmers, the current use of CBT water is 35% for municipal uses and 65% for agricultural uses.[41]

This example illustrates how establishing the rules for transfers can facilitate an orderly, long-term reallocation of rights from agricultural to municipal uses. Since transfers must remain within the boundaries of the project, the transfers are more like local than interbasin transfers among water users.

B-4-2 Rio Grande Surface Water Rights

On the Rio Grande in Texas, over 100,000 acre-feet of permitted water has been transferred from agricultural permits to multi-use permits. The most active transfer market takes place in the Lower Rio Grande Valley below Falcon Reservoir.

The Rio Grande is operated in accordance with a treaty between the Republic of Mexico and the United States. Through a streamlined process, a watermaster administers the rights in accordance with regulations that provide for changes in ownership, use of rights, and location of diversion points. Leasing activity is restricted to annual transfers and to the same purpose of use. Sale of a water right, however, can change the purpose of use. For the agricultural sector, in which the largest leasing activity occurs, water is available when the volume of water accessible to agricultural districts exceeds current demands.

In recent years, municipal and industrial water users have been acquiring more water rights. A major player is the City of Laredo, which purchases water rights from agricultural water users and converts them to municipal use under a standing offer of $2,250/AF since 2008. With the rapid expansion of natural gas drilling in the nearby Eagleford Shale, energy companies have started to acquire water rights from agricultural water users. In turn, current water rights holders are using transfers as a means to adapt to the new economic opportunities presented by energy development. In fact, Hidalgo County Irrigation District No. 2., a major agricultural district in the Lower Rio Grande, has already amended the allowed diversion points of their water rights to include both the Lower Rio Grande (where they deliver water to farmers) to the Middle Rio Grande (where water could be delivered to energy companies).

B-4-3 Environmental Purposes

Water transfers are also occurring for environmental purposes, including provision of water for wildlife refuges and instream flows. States, such as Oregon, have developed the legal framework to enable environmental groups to work with water right owners to enhance streamflows.

The Freshwater Trust in Oregon is a non-profit organization that works with landowners to manage surface water use for instream flow purposes. The Trust enters into a mix of transaction types involving purchases of water rights, long-term or short-term leasing of water, and other models of water management that balance instream and out of stream use. The methods of securing the rights or water include fallowing, supply substitution, on-farm conservation, split-season leases, minimum flow agreements, season of use diminishments and other, one-off project types. Under a split season lease, a farmer divides their water use between instream and out of stream consumptive uses as long as the uses are not concurrent and as long as water use is measured. Under Oregon law, instream water rights are held by the state in trust for the people of Oregon. In some cases, the farmers donate the water rights or water. In other cases, they receive payments. This example illustrates that transfers are increasingly being used for environmental purposes.

B-5 GROUNDWATER RIGHTS

B-5-1 Southern California Groundwater Basins

Groundwater rights have been established for many basins in Southern California through court adjudications addressing groundwater overdraft (Central Basin, West Basin, Main San Gabriel Basin, Chino Basin, Mojave River Basin). The groundwater cannot be exported from a basin. However, the adjudications allow the rights to be leased or sold. Watermasters have established regulations governing the transfers that occur at unregulated prices. In urban areas, the rights are sold because businesses are scaling back their operations in the basin. In less urban areas, such as the Mojave River Basin, agricultural users dominate the sellers who are either contracting their agricultural operations or converting land from agricultural to urban uses. The volume of leasing activity is significant relative to the amount of water rights. Relatively little water rights are sold annually. This example illustrates how courts have accepted the importance of transfers to improve the management of overdraft groundwater basins.

B-5-2 Edwards Aquifer in Texas

The Edwards Aquifer is located in south Texas and includes the City of San Antonio. In 1993, the Texas Legislature passed S.B. 1477 to establish groundwater rights and a permitting system to regulate the pumping of Edwards water. The act

also created the Edwards Aquifer Authority as a special groundwater district to manage the aquifer and oversee groundwater permitting in the area. That act allows for the sale or lease of Edwards groundwater provided that the water is not exported outside the basin. Additionally, irrigators cannot lease more than 50% of their initial irrigation rights and must use the remaining rights in accordance with their original permits. The remaining irrigation rights must also pass with any transfer of the irrigated land itself.[42]

Following the act's passage, active leasing and the sale of groundwater rights in the basin have transferred a significant share of agricultural water rights to municipal uses in the San Antonio area. The impetus for this transfer activity stems in part from a provision of the act that gave irrigators existing at the time of its enactment a permit to withdraw up to two acre-feet per year of groundwater for each acre of land they historically irrigated.[43] Many of these irrigators had historically used less than the two acre-feet of water they received per acre. Since the act allows irrigators to sell up to 50% of their rights, many existing irrigators sold or leased all or part of the unused portions of their allotments to municipal uses and continued farming.

Of further note, the Texas Supreme Court's February 2012 decision in Edwards Aquifer Authority and State of Texas v. Day and McDaniel may also impact the sale and lease of groundwater in Texas. The court held that Texas landowners have a "constitutionally compensable interest" in groundwater and that landowners may sue for compensation for regulations that limit access to the groundwater located beneath their lands.[44] In reaching this decision, the court addressed whether groundwater can be owned in place under Texas law, which utilizes the rule of capture to govern groundwater use. Comparing groundwater to oil and gas, which is owned in place under Texas law, it found, "[W]hile the rule of capture does not entail ownership of groundwater in place, neither does it preclude such ownership."[45]

The court also reasoned, "[T]he issue is not whether there are important differences between groundwater and hydrocarbons; there certainly are. But we see no basis in these differences to conclude that the common law allows ownership of oil and gas in place but not groundwater."[46] The specific implications of this decision on water sales and leases in Texas have yet to be determined.

B-6 LONG-TERM LEASING OF WATER

California is home to two of the highest profile long-term water leases in the West. Both involve transfers of significant volumes of water between agricultural water users of Colorado River water and municipal water users in Southern California. Both demonstrate ways to handle concerns for the area-of-origin in the context of long-term leases of surface water. These two examples represent transactions based on different mixes of fallowing and conservation.

B-6-1 Palo Verde Irrigation District – Metropolitan Water District

The agreement between the Palo Verde Irrigation District (PVID) and the Metropolitan Water District of Southern California (MWD) involves the annual transfer of up to 110,000 acre feet of Colorado River water over a term of 35 years. Palo Verde makes the water available by the rotational fallowing of lands within the district. Metropolitan has an option to call water in any year. Given local community concerns about the socio-economic impact of land fallowing, the transaction provided $6 million for programs designed to either benefit the local community or mitigate the socio-economic impact of land fallowing.

This transaction illustrates a transfer used by the municipal buyer (MWD) to use a transfer to "firm up" its water supplies. Metropolitan made an up-front payment for the option and makes additional payments when it requests delivery of water. This transaction also illustrates that long-term transfers also have to address area of local concern. MWD committed $6 million and will revisit its commitment if mitigation of third party impacts requires additional mitigation.

B-6-2 Imperial Irrigation District – San Diego County Water Authority

The Imperial Irrigation District and the San Diego County Water Authority entered into a transaction involving the transfer of up to 200,000 acre feet per year of Colorado River water over 45 years. Imperial makes the water available by rotational fallowing for the first 15 years (1 million acre feet for transfer to San Diego and 500,000 acre feet to mitigate the impact of fallowing on inflows into the Salton Sea). Thereafter, water will be made available exclusively through on-farm water conservation and system improvements. Given that the bulk of the transfer is based on water conservation that requires significant capital investments, the lease agreement calls for firm annual delivery of water based on a negotiated schedule. To address local community concerns about the impact of fallowing on the local economy, the transaction provides $50 million for programs to mitigate the socio-economic impact of fallowing during the first 15 years of the agreement and fund programs that benefit the local community.

This example illustrates how important the mechanisms used to make water available are a critical factor in terms of the impact of transfers on the local community. The Board of the Imperial Irrigation District is adamantly opposed to land fallowing. They preferred making water available through conservation. An economic assessment of project alternatives included in the transfer's Environmental Impact Statement/Environmental Impact Report concluded that a transfer based on conservation would have a significant boost to the local economy, while a transaction based on land fallowing would have a significant negative impact on the local economy. When the transaction was reconstituted to include land fallowing in the early years to address environmental concerns, there was a significant commitment of funds to address the impact of fallowing on the local economy.

APPENDIX C:
Tables

table 1 BENEFITS AND DRAWBACKS OF ALTERNATIVE TRANSFER MECHANISMS

To be paired with Chapter 5: Water Transfer Mechanisms and Agreements

FORM OF TRANSACTION	METHOD OF MAKING WATER RIGHTS/WATER AVAILABLE	NATURE OF COMMITMENT TO MAKE WATER AVAILABLE	BENEFITS	DRAWBACKS
SALE OF WATER RIGHT	Land Retirement	Water permanently alienated from land	**Seller**: cash out water right **Buyer**: permanent control of water supply	**Area of Origin**: reduction of economic base, dust and weed control **Buyer**: residual obligations related to land maintenance and local property tax issues; responsible to maintain historical return flows from changed water right.
SALE/LEASE BACK OF WATER RIGHT	Continuation of farming during lease back period	Land permanently retired in future when lease back expires	**Seller**: cash out water right but continue farming during lease back period **Buyer:** tie-up long-term water supplies ahead of needs	**Area of Origin**: reduction of economic base at end of lease back period **Buyer**: payment for water rights ahead of need for water supply
LONG TERM LEASING OF WATER	Periodic/rotational fallowing	1. Annual commitment 2. Buyer option to take water	1. **Seller**: supplements and diversifies farming income and strengthens farm balance sheet **Buyer**: annual supply of water for firm demand 2. **Seller**: receives payment for option as well as payment for water when taken, supplements and diversifies farming income and strengthens farm balance sheet **Buyer**: firm up existing supplies by taking water when shortfall in other supplies	1. **Area of Origin**: reduction of economic base **Buyer**: must take water in all years even when surplus water from other sources 2. **Area of Origin**: reduction of economic base when option exercised **Buyer**: none if exercise of option in full discretion of buyer

table 1, cont.

FORM OF TRANSACTION	METHOD OF MAKING WATER RIGHTS/WATER AVAILABLE	NATURE OF COMMITMENT TO MAKE WATER AVAILABLE	BENEFITS	DRAWBACKS
LONG TERM LEASING OF WATER	1. On farm water conservation and system conservation 2. Substitution of other local supplies, such as groundwater	1. Annual 2. Annual or option depending on the capital intensity of the local supply source	1. **Seller**: supplements and diversifies farming income, strengthens farm balance sheet, and increases economic productivity of farm operations **Buyer**: long term water supply 2. **Seller**: diversification of income, strengthen farm balance sheet, and substitute lower investments in local supply source for higher investment in water conservation **Buyer**: long term water supply plus potential for optionality in deliveries	1. **Area of Origin**: (i) none, in fact economic boost to local economy (see "Economic Impact of Water Transfers") 2. **Buyer**: must take water in all years even when surplus water from other sources **Area of Origin**: (i) smaller economic boost to local economy to extent capital investments smaller for development of local supplies than water conservation and lose increased economic productivity of farm operations from water conservation investments: (ii) potential groundwater overdraft unless pumping regulated or otherwise controlled. **Buyer**: none if exercise of option in full discretion of buyer
SHORT TERM LEASING OF WATER	1. Periodic/ rotational land fallowing 2. Substitution of other local supplies, such as groundwater	Water available during term of lease, although potential for optionality of deliveries if lease more than one year	1. **Seller**: short-term supplement and diversification of income **Buyer**: fill-in short term shortfalls in water supply 2. **Seller**: short term diversification of income with continuation of farming operations **Buyer**: fill-in short term shortfalls in water supply	1. **Area of Origin**: periodic disruption of local economic base **Buyer**: only temporary solution to water supply challenges 2. **Area of Origin**: (i) no adverse impact on local economy if farming operations continue, (ii) potential groundwater overdraft unless pumping regulated or otherwise controlled. **Buyer**: only temporary solution to water supply challenges

table 2 EXAMPLES OF TRANSFER MECHANISMS

To be paired with Appendix B: Examples of Transfers

STATE	PARTIES	FORM OF TRANSACTION	METHOD OF MAKING WATER AVAILABLE	NATURE OF DELIVERY COMMITMENT	OTHER COMMENTS
AZ	Groundwater pumpers in Active Management Areas	Lease or sale of groundwater rights.	Industrial and domestic water users sell and lease water rights that are no longer needed to meet their water demands. Common uses are livestock watering, landscape or turf irrigation, and industrial use.	Buyer has exclusive control of allowed groundwater pumping.	Transactions generally involve a few acre feet of rights. These rights cannot be used for agricultural irrigation nor applied toward an assured water supply (that is needed for new development).
CA	Palo Verde Irrigation District Metropolitan Water District of Southern California	Long-term leasing of up to 110,000 AF of water annually.	Rotational fallowing	Metropolitan has option to call water in any year.	Transaction provides $6 million to address socioeconomic impact of fallowing
CA	Imperial Irrigation District, San Diego County Water Authority	Long-Term Leasing of up to 200,000 AF of water annually.	Fallowing of 1.5 million AF in first 15 years, with water conservation thereafter.	Firm annual delivery per negotiated schedule.	Transaction provides $50 million to address socioeconomic impact of fallowing.
CA	Agricultural State Water Project Contractors, Municipal State Water Project Contractors	Permanent sale of contractual entitlement to receive water from State Water Project	Water is delivered to an existing SWP contractor who may, through exchange, move the water to other agencies.	Buyer has exclusive control of water available from State Water Project contractual entitlement.	Transaction involves a payment for contractual entitlement plus assumption of going forward costs under State Water Project contract.
CA	Pumpers in adjudicated groundwater basins in Southern California	Permanent sale or annual lease of groundwater rights.	In urban areas, sellers are businesses reducing operations in basin. In high desert, sellers are generally agricultural operations that are contracting or land converting to urban uses.	Buyer has exclusive control of water available from water rights leased or purchased.	Groundwater rights created by settlement of litigation generated by groundwater overdraft of basin. Trading in and use of rights restricted to basin.
CO	Water users in Colorado Big Thompson Project	Permanent sale of units in project. Municipalities may lease back units until future date.	Land retirement, land conversion, conservation or local supply substitution.	Buyer has exclusive control of water available from units unless leased back to seller.	There is also short-term, annual leasing of units among water users. Units available because water available from units exceeds seller's water demands, taking into account availability of other local water supplies. Transactions generally involve less than 100 units.

table 2, cont.

