Grand Valley
Water Users Association

Beyond Conserved Consumptive Use - Creating Productive Water Markets

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Introduction and Purpose

The Grand Valley Water Users Association (GVWUA or Association) has been deeply involved in exploring the supply side of water marketing. We investigated many of the internal issues related to considering agricultural Demand Management (DM) that creates Conserved Consumptive Use (CCU) that potentially could be made available for other uses on a voluntary, temporary, and compensated basis. Based on our experience the GVWUA believes that the agronomics and internal administrative complications of such programs could be accommodated by the Association and its members given appropriate circumstances. These endeavors have been valuable and productive for the GVWUA, but we believe that the water marketing conversation must go far beyond only the creation of agricultural CCU.

DM is a euphemism for supply and the actual demand side of the water shortage equation needs equal attention as do the multitude of issues arising from on-farm DM activities. The ***Beyond Conserved Consumptive Use Project*** *(BCCU)* has expanded the conversation to include consideration of these complicated issues and how they inform any potential water marketing activities by the GVWUA.

This Report is divided into three elements:

Element 1 describes the extensive Partnership Building and Outreach that the GVWUA conducted. The goal being to understand the perspective of those who may be water short in the future, irrigation providers, and water users themselves. The context with which water policy is being considered and created was also an important part of Element 1.

Element 2 captures what we heard from our partners inside and outside of the Association. Why even consider DM strategies? What questions, concerns, and aspirations does the water community have regarding DM? What role do the values of Colorado water users and other citizens play in the process? Who decides? Who creates the market for this CCU created by agricultural DM? Who will be the "Market Maker" that "manages" the market to optimize benefit and distribute burden?

Element 3 is informed by the perspectives, contexts, and values we heard expressed, but focuses on the details that an actual GVWUA Water Marketing Strategy must at least consider, if not include. What might the term of such programs be, what farm activities might they include, how might compensation be considered, what are the internal and external legal, administrative, and contractual obligation considerations, and how are potential CCU yields verified, monitored and reconciled?

The BCCU has been of immense value to the GVWUA. We sincerely hope that it can be of similar benefit to others. Thank you for the opportunity.

Grand Valley Water Users Association

1.0 Element 1- Partnership Building and Outreach–Framing the Issues

Thanks to all those who helped with this project. *GVWUA engaged in extensive outreach and partnership building. We met in groups from two to over two hundred to achieve these objectives, visiting with hundreds of interested parties over the course of the BCCU Project. Please see Appendix A where we gratefully acknowledge those who graciously gave extensively of their time and talent to help inform our thinking regarding a water marketing strategy.*

Introduction to Element 1

CCU created by agricultural DM is a euphemism for new supply. Any serious consideration of marketing such supply must include the demand side of the equation. Both sides of the table in any potential water "deal" need to be considered.

Agriculturally created Conserved Consumptive Use, provided via potential appropriate water marketing strategies, is considered by many as a new "supply". The GVWUA and other ag water users are the holders of these potentially new supplies. Any proposed water marketing strategy will have great impact on the Association, irrigation provider peers, and those they serve.

Therefore, the goals of Element 1 were primarily two- fold and of equal importance. First was to engage a select group of non-ag water users and policy makers who will have significant impact on the future of ag water, including that of the GVWUA. Second was the attempt to identify the unintended consequences and potential benefits to agricultural and rural water users, including the GVWUA, that arise from any proposed water marketing strategy.

Partnership building and outreach was an integral element in the creation of a potential GVWUA water marketing strategy. GVWUA utilized partnership building and outreach to understand and interpret the framework within which its actions related to water security must continue to evolve. The GVWUA strategy must fit within the context of management of the Colorado River, a complex arena within which to operate, and an arena that will require a broad network of relationships and mutual understanding if it is to be successful in creating drought resiliency for the Colorado River Basin and the subsequent water security that the GVWUA is seeking. The required conversations and possible marketing strategies developed in the BCCU are specific to GVWUA and necessarily will differ from those considered by other organizations. However, no strategy can be successful without the recognition of organizational and geographical specific and common concerns as well as shared interest and benefit. The GVWUA utilized partnership building and outreach to begin the process of identifying vulnerabilities and common interests, and tensions, among members of the Colorado River community.

The issues at hand extend beyond the Grand Valley and beyond the State of Colorado. Framing and understanding how the GVWUA might achieve a higher level of water security required engaging with partners across water use sectors and across geographies. Certain organizations with whom the GVWUA has built relationships and partnerships have a much broader reach than Colorado. However, the GVWUA outreach was heavily weighted towards their partners within the State. The bulk of our conversations focused on the Drought Contingency Plan (DCP) and DM within Colorado. DCP and DM are the current mechanism by which the Upper Division states are seeking to create basin wide drought resilience and Colorado's response to creating such basin wide resilience is likely the mechanism by which GVWUA might participate in a broader programmatic attempt to create a more resilient system by the appropriate use of DM. The GVWUA provides water to a subset of west slope

agricultural water users and an even smaller group of water users when compared to the entire basin. We have no ability to affect the basin in a meaningful way alone. Our success in finding drought resiliency and the resulting increased water security requires that other Colorado River water users also be successful. Our failure to participate in seeking such solutions further increases the risk to ourselves and others.

A significant issue for the GVWUA at the beginning of its work related to DM and water marketing was the difficulty of assessing the nature of the water security problems we and the Basin are facing. How do we "frame the issue"? It is a wicked problem, and one not just of hydrology, but of demand, storage, culture, the environment, politics and law to name a few of the factors that come into play. The GVWUA needed to create a mechanism to build the internal knowledge necessary to appropriately understand the issues at hand and then incorporate that knowledge into the Basin wide context.

1.1 Assessing Multiple Perspectives

Non-Ag Water Users

One of the primary objectives of the BCCU was to engage those who could potentially impact the water security of the GVWUA. First amongst the list are those entities whose water supply limitations during a crisis could force them to look to the West Slope and West Slope agriculture as a crisis mitigation tool. Second on our list were government agencies who might need to make policy or decisions related to water supply before or during a water supply crisis that re-allocate or re-time agricultural water supplies for public health, safety, and welfare purposes.

Continued efforts that bring agricultural water users in the Basin together with other interests and water users will pay dividends. The climate is warming, stream flows are decreasing, and cultural values are changing. CCU created by agricultural DM is a euphemism for new supply, whether by augmentation, new use, or re-timing of storage, the water is made temporarily available as supply for others. Any serious consideration of marketing such supply must include the demand side of the equation. Those who are most vulnerable under the current "Law of the River" and the increasing risks of shortage need to be considered. Both sides of the table in any potential water "deal" must be engaged.

The GVWUA understands that we are not alone in our concerns about our water security and the partnerships we have created and strengthened during this project are of increased value as we navigate an uncertain future. The Colorado River Water Conservation District (CRWCD) and other regional water suppliers and conservancy districts were of great value in improving our thinking regarding DM and we will continue to depend on the CRWCD to provide protection of our water rights and collaborate with them in strategic water policy planning as required.

The United States Bureau of Reclamation (USBR) is a major partner in western water issues and the GVWUA works closely with the USBR Western Colorado Area Office. We thank them and the Upper Colorado Regional office for their expertise, concern and support of the GVWUA's water management and marketing strategy efforts over the last several years. The Association's partnership with the USBR has been further strengthened by our mutual involvement in the BCCU Project.

