Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
1	3/5/2015	Anne Esson, Colorado citizen	Email sent to cowaterplan@state.co.us through Hannah Holm, Water Center at Colorado Mesa University	Clearly the need for more water on either slope is influenced heavily by the sheer growing numbers of demands and users. Imprudent development and growing water-intensive crops in a semi-desert should be curtailed. The demand curve for water is already exceeding the supply one. Compromises offering more TMDs, even under very limited circumstances, will only encourage water addicts on the Front Range & elsewhere, while leading to further degradation of mountain streams and watersheds. However well-meaning, such compromises at this point make West Slope Roundtable participants little more than enablers. The first "theme" the State Plan should proclaim is that our rivers cannot sustainably supply all water demands. If decision-makers cannot solve this problem, they should at least not further harm our rivers with more TMDs, thus encouraging still more unrealistic demand.	N/A	The current course Colorado is heading down leads to several of the results that the commenter mentions. For instance, without action, up to 35% of Colorado's farms in the South Platte could be dried up. This is one impetus for why Colorado is pursuing the development of a water plan. Colorado's Water Plan will yield better results through support of conservation, reuse, sharing agreements between farmers and municipalities, incentive-based of water-smart land use, and the development of multi-purpose projects and methods. Colorado's Water Plan and the technical work that supports it includes three growth scenarios: low-growth, mid-growth, high-growth. As water planners, Colorado must prepare for any of these future possibilities as we do not have control over the state's economy and how many people are born or choose to move here. While some communities choose to limit growth, doing so on a broad statewide scale is untenable and unconstitutional. The CWCB worked with each basin on their Basin Implementation Plan and will continue to encourage all interested parties to do the same during implementation. With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work.
2	3/9/2015	Bill DeOreo, Colorado citizen	Email sent to cowaterplan@state.co.us through Kevin Reidy	Specific, redline comments on Water Demands Chapter 5	1 document	Additional technical detail related to the comments and commenter's questions is provided in the Statewide Water Supply Initiative (SWSI) 2010 report and more detail will be provided in the next SWSI update. CWCB will work to better define what recreation means in Colorado's Water Plan.
3	3/13/2015	Tania Landauer, Colorado citizen	Email sent to cowaterplan@state.co.us through Hannah Holm, Water Center at Colorado Mesa University	I think that rampant development and over-marketing of Colorado is a big part of the problem. Colorado is one of the fastest growing states in the Union, and development is approved without considering the impacts on our limited and fluctuating water supply. City and town governments need to look at the growing gap between water availability and existing demands on that water before new building is allowed. Municipalities need regulations with some teeth and they need to enforce the regulations, thereby ensuring that water will be available well into the future to meet the needs of each new development considered. No doubt, however, governments receive financial benefits by "being in bed" with developers and short term greed is going to kill the proverbial "goose that laid the golden egg" in Colorado as well as everywhere else in the U.S. that is over marketed as we are. We must consider the reality of global warming as it will most likely lead to diminished snowpack in the future thereby widening the gap between water supply and demand. Population explosion is at the root of this problem as is human greed. We have forgotten that we are part of the biosphere. We are not separate from the earth that supports us. We cannot continue to manipulate it ad infinitum. Eventually Mother Nature will wipe us out if we cannot figure out how to live in balance with her.	N/A	Colorado's Water Plan and the technical work that supports it includes three growth scenarios: low-growth, mid-growth, high-growth. As water planners, Colorado must prepare for any of these future possibilities as we do not have control over the state's economy and how many people are born or choose to move here. While some communities choose to limit growth, doing so on a broad statewide scale is untenable and unconstitutional. The CWCB worked with each basin on their Basin Implementation Plan and will continue to encourage all interested parties to do the same during implementation. Climate change could have a serious effect on Colorado's water supplies, consequently, Colorado's Water Plan factors in an altered climate in 3 of the 5 scenarios examined in the planning process. Additionally, climate changeis addressed throughout Colorado's Water Plan, as it is likely to effect a multitude of sectors. However, the exact impacts of climate change remain uncertain; and while it is clear temperature's are, and will continue, rising, there is less consensus surrounding precipitation. Scenario planning enables the state to prepare for a wide range of possible futures to capture, and prepare for, such uncertainty. Specific climate change adaptation and mitigation recommendations are not addressed in Colorado's Water Plan but are being addressed through other statewide efforts.
4	3/20/2015	National Park Service - sent by Rob Billerbeck	Email to cowaterplan@state.co.us	We would like to respectfully submit the attached comment letter from the National Park Service to the CWCB regarding the Colorado Water Plan. We greatly appreciate the opportunity to comment on this process. I'm also CC'ing the chairs of 3 western basin roundtables as some of these comments are relevant to the revisions they are currently making to their BIPs and because these basins are most directly connected to Dinosaur, Black Canyon/Curecanti and Arches/Canyonlands national park units. Please feel free to contact me at 303-987-6789 if there are concerns or questions regarding this letter.	1 document	As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill, which just passed. CWCB is also currently working on guidance for a stream management plan grant program, and working to further define and clarify what stream management plan means in Colorado's Water Plan. With regard to new transmountain diversion projects, the IBCC continues to work on developing a draft Conceptual Framework which explores innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Regarding the comments on economic metrics, while CWCB would like to use consistent metrics for each category of water use, these data are not currently available. CWCB is exploring how to develop this level of information in future work. If Colorado and the other upper basin states had to implement the activities considered within contingency planning, it would do so in a manner consistent with the protection of instream flow resources, including the endangered fish species. Colorado's Water Plan will be updated to include this language.
5	3/20/2015	Drew Beckwith, Western Resource Advocates	Email to cowaterplan@state.co.us	Comments on section 6.3.1, 6.3.3. and overall comments.	1 document	As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. CWCB will consider adding language regarding transmountain diversions, agricultural transfers, and storage into the conservation language in the second draft of Colorado's Water Plan.

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6	3/25/2015	Gary Hausler, Colorado citizen	Webform	The draft Water Plan ignores consideration of one action that can actually provide "new" water to Colorado and other states effected by water shortages. That action is water importation from out of state. Current HB 1167 proposes study of a pipeline from the Missouri River to Colorado's eastern slope. The Kansas Water Authority (KWA) has proposed the Kansas Aquaduct to pipe in excess of 1,000,000 af\year west almost to the Colorado border. This project also has a diversion on the Missouri above Kansas City. The problem with Colorado HB 1167 and the KWA proposal is that there is not adequate water in the Missouri River to provide for significant diversion. The State of Missouri realizes this and opposes both proposals. For over 10 years, I have advocated a project to import an initial 1,000,000 af\year from the main stem of the Mississippi River south of Cairo, Ill. The Mississippi in this area flows an average of 240,000,000 af\year based on over 100 years of US Army Corps of Engineers data. I urge the CWCB to consider my proposal. I have a detailed Power Point presentation which at 2.74 MB exceeds this site's max file size of 2 MB for upload. I made this presentation to most of the Basin Roundtables in the state, the CWCB staff, the Kansas Water Authority as well as many others and would be happy to make it to the CWCB Board. Importation from the Mississippi makes sense. A joint project with Kansas makes sense. The Mississippi represents an immense source of unused water that meets Colorado's future needs and eliminates the need for ag dry-up and additional trans-mountain diversion. This proposal has been ignored and derided for years for political reasons. I hope the CWCB will seriously evaluate it now. I have no financial interest in this project and am not selling anything. I await your reply.	N/A	Water sources from the Midwest have been explored and are not currently viable at this time due to several factors including logistics, federal vs. interstate issues, permitting issues, and energy costs. It is worth noting that other people have proposed this issue at the basin roundtable level, and there are discussions going on statewide.
7	3/30/2015	First half of survey results - Colorado Basin Roundtable Survey - forwarded by Hannah Holm, Water Center at Colorado Mesa University	Email to cowaterplan@state.co.us	Here are Colorado Basin RT survey responses in both summary and detailed form (which includes comments) -same responses, just different formats. **Comments 1-6 from survey: 1**. Don't let the political power of the Front Range water providers dominate the final outcomes of The Plan. **2.** I have concerns about the increase in Oil and Gas Production in the Colorado River Basin and the amount of water needed for those activities **3**. Science based on tree ring data suggests that major droughts may be common in the long term. Climate change models predict a significant decrease in flow over the next century. The upper basin states cannot fully utilize appropriated water that does not or will not exist. **4.** State could put a price on the water. Limit population growth. **5.** Stop development of front range until conservation goals are in place. Watered green lawns for Denver need to be a thing of the past unless they conserve to the level that cities like Las Vegas do. **6**. Smarter agriculture use is paramount. Technology exists and must be adopted. Education is lacking. People don't get the connection between population energy and water.	3 documents	1. Colorado's Water Plan rests on the foundation of the Basin Implementation Plans, created by the Basin Roundtables. Each Basin Roundtable is made up of a diverse set of stakeholders and the inclusion of both an environmental and recreational representative is required by the Colorado Water for the 21st Century Act. In addition, representatives from each county, municipalities within each county, industry, agriculture, and domestic water suppliers are required. Lastly, a representative from each water conservation and conservancy district are also stipulated. There are also several other at large seats, and many of these are held by environmental interests, and many of the local government representatives are also focused on environmental and recreational issues since their citizens care about these topics and the area may be dependent on tourism. Additionally, all Basin Roundtable meetings are open to the public. 2. Fracking currently uses approximately 18,000 acre feet per year, which is a very small proportion of Colorado's overall water use. However, there may be some areas where there are greater regional effects. In addition, power plants that burn natural gas to make energy use less water than traditional power plants. Therefore, from an overall resource management perspective, fracking and the resulting energy production do not consume a significant amount of water compared to current levels. Colorado's Water Plan seeks to work collaboratively to uphold Colorado's water values and does not put a value judgment on any one beneficial use. 3. Nine out of every ten years some portion of the state experiences some level of drought. Moreover drought can carry serious economic and environmental consequences. Therefore it is a natural hazard that the state takes seriously. Colorado is a national leader in drought mitigation and planning efforts, much of which is outlined in the State of Colorado Drought Mitigation and Response Plan. Pieces of that plan have been incorporated into Colorado's Water Plan where appropriate. Climate change could have a serious effect on Colorado's water supplies, consequently, Colorado's Water Plan factors in an altered climate in 3 of the 5 scenarios examined in the planning process. Additionally, climate changeis addressed throughout Colorado's Water Plan, as it is likely to effect a multitude of sectors. However, the exact impacts of climate change remain uncertain; and while it is clear temperature's are, and will continue, rising, there is less consensus surrounding precipitation. Scenario planning enables the state to prepare for a wide range of possible futures to capture, and prepare for, such uncertainty. Specific climate change adaptation and mitigation recommendations are not addressed in Colorado's Water Plan but are being addressed through other statewide efforts. 4. Colorado's Water Plan and the technical work that supports it includes three growth scenarios: low-growth, mid-growth, high-growth. As water planners, Colorado must prepare for any of these future possibilities as we do not have control over the state's economy and how many people are born or choose to move here. While some communities choose to limit growth, doing so on a broad statewide scale is untenable and unconstitutional.The CWCB worked with each basin on their Basin Implementation Plan and will continue to encourage all interested parties to do the same during implementation. 5. The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3. 6. Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4. The development of Colorado's Water Plan has helped to raise the level of importance placed on education and outreach statewide related to water supply planning. The CWCB is working together with the Basin Roundtables (BRTS) to expand education and outreach activities related to raising awareness and Section 9.5 Outreach, Education, and Public Engagement will include recommendations on continuing education on these topics long-term.

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7b	3/30/2015	Second half of survey results - Colorado Basin Roundtable Survey - forwarded by Hannah Holm, Water Center at Colorado Mesa University	Email to cowaterplan@state.co.us	Here are Colorado Basin RT survey responses in both summary and detailed form (which includes comments) -same responses, just different formats. **Comments 7-16 from survey:** 7. One of my greatest concerns is quality of water. Chlorine and fluoride are both toxins and are routinely added to water that we and other beings drink. Also concerned about mag chloride, pharmaceuticals, pesticides, ag runoff, and other toxins that are making their way into the water. 8. Trans mountain diversions are a travesty. No more TMD's. 9. I am strongly against TMD. They are not good for Denver and they are not good for western Colorado. 10. Only question 1 addresses recreational flows. These are extremely important to Colorado's (and ALL of the Colorado River basin) economy. Storage would result in loss of recreational places both under the reservoir and downstream. We've felt this loss acutely in the Dolores River basin which used to support outfitters and other local businesses. Sadly, no more. 11. impact of growing populations, particularly on the eastern slope and lower basin cities. 12. No more Transmontane diversions! The Colorado River Basin needs every drop of water for use in the Upper and Lower Basins where the water has been over allocated since 1922. Conservation and land use need to take priority on the East Slope - no Kentucky bluegrass, promote xeriscaping, better agricultural use of water, recycle water. Nature needs water - minimum stream flows are mandatory and should be improved. People need to conserve more water and/or pay graduated fees - more use means pay a lot more for water. Develop a basic level per person then increase fees a lot past that usage generally speaking. 13. Administration of TMD - build plan to get fair consideration in state legislature. Over-use by lower compact users creates habits, must learn to deal with shortages without insisting on drawing from up-river users. Water costs usually go up when shortages come along. Good administrative practices will control this. 14. Very concerned about new TMDs before we've done all the conservation we can. 15. It is unclear how conservation will be encouraged. The plan does not go far enough in laying out new policies for conservation, land use and ag transfers. 16. Irrigation ag and residential waste tremendous amounts of water. Education. Incentives may be a good approach. Address industrial use.		7. The Water Quality Division of the Colorado Department of Public Health and Environment (CDPHE) regulates water quality issues of this nature in the state. Water Quality has been recognized as critical for Colorado's water future. The CWCB is working closely with the Water Quality Control Division and the Basin Roundtables in order to address Colorado's Water Quality needs. This is further explored in Section 7.3. 8, 9, 14.With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. 10. The CWCB and the Basin Roundtables will be working to support conservation, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan. This is explored in Section 6.6. 11. Colorado's Water Plan and the technical work that supports it includes three growth scenarios: low-growth, mid-growth, high-growth. As water planners, Colorado must prepare for any of these future possibilities as we do not have control over the state's economy and how many people are born or choose to move here. While some communities choose to limit growth, doing so on a broad statewide scale is untenable and unconstitutional. The CWCB worked with each basin on their Basin Implementation Plan and will continue to encourage all interested parties to do the same during implementation. 12. With regard to new transmountain diversion projects, the IBCC provided a draft conceptual agreement which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Xeriscape lawns are allowed statewide. Colorado water allocation and governance has always been guided by local users meeting local needs and Colorado's Water Plan will not change that. Rather than diminishing local control or authority over water, Colorado's Water Plan seeks to strengthen local decision-makers' ability to achieve regional and statewide water solutions. To that effect, Colorado's Water Plan will work to encourage, rather than mandate, several of the points presented in the comments. 13. The state is working vigorously with other upper basin states and the Colorado River Basin as a whole to mitigate any risks Colorado may face with regard to compact compliance and other interstate issues. 15 & 16. The development of Colorado's Water Plan has helped to raise the level of importance placed on education and outreach statewide related to water supply planning. The CWCB is working together with the Basin Roundtables (BRTS) to expand education and outreach activities related to raising awareness and Section 9.5 Outreach, Education, and Public Engagement will include recommendations on continuing education on these topics long-term. Agriculture uses the majority of water in Colorado and is an important economic driver in the state. The Basin Roundtables and the Colorado Water Conservation Board have engaged a number of agricultural representatives, pursuant to the Colorado Water for the 21st Century Act. For further information, please read Chapter 6.
8	3/31/2015	Stan Peters, PS Systems, Inc.	Webform	I would like to introduce you to porosity storage reservoirs (PSRs), and a new implementation strategy on how they might be used in solving Colorado's water challenges. I've attached a visual depiction of a PSR, as well as a copy of the existing SEO guidelines for operation and accounting for PSRs. A brief video clip and more information are available on our website.	4 documents	Colorado's Water Plan addresses aquifer storage and recharge in general, however the plan is not the right place for a discussion of the specifics of this topic. However, CWCB is happy to talk to the commenter and encourages the commenter to share the ideas with the South Platte and Metro Basin Roundtables.
9	4/1/2015	Colorado Agricultural Water Alliance (CAWA) - sent by Charlie Bartlett	Email to cowaterplan@state.co.us	I am attaching CAWA's comments to the draft Colorado Water Plan. CAWA would you like to thank all of you for the opportunity to work together in providing input for agriculture. If you would like to discuss the comments or have any questions please let us know. We are ready to meet and help you in any way we can.	1 document	The IBCC recently formed the Agricultural Viability Subcommittee to address these issues in Colorado's Water Plan and CAWA was invited to participate in that process. CWCB is very committed to further developing additional opportunities for continued agricultural viability in Colorado's Water Plan. Thank you for the comments.
10	4/1/2015	Holly Armstrong, Colorado citizen	Email to cowaterplan@state.co.us	We have to stop taking water from our rivers. We cannot do that forever and should be first implementing methods to save our existing water and use much less. I don't think taxpayers should pay for things like water grabs so that some people are able to continue to waste water.	N/A	The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3. The CWCB and the Basin Roundtables will be working to support conservation, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan.
11	4/4/2015	Sandy White, Member of Ark Basin RT, Colorado citizen	Email sent to cowaterplan@state.co.us through Becky Mitchell	Specific comments on sections and pages in Colorado's Water Plan.	1 document	In response to the comments related to climate change, Colorado's Water Plan will continue to rely on the best science, which does indicate that climate change is happening and therefore the state needs to be prepared as it could have a serious effect on Colorado's water supplies. Consequently, Colorado's Water Plan factors in an altered climate in 3 of the 5 scenarios examined in the planning process. Additionally, climate changeis addressed throughout Colorado's Water Plan, as it is likely to effect a multitude of sectors. However, the exact impacts of climate change remain uncertain; and while it is clear temperature's are, and will continue, rising, there is less consensus surrounding precipitation. Scenario planning enables the state to prepare for a wide range of possible futures to capture, and prepare for, such uncertainty. Specific climate change adaptation and mitigation recommendations are not addressed in Colorado's Water Plan, but are being addressed through other statewide efforts. The commenter is concerned that environmental and recreational uses are not always nonconsumptive and CWCB will work to incorporate caveats similar to what's contained in the Arkansas BIP. Colorado's Water Plan will also include an action plan as part of the revised Chapter 10. Thank you for the detailed comments related to pagination, etc. and CWCB will work to incorporate changes into the second draft of Colorado's Water Plan.
12	4/6/2015	David Congour, Colorado citizen	Webform	After a partial reading of the Draft Water Plan, I have the following comment: I see no mention in the plan on the subject of hydraulic fracturing, or drilling in general. With somewhere around 50,000 active natural gas wells in the state, each one penetrating from one to many groundwater layers, I see this as a major item that needs to be addressed. Even when done properly, and cased with concrete, drilling and casing these wells turbulates the water contained in any aquifers that they intersect. Once the wells are abandoned, they also represent a conduit through the various layers in the geological strata for liquids (water, processed water, chemicals, and natural pollutants). Ground water will also be negatively affected by spillage that is inevitable from holding ponds, etc. As a citizen, I didn't read the entire document, so may have missed any references to hydraulic fracturing, in which case, I apologize.	N/A	The Water Quality Division of the Colorado Department of Public Health and Environment (CDPHE) regulates water quality issues of this nature in the state. Water Quality has been recognized as critical for Colorado's water future. The CWCB is working closely with the Water Quality Control Division and the Basin Roundtables in order to address Colorado's Water Quality needs. This is further explored in Section 7.3. Fracking currently uses approximately 18,000 acre feet per year, which is a very small proportion of Colorado's overall water use. However, there may be some areas where there are greater regional effects. In addition, power plants that burn natural gas to make energy use less water than traditional power plants. Therefore, from an overall resource management perspective, fracking and the resulting energy production do not consume a significant amount of water compared to current levels. Colorado's Water Plan seeks to work collaboratively to uphold Colorado's water values and does not put a value judgment on any one beneficial use. You can read more about this is in chapter 5 & 6.