STATE	PARTIES	FORM OF TRANSACTION	METHOD OF MAKING WATER AVAILABLE	NATURE OF DELIVERY COMMITMENT	OTHER COMMENTS
CO	Shares in Canal Companies	Permanent sale of shares. Many transactions are between agriculture users. Municipalities may lease back shares until a future date.	Land retirement, although smaller transactions may involve retirement of fields rather than entire operation.	Buyer has exclusive control of water available from shares unless leased back to seller.	Transactions frequently involve only a few shares, although there may be larger transactions in the future with signing of the Aurora-EPRC Agreement in 2010. Municipal users enter into contracts that often include dry-up covenants.
OR	Freshwater Trust and agricultural users	Sale of water rights, as well as long-term and short-term leasing.	Split-season leasing (farmer reduces irrigation of crops late in season and leases the water that would have otherwise been used), fallowing, supply substitution, and on-farm conservation.	Water or water rights subsequently donated to state (under Oregon law, only state can hold instream water rights or water).	In some cases, farmers donate the water right or water. In other cases, there are payments. These transactions may create a community benefit of improved streamflow for habitat, esthetics, recreation).
NV	Agricultural interests and developers in Reno area	Sale of Truckee River water rights.		Buyer has exclusive control of water available from water rights.	Developers dedicate water rights for water service. Transactions normally involve a few acre feet of water.
TX	Agricultural interests in Edwards Aquifer and municipal water providers in San Antonio area	Permanent sale or multi-year leasing of Edwards Aquifer Groundwater Rights.	Water conservation from the switch from flood irrigation to sprinklers.	Buyer has exclusive control of water available from water rights leased or purchased.	Pumping rights established by state legislation and restricted to use in Edwards Aquifer.
TX	Rio Grande Surface Water Rights	Annual leasing and permanent sale of surface water rights. City of Laredo has a standing offer to purchase water rights.	Surplus water for annual leasing. Change in farming for water right sales.	Buyer has exclusive control of water available from leased or purchased water rights.	Watermaster administers rights in accordance with regulations that set the rules for change of purpose of use of water rights and moving diversion points along the Rio Grande River.

table 3 STATE LEGAL AND REGULATORY FRAMEWORKS FOR WATER TRANSFERS

This table is intended to provide a brief overview of the legal and regulatory framework that western states use to oversee water transfers. It is intended to be read in conjunction with Table 4, which describes state programs, policies, and efforts related to water transfers (e.g., water banks, conservation programs, etc.).

This table relies on information the western states provided in their responses to a survey the WGA and WSWC circulated as part of this project, as well as previous WSWC research contained in its 2008 report entitled *Water Laws and Policies for a Sustainable Future: A Western States' Perspective*, available online at **http://www.westgov.org/wswc/publicat.html**.

Please note that some states did not report certain categories of programs, such as Conserved Water Programs. For those states, these categories have been omitted.

Arizona

PERMITTING ENTITIES & GENERAL OVERVIEW	Arizona regulates groundwater and surface water separately. The Arizona Department of Water Resources (ADWR) oversees surface water transfers, as well as groundwater transfers located within the state's five "active management areas" (AMAs). Groundwater transfers outside of AMAs are generally unregulated, but there are restrictions on the transfer of water away from a basin. Different rules apply to the transfers of Colorado River surface water entitlements, where a contract with the Secretary of the Interior is required to use Colorado River water per the 1928 Boulder Canyon Project Act. ADWR makes recommendations to the Secretary on proposed transfers and the Secretary makes the final decision after considering the recommendation. ADWR also makes recommendations to the Secretary on proposed transfers of Central Arizona Project (CAP) subcontracts. In general, transfers of surface water, other than Colorado River water must not injure vested rights. Other conditions and protections may also apply.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • ARIZ. REV. STAT. § 45-107 (transfers of Colorado River water) • *Id.* § 45-172 (transfer of surface water rights, not including transfers of Colorado River water) • *Id.* §§ 45 -469(A)-(B), -470(A), -472, -473, 474, -482(B), (transfer of grandfathered groundwater rights). • Arizona Administrative Code R12-15-723 (transfer of extinguishment credits). • ARIZ. REV. STAT. §§ 45-541 to -547 (transportation of groundwater away from an AMA and among basins outside of an AMA). • *Id.* §§ 45-551 to -559 (transfer of groundwater from areas outside of an AMA to an AMA). **Forfeiture Exemptions:** • Underground storage when used beneficially is exempt from forfeiture. *Id.* § 45-141 • Exchanges of surface water for groundwater, effluent, or other surface water sources are exempt from forfeiture. *Id.* **Guidance (Colorado River Water):** • "Policy and Procedures for Transferring an Entitlement of Colorado River Water" (hereinafter "COLO. RIVER POLICY 1") • "Revised Policy Regarding Transfer of Central Arizona Project Municipal and Industrial Water Subcontract Entitlements" (hereinafter "COLO. RIVER POLICY 2") *Both policies are available at: **http://www.azwater.gov/AzDWR/Legal/LawsRulesPolicies/SubstantivePolicyStatement.htm**

Arizona, cont.

TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Expedited Review:** • An irrigation water right appurtenant to certain lands being excluded from within the boundaries of an irrigation district may be severed and transferred to certain other lands being included within the irrigation district without ADWR's approval. Only the approval of the irrigation district and the owners of the lands affected by the severance and transfer is required. ARIZ. REV. STAT. § 45-172(A)(6)
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Water District Approval:** • Surface water transfers from lands within an irrigation district, agricultural improvement district, or water users' association require the written consent and approval of such districts. *Id.* § 45-172(A)(4). • The transfer of water on or from any watershed or drainage area that supplies or contributes water for the irrigation of lands within such districts also requires the districts' consent. *Id.* § 45-172(A)(5) **Colorado River Water:** • ADWR will consider a number of factors when making a recommendation on a proposed transfer of Colorado River water in addition to injury to other rights. Third-party considerations include: (1) changes that would occur to customers of the transferring entity; and (2) whether the transfer is consistent with local area ordinances, rules, and regulations. COLO. RIVER POLICY 1 **CAP Subcontracts:** • In evaluating proposed CAP municipal and industrial subcontracts, ADWR will consider impacts to third parties and environmental, economic, and social impacts, among other considerations. COLO. RIVER POLICY 2 **Groundwater Transportation Fees:** • Arizona law requires parties transporting groundwater away from a groundwater basin outside of an AMA to another county within an AMA to pay an annual fee to the county where the groundwater is withdrawn. *Id.* § 45-556

California

PERMITTING ENTITIES & GENERAL OVERVIEW	The State Water Resources Control Board (SWRCB) within in the California Environmental Protection Agency oversees surface water transfers. Right holders may change the point of diversion, place of use, or purpose of use subject to the SWRCB's approval. Transfers must not injure other water rights or unreasonably affect fish, wildlife, or other instream beneficial uses. The California Water Code provides alternative authority to local and regional agencies to transfer surplus water. California does not regulate groundwater at the state level.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • CAL. WATER CODE § 382 (local and regional agency transfer of surplus water) • § 1000 et seq. (framework for regulating transfers) • *Id.* § 1020 et. seq. (water leases) • *Id.* §§ 1435 to 1442 (urgent changes) • *Id.* § 1701 (changes in point of diversion, place of use, and purpose) • *Id.* § 1725 (temporary transfers) • *Id.* § 1735 (long-term transfers) • *Id.* § 1810 (use of state or local agency water conveyance facilities) • CAL. PUB. RES. CODE § 21000 et seq. (Cal. Environmental Quality Act or "CEQA") **Forfeiture Exemptions:** • Numerous provisions specifying that a transfers, leases, and conservation measures are not a basis for forfeiture or abandonment, including CAL. WATER CODE §§ 1011, 1014, 1244. • Crop control contracts, soil conservation contracts are exempt from forfeiture. *Id.* § 1241.6 **Guidance and Other Documents:** • "A Guide to Water Transfers," available at: **http://www.swrcb.ca.gov/waterrights/water_issues/programs/water_transfers/docs/watertransferguide.pdf** • Technical Information on Water Transfers" (wheeling water through the State Water Project or the Central Valley Project), available at: **http://www.water.ca.gov/watertransfers/docs/TechInfoDoc-WaterTransfers-2011.pdf**
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**1-Year Transfers:** • California law provides for an expedited review process for transfers of one-year or less. Such transfers are exempt from the regular environmental review process required by CEQA. Water can be transferred if the water would have been consumptively used in the absence of the proposed transfer and the SWRCB determines that the proposed use: (1) will not injure other right holders; and (2) not unreasonably affect fish, wildlife, or other instream uses. The SWRB will require a hearing if these requirements are not met. CAL. WATER CODE § 1727 **Urgent Changes:** • California law provides for expedited approval of transfers with an "urgent need." *Id.* § 1435

California, cont.

THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Area of Origin:** • Surface water transfers wheeled through state or local conveyance facilities must not unreasonably affect the environment or economy of the county of origin. CAL. WATER CODE § 1810(d) • When local and regional agencies seek to transfer water and petition the SWRCB for a change, the SWRCB can only approve the change if the transfer does not unreasonably affect the overall economy of the area from which the water is transferred. *Id.* § 386 **Environment:** Surface water transfers must not "unreasonably affect fish, wildlife, or other instream beneficial uses." CAL. WATER CODE §§ 386, 1435(b)(3), 1725 and 1736 • The permanent sale of a surface water right – as well as multi-year leases – is also subject to CEQA, which requires mitigation of environmental impacts. **Groundwater:** • Groundwater cannot be transferred from certain basins without compliance with a county-adopted groundwater management plan. *Id.*§ 1220

Colorado

PERMITTING ENTITIES & GENERAL OVERVIEW	Colorado's water courts are responsible for reviewing change applications. The Colorado Division of Water Resources (State Engineer) within the Colorado Department of Natural Resources is responsible for administering water rights and can administratively approve temporary changes in certain circumstances, as well as interruptible supply agreements (ISAs). In general, changes in water rights must not cause material injury or deprive other vested water rights. Other third party protections may also apply. The State Engineer can administratively approve "non-tributary" groundwater transfers.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • COLO. REV. STAT. § 37-92-101 et seq. (Water Right Determination and Administration Act) • *Id.* § 37-92-302 (changes) • *Id.* § 37-92-305 (standards with respect to rulings of the referee and decisions of the water judge) • *Id.* § 37-92-308 (temporary transfers) • *Id.* § 37-92-309 (interruptible supply agreements) **Abandonment Exemptions:** • Loans to the Colorado Water Conservation Board, a banking program, approved water conservation program, or approved land fallowing program are exempt from abandonment. Municipalities are also exempted. *Id.* § 37-92-103(2)(b)
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Temporary Changes/Substitute Supply Plans:** • State water courts review water rights changes, implementation of a rotational crop management contract, or a plan for augmentation. If the court has not issued a decree for such applications, the State Engineer may approve a change, plan, or contract as a "substitute water supply plan" for one year or less. The State Engineer can renew its approval each year until the court issues its decree, so long as the delay in obtaining a decree is justified. COLO. REV. STAT. § 37-92-308 (4)(a). • In cases where a change application or an augmentation plan has not been filed with a water court, the State Engineer may approve the change or plan as a "substitute supply plan" if the effects of the project will not endure beyond five years. The State Engineer can renew a substitute supply plan each year up to the fifth year. *Id.*§ 37-92-308(5)(a) • Notice is required for temporary changes and substitute supply plans, and the State Engineer must consider the comments received. However, the State Engineer is not required to hold formal hearings or other proceedings, but may impose certain conditions. *Id.* §§ 37-92-308(4)(a)(III) – (IV), -(5)(a)(III) – (IV) **Interruptible Supply Agreements (ISAs):** • ISAs may consist of temporary, long-term, or permanent arrangements in which agricultural water is transferred for other purposes in other locations while irrigation is temporarily suspended. ISAs are typically triggered on an as-needed basis and can include dry-year needs, drought recovery needs, and wet-year needs. • The State Engineer can administratively approve temporary ISAs so long as they are not triggered more than three times in a 10-year period. Longer term ISAs that could involve more frequent interruption of the agricultural use would require water court approval. *Id.* § 37-92-309.
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Area of Origin/Environment:** • State water courts can impose conditions on transfers of agricultural water that require re-vegetation to control noxious weeds in lands from which the water is removed. COLO. REV. STAT. § 37-92-305(4.5)(a) • State water courts can require applicants seeking to transfer 1,000 af/year or more of agricultural water to other uses over 20 miles from the historic place of use to make payments to local governmental entities to offset reductions in property tax revenues and bond repayment revenues attributable to the removal of the water. Such transfers that involve a change in the point of division to can also be conditioned to require offsets for exceedances in stream water quality standards attributable to the removal of the water. *Id.* § 37-92-305(4)(V), -(4.5)(b)(I)(A), -(c)(III), -(4.5)(c)(III)