Other West Slope Irrigation Providers

Element 1 included formal and informal conversations, which continue, with irrigators and irrigation water providers from all West Slope basins and within the GVWUA membership and participants in the GVWUA Conserved Consumptive Use Pilot Projects (CCUPPs, see http://www.grandvalleywaterusers.com/water-security.html). It is a major objective of this project to identify and eliminate negative consequences of any potential water marketing strategy for our membership, for local, regional, and Colorado agriculture, for our contractual obligations, the communities we serve, and the neighborhoods we live in. At the same time, we hope to have encouraged our agricultural partners and peers to seek potential value and protection for their own operations and organizations.

Our vision of water marketing requires programmatic water management solutions that allow our community to maintain a sufficient land and water resource base to support viable and profitable irrigated agricultural production. There are multiple ways to define what viable irrigated agriculture looks like. We have chosen to define viable irrigated agriculture as the maintenance of the land and water resources for future generations to farm, in whatever capacity they choose. Our goal is not to protect individual farmers, ranchers, tenants or landowners. Our objective is an agricultural community that maintains a sufficient quantity of available land and irrigation water to allow for sustained long-term agricultural production. Thus, also, protecting and conserving the many cultural, ecological, environmental, and economic benefits that agriculture provides to the broader community. Our goal is not the preservation of existing conditions, but rather the preservation of the opportunity to participate in agriculture now and in the future.

1.2 GVWUA Water Marketing Goals

Figure 1, on the following page, is a representation of the framework developed by GVWUA and informed by conversations with parties up and down the Basin in which we might consider a GVWUA water marketing strategy.

At the center of our framework are the GVWUA goals, and this represents what is most important to the GVWUA Board of Directors and management. These goals are at the center of our approach to water marketing. But if our water marketing strategy fails to recognize and include the needs and concerns of the social, economic, and natural environments surrounding our goals, we have failed to create a scenario in which the GVWUA goals can be achieved.

GVWUA Water Security

The framework presented in Figure 1 revolves around the GVWUA water marketing goals. The first and most important goal is GVWUA Water Security. The GVWUA's highest priority every year is providing irrigation water to the shareholders of the GVWUA. That priority does not change when the planning horizon extends to 30 or 40 years, or beyond. The GVWUA cannot function without a supply of water to the agricultural lands within the service area. A secure supply of water is of utmost importance to the entirety of the membership. The community, local and regional economy, and environment appurtenant to local agricultural production all depend on a reliable supply of irrigation water.

The GVWUA and many West Slope irrigators possess a portfolio of important "senior" water rights. However, a warming climate and changing river management will likely bring forth potential solutions to avoiding and mitigating Colorado River crises that affect the water security of GVWUA and other senior water supplies. Agricultural operations need certainty of water supply just as municipal water providers do. Existing and future agricultural operations, no matter the size or scale, must be secure in the long-term availability of irrigation water if they are to remain an important part of the western slope economy, culture, and environment.

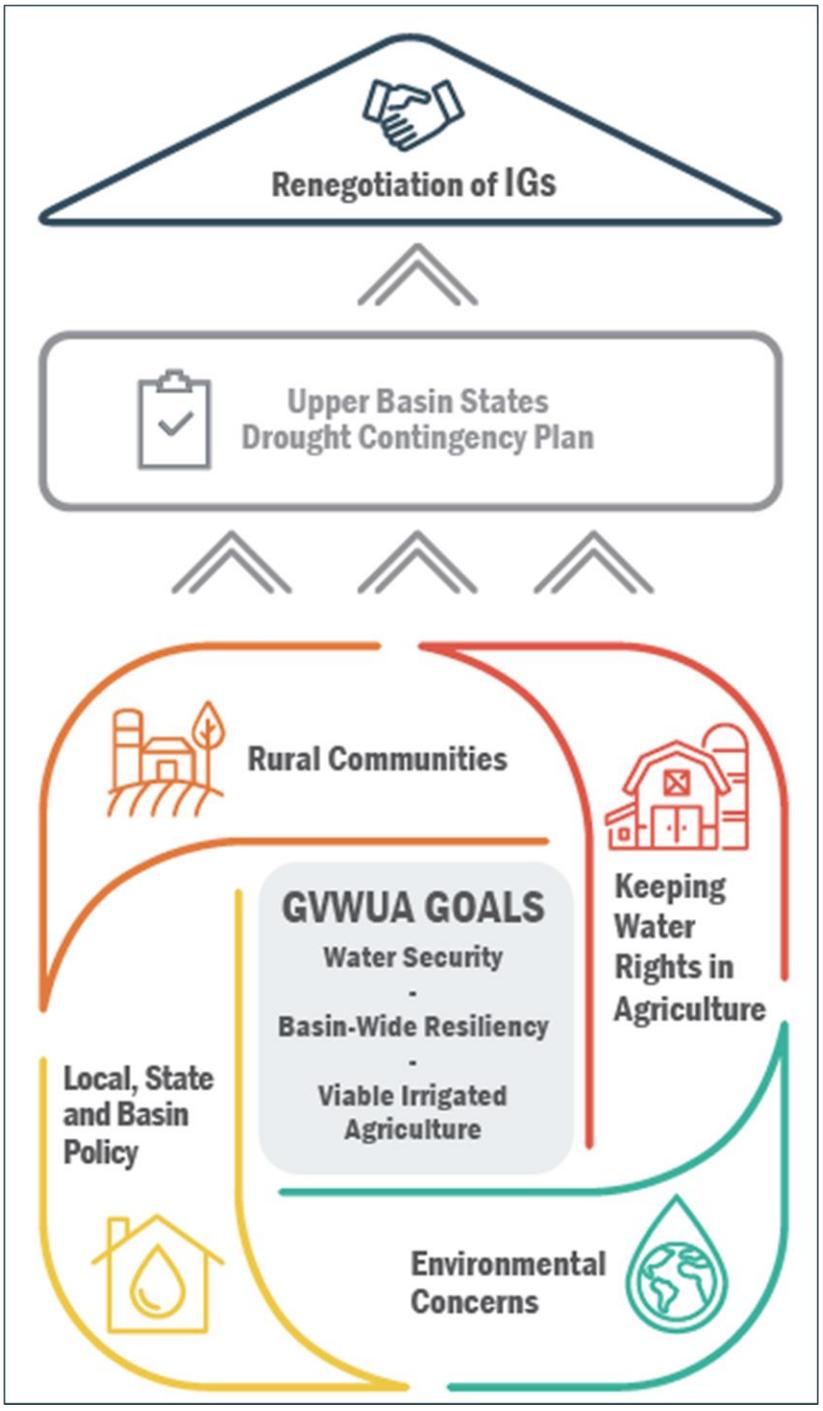

Figure 1: GVWUA water marketing framework

Basin-Wide Drought Resilience

If the system that the Colorado River community has built during the 19th, 20th, and now 21st, century cannot weather a drought related crisis the outcome will be damaging, and potentially devastating, to agriculture and rural communities on the West Slope.

Achieving Basin wide drought resilience is critical to the success of any GVWUA water marketing strategy or other attempt to increase its long-term water security. During a crisis, poorly planned short-term solutions would be executed that have negative short- and long-term consequences for agriculture. Politically, West Slope agricultural water users are not strong enough to demand solutions within the Basin that guarantee a sustainable agricultural future during or after a hydrologic crisis. West Slope agricultural water use accounts for a significant portion of Colorado's Colorado River water usage. Given the scale of agricultural depletions, it is unlikely that West Slope agricultural water will not be involved in any water shortage crisis. Just as Lower Basin water users across sectors and trans-mountain diversions must consider their role in the future of water, West Slope agriculture will be prudent to seriously consider its ability to willingly or otherwise, participate on a compensated basis in providing temporary relief to others. The GVWUA prefers to participate proactively and on terms that are well thought out, with appropriate planning horizons, and with the chance of shared burden and shared benefit.