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13	4/7/2015	Mona Crane, Colorado citizen	Webform	Please help save our planet.	N/A	The CWCB and the Basin Roundtables are working to support conservation, environment, and recreation in implementation of the Basin Implementation Plans and Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan.
14	4/9/2015	Modene Gaulke, Colorado citizen	Email to cowaterplan@state.co.us through George Sibley	Specific comments on water values in Colorado's Water Plan and Gunnison Basin Water Plan.	1 document	The IBCC recently formed the Agricultural Viability Subcommittee to address these issues in Colorado's Water Plan. CWCB is very committed to further developing additional opportunities for continued agricultural viability in Colorado's Water Plan. Funding will help to improve aging infrastructure. Regarding comments related to the political nature of this process, Colorado's Water Plan rests on the foundation of the Basin Implementation Plans, created by the Basin Roundtables. Each Basin Roundtable is made up of a diverse set of stakeholders and the inclusion of both an environmental and recreational representative is required by the Colorado Water for the 21st Century Act. In addition, representatives from each county, municipalities within each county, industry, agriculture, and domestic water suppliers are required. Lastly, a representative from each water conservation and conservancy district are also stipulated. There are also several other at large seats, and many of these are held by environmental interests, and many of the local government representatives are also focused on environmental and recreational issues since their citizens care about these topics and the area may be dependent on tourism. Additionally, all Basin Roundtable meetings are open to the public.
15	4/9/2015	Nelson Chenkin, Colorado citizen	Webform	I live in Fort Collins and am writing regarding the Colorado Water Plan. The conclusion of the December draft states "While this body of work represents an increase in the understanding of Colorado's nonconsumptive needs, there is more work that needs to be done towards understanding and quantifying recreational and environmental needs." I appreciate that the first draft stresses the importance of our environment and recreation economy, and details many environmental and recreational attributes and opportunities. However, I hope statewide commitment for real steps and funding to support environmental and recreational river flows is strengthened as the process continues. Strategies requiring stream management plans for all of Colorado's rivers is important. Colorado needs healthy river flow and riparian areas to keep our state the wonderful jewel that it is. Thank you for the opportunity to comment.	N/A	The CWCB and the Basin Roundtables will be working to support conservation, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan.
16	4/14/2015	Edward Morrison, Colorado citizen	Webform	I like the focus on multiple needs for water. It is important that we understand this complexity to reality. Diverting water is a very big undertaking, even locally. It must be done, if at all, with careful thought. It is true that water can be used for many things at one time and not noticeably decrease the access to water for another user. Agriculture, wildlife, and recreation can often share the same flow, as long as it remains clean and flowing. It can then still be used again downstream. I think municipalities, especially large ones like the front range, have a responsibility to conserve water at all times. I would propose permanent conservation restrictions on city-dwellers like myself as if we were in sever drought all the time; we sort of are in sever drought all the time. Even a good water year should not be an excuse for us to over-indulge - these years can be a chance for other downstream users (who often have actual pressing needs for water rather than lawn watering and long showers) to recover a little from drought years and for reservoirs to recharge significantly. Besides, it will be easier than going in and out of water restrictions. The time is probably coming when large cities will have to impose long-standing restrictions, it will only be helpful (and easier) to do this earlier rather than later.	N/A	With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. The current course Colorado is heading down leads to several of the results that the commenter mentions. For instance, without action, up to 35% of Colorado's farms in the South Platte could be dried up. This is one impetus for why Colorado is pursuing the development of a water plan. Colorado's Water Plan will yield better results through support of conservation, reuse, sharing agreements between farmers and municipalities, incentive-based of water-smart land use, and the development of multi-purpose projects and methods.
17	4/14 & 4/24/2015	Audubon Society of Greater Denver - sent by Pauline Reetz	Webform	Specific comments on sections in Colorado's Water Plan.	1 document	As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a stream management plan grant program, and working to further define and clarify what stream management plan means in Colorado's Water Plan. For decades, Colorado has viewed ground and surface water as inter-related systems. Colorado's Water Plan will be updated on a periodic basis.
18	4/14/2015	Ruedi Water and Power Authority - sent by Mark Fuller	Email to cowaterplan@state.co.us	Attached document.	1 document	Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a stream management plan grant program, and working to further define and clarify what stream management plan means in Colorado's Water Plan. While the ability to lease non-diverted agricultural and municipal water for instream flows failed in the last legislative sessions, there are opportunities such as voluntary flow agreements that can support some of the goals provided by the commenter. CWCB staff are happy to meet with the Ruedi Water and Power Authority and the Roaring Fork Watershed Collaborative, or other groups to explore these opportunities. CWCB will work to better describe these as viable options within Colorado's Water Plan. The IBCC continues to work on developing a draft Conceptual Framework which explores innovative ways to address the commenter's issues in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work at the time of drafting. CWCB applauds regional efforts of the Roaring Fork Watershed Collaborative and is continuing to further develop the water and land use sections of Colorado's Water Plan.
19	4/20/2015	Travis Elliot, Colorado citizen	Email to cowaterplan@state.co.us	TMD's should simply be off the table and not a part of the conversation. As I read the values and conceptual agreement of the IBCC, everything appears to be contradictory and hypocritical. You cannot balance future needs of the western slope with TMD's. There simply is not enough water, especially given trends in climate change, reduced snow-pack and precipitation overall. Diverted water today effects the region for generations to come, and to make the water plan with projections only until 2060 is short-sighted. This process appears to be flawed and a way to circumvent western slope opposition to planned TMD projects. If I had to guess, a new TMD project is already planned, regardless of this "water plan" and its outcome. Can someone please inform me on how to get involved?	N/A	With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. The Conceptual Framework and related chapter will be updated based on the status of ongoing discussions of the IBCC.

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
20	4/22/2015	Pegh Rooney, Colorado citizen	Webform	Conservation, not diversion!!!!! Tourism and wildlife watching/birding brought $20 billion to Colorado. These activities depend on a healthy ecosystem which, in turn, depends on water. Require conservation measures to be adopted by agriculture, the oil/gas industry and municipal water districts rather than pretending that another diversion project on the already depleted Colorado River is going to help. Keep the Yampa River free-flowing and wild! Protect the Arkansas River! Colorado has a finite supply of water and all the diversions in the world aren't going to help. We must limit sprawl; demand recycling of fracking water; responsible agricultural irrigation; provide incentives for home water conservation; higher water rates for those who overuse water. Acting responsibly now is essential or in a few years we'll be wondering why the aquifers are depleted and the rivers are dry. California had to take drastic measures. Colorado, with responsible planning and less kissing up to developers, can be proactive instead of reactive in responding to this water crisis. Keep the environment strong and the tourism dollars will flow. Dry up the lakes and rivers, kill wildlife and flora and folks will spend their money elsewhere. And, Colorado will be just another dry, dusty ghost of its former self.	N/A	The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3. The CWCB and the Basin Roundtables will be working to support conservation, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan. Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4. With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. The Conceptual Framework and related chapter will be updated based on the status of ongoing discussions of the IBCC.
21	4/23/2015	Sam Gluck, Colorado citizen	Webform	We believe that Colorado can work with groups like DU and landowners and municipalities to greatly improve the water preservation and conservation of our great state in short order. We are 4th generation family with farming Ag and Recreation implications and this conversation must take place soon. As well, I sit on the All Volunteer Ducks Unlimited State Committee as the recruiting chairman and this is a passionate conversation.	N/A	The four values driving Colorado's Water Plan recognize the importance of agriculture and the environment. Those four values are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. We recommend that you get involved with your local roundtable as you would be a valuable contributor with the roles you hold in your community.
22	4/23/2015	Larry Smith, Colorado citizen	Webform	I have invented a growing system that uses less than half the water and produces more end product than conventional methods. It will save more water than i can claim. all green houses all indoor grows will use less power less water less waste and again more end product.	N/A	Agriculture efficiency is discussed in section 6.3.4. Thank you for your comments.
23	4/24/2015	Trout Unlimited, the Colorado Wildlife Federation, Theodore Roosevelt Conservation Partnership, Back Country Hunters and Anglers, and Bull Moose Sportsmen sent by David Nickum	Email to cowaterplan@state.co.us	Attached find a comment letter highlighting some of the major interests that concerned sportsmen with TU, the Colorado Wildlife Federation, Theodore Roosevelt Conservation Partnership, Back Country Hunters and Anglers, and Bull Moose Sportsmen would like to share with the CWCB as you work in developing the new draft of Colorado's Water Plan. Thanks for your consideration. OVERALL SUMMARY: clean waters and healthy flowing rivers for fish and wildlife, increase water use efficiency and conservation, recycling instead of diverting, importance of outdoor recreation, modernize agriculture and water sharing practices, avoid TMDs,	1 document	In general, Colorado's Water Plan is in agreement with the values expressed in these comments. The IBCC continues to work on developing a draft Conceptual Framework which explores innovative ways to address the issue of transmountain diversions in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work at the time of drafting. As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. Finally, Colorado's Water Plan will also include an action plan as part of the revised Chapter 10.
24	4/24/2015	Gene Reetz, Colorado citizen	Webform	Attached document.	1 document	As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a stream management plan grant program, and working to further define and clarify what stream management plan means in Colorado's Water Plan. Colorado's Water Plan will also include an action plan as part of the revised Chapter 10. The IBCC continues to work on developing a draft Conceptual Framework which explores innovative ways to address the issue of transmountain diversions in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work at the time of drafting.
25	4/24/2015	Colorado Fruit and Vegetable Growers Association sent by Robert Sakata	Webform	Attached document.	1 document	The IBCC recently formed the Agricultural Viability Subcommittee to address these issues in Colorado's Water Plan. CWCB is very committed to further developing additional opportunities for continued agricultural viability in Colorado's Water Plan and will consider these comments within the related sections of the second draft.
26	4/24/2015	Water for Colorado sent by Sue Brown	Email to cowaterplan@state.co.us through Kate McIntire	Please find attached a cover letter and a pdf with 1122 individual comments on the Colorado Water Plan generated in Feb and March 2015. Their comments call on the CWCB to include in the final Colorado Water Plan the following: 1) A state-wide municipal water conservation goal of 10% by 2020. 2) No new large trans-mountain diversions. They are costly, damaging, and unpopular with Coloradans. 3) Increased funding for programs that assess and protect the health of our rivers and their flows. 4) Provide farmers the funds and incentives they need to modernize agriculture and water- sharing practices that will keep more water in our rivers. 5) Increased and accelerated water recycling programs in the Front Range, which will decrease the need for new water projects. **COMMENT LETTER:** Dear Governor Hickenlooper, I wanted to thank you for featuring water issues prominently in your State of the State address and your recent remarks to the Colorado Water Congress. You've stated that "there is no magic" when it comes to balancing our booming population with our increasingly strained water supply, and I agree. As a citizen of Colorado, I want you to know that I support a Colorado Water Plan that establishes a clear water conservation goal for our cities and towns, fosters the reuse and recycling of water, avoids new large trans-mountain diversions, and incentivizes modern water sharing practices in our agricultural sector. As you know, water conservation is faster, better, and cheaper than new water projects, which would cost billions to build, harm our environment, wreck our rivers, and increase our water bills. Thank you for your leadership on this issue, and your ongoing efforts to protect the future of Colorado's rivers.	2 documents	The CWCB and the Basin Roundtables will be working to support conservation and reuse, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan. These topics are explored in Section 6.3. With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
27	4/28/2015	Mark Squillace, Professor of Law	Email to cowaterplan@state.co.us	Attached document.	1 document	As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a stream management plan grant program, and working to further define and clarify what stream management plan means in Colorado's Water Plan. Colorado's Water Plan will also include an action plan as part of the revised Chapter 10. The adaptive strategy scheme is further described in the SWSI update (Ch 7) and will be further defined in future drafts.
28	4/28/2015	Rebecca Smith, PhD candidate	Email to cowaterplan@state.co.us	Attached document.	1 document	1) The commenter's suggestion that the actions be compiled into a concise document is currently being developed as part of the update to Chapter 10. 2) The commenter suggests that Colorado's Water Plan be crafted within an adaptive management framework. Chapter 11 will discuss the iterative and adaptive process of continued water planning. In addition, the revision of Chapter 10 will include some of the suggestions, such as monitoring success provided by the commenter. 3) The BIPs will also be placed on a regular update and monitoring schedule including an assessment of whether or not the goals were met between BIP versions. 4) CWCB has guidelines, guidance and sample drought and conservation planning documents. These are specifically designed for small to midsize utilities to help them assess their risk. 5) Conservation research is ongoing. Past examples include the Best Practice Guide Book, and the next SWSI update will include additional technical work concerning conservation practices. 6) Colorado is exploring water shortage sharing to a number of different avenues such as water bank studies, the insurance policy described in the Conceptual Framework, and contingency planning. This is an important aspect of Colorado's Water Plan and will be further updated in the next draft.
29	4/28/2015	Nancy Stocker, Colorado citizen	Webform	Attached document.	1 document	It is currently illegal for Homeowners' Associations in Colorado to require bluegrass lawns, and xeriscape lawns are allowed statewide. Colorado water allocation and governance has always been guided by local users meeting local needs and Colorado's Water Plan will not change that. Rather than diminishing local control or authority over water, Colorado's Water Plan seeks to strengthen local decision-makers' ability to achieve regional and statewide water solutions. To that effect, Colorado's Water Plan will work to encourage, rather than mandate, several of the points presented in the comments. Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4. The four values driving Colorado's Water Plan recognize the importance of the environment. Those four values are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Colorado's Water Plan and the technical work that supports it includes three growth scenarios: low-growth, mid-growth, high-growth. As water planners, Colorado must prepare for any of these future possibilities as we do not have control over the state's economy and how many people are born or choose to move here. While some communities choose to limit growth, doing so on a broad statewide scale is untenable and unconstitutional. The CWCB is worked with each basin on their Basin Implementation Plan and will continue to encourage all interested parties to do the same during implementation. The water-energy nexus is discussed in Section 6.3.5 of Colorado's Water Plan.
30	4/28/2015	Tri-State Generation and Transmission Association, Inc. sent by Michael Sorensen	Webform	Attached document.	1 document	CWCB looks forward to continued work with Tri-State Generation and Transmission Association, Inc. and is happy to meet to discuss the company's concerns.
31	4/29/2015	Brad Johnson, Johnson Environmental Consulting, LLC	Email to cowaterplan@state.co.us	Attached document.	3 documents	Regarding the comments related to Chapter 4, CWCB will address the typo. The other comments on Chapter 4 are related to work done by the Division of Water Resources (DWR) and CWCB will work with DWR to address the issues. CWCB will address the comments related to water quality within the next draft of Chapter 4. Regarding the comments related to Chapter 6, many of the commenter's suggestions are more closely related to the permitting section within Chapter 9. CWCB would like to meet with Dr. Johnson to further explore how the tools he's assisted in developing could potentially be incorporated into Colorado's Water Plan. CWCB will clarify that the Clean Water Act and NEPA provide a base level of protection for wetlands and streams. Regarding the other comments related to Chapter 6, the suggestions will be incorporated as appropriate in the next draft. Regarding the comments related to Chapter 7, the suggestions will be incorporated as appropriate in the next draft. Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a stream management plan grant program, and working to further define and clarify what stream management plan means in Colorado's Water Plan.
32	4/29/2015	Colorado Springs Utilities sent by Julia Gallucci	Email to cowaterplan@state.co.us	Please find attached our feedback on Chapter 9.5 of the DRAFT State Water Plan.	1 document	Thank you for the comments on Section 9.5. The commenter's suggestions will be incorporated into the second draft of this section as appropriate.

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
33	4/29/2015	Christi Findling, Colorado citizen	Webform	As a Colorado native, daughter of a ranching family, Front Range living outdoor recreationist I think I have a broad perspective on Colorado's water. We need to protect our agricultural and business interests while safeguarding our natural inheritance. I believe we need to be better stewards of our water resource by modernizing agriculture's use and management, incentivizing business to conserve and above all having municipalities reduce consumption significantly. I am highly opposed to trans-mountain diversions and feel healthy rivers are a healthy state. Our tourism industry is very important for across the state employment and river flows are tied to many of those industries.	N/A	The four values driving Colorado's Water Plan are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4. The CWCB and the Basin Roundtables will be working to support conservation and reuse, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan. These topics are explored in Section 6.3.
34	4/29/2015	Allison Elliot, Colorado citizen	Webform	Thank you Governor Higgenlopper, for creating the Colorado Water Plan process. What I have learned out of the many meeting that I have attended is that there needs to be more funding to assure healthy rivers for all of Coloradoins. The best ways to make sure we have have enough water for people as well as our beloved wildlife, we need to implement: 1. State-wide water conservation goal of 10% by 2020 and 20% by 2030 2. No new large trans-mountain diversions – especially from the Gunnison Basin 3. Modernized agriculture and water-sharing practices 4. Commitment from the state to focus on water recycling 5. Funding for environmental needs and assessment studies 6. Strong rules that protect our water supplies from irresponsible oil and gas development 7. Protection for more instream flows	N/A	The four values driving Colorado's Water Plan are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4. The CWCB and the Basin Roundtables will be working to support conservation and reuse, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan. These topics are explored in Section 6.3. The Water Quality Division of the Colorado Department of Public Health and Environment (CDPHE) regulates water quality issues of this nature in the state, including those with respect to fracking. Water Quality has been recognized as critical for Colorado's water future. The CWCB is working closely with the Water Quality Control Division and the Basin Roundtables in order to address Colorado's Water Quality needs. This is further explored in Section 7.3. The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation, reuse and recycling as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3.
35	4/29/2015	Jerry Daidian, Colorado citizen	Webform	Eliminate production of livestock feed as a beneficial use. Returning the vast amount of surface water used to produce livestock feed will allow the use of that vast amount of water for truly beneficial uses. This would result in a tremendous shift in water use and have the most profound effect of any possible change. The disproportionate use of Colorado's surface water by the livestock industry lies at the core of the problem.	N/A	Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4.
36	4/29/2015	Taylor Maggert, Colorado citizen	Webform	We need to protect and encourage more in stream recreational water rights. These boost tourism, economies, and environments.	N/A	CWCB maintains and operates In Stream Flow and Natural Lake Level programs, both of which are highly regarded as some of the most successful programs of their kind in the Western US. Nonconsumptive needs are critically important aspects of the Basin Implementation Plans and Colorado's Water Plan. Although not fully tested, instream flows can be designed to directly benefit riparian areas, and the CWCB Stream and Lake Protection Section has been working with the BLM to design an approach to in-stream flows by providing a flood flow component in the spring.
37	4/29/2015	Alyssa Pinkerton, Colorado citizen	Webform	1. No new large trans-mountain diversions. 2. Clear rules that protect our water supplies from irresponsible oil and gas development. 3. Modernized agriculture and water-sharing practices. 4. Commitment from the state to focus on water recycling. 5. Funding for environmental needs and assessment studies. 6. State-wide water conservation goal of 10% by 2020 and 20% by 2030. 7. More funding for healthy rivers	N/A	With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Fracking currently uses approximately 18,000 acre feet per year, which is a very small proportion of Colorado's overall water use. However, there may be some areas where there are greater regional effects. In addition, power plants that burn natural gas to make energy use less water than traditional power plants. Therefore, from an overall resource management perspective, fracking and the resulting energy production do not consume a significant amount of water compared to current levels. Colorado's Water Plan seeks to work collaboratively to uphold Colorado's water values and does not put a value judgment on any one beneficial use. Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4. The CWCB and the Basin Roundtables will be working to support conservation, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan.