Idaho

PERMITTING ENTITIES & GENERAL OVERVIEW	The Idaho Department of Water Resources (IDWR) has jurisdiction over the change process for transfers. In general, transfers must not injure other right holders or adversely impact the local economy where the right originates, or affect the agricultural bases of the local area.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • IDAHO CODE ANN. § 42-222 (changes in point of diversion) • *Id.* § 42-222A (temporary changes during drought conditions) **Regulations:** • IDAHO ADMIN. CODE r.37.02.03 et seq. (Water Supply Bank rules) **Case Law (interpreting § 42-222):** • **Almo Water Co. v. Darrington,** 501 P.2d 700 (Idaho 1972) • **Nettleton v. Higginson,** 558 P.2d 1048 (Idaho 1977) • **Crow v. Carlson,** 690 P.2d 916 (Idaho1984) • **Feustel v. Stevenson,** 809 P.2d 1177 (Idaho Ct. App. 1991) **Forfeiture Exemptions:** • Uses exempt from forfeiture include among others: (1) a water right appurtenant to a land contracted in a federal cropland set-aside program; (2) a water right held by a municipal provider to meet reasonably anticipated future needs; (3) land application of waste; (4) water used to comply with a groundwater management plan; (5) water that is placed in a water bank, rented, or leased; (6) water used for a water conservation practice that maintains full beneficial use; and (7) water used for mitigation purposes approved by IDWR. *Id.* § 42-223 **Policy Memoranda:** • Various documents, available at: **http://www.idwr.idaho.gov/WaterManagement/WaterRights/WaterRightTransfers/policy-memos.htm** **Other Resources:** • IDWR Transfer website, available at: **http://www.idwr.idaho.gov/WaterManagement/WaterRights/WaterRightTransfers/wrt_default.htm**
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Area of Origin/Public Interest:** • A change in water rights must be "consistent with the conservation of water resources" and be in the "local public interest," which is defined as "the interests that the people in the area directly affected by a proposed water use have in the effects of such use on the public water resource." IDAHO CODE ANN. §§ 42-222; 42-202B. • In addition, transfers must "not adversely affect the local economy of the watershed or local area within which the source of water for the proposed use originates." *Id.* § 42-222 • IDWR will not approve "a change in the nature of the use from agricultural use where such change would significantly affect the agricultural base of the local area." *Id.*

Kansas

PERMITTING ENTITIES & GENERAL OVERVIEW	The Kansas Division of Water Resources (DWR) within the Department of Agriculture has jurisdiction over changes in the point of diversion, place of use, and use. In evaluating transfer requests, DWR must determine whether the change is reasonable, pertains to the same local source of supply, or will impair existing rights. The Kansas Water Authority and the Kansas Water Office have jurisdiction over the marketing of water stored in federal reservoirs.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • KAN. STAT. ANN. §§ 82a-708b, -726, -734 (Water Appropriation Act) • *Id.* §§ 82a-761 – 773 (Water Banking Act) • *Id.* §§ 82a-1501– 1508 (Water Transfers Act) **Regulations:** • KAN. ADMIN. REGS. § 5-5-1 – 16 (Water Appropriations Act) • *Id.* § 5-17-1 –18 (Water Banking Act) • *Id.* 5-50-1 – 8 (Water Transfers Act) **Abandonment Exemptions:** • An eligible water right enrolled in and continually in compliance with the state's water rights conservation program is deemed to have due and sufficient cause for nonuse and shall not be deemed abandoned. KAN. STAT. ANN. § 82a-718(d) • Ground water rights in areas closed to new groundwater appropriations have due and sufficient cause for nonuse and are therefore not subject to abandonment. *Id.* § 82a-718(e) • Kansas regulations also list a number of circumstances when "due and sufficient" cause for nonuse exists, including among others: (1) the water use is enrolled in a federal or state conservation program approved by the chief engineer; (2) the use of management and conservation practices that require the use of less water than authorized; and (3) an alternate source of water supply was not needed and was not used because the primary source was adequate to supply the right holder's needs. KAN. ADMIN. REGS. § 5-7-1
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Temporary Emergency Transfers:** • In cases where the governor has declared an emergency affecting public health, safety or welfare, the chief engineer may approve a temporary transfer not to exceed one-year. *Id.* § 82a-1502(a)
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Area of Origin/Environment:** • Change applications must show that the proposed change relates to the same local source of supply as the underlying water right. *Id.* § 82a-708b • Kansas has specific provisions for change applications that involve moving over 2,000 af/year of water to a point of use outside a 35-mile radius from the point of diversion. The provisions state that no such transfer can be approved if it would reduce the amount of water needed to meet the present or reasonably foreseeable future needs of present or future users in the area of origin. Conservation plans are also needed, among other requirements. *Id.* §§ 82a-1501, -1502 • There are exceptions to this requirement, including a finding that the benefits of the transfer to the state support allowing the transfer. Kansas law sets forth a number of specific considerations for this determination, including but not limited to considerations of: (1) the economic, environmental, public health and welfare and other impacts of approving or denying the transfer; and (2) whether the applicant has taken all appropriate steps to preserve water quality and remediate any contamination of water currently available for use by the applicant. *Id.* • The statute also requires applicants to adopt and implement conservation plans that have been in effect for at least 12 consecutive months prior to filing their applications. *Id.*

Montana

PERMITTING ENTITIES & GENERAL OVERVIEW	The Montana Water Rights Bureau within the Department of Natural Resources and Conservation has exclusive jurisdiction over the water right change process. In general, applicants must show that a proposed change will not injure existing rights; (2) the proposed means of diversion, construction, and operation are adequate; (3) the proposed use is a beneficial use; (4) the applicant has a possessory interest or the necessary written consent in the property where the water is to be put to use; and (5) the water quality of the appropriator or the ability of the a discharge permit holder to satisfy discharge requirements will not be affected.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • MONT. CODE ANN. § 85-2-402 (changes) • *Id.* § 85-2-407 (temporary changes) • *Id.* § 85-2-408 (temporary changes for instream flows) • *Id.* § 85-2-410 (short-term leases) **Regulations:** • MONT. ADMIN. R. 36.12.101 et seq. (interpreting statutory change requirements) **Case Law:** • **Hohenlohoe v. Montana,** 240 P.3d 628 (Mont. 2010) (addressing historic use determination for temporary transfers) **Abandonment Exemptions:** • Leases, temporary changes, and state or federal conservation set aside programs are exempt from abandonment. MONT. CODE ANN. § 85-2-404
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Temporary Transfers:** • Montana law authorizes temporary transfers for up to 10 years. At the expiration of the transfer, the right automatically reverts back to the permanent purpose, place of use, point of diversion or place of storage. Temporary transfers must satisfy the criteria of a permanent change. MONT. CODE ANN. § 85-2-407. • If the quantity of water that is subject to a temporary change in appropriation right is made available from the development of a new water conservation or storage project, a temporary change in appropriation right may be approved for a period not to exceed 30 years. *Id.* **Short-term Leases:** • Montana law allows appropriators to lease all or part of their water rights for a period of up to 90 days for road construction and dust abatement without prior approval from the state subject to certain requirements. *Id.* § 85-2-410
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Environment:** • Applicants seeking certain types of transfers involving 4,000 AF/year and 5.5 or more CFS must show by a preponderance of the evidence that the change is reasonable. Reasonableness involves consideration of a number of factors, including the effects on the quality of water for existing uses in the source of supply and the "probable significant adverse environmental impacts of the proposed use." MONT. CODE ANN. § 85-2-402(4) **Water Quality:** • Applicants must show that the proposed transfer will not adversely affect the water quality of the appropriator or the ability of the a discharge permit holder to satisfy discharge requirements. *Id.* 85-2-402(2)(f), (g)

Nebraska

PERMITTING ENTITIES & GENERAL OVERVIEW	The Nebraska Department of Natural Resources (NDNR) has authority to approve or deny surface water transfers and groundwater transfers for industrial or municipal use. In general, surface water transfers must not injure existing rights and be in the public interest. NDNR utilizes criteria to evaluate groundwater transfers that differ according to the type of transfers. Groundwater transfers must be in the public interest. The state's 23 Natural Resources Districts (NRDs) are branches of local government and have some permitting authority over groundwater transfers.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • NEB. REV. STAT. §§ 46-290 – 294 (Surface Water Transfers) • *Id.* §§ 46-290.01 – 290.04; 294 – 294.04 (temporary transfers) • *Id.* §§ 46-678-683, 46-638-650 and 46-613.01 (Groundwater Transfers) **Regulations:** • 457 NEB. ADMIN. CODE, Ch. 9 §001 et seq. (transfers and changes for surface water) **NRDs: For information on the NRDs, see: http://www.nrdnet.org/nrd_guide/find_nrd.html.** **Sufficient Cause for Nonuse:** • Nebraska law lists a number of circumstances that qualify as "sufficient cause" for nonuse, including among others: (1) federal, state, or local laws, rules, or regulations, as well as legal proceedings that temporarily prevented or restricted the use; (2) the land subject to the appropriation is under an acreage reserve program or production quota or otherwise withdrawn from use as required for participation in any federal or state program; and (3) circumstances were such that a "prudent person, following the principles of good husbandry" would not have been expected to use the water. NEB. REV. STAT. § 46-229-04 **Integrated Management Planning Process/Conjunctive Management:** NDNR and the state's NRDs are responsible for adopting management plans in river basins that are fully or over-appropriated. Depending on the basin, this could include dry year leasing of surface water for stream augmentation, among other measures.
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Expedited Transfers:** • NDNR may approve surface water transfer applications without notice and a hearing if the appropriation is used and will be continue to be used exclusively for irrigation purposes subject to certain conditions. NEB. REV. STAT. § 46-291; 457 NEB. ADMIN. CODE, Ch. 9 § 001 **Temporary Transfers:** • Nebraska law authorizes temporary surface water transfers of no less than 10 years but no more than 30 years in length. NEB. REV. STAT. § 46- 294(1)(j)

Nebraska, cont.

THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS

Area of Origin (Surface Water):

- NDNR may request applicants to provide an analyses of the economic, social, or environmental impacts of the proposed transfer. NEB. REV. STAT. § 46-293(2)
- The new use must be within the same basin as the original place of use, or be within a basin that is a tributary to the original basin. For permanent transfers (over 30 years), the original use must be in the same "preference category" of the new use, or both uses must be uses for which new preference has been established. Preference categories include domestic over agriculture over municipal over industrial. *Id.* §46-294(1)(c)

Public Interest (Surface Water):

- In approving surface water transfers, NDNR must determine that the transfer is in the "public interest" by considering a number of factors, including: (1) the economic, social, and environmental impacts of the proposed transfer; and (2) whether an under what conditions other sources of water are available for the uses to be made of the appropriation after the proposed transfer or change. *Id.* § 46-294(1)(l)

Public Interest (Interbasin Transfers):

- Interbasin surface water transfers must be in the "public interest". When determining whether such transfers are in the public interest, NDNR must consider seven factors, including but not limited to the following: (1) any current beneficial uses being made of the unappropriated water in the basin of origin; (2) any reasonably foreseeable future beneficial uses of the water in the basin of origin; (3) the economic, environmental, and other benefits of leaving the water in the basin of origin for current or future beneficial uses; and (4) alternative sources of water available to the basin of origin for future beneficial uses. *Id.* § 46-289

Public Interest (Groundwater):

- When approving groundwater transfers, NDNR must determine whether the transfer is in the "public interest." NE law specifies eight factors that NDNR must consider when making this determination, including but not limited to: (1) the effect of the transfer on ground and surface water supplies needed to meet reasonably anticipated domestic and agricultural demands in the areas of the proposed withdrawal; (2) the availability of alternative sources of surface or ground water to the applicant in or near the region of the proposed withdrawal or use; and (3) the social and economic benefits of existing uses of surface or groundwater in the area of the proposed use and any transfer. *Id.* § 46-683(1)

Nevada

PERMITTING ENTITIES & GENERAL OVERVIEW	The Nevada Division of Water Resources (State Engineer) within the Department of Conservation and Natural Resources oversees surface and groundwater transfers. In general, transfers must not injure vested rights. Other conditions and protections may also apply.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • NEV. REV. STAT. §§ 532.010 et seq.; 533.005 et seq.; 534.010 et seq.; 534A.010 et seq.; 535.005 et seq.; 536.010 et seq.; 537.010 et seq.; 538.010 et seq.; 540.011 et seq.; 543.010 et seq.; 544.010 et seq. (general – Nevada's water laws) • *Id.* § 533.370 (approval or rejection of proposed transfers) **Regulations:** • NEV. ADMIN. CODE § 533.010 et seq. (administrative hearing rules) **Case Law ;** • U.**S. v. Orr Water Ditch Co. et al.,** 600 F.3d 1152 (9th Cir. 2010) (regarding water transfers associated with proposed changes to Truckee River Operating Agreement) • PLPTI, et al. v. Nev Waterfowl Ass'n, et al., Case # 11 16482 (9th Cir. 2011) **Surface Water Abandonment and Forfeiture Exemption:** • Nonuse of a surface water right for a beneficial purpose does not result in forfeiture. NEV. REV. STAT. § 533.060(2) • Abandonment will not occur for a surface water right that is appurtenant to land formerly used for agricultural purposes if: (1) the land has been converted to urban use; and (2) a water purveyor, public utility, or public body has acquired the right for municipal use. *Id.* § 533.060(3) • A presumption that abandonment did not occur is created upon evidence of the following during a 10 year period preceding the abandonment claim: (1) the delivery of water; (2) the payment of any costs of maintenance or other operational costs incurred in delivering water; and (3) the payment of costs for capital improvements; and (4) the actual performance of maintenance related to the delivery of water. *Id.* § 533.060(4)
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Temporary Transfers:** • The State Engineer can approve one-year transfers without notice and a hearing if he determines that the change is in the public interest and will not interfere with other water rights. NEV. REV. STAT. § 533.345
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Area of Origin:** • The State Engineer must notify the county commissioners of the county of origin regarding transfers of water away from that county, as well as the commissioners of the recipient county. NEV. REV. STAT. § 533.363 • If a proposed change is within an irrigation district, the change must not adversely affect the cost of water for other water rights holders in the district or lessen the efficiency of the district in its delivery or use of water. *Id.* § 533.370(1)(b). • Counties of origin can impose an annual fee of $10 per af on certain groundwater transfers. *Id.* § 533.438(1). Where no fee is assessed, the county or origin can execute a plan to mitigate adverse economic consequences. Such plans are binding on the county and applicants as well as their successors. The plan is subject to modification by the State Engineer and can include provisions regarding the designation of water rights to the county and compensation for the foreseeable effects of the transfer. *Id.* § 533.4385 • For interbasin groundwater transfers, the State Engineer must consider whether "the proposed action is an appropriate long-term use which will not unduly limit the future growth and development in the basin from which the water is exported." *Id.* § 533.370(3) **Environment:** For interbasin groundwater transfers, the State Engineer must determine "whether the proposed action is environmentally sound as it relates to the basin from which the water is exported." *Id.* § 533.370(3)(c)