To the GVWUA Basin Wide drought resiliency means a water management structure that allows the GVWUA, Grand Valley agriculture, local communities, and environmental concerns to appropriately and adequately manage and survive a Colorado River crisis. Although the Upper Basin states are, under all but the worst foreseeable hydrology, some years away from a "compact call", it is possible to utilize the chaos and fallout from such a situation as a guide. Such a crisis would require water users in the Basin to view their water rights portfolios differently and seek supplies of West Slope agricultural water to firm up their ability to provide water necessary for health and safety to consumers across the basin. If mechanisms are not in place for the planned temporary, voluntary, and compensated use of agricultural water for purposes of addressing or mitigating such supply shortages the unintended consequences of solving short term problems will have long term negative affects upon agriculture and the communities reliant on irrigated agriculture.

Viable Irrigated Agriculture

Our vision is a community that maintains a sufficient land and water resource base to allow for profitable agricultural production.

Our third goal is creating a system within which our community maintains viable irrigated agriculture. There are myriad ways that one can view viable irrigated agriculture. We have chosen to define viable irrigated agriculture as the maintenance of the land and water resources for future generations to farm, in whatever capacity they choose. Our goal is not to protect individual farmers, ranchers, tenants or landowners. Our vision is an agricultural community that maintains a sufficient quantity of available land and irrigation water to allow for sustained long-term agricultural production. Thus, also protecting and conserving the many cultural, ecological, environmental, and economic benefits that agriculture provides to the community. Our goal is not the preservation of existing conditions, but rather the preservation of opportunity to participate in agriculture now and in the future

1.3 Context Surrounding Our Goals

The goals of the GVWUA cannot be achieved without proper consideration of the 21st century context in which the GVWUA exists and operates.

Environmental Concerns

Community perceptions and cultural values are changing the way that water resources are managed within the Colorado River Basin. The stewards of natural resources are held to a higher standard in today's world. Look no further than the list of environmental and recreational groups with which the GVWUA engaged in this partnership and outreach building effort to see that the general public is becoming more engaged in river management. The willing partners on the list all represent Colorado River Basin communities and constituencies that value the resource upon which the GVWUA relies.

The water rights enjoyed by the GVWUA membership, and most agricultural users of water on the West slope, are senior within the prior appropriation system to recreational and environmental uses. However, one need not look far to find that Colorado River Basin communities continue to value consumptive and non-consumptive uses that support the human environment that we all enjoy. Clean drinking water, wildlife habitat and access to fishable, swimmable waters are important elements to the human environment on the West Slope. Basin wide drought resiliency must consider the needs of these communities. Successful drought resiliency planning requires that we acknowledge the aesthetic, cultural, and inherent value of the environment. If we do not, we ignore the growing and influential demands of a significant portion of the West Slope and Colorado public. Generational drought resiliency requires a vision of what community values will be 30 years or more from now and acknowledges the need for flexibility in water stewardship as those values and attendant expectations change.

Keeping Land and Water Available for Agriculture

GVWUA goals cannot be achieved without the GVWUA and the broader agricultural community maintaining control of their water rights.

Through the DCP process and the negotiations surrounding the post 2026 Guidelines, Colorado water interests (the state of Colorado, agricultural users, everybody really) must recognize the value the Upper Basin has secured in agricultural water use, and specifically for the purposes of any potential water marketing strategy, in West Slope agriculture.

As agriculture, other water users, and policy makers come to terms with the reality that current demands on the Colorado River are not sustainable in all years, the broader Colorado River community must recognize the drought resiliency that agriculture provides to the entire system. The drought resiliency that the relatively unhardened demand associated with agriculture provides is important to long term plans for mitigating damages created by volatile hydrology. It is difficult, if not impossible, to temporarily remove water for domestic uses, sanitation system support, and fire protection purposes, but with appropriate consideration for agricultural water users and rural communities, temporary, voluntary, compensated reductions in ag demand can be made that support both agriculture and urban protection from short term water supply shortages. Such a competitive advantage that keeps water connected to agricultural land can also effectively and appropriately improve water stewardship.

This process potentially creates a positive feedback that builds drought and economic resiliency for agriculture and the rural communities that economically, environmentally, and socially benefit from the economic and ecological benefits provided by robust agricultural operations.

Rural Communities

The benefits provided by agriculture are becoming widely acknowledged and recognized to be of great importance to the State of Colorado and indeed the entire Upper Basin. The need for evolving food production systems, open space, protection of aesthetic values, wildlife habitat, and carbon sequestration, in addition to the economic and community benefits, provided by agriculture are all growing in importance. Lack of adequate state and Basin wide drought planning and resilience threaten all these benefits, for all Colorado citizens, not just agriculture.

Our rural West Slope communities rely on irrigated agriculture. Irrigated agriculture is the cultural, economic and environmental backbone of many communities on the West slope. The GVWUA water marketing strategy recognizes the importance of irrigated agriculture and continuing to preserve access to land and water for agricultural production. Continued access to, and increased security of, water resources will allow our communities to adjust to changing market demographics and capitalize on yet unknown agricultural markets. Our strategy seeks to avoid the "race to the bottom" with regards to the market price of water. Assuming that free market transactions alone will solve the problem is too simplistic in our view. Frameworks like reverse auctions in water marketing have been discussed and have merit if the solution seeks only to solve a single problem without consideration of other important aspects or consideration of the unintended consequences. The lowest price for water may be desirable for a short-term solution, but we are not advocating for short term solutions. Drought resiliency will be difficult to obtain, but we believe such resiliency can be defined in a broad enough context to include the continued benefit and support of West Slope rural communities.

Policy Makers

It may not matter how the GVWUA creates its water marketing strategy. The decisions about drought resiliency will be made far above the Association's policy making level. However, the GVWUA believes that we have added value to the conversation now, and under the right circumstances, we hope to continue to add value to the evolving search for solutions to the water supply challenges faced by all Colorado River water users. We urge all policy makers to consider the questions, concerns, hopes, and aspirations of west slope agricultural that are being diligently surfaced.

It is clear from our outreach efforts that there must be shared benefit and shared burden. Recognizing these shared burdens is important and has been the primary topic for many a DM conversation. However, we have encouraged our partners to look at the potential benefits, as well as the very real risk associated with agriculturally produced CCU and we encourage policy makers to do the same. It is not lost on our Upper Basin partners that the Lower Basin stands to gain significantly from DM. West Slope water interests remain deeply concerned about such benefits to the Lower Basin. And they remain concerned about the equitable inclusion of Trans-mountain diverters in the forthcoming shared responsibility calculus.

The GVWUA knows that a water marketing strategy must fit within the existing and future "Law of the River" and within existing and future state law. We are not encouraging wholesale

legislative "fixes" or changes, but merely acknowledging that the policies created will influence our future. The GVWUA believes it is critical to recognize the importance of the prior appropriation system within Colorado. We believe that any proposed alterations in its design or use should be undertaken with great care.

1.4 Current DCP DM Activities and Preparing for 2026

The GVWUA, through its current and planned DCP and DM activities, intends to encourage and support the appropriate inclusion of West Slope agricultural considerations in the renegotiation of the 2007 Interim Guidelines in the years leading up to finalization in 2026.