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
38	4/29/2015	Aurora Water sent by Joseph Stibrich	Email to cowaterplan@state.co.us	Attached document.	1 document	Thank you for the comments. Responses to the comments are as follows: 1) The final draft of Colorado's Water Plan will be fully reformatted. 2) The exploration of climate change in the water supply section of Colorado's Water Plan will be further expanded based on these and other comments. 3) The conservation section will be updated based on recent IBCC discussions, and the definition of passive and active conservation will be updated per the commenter's suggestion. 4) The commenter's suggestions related to alternative transfer methods (ATMs) will be considered and incorporated as appropriate. 5) Comments related to the Upper Colorado River Recovery Program were passed on to Colorado Parks and Wildlife (CPW) for further consideration. At the Department of Natural Resource's direction, CPW has convened a multi-agency group to discuss potential applications of must-kill regulations, along with other management options, for more effective suppression of problematic non-native fish. This "Non-native Fish Management Strategy Work Group" has met three times over the past several months with three more meetings scheduled, and has accomplished a good deal of work and productive dialogue. Members include representatives of CPW, CWCB, US Fish & Wildlife Service, Bureau of Reclamation, water providers (Tom Pitts, Kirsta Scherff-Norris), anglers, and environmental interests. 6) The description of WISE in Chapter 8 will be modified per the commenter's suggestion. 7) The commenter's suggestion regarding funding, which is largely consistent with the 2015 Basin Roundtable Statewide Summit discussion, will be added. 8) The commenter suggests moving forward with a state water project. The state of Colorado is exploring opportunities to become more involved in water projects and will explore the possibility of a pilot project. 9) Comments related to the section on natural disaster management will be considered for incorporation. 10) The commenter makes several suggestions related to permitting and these, along with permitting suggestions from other comments on the BIPs, will be incorporated as appropriate into this section.
39	4/29/2015	Gail Tubbs, Colorado citizen	webform	I'm submitting these comments as a landowner on the Arkansas River, recreational river user across the state, and homeowner in Denver. My highest priority is to preserve recreational uses on the rivers even if it comes at the expense of further development on the front range. In truth, to the extent the lack of water availability on the front range constrains new development I'm in favor of that outcome as well. As such, I oppose new trans-mountain diversions and encourage both conservation and realistic pricing of water consumed on the front range. I moved to Colorado to take advantage of our outdoor recreation and am opposed to diminishing those recreational opportunities. Toward this end I'm supportive of more recreational in-channel diversions (RICD). I'm also supportive of increased reclaimation of unused agricultural water rights to the extent possible. It's troubling to I drive down the Arkansas valley and see vast uses of water for relatively low value crops just to protect agricultural water rights. As a landowner on the Arkansas around Buena Vista I'm also opposed to any new dams or structures on the river. Thank you.	N/A	With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. The four values driving Colorado's Water Plan are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife.
40	4/29/2015	Peggy Baxter, The Conservation Center	webform	I live in Cedaredge. Our watershed lies in Grand Mesa National Forest. A substantial portion of our watershed has been leased for oil and gas development. When our town tried to protect the watershed, it was threatened by our Ranger District. We were told that in order to protect our watershed we would need to have a special use permit that was exorbitantly expensive. It became clear from theForest Service action that they were not going to partner with us to protect our water. Consequently I would like to see strong regulations with regard to Colorado's water and oil and gas development.	N/A	The Water Quality Division of the Colorado Department of Public Health and Environment (CDPHE) regulates water quality issues of this nature in the state. Water Quality has been recognized as critical for Colorado's water future. The CWCB is working closely with the Water Quality Control Division and the Basin Roundtables in order to address Colorado's Water Quality needs. This is further explored in Section 7.3. The four values driving Colorado's Water Plan are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife.
41	4/30/2015	WateReuse Colorado sent by Laura Belanger	Email to cowaterplan@state.co.us	Attached document.	1 document	The commenter is correct that some of the obstacles facing the implementation of water reuse are not unique and the text within that section will be updated to reflect that. The commenter asks for specific statistics to update the reuse section, and the section will be updated based on the forthcoming whitepaper currently entitled Considering the Implementation of Direct Potable Reuse in Colorado, being produced by Water Environment Research Foundation and funded by CWCB.
42	4/30/2015	High Country Conservation Advocates sent by Julie Nania	Email to cowaterplan@state.co.us through Governor's Office, M.E. Smith. 107 comment letters (same text) signed by business owners	Dear Governor Hickenlooper: Please accept these comments from Western Slope businesses regarding the draft Colorado Water Plan (CWP). High Country Conservation Advocates (HCCA) has collected these comments from businesses owners that earn their livelihoods by working in the Gunnison Basin. HCCA's mission is to protect the health and natural beauty of the land, rivers, and wildlife in and around the Gunnison Basin. Many business owners share our concern that natural flows are protected to sustain our tourist, recreation, and hunting-based economy. It's clear that the Colorado Water Conservation Board worked hard to arrive at an initial CWP draft that represents a range of interests. Gunnison Basin businesses want to recognize that work while urging that environmental, recreational, and ecosystem needs are adequately protected in the final draft. The attached comments ask that you encourage strong water conservation measures, protect instream flows, prohibit new transmountain diversions, and encourage the funding of environmental needs assessments in the final Plan. Over 100 businesses have weighed in by signing letters supporting the inclusion of strong environmental protections for river flows in the final CWP. We believe that these elements are integral to supporting the values that you articulated in the May 2013 executive order. In that order you discussed protecting a productive economy that supports vibrant and sustainable cities, viable and productive agriculture, and a robust skiing, recreation and tourism industry and a strong environment that includes healthy watersheds, rivers and streams, and wildlife. Here in the Gunnison Basin, healthy rivers and streams are an integral part of the economy. Our businesses benefit directly and indirectly from healthy streamflows. Some depend directly on stream flows, including rafting operations and angling shops. Others indirectly benefit from residents and visitors drawn here to use and enjoy our streams for recreational and aesthetic reasons. The attached pdf contains copies of letters from Gunnison Basin businesses. HCCA has also attached an excel spreadsheet summarizing these comments and concerns. We look forward to a final Colorado Water Plan that protects our way of life on the Western Slope.	1 document	CWCB appreciates the business community's engagement in this process and CWCB will forward these comments to the Gunnison BRT. The four values driving Colorado's Water Plan are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4. The CWCB and the Basin Roundtables will be working to support conservation and reuse, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan. These topics are explored in Section 6.3. The Water Quality Division of the Colorado Department of Public Health and Environment (CDPHE) regulates water quality issues of this nature in the state, including those with respect to fracking. Water Quality has been recognized as critical for Colorado's water future. The CWCB is working closely with the Water Quality Control Division and the Basin Roundtables in order to address Colorado's Water Quality needs. This is further explored in Section 7.3. The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation, reuse and recycling as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3.

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
43	4/30/2015	High Country Conservation Advocates sent by Julie Nania	Email to cowaterplan@state.co.us through Governor's Office, M.E. Smith. 292 comment letters (same text) signed by west slope citizens	Dear Governor Hickenlooper: Please accept these comments from Western Slope citizens regarding the draft Colorado Water Plan (CWP). High Country Conservation Advocates (HCCA) has collected comments from over 300 individuals in an effort to ensure that our environmental, recreational, and economic concerns are adequately represented in the final CWP. HCCA's mission is to protect the health and natural beauty of the land, rivers, and wildlife in and around the Gunnison Basin. Gunnison Basin rivers provide our members and the individuals commenting with recreational opportunities and a quality of life that is preserved by the wildlife, habitat, recreational and economic opportunities provided by our water resources.It's clear that the Colorado Water Conservation Board worked hard to arrive at a CWP draft that represents a range of interests. We want to recognize that work while urging you to ensure that environmental, recreational, and ecosystem needs are adequately protected in the final draft. The attached documents include 292 comments from individuals that live, work, and recreate in from the Gunnison Valley. Additional comments have been submitted to the CWCB via HCCA's web portal. These comments ask that you include language in the final CWP that supports strong conservation measures, prohibits new transmountain diversions, and encourages the funding of environmental needs assessments. They support instream flow protections for a variety of reasons, ranging from the role that healthy streamflows play in protecting our ecosystems to their role in protecting local economic interests. Citizens have a range of other environmental concerns that they would like to see prioritized in the final plan. One man encouraged you to "Prioritize the headwaters!" while a woman from Crested Butte asked that you emphasize water quality protections. Strengthening these will help protect a strong environment that includes healthy watersheds, rivers and streams, and wildlife. We look forward to a final Colorado Water Plan that protects these values and our river resources for generations to come.	1 document	CWCB appreciates the business community's engagement in this process and CWCB will forward these comments to the Gunnison BRT. With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. The CWCB and the Basin Roundtables will be working to support conservation and reuse, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan. These topics are explored in Section 6.3. CWCB maintains and operates In Stream Flow and Natural Lake Level programs, both of which are highly regarded as some of the most successful programs of their kind in the Western US. Nonconsumptive needs are critically important aspects of the Basin Implementation Plans and Colorado's Water Plan. Although not fully tested, instream flows can be designed to directly benefit riparian areas, and the CWCB Stream and Lake Protection Section has been working with the BLM to design an approach to in-stream flows by providing a flood flow component in the spring.
44	4/30/2015	Roaring Fork Conservancy sent by Heather Tattersall Lewin	Email to cowaterplan@state.co.us	Attached document.	1 document	CWCB appreciates the Roaring Fork Conservancy's offer to leverage their education and outreach capacity and will include them in the implementation of Section 9.5. With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. The four values driving Colorado's Water Plan recognize the importance of the environment. Those four values are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. The conservation and land use sections will be updated based on recent discussions of the IBCC Conservation Subcommittee and the Colorado Water and Growth Dialogue facilitated by Keystone Policy Center. With regard to integrating water quality and quantity, the commenter suggests the need to bring together instream flow and Section 303(d) regulations. CWCB will discuss this with the CDPHE Water Quality Control Division.
45	4/30/2015	Northwest Colorado Council of Governments Water Quality/ Quantity Committee (QQ) sent by Torie Jarvis	Email to cowaterplan@state.co.us	Attached document.	1 document	1) The conservation section of Colorado's Water Plan will be updated in the next draft to incorporate additional discussion on municipal and industrial conservation, as well as land use. 2) The next draft of Colorado's Water Plan will be more explicit in terms of defining stream management plans. 3) The gaps section, as well as other relevant sections, will be updated with the most recent BIP information. 4) A review of which sections local governments should be added to will be conducted. 5) Updates to the status of the Windy Gap project will be incorporated per the commenter's suggestion. 6) The Conceptual Framework and related chapter will be updated based on the status of ongoing discussions of the IBCC. 7) Thank you for the comments regarding Colorado's compacts and water law, they will be incorporated as appropriate. 8) As the economics and funding chapter and the permitting section are updated, CWCB will consider NWCCOG's comments.
46	4/30/2015	Eugenie McGuire, Colorado citizen	webform	Water is the lifeblood of our agriculture in the state. The water plan must prevent any additional across basin diversions and must mandate all cities and towns reduce water consumption so that we can continue to grow food. A major threat to our water is the irresponsible use of fresh water in oil and gas development. The state should require that NO fresh water ever be used in any energy development and must also require pre and post monitoring of water quality and quantity. The state should require additional bonds of all energy developers so that in the event of ANY contamination at all there will be a full restitution for all damages. These bonds must be high enough to actually cover the true costs of restoring the environment from any spill. We've seen how millions of dollars can be required so bonds must cover at least that amount or more depending on the number of wells to be covered. We cannot depend on the companies to be good citizens given the track record of so many spills. We've seen how companies can avoid paying fines or for full clean-up plus all lost business and other expenses to people harmed by declaring bankruptcy or just walking away. Punitive damages must be enforced to require that energy extraction does not have ANY adverse effects on our water supply at all. Our regulations are far too weak and do not protect our farms and ranches from disaster.	N/A	With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. The Water Quality Division of the Colorado Department of Public Health and Environment (CDPHE) regulates water quality issues of this nature in the state. Water Quality has been recognized as critical for Colorado's water future. The CWCB is working closely with the Water Quality Control Division and the Basin Roundtables in order to address Colorado's Water Quality needs. This is further explored in Section 7.3. Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4. Colorado's Water Plan seeks to work collaboratively to uphold Colorado's water values and does not put a value judgment on any one beneficial use.
47	4/30/2015	Robert Stocker, Colorado citizen	webform	Attached document.	1 document	Thank you for your comments and legislative recommendations. In the revised plan, Chapter 10 will be an action plan and will include legislative recommendations. Several of your suggestions are already laws and others have been considered in the past. Colorado's Water Plan and the technical work that supports it includes three growth scenarios: low-growth, mid-growth, high-growth. As water planners, Colorado must prepare for any of these future possibilities as we do not have control over the state's economy and how many people are born or choose to move here. While some communities choose to limit growth, doing so on a broad statewide scale is untenable and unconstitutional. The CWCB is working with each basin on their Basin Implementation Plan and will continue to encourage all interested parties to do the same.

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
48	4/30/2015	Eric Wilkinson, Northern Water & Jim Hall, South Platte BRT, Northern Water Rep	webform	Attached document.	1 document	1) As the permitting section is updated, CWCB will consider Northern Water's comments. 2) CWCB will update the discussion of storage in Section 6.5, taking into consideration the commenter's thoughts. 3) Regarding the safeguarding of Colorado River supplies, Colorado will continue to support an ATM program, water banking, and the avoidance of compact curtailments. Colorado will continue to explore how a compact curtailment protocol would be administered. 4) As the ATM section is being updated, the commenter's suggestions, in particular the concept of third party compensation, will be considered. 5) In relation to the comments regarding conservation and reuse, updates will include the recognition of progress made to date. The discussion on the additional 25,000 acre-feet of reuse water will clarify that this reuse should stem from projects above and beyond the identified projects and processes (IPPs). 6) As sections related to climate change are updated, these comments will be considered. 7) CWCB will make sure that the alternatives to the Wild and Scenic process are supported in Chapter 9. Statements regarding conservancy and conservation districts will be corrected. 9) A review of Colorado's Water Plan to ensure that the distinction between consumed and diverted water will be conducted.
49	4/30/2015	Lisa Stone-Muntz, Jackson Project Water	webform	Water is and will continue to be our most precious resource. First and foremost water must be prioritized for drinking, daily living, and growing food. There is a movement in the Mancos Valley to grow food and expand orchards. The state should be proactive in setting restrictions for golf courses, lawns, and fracking. Incentives for homeowners to replace lawns with xeriscaping would be important to do now rather than later. As a state, we might also consider if cattle is a food source that will sustain us in the future.	N/A	The four values driving Colorado's Water Plan are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. The plan aims to balance all values. Xeriscape lawns are allowed statewide. Colorado water allocation and governance has always been guided by local users meeting local needs and Colorado's Water Plan will not change that. Rather than diminishing local control or authority over water, Colorado's Water Plan seeks to strengthen local decision-makers' ability to achieve regional and statewide water solutions. To that effect, Colorado's Water Plan will work to encourage, rather than mandate, several of the points presented in the comments. Thank you for your comments and the CWCB will take them into consideration in the second draft.
50	4/30/2015	Susan Nedell, Environmental Entrepreneurs	webform	Please accept this report and Executive Summary (links below) as comments for the state water plan from Environmental Entrepreneurs.	2 documents	The Colorado Climate Plan is currently under development and addresses some of the issues presented by the commenter. The Colorado Climate Plan will be incorporated into Colorado's Water Plan where relevant.
51	4/30/2015	Colorado Water Working Group, Getches-Wilkinson Center, University of Colorado sent by Lawrence MacDonnell	webform	Attached document.	1 document	With regard to recommendation 1, Ch 10 will be retooled as an action plan. With regard to recommendation 2, the aforementioned action plan will describe incentives to water providers to develop projects and methods that are in line with Colorado's Water Plan. With regard to recommendation 3, the watershed section will clarify the need for watershed and stream management plans and the criteria written for these grant programs will include the recommendations provided by the commenter. With regard to recommendation 4, the maintenance and improvement of existing infrastructure is an important part of Colorado's water future and is an aspect of Section 6.5. With regard to recommendation 5, Colorado's Water Plan will update actions related to climate change including the monitoring of climate related conditions and the continuation of the climate change technical advisory group to help identify water uses that are most at risk.
52	4/30/2015	Bill Day, Colorado citizen	webform	Good job on the draft. We can see where the water goes by basin and segment, and that shows where to work on conserving it. I do not favor moving water out of west slope basins to solve east slope waste. All basins need to conserve more and leave more in the streams. The future economy of the state depends largely on tourism and quality of life, which require more in stream water. This must consider climate change, which it looks like you're doing. Many areas do not have enough water to spare for new water hungry industry, namely oil and gas development. Whenever possible make these decisions based on real science.	N/A	With regard to new transmountain diversion projects, the IBCC provided a draft Conceptual Framework which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Climate change could have a serious effect on Colorado's water supplies, consequently, Colorado's Water Plan factors in an altered climate in 3 of the 5 scenarios examined in the planning process. Additionally, climate changeis addressed throughout Colorado's Water Plan, as it is likely to effect a multitude of sectors. However, the exact impacts of climate change remain uncertain; and while it is clear temperature's are, and will continue, rising, there is less consensus surrounding precipitation. Scenario planning enables the state to prepare for a wide range of possible futures to capture, and prepare for, such uncertainty. Specific climate change adaptation and mitigation recommendations are not addressed in Colorado's Water Plan but are being addressed through other statewide efforts. The Water Quality Division of the Colorado Department of Public Health and Environment (CDPHE) regulates water quality issues of this nature in the state. Water Quality has been recognized as critical for Colorado's water future. The CWCB is working closely with the Water Quality Control Division and the Basin Roundtables in order to address Colorado's Water Quality needs. This is further explored in Section 7.3. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan, and is explored in Section 6.6.
53	4/30/2015	Trout Unlimited	webform	Attached document.	1 document	CWCB appreciates the comments regarding how Colorado's Water Plan could specifically address the previously mentioned principles. The principles are largely consistent with Colorado's Water Plan and as part of this, additional funding sources will be explored. The notion of voluntary flow agreements to provide diverted water for instream benefits will be described. Stream management plans will be further explored, and the recommendations described by the commenter will be considered as part of that. The projects bill being considered by the General Assembly at the time of this response includes an additional $1 million to support stream management plans. The Conceptual Framework discussion in Colorado's Water Plan will be updated to reflect the current status of those IBCC discussions.
54	4/30/2015	Justina Mickelson, Colorado citizen	webform	As a citizen of Colorado, I appreciate everyone's hard work in developing our Colorado Water Plan. As a recreational water user I support keeping water in rivers for boaters and for those on land to enjoy the beauty of Colorado from the river bank. A state without water for recreational uses would not be Colorado anymore	N/A	The four values driving Colorado's Water Plan are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. The CWCB and the Basin Roundtables will be working to support conservation, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan.
55	4/30/2015	Colorado Cattlemen's Association sent by Terry Fankhauser	Email to cowaterplan@state.co.us	Attached document.	1 document	Colorado's Water Plan will further address agricultural viability within the next draft and will consider the recommendations made by the Colorado Cattlemen's Association. Some of the recommendations fall outside of the bounds of Colorado's Water Plan and CWCB will pass theses comments onto the Colorado Department of Agriculture.