New Mexico

PERMITTING ENTITIES & GENERAL OVERVIEW	The New Mexico State Engineer oversees water right transfers, with the exception of certain ditch or irrigation district water banks that are limited to member irrigation rights for member irrigation uses. In general, transfers must not impair any existing water rights, be detrimental to the public welfare of the state, and not contrary to the conservation of water.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • N.M. STAT. ANN. § 72-1-2.3 (Lower Pecos River Water Bank) • *Id.*§72-2-9.1(C) (State Engineer rules for priority administration and to provide for expedited leasing and marketing) • *Id.* § 72-3-1 – 5 (water district authority – read in conjunction with *Id.* **§ 72-2-9.1(C))** • *Id.* § 72-5-22 (Transfer of water rights) • § 72-5-23 – 24 (change in place of use or point of diversion) • § 72-5-24.1 (acequia or qualifying ditch company approval) • § 72-5-25 (emergency changes) • § 72-5-26 (diversion from one watershed to another) • § 72-5-28(G) (surface water conservation program) • §72-6-1 – 7 (Water Leasing Act) • §72-12-7 (change in location of well or purpose of use) • §72-12-8(D) (Groundwater conservation program) • §72-14-3.3 (Strategic water reserve) **Case Law:** • **Public Service Co. v. Reynolds,** 358 P.2d 621 (N.M. 1960) (discussing State Engineer authority to adjudicate claimed water rights) • **Clodfelter v. Reynolds,** 358 P.2d 626 (N.M. 1961) (affirming State Engineer decision granting a change in the point of diversion from surface waters to groundwater) • **Durand v. Reynolds,** 406 P.2d 817 (N.M. 1965) (affirming denial of application to supplement surface water with groundwater due to water rights impairment finding) • **Roswell v. Berry,** 452 P.2d 179 (N.M. 1969) (regarding a city's application to appropriate groundwater) • **Mathers v. Texico,** 421 P.2d 771 (N.M. 1966) (holding that the burden is on the applicant to show that there will be no impairment to existing rights) • **KRM, Inc. v. Caviness,** 925 P.2d 9 (N.M. Ct. App. 1996) (discussing land conveyances involving water rights) • **Hanson v. Turney,** 94 P.3d 1 (N.M. Ct. App. 2004 (holding that right holders cannot change a water right if no water has been put to beneficial use) • **Montgomery v. Lomos Altos,** 150 P.3d 971 (N.M. 2006) (upholding change of surface water rights to groundwater rights) • **Herrington v. State Engineer,** 133 P.3d 258 (N.M. 2006) (discussing statutory transfers under N.M. Stat. Ann. § 72-5-23) **Forfeiture Exemptions:** • Uses exempt from forfeiture include: (1) water rights acquired by municipalities or counties for water development plans or preservation of municipal or county water supplies; (2) holders of rights to appropriate waters for agricultural purposes appurtenant to designated or specified lands who apply water to such lands; (3) water placed in a State Engineer-approved water conservation program; and (4) water deposited in certain water banks. N.M. STAT. ANN. § 72-5-28 • "Improved irrigation methods or changes in agriculture practices resulting in conservation of water shall not diminish beneficial use or otherwise affect an owner's water rights." *Id.* § 72-5-18

New Mexico, cont.

TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Temporary Transfers:** • Water right owners can apply for temporary changes of no more than one year and no more than 3 af/year to a different location or to a different use, or both. The State Engineer will approve the proposal if the application will not "permanently impair any vested rights of others." If the change might result in impairment, the State Engineer will provide notice and conduct a hearing. N.M. Stat. Ann. § 72-12-7(B) **Emergency Transfers:** • An appropriator may change the place of diversion, storage, or use of water upon application to and approval of the State Engineer without publication or notice if an emergency exists in which the delay caused by complying with those requirements would result in crop loss or other serious economic loss to the appropriator. The State Engineer must also determine that "no foreseeable detriment" exists to other right holders in the stream system. *Id.* § 72-5-25.
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Public Welfare & Conservation:** • New Mexico laws requires that transfers must not be detrimental to the public welfare of the state and not contrary to the conservation of water in the state. N.M. STAT. ANN. § 72-5-23 **Acequia/Ditch Company Approval:** • New Mexico allows acequias or qualifying ditch companies to adopt bylaws requiring their approval as a condition to surface water transfers. *Id.* § 72-5-24.1

North Dakota

PERMITTING ENTITIES & GENERAL OVERVIEW	The Water Appropriations Division within the North Dakota State Engineer has jurisdiction over water transfers. In general, water transfers must not injure existing water rights. Transfers are also subject to the same evaluation as application to appropriate water, which requires that they be in the public interest.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • N.D. CENT. CODE § 61-04-06 (criteria for issuance of permit) • *Id.* § 61-04-06.1 (preference in granting permits) • *Id.* § 61-04-15 (assignment or transfers of conditional or perfected water permit) • *Id.* §61-04-15.1 (change in point of diversion or use) **Regulations:** • N.D. ADMIN. CODE. § 89-03-01-04 (notice of application) • *Id.* § 89-03-02-03 (amendment of application **Forfeiture Exception:** The State Engineer may not declare a water right to be forfeited if the nonuse is due to the unavailability of water, a justifiable inability to complete the works, or other good and sufficient cause. Municipalities and rural water systems have "good and sufficient cause" excusing the failure to use a water permit, if the water permit may reasonably be necessary for the future water requirements of the municipality or the rural water system. N.D. CENT. CODE §§ 61-04-23 – 25
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Temporary Transfers:** • North Dakota has developed a program to facilitate oil production in the western portion of the state that allows for the temporary transfer of irrigation water to industrial use. The state authorizes the transfers for a calendar year during which the permit holder must forego irrigation.
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Public Interest:** • Transfers must be in the public interest, which requires the State Engineer to consider six criteria. Criteria requiring consideration of third party impacts include: (1) The benefit to the applicant resulting from the proposed appropriation. (2) the effect of economic activity resulting from the proposed appropriation; (3) the effect on fish and game resources and public recreational opportunities; (4) the effect of loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed appropriation; and (5) harm to other persons resulting from the proposed appropriation (6) The intent and ability of the applicant to complete the appropriation. N.D. CENT. CODE § 61-04-06

Oklahoma

PERMITTING ENTITIES & GENERAL OVERVIEW	The Oklahoma Water Resources Board (OWRB) has jurisdiction over transfers. In general, transfers must not injure other right holders. Certain appurtenancy requirements may also apply for surface water irrigation rights.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • OKLA. STAT. TIT. 82 § 105.12 (approval of application) • *Id.* 82 §§ 105.12, 105.22 – 23 (surface water transfers). • *Id.* 82 § 1086.1 (use of surplus and excess water – area of origin) • Regulations: • OKLA. ADMIN. CODE § 785:20 et seq. (appropriation and use of stream water) • *Id.* 785:30 (use of groundwater) **Forfeiture Defense:** • Water right holders subject to a forfeiture proceeding have the right to show cause why their right should not be lost due to nonuse. Such cause may be shown by substantial competent evidence that the failure to beneficially use the water subject to forfeiture was caused by circumstances beyond the control of the right holder and the right holder was ready and willing to use the water. OKLA. STAT. TIT. 82 § 105.18(C)
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Area of Origin:** • Oklahoma law states: "Only excess or surplus water should be utilized outside of the areas of origin and citizens within the areas of origin have a prior right to water originating therein to the extent that it may be required for beneficial use therein." OKLA. STAT. TIT. 82 § 1086.1(A)(4) • In processing applications to transport water for use outside of a stream system, the OWRB will first consider pending applications to use water within the system. *Id.* 82 § 105.12(B)(1) • OWRB will also review the needs with an area of origin every five years "to determine whether the water supply is adequate for municipal, industrial, domestic, and other beneficial uses." *Id.* § 105.12(B)(2)

Oregon

PERMITTING ENTITIES & GENERAL OVERVIEW	The Oregon Water Resources Department' (OWRD) has jurisdiction over transfers. Transfers generally must not injure other water rights or result in an enlargement of the right.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • OR. REV. STAT. § 540.510, -520 (General Transfer Statute) • *Id.* § 540.523 (Temporary Transfers) • *Id.* § 540.580 (District Transfers) • *Id.* § 537.348 (Transfer and Lease for Instream Use) **Regulations:** • OR. ADMIN. R. 690-012 et seq. (out-of-basin diversions) • 690-380-2000 et seq. (General Transfer Rules) • *Id.* 690-380-8000 et seq. (Temporary Transfers) • *Id.* 690-385 (District Transfers) • *Id.* 690-077; 690-380 (Transfer and Lease for Instream Use) **Case Law:** • **Fort Vannoy Irrigation Dist. v. Water Res. Comm'n,** 188 P.3d 277 (Or. 2008) (holding that where a water use subject to transfer is a water use established by a water use certificate OR. REV. STAT. § 540.510(1) authorizes the holder to change the elements of the certificated water right under which water was provided). • Other major court decisions have been folded into statutes and rules over time. • Forfeiture Rebuttal: • Right holders can rebut a presumption of forfeiture by showing one or more of a number of factors, including among others: (1) the right is held by a municipality or town for municipal use; (2) the nonuse occurred during a period of time when the right holder was reusing water in lieu of using water under the right; (3) the nonuse occurred while a transfer application was pending before OWRD; (4) the nonuse of a supplemental right occurred during a period of time when the primary right used in conjunction with that supplemental right was leased as an instream right; and (5) the right was used as part of a federal conservation program. OR. REV. STAT. § 72-1-2.3 **Guidance and Other Documents:** • "Water Rights in Oregon," available at: **http://www.oregon.gov/OWRD/PUBS/docs/Centennial_Aquabook.pdf** • "Transferring Water Rights," available at: **http://www.oregon.gov/OWRD/PUBS/aquabook_transfers.shtml**

Oregon, cont.

TEMPORARY TRANSFERS & EXPEDITED REVIEWS

Temporary Transfers:

- Water users can temporarily change the place of use to allow a right attached to one parcel of land to be used on another parcel. A temporary transfer may not exceed five years. The application for such transfers is the same as the permanent transfer. However, unlike permanent transfers, the map submitted with an application does not need to be prepared by a certified water right examiner. This type of transfer is generally used for crop rotations or other rotational uses of water.
- Except under limited circumstances (e.g., instream transfers), Oregon law typically does not authorize a temporary change in the type of use of a water right. A temporary point of diversion change may be made if it is necessary to convey water for a temporary change in place of use. OR REV. STAT. § 540.523; OR ADMIN. R. 690-380 -2300, -2110

Temporary Drought Transfers:

- After the Governor declares that a severe, continuing drought exists, any person holding a water right permit, certificate, decree, or claim to a right who cannot use water because of drought may submit an application with the Oregon Water Resources Department (OWRD) to temporarily change the character of use, place of use, or point of diversion/appropriation from another water right certificate, decree, or claim to a right without complying with the notice and waiting requirements of OR. REV. STAT. § 540.520. OWRD does include public notice of temporary drought transfer applications or approvals of such applications in its weekly notice.
- The full value of the right may be transferred. However, if the right proposed for transfer is for irrigation purposes and the transfer is made after the beginning of an irrigation season, only the remainder of the water available for use during the rest of that season may be used at the new place of use.
- OWRD will approve a temporary drought transfer, with appropriate conditions, if: (1) it will not injure an existing water right; and (2) the total water use at the receiving location does not exceed the maximum rate and duty for the receiving location. OWRD may later revoke the transfer order if injury to existing water rights is shown and cannot be mitigated to the satisfaction of OWRD and the injured parties.
- The transfer's expiration date may not exceed one year or the term of the Governor's drought declaration, whichever is shorter. OWRB processes temporary drought transfer applications in an expedited manner that generally takes less than 7 business days. OR. ADMIN. R. 690-019-0055. See also: **http://www.oregon.gov/owrd/pages/wr/drought_overview.aspx**.

THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS

Area of Origin

- Applicants proposing to transfer of water outside of the basin of origin that involve 0.5 cfs or more must provide an analysis of the following impacts in the basin of origin: (1) the amount of water available for future appropriation; (2) projected future needs; (3) the return flow benefits that will be eliminated; (4) the correlation between surface and groundwater and whether the proposed use will be harmful to the supply of either; (5) injury to existing right holders or interference with planned uses or developments; (6) whether the proposed use will adversely affect the quantity and quality of domestic and municipal uses; (7) whether the proposed use will adversely affect public uses; and (8) alternative sources of water that would not rely on an out of basin transfer. OR. REV. STAT. § 537.803
- Before OWRD can approve or recommend an interbasin transfer, it must reserve an amount of water adequate for future needs in the basin of origin and subordinate out-of-basin use to that reservation. *Id.* § 537.809
- The Legislature must approve transfers of 50 cfs or more. *Id.*§ 537.810
- Any local government, watershed council, or state agency or other individual cooperating jointly with such entities may ask OWRD to reserve unappropriated water for multipurpose storage for future economic development. *Id.* § 537.356

Environment:

- OWRD will deny a transfer application if the Department of Fish and Wildlife cannot issue a "consent to injury" for upstream points of diversion and for transfers that occur within a reach of a stream protected by an instream water right. OR. ADMIN. R. 690-380-5050

South Dakota

PERMITTING ENTITIES & GENERAL OVERVIEW	The South Dakota Department of Environment and Natural Resources' Water Rights Program (Chief Engineer) has jurisdiction over transfers. Transfers must not injure other rights and be in the public interest.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • S.D. CODIFIED LAWS § 46-2A-12 (public interest) • 46-5-30.4 (amendment of permit or rights) • *Id.* § 46-5-31 (change of use or place of diversion) • *Id.* § 46-5-34.1 (transfer of irrigation rights apart from land) **Exceptions to Forfeiture:** No water right may be forfeited for nonuse if land authorized for irrigation is placed under an acreage reserve or production quota program or otherwise withdrawn from use as required for participation in any federal program, if the water source is not fully appropriated, if the withdrawal from use does not prevent approval of new permits from the same source, and if the appropriated water has been applied to beneficial irrigation use prior to participation in a federal program. *Id.* § 46-5-37.2
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Restrictions:** • Statutory restrictions only allow an irrigation water right to be transferred to domestic uses within a water distribution system, such as a municipality. The property from which the transfer is made can no longer be irrigated from any water source. S.D. CODIFIED LAWS § 46-5-34.1 **Public Interest:** • Changes in use, point of diversion, or other changes must be in the public interest. *Id.* 46-2A-12

Texas

PERMITTING ENTITIES & GENERAL OVERVIEW	The Texas Commission on Environmental Quality (TCEQ) regulates surface water transfers. In general, such transfers must not impair other rights and be in the public welfare. Certain environmental considerations also apply. Interbasin surface water transfers are subject to further considerations. Local groundwater conservation districts may regulate certain groundwater use aspects.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • TEX. WATER CODE §11.222 (surface water changes) • *Id.* §11.085 (interbasin surface water transfers) • Id § 36.122 (groundwater transfers) **Regulations:** • 30 TEX. ADMIN. CODE § 295.158 (surface water changes) • *Id.* §§ 295.13, 297.18 (interbasin surface water transfers) **Exempt from Cancellation:** • The following uses are exempt from cancellation: (1) water uses as part of the state's Conservation Reserve Program; (2) water used in accordance with a regional water plan; (3) rights obtained to meet long-term public water supply or electric generation needs; (4) the nonuse resulted from the implementation of a water conservation plan. TEX. WATER CODE § 11.173
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Emergency Transfers**: • TCEQ grants most surface water transfers on a permanent basis. TCEQ may grant emergency transfers for an initial period of not more than 120 days if it finds that emergency conditions exist which present an imminent threat to the public health and safety and which override the necessity to comply with established statutory procedures and there are no feasible practicable alternatives to the emergency authorization. TEX. WATER CODE § 11.139

Texas, cont.

THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS

Surface Water Transfers:

- A change in the place of use, purpose of use, or place of diversion for a surface water right cannot cause a greater adverse impact on the environment than the current permit when fully exercised. TEX. WATER CODE § 11.122(b)
- TCEQ will only grant transfer applications if they are not detrimental to the public welfare. *Id.* § 11.134

Surface Water Interbasin Transfers:

- TCEQ must request review and comment on an application for an interbasin transfer from each county judge of a county located in whole or in part in the basin of origin. The judge should only comment after seeking advice from the county commissioners. TCEQ must also give consideration to the comments received from a judge prior to taking action on the application. *Id.* § 11.085(j)

Surface Water Interbasin Transfers Over 3,000 af/year:

- Surface water interbasin transfers require an evaluation of a number of criteria in addition to impacts to existing rights, including but not limited to: (1) the environment; (2) water quality; the detriments to the basin of origin and benefits to the receiving basin; (3) proposed compensation and mitigation; (4) availability of practicable alternative supplies; and (5) projected economic impact to the basin of origin and receiving basin. The transfer must also not be detrimental to the public welfare. *Id.* §§ 11.085(k)
- Transfer authorizations can require mitigation or compensation for basins of origin. *Id.* § 11.085(k)(3)
- TCEQ can mitigate impacts to environmental values by placing flow restrictions on interbasin surface water transfers. *Id.* § 11.085
- TCEQ can only approve an application for an interbasin transfer if the detriments to the basin of origin are less than the benefits to the receiving basin and the applicant for the interbasin transfer has prepared a drought contingency plan and implemented a water conservation plan. *Id.* § 11.085(l)
- The parties to a contract for an interbasin transfer may include provisions for compensation and mitigation. *Id.* § 11.085(o)
- Surface water interbasin transfers carry a junior priority date. *Id.* § 11.085(s)

Groundwater Transfers:

For transfers of groundwater outside of a local conservation district, the district considers: (1) the availability of water in the district and in the proposed receiving area; (2) the projected effects of the transfer on aquifer conditions; (3) existing permit holders; (4) and the approved regional water plan and the district's groundwater management plan. *Id.* 36.122

Utah

PERMITTING ENTITIES & GENERAL OVERVIEW	The Utah Division of Water Rights (State Engineer) within the Department of Natural Resources has jurisdiction over water transfers. In reviewing a transfer application, the State Engineer will consider whether: (1) the application will impair existing rights or interfere with a more beneficial use of the water; (2) the plan is physically and economically feasible and would not prove detrimental to the public welfare; (3) the applicant has the financial ability to complete the proposed works; and (4) the application was filed in good faith or for purposes of monopoly or speculation.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • UTAH CODE ANN. § 73-3-3 (Transfer requirements) • *Id.* 73-3-3.5 (Change applications based on shares of stock in water companies) • *Id.* § 73-3-5.6 (simplified procedures to process change applications for small domestic applications) • *Id.* §73-3-8 (Approval criteria for an application to appropriate – determined by the courts to apply to the approval of a change application) **Case Law:** • **U.S. v. District Court of Fourth Judicial District,** 242 P.2d 774 (Utah 1952) (holding that the State Engineer's authority to approve a change application is limited to defining the conditions under which the right may be changed and does not include authority to adjudicate the water rights underlying the change application) • **Wayman v. Murray City,** 458 P.2d 861 (Utah 1969) (holding that water users must anticipate reasonable interaction with other users, new uses are not to be prevented on the basis that they will change the status quo, and the availability of water in the sources is to be considered rather than protecting a particular method of diversion) • **Bonham v. Morgan,** 788 P.2d 497 (Utah 1989) (holding that the State Engineer is to follow the procedure set forth in UTAH CODE ANN. § 73-3-8 when reviewing a transfer application) • **East Jordan Irrigation Co. v. Morgan,** 860 P.2d 310 (Utah 1993) (holding that individual shareholders in mutual water companies do not have a legal right to file water right change applications in their own name without the consent of the irrigation company) • **Searle v. Milburn Irrigation Co.,** 2005 UT 58 (Utah 2005) (holding that the evidentiary standard in State Engineer decision making on change applications is a reason to believe) • **Strawberry Water Users Assoc. v. Bureau of Reclamation,** 2005 UT 64 (Utah 2005); **Salt Lake City Corp. v. Big Ditch Irrigation Co.,** 258 P.3d 539 (Utah 2011) (holding that water users entitled to the use of water through a permanent or long-term agreement may apply for a water right change without the consent of the record water right holder in certain cases) • **Jensen v. Jones,** 270 P.3d 425 (Utah 2011) (holding that the State Engineer may not reject a change application on the basis that the water right has not been used) **Forfeiture Exemptions:** • A number of uses are exempt from forfeiture, including among others: (1) leases; (2) rights with places of use contracted under an approved state agreement or federal conservation fallowing program; (3) rights to store water in a reservoir or aquifer; (4) rights held by a public water supplier for the reasonable future water requirement of the public; and (5) a water right subject to an approved change application where the applicant is diligently pursuing the certification. UTAH CODE ANN. § 73-1-4
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Temporary Transfers:** Utah allows for temporary transfers not to exceed 1 year. The State Engineer will investigate such transfers and authorize them if he determines that they will not impair a vested water right. If impairment is possible, he will provide notice to any person whose right may be affected. UTAH CODE ANN. § 73-3-3(1)(b), (6)
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Environment:** If the State Engineer has reason to believe that an application "…will unreasonably affect public recreation or the natural stream environment, or will prove detrimental to the public welfare, it is the State Engineer's duty to withhold approval or rejection of the application until the State Engineer has investigated the matter." UTAH CODE ANN. § 73-3-8(1)(b)(i)

Washington

PERMITTING ENTITIES & GENERAL OVERVIEW	The Washington Department of Ecology has jurisdiction over transfers. In general, transfers must not impair other rights. Other third party protections may also apply. Ecology will consider the public interest in processing groundwater change applications. However, the Washington Supreme Court has held that Ecology cannot consider the public interest in processing surface water changes. Local conservancy boards are authorized to process water transfers within their jurisdictions. The boards evaluate the transfer according to the water code subject to Ecology's final approval. The bwoards are intended to facilitate additional water right review and provide local participation.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	Statutes: • WASH. REV. CODE § 90.03.380 (surface water transfers) • *Id.* § 90.03.390 (temporary transfers) • *Id.* § 90.44.100 (groundwater transfers) • *Id.* § 90.42 (trust water right program) • *Id.* § 90.90 (Columbia River Act) • *Id.* § 90.66 (Family Farm Water Act) • *Id.* 90.80 (County Conservancy Boards) 90.38 (Yakima Basin Trust Water) **Case Law:** • **Okanogan Wilderness League, Inc. v. Town of Twisp,** 947 P.2d 732 (Wash. 1997) (applying the law of abandonment and relinquishment in the context of a water right transfer) • **R.D. Merrel Co. v. Pollution Control Hearings Bd.,** 969 P.2d 458 (Wash. 1999) (ruling that a change of purpose review under WASH. REV. CODE § 90.03.380 requires rigorous review and not merely an administrative amendment, and applying other standards of the statute under the context of a groundwater transfer) • **PUD No. 1 of Pend Oreille Co. v. Ecology**, 51 P.3d 744 (Wash. 2002) (ruling that the public interest standard does not apply to changes of surface water rights) • **City of Union Gap v. Dep't Ecology,** 195 P.3d 580 (Wash. Ct. App. 2008) (reviewing a transfer and applying the a "determined future development" exception to the law on relinquishment) **Sufficient Cause for Nonuse:** • Washington law states that "sufficient cause" for nonuse include among others: (1) the operation of legal proceedings (2) state agency or federal leases or options; (3) federal restrictions, water conservation measures in the state's Yakima enhancement project; (4) and crop rotation if the remaining portion is beneficially used, among others. WASH. REV. CODE § 90.14.140(1) **Exempt From Relinquishment:** • Water rights exempt from relinquishment include among others: (1) water claimed for power development purposes; (2) standby supplies for drought; (3) water for future development within 15 years; (4) rights claimed for municipal water supply; (5) trust water rights; and (6) leases. *Id.* § 90.14.140(2) **Policies and Guidance:** • POL 1200, "Evaluation of Changes or Transfer to Water Rights" • POL 1280, "Development Schedules for Water Rights Changes and Transfers" • POL 1120, "Conducting Tentative Determinations of Water Rights" • GUID 1220, "Guidance for Processing and Managing Trust Water Rights" • GUID 4100, "Staff Guidance for Administration of Conservancy Boards" The policies and guidance available at: **http://www.ecy.wa.gov/programs/wr/rules/pol_pro.html#wradminpolicy** **Other Documents:** • "Protecting Local Economies," available at: **http://www.ecy.wa.gov/programs/wr/wrac/images/pdf/wa_local_econ_web.pdf**.

Washington, cont.

TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Temporary and Emergency Changes:** • Surface water users can make temporary or seasonal changes in the point of diversion or place of use so long as such changes do not impair existing rights. Such changes must be made with the permission of the applicable water manager or Ecology. WASH. REV. CODE § 90.03.390
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Water Districts:** • For proposed changes that would move water from one irrigation district to another, Ecology must receive concurrence from each of the districts that the change will not adversely affect their ability to deliver water or impair their financial integrity. WASH. REV. CODE § 90.03.380 (2) • Family Farm Act: Water rights established under the Act cannot be transferred for uses other than agriculture unless as part of a lease, and cannot be transferred outside of specific areas known as "Water Resource Inventory Areas" (WRIA) or urban growth areas in which they were established. *Id.* § 90.66.065 (2), (5). **Environment:** • Washington's State Environmental Policy Act may apply to changes if the proposed change would significantly affect the human environment. *Id.* § 43.21C.030. **Local Conservancy Boards:** • For changes before a board that involve taking water from a source outside the county or WRIA in which the use would be made, the board must hold a hearing in the area where the water would be taken. *Id.* § 90.80.070 (2). • The board must also consult with Ecology if the proposed change would move water outside the WRIA that is the source of the water. **Groundwater:** • Section 90.44.100 of the Washington Code requires findings "as prescribed in the case of an original application." This means that the public interest criterion set forth in Section 90.03.290 is applicable and must be considered.