Our efforts should not be construed as anxiously awaiting DM or any type of reduced consumptive use within the GVWUA service area. However, there is a recognition that we must take the opportunity to secure our future through this process. Our hope is that the DCP and the renegotiation of the 2007 Interim Guidelines act as a mechanism to ensure that Upper Basin agriculture can survive, so that the next generation of West Slope agricultural producers can make a living as stewards of land and water resources. It is imperative that we take advantage of this moment. If we do not, agriculture may not find a way to be productive and profitable in the face of an over allocated river, a warming climate, increasing environmental demands, and greater population pressure. If the Colorado River Basin fails to create viable drought resiliency plans, not only agriculture loses, every Colorado River water user suffers along with it.

2.0 Element 2 - Scoping and Planning Activities

Introduction to Element 2

The primary goal of Element 2 was to incorporate what we learned and achieved in the extensive BCCU partnership building and outreach activities into the criteria that must be considered when investigating any water marketing strategy. What agricultural, community, environmental, and policy and legal considerations, concerns, and benefits must be addressed in a water marketing strategy? The interests of both potential suppliers and consumers of agriculturally produced CCU, and those designing and administering such proposals must inform any potential proposal to be considered, much less successfully implemented.

Avoiding permanent separation of irrigation water from the land remains the fundamental reason GVWUA is investigating water marketing strategy. *Permanent separation of the land and water resources through a water marketing program creates a scenario in which the control of the water resource can be exported to facilitate short term resiliency but creates long term consequences for the communities of origin. If the control of our water resource is marketed outside of the community permanently the potential future value of the beneficial use of a renewable resource is lost to the West Slope communities it supports. In contrast, keeping the land and water connected helps to ensure that the wealth associated with the control of the water resource and the benefit that provides remains in the community.*

2.1 What Did We Learn from Partnership Building and Outreach?

BCCU partnership building and outreach allowed the GVWUA to build a programmatic framework in which to investigate Demand Management (DM) and water marketing under current DCP agreements internally and externally. This permitted the Association to create a guide by which the GVWUA could scope and plan internal and external actions that informed the issues that need to be considered in a potential GVWUA water marketing strategy. So how did our partnership building, and outreach inform the Association's thinking on how to achieve our primary objective? What did we learn from our agricultural water peers and from non-ag water users, those who would potentially be those interested in agriculturally created CCU?

2.2 Considerations of a Water Marketing Strategy

Why should such a program exist or even be considered? If this question is not adequately answered a DM program risks the lack of support of those most directly affected by it, and ultimately, prove to be an unpalatable solution to Colorado River water issues. Tension and controversy will always accompany policy decisions like the ones we anticipate regarding DCP and DM. The GVWUA continues to follow and support the continued efforts of all of our partners (State, River District, UCRC, etc.) to appropriately inform stakeholders, gather information, and ultimately craft effective, efficient, productive, and politically responsible water policy. But we believe that the entire River Community must be engaged in the debate and we suggest below several reasons **WHY** this investigation should continue.

As explained elsewhere, the GVWUA began its investigations for reasons of protection, profit, and participation. We continue to believe our reasons to be involved in the DCP/DM discussion are sound. The GVWUA has developed internal water marketing contingencies, legal frameworks, monitoring activities, and other mechanisms to allow for flexible water management should it be required. However, we cannot expect that our plans will be beneficial, protective, and furthering of our goals and objectives without the considered

preparation and plans of other water users, those entities that might need additional water supplies in the future, and water policy makers. We believe there to be valid and timely reasons to continue developing potential water marketing strategies.

Hydrologic Conditions

As discussed in Element 1 the scale of the problem is difficult to quantify and understand. Hydrologic conditions are difficult to predict in the short term and little more than educated guesses in the long term. Ill prepared plans involving millions of water users and millions of acre feet of water implemented in the face of a crisis will have devastating effects on agricultural water users. Well-designed plans to address crisis situations require significant time and effort to create. That work must begin now.

There are legitimate reasons to support Colorado's need for domestic, fire protection and sanitation related water needs during a crisis. How this plays out in the marketplace and in the context of Colorado water law and the Law of the River is complicated. But sacrificing agricultural water use on the West Slope to support Front Range urban development will remain unpalatable. However, appropriate voluntary, temporary, compensated use of West Slope agricultural water for appropriate, clearly defined uses by others might help support West Slope agriculture.

Collaboration

Supporting the GVWUA goals requires internal and external participation and strategizing and our scoping and planning efforts during this project were intended to inform not only the GVWUA, but also those entities external to the GVWUA whose action and participation is needed to support a water marketing effort that can meet the GVWUA goals and the water security needs of others. Collaboration and cooperation will continue to be important to mutually beneficial water marketing strategies.

Appropriately informing the renegotiations of the 07 Guidelines and other agreements with the necessary input from agricultural and rural interests is of fundamental importance. Maintaining some level of control of our own destinies, local and regionally, must begin now and continue throughout the process. These solutions will be under discussion by all members of the Colorado River Basin community and; as one commentator put it "…if you aren't at the big table now, you won't even be able find the small table when it matters, much less find a seat."

Water Supply Challenges

There are real and recognized Colorado River water supply challenges created by a warming climate, volatile hydrology, and population pressures. To have a material impact on the volume of water necessary to avoid collapse of the Colorado River system is critical to the success of any water marketing strategy, which of necessity involves agricultural water. It must make a difference and it cannot come entirely at the expense of agriculture or the environment. Many suggest that the 500,000AF Lake Powell pool of Upper Basin DM water is inadequate. Without weighing in on that debate, we suggest that much can be learned by employing a programmatic approach to learning how to accommodate this amount of potentially conserved water.

Continued evaluation of the necessity and level of DM and alternative mechanisms of achieving resiliency will be an ongoing requirement that cannot be determined at the outset.

This will be a long term, evolutionary process and involvement in that process is a necessary condition to protect the interests of agricultural water and rural communities. Creation and assessment of palatable, flexible, and sustainable proposals for water conservation that accommodate unknown and changing circumstances as we search for enough agreement and consensus to achieve a politically negotiated agreement that the Citizens of Colorado will tolerate, or at least not actively oppose, is required for addressing Colorado River water issues.

Further identification of the financial, social, and environmental impacts on the affected economic and resource communities is critical to successful potential DM and water marketing implementation. Further exploration should avoid the assumption that all outcomes and effects are negative. Some impacts may be negative, however, if opportunity exists for appropriate water marketing to have a positive impact on the long-term opportunity to farm and ranch, those opportunities should be explored and captured. Promotion of continued productive conversation that includes agricultural water users in Colorado is a must if this to happen. Emphasis on the individual agricultural business operator and the necessity for programmatic resiliency that also recognizes private property rights and the importance of individual agricultural business decisions must be maintained.

And finally, only learning by doing can raise and address the right questions, concerns, and aspirations of Colorado water users. Most of these topics are beyond the scope of this project. The GVWUA BCCU Project addresses primarily those actions that the Association can control. But we are very interested in the broader issues beyond our scope as they affect the overall milieu in which our thoughts, plans, and actions must operate and are issues of philosophical and policy importance to the GVWUA. The GVWUA believes that only by active, actual, on the ground, in the ditch, and in the board room programmatic investigation of water marketing of agriculturally created CCU can the sample of topics below be addressed.