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
56	5/1/2015	City of Aurora sent by Roberto Venegas	Email to cowaterplan@state.co.us	Attached document.	1 document	CWCB appreciate the significant conservation work conducted by the City of Aurora and Aurora Water. Aurora's conservation practices are highlighted in Colorado's Water Plan and serve as an example. The commenter asks for the consideration of agricultural and recreational efficiencies. Currently the plan addresses conservation and efficiency. Recreational efficiency examples will be incorporated into the next draft of Colorado's Water Plan. CWCB agrees with the commenter regarding the statement that regional partnerships will be required as part of meeting Colorado's future water needs. The WISE partnership is provided as an example of that type of work.
57	5/1/2015	Julie McCaleb, Colorado citizen	webform	Comment 1. I believe more focus should be placed on importance of groundwater for agriculture in the CWP. Groundwater depletions in certain aquifers and restrictions in others will significantly increase the agricultural water gap and vulnerabilities for Ag production in the near future, particularly as drought and high temperature events occur. The CWP should explicitly recognize the importance of groundwater as a reliable supply during drought and appropriate focus should be placed on institutional mechanisms to improve sustainable groundwater use within the scope of Prior Appropriations Doctrine. The importance of better groundwater management is outlined in the South Platte and Rio Grande BIPs (draft CWP, 4th bullet on page 40 and 5th bullet page 44). Additionally, the draft CWP (Page 54) mentions the importance of groundwater in meeting the state's water needs. However, little attention is given in the draft CWP to developing innovations in brackish groundwater utilization, treatment of produced waters, or the development of new institutional mechanisms to provide sustainable utilization of Colorado's groundwater resources. The company that employ me can demonstrate that we have underutilized our existing water rights and due to dropping of groundwater table continue to struggle to keep water for livestock at our of our locations. I recommend that the CWP call for the state to launch an effort focused specifically on groundwater to: • Work with agricultural organizations to develop additional surface water storage specifically for more reliable augmentation supplies in the San Luis Valley, Ark Valley and S. Platte. • Develop a program of aquifer storage and recovery programs for increasing conjunctive use where feasible. • Develop a program to help producers become more water efficient in situations where their primary supply is pumped groundwater; perhaps with a program of voluntary financial incentives and risk management alternatives to reduce groundwater pumping where needed. • Work within each water basin to identify those that have historically been under utilizing their water share and allow these individuals to bring old water sources back into existence without being docked for not enough historical use.	N/A	CWCB and Colorado's Water Plan support water supply management strategies that will allow the state to better conjunctively utilize groundwater within currently existing legal constraints. SWSI 2010 found that unappropriated water in the South Platte, Arkansas, and Rio Grande Basins is extremely limited, and reliance on nonrenewable, nontributary groundwater as a permanent water supply creates reliability and sustainability concerns, particularly along the Front Range. The CWCB and DWR also maintain Decision Support Systems (DSS) tools that could serve as useful resources to be used in groundwater modeling in the future. CWCB will forward your comments on to the South Platte and Rio Grande Basin Roundtable.
58	5/1/2015	Water Center at Colorado Mesa University sent by Hannah Holm	Email to cowaterplan@state.co.us	Specific redline comments for Ch. 9.5 Outreach, Education, Public Engagement	1 document	Thank you for your comments and the CWCB will update the chapter with most suggestions in the revised draft of Section 9.5.
59	5/1/2015	Audubon Rockies Rocky Mountain Regional Office sent by Abby Burk	Email to cowaterplan@state.co.us	As promised, here is our CO WRAN input summary and accompanying spreadsheets for our 1,523 CWP individual comments from February to April 30th 2015.	3 documents	CWCB appreciates the Audubon Rockies' efforts to summarize the high level of public comment collected by this organization. The efforts of Audubon Rockies and other organizations contribute to two important changes in CWP. 1) The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. That is largely consistent with the Audubon Rockies' suggested target. 2) Additional detail on the need for stream management plans will also be included in the next draft of Colorado's Water Plan.
60	5/1/2015	Steve Child, Pitkin County Commissioner, Cattle rancher, Colorado native	Email to cowaterplan@state.co.us	Colorado Water Conservation Board, Please find attached (in 2 different formats) my personal comments about the draft of the Colorado Water Plan. Thank you for the opportunity to comment on this very important document. Sincerely, Steve Child, Pitkin County Commissioner, cattle rancher, Colorado native	1 document	As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. 2) The commenter suggests a large on-channel South Platte reservoir. The South Platte BIP does call for additional storage on the South Platte, however Colorado's Water Plan does not advocate for any specific projects. As project proponents gather support for such a project, it will then be evaluated on its merits. 3) There's a gross misinterpretation of the "use it or lose it" concept of Colorado's current water law system. The right to "use it" is based off of the amount of water consumptively used, and not the amount diverted. The second draft of Colorado's Water Plan will clarify this fact and propose the use of local voluntary flow agreements. 4) The lower basin states including California are already overusing the amount of water allocated to them under the Colorado River Compact. It is not in Colorado's best interest to help pay for desalinization projects until the lower basin implements demand management and conservation practices consistent with ongoing interstate discussions. Colorado will continue to monitor the state of Kansas' activities in relation to the Missouri River Aqueduct, however this option is not considered a near-term solution due to water quality and cost concerns. 5) The conservation and land use sections will be updated based on recent discussions of the IBCC Conservation Subcommittee and the Colorado Water and Growth Dialogue facilitated by Keystone Policy Center. 6) Comments concerning agricultural efficiency are largely addressed in the existing Section 6.3.4, however while large changes in crop type may be effective mechanisms for reducing crop-consumptive use, such changes also need to respect private property rights and water rights. Colorado's Water Plan offers incentives to help farmers consider conservation and efficiency methodologies including crop changes. 7) Many of Colorado's thermal electric power plants are already shifting toward lower water use, and energy water use is a very small percentage of Colorado's total water use. However, Colorado's Water Plan does include a section on conservation and efficiency for the energy sector as part of Section 6.3.5 Self-Supplied Industrial.
61	5/1/2015	Peter Nichols, BHGR Law	Email to cowaterplan@state.co.us	Specific comments for section 6.4	1 document	CWCB appreciates these specific comments provided by Mr. Nichols. These comments will be incorporated into the revision of section 6.4 as appropriate.

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
62	5/1/2015	Western Landowners Alliance sent by Lesli Allison	webform	Attached document	1 document	The comments provided by the Western Landowners Alliance are in large part consistent with Colorado's Water Plan. For instance, Colorado's Water Plan operates within the framework of scenario planning as described by section 6.1. Planning efforts continue to be led by a grassroots approach in order to incorporate the full spectrum of interests. CWCB staff will examine the American Planning Association paper referenced in the comment letter for future SWSI updates.
63	5/1/2015	Western Resource Advocates, American Rivers, American Whitewater, Audubon, Conservation Colorado, Environmental Defense Fund, High Country Conservation Advocates, and San Juan Citizens' Alliance sent by Bart Miller	webform	Please see the attached "Conservation Essentials for Colorado's Water Plan" submitted jointly by Western Resource Advocates, American Rivers, American Whitewater, Audubon, Conservation Colorado, Environmental Defense Fund, High Country Conservation Advocates, and San Juan Citizens' Alliance	1 document	1. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. 2. The commenter's recommendations for implementing ATMs will be considered as part of the update to this section. 3. Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a stream management plan grant program, and working to further define and clarify what stream management plan means in Colorado's Water Plan. CWCB will consider these comments when developing the language for stream management plans, such as "collaboration with other state agencies". 4. CWCB will consider the incorporation of lessons learned from flood recovery efforts into Colorado's Water Plan. CWCB will also consider the suggestions with regard to funding as part of the update to that section. The Conceptual Framework discussion in Colorado's Water Plan will be updated to reflect the current status of those IBCC discussions. CWCB agrees that much of the focus of Colorado's Water Plan needs to be on near-term implementation. In the update of section 9.3, the suggestions by Western Resource Advocates will be considered. With regard to the comments related to permitting, CWCB, in partnership with the Water Quality Control Division, will consider avenues for improving regulations for reusable water. CWCB will consider the additional comments concerning permitting, in partnership with the Water Quality Control Division during the revision process. It should be noted that the CWCB does have a role to play in wildlife mitigation plan approvals. The intent was to elevate the water quality and quantity integration goal at the beginning of the section. This is included in the blue box on page 256. The revised Chapter 10 is still under development and the suggestions made by the commenter will be considered during the writing of that chapter.
64	5/1/2015	Rocky Mountain Climate Organization sent by Tom Easley	webform	I am uploading comments on the December 2014 draft of Colorado's Water Plan.	1 document	CWCB will consider these comments when updating the climate change section of Colorado's Water Plan. Additional technical work related to quantifying the scenarios and gaps will be completed as part of the next SWSI update. Currently, CWCB manages the Climate Change Technical Advisory Group and will consider further expansion of this group in the future.
65	5/1/2015	National Parks Conservation Association sent by Vanessa Mazal	Email to cowaterplan@state.co.us	Please find NPCA's comments on the first draft of the Colorado Water Plan attached.	1 document	Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a streamflow management plan grant program, and working to further define and clarify what streamflow management plan means in Colorado's Water Plan. CWCB will consider studying the economics of watersheds and ecosystem services for future work. The ATM section will be updated with expanded uses beyond municipal and agricultural sharing. CWCB will reexamine the multi-purpose example on page 213, and the plan will continue to support projects and methods that have the primary purpose to support environment and recreation. Chapter 8 will be updated with the current status of the Conceptual Framework. The thumb poll at the 2015 Statewide Basin Roundtable Summit (Summit) was not intended to be used as a statement of statewide consensus, but rather to understand where attendees of the Summit were coming from. However, as part of the stakeholder process, it is important that stakeholders voice their opinions. Only through such demonstration of opinions can we be successful. The Conceptual Framework should not be considered as state support for transmountain diversions, but it does leave the door open for this possibility in the future. The commenter suggests that this door should be closed, and through the the stakeholder process it is clear that many stakeholders believe that this door cannot be closed, either from a policy perspective or revision of Colorado's constitution, which allows for water to be put to beneficial uses. The Conceptual Framework seeks to discuss the realities of what a future transmountain diversion may have to contend with and there is a strong public process to seek input beyond the Summit.
66	5/1/2015	Conservation Colorado sent by Theresa Conley	Email to cowaterplan@state.co.us	Attached please find a letter summarizing the actions taken by members of Conservation Colorado who utilized our online comment system (submits comments from our website to the CO Water Plan). Members have generated over 425 comments. We also direct individuals to our website as well. Please note, we did not generate postcard submissions for this comment period but will resume that platform over the summer as its a great way to engage citizens broadly.	1 document	Thank you for summarizing the 425 comments generated by Conservation Colorado. The four values driving Colorado's Water Plan are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. The Basin Implementation Plans and Colorado's Water Plan incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone are not be enough to meet Colorado's future water needs. Additional balanced options need to be examined. These topics are explored in Section 6.3. As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal.
67	5/1/2015	Six boards of county commissioners, including Boulder, City & County of Denver, Eagle, Grand, Pitkin and Summit & Mayor Randy Ahrens and city council member Sam Taylor from City & County of Broomfield sent by Torie Jarvis	Email to cowaterplan@state.co.us	Attached are comments from a group of counties regarding the Land Use Section, 6.3.3, of the Dec. 2014 draft of Colorado's Water Plan. Please feel free to contact me with any further questions.	1 document	CWCB appreciates the efforts of the 6 counties in putting together these comments related to land use. During the revision of the section on water and land use, CWCB will incorporate these thoughts as appropriate.
68	5/1/2015	American Rivers sent by Ken Neubecker	Email to cowaterplan@state.co.us	Attached are some additional comments from American Rivers on the CWP. I'll be working more on the concepts of river ecosystem health, resilience and stream management plans, so you can expect that as well!	1 document	CWCB will clarify the definition within Section 6.6 of environmental resiliency, and the definition offered by the commenter is a good start. In addition, other environmental tools such as voluntary flow agreements will be highlighted.

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
69	4/24/2015	San Miguel County Board of Commissioners	Sent by mail	Attached document.	1 document	Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a streamflow management plan grant program, and working to further define and clarify what streamflow management plan means in Colorado's Water Plan. Colorado's Water Plan currently includes an action regarding supporting the capacity of watershed groups. CWCB is still working on how to generate funding to support this and many other actions in Colorado's Water Plan. Agricultural efficiency and flexibility are important themes in Colorado's Water Plan as found in Sections 6.3.4 and 6.4. The land use planning section will be updated. The suggestion to better coordinate land use and water supply planning is part of recent legislation expected to be signed by the Governor. Reservoir evaporation does lead to water loss. Viable solutions to this problem are currently under examination. CWCB agrees that the actions should be incorporated into a single document, and that will be within the revised Chapter 10.
70	5/1/2015	Robert L. Grossman, Colorado citizen	Sent by mail	Attached document.	1 document	Reservoir evaporation does lead to water loss. Viable solutions to this problem are currently under examination. The current Projects Bill seeks to improve climate monitoring, including evaporation. CWCB hopes that, if successful, this work can continue in the future. Colorado's Water Plan will refer to these efforts in the next draft. CWCB encourages the commenter to provide updated information related to the topic as available.
71	4/28/2015	Pitkin County Board of Commissioners sent by Steven Child	Sent by mail	Attached document.	1 document	1) The commenter is correct that drought planning should be further highlighted within CWP and staff will incorporate these comments into Chapter 7. 2) As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. 3) The Conceptual Framework discussion in Colorado's Water Plan will be updated to reflect the current status of those IBCC discussions. CWP does not assume that all identified projects and processes (IPPs) will be successful. In fact there's a statewide average of 80% with lower success rates in the South Platte and Metro BIP. 4) The land use section of Colorado's Water Plan will be updated in the second draft.
72	4/20/2015	Tri-County Water sent by Frank Kugel	Sent by mail	Attached document.	1 document	CWCB will forward these comments to the Gunnison BRT.
73	4/24/2015	Middle Park Water Conservancy District sent by Duane Scholl	Sent by mail	Attached document.	1 document	1) Water sources from the Midwest have been explored and are not currently viable at this time due to several factors including logistics, federal vs. interstate issues, permitting issues, and energy costs. It is worth noting that other people have proposed this issue at the basin roundtable level, and there are discussions going on statewide. 2) California's severe drought is extremely concerning, as the commenter mentions. Colorado's Water Plan will further encourage drought planning throughout Colorado. 3) The IBCC recently formed an agricultural viability subcommittee to address these issues and this section of Colorado's Water Plan will be updated based on the outcome of those discussions. 4) The commenter is correct that drought planning should be further highlighted within Colorado's Water Plan and staff will incorporate these comments into Chapter 7. 2) As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. 5) CWCB will examine the Windy Gap Firming example described on page 276 and update it to include the agreement as appropriate. 6) The original Conceptual Agreement is now deemed a Conceptual Framework. 7) The clarification suggested on the Conceptual Framework is part of the ongoing discussion and Chapter 8 will updated with the current status of the Conceptual Framework. 8) The funding chapter will be updated with additional ideas. The past technical efforts defining possible transmountain diversions, as well as large agricultural transfers indicated that the costs were approximately equivalent. Projects that were examined included Flaming Gorge and Blue Mesa Pumpbacks, as well as South Platte and Arkansas agricultural transfers. Colorado's Water Plan explicitly does not support specific projects, and it would be the burden of the project proponent to determine how to pay for such a project. 9) The focus of the funding chapter is primarily on funding near-term projects and methods.
73	3/5/2015 - 5/1/2015	Ensure a secure water future for Colorado	8 form emails	Dear Governor Hickenlooper: I wanted to thank you for featuring water issues prominently in your State of the State address and your recent remarks to the Colorado Water Congress. You've stated that "there is no magic" when it comes to balancing our booming population with our increasingly strained water supply, and I agree. As a citizen of Colorado, I want you to know that I support a Colorado Water Plan that establishes a clear water conservation goal for our cities and towns, fosters the reuse and recycling of water, avoids new large trans-mountain diversions, and incentivizes modern water sharing practices in our agricultural sector. As you know, water conservation is faster, better, and cheaper than new water projects, which would cost billions to build, harm our environment, wreck our rivers, and increase our water bills. Thank you for your leadership on this issue, and your ongoing efforts to protect the future of Colorado's rivers.	N/A	The Basin Implementation Plans and Colorado's Water Plan incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone are not be enough to meet Colorado's future water needs. Additional balanced options need to be examined. These topics are explored in Section 6.3. With regard to new transmountain diversion projects, the IBCC provided a draft conceptual agreement which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan does not include any specific transmountain water project, but it discusses how we can move forward with this option should it be needed, based on the IBCC's work.
74	3/5/2015 - 5/1/2015	1 Percent Could Make a Big Difference in Colorado's Water Plan & Make Water Conservation the Priority in Our Cities and Towns	1140 form emails	Thank you for your leadership in developing Colorado's first-ever water plan. I want you to know that I support prioritizing water conservation in our cities and towns. Water conservation is faster, better, and cheaper than new water projects, which would cost billions to build, harm our environment, wreck our rivers, and increase our water bills. With just a 1 percent annual reduction in our water usage, we can conserve enough water to serve 1.8 million families in Colorado. We should adopt this 1 percent annual goal through 2050 in our state water plan. Thank you for your leadership and for protecting the future of Colorado's rivers.	N/A	The Basin Implementation Plans and Colorado's Water Plan incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone are not be enough to meet Colorado's future water needs. Additional balanced options need to be examined. These topics are explored in Section 6.3. As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. For more information and a calendar visit www.coloradowaterplan.com.