Wyoming

PERMITTING ENTITIES & GENERAL OVERVIEW	The Wyoming State Board of Control has jurisdiction of permanent water transfers. The Board consists of the State Engineer and four superintendents that represent four separate "water divisions." In general, permanent transfers must not: (1) exceed the amount of water historically diverted under the existing use; (2) exceed the historic rate of diversion under the existing use; (3) increase the historic amount consumptively used under the existing use; (4) decrease the historic amount of return flow, or (5) injure other existing rights. Certain third party protections also apply. The Wyoming State Engineer has jurisdiction over temporary transfers, which must not injure other water rights.
STATUTES, REGULATIONS, CASE LAW, GUIDANCE, ETC.	**Statutes:** • WYO. STAT. ANN. § 41-3-104 (Procedure to change use or place of use) • *Id.* § 41-3-110(a) (temporary transfers) • *Id.* § 41-3-114 (Petition to change point of diversion or means of conveyance) **Case Law:** • **Basin Electric Corp. v. State Bd. of Control,** 578 P.2d 557 (Wyo. 1978) • **State ex rel. Christopoulos v. Husky Oil Co.,** 575 P.2d 262 (Wyo. 1978) • **Ekxtrom No. 1 Well v. State Bd. of Control,** 649 P.2d 657 (Wyo. 1982) • **Green River Dev. Co. v. FMC Corp,** 660 P.2d 339 (Wyo. 1983) **Regulation/Guidance:** • Ch. V, Section 15 of the Board's Regulations and Instructions provide guidance on transfers, available at: **http://seo.state.wy.us/PDF/Amended%20Regs.pdf**. • Part I of the State Engineer's Instructions and Regulations govern temporary transfers. **Reasonable Cause for Nonuse:** • Reasonable cause for nonuse includes, but is not limited to: (1) delay due to court or administrative proceedings; (2) time required in planning, developing, financing and constructing projects for the application of stored water which require in excess of five years to complete; (3) delay due to state and federal statutory requirements and rules and regulations thereunder; and (4) any other causes beyond the control of the holder of the appropriation. WYO. STAT. ANN. § 41-3-401(a) **Abandonment Exemption:** • Irrigation rights are not subject to abandonment for failure to irrigate all of the lands authorized in a permit if there is insufficient water available and the facilities needed to divert and apply the water are unusable. § 41-3-401(f) **Forfeiture Proceedings:** • The State Engineer may not initiate forfeiture proceedings if the water rights are currently being put to beneficial use, wholly or in part. *Id.* § 41-3-402(j)
TEMPORARY TRANSFERS & EXPEDITED REVIEWS	**Temporary Transfers:** • Wyoming authorizes temporary transfers not to exceed two years in length for "highway construction or repair, railroad roadbed construction or repair, drilling and producing operations, or other temporary purposes." No loss, abandonment, or impairment shall occur as a result of the temporary use. The appropriator must forgo some or all of the consumptive use right which is to be transferred to the temporary use. WYO. CODE ANN. § 41-3-110
THIRD PARTY CONSIDERATIONS AND OTHER PROTECTIONS	**Area of Origin:** • The Board considers all facts it believes to be pertinent to a transfer applications for permanent transfers, including: (1) the economic loss posed by a transfer to the community and the state; (2) the extent to which the new use will offset this loss; (3) and whether other water sources are available for the new use. WYO. STAT. ANN. § 41-3-104(a) • Permanent changes in the point of diversion must: (1) be in the vicinity of the original diversion; (2) not alter the original "project concept;" and (3) be diverted from the same source of supply described in the original permit. *Id.* § 41-3-114

table 4 STATE POLICIES AND PROGRAMS IMPACTING TRANSFERS

This table is intended to provide an overview of key programs, policies, and efforts that states have enacted with respect to water transfers, where applicable. For a description of state laws and regulations regarding water transfers, please see Table 3.

This table relies on information the western states provided in their responses to a survey the WGA and WSWC circulated as part of this project, as well as previous WSWC research contained in its 2008 report entitled *Water Laws and Policies for a Sustainable Future: A Western States' Perspective*, available online at **http://www.westgov.org/wswc/publicat.html**.

Please note that some states did not report certain categories of programs, such as Conserved Water Programs. For those states, these categories have been omitted.

Arizona

WATER BANKS	**Arizona Water Banking Authority:** • The Authority provides a means to store Arizona's unused Colorado River water. The Authority's governing statutes cite several reasons for the use of the bank, including: (1) better use of Arizona's allotment of Colorado River water, (2) providing California and Nevada an opportunity to store water for their needs; (3) guarding against future shortages and drought; (4) the implementation of Indian water rights settlements; and (5) facilitating the storage of water by entities that lack the resources to do so themselves, among other uses. ARIZ. REV. STAT. § 45-2401 et seq.
TRANSFER POLICIES, PROGRAMS & OTHER EFFORTS	**Planning Efforts:** • Arizona has conducted several statewide planning processes over the last decade that have addressed the impacts of transfers, including the Statewide Water Advisory Group and the Water Resources Development Commission. • Information on Statewide Water Advisory Group is available at: **http://www.azwater.gov/azdwr/statewideplanning/SWAG/default.htm** • Information on the Water Resources Development Commission is available at: **http://www.azwater.gov/AzDWR/WaterManagement/WRDC_HB2661/default.htm**
INSTREAM FLOW TRANSFERS	**Instream Flows:** • Arizona law allows instream flow appropriations to be made in the same manner as other appropriations. A.R.S. § 45-152.01. The Arizona Surface Water Code states that any person, the State of Arizona, or a political subdivision thereof may appropriate unappropriated water for recreation, wildlife, and fish. ARIZ. REV. STAT. § 45-151(A) • The Arizona Department of Water Resources (ADWR) will approve such applications unless they conflict with vested rights, are a "menace" to public safety, or are against the interest and welfare of the public. *Id.* § 45-153 • Arizona law also allows water users to sever and transfer water rights to the state and its political subdivisions for recreation and wildlife, including fish, without losing the priority date. *Id.* § § 45-172

California

WATER BANKS	Dry-Year Leasing Program: • The California Depart of Water Resources (DWR) has operated a dry-year leasing program in which it buys water from willing water right holders and makes the water available to buyers with critical needs. DWR operates the program on an as-needed basis in years in which precipitation is below normal. DWR last operated the program in 2009.
CONSERVED WATER PROGRAMS	**Conserved Water:** • Water users can retain rights to water that are "saved" as a result of conservation efforts. This water can be sold, leased, or otherwise transferred subject to provisions to protect other water users and fish and wildlife. CAL. WATER. CODE § 1011
TRANSFER POLICIES, PROGRAMS & OTHER EFFORTS	**Policy Declarations:** • The California Water Code states that it is the policy of the state "to facilitate the voluntary transfer of water and water rights where consistent with the public welfare of the place of export and the place of import." CAL. WATER CODE § 109(a). • The California Legislature has also directed applicable state agencies to facilitate the voluntary transfer of water and water rights, including but not limited to "providing technical assistance to persons to identify and implement water conservation measures which will make additional water available for transfer." *Id.* § 109(b).
INSTREAM FLOW TRANSFERS	**Instream Flows:** • California law allows right holders to petition for a change of the water right "for purposes of preserving or enhancing wetlands habitat, fish and wildlife resources, or recreation in, or on the water." The proposed change must not increase the water available under the original appropriation, and must not unreasonably affect any legal use of water. Such transfers are also subject to the California Environmental Quality Act. CAL. WATER CODE. § 1707 • In acting on applications to appropriate water, the State Water Resources Control Board considers streamflow requirements proposed for fish and wildlife purposes pursuant to Sections 10001 and 10002 of the Public Resources Code. The Board may establish streamflow requirements it deems necessary to protect fish and wildlife as conditions in permits and licenses. CAL. WATER CODE § 1257.5. These statutes do not create a water right but do provide a statutory basis to establish minimum flow levels to "assure the continued viability of stream-related fish and wildlife resources." *Id.* § CAL. PUB. RES. CODE § 10001

Colorado

WATER BANKS	Statutes: • Colorado law states that nonuse will not result in abandonment if the nonuse is the result of a land fallowing program, a water banking program, or a loan of water for the state's instream flow program. COLO. REV. STAT. § 37-80.5-101
TRANSFER POLICIES, PROGRAMS & OTHER EFFORTS	• Interbasin Compact Committee (IBCC): • The IBCC was created in 2005 and consists of a range of stakeholders to facilitate conversations among the state's river basins and address statewide water issues. • In 2010, the IBCC sent a letter to former Gov. Bill Ritter and then Gov.-Elect John Hickenlooper, stating that ATMs are preferable to the permanent transfer of agricultural water, and that the latter should not be the "default approach" for meeting future demands. See IBCC website, available at: **http://cwcb.state.co.us/about-us/about-the-ibcc-brts/Pages/main.aspx/Templates/Home.aspx** **Basin Roundtables:** • Colorado has created nine separate "basin roundtables" for each of its eight major river basins and the Denver metropolitan area. These roundtables facilitate discussions on water issues and encourage locally driven collaborative solutions. • Several of the roundtables have been active in advancing alternative agricultural water transfers. For instance, the South Platte Basin Roundtable has a subcommittee committed to ATMs, the Arkansas Basin Roundtable is leading an effort to develop a model to help ATMs achieve administrative approval through the State Engineer, and the Gunnison and Arkansas Basin Roundtables are working together to examine issues associated with the feasibility of a water bank. • Information on the roundtables is available at: **http://cwcb.state.co.us/water-management/basin-roundtables/Pages/main.aspx** **Grant Program:** In 2007, the Colorado Water Conservation Board (CWCB) developed a grant program to facilitate the development and implementation of ATMs. Since its inception, the program has awarded $2.8 million to various water providers, ditch companies, and university groups for the funding of various projects to study and further ATMs, including rotational fallowing, interruptible service agreements, water banks, leasebacks, deficit irrigation, and changing cropping patterns and cycles. • The grant program's website is available at: **http://cwcb.state.co.us/LoansGrants/alternative-agricultural-water-transfer-methods-grants/Pages/main.aspx** **Tax Incentive:** • Colorado law also provides an income tax credit to water users who donate their water rights to the state's instream flow program. COLO. REV. STAT. § 39-22-533
INSTREAM FLOW TRANSFERS	**Instream Flow Program:** • Colorado's instream flow program limits the ownership of instream flow rights to the CWCB, which may appropriate "such water, water rights, or interests in water… in such amount as the board determines is appropriate for stream flows or for natural surface water levels or volumes for natural lakes to preserve or improve the natural environment to a reasonable degree." In doing so, the CWCB must determine: (1) that the natural environment will be preserved to a reasonable degree by the water available; (2) that there is a natural environment that can be preserved to a reasonable degree with the water right; and (3) that such environment can exist without injury to existing water rights. COLO. REV. STAT. § 37-92-102(3) • Instream flow rights are subject to senior decreed water rights, un-decreed water uses, and exchanges or "practices" in existence when the instream flow appropriation is made. The CWCB can acquire existing rights for instream flow purposes by grant, purchase, bequest, devise, lease exchange or contractual agreement. *Id.*

Idaho

WATER BANKS	Idaho Water Supply Bank: The Water Bank facilitates a lease of natural flows submitted by a water rights holder to the bank. The bank recommends a price but the lessor can ask for more or less. Ten percent of the lease price is allocated to the bank to cover administrative costs and create funds for improvements to the water system. IDAHO CODE ANN. § 42-1761 et seq. **Local Rental Pools:** • Local water districts administer five rental pools in Idaho. The Idaho Code allows the Idaho Water Resources Board (IWRB) to delegate responsibility over stored water to local districts. *Id.* § 42-1765
INSTREAM FLOW TRANSFERS	• Instream Flows: • IWRB may file applications for minimum stream flow water rights with the Idaho Department of Water Resources (IDWR). Such applications must seek unappropriated water. If approved, the IWRB holds the water rights in trust for the people of Idaho. Flows may be appropriated "for the protection of fish and wildlife habitat, aquatic life, recreation, aesthetic beauty, transportation and navigation values, and water quality." The term "minimum stream flow" is limited to the amount of water needed to protect these interests and is not the "ideal or most desirable flow or lake level." IDAHO CODE ANN. §§ 42-1501 through -1503 • IDWR must provide public notice of a minimum stream flow application and forward the application to specific state agencies. *Id.* § 42-1503 • IDWR will approve a minimum stream flow appropriation if the appropriation: (1) will not interfere with any senior water rights: (2) is in the public interest, as opposed to a private interest; (3) is necessary to protect one of the statutorily-recognized beneficial uses; (4) seeks only to establish the minimum stream flow necessary to protect these uses; and (5) can be maintained, as determined by flow or water-level records. *Id.* If approved, the priority date will be the date IDWR receives a complete application. *Id.* § 42-1505

Kansas

WATER BANKS	Central Kansas Water Bank: • The bank, located in Central Kansas, allows for the deposit of groundwater rights and for the leasing of those rights for use elsewhere within the same hydrologic unit and bank boundaries. It also includes "safe deposit accounts" in which a portion of unused water right allocations must be saved for future use. Of the water deposited, at least 10% must remain in order to be leased to those who can draw it from the same aquifer. The bank's Charter is available at: **http://www.gmd5.org/Water_Bank/Archive/Final%20Approved%20Charter.pdf**
INSTREAM FLOW TRANSFERS	**Instream Flows:** • The Kansas Legislature can reserve instream flows. The Chief Engineer will then withhold from appropriation that amount of water deemed necessary to establish and maintain for the identified watercourse the desired minimum streamflow. *Id.* §§ 82a-703(a) – 703(c) • Kansas law also lists the following as one of several policy criteria for long-term, water-related goals and objectives: "[M]inimum desirable stream flows to preserve, maintain, or enhance base flows for in-stream water uses relative to water quality, fish, wildlife, aquatic life, recreation, general aesthetics, and domestic uses and for the protection of existing water rights." KAN. STAT. ANN. § 82a-928(i).