Equity and Fairness: Shared Burden, Shared Benefit

Equity is a difficult topic to frame and understand. A few things we have learned and questions that need explored include:

- The political and cultural importance of recognizing and supporting the expressed values of the people of Colorado must be included in the discussion.
- Identification of the financial, social, and environmental impacts on the affected economic and resource communities.
- Equity and opportunity for whom: agriculture, municipalities, small communities, the river; Colorado taxpayers, and other members of the Upper and Lower Basin River community; equal opportunity or shared pain?
- How much are we willing to spend on what values and for which purposes, which communities?

The Purpose of Demand Management

Two nearly unanimously endorsed comments related to DM activities emerged from the agricultural community we visited, including the GVWUA Cooperators:

DM should be done for purposes that benefit Colorado's need for domestic, fire protection, and sanitation related water needs first and foremost, directly or indirectly, and not provide

benefit for non-critical water needs such as landscape water. **DM should not just beget the need for more DM.**

DM must make a material positive impact on the volume of water for the aforementioned purposes as related to avoiding compact curtailment or collapse of the Colorado River system. **DM must make a difference.**

2.3 The Managed Market

Who decides what the market for CCU looks like, who is included and who is not; can appropriate price be discovered; how far will we go to create a market or a "managed market"; how is the necessary due diligence conducted? Such are the issues affecting a potential GVWUA water marketing strategy. We mention a few of the obligations and responsibilities of the so called "Market Maker" below:

- Analyze what water can be involved in a transaction: Who is providing that water and under what circumstances is water conservation appropriate? A successful market structure must recognize the additional organizational, operational, administrative, and transactional costs appurtenant to agricultural water transactions.
- Consider potential buyers and sellers, financing and economics and determining the scalability and potential for water delivery.
- Identify the mechanism by which policy makers and the larger community creates a regulated or "managed market"? The market mechanism provides value and efficiency but may prove incapable of recognizing and valuing negative and positive externalities of large-scale water marketing. Questions of price, timing, duration, location and frequency remain and likely require management within the market context.
- Make the opportunity to participate in DM at "Market Maker" price targets available equitably to all those interested to the greatest extent possible, recognizing that all water may not be appropriate or available at certain prices and under specified terms and conditions. Will a program be able to secure sufficient participation and distribution at prices offered in a managed market? While providing that the opportunity to participate is available to any water users who may want to participate?
- Agricultural DM Programs should allow for significant latitude amongst water users to create competitive, flexible, verifiable, effective programs based on local conditions that meet the needs identified in the DM objectives by the Market Maker. Caps, guidelines, or other limitations on geographically specific DM subscriptions could limit potential negative consequences arising from such participation while at the same time allowing for the variations that will arise from available CCU sources.
- The Market Maker must coordinate with individuals, water providers, conservancy or conservation districts in specific locations considering DM activities to assure local determination that such caps, guidelines, or other limitations are indeed adequate, manageable, and acceptable. Identification of the costs and benefits of supporting economic and ecological services during a crisis and related water marketing activities is important. Continued coordination must be provided between a "Market Maker" and individuals, local water providers, water conservancy and water conservation districts in specific locations to ensure local determination surrounding guidelines, caps, or other manageable limitations.

These internal and external fears, concerns, questions, comments, complications, and hopes and aspirations informed the GVWUA Water Marketing Strategy proposal in Element 3 which follows.

3.0 Element 3 –GVWUA Water Management Strategy

In the previous sections we described the outreach and partnership building the GVWUA engaged in during this project as well as the outcome of scoping and planning activities undertaken by the GVWUA. Additionally, we began to describe the type of program our water marketing strategies potentially support in the context of DM. We have not attempted to create a template for other organizations, nor do we think other organizations should utilize our investigations as a template, but rather, potentially our experiences can encourage other water users and policy makers to initiate or continue the tough conversations they need to have. Entities will need to decide internally what makes sense for them. We would suggest each organization will need go through some type of thorough discovery regarding flexible water management as the river community comes to terms with the impact that drought contingency and drought response will have on their water supply.

This section of the report is written in the context of demand management and creating conserved consumptive use to support basin wide drought resiliency and GVWUA water security. Conclusions could be drawn between this and other motives for creating CCU. However, it should be stated that the GVWUA has not thoroughly investigated and may not support a water market for any purpose other than Basin wide drought resiliency.

3.1 Description of Water Marketing Implementation

The GVWUA has experience implementing water markets internally through its work with the GVWUA Conserved Consumptive Use Pilot Projects. The CCUPPs were pilot projects that provided a mechanism for the Association to discover how the implementation of water marketing within its service area affects its operations and the agricultural producers who would participate in water marketing.

Both years of the CCUPPs were designed, implemented and managed by the Association. We understand that “control” of a future DM program may not be feasible, possible or desirable depending on numerous factors. In this section we outline multiple visions for implementation of water marketing activities within our service area. Who manages, funds, or supports a water marketing program moving forward is somewhat irrelevant to the implementation described here in, as long as the program itself is developed within the framework described in section 1.2. and helps meet the GVWUA water marketing goals.

It is important to communicate through this project that the GVWUA is attempting to inform its internal strategies as well as the potential strategies taken by others in the Basin. One of the most important aspects of this exploration of water marketing is that any program must be a program that the GVWUA can manage internally, within the scope of its existing operations, agreements, and mission to deliver irrigation water to the shareholders of the Association. The following sections outline certain elements of a program that can inform what is appropriate for GVWUA participation in any water marketing efforts.

Agronomic Flexibility

During the CCUPPs, six (6) distinct program activities were offered. Multiple methods of conserving consumptive use were developed to offer flexibility to potential cooperators in creating

CCU. These methods were referred to as "program activities". The program activities utilized in the 2017 and 2018 CCUPPs required cooperators to begin fallowing at the start of the irrigation season; generally, around April 1st. Each program activity had a different completion date allowing cooperators to choose the duration of their participation and when they would like to begin applying irrigation water and bringing each field back into production. A description of the six program activities available across the course of the CCUPP can be seen in Table 2 along with the acres enrolled in each program over two years.

Table 2: Program Activities

Program Activity	Fallow Period	Acres Enrolled
Full Fallow (FF)	Entire irrigation Season	590
Fallow Until October 1 (WW)	April 1 thru October 1	1126
Fallow Until September 1, (SS)	April 1 thru September 1	562
Fallow Until August 1 (AA)	April 1 thru August 1	43
Reduced Delivery (RD)	Varies	unsubscribed
Summer Fallow (SF)	May 15 thru October 1	unsubscribed

The program activities utilized during the CCUPPs were successful in meeting the objectives of the pilot project but we discovered through this process that water marketing program activities should not be limited to only the options offered in the CCUPP and in fact considerable flexibility in program activities that meet programmatic objectives should be allowed to the extent administratively possible. One goal of the CCUPP projects was to determine a mechanism that allowed water conservation to fit within existing rotations and cultural practices, and the CCUPPs were relatively successful in that aim. However, given the likelihood that water conservation will be a part of any resilient future the program activities themselves should seek resiliency through maximum flexibility.

Flexibility in program activities helps the GVWUA meet its goal of viable irrigated agriculture. We know what agriculture looks like in the Grand Valley now but have no idea what the next generation of agricultural producers will want, need or how their business models will be structured. Agronomic flexibility will allow them to structure business plans that incorporate water conservation.

During the CCUPPs, the Association made a decision to limit agronomic flexibility in order to decrease the technical challenges associated with administering the program. This was accomplished by requiring and enforcing strict rules about the appearance of each field. Image 1 below is an example of a field in the program. While this was a successful strategy during the pilot project, the GVWUA encourages DM conversations and future pilots to increase the monitoring capacity of any program administration to a level that allows substantial agronomic flexibility.