Colorado's Water Plan - Public Input Received
March 5 through May 1, 2015

Item Number	Date	Input Provided By	Method of Input Submission	Summary of Input	Documents Submitted for Review	Staff Responses and Recommendations
75	3/5/2015 - 5/1/2015	Set a strong statewide water conservation goal	116 form emails	Our rivers are overworked today, and with expectations of continued population growth, we need commitments to ensure our rivers remain healthy into the future. I am not alone in this concern. According to Colorado College's 2015 State of the Rockies poll, 82 percent of Coloradans are concerned with low levels of water in rivers. A priority for the water plan must be to keep rivers healthy and sufficiently flowing. We need a strong statewide water conservation goal within the water plan. By reducing per person use in our cities and towns 10 percent by 2020, we can help reduce the increasing burden of demand and keep more water in rivers. We can meet the vast majority of our projected new water demands with cost-effective conservation, reuse, and other common sense solutions. Aggressive water conservation is effective, less expensive, faster to implement, and more flexible than developing environmentally harmful new West Slope supplies for Front Range use. I thank you, the Basin Roundtables, and the Colorado Water Conservation Board for drafting our first water plan. The plan must provide water security for both people and the environment alike. Solutions to our future water imbalance must include incentives for changing water use patterns. A strong urban water conservation goal is a common sense action that could be invaluable for sufficiently flowing rivers. As you have said, "every conversation needs to start with conservation."	N/A	The Basin Implementation Plans and Colorado's Water Plan incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone are not be enough to meet Colorado's future water needs. Additional balanced options need to be examined. These topics are explored in Section 6.3. As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal.
76	3/5/2015 - 5/1/2015	Require stream management plans for all of Colorado's rivers & Colorado's rivers need a Water Plan that protects birds, fish, & wildlife, as well as people	821 form emails	This December, Coloradans will have our first Water Plan. If the Plan is done well, it will provide measurable water security for society, our environment, and recreation opportunities equally. The first draft of the plan is a start toward these goals. This draft includes details for $20 billion dollars of water projects and infrastructure, but notes that "...there is more work that needs to be done towards understanding and quantifying recreational and environmental needs." The current draft lacks actionable steps to adequately fund and close the environmental and recreational gap. I am one of the 82% majority of Coloradans who are concerned about low levels of water in our rivers. This is a serious problem facing our state and threatens our environmental and recreational river legacy. I appreciate that the first draft stresses the importance of our environment and recreation economy, and details many environmental and recreational attributes and opportunities. However, we need a firm, statewide commitment for true actionable steps and sufficient funding to support environmental and recreational river flows. The first step would be for the Colorado Water Conservation Board to ensure an evaluation of needs and strategies by requiring stream management plans for all of Colorado's rivers. Thank you, the basin roundtables, and the Colorado Water Conservation Board for drafting our first water plan. I appreciate the opportunity to comment, and together we can create a truly comprehensive Colorado Water Plan to guide Colorado's diverse water future.	N/A	Regarding stream management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a stream management plan grant program, and working to further define and clarify what stream management plan means in Colorado's Water Plan. Colorado's Water Plan will also include an action plan as part of the revised Chapter 10.
77	3/5/2015 - 5/1/2015	Save our Colorado River!	2 form emails	I want to see: 1. Absolutely NO NEW large trans-mountain water diversions; 2. Colorado to have an easily reachable goal of saving 10-20% of water by 2018, 3. Revisit water rights, make sure we can legally use water from rains. That way demand on tap water is less, 4. And last - Colorado state needs take action on reuse and recycling of water, With drought hitting our South West, and weather patterns changing , let's be smart, use time to educate the public, I would be honored to work with you on this issue, I know how, and it can be fun for those who are learning to protect our living environment for our future.	N/A	1) The IBCC continues to work on developing a draft Conceptual Framework which explores innovative ways to address the issue of transmountain diversions in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work at the time of drafting. 2) As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. 3) Rainwater harvesting does have some limitations within current Colorado water law. The Prior Appropriation Doctrine, which is in Colorado's Constitution, typically dictates that rainwater is used by a downstream user. However, the CWCB maintains a rainwater 6.1. 4) The Basin Implementation Plans and Colorado's Water Plan incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone are not be enough to meet Colorado's future water needs. Additional balanced options need to be examined. These topics are explored in Section 6.3.
78	3/5/2015 - 5/1/2015	Put Water Conservation First, Environmental destruction precedes economic collapse	583 form emails	The final Colorado Water Plan must contain a commitment to conservation and actionable steps to effectively serve as the blueprint for Colorado's water. Specifically, the Plan needs the following meaningful goals and actions to be successful: 1) Increased funding for programs that assess and protect the health of our rivers and their flows. 2) A state-wide municipal water conservation goal of 10% by 2020. 3) No new large trans-mountain diversions. They are costly, damaging, and unpopular with Coloradans. 4) Provide farmers the funds and incentives they need to modernize agriculture and water-sharing practices that will keep more water in our rivers. 5) Increased and accelerated water recycling programs in the Front Range, which will decrease the need for new water projects. As a Coloradan who understands the value of one of our most precious and limited resources, you have my full support to create as strong of a Colorado Water Plan as possible to protect our rivers, promote conservation and efficiency, and guide our use of water for decades to come. Thank you for your continued dedication and hard work on this issue.	N/A	1) Regarding streamflow management plans, there is currently $1 million allocated in the 2015 Projects Bill. CWCB is also currently working on guidance for a streamflow management plan grant program, and working to further define and clarify what streamflow management plan means in Colorado's Water Plan. 2) As is currently described in the No and Low Regrets Action Plan and Colorado's Water Plan, there should be a minimum statewide water conservation target of 320,000 acre-feet by 2050, which includes 150,000 acre-feet from passive and 170,000 acre-feet from active conservation efforts. The section on municipal and industrial conservation will be updated in the second draft of Colorado's Water Plan with an added conservation stretch goal, consistent with the IBCC's recent development of a 400,000 acre-feet aspirational active conservation stretch goal. 3) The IBCC continues to work on developing a draft Conceptual Framework which explores innovative ways to address the issue of transmountain diversions in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work at the time of drafting. 4) Agricultural water sharing and modernizing agricultural efficiencies are aspects of Colorado's Water Plan and included in Section 6.4 and Subsection 6.3.4. 5) The Basin Implementation Plans and Colorado's Water Plan incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone are not be enough to meet Colorado's future water needs. Additional balanced options need to be examined. These topics are explored in Section 6.3.

PUBLIC INPUT ITEM 2

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5. Water demands [1]

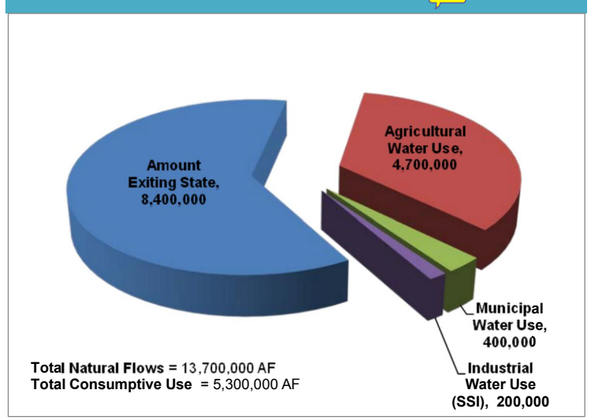
This chapter provides an overview of Colorado's current and projected municipal, industrial, agricultural, environmental, and recreational uses. Colorado's Water Plan identifies our water resource challenges. To assess the road ahead, it is essential to understand the many ways that water is used throughout the state and how these uses are connected. As municipal and industrial (M&I) needs expand, pressure on agriculture, the environment, and water-based recreation rises. As the state grows, associated municipal supply needs will likely increase, more people will seek the outdoor opportunities that Colorado offers, and Coloradans will continue to increase their consumption of a variety of locally grown agricultural products provided by ranches and farms across the state.

Overview

Water use in Colorado is calculated in acre-feet, which is the amount of water that it takes to cover one acre to a depth of one foot. An acre is about the size of a football field, including both end zones.

Water in Colorado is often used multiple times, as this sequence demonstrates: 1) water is diverted for a given use, 2) the plant, person, or process consumes a portion of the water, 3) the portion of water that is not consumed makes its way back to the river (referred to as "return flows"), 4) the return flows are subsequently used by other water users downstream, and the cycle repeats. On average, Colorado consumes 5.3 million acre-feet, but this water can be used multiple times as described in the sequence of 1-4 above, with total diversions equivalent to 15.3 million acre-feet.

Figure 5-1: Statewide consumptive water use[1] [2]



Summary of comments: Chapter5_Water Demands.pdf

Page:1

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 16:16:58

In general, this chapter needs more detail, and disaggregation.

Number: 2 Author: Bill Subject: Note Date: 2015-03-08 09:33:19

It would be really helpful if we knew how much of the 8.4 MAF exiting the state could be reused, and had a breakdown of this by basin. For example, if most of the water existing the state is not reusable in Colorado then it doen's make much difference, or if there is a lot of reuse in a place where we can not get at it, such as the Gunnison, then it isn't that helpful. But there should be a way to reuse most of th water in the South Platte basin or the Arkansas.

The total water that originates within Colorado is on average 13.7 million acre-feet. Over 60 percent of this water exits the state to be used by downstream users. The 5.3 million acre-feet consumed in Colorado totals less than 40 percent of all of waters originating within the state.[2] Of the water consumed, 89 percent is for agricultural use, followed by municipalities at 7 percent and large industries at 4 percent (Figure 5-1). [3]

In addition to meeting the requirements of communities and food production, water is necessary to support aquatic and riparian dependent species, boating, fishing, camping, and other water-based recreational activities.

Overview of M&I needs

To determine the amount of water needed by a municipality, factors such as population, jobs, economic trends and recreational use are used. Colorado's population growth is tied to economic growth. In 2012, water dependent sectors, including agriculture, mining, and utilities contributed nearly $17 billion dollars to Colorado's gross domestic product (GDP) (total state GDP in 2013 was over $273 billion) and represented over 58,000 jobs and $4.7 billion in annual wages.[4] These sectors, coupled with numerous others, contribute to a vibrant economy which leads to more jobs, and to more people moving to and residing in Colorado.[5] This growth, in part, drives M&I water demands.

Municipal needs

Water needs for municipalities are determined by multiplying per person water use by the number of new people expected to live in a municipality, then subtracting water conservation demand reductions, and finally adding any expected increases due to higher temperatures or commercial activities.[a] 1

2

Looking ahead to 2050, the future population within Colorado is difficult to accurately predict. For that reason low, medium, and high population estimates were developed. However, even under slow economic growth conditions, most communities throughout the state are projected to grow.[6] Current indications show that Colorado has one of the fastest growing state economies nationwide, even receiving the top ranking in some analyses.[7] Under the high growth scenario, the state's population could nearly double by 2050, with some communities growing moderately while others are expected to triple in size.[8] Such growth will mean additional revenue for education and services and less unemployment, but it will also increase water demands. The total change in water demands will also be effected by further increases due to climate changes and decreases from water conservation actions (see Section 6.3) 3

[a] For the purposes of CWCB's technical work, conservation savings were divided into two categories. The first is passive conservation, which was used to reduce demand projections. Passive conservation results from the replacement of old indoor fixtures and appliances with newer, more efficient ones. Active conservation, which takes a concerted effort on the part of water providers and/or property owners, is treated as a method to address the water supply gap. It is incorporated into section 6.3 so that a conscious effort can be made to reduce demands through active conservation. 4

Page:2

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 07:59:04

This makes is sound like use of a simple per capita demand is the ONLY way to model municipal demands. That is too narrow a view..
People do not live as individuals (free range style), They live in households. More importantly, while the number of persons per household is a major determinant in demand, it is not the only determinant. The type of house: new, existing, single family, multi family are all important factors.)
The number of residents in the homes is important, but , since demands are not linear with capita, one can not take a single per capita number and extrapolate it to households in a linear fashion without introducing errors.
We believe that this section needs more detail on the breakdown of water demands by category or end uses.

Number: 2 Author: Bill Subject: Note Date: 2015-03-09 14:49:37

Even though it may be difficult to do, we still need the best estimate of the existing population (and housing mix) and the projected new population under each scenario, with estimates of what percentage will be housed in SF and MF settings. Good to throw in estimates for the irrigated areas per household.

Number: 3 Author: Bill Subject: Note Date: 2015-03-07 15:25:53

The demands need to be linked to the numbers and types of households anticipated by the new growth and existing households. Other demands need to be estimated separately from residential demands.

Number: 4 Author: Bill Subject: Note Date: 2015-03-09 08:02:05

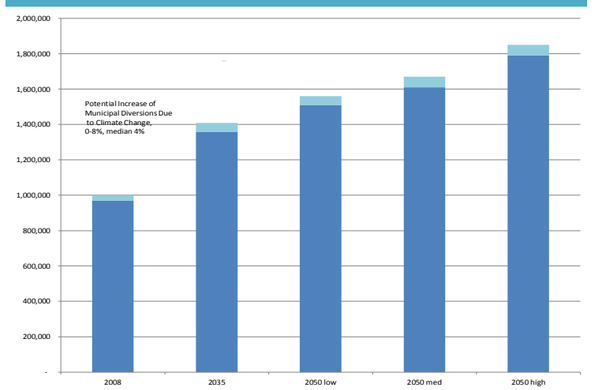
I do not think that we need to get too hung up on this distinction. What do you call it when agencies actively promote replacement of fixtures and appliances. The key thing is how many households are transforming from high water consumers to low water consumers each year.

Colorado's growing economy leads to population growth in two primary ways. First, Coloradans are having children who attend college in the state and are able to remain as working adults who start their own families. With the birth rate exceeding the death rate, roughly half of the state's growth comes from residents born in Colorado.[9] Second, Colorado is a desirable place to live. A diverse and healthy economy, combined with vibrant communities, natural beauty, and a high quality of life draw people and businesses to the State and keep them here.[10]

To continue to employ current and future citizens, Colorado needs to maintain a healthy economy. Furthermore, Colorado does not have the work force needed to keep pace with growth in various employment sectors. For instance, with a growing elderly population, more people will need medical care. To serve this population, the state of Colorado will need additional health workers, some of whom must come from out of state.[11]

Population growth for the state is inevitable, but Colorado state and local governments can influence how and where the population grows, and how much water is needed to support such growth. These strategies are further discussed in Section 6.3. Climate change could also increase municipal needs as outdoor landscapes adapt to longer growing seasons, higher temperatures, and higher rates of evapotranspiration. The effects of climate change on total annual municipal diversions are expected to range from no effect to an increase of much as 8 percent (Figure 5-2).[12] If Colorado experiences a future where population rises while the climate becomes hotter and dryer (a scenario known as hot growth)[b] more than a million acre-feet per year may be needed by 2050 beyond the 2008 demand levels.[13] 1 However, if Colorado experiences weak population growth, matched with historical temperature conditions, the additional annual demand beyond 2008 levels is approximately 600,000 acre-feet.[14]

Figure 5-2: Projected M&I water demands (acre-feet) with range of climate change increases



[b] This scenario is also known as the "hot growth" scenario in IBCC scenario planning work, which has hot and dry climate matched with high population growth.

Page:3

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 14:11:54

Adding 1 MAF to the 2008 demands would bring total demands to ~2 MAF; the graph shows just over 1.8 MAF.

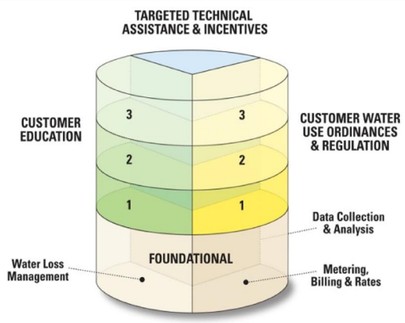
The degree to which climate change could impact municipal demands varies considerably across the state because of differences in the amount of outdoor irrigation, potential temperature increases, and potential changes in precipitation patterns throughout the state.[15] Increases in demand from climate change do not take into account potential hydrological changes, which could further decrease municipal supply and exacerbate future municipal needs as discussed in Chapter 4.

While climate change has the potential to intensify municipal needs, water conservation, reuse, and land use planning have the potential to attenuate them. As described in Section 6.1, no matter what future Colorado faces, a significant amount of conserved water will be needed to ensure that we have enough water to meet Colorado's future needs.

State of knowledge on water conservation

In 2010, the Colorado Water Conservation Board (CWCB) funded a first Best Practices Guidebook for Municipal Water Conservation in Colorado. Colorado WaterWise created the best practices guidebook with a large technical and stakeholder group and established fourteen best practices that outline the potential benefits and costs for active water conservation measures, indoor and outdoor, residential and non-residential practices. The guidebook provides a menu of options that can be selected to add to water providers' water conservation programs. The best practices require financial and human resources to accomplish and implementation varies greatly among water providers.[16]

Figure 5-3: SWSI levels analysis framework



The CWCB created the levels analysis framework prioritizing the best practices a local water provider may undertake to achieve its goals. The levels analysis focuses on foundational practices first and then proceeds in varying degrees of difficulty organized by technical assistance and incentives, regulations, and education (Figure 5-3). This analysis will help water providers focus both human and financial resources on the most cost efficient activities (most acre-feet saved/resources expended) first and then later expand to attain the more difficult activities.[17]

Using the best practices as a basis, the Statewide Water Supply Initiative (SWSI) 2010 estimated low, medium and high strategies for active water conservation savings. Active water conservation is water conservation that occurs because of the enactment of programs at the local level where financial and human resources are committed to carrying out water efficiency programming. Depending on the level of savings, a varying amount of effort is required to achieve penetration

No Comments.

rates consistent with the savings estimates. The SWSI 2010 M&I Water Conservation Strategies report states:

"If water conservation is to be part of Colorado's future water supply portfolio, it must be supported and funded like other supply initiatives. To obtain the savings forecast in this report, the strategies described must be rigorously implemented at the state, regional, local, and customer level. Water is saved by municipal customers, but customers can be aided in the effort. State polices that promote conservation-oriented rates, water loss control measures, water efficient landscape and building standards, improved plumbing codes, and education and outreach set the stage for regional and local conservation program measures that target high demand customers and ensure new customers join the water system at a high level of efficiency."

The total potential savings in SWSI 2010 range from 160,000 to 461,000 acre-feet statewide in 2050 (Table 5-1).[18]

Table 5-1: Potential water savings for 2030 and 2050 in SWSI 2010

Project	Level	2030 Forecast Savings* (AFY)	2050 Forecast Savings* (AFY)
SWSI 2010	Passive***	131,000	154,000
	Low (active only)	78,000	160,200
	Medium (active only)	133,000	331,200
	High (active only)	197,100	461,300

1

Even at the highest level of conservation savings, there is still considerable flexibility for individual water utilities. For instance, under high conservation savings, 50 to 80 percent of utilities statewide will need to implement targeted audits for customers that use high amounts of water on their landscapes (Table 5-2). While this practice may not make sense for every provider, it may for the majority of providers. By following best practices, water providers can get results while implementing the audits in a way that makes the most sense for the utility. Furthermore, high conservation levels still allow for attractive landscapes that include grass, parks, and trees and therefore maintain property values and continue to help reduce increased urban temperatures. Efforts to address outdoor water conservation need to balance the vital importance of urban landscape and its benefits, including improved air quality, surface water and groundwater quality, increased property values, aesthetics, and general quality of life.

Page:5

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 14:58:42

154+461= a total of 615 kaf/yr = 33% of projected high demand of 1850 kaf/yr (or 30% of 2 MAF)(From Figure 5.2.). That seems reasonable, and perhaps it could be a bit higher.

Table 5-2: Comparison of 2050 implementation and penetration level for 3 conservation strategies and demand reductions used in forecasts

Measure	Implementation or Penetration Level by 2050		
	Low Strategy	**Medium Strategy**	**High Strategy**
System-wide conservation measures with potential to impact all customers			
Public information and education	~100%	~100%	~100%
Integrated resources planning	~100%	~100%	~100%
Conservation-oriented water rates	~100%	~100%	~100%
Water budget-based water rates	<=10% of utilities implement	<=30% of utilities implement	<=50% of utilities implement
Conservation-oriented tap fees	0 - 5% of utilities implement	5 - 10% of utilities implement	<= 50% of utilities implement
Smart metering with leak detection	<=10% of pop.	<=50% of pop.	50 - 100% of pop.
Residential indoor savings and measures			
Reduction in Residential Per Capita Indoor Use	**Res. Indoor gpcd = 40**	**Res. Indoor gpcd = 35**	**Res. Indoor gpcd = 30** 1
Conservation-oriented plumbing and building codes, green building, rules for new residential construction	30-50% of state impacted	50-70% of state impacted	70-100% of state impacted
High efficiency toilets, clothes washers, faucets, and CII equipment	Passive ~100%	Passive ~100%	Passive ~100%
Submetering of new multi-family housing	0%	~50%	~100%
Reduction in customer side leakage	33% savings -passive from toilet replacement	37% savings -passive from toilet replacement and active repairs	43% savings -passive from toilet replacement and active repairs
Non-Residential indoor savings and measures			
Reduction in Non-Residential Per Capita Indoor Use	**15% reduction**	**25% reduction**	**30% reduction** 2
High efficiency toilets, urinals, clothes washers, faucets, and showers	Passive ~100%	Passive ~100%	Passive ~100%
Conservation-oriented plumbing and building codes, green building, rules for new non-residential construction	30-50% of state impacted	50-70% of state impacted	70-100% of state impacted

Page:6

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 14:59:08

40 gpcd = 110 gphd (2.7 persons/hh)
35 gpcd = ~95 gphd
30 gpcd = ~80 gphd.
These match pretty well with the REUWS2 numbers.
Any idea of how many households there are in the State?

Number: 2 Author: Bill Subject: Note Date: 2015-03-09 14:59:39

It is hard to figure out what you mean by non-residential per capita consumption? Why not just express it in terms of total non-residential use. How do we convert these % reductions into volumes (MAF).

Table 5-2: Comparison of 2050 implementation and penetration level for 3 conservation strategies and demand reductions used in forecasts

Measure	Implementation or Penetration Level by 2050		
	Low Strategy	Medium Strategy	High Strategy
Specialized non-residential surveys, audits, and equipment efficiency improvements	0-10% of utilities implement	10-50% of utilities implement	50-80% of utilities implement
**Landscape conservation savings and measures*			
Landscape water use reductions (residential and non-residential)	**15% reduction**	**22-25% reduction**	**27-35% reduction**
Targeted audits for high demand landscape customers	0-30% of utilities implement	30-50% of utilities implement	50-80% of utilities implement
Landscape transformation of some high water requirement turf to low water requirement plantings	<=20% of landscapes	20-40% of landscapes	>50% of landscapes
Irrigation efficiency improvements	<=10% of landscapes	<=50% of landscapes	50 - 100% of landscapes
Utility Water Loss Control			
Improved utility water loss control measures	**<=7% real losses**	**<=6% real losses**	**<=6% real losses**

*Landscape water demand reductions include the anticipated impact of urban densification.