Montana

WATER BANKS	Milk River Water Bank: Article IV(C)8)of the Fort Belknap-Montana Compact establishes the Milk River Water Bank to help implement the compact in years of "significant short term storage." The bank is not intended to alleviate normal water shortages within the Basin. Under the compact, the Bureau of Reclamation will notify the necessary governing bodies if it expects water deliveries to be restricted due to a critical water shortage. Following Reclamation's notice, the Milk River Coordinating Committee (MRCC), will publish notices in local newspapers of the availability of grants to purchase water rights to alleviate water shortages. Once it acquires water from voluntary transfers, the MRCC can store the water, allocate or market it to address shortages, or use it for critical environmental, water quality, or irrigation needs. MONT. CODE. ANN. § 85-20-1001. However, the MRCC has yet to be formed and no water banking has taken place in the Milk River Basin.
CONSERVED WATER PROGRAMS	Salvaged Water Statute: • Montana's salvaged water statute allows right holders who conserve water to retain the right to the water for beneficial use. Efforts to use salvaged water for purposes and in places other than those associated with the underlying water right must be approved through the state's change application process. The statute also allows for the sale and lease of salvaged water subject to certain conditions. MONT. CODE ANN. § 85-2-419
INSTREAM FLOW TRANSFERS	• Instream Flows: • The Montana Department of Fish, Wildlife and Parks can lease instream flow rights to individuals and private groups to maintain or enhance fisheries. The criteria are similar to those that apply to individuals making a temporary instream flow changes. MONT. CODE ANN. § 85-2-436 • Individuals may apply to temporarily change rights to an instream flow purpose, or lease them to this end, if they can prove that the change or lease will not impair other rights and is needed for the fishery. *Id.* § 85-2-408 • Instream flow leasing can last up to 30 years if water conservation or storage is involved. Otherwise, the lease can be for 10 years. All leases may be renewed an indefinite number of times but not for more than 10 years for each term. Id § 85-2-436(3)(e) **State Instream Reservations:** • The state and its political subdivisions as well as the U.S. and its agencies may apply to the Department of Natural Resources and Conservation for a state reservation "to maintain a minimum flow, level, or quality of water throughout the year or at periods or for a length of time that the department designates." *Id.* § 85-2-316 • Such designations must be in the public interest and cannot exceed 50% of the average flow of record on gauged streams. Ungauged streams are not subject to this requirement. *Id.* §§ 85-2-316(4)(a)(iv) and (6) • State reservations can be transferred to other qualified entities subject to certain requirements. *Id.* § 85-2-316(13) • State reservations are reviewed every 10 years. *Id.* § 85-2-316(10)

Nebraska

WATER BANKS	At least one of the state's 23 Natural Resources Districts (NRD) has set up a water bank, which is managed independently. The State of Nebraska has no authority over it. NRDs are local branches of government.
TRANSFER POLICIES, PROGRAMS & OTHER EFFORTS	Integrated Management Planning Process: • The Nebraska Department of Natural Resources (NDNR) and the state's 23 Natural Resources Districts (NRDs) are responsible for adopting management plans in river basins that NDNR has declared as fully or over-appropriated. Depending on the basin, such plans could include dry year leasing of surface water appropriations for stream augmentation and reduction in consumptive use from irrigation. There are also several federal and state sponsored programs that assist with the funding and implementation of transfers for stream augmentation or irrigation curtailment. A description of the process is available at: **http://dnr.ne.gov/IWM/WaterMatters/WaterMatters_No1.pdf** **Conservation Reserve Enhancement Program (CREP):** • The CREP Program is a combined effort that went into effect in 2004 on portions of the Platte and Republican Rivers involving Nebraska and the U.S. Department of Agriculture's Farm Services Agency. The goal of the program is to improve water quality and quantity, and create or restore wildlife habitat by converting irrigated cropland to non-irrigated habitat. • Applicants in the CREP resource area can enter into "water use contracts" with the state in which the landowners agree to forebear the use of ground and surface water on the eligible land. The unused water remains in the aquifer, is stored in a reservoir, or is used to increase stream flows for environmental and public recreational purposes. • NDNR must approve the contracts, which have 10 to 15 years terms. When the contract expires, the full use of the water returns to the applicant. Contracts associated with the use of natural flow surface water must have an approved temporary surface water transfer before they can be approved. For more, see: **http://dnr.ne.gov/CREP/CREP.html** **Platte Basin Habitat Enhancement Project (PBHEP):** • This effort provides financial assistance for projects that include the voluntary sale of surface water appropriations for permanent retirement. Retired land is converted to either wildlife habitat or dryland farming. Enhanced streamflows is one expected benefit. More information is available at: **http://www.npnrd.org/documents/PBHEPGenBrochure.pdf** **Tax Incentives:** • Some programs in Nebraska require the payment of property taxes on the pre-transfer value of the land to address concerns that changing water to a non-irrigation use will reduce local property values and related property taxes that support local governments and school districts.
INSTREAM FLOW TRANSFERS	**Instream Flows:** • Nebraska law allows instream flows to be appropriated "to maintain the existing recreational uses or needs of existing fish and wildlife species." NEB. REV. STAT. § 46-2, 115(2). • Instream flows must not impair other surface water rights and be in the public interest. *Id.* In determining whether an instream flow is in the public interest, Nebraska considers: (1) the economic, social, and environmental value of the use, including but not limited to recreation, fish, and wildlife, induced recharge for municipal systems, and water quality maintenance; and (2) the economic, social, and environmental value of reasonably foreseeable alternative out-of-stream uses of water that will be foregone or accorded junior status if the appropriation is granted. *Id.* § 46-2, 116. Instream flow appropriations must also be reviewed every 15 years to determine if they are in the public interest. *Id.* § 46-2, 112 • Appropriations for instream flows must utilize unappropriated water or stored water if an insufficient amount of unappropriated water is available. *Id.* §§ 46-2, 115(1); -116.01. • The amount of available unappropriated water must be enough to provide the approved rate at least 20% of the time during the period requested. *Id.* § 46-2, 115(1). • The Nebraska Game and Parks Commission and the state's NRDs are authorized to hold instream flow rights. *Id.* 46-2, 108. An individual right owner may also change the purpose of certain rights to an instream appropriation. 46-290(3)(c)

Nevada

INSTREAM FLOW TRANSFERS	**Instream Flows:** • Nevada law states that the "use of water from any stream system…for any recreational purpose…is hereby declared to be a beneficial use. NEV. REV. STAT. § 533.030. • Any person or organization, including private individuals, can apply for an instream appropriation with the State Engineer for approval. *Id.* § 533.325 • The Nevada Supreme Court's 1988 decision in **Nevada v. Morros,** 766 P.2d 263, upheld the right to appropriate water for instream flows. **Temporary Transfers:** • The Nevada Code allows for the temporary conversion of agricultural water rights "for wildlife purposes or to improve the quality or flow of water." Such transfers must not exceed 3 years in duration but can be extended in increments not exceeding three years. NEV. REV. STAT. § 533.0243 • The term "wildlife purposes" includes the "watering of wildlife and the establishment and maintenance of wetlands, fisheries and other wildlife habitats." *Id.* § 533.023

New Mexico

WATER BANKS	Water Bank: • The New Mexico Interstate Stream Commission (ISM) is authorized to recognize water banks established by an irrigation district, conservancy district, a community ditch, acequia, or water use association in the lower Pecos river basin for the purposes of compliance with the Pecos River Compact. The banks are intended to have procedures that allow temporary transfers limited to the same stream system or underground water source without formal proceedings before the State Engineer. N.M. STAT. § 72-1-2.3
CONSERVED WATER PROGRAMS	**Abandonment and Forfeiture:** • The New Mexico Code states: "Periods of nonuse when water rights are acquired and placed in a State Engineer-approved water conservation program…shall not be computed as part of the…forfeiture period." N.M. STAT. §§ 72-5-28(G)
TRANSFER POLICIES, PROGRAMS & OTHER EFFORTS	**Strategic Water Reserve:** • The New Mexico Code authorizes the ISM to establish a strategic water reserve and to "purchase or lease from willing sellers or lessors" surface and groundwater rights for the reserve. Among other things, rights in the reserve assist the state and water users in water management efforts for the benefit of threatened or endangered species and to avoid the listing of additional species. N.M. STAT. § 72-14-3.3 • The ISM can sell or lease water rights from the reserve if the rights are no longer necessary for the purposes for which they were acquired subject to certain limitations. Proceeds of any sale are appropriated to the State Engineer to adjudicate water rights while lease proceeds are appropriated to the ISM to carry out the reserve. Rights sold or leased from the reserve shall remain in the river reach of groundwater basin of origin. *Id.* **Land Conservation Incentives Act:** • This Act was enacted to provide a tax credit incentive for donations of an interest in real property, including water rights, to protect private lands for farmland, among other things. N.M. STAT. ANN. § 75-9-1 et seq. • Donations of land, including water rights, to public or private conservation agencies for the purposes of creating a conservation easement are eligible for a state tax credit worth up to 50% of the appraised value of the donation. *Id.* **Shortage Sharing Agreements:** • New Mexico allows for management plans and agreements for shortage sharing and replacement plans (short-term leasing) during priority administration based on the State Engineer's hydrologic model analysis. N.M. CODE R. § 19.25.13.16(E) – (F); *Id.* § 19.25.13.31 through -40

New Mexico, cont.

INSTREAM FLOW TRANSFERS	**Instream Flows:** • New Mexico statutes do not explicitly recognize wildlife, recreation, or any other purpose typically associated with instream flows as a beneficial use. Instead, the state's instream flow efforts have developed largely from a position of the State Engineer and a legal opinion by the state's Attorney General. • The Attorney General opinion concluded that state law allows the State Engineer to afford legal protection to instream flows for recreational, fish or wildlife, or ecological purposes. The opinion only addresses changes of water rights from traditional diversions to instream flows. It also concludes that a court will recognize recreational, fish and wildlife, and "ecological" uses as beneficial uses of water. 98-01 Op. N.M. Att'y. Gen. (1998)

North Dakota

INSTREAM FLOW TRANSFERS	No Instream Flow Program: • North Dakota does not have a instream flow program and there is no statutory provision for establishing a right to instream flows. However, there are indirect mechanisms in which the state can protect instream flows. Specifically, the State Engineer can deny a permit on the ground that the appropriation may conflict with public interest criteria, which includes consideration of "the effect on fish and game resources and public recreational opportunities." N.D. CENT. CODE. § 61-04-06(4)

Oklahoma

TRANSFER POLICIES, PROGRAMS & OTHER EFFORTS	**2012 Water Plan Update:** • The Oklahoma Water Resources Board's (OWRB) 2012 update to the state's water plan contains a number of items addressing water transfers, including a recommendation that the Legislature provide stable funding for OWRB to evaluate impacts of potential transfers. See page 15 of the update at: **http://www.owrb.ok.gov/supply/ocwp/pdf_ocwp/WaterPlanUpdate/draftreports/OCWP%20Executive%20Rpt%20FINAL.pdf**
INSTREAM FLOW TRANSFERS	**No Instream Flow Program:** • Oklahoma law does not contemplate the issuance of water rights for instream flows. • The state's 2012 water plan update recognizes that there is no clear consensus on the most appropriate way to balance consumptive and non-consumptive water needs. See page 12 of the update at : **http://www.owrb.ok.gov/supply/ocwp/pdf_ocwp/WaterPlanUpdate/draftreports/OCWP%20Executive%20Rpt%20FINAL.pdf** • As part of the process of preparing the update, the OWRB commissioned an Instream Flow Workgroup (IFW) to conduct an independent, legal, and policy analysis of potential instream flow implementation in Oklahoma. The IFW prepared a report with the following recommendations: (1) address legal and policy questions; (2) study other mechanisms for protecting instream flows; (2) develop a draft methodology for instream flow studies in Oklahoma; (3) conduct a study on the economic impacts of instream flows in Oklahoma; (4) perform an instream flow pilot study in a scenic river; and (5) preserve the IFW. The report is available at: **http://www.owrb.ok.gov/supply/ocwp/pdf_ocwp/WaterPlanUpdate/draftreports/OCWP_InstreamFlow_IssuesRecs.pdf**

Oregon

WATER BANKS	**Water Bank:** Oregon's Deschutes Mitigation Program requires mitigation for all new ground water permits in the Deschutes River Basin. Applicants seeking to appropriate ground water must complete their own mitigation project or acquire credits made available by a mitigation project. Such credits can be purchased or sold to offset the impacts of new groundwater withdrawals. OR. REV. STAT. § 537.746
CONSERVED WATER PROGRAMS	**Allocation of Conserved Water Program:** • The program allows users that conserve water to use up to 75% of the conserved water on additional lands, or lease or sell the water, or dedicate the savings to instream flows. The amount of conserved water is the difference between the amount stated on the existing water right or system capacity, whichever is smaller, and the amount of water needed to satisfy the existing beneficial use stated in the original water right. OR. REV. STAT. §§ 537.455-.500. • In exchange for allowing the right holder to use the conserved water for new uses, the state requires 25% of the conserved be transferred to a state-owned instream right. Users receive a new water right certificate with the original priority date reflecting the reduced quantity of water following the conservation measures. OR. REV. STAT. §§ 537.455-.500. For more on the program, see: **http://www.oregon.gov/OWRD/PUBS/docs/reports/conserved.FAQs.pdf.** **http://www.oregon.gov/OWRD/mgmt_conserved_water.shtml**
INSTREAM FLOW TRANSFERS	**Instream Flow Program:** • The Oregon Water Resources Depart (OWRD) is authorized to hold instream flow rights in trust for the public to maintain water instream for public use, which includes, but is not restricted to, recreation, navigation, pollution abatement, and for the "conservation, maintenance and enhancement of aquatic and fish life, wildlife and fish and wildlife habitat." OR. REV. STAT. § 537.332 • Although the OWRD holds the rights in trust, the Departments of Fish and Wildlife, Environmental Quality, and State Parks and Recreation can request OWRD to issue an instream flow right. *Id.*§ 537.336 • Any person may purchase, lease, or accept a gift of all or a portion of an existing right for conversion to an instream water right. Any water right converted to an instream water right shall retain the priority date of the water right purchased, leased or received as a gift. Right holders can split their use between the existing right and the instream right during the same calendar or water year if the use is not concurrent and they report measurements to OWRD. *Id.* § 537.348 • The priority date for instream flows is the original appropriation date for the underlying right. *Id.* §§ 537.348