Image 1: Example of field in CCUPP. Note absence of all growth.

Potential Forage Program Example

Even with the six activities offered to cooperators in the CCUPP there is still a need for increased flexibility and opportunities. Our program activities allowed for single year participation with minimal disruption to the operations of the cooperators. However, we believe that there is a need, and in fact an opportunity, to create program activities that allow for water conservation to act as an important element of an individual agricultural enterprise business plan that involves a diversity of agronomic choices, including water conservation.

We have developed one example of a potential water marketing activity that could be implemented over a 5- to 7-year time frame within the service area of the GVWUA and work in concert with livestock grazing and forage production.

Livestock production remains the dominant economic engine of west slope agriculture and the next 30 years of agricultural water use on the west slope will likely remain dominated by beef production. At a minimum, cow calf operations will remain an integral part of the agricultural landscape for the foreseeable future.

A medium-term conservation program (five years for example) with significant flexibility could fit within existing operations and perhaps even encourage increased investment in value dense production. The following tables and figures outline examples of a 5-year program that could lead to significant water conservation and encourage increased value dense production.

The 5-year forage example could be modified significantly, and certain technical research or proof of concept pilot projects may be necessary to increase confidence levels for such conservation activities for parties on both sides of the transaction. Additionally, the example could be modified by term, yield, and activity to suit the needs of either party.

Table 2: 5-Year Forage Program Example

5-yr forage program conservation yield	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
yield (%) water (est.)	0	50%	65%	65%	100%	80%	0%
yield* (ac-ft/ac)	0.00	1.40	1.82	1.82	2.80	2.24	0.00
Conservation activities	Full irrigation Fall planting of forage crops	Full spring irrigation, harvest thru June 30, limited fall irrigation	Spring grazing, limited irrigation	spring grazing, limited irrigation	Full Fallow, cover maintained	Fallow until Sept 1, re-establish rotation	Full irrigation

* Yield data is estimated for illustration and not based on specific technical analysis

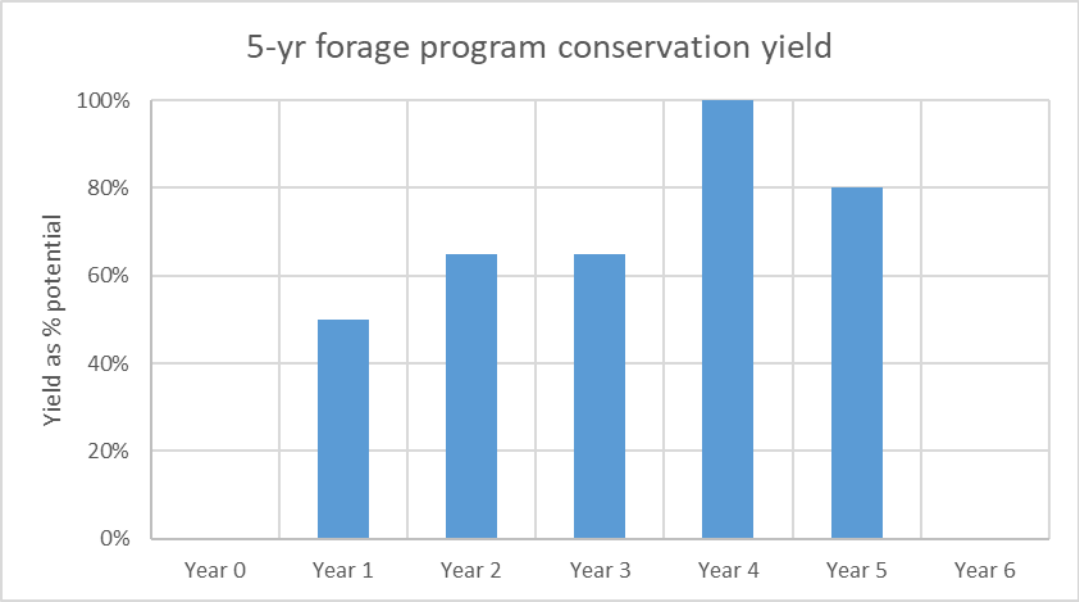

Figure 2: 5-Year Forage Program example yield (as percent of potential)

3.2 Program Duration - What's Temporary?

The previous section leads us directly into a discussion of program duration. How long should conservation take place? The GVWUA position is that the duration of the conservation activity is subject to multiple factors and likely there is room for significant diversity and flexibility surrounding activity duration. In this section we will explore further options that could potentially meet the GVWUA goals and provide mechanisms for flexible water management.

Long-term Plans

Potentially long-term agreements could generate a known, acceptable and consistent mechanism for water conservation. When discussing long-term arrangements, we have assumed that the time period would be approximately 30 years. Water conservation would not occur in all years or even most years, but the agreements would be in place and provide certainty to both parties. It is difficult to make many decisions beyond the 30-year horizon for a few reasons:

- 30-year agreements begin to bump up against the 2057 expiration of the Upper Basin storage agreement, suggesting that this length of time is maximum timeline of conservation for that purpose.
- We have avoided thinking about water conservation or long-term agreements in

perpetuity. Conservation easements on agricultural land in the west slope have tended to be "forever" and many of those agreements do not provide sufficient flexibility to allow for water conservation. We are assuming that additional solutions may exist, and that additional land use flexibility may be appropriate for the next generation of agricultural water users.

Long term conservation easement style agreements potentially provide additional benefit to the community, including:

- Ensuring a baseline of acreage is available for agricultural production within the valley.
- Forestalling development pressure by providing a mechanism to re-capitalize on the value of the land and water resource during family and business transitions.

Single-year Programs

Water conservation activities will need to include an element that is flexible and nimble to meet unknown conservation demands. Flexibility in program activities can be offered if the option to quickly create conserved water exists. Similar to the CCUPP, it is advantageous to have conservation activities that can be "turned on" or "turned off" quickly while fitting in with existing crop rotations.

Intermediate-term Programs

Intermediate-term programs refer to activities similar to the ones described in section 3.1 utilizing the example of beef production and water conservation practices working within an operation. However, this type of conservation could be extended to a nearly unlimited number of examples. Perhaps a vegetable producer can rotate land utilized for high value production. Or a commodity grain producer can secure sufficient water conservation contracts to allow investment in an increased land base and rotate through those acres over a 10-year land payment period. The possibilities are nearly endless and the opportunity to capitalize on the certainty of income over an intermediate term decreases the risk associated with new, additional or existing agricultural operating plans.

Mixed-term Programs with single-year Options

It is possible that drought resiliency may require the ability to secure long-term contracts with the ability to "ramp up" conservation as conditions worsen or need arises. A contract for water conservation could be written such that an agricultural producer receives a yearly payment to maintain the option that conservation can occur (with a subsequently higher payment) in future years.

3.3 Payment Terms

Payment terms should follow a traditional agricultural payment structure. We envision two obvious options with others that could be developed. The GVWUA has no intention of limiting the flexibility of business transactions. The two terms we would suggest are:

Two payments per year (50% each), April 1 and November 30th. This allows for income to be realized before operations for that particular irrigation season ramp up and before the end of the year when traditionally other payments (mortgage, operating loans, etc.) are due.

A single end-of-year payment similar to selling commodities after harvest.

Both options allow for some type of performance guarantee to be included before the full payment is made should that be a desired element to a program.