Not all conservation savings can or should be applied to meet future growth. Not every municipality that conserves water will need all of it to meet future growth, and legal barriers restrict water providers from sharing conserved water. Most entities do not have the infrastructure to either share water or re-time conserved water so that it can be used when needed. Additionally, some entities may choose to use conserved water as part of their strategic drought reserve. Initial estimates by the roundtables indicate that between fifty and sixty percent of conserved water could be used to meet future growth. Through the stakeholder engagement process described Section 6.3, it was determined that approximately 170,000 acre-feet was the plausible amount that could be applied to meet future needs, no matter what type of future Colorado may face.[19] During the latest IBCC discussions, it was determined that Colorado should strive for a high conservation standard that recognizes that each water utility has unique opportunities and capacity for conservation. The IBCC is working to further define what this high conservation standard means. [20]

In addition to this amount, another 150,000 acre-feet of savings will likely accrue by 2050 because of natural replacement rates of fixtures and appliances.[21] These passive water conservation savings occur when home and property owners replace their indoor water fixtures and appliances. Their choices save water as a result of large-scale regulatory or legislative initiatives such as the Energy

Page:7

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 15:00:09

Making annual reporting part of the program, and having it include estimates of losses would be good.

Number: 2 Author: Bill Subject: Note Date: 2015-03-09 15:05:40

I don't know if this is accurate. i.e. Most agencies have sufficient storage to carry over water saved in the sping and summer for use the next spring.

Number: 3 Author: Bill Subject: Note Date: 2015-03-09 14:43:19

Does this mean that 40-50% of the reusable water is going to leave the state? We need to know what basins this "lost" water is located; also need to have the reasons for not being able to reuse the water explained.
it would also be useful to know what mechanisms are being considered for reuse. Is the plan to use exchanges, or is pumping being considered?

Number: 4 Author: Bill Subject: Note Date: 2015-03-09 15:09:42

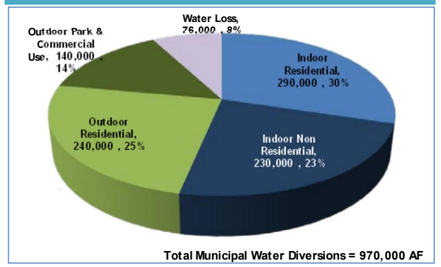
Going from a "standard" home (~140 gphd) to a WaterSense home (~110 gphd) will save ~ 11 kgal/home/yr, or 0.034 af/household. Saving 150,000 af through retrofits implies there are ~ 4.4 million households (MF + SF) in the state. Is that about right? At 2.8 persons/HH this suggests the population of the state is ~12 million persons. I think the State population is closer to 5.3 million.

Policy Act of 1992 (1992 EPACT). Passive water conservation can be considered a baseline of water savings that will occur naturally and thus is included in demand projections. As customers replace their toilets, dishwashers, clothes washers, showers and the like, many will choose WaterSense or EnergyStar labeled fixtures and appliances, which use less water. Colorado may experience these savings sooner than expected because of the recent legislation, such as Senate Bill 14-103, as described further in Section 6.3.

Looking forward, additional technical work is needed to better inform the statewide discussion. The SWSI 2010 technical analysis should be updated to take into account the length and severity of the recent economic recession.

Population projections from the Department of Local Affairs indicate that even with the recent economic recession, Colorado's population is projected to reach between 8.3 and 9.2 million people by 2050, compared to the current population of 5.2 million.[23] The CWCB is in the process of applying new water use data to future population projections for low, medium, and high scenarios. This data will result in updated water demand projections, and will be available by early 2015.

Figure 5-4: Statewide municipal use patterns[22]



Colorado's current municipal diversions total approximately 970,000 acre-feet annually.[24] This use is split between indoor use, outdoor use, and water loss in distribution systems. These numbers can be further divided between residential, parks, and commercial uses. Statewide, Colorado uses 53 percent indoors, 39 percent outdoors, and 8 percent due to water loss (Figure 5-4).[c]

Municipal reuse

According to SWSI 2010, the reuse of existing supplies has been projected to provide 43,000 to 61,000 acre-feet of water per year, which accounts for about 10 percent of the total Identified Projects and Processes (IPP) projected yield.[25] The full use of reusable water supplies will play an integral role in closing the supply gap by extending the resource through efficient reuse of water.

Colorado water law defines which water supplies can be reused and the extent to which each source can be reused. With limited exceptions, the following sources can legally be reused in Colorado:

[c] Water loss is defined as the difference between system input volume and authorized consumption, consisting of apparent plus real losses.

Page:8

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 15:34:51

Need to show the backup for this figure. How many households (SF & MF), persons per household, and gal/HH/Day use. How many acres of irrigated land are there for the outdoor residential category, how many square feet is this per SF and MF household? How many sq ft of irrigated area is there in parks and other irrigated areas per household?
How does the non-residential use break down.
Then we need to show how adding a million more persons will change things.

Number: 2 Author: Bill Subject: Note Date: 2015-03-09 15:24:25

What percentage of total reusable water is this?

- **Nonnative water:** In most cases, water imported into a basin through a transbasin diversion can be reused to extinction. Transbasin diversions account for a substantial quantity of the total reusable supply in Colorado.
- **Agricultural-Municipal Water Transfers:** Agricultural transfers are generally available for reuse; however, reuse is limited to the historic consumptive use of the original agricultural water right decree. This includes water from traditional purchase of agricultural water rights and alternative transfer methods.
- **Nontributary groundwater:** Reuse of nontributary groundwater is allowed.
- **Other Diverted Water:** Any water right with a decreed reuse right may be reused to the extent described in the decree.

These sources can be reused directly, by piping the recycled water from the water reclamation facility to beneficial uses such as nonpotable irrigation sites or industrial uses, or indirectly, by augmenting a surface water or groundwater body [1] recycled water and diverting an equal amount of flow from a different point of diversion.[26]

The use of reclaimed domestic wastewater is subject to Regulation 84, which was developed by the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission (WQCC). This regulation currently authorizes the use of reclaimed water for landscape beneficial uses such as nonpotable irrigation (including single-family residential irrigation) and various commercial and industrial uses such as cooling tower use, dust control, soil compaction, mechanized street cleaning, fire protection, and zoo operations.[27]

Municipal land use

Higher density development saves water compared to traditional developments and has othe [2] benefits, such as more efficient infrastructure. The 2009 California Water Plan Update showed that a 20 percent increase in density could yield a 10 percent water savings.[28] Denser development can also enhance other elements that help define a community, such as transportation, open space, neighborhood design, and walkability. Landscape and irrigation best practices may offer more benefits within a denser land use environment than within a traditional less-dense environment. Urban parks and landscapes will not disappear with denser urban development, because healthy urban landscapes enhance the livability of a city or town and are a crucial asset for urban populations.

Large industry

The types of large industries located in Colorado include breweries, snowmaking, energy and mining extraction, power generation, food processing, and a multitude of other industries. Collectively, these industries currently require approximately 200,000 acre-feet of water annually. Projections indicate that future large industry needs could increase by 50,000 to 130,000 acre-feet per year by 2050. [3]

Additional analyses of industrial needs regarding the use associated with energy and extraction will be incorporated into future water planning efforts. Through statewide and basin-wide planning efforts, existing data will be confirmed and future uses updated. For instance, the Colorado and Yampa/White/Green basin roundtables conducted an Energy Development Water Needs

Page:9

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 15:30:11

You should mention that exchanges of water are often limited by physical availability of water at the upstream point of exchange.

Number: 2 Author: Bill Subject: Note Date: 2015-03-09 15:36:41

Too general. This should be expressed in more explicit terms, by showing the changes in the mix of housing types and irrigated areas. e.g. if we add a lot more density then a greater percentage of the new residents will live in MF housing which should have a lower demand, plus less irrigated area, but we need to put numbers on these.

Number: 3 Author: Bill Subject: Note Date: 2015-03-09 15:38:54

Would it be possible to break down the Industry water use by type of industry more precisely. What types of new industries are we anticipating? Surely, Industrial.

Assessment Update and have asked the CWCB to incorporate this work into future statewide planning efforts.[30]

Summary

Demand management strategies such as water conservation, reuse, and land use will play a central role in reducing future demands. As seen in this section, much work has been accomplished by Colorado water providers in the areas of demand management and alternative supplies. Additionally, innovative work is occurring across the United States and points to trends that Colorado may wish to follow. Next steps and future actions will be described in Section 6.3.

Overview of agricultural needs

Statewide, agriculture diverts 34 percent of the total amount of water originating within Colorado, which is 89 percent of the total amount of water consumed. Current agricultural consumptive use is estimated at approximately 4.7 million acre-feet on an average annual basis.[31] However, taking into account crop irrigation requirements, current agricultural crops could use an additional 2 million acre-feet if a plentiful supply existed.[32] It is important to note, however, that some water shortages are because of management decisions in addition to physically or legally limited water supplies. It is not expected that every agricultural shortage can or should be met in the future.

Statewide irrigated acreage is expected to decline for a variety of reasons:

- Many municipalities turn to agricultural water rights as an affordable, reliable source of water and purchase them from willing sellers.
- Urban areas expand onto irrigated farmlands, thus urbanizing those agricultural lands.
- Due to aquifer sustainability and some compact-related issues, the South Platte, Republican, and Rio Grande Basins have reduced, or are in the process of reducing, irrigated acreage. [33]

Irrigated acres could decrease from 3.5 million irrigated acres to 2.7 million acres statewide.[34] The potential effect is most pronounced in the South Platte basin, where as much as 35 percent of the irrigated acres in the basin could be taken out of production.[35]

In addition to potential decreases in irrigated acres, agricultural producers could be further affected by climate change. Depending on location, higher temperatures in the future could increase water consumption by 2 to 26 percent on the lands still in production (Figure 5-5). [36] More frequent or severe droughts could also impact agricultural production and slow economic agricultural activity. During the 2012 drought the state experienced a loss of agricultural revenues of $409 million and an additional loss of $317 million in secondary spending in local communities.[37]

Page:10

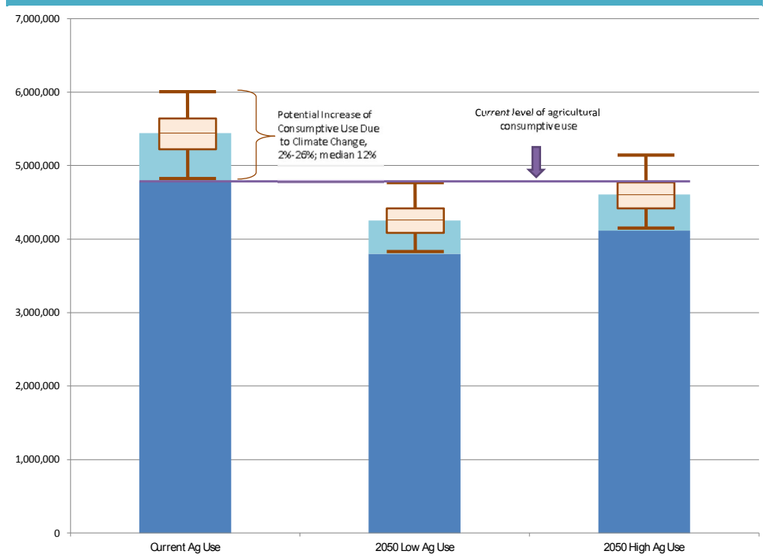
Number: 1 Author: Bill Subject: Note Date: 2015-02-28 10:59:38

This section needs more data on the actual populations and numbers of households currently served and anticipated through buildout. A breakdown of housing by types and estimates of irrigated areas servied by M&I systems would also be helprful.

Number: 2 Author: Bill Subject: Note Date: 2015-03-09 15:51:00

These damages resulted from how many AF of shortages to ag? Or what percent of the ag demands results in how many $ of damages?

Figure 5-5: Projected agricultural water demands (acre-feet) with range of climate change increases 1



As part of the Basin Implementation Plans (BIPs), the basin roundtables have examined future agricultural water needs. Six basins expect decreases in irrigated acres, while two basins expect increases. All of the basin roundtables aim to reduce expected shortages, and in a few cases meet additional expected agricultural needs. Section 6.5 further explores projects and methods to achieve these goals. Below is a brief summary of agricultural needs, as identified in the BIPs.

Table 5-3: Summary of agricultural goals indicated in the BIPs 2

Basin	Identified Agricultural Goals
Arkansas	Increase amount of agricultural augmentation water by 30,000-50,000 acre-feet
Colorado	Reduce agricultural shortages
Gunnison	Reduce agricultural shortages by approximately 17,000 acre-feet
Metro/South Platte	Reduce agricultural shortages
North Platte	Add an additional 28,000 acres of irrigated farmland; continue to restore, maintain, and modernize critical water infrastructure to preserve current uses and increase efficiencies
Rio Grande	Manage water use to sustain optimal agricultural economy throughout the Basin's communities
Southwest	Reduce agricultural shortages by implementing at least 10 projects
Yampa/White/Green	Add an additional 14,000 acres of irrigated farmland; reduce agricultural shortages

Page:11

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 15:56:03

Should point out that not all of the reduction in Ag diversion will be available for other (muni) uses, since much of these diversions were from return flows from upstream uses.

Number: 2 Author: Bill Subject: Note Date: 2015-03-09 15:55:05

Notice that in Table 5-3 the goals for Ag use are always to increase irrigated areas and water supplies: not to transfer water from Ag to municipal use. It looks like Ag wants ~ 100,000 AF more water.

Overview of environmental and recreational needs

Environmental and recreational attributes are not solely based on the amount of water needed. Water supply, aquatic and riparian habitat, water quality, bank stability, stream access, and habitat connectivity are all critical.

Additionally, many recreational activities are not river-based. Outdoor recreational activities such as golf, hiking, biking, and team sports such as baseball or football require a certain amount of water use to maintain the grassy areas these activities involve. The irrigation of sports fields, golf courses, and grassy open spaces are primarily served by a municipal water provider. Snow skiing and the surrounding tourism industry are major economic drivers in the state, and the water supply for snowmaking is primarily classified as self-supplied industrial, with resort operators owning the associated water rights and infrastructure. Maintaining flows in rivers also can result in economic value through healthier habitats for wildlife and wildlife viewing and real estate.

Therefore, river-based environmental and recreational needs are often represented in number of stream miles or acres of wetland, featuring important attributes which need protection. A collaborative effort between the CWCB and the basin roundtables, as part of SWSI 2010, identified 13,500 perennial stream miles in Colorado that have important attributes and were selected as "focus areas."[38] Figure 5-6 shows the important areas identified by the basin roundtables.

The focus area information can be further broken down by attribute. For instance:

- 2,260 perennial stream miles of Colorado River and greenback cutthroat trout habitat were identified in focus areas across the state.
- 3,164 perennial stream miles of warm-water fish habitat were identified in focus areas. These reaches include endangered, threatened, or imperiled fish species.
- 7,642 perennial stream miles of significant riparian areas and wetlands were identified. These include occurrences of exemplary plant communities as well as rare plant communities.

The number of water rights appropriated for instream flows, natural lake levels, and recreational in-channel diversions demonstrate the existing needs for the environment and recreation:

- In stream flow: 9,180 stream miles for 1,595 decreed water rights
- Natural lake levels: 126,000 acre-feet for 476 decreed water rights
- Recreational in-channel diversions: 20 decreed water rights, ranging in size from 5 to 1,800 cubic feet per second

It is critical to note that water is not consumed by environmental or recreational uses, but rather held in streams and designated for those uses. This water is often reused multiple times downstream by agricultural, municipal, or industrial water users.

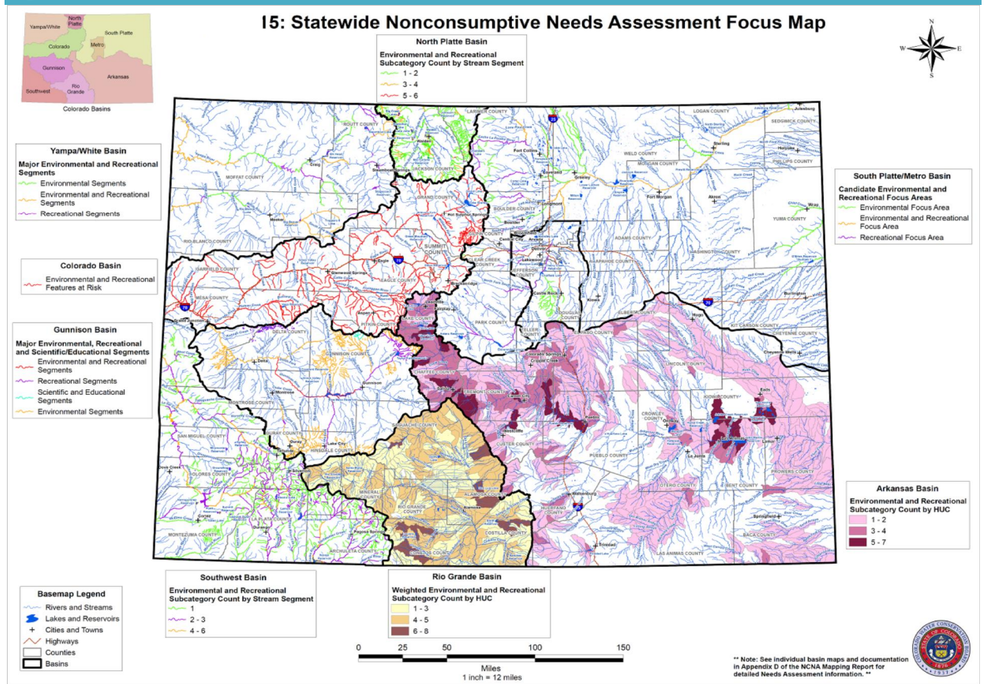
The ability to decree water using instream flows and recreational in-channel diversions provides Colorado with important, effective tools for meeting environmental and recreational needs and for supporting state and federal values.

Page:12

Number: 1 Author: Bill Subject: Note Date: 2015-03-09 16:00:05

Is irrigation of a golf course a recreational use? Maybe you mean in-stream uses do not entail consumption of the water.

Figure 5-6: Statewide Environmental and Recreational Needs[39]



No Comments.

Climate change could impact environmental and recreational needs. If temperatures continue to increase, the range of suitable habitat for cold water fish species is expected to diminish (Figure 5-7). Rising temperatures could also adversely affect plant communities.[40] Reduced water supplies, because of increased evapotranspiration, could also be a factor in maintaining the range of cold water species because of the lower capacity of reduced flows to dissipate heat.[41]

In addition to the previously mentioned state tools, various projects and methods, such as flow maintenance agreements and habitat restoration, help meet environmental and recreational needs. As Figure 5-7 indicates, mitigation measures for cold water habitats as well as environmental, agricultural and municipal partnerships will be critical to meet the future needs of cold water fish species. Several examples of multi-purpose projects are listed in Sections 6.6 and 9.2, and a few multi-purpose projects that meet multiple needs are listed below:

- Upper Arkansas Voluntary Flow Management Program
- Alternative Wild and Scenic Processes (e.g., the Upper Colorado, Lower Colorado, and Dolores River)
- Colorado River Cooperative Agreement
- Elkhead Reservoir Enlargement
- Rio Blanco River Restoration

Figure 5-7: Illustrative climate-informed actions in response to climate change impacts on the availability of suitable habitat for cold water native trout[42]

GOAL: Conservation of cold water native trout populations	
Climate Change Impacts & Vulnerabilities	**Example Climate-Informed Actions**
Decreased snowpack plus warmer air temperatures ↓ Likely to result in decreased snowpack inputs to streams, lower summer flows and warmer water temperatures ↓ Which is likely to result in thermal tolerances for native trout exceeded in some streams, making it difficult to maintain/restore native trout images: B. Inman, B. Shepard, MT-FWP	*Fish Management* • Identify and restore "warm-adapted" populations of native trout. • Consider *not* restoring native trout into streams with high probability of warming past thermal limits. *Habitat Management* • Protect and restore currently occupied streams that are expected to stay cold. • Protect and restore streams that are currently too cold. *Water Management* • Increase storage of water in upland and wetland areas (e.g., by reintroducing beaver, installing beaver mimic dams, installing upland micro-catchments).