South Dakota

INSTREAM FLOW TRANSFERS	**No Instream Flow Program:** • South Dakota does not have specific statutory provisions for appropriating water for instream use. However, the state has addressed instream flows administratively. In particular, the state's Water Management Board has granted permits for instream flow purposes, including aesthetic and wildlife purposes. The Board has also granted change of use requests for instream flow purposes. See Sasha Charney, DECADES DOWN THE ROAD: AN ANALYSIS OF INSTREAM FLOW PROGRAMS IN COLORADO AND THE WESTERN UNITED STATES. 113 – 115 (2005)

Texas

WATER BANKS	Water Banks: The Texas Water Development Board operates the Texas Water Bank, which works with water rights from any source, negotiating sales prices, maintaining a registry of water rights depositors, and generally serving as a clearinghouse for transaction information. TWDB also acts as a broker by purchasing, holding, and transferring water or water rights in its own name. TEX. WATER CODE ANN. § 15.701 et. seq. The bank includes the Texas Water Trust, which serves as a means of acquiring water rights dedicated to environmental needs, such as instream flows, fish and wildlife habitat, water quality, or bay and estuary inflows. *Id.* § 15-7031
TRANSFER POLICIES, PROGRAMS & OTHER EFFORTS	**Agriculture Water Conservation Program:** House Bill (HB) 1437 Agriculture Water Conservation Program is an innovative way to conserve water, meet rising municipal demands, and maintain agricultural productivity. The Texas Legislature passed HB 1437 in 1999.The bill authorizes LCRA to transfer up to 25,000 acre-feet of water annually to Williamson County if the transfer results in "no net loss" of water to the lower Colorado River basin. The bill also establishes a conservation surcharge on transferred water. The surcharge funds conservation projects that result in "no net loss" of water to the basin.
INSTREAM FLOW TRANSFERS	Environmental Set Asides: • Texas law requires the Texas Commission on Environmental Quality (TCEQ) to adopt environmental flow standards for each river basin and bay system. Texas law also authorizes TCEQ to develop "set asides" for instream uses below which water is not available for appropriation to satisfy the environmental flow standards. Such set asides are mandatory only if unappropriated water is available "to the maximum extent reasonable when considering human water needs..." TEX. WATER CODE § 11.1471. • In those basins where insufficient unappropriated water is available to satisfy environmental flows standards, the Texas Code requires the exploration and pursuit of public and private market approaches. *Id.* §11.0235(d-3)(2) **Instream Flow Rights:** • TCEQ may not issue a new permit for instream flows dedicated to environmental needs or bay and estuary inflows. However, TCEQ can approve applications to amend an existing permit or certificate of adjudication to change the use to or add a use for instream flows dedicated to environmental needs or bay and estuary inflows. *Id.*§ 11.0237

Utah

TRANSFER POLICIES, PROGRAMS & OTHER EFFORTS	Water Rights Record Database: • Utah maintains a website with water rights information, available at: **http://www.waterrights.utah.gov/wrinfo/query.asp**
INSTREAM FLOW TRANSFERS	**Instream Flow Transfers:** • Transfers are the only way to dedicate water for instream uses in Utah. Utah law authorizes the Division of Wildlife Resources or the Division of Parks and Recreation to file applications with the State Engineer for permanent or temporary changes necessary for fish, recreation, or the reasonable preservation or enhancement of the natural stream environment. UTAH CODE ANN.§ 73-3-30 • The agencies can secure the rights by: (1) changing a right they already own; (2) apply for changes in rights they have purchased or acquired by lease, agreement, gift, exchange, or contribution; or (3) apply for changes in appurtenant water rights acquired with real property. *Id.* • Fishing groups may file a fixed time change application for the purpose of providing water for an instream flow, within a specified section of a natural or altered stream channel, to protect or restore habitat for three specified native trout species. Such groups must also secure approval from the Division of Wildlife Resources before filing a change application with the State Engineer. *Id.* §§ 73-3-8, -30(3),

Washington

WATER BANKS	Trust Water Rights Program: • The Washington Department of Ecology operates a program that allows water right holders to "bank" unused water with the program without relinquishing their rights. In turn, banked water can then be used for another purpose, such as improved stream flows. The program accepts water rights as donations, leases, or permanent transfers, and uses an expedited review process to determine historic use for temporary transfers in order to incentivize the program. WASH. CODE ANN. § 90.42.040 et seq. • Ecology can also acquire or lease water rights for the program. The agency holds such rights in trust, which can be used for instream flows, irrigation, municipal, or other beneficial uses, or to resolve critical water supply problems. Trust rights retain the priority date as the water right from which it originated, but as between the two rights, the trust right is inferior *Id.* § 90.42.040(1) – (3) unless processed in the Yakima Basin under 90.38, where the two rights have the same priority date.
CONSERVED WATER PROGRAMS	**Trust Water Rights Program:** The program also authorizes the state to provide funding assistance for water conservation projects. In consideration for this assistance, funding recipients convey all or a portion of the resulting net water savings for deposit in the program. The state and recipients determine the amount of water to deposit to the program through negotiation. *Id.* § 90.42.030.
TRANSFER POLICIES, PROGRAMS & OTHER EFFORTS	**Statewide Water Rights Web Map:** Ecology maintains a web portal with over 230,000 water right records, which is available at: **http://www.ecy.wa.gov/programs/wr/info/webmap.html**
INSTREAM FLOW TRANSFERS	**Environmental Flows:** • Washington law authorizes Ecology to establish base flos necessary for the purposes of protecting fish, game, birds as well as other wildlife resources and recreational or aesthetic values. WASH. REV. CODE § 90.22.010 et seq. • Washington law also states that the quality of the natural environment shall be protected and, where possible, enhanced. This includes a declaration that: "Perennial rivers and streams…shall be retained with base flows necessary to provide for preservation of wildlife, fish, scenic, aesthetic and other environmental values, and navigational values. Lakes and ponds shall be retained substantially in their natural condition. Withdrawals of water which would conflict therewith shall be authorized only in those situations where it is clear that overriding considerations of the public interest will be served." *Id.* § 90.54.020(3)(a) **Instream Flow Rights:** • Ecology may acquire portions of an existing surface or groundwater right to place in its Trust Water Rights Program through purchase, gift, or "other appropriate means other than by condemnation." *Id.* § 90.42.080(1)(a). Users who donate rights for instream purposes may place conditions on their donations that Ecology is required to follow subject to certain requirements. *Id.* §§ 90.42.080(1)(b); 90.38.020 • Washington State Trust Water Statute recognizes the value of donations for federal tax deduction: RCW 90.42.080 (7) "Any water right conveyed to the trust water right system as a gift that is expressly conditioned to limit its use to instream purposes shall be managed by the department for public purposes to ensure that it qualifies as a gift that is deductible for federal income taxation purposes for the person or entity conveying the water right."

Wyoming

INSTREAM FLOW TRANSFERS	**Instream Flows:** • The state is the only entity that can appropriate water for instream flows, which it can acquire through transfer or gift. The State Game and Fish Commission (GFC) reports to the Water Development Commission (WDC) regarding those stream segments with the most critical need for instream flows. The WDC then files an application in the name of the state with the State Engineer for a permit to appropriate water for instream flows in those segments of stream recommended by the GFC. WYO. STAT. ANN. §§ 41-3-1007, -1009 • The state can appropriate unappropriated water for instream flows to maintain or improve existing fisheries. The state can also use stored water to establish maintain new or existing fisheries. *Id.* § 41-3-1001. The state cannot condemn existing rights or claim abandoned water. *Id.* §§ 41-3-1009, -1011 • Approved instream flow rights must be in the name of the state and be for the minimum flow necessary to maintain or improve existing fisheries. The State Engineer and the State Board of Control administer the rights to ensure that they do not interfere with existing water rights or impair the value of such rights or related property. Any such water rights acquired and changed shall be limited to a specified stream segment by the Board with the priority date intact. *Id.* §§ 41-3-1001, -1007 and -1009 • After waters allowed for instream flows have passed through the specific stream segment, all rights to those instream flow waters are relinquished and the water becomes available for re-appropriation, diversion and beneficial use. *Id.* § 1002(b)

Appendix References

1. See generally Adam Schempp, Water in the 21st Century: Policies and Programs that Stretch Supplies in a Prior Appropriation World (2009); MacDonnell and Rice, supra note 2; Ricky S. Torrey, Intrastate Water Transfers in the West: Approaches Problems and Related Issues, 15 – 38 (1995) (describing various state efforts to facilitate transfers).

2. Craig Bell and Jeff Taylor, W. States Water Council, Water Laws and Policies for a Sustainable Future: A Western States Perspective, 67 (2008), **http://www.westgov.org/wswc/laws%20&%20policies%20report%20(final%20with%20cover).pdf**; Lawrence J. MacDonnell and Teresa A. Rice, Moving Agricultural Water to Cities: The Search for Smarter Approaches, 14 Hastings W.-N.W. J. Env. L. & Pol'y 105, 120 (2008).

3. Bell and Taylor, supra note 2 at 109 – 122, 123; MacDonnell and Rice, supra note 2, at 111 (discussing state transfer efforts).

4. *Id.* at 137 – 145.

5. Bell and Taylor, supra note 2 at 118 (further citations omitted).

6. *Id.*

7. *Id.*

8. MacDonnell and Rice, supra note 2 at 111 – 113 (describing public interest reviews for transfers in the West).

9. Neb. Rev. Stat. § 46-683.

10. *Id.* § 46-289.

11. Bell and Taylor, supra note 2 at 119.

12. 2 Waters & Water Rights § 14.04(d)(1), at 14 – 62 (Robert E. Beck ed., 1991 ed. 2001).

13. MacDonnell and Rice, supra note 2, at 112 – 113.

14. *Id.*

15. See *Id.* (stating, "To a decisionmaker, the no-injury standard…may provide a more legally defensible, and less likely to be challenged, foundation for conditional approval or outright denial of a transfer application.").

16. *Id.*

17. Bell and Taylor, supra note 2 at 119 – 120.

18. N.M. Stat. Ann. §§ 73-2-21(E) and 73-3-4.1.

19. Ariz. Rev. Stat. § 45-172(A)(4).

20. Arizona, Survey Response, 10 (Oct. 28, 2011) (on file with authors).

21. *Id.* at 2 – 4; Ariz. Dep't of Water Res., Active Management Areas and Irrigation Non-Expansion Areas, **http://www.azwater.gov/AzDWR/WaterManagement/AMAs/** (describing groundwater regulation within Arizona's AMAs).

22. Oklahoma, Survey Response, 3 (Oct. 21, 2011) (on file with authors).

23. MacDonnell and Rice, supra note 2, at 138 – 139.

24. Cal State W. Res. Control Bd, supra note 27 at 6-1.

25. Utah, Survey Response, 8 (Sept. 1, 2011) (on file with authors).

26. N.M. Stat. Ann. § 72-3-2. See also New Mexico, Survey Response, 8-9 (Nov. 18, 2011) (on file with authors) (describing informal agreements in New Mexico).

27. New Mexico, supra note 61 at 9.

28. Utah, supra note 60 at 8.

29. California, Survey Response, 3 – 4 and 9 (Aug. 18, 2011) (on file with authors).

30. 43 U.S.C. § 523 (2012).

31. *Id.* § 43 U.S.C. 524 (authorizing the Secretary of the Interior to cooperate with water users to construct storage and conveyance facilities provided that water furnished from such facilities to any one landowner not exceed "an amount sufficient to irrigate one hundred and sixty acres.").

32. Bureau of Reclamation, Reclamation Manual, WTR 04-01: Use of Excess Capacity in Reclamation Projects for the Impoundment, Storage, and Carriage of Non-Project Water , 1 (2000), **http://www.usbr.gov/recman/wtr/wtr04-01.pdf**.

33. Bureau of Reclamation, Bureau of Reclamation Facts and Information (2012), **http://www.usbr.gov/main/about/fact.html**.

34. Bureau of Reclamation, Reclamation Manual, WTR P02: Voluntary Transfers of Project Water (2001), 3 – 4 , 6, **http://www.usbr.gov/recman/wtr/wtr-p02.pdf** .

35. *Id.* at 4 n.6.

36. Bureau of Reclamation, Draft Reclamation Manual Release PEC-P05: Water Related Contracts – General Principles and Requirements, 2 – 3 (Jan. 2012), (on file with authors).

37. Letter from W. States Water Council to Michael Connor, U.S. Bureau of Reclamation Commissioner(Mach 15, 2012) (commenting on Reclamation's proposed transfer policy), **http://www.westgov.org/wswc/-341%20letter%20to%20bor%20commissioner%20on%2010-acre%20water%20transfer%20policy%202012mar15.pdf**.

38. PowerPoint: Tom Hicks, Res. Renewal Inst., Presentation to the W. Governors' Ass'n and W. States Water Council: Federal Tax Deductions for Water Rights Donated to Instream Conservation Purposes (Dec. 13, 2011), **http://www.westgov.org/initiatives/water/373-water-papers**; Tom Hicks, An Interpretation of the Internal Revenue Code and Treasure Regulations Supporting the Tax Deductibility of the Voluntary Charitable Contribution in Perpetuity of a Partial Interest in an Appropriative or Riparian Water Right Transferred Instream for Conservation Purposes 17 Hastings W.-N.W. J. Env. L. & Pol'y 95, 120 (Summer 2011) (discussing the tax deductibility of instream donations).

39. Website of Northern Colorado Water Conservancy District.

40. *Ibid.*

41. *Ibid.*

42. S.B. 1477, 73rd Reg. Sess. (Tx. 1993), **http://www.edwardsaquifer.net/1477.html**.

43. *Id.*

44. *Id.* at 62.

45. *Id.* at 35.

46. *Id.*at 44.

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