3.4 Description of Monitoring Activities

The "Law of the River" and legal framework surrounding the DCP and potential agreements between the Basin states will affect the GVWUA future as agreements are reached and plans set in motion to decrease risk across the basin. Any water marketing strategy the GVWUA creates needs to be articulated with the existing DCP agreements and any statewide DM program. By informing and working in concert with the Big River policies, the GVWUA can hope to achieve its goal of Basin wide resiliency. There are legal considerations that we must consider during this process, and this section outlines some of the GVWUA efforts to protect its organization as the basin considers significant changes to management of the water resource.

Throughout our work on this and other projects the GVWUA has participated in the early stages for three reasons:

- Protection
- Benefit
- A seat at the table

GVWUA has begun to develop a legal framework related to water marketing in an effort to better understand the mechanism by which it protects existing shareholders who do not want to participate in basin wide resilience through reduced water usage, as well as those shareholders who may contemplate voluntary, temporary, compensated reductions in water use. The elements we have identified that require significant thought regarding protection are:

- The GVWUA water right of 730cfs. This is paramount and of utmost importance.
- The Association membership at-large. Each shareholder has the right to the continued beneficial use of the shares which they have acquired as a private property right. Any water marketing activities undertaken utilizing a portion of the 730cfs water right must not jeopardize any other shareholders ability to put water to beneficial use.
- The private property rights of individual members who wish to participate in a water marketing activity.

Internal Administrative and Legal Issues

It has not been an easy process to develop internal protections for the Association. Significant effort was required by staff, legal counsel and the Association directors. At this stage of developing a water marketing strategy, the GVWUA developed a Demand Management Bylaw and is working on a Demand Management Policy as a mechanism for internal legal protections.

We do not envision either the Demand Management Bylaw or a Demand Management Policy as necessarily being a permanent solution to all of GVWUA's concerns. The landscape surrounding Demand Management continually evolves and changes.

An element that creates serious concern within our organization at one stage may be diminished at a later stage of the process as more information is gained, further legal protection is provided externally, or an idea is simply removed from consideration by the river basin community. Just as likely, however, is that a policy, law or program may be altered or created that brings the need for further consideration for protection internally by the Association.

GVWUA Demand Management Bylaw

Effective November 8th, 2018 the GVWUA Board of Directors adopted a Demand Management Activities Bylaw. The bylaw itself is not available to the public but shareholders are welcome to request a copy. Further refinement and changes to the bylaw are anticipated as the landscape surrounding DCP and DM continue to evolve. The bylaw adoption is intended to ensure that shareholders do not unilaterally decide to enter into water conservation agreements without the consent and knowledge of the GVWUA staff and board of directors. While the GVWUA is not insisting that shareholders are precluded from participating in water conservation activities it is taking the opportunity to ensure that any conservation efforts undertaken are in accordance with its goals. More importantly the Board must ensure that conservation activities do not negatively affect the water right, operations, shareholders or existing contracts of the GVWUA.

GVWUA Demand Management Policy

A formal GVWUA Demand Management policy is currently in draft form and is undergoing review and editing by directors, counsel and staff. While the GVWUA is not making the policy public in this document some important aspects of the policy under consideration are:

Ensuring that activities undertaken by shareholders do not negatively affect water delivery to other shareholders, that the Association is not negatively affected by activities undertaken by shareholders, and that the GVWUA water right is protected throughout any activities undertaken by shareholders.

External Legal and Administrative Issues

Consistent with our goals, water marketing undertaken utilizing the GVWUA water right will need to support Basin wide drought resiliency. With that goal in mind, any water marketing that takes place will be a part of some larger plan. In order to meet our first goal of providing water security to the Association that larger plan must decrease risk that water will be unavailable at any given time to the GVWUA water right. We anticipate additional external legal frameworks within which our water marketing strategy would potentially be implemented that protect the state of Colorado and the Upper Basin, and we encourage the development of those frameworks.

The State of Colorado does provide some legal protection for conservation projects and we anticipate that those protections will remain and potentially will be adjusted if necessary. The following statutes provide some level of water rights protection.

C.R.S. § 37-92-103 (2) defines what constitutes abandonment of a water right under Colorado law and it excludes periods of nonuse of the water right as the result of participation in:

"(I) A water conservation program approved by a state agency, a water conservation district, or a water conservancy district;

(II) A water conservation program established through formal written action or ordinance by a municipality or its municipal water supplier;

(III) An approved land fallowing program as provided by law in order to conserve water;

(IV) A water banking program as provided by law;

(V) A loan of water to the Colorado water conservation board for instream flow use under section 37-83-105 (2); or

(VI) Any contract or agreement with the Colorado water conservation board that allows the board to use all or a part of a water right to preserve or improve the natural environment to a reasonable degree under section 37-92-102 (3)."

C.R.S. § 37-92-305 (3) (c) protects the quantification of historical consumptive use of water rights in all of the water divisions except for Water Division 7. It provides that "the water judge shall not consider any decrease in use resulting from the following:

(II) The nonuse or decrease in use of the water from the water right by its owner for a maximum of five years in any consecutive ten-year period as a result of participation in:

(A) A water conservation program, including a pilot program, approved in advance by a water conservation district, water district, water authority, or water conservancy district for lands that are within the entity's jurisdictional boundaries or by a state agency with explicit statutory jurisdiction over water conservation or water rights;

(B) A water conservation program, including a pilot program, established through formal written action or ordinance by a water district, water authority, or municipality or its municipal water supplier for lands that are within the entity's jurisdictional boundaries;

(C) An approved land fallowing program as provided by law in order to conserve water or to provide water for compact compliance; or

(D) A water banking program as provided by law."

Protecting Private Property Transactions

Since the inception of the Grand Valley Project irrigated properties have changed hands, no different from any other purchase of private agricultural land. Transactions have historically been between a selling farmer and a buying farmer. However, in relatively recent history communities within the service area have begun to expand and suburban development has begun to encroach upon the irrigated lands of the Grand Valley. At no point in its history has the GVWUA Board of Directors or staff attempted to stand in the way of any private property transaction. This time in our history is no different. The GVWUA has done everything in its power to ensure that development, agricultural or urban, does not negatively affect its shareholders and it will continue to do so.

It is with some concern that the GVWUA hears that certain elements of state government are exploring "speculation" as it relates to agricultural properties. Colorado has a long history of limiting water rights speculation and this has been an important doctrine in Colorado. The anti-speculation doctrine has required that the resource be appropriately utilized and has prevented people from securing access to the resource simply to capitalize on the increasing value without an identified beneficial use or as a mechanism to create scarcity. However, purchasing land and the associated water rights of the Grand Valley Project does not fit the same definition of speculation. We do not believe it is appropriate for private property transactions to be limited or considered speculative when the underlying agricultural water use will be maintained.

Description of Potential Contracts

It is hard to determine exactly how potential water marketing contracts would be put together at this stage, when so many unknowns surround the issue of Demand Management. However, from the GVWUA perspective we understand that contracts will need to be setup in a manner that supports our goals. In this section we outline a contracting framework with potential to support the GVWUA goals.

We can use the CCUPP contract as a guide. The elements addressed within the original contracts were:

- Term (contract length)
- Enrolled Lands
- Program Activities
- Payments
- Verifications
- Management
- Additional agreements and representations of Cooperators
- Miscellaneous
- Provisions

The CCUPP contract was created for a pilot project with a defined "stopping place". We knew when developing the CCUPP contract that the activities were short term and created for a pilot project for the purposes of furthering the Association's understanding and creating opportunity to learn from any miscalculations. A water marketing program of significant duration will require more careful contracting and care in determining the potential consequences of any contract language developed.