No Comments.

[1] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010 (Denver, 2011), 4-29. ; Harding, Ben. SWSI Climate Impact Support, Development of Projected Gauged Flows Draft Technical Memorandum (Denver, 2014), 1.
[2] United States Geological Survey, Estimated Use of Water in the United States in 2005 (Reston, 2005), 6.
[3] United States Geological Survey, Estimated Use of Water in the United States in 2005, 7.
[4] United States Department of Commerce, Bureau of Economic Analysis; Jobs and Wages, QCEW 2012.; U.S. Department of Commerce, Bureau of Economic Analysis, Advance 2013 and Revised 1997-2012 Statistics of GDP by State, http://www.bea.gov/newsreleases/regional/gdp_state/gsp_newsrelease.htm.
[5] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-3.
[6] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-5.
[7] Andy Holodny and Elena Kiersz, "Here's how all 50 State Economies are doing, Ranked from Slowest to Fastest," Business Insider, August 4, 2014. http://www.businessinsider.com/state-economic-growth-rankings-2014-8?op=1.
[8] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-5.; Colorado Department of Local Affairs; State Demographer's Office, 2050 Low, Medium, and High Population Projections (Denver, 2014), 1.
[9] Elizabeth Garner, Colorado State Demographer's Office, Presentation, 2011.
[10] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, Appendix H.
[11] Colorado State Demographer's Office, Personal Communication, 2014
[12] Harding, SWSI Climate Impact Support, Development of Projected Gauged Flows Draft Technical Memorandum, 1.
[13] CWCB, "SWSI 2016 Initial Draft Chapter 7: Scenario Planning & Adaptive Management," CWCB, Denver, 2014
[14] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-11.
[15] Harding, Ben. SWSI Climate Impact Support, Development of Projected Gauged Flows Draft Technical Memorandum (Denver, 2014), 1.
[16] Colorado WaterWise and Aquacraft, Inc. Best Practices Guidebook for Municipal Water Conservation in Colorado (Denver: Colorado WaterWise, 2010). http://coloradowaterwise.org/BestPractices.
[17] Colorado Water Conservation Board, SWSI Water Conservation Levels Analysis (2010), 31. http://cwcb.state.co.us/public-information/publications/Pages/StudiesReports.aspx.
[18] Colorado Water Conservation Board, AppendixL: SWSI 2010 Municipal and Industrial Water Conservation Strategies (2011), 12. http://cwcb.state.co.us/water-management/water-supply-planning/Documents/SWSI2010/AppendixL_SWSI2010MunicipalandIndustrialWaterConservationStrategies.pdf.
[19] Interbasin Compact Committee, Draft No & Low Regrets Action Plan , 3.
[20] Interbasin Compact Committee, Draft Conceptual Agreement , 15.
[21] Colorado Water Conservation Board, AppendixL: SWSI 2010 Municipal and Industrial Water Conservation Strategies, 10.
[22] Colorado Water Conservation Board, AppendixL: SWSI 2010 Municipal and Industrial Water Conservation Strategies, 43.
[23] State Demography Office, Department of Local Affairs. Updated Population Forecasts to 2050 by River Basin. June 2014.
[24] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-11.
[25] Colorado Water Conservation Board, SWSI 2010 Consumptive Projects and Methods (2010), 5-4 – 5-5. http://cwcb.state.co.us/water-management/water-supply-planning/Documents/SWSI2010/SWSI2010Section5.pdf.
[26] M. o. R. R. Committee, Interviewee, Reuse discussion. [Interview]. April 2014.
[27] Colorado Department of Public Health and Environment Water Quality Control Commission, Regulation No. 84 Reclaimed Water Control Regulation (2013). https://www.colorado.gov/pacific/sites/default/files/Regulation-84.pdf.
[28] C. D. o. W. Resources, "California Water Plan Update," Integrated Water Management Bulletin 160-09, 2009.
[29] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-16.

No Comments.

[30] Colorado Basin roundtable and Yampa/White/Green Basin roundtable, Energy Development Water Needs Assessment Phase 3 Final Report, June 30, 2014.
[31] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-29.
[32] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-29.
[33] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-26.
[34] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, 4-28.
[35] HDR Engineering and West Sage Water Consultants, Draft South Platte Basin Implementation Plan (Denver and Longmont, 2014).
[36] Harding, SWSI Climate Impact Support, Development of Projected Gauged Flows Draft Technical Memorandum, 1.
[37] Pritchett, James; Chris Goemans; Ron Nelson, Estimating the Short and Long-term Economic & Social Impacts of the 2012 Drought in Colorado, 8.
[38] Colorado Water Conservation Board, CDM Smith, and The Nature Conservancy, Nonconsumptive Toolbox (Denver, 2013), pg 3.
[39] Colorado Water Conservation Board, Statewide Water Supply Initiative 2010, Figure 2-15. http://cwcb.state.co.us/water-management/water-supply-planning/Documents/SWSI2010/S2%20Maps_Statewide.pdf
[40] Great Northern Landscape Conservation Cooperative Rocky Mountain Partner Forum Workshop, Summary Report for the Climate Change and Cold Water Systems Workshop (Bozeman: GNLCC, 2013), 9. http://ecoadapt.org/data/documents/RMPF_climate_workshopreport_FINAL_small.pdf
[41] Great Northern Lanscapes, Summary Report for the Climate Change and Cold Water Systems Workshop, 9.
[42] Great Northern Lanscapes, Summary Report for the Climate Change and Cold Water Systems Workshop, 9.

No Comments.

PUBLIC INPUT
ITEM 4

United States Department of the Interior

NATIONAL PARK SERVICE
INTERMOUNTAIN REGION
12795 West Alameda Parkway
P.O. Box 25287
Denver, Colorado 80225-0287

IN REPLY REFER TO:
NR-RSS

MAR 19 2015

Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Board Members:

The National Park Service (NPS) respectfully submits the following comments and questions regarding the Basin Implementation Plans (BIPs) and the Colorado State Water Plan (Water Plan or CWP). Our comments are consistent with the NPS mission -- to preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education and inspiration of this and future generations. The NPS' Colorado River Basin Parks Program includes eleven units within the Colorado River Basin that encompass 1,130 river miles and more than 5 million acres of surrounding land. Management decisions regarding the river system have the potential to affect the unique natural, cultural, and recreational resources of these park units including those downstream in other states.

I. Goals for the Environment and Recreation

Concerns and challenges with Colorado River supply and demand

We support and share your concern regarding risk of shortage in the Colorado River basin, that "*the gap between our water supply and water demand is real and looming*" (CWP-pg 1) and that "*climate change and associated impacts make it more difficult to meet Colorado's future water needs because of diminishing suppl[y]*" (CWP – pg 3).

Environmental and recreational values to be protected

We also agree that it is necessary and appropriate to highlight the exceptional environmental and recreational values within the State of Colorado. We share your goal to "*honor Colorado's water values and ensur[e] that the state's most valuable resource is protected and available for generations to come*" (CWP – pg 4) and agree that Colorado's multipurpose water projects should include language about "*protecting the health of rivers, streams and watersheds*" (CWP – pg 5).

Desire to use water the most efficiently

We agree with Governor John Hickenlooper's statement that "*Every conversation about water should start with conservation*" (CWP -pg 145). Given that "*future supply of Colorado River water is highly variable and uncertain*" (CWP - pg 282), the NPS believes, along with the western slope basin roundtables, that minimum water conservation for future scenarios should be changed from "*low to medium*" to "*high*" (CWP – pg 99) to more adequately address the gap between water supply and demand. We agree with the InterBasin Compact Committee (IBCC) work to further define what is meant by, and to set, "*high conservation standards*" (CWP – pg 76 and pg 274), particularly for municipal and agricultural efficiencies. Water conservation and efficiency could positively affect the resources in the national park units if that water was kept in the streams.

II. Environmental and recreational water quality and quantity

Encourage inventory for environmental and recreation purposes

Many projects listed in the BIPs seek to protect environmental and recreational resources via inventories of agricultural uses and existing infrastructure. While we agree it is important and necessary to inventory agriculture-related needs and conditions, we feel it is equally important to explicitly inventory and evaluate streams to identify key reaches with high (or low) environmental and recreational value, and those that are most in need of protection from threats to water quality and flow-dependent resources and values. We particularly encourage these inventories in the Gunnison Basin above Curecanti National Recreation Area and Black Canyon of the Gunnison National Park, and in the Yampa Basin above Dinosaur National Monument, as well as the Colorado Basin which is upstream of Canyonlands and Arches National Parks.

Identify more on-the ground projects for water quality or environmental improvements

We also encourage more action projects in all the BIPs to restore and address water quality and environmental concerns. We fully support those projects identified in the Colorado BIP that take steps towards on-the-ground environmental and recreation protection, and those in the Gunnison BIP that identify and address water quality concerns. More of these types of projects would help further meet BIP goals to ensure that key reaches are protected to the appropriate degree and to provide environmental and recreation benefits to the park units, the basins and the State.

Current in-stream flow protections of base flows may not protect all environmental and recreation purposes

Throughout the CWP and the BIPs, many references to existing in-stream flows imply that protection of minimum flows (i.e., base or subsistence flows) adequately protects all environmental and recreational uses. While in-stream flow protections for base flows are a good first step, it may be incorrect to assume that protection of just the minimum base flow will be sufficient to protect all environmental resources and/or recreational uses. Fish, sediment, and vegetation resources are influenced by peak and base flows, as well as other aspects of flow transitions, and in many cases have specific needs for both, as well as other specific flows, to maintain their quality and dynamic condition. It may be appropriate to evaluate whether existing in-stream flow protection is sufficient for environmental and recreational uses.

III. Concerns regarding risk associated with basin diversions

Risks and uncertainties related to water availability

We share the concerns raised by West Slope basins regarding increased risk in the Colorado River Basin from new supply projects, especially trans-basin diversions (CWP- pg 282-284). There has been a great deal of discussion in the roundtables about information which supports the idea that the Colorado River is currently over allocated. Uncertainty in climate change futures, changes in average inflow to Lake Powell, and incomplete information surrounding basin water commitments (e.g., existing water rights) result in uncertainty over the amount of water that is currently available for diversions out of the Upper Basin. During the West Slope Basin Meeting in December 2014, there was a call for more information on existing water commitments in each basin. The last Upper Basin hydrologic determination was completed in 2007, thus we are a long way from complete quantification of water rights and commitments in each basin. We support further data and information collection in order to better determine the water availability in these basins as it would help assess the potential impacts to our downstream national park units. Until there is more complete information available regarding commitments in each of the basins and less uncertainty in future water availability under climate change scenarios, concerns will remain related to any large future transmountain diversions.

Concerns related to diversions in wet years

We agree that "*Drought and dry periods have significant and lasting impacts on water supplies and availability for years, while wet years offer relief with as much as six times the amount of annual water*

supplies compared to dry years" (CWP -pg 56). Wet years refill reservoirs, like Lakes Powell and Mead, which are critical to the water infrastructure of the West. If wet-year water is instead diverted and used to supplement dry-year consumptive uses (CWP, IBCC Conceptual Agreement – pg 3), not only are reservoirs not refilled, but many of the aquatic and riverine ecosystems and associated wetland systems that depend on these high-flow wet years will be further imperiled. NPS recognizes the rights of states to develop their water and appreciates the State of Colorado's efforts on the CWP. Yet we remain concerned about the increasing risk of shortages and their effects not only on the environment and recreation, but also on agriculture, municipalities and industry. We agree with several of the roundtables that if new diversions are planned there is a need for thorough data collection and the need to quantify and evaluate impacts prior to setting aside water rights (CWP - pg 283). This would allow us to assess the impacts to our downstream resources in the park units.

IV. Economics metrics and trends for all sectors

Need for consistency in economic metrics

The CWP and BIPs use specific metrics (e.g., amount of water diverted and consumed, jobs generated, and dollars generated, etc.) to describe the contribution of agriculture to the regional and state economy (e.g., CWP –pg 78 and 118). These same reports also state that *"[o]utdoor recreation (including hunting, fishing, biking, hiking, skiing, golfing, wildlife watching and many other types of outdoor activities) significantly contributes to Colorado's economy, with non-consumptive water-based recreation an important part of that economy*" and that "*Healthy watersheds, rivers and streams, and wildlife are vital to maintaining Colorado's quality of life and a robust economy*" (CWP – pg 212). It would therefore seem appropriate to use the same metrics to compare and contrast the different uses of water (agriculture, hydropower, environmental and recreational) in terms of (1) amount of water diverted and consumed, (2) number of local and regional jobs supported, (3) dollars generated and infused into the local and regional economies, and (4) expected trends over time. This would provide clarity and allow for comparison of the economic value of consumptive and non- consumptive uses.

V. Drought contingency

Need inclusion of resource protection in priorities for drought contingency

Please include "*protection of in-stream natural resources, including endangered fish and other natural resources*," as one of the principles for the contingency planning. On page 18 of the CWP, in legal and institutional setting, it currently mentions only power generation. Protection of downstream resources has been mentioned as a priority in discussions at the roundtables as well as in discussions with CWCB staff, so we agree with those sentiments and suggest that wording to that effect be included in this plan. Flows out of Flaming Gorge Dam and Aspinall Dam directly affect resources within National Park units as well as the endangered fish within these reaches.

Thank you for this opportunity to comment on the Colorado Water Plan and the Basin Implementation Plans. And thank you for incorporating in your December 2014 draft, many of the comments from our November 2014 letter. We look forward to working with the State of Colorado further on the Water Plan and issues affecting NPS system units which arise from it. Please contact Rob Billerbeck, NPS Colorado River Coordinator for additional information on these comments or for more in-depth discussion about them. Rob can be reached by telephone (303-987-6789) or by electronic mail at rob_p_billerbeck@nps.gov.

Sincerely,

Sue E. Masica
Regional Director

cc: NPS Colorado River Steering Committee Members:

- Christine Lehnertz, Regional Director, Pacific West Region
- Ray Sauvajot, Acting Associate Director, Natural Resource Stewardship and Science
- Mark Foust, Committee Chair and Superintendent, Dinosaur National Monument
- Dave Uberuaga, Superintendent, Grand Canyon National Park
- Todd Brindle, Superintendent, Glen Canyon National Recreation Area and Rainbow Bridge National Monument
- Bruce Noble, Superintendent, Black Canyon of the Gunnison National Park and Curecanti National Recreation Area
- Kate Cannon, Superintendent, Arches National Park and Canyonlands National Park
- Patrick Gubbins, Acting Superintendent, Lake Mead National Recreation Area

NPS Staff:

- Tammy Whittington, Associate Regional Director, Resource Stewardship and Science, Intermountain Region
- Karen Breslin, Senior Policy Advisor, Intermountain Region
- Rob Billerbeck, Colorado River Coordinator, Intermountain Region
- Ed Harvey, Chief Water Resources Division, Natural Resource Stewardship and Science
- Bill Hansen, Water Resources Division, Natural Resource Stewardship and Science
- Mark Wondzell, Water Resources Division, Natural Resource Stewardship and Science

Basin Implementation Plan Representatives:

- Michelle Pierce, Gunnison Basin Roundtable Chair
- Jon Hill, Yampa Basin Roundtable Chair
- Jim Pokrandt, Colorado River Roundtable Chair

PUBLIC INPUT
ITEM 5

Kevin – Please take these comments into consideration as you develop the 2nd draft of Colorado's Water Plan:

Section 6.3.1

- No solution is the "silver bullet". Why call this out special for conservation unless you'll similarly call it for TMDs, ag transfers, storage, etc…
    - Suggest a deletion of the reference
- Good list of the benefits of conservation
- Nice highlights of CO conservation examples and other States' efforts (I love me some social norming)
- The no/low regrets is just that, shouldn't our state plan be striving for more than the lowest common denominator? Yes!
    - The IBCC specifically called for the consideration of a "stretch goal" beyond the no/low regrets
    - There is strong public polling to support greater commitments on water conservation (your agency has seen this already)
    - 99% of public comments you've received ask for higher levels of conservation than in the plan already
    - The West Slope BRTs are committed to high levels of conservation
    - Provider conservation plans on file with your agency project continued declines in use
    - Suggest a **performance based** goal to reduce per capita water use statewide by 10% between 2010 and 2020

Section 6.3.3

- Good highlights of wide-spread desire for better integration of land use and water
- Nice summaries of Net Zero, LULA, DRCOG, and TKC dialogue
- LULA
    - We're hosting another series of trainings in May 2015 should you care to add that

Overall Comment

- The water plan as written today has a lot of "the state should…" or "the state could…" I'd encourage the state to prioritize 1-3 actions under each section and turn them into "the state will…by doing…" Thanks Kevin! Be in touch w/ any questions and hope you have a good weekend,

Drew Beckwith | **Western Resource Advocates**

Water Policy Manager
2260 Baseline Road | Boulder, CO 80302
direct: (720) 763-3726 | office: (303) 444-1188
email: drew.beckwith@westernresources.org
twitter: @drewbeckwith
www.westernresourceadvocates.org

PUBLIC INPUT
ITEM 7

#1

COMPLETE

Collector: Web Link (Web Link)
Started: Thursday, February 19, 2015 5:39:24 PM
Last Modified: Thursday, February 19, 2015 6:19:34 PM
Time Spent: 00:40:09
IP Address: 98.245.199.103

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	1
A strong environment with healthy watersheds, rivers and streams, and wildlife.	2

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Neutral
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

None at this time.

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Summit
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Agriculture, Environmental

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

etbreck@gmail.com

#2

COMPLETE

Collector: Web Link (Web Link)
Started: Saturday, February 21, 2015 1:35:03 PM
Last Modified: Saturday, February 21, 2015 1:37:57 PM
Time Spent: 00:02:54
IP Address: 69.7.115.211

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	2
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	1
A strong environment with healthy watersheds, rivers and streams, and wildlife.	3

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Neutral
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Neutral
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Summit
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#3

COMPLETE

Collector: Web Link (Web Link)
Started: Monday, February 23, 2015 8:47:57 AM
Last Modified: Monday, February 23, 2015 8:51:12 AM
Time Spent: 00:03:15
IP Address: 216.237.82.197

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Neutral
Education	Support
Comments	It may come down to regulations, but making regulations does not always produce what you think you want.

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

The biggest thing we can do is prevent a big minus sign occurring from more water leaving the basin across the Divide.

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Garfield
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Agriculture, Water Professional, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#4

COMPLETE

Collector: Web Link (Web Link)
Started: Monday, February 23, 2015 12:37:06 PM
Last Modified: Monday, February 23, 2015 12:41:09 PM
Time Spent: 00:04:02
IP Address: 208.72.71.19

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	2
A robust skiing, recreation, and tourism industry.	3
Efficient and effective water infrastructure promoting smart land use.	5
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

Stream Management Plan is essential.

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	*Respondent skipped this question*
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Fishing, Whitewater boating, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#5

COMPLETE

Collector: Web Link (Web Link)
Started: Friday, February 27, 2015 10:33:36 AM
Last Modified: Friday, February 27, 2015 1:10:20 PM
Time Spent: 02:36:43
IP Address: 173.14.7.21

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	1
Efficient and effective water infrastructure promoting smart land use.	3
A strong environment with healthy watersheds, rivers and streams, and wildlife.	2

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support
Comments	This is kind of a funny question- each theme may require a different action

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Pitkin
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Whitewater boating, Water Professional, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#6

COMPLETE

Collector: Web Link (Web Link)
Started: Tuesday, March 03, 2015 3:20:26 PM
Last Modified: Tuesday, March 03, 2015 3:21:57 PM
Time Spent: 00:01:30
IP Address: 173.14.7.21

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	2
Efficient and effective water infrastructure promoting smart land use.	3
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Garfield
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Water Professional, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#7

COMPLETE

Collector: Web Link (Web Link)
Started: Wednesday, March 04, 2015 11:38:30 AM
Last Modified: Wednesday, March 04, 2015 11:42:41 AM
Time Spent: 00:04:10
IP Address: 66.86.84.79

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	3
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Don't let the political power of the Front Range water providers dominate the final outcomes of The Plan.