We recognize that water markets may take numerous forms, for purposes of this project, and our understanding of the type of water marketing the GVWUA would currently support, that comports with the current DCP agreements, we have assumed contracts will be between a willing seller (agricultural producer) and most likely a single entity entering into or overseeing numerous contracts across the state of Colorado. Under any of water marketing proposal, the GVWUA is party to any contract for marketing of the water resource. This raises a number of issues that must be addressed within the contract language in order to support the GVWUA goals.

3.5 Description of Monitoring and Verifications Activities

Monitoring activities are an important element of any water marketing transaction. All parties must be comfortable with the agronomic, technical and legal aspects of temporarily moving water from one use to another. Monitoring activities play an important role in ensuring that contract terms are met. Given that this report and the work done to date has been largely exploratory in nature we have not developed the monitoring activities that might be required. However, previous experience and multiple conversations with stakeholders allow us to begin to build a monitoring framework appropriate for a program that meets the GVWUA goals.

Previous Monitoring Experience

Monitoring during the CCUPPs was a serious endeavor. Each field was visited at least three times during the irrigation season; additional compliance checks were performed on any fields that did

not meet required standards until full compliance was achieved. An initial compliance check was performed at the start of the irrigation season (early April). The second round of compliance checks were conducted at the approximate mid-point of the "Fallow Season" of the specific program activity for each field. Each field was visited a final time at the end of its "Fallow Season". Additional site visits for non-compliance were conducted a week after the initial compliance check to provide enough time for evidence of herbicide efficacy to appear, if chemical fallow was implemented.

A typical compliance check was performed in-person by trained, technical staff with photographs taken of each field for evidence and record keeping. When herbicide was used for control of weeds and vegetation, visits had an element of subjectivity and required technical staff knowledgeable enough to make determinations of efficacy. If mechanical tillage was the primary source of weed control, compliance was significantly easier to determine.

Site visits were followed up by the prompt recording of photos, notes and data. Each cooperator was notified via phone of the compliance status of their fields. Minor disagreements occurred with fields out-of-compliance but were quickly resolved. It was extremely important to have knowledgeable and respected field staff capable of making decisions that meet program requirements and provided the appropriate level of flexibility to cooperators. At the end of each CCUPP, all compliance records were compiled and provided to cooperators, the Association, and financial stakeholders to validate that program goals were accomplished.

Moving Monitoring and Verification Activities Forward

The 2017 CCUPP experimented with remote monitoring (via LandSat imagery) during much of the season. The data obtained validated on-the-ground observations. The remote sensing data often correlated with site visit observations. The data, however, did not have enough resolution to ensure that a site was in complete compliance throughout the season. Additionally, remote sensing did not provide the historical record of compliance with enough confidence to utilize remote sensing alone and did not provide any data on evapotranspiration. It is our belief however that remote sensing technology will likely play a role moving forward. The cost of on-the-ground verification is high and likely unnecessary for all program types and activities. Satellite imagery combined with algorithms developed to estimate ET will allow for flexibility and decreased transaction costs. However, there is no substitute for appropriate on the ground verification by qualified, local staff.

Potential Support Tools

Support tools will be necessary in order to execute water marketing projects. Support tools will be valuable in decreasing the transaction costs associated with water marketing. Water rights transactions have historically been quite expensive in Colorado driven by the need for providing technical and legal certainty to water rights owners who are not party to the transaction. The transactions envisioned within our water marketing strategy are intended to be temporary. However, for a successful marketing program to work a similar level of certainty must be reached and confidence created to ensure that transactions will not negatively affect other water users. Depending on the scale and duration of conservation activities the transaction costs could be a significant portion of the cost associated with the conservation efforts and will therefore demand certain tools be developed. Tools that could be developed:

Consumptive Use Tool

Estimating CCU can be difficult. Actual water use varies and is a function of multiple variables such as crop type, soils, solar radiation, temperature and wind among others. There are multiple efforts under way throughout the river basin to develop tools that can estimate consumptive use utilizing satellite imagery combined with other technology to relatively quickly determine consumptive use in short time steps. The GVWUA encourages these efforts and supports the use of such tools.

Shepherding

Shepherding water to (and potentially through) the GVWUA and within the system of water rights in Colorado and the other upper basin states is no small task. The GVWUA has limited if any ability to influence how this takes place. However, for the GVWUA to engage in water marketing activities certain tools must be developed that ensure that conserved water is conveyed downstream or exchanged upstream into an appropriate storage reservoir or otherwise conveyed appropriately to a destination.

Dashboard(s)

Water user dashboards are not currently available to members within the GVWUA but given the fast adoption of smart phone technology amongst the community it is possible that dashboards could be made available and become a useful tool. GVWUA operations staff would have a real time indication of water use and the data necessary to ensure that water delivery is appropriate given conditions of a water marketing agreement.

4.0 Conclusions

The Grands Valley Water Users Association continues to investigate Drought Contingency Planning (DCP) and Demand Management (DM) for three primary reasons: protection, benefit, and participation. Potential GVWUA water marketing strategies and related issues are of primary importance to the GVWUA. Only by identifying and understanding the multiple perspectives and contexts in which the GVWUA must consider such possibilities can we successfully achieve our fundamental purpose avoiding the permanent separation of irrigation water from the land. And only by achieving that purpose, can the continued opportunity to be engaged in agriculture be supported and sustained.

During the course of the Beyond Conserved Consumptive Use Project the Association successfully investigated and outlined the parameters in which palatable, productive, and profitable water marketing strategy might be created and employed in the GVWUA. We built relationships and reached out to GVWUA members and other irrigators who could potentially create CCU from DM. If one is investigating a potential market, both buyers and sellers must be included in the conversation, so we included extensive conversations with those who might be demanding the CCU supply created by agricultural demand management.

Based upon those investigations, the GVWUA set forth a potential path by which a Productive Water Marketing Strategy could be considered and potentially implemented by the GVWUA. It is important to note that many of the questions and concerns of the broader Colorado River community will have significant impact on any water marketing strategy that the GVWUA may consider. Many of those issues, noted in this BCCU Report, are well beyond the Association's ability to determine. But we hope that by the expanding the conversation that we have advanced the agenda for the GVWUA, West Slope agriculture, and the State of Colorado.

Thank you,

Grand Valley Water Users Association

Appendix A – List of Partners

American Rivers
Audubon Rockies
Aurora Water
CA Colorado River Foundation
Colorado Ag Water Alliance
Colorado Cattlemen
Colorado River Water Conservation District
Colorado State University
Colorado Water Trust
Colorado West Land Trust
Colorado Water Conservation Board
CMU Hutchins Water Center, Hannah Holm
Denver Water
Dolores Water Conservancy District
GVWUA Board, CCUPP Cooperators, and interested membership
Multiple West Slope Irrigators
Northern Water Conservancy District
Orchard Mesa Irrigation District
Palisade Irrigation District
Rivers Edge West
SCPP Funders
Southwest Water Conservation District
The Nature Conservancy and Supporters
Tri-State Generation and Transmission
Trout Unlimited
UCRC
Upper Gunnison River Water Conservancy District
Upper Yampa Water Conservancy District
USBR Western CO Area Office and Upper Colorado River Region
Ute Water
Uncompahgre Water Users Association
Western Colorado Horticultural Society
Western Resource Advocates

Additional thanks to the many individual water users and members of the water community who participated and supported this project.