Q7: What county do you live in?	Eagle
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Fishing, Whitewater boating, Water Professional, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#8

COMPLETE

Collector: Web Link (Web Link)
Started: Wednesday, March 04, 2015 2:12:25 PM
Last Modified: Wednesday, March 04, 2015 2:15:05 PM
Time Spent: 00:02:40
IP Address: 65.102.241.78

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	2
Efficient and effective water infrastructure promoting smart land use.	4
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Eagle
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Water Professional, Environmental

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

jfriestad@sanisabel.net

#9

COMPLETE

Collector: Web Link (Web Link)
Started: Wednesday, March 04, 2015 4:54:22 PM
Last Modified: Wednesday, March 04, 2015 4:57:15 PM
Time Spent: 00:02:53
IP Address: 66.86.80.169

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.**

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	2
A robust skiing, recreation, and tourism industry.	3
Efficient and effective water infrastructure promoting smart land use.	4
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support
Comments	Conservation is critical ! No more bluegrass lawns in the front range please.

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Eagle
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Fishing, Water Professional, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#10

COMPLETE

Collector: Web Link (Web Link)
Started: Thursday, March 05, 2015 10:00:42 AM
Last Modified: Thursday, March 05, 2015 10:27:20 AM
Time Spent: 00:26:38
IP Address: 173.14.7.21

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	3
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Neutral
Secure Safe Drinking water	Neutral
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Neutral
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

I have concerns about the increase in Oil and Gas Production in the Colorado River Basin and the amount of water needed for those activities.

Q7: What county do you live in?	Garfield
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#11

COMPLETE

Collector: Web Link (Web Link)
Started: Thursday, March 05, 2015 3:37:55 PM
Last Modified: Thursday, March 05, 2015 3:44:25 PM
Time Spent: 00:06:29
IP Address: 69.144.48.77

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Mesa
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Environmental, Other (please specify) sustainable land use and population growth
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#12

COMPLETE

Collector: Web Link (Web Link)
Started: Thursday, March 05, 2015 3:59:00 PM
Last Modified: Thursday, March 05, 2015 4:04:05 PM
Time Spent: 00:05:05
IP Address: 174.32.151.229

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	3
Viable and productive agriculture.	1
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	4

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs: *Respondent skipped this question*

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Neutral
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Neutral
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Gunnison
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Agriculture
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#13

COMPLETE

Collector: Web Link (Web Link)
Started: Thursday, March 05, 2015 8:30:06 PM
Last Modified: Thursday, March 05, 2015 8:39:29 PM
Time Spent: 00:09:23
IP Address: 184.167.234.47

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	5
A robust skiing, recreation, and tourism industry.	3
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Oppose
Secure Safe Drinking water	Neutral
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Science based on tree ring data suggests that major droughts may be common in the long term. Climate change models predict a significant decrease in flow over the next century. The upper basin states cannot fully utilize appropriated water that does not or will not exist.

Q7: What county do you live in?	Montrose
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Fishing, Whitewater boating, Flatwater boating, Environmental

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

mikepartlow@montrose.net

#14

COMPLETE

Collector: Web Link (Web Link)
Started: Saturday, March 07, 2015 3:08:30 PM
Last Modified: Saturday, March 07, 2015 3:11:45 PM
Time Spent: 00:03:15
IP Address: 63.158.74.65

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	1
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	3

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Custer
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Fishing, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#15

COMPLETE

Collector: Web Link (Web Link)
Started: Monday, March 09, 2015 8:13:14 AM
Last Modified: Monday, March 09, 2015 8:38:43 AM
Time Spent: 00:25:28
IP Address: 216.237.78.203

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.**

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support
Comments	Please add motherhood and apple pie.

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support
Comments	Could you please be more vague.

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

How does one make ANY SENSE out of this chart?

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Please see my recent paper for course at CMC, Carbondale

Professor Malone
Integrated Science for Sustainability SUS-311
25 February 2015

Sustainable Water for the Future of Colorado

Colorado faces an impending water crisis. (CWCB) Colorado is expected to increase radically in population at the same time actual available water will decline. While Governor Hickenlooper has called for a comprehensive state-wide water plan, this “plan” appears to be more of an assessment than a solution. The challenge is to balance the water ecology, the needs of agriculture, and the needs of the developed areas. I have a solution to propose.

Water has been relatively plentiful in this state until now. “Plentiful” is a relative term, because the burgeoning population is an increasing demand. The advancing science of river ecology has also changed the calculus as to the amount of water that should be in our rivers and streams. At the same time Global Warming is reducing

to the amount of water that should be in our rivers and streams. At the same time Global Warming is reducing the available water. (CWCB) The State knows we must act to solve these problems. A number of River Basin Roundtables were formed to start this process.

The Colorado River Basin Roundtable held an information meeting for the public one evening at our own CMC classroom. They outlined the severity of the problem. When asked what could be done they had no answers. During the course of the talks, one of the speakers (Ken Neubecker) had said that the State, per its constitution, actually owns the water that flows in our rivers. It occurred to me that the State could put a price on the water, which had not been done. Of course there is a long standing system of rights for the use of water, some of which had been purchased. Municipal users pay a fee, but that is only for the actual cost of capture, treatment, distribution and sometimes waste treatment. Irrigators pay to maintain their ditches and flumes, but this cost is usually minor.

It has been said that water will become more valuable than oil. (McGee) (West) Already water securities are performing strongly in stock markets. A fact of life is this: what we must pay dearly for, we will be very careful with. The solution to Colorado's water crisis is not only obvious, but the Province of British Columbia has already created and is implementing their own Water Sustainability Act. (BC) The Province is using a matrix of fees for the many different users of water. There will be increased license fees for those who use and increased fees for the quantity of water used.

A "cascade" of repercussions can ensue in the economy. Many of these are ultimately favorable from the standpoint of sustainability. For example, pasture irrigation will cost more. The cost of beef and other livestock supported by this hay will cost more to produce, and therefore, at some point, more expensive to buy in the store. Consumers will buy less of this meat and reduced demand will mean relatively fewer animals raised. Consumers will shift their diets more to vegetables and grains and pasture land may shift to other crops. Carbon emissions will be reduced.

An added benefit will be changes forced on the current legal system of "beneficial use". Large volume users such as irrigators are only going to take what they need; and that will decline with new technology. This change in use will put pressure on the existing rights system to stop unnecessary diversions. More water can be left in the streams and rivers. More water running in the waterways will benefit the riparian ecosystem.

Increased costs to municipalities means higher priced water at the tap, and higher tap fees for developers wanting to come on the system. If these increases are large enough, developers will have a harder time "penciling out" their new construction. Growth could be reduced. Growth of population is the greatest challenge to a sustainable future in Colorado and in the world in general.

I have not seen any practical discussion about stopping growth, and certainly none about reducing population. The "Dominant Social Paradigm" is growth forever. I believe that there is a "right" to limit the growth in any area, whether it is a town, city, state or country. Really, there should be an obligation to do so. If such population limits are put in place, conventional thinking could be changed. China, of course, has limited the number of children and for a long time limited the movement of people from the country to the city. Unfortunately, humans have evolved to reproduce, like other species, until the resources are exhausted.

Of course, more costly water will change irrigation practices from farms to front yards. Farmers will go to more efficient piped systems. Yards will convert to either drought tolerant plants, or even edible plants. Grey water will come more into use. Toilets may change to chemical systems. Waste water will be recycled.

Not only will conservation increase as prices rise, but systems that use water will be redesigned for efficiency. Increasing the cost of water increases the price of all products that depend on its use. Alternatives will be found.

Oil and gas extraction will certainly be impacted. Currently, much of the water used in drilling is pumped back underground for "disposal". With pricing for quantity, that practice would become relatively expensive. Added expenses could make the oil or gas less attractive due to higher prices. Again, the advantage begins to shift to energy sources that are not so water dependent, and are less carbon intensive.

It is reasonable to assume that Colorado will improve its water use overall without charging for water. However, as water takes the path of least resistance, economic interests will overwhelm ecological needs; as they have. More diversion to the East will follow the voting power of the Eastern Slope. Less water from the Colorado River will be allowed to be kept in state due to shifting downstream commitments. The Colorado River Basin will suffer enormously. Only making people pay for Colorado's water can create the climate for fair and successful use. Will this be an easy sell; of course not. Hire the lawyers now and get started. Our future depends on it.

Addendum A below.

Works Cited

"Dry Dam." Wikipedia. Wikimedia Foundation. Web. 25 Feb. 2015. .

McGee, Suzzane. "Companies Proclaim Water the next Oil in a Rush to Turn Resources into Profit." The Guardian. 27 July 2014. Web. 25 Feb. 2015. .

A Report For The Colorado Water Conservation Board. Climate Change in Colorado. Climate Change in Colorado. Colorado Water Conservation Board. Web. 25 Feb. 2015. .

"Water Sustainability Act Ensuring Our Water Stays Healthy and Secure." Water Sustainability Act. British Columbia. Web. 25 Feb. 2015. .

West, Larry. "Is Water Now More Valuable Than Oil?" About News. About.com. Web. 25 Feb. 2015. .

Patrick Hunter
970-379-0274
hunter@sopris.net

Q7: **What county do you live in?**	Garfield
Q8: **What describes your principal interest(s) in water (other than domestic needs)?**	Environmental, Other (please specify) SURVIVAL! AKA: sustainability facing climate change and uncontrolled growth.

Q9: **If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).**

hunter@sopris.net

#16

COMPLETE

Collector: Web Link (Web Link)
Started: Monday, March 09, 2015 8:51:28 AM
Last Modified: Monday, March 09, 2015 8:57:03 AM
Time Spent: 00:05:35
IP Address: 73.203.8.137

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	1
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	3

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Neutral
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Oppose
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Oppose
Incentives	Support
Regulations	Support
Education	Support
Comments	No more diversions from western slope. No drying ag lands. Cities must have mandatory conservation. Dry Denver not farms.

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Stop development of front range until conservation goals are in place. Watered green lawns for Denver need to be a thing of the past unless they conserve to the level that cities like Las Vegas do.

Q7: What county do you live in?	Garfield
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#17

COMPLETE

Collector: Web Link (Web Link)
Started: Monday, March 09, 2015 9:04:09 AM
Last Modified: Monday, March 09, 2015 9:07:58 AM
Time Spent: 00:03:49
IP Address: 50.198.218.169

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	5
A robust skiing, recreation, and tourism industry.	1
Efficient and effective water infrastructure promoting smart land use.	3
A strong environment with healthy watersheds, rivers and streams, and wildlife.	2

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Neutral
Sustain Agriculture	Neutral
Secure Safe Drinking water	Neutral
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Neutral
Incentives	Support
Regulations	Neutral
Education	Support
Comments	Difficult to support funding and regulation without more specific information about is being proposed

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Pitkin
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Fishing, Whitewater boating, Environmental, Other (please specify) Sking

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

rbone@sunriseco.com

#18

COMPLETE

Collector: Web Link (Web Link)
Started: Monday, March 09, 2015 12:43:54 PM
Last Modified: Monday, March 09, 2015 12:48:32 PM
Time Spent: 00:04:38
IP Address: 166.173.185.103

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	5
A robust skiing, recreation, and tourism industry.	3
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Oppose
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Neutral
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Neutral
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

Smarter agriculture use is paramount. Technology exists and must be adopted.

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Education is lacking. People don't get the connection between population energy and water.

Q7: What county do you live in?	Garfield
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#19

COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 13, 2015 10:21:33 AM
Last Modified: Friday, March 13, 2015 10:26:59 AM
Time Spent: 00:05:25
IP Address: 73.14.106.70

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Neutral
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

One of my greatest concerns is quality of water. Chlorine and fluoride are both toxins and are routinely added to water that we and other beings drink. Also concerned about mag chloride, pharmaceuticals, pesticides, ag runoff, and other toxins that are making their way into the water.

Q7: What county do you live in?	Eagle
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Agriculture, Environmental

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

landauer.t@gmail.com

#20

COMPLETE

Collector: Web Link (Web Link)
Started: Tuesday, March 17, 2015 12:59:27 PM
Last Modified: Tuesday, March 17, 2015 1:03:46 PM
Time Spent: 00:04:18
IP Address: 64.74.180.69

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	1
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	3
A strong environment with healthy watersheds, rivers and streams, and wildlife.	2

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Neutral
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Neutral

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Trans mountain diversions are a travesty. No more TMD's.

Q7: What county do you live in?	Mesa
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Agriculture, Fishing, Flatwater boating, Water Professional, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#21

COMPLETE

Collector: Web Link (Web Link)
Started: Tuesday, March 17, 2015 1:13:16 PM
Last Modified: Tuesday, March 17, 2015 1:15:15 PM
Time Spent: 00:01:58
IP Address: 69.146.252.250

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	3
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Neutral
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Mesa
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Agriculture, Water Professional, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#22

COMPLETE

Collector: Web Link (Web Link)
Started: Tuesday, March 17, 2015 1:52:18 PM
Last Modified: Tuesday, March 17, 2015 2:02:59 PM
Time Spent: 00:10:41
IP Address: 69.146.252.250

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.**

A productive economy that supports vibrant and sustainable cities.	3
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support
Comments	you must attack the problem with all tools available.

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Neutral
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

Respondent skipped this question

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

I am strongly against TMD. They are not good for Denver and they are not good for western colorado.

Q7: What county do you live in? Mesa

Q8: What describes your principal interest(s) in water (other than domestic needs)? Agriculture, Fishing, Whitewater boating, Flatwater boating, Environmental

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

joe.jhslaw@gmail.com

#23

COMPLETE

Collector: Web Link (Web Link)
Started: Tuesday, March 17, 2015 2:59:45 PM
Last Modified: Tuesday, March 17, 2015 3:02:16 PM
Time Spent: 00:02:31
IP Address: 69.146.10.130

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	3
Viable and productive agriculture.	5
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	1
A strong environment with healthy watersheds, rivers and streams, and wildlife.	2

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	2
Transfers from Agriculture	1
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Neutral
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	mesa
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Fishing, Whitewater boating, Flatwater boating, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#24

COMPLETE

Collector: Web Link (Web Link)
Started: Tuesday, March 17, 2015 3:12:46 PM
Last Modified: Tuesday, March 17, 2015 3:19:34 PM
Time Spent: 00:06:48
IP Address: 184.166.20.71

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	2
Efficient and effective water infrastructure promoting smart land use.	3
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Oppose
Encourage High Level of Basinwide Conservation	Support
Comments	Protect recreational flows - they support rural economies

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

Only question 1 addresses recreational flows. These are extremely important to Colorado's (and ALL of the Colorado River basin) economy. Storage would result in loss of recreational places both under the reservoir and downstream. We've felt this loss acutely in the Dolores River basin which used to support outfitters and other local businesses. Sadly, no more...

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Please see my response to question 5

Q7: What county do you live in? Mesa

Q8: What describes your principal interest(s) in water (other than domestic needs)? Whitewater boating, Flatwater boating, Environmental

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

lalunallena@bresnan.net

#25

COMPLETE

Collector: Web Link (Web Link)
Started: Wednesday, March 18, 2015 12:24:10 PM
Last Modified: Wednesday, March 18, 2015 12:31:17 PM
Time Spent: 00:07:07
IP Address: 184.166.214.12

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.**

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Neutral
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support
Comments	The plan should also include impacts of fossil fuel industry and sensible growth/non-growth population areas

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Neutral
Regulations	Neutral
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

same as #3

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

impact of growing populations, particularly on the eastern slope and lower basin cities

Q7: What county do you live in? Mesa

Q8: What describes your principal interest(s) in water (other than domestic needs)? Environmental

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

sballerton@gmail.com

#26

COMPLETE

Collector: Web Link (Web Link)
Started: Thursday, March 19, 2015 1:38:42 PM
Last Modified: Thursday, March 19, 2015 1:58:42 PM
Time Spent: 00:20:00
IP Address: 98.245.198.148

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.**

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Neutral
Encourage High Level of Basinwide Conservation	Support
Comments	I put neutral for administration because I don't understand what it means.

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Neutral
Regulations	Support
Education	Support
Comments	Depends on the type of incentives.

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

I don't know enough about the projects to comment.

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

No more Transmontane diversions! The Colorado River Basin needs every drop of water for use in the Upper and Lower Basins where the water has been over allocated since 1922. Conservation and land use need to take priority on the East Slope - no Kentucky bluegrass, promote xeriscaping, better agricultural use of water, recycle water. Nature needs water - minimum stream flows are mandatory and should be improved. People need to conserve more water and/or pay graduated fees - more use means pay a lot more for water. Develop a basic level per person then increase fees a lot past that usage generally speaking.

Q7: What county do you live in? Summit. I grew up in Denver.

Q8: What describes your principal interest(s) in water (other than domestic needs)?

Environmental,

Other (please specify)
healthy ecosystems = healthy humans. Water based recreation is very important on the West Slope. Mostly concerned with enough water for all of the Colorado River Basin, especially Mexico.

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

megaug@earthlink.net

#27

COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 20, 2015 10:15:51 AM
Last Modified: Friday, March 20, 2015 10:21:49 AM
Time Spent: 00:05:57
IP Address: 71.211.237.66

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.**

A productive economy that supports vibrant and sustainable cities.	3
Viable and productive agriculture.	2
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	1
A strong environment with healthy watersheds, rivers and streams, and wildlife.	4

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	2
Transfers from Agriculture	3
New water projects on the West Slope	1

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Neutral
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Neutral
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support
Comments	How do you influence a utility that owns water rights, then transfers rights to east slope after Shoshone Plant is retired because of high operating costs?

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Neutral
Regulations	Neutral
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

Administration of TMD - build plan to get fair consideration in state legislature.

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Over-use by lower compact users creates habits, must learn to deal with shortages without insisting on drawing from up-river users. Water costs usually go up when shortages come along. Good administrative practices will control this.

Q7: What county do you live in?	Mesa
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Agriculture, Fishing, Flatwater boating
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#28

COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 20, 2015 10:22:15 AM
Last Modified: Friday, March 20, 2015 10:25:07 AM
Time Spent: 00:02:52
IP Address: 71.211.237.66

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Neutral
Education	Support
Comments	Time to increase charge to developments that use cheap ag rights.

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

Very concerned about new TMDs before we've done all the conservation we can.

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Mesa
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Agriculture, Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#29

COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 20, 2015 10:25:27 AM
Last Modified: Friday, March 20, 2015 10:27:20 AM
Time Spent: 00:01:53
IP Address: 71.211.237.66

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	Mesa
Q8: What describes your principal interest(s) in water (other than domestic needs)?	*Respondent skipped this question*
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#30

COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 20, 2015 10:27:41 AM
Last Modified: Friday, March 20, 2015 10:29:18 AM
Time Spent: 00:01:37
IP Address: 71.211.237.66

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	2
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	1
A strong environment with healthy watersheds, rivers and streams, and wildlife.	3

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	2
Transfers from Agriculture	1
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Neutral
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Neutral

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Neutral
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?	*Respondent skipped this question*
Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q7: What county do you live in?	*Respondent skipped this question*
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Water Professional
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#31

COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 20, 2015 10:29:35 AM
Last Modified: Friday, March 20, 2015 10:32:11 AM
Time Spent: 00:02:36
IP Address: 71.211.237.66

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	3
Viable and productive agriculture.	4
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Neutral
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Oppose
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Support
Education	Neutral

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

This seems like a focused set of necessary projects. I commend the RT for being specific.

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

It is unclear how conservation will be encouraged. The plan does not go far enough in laying out new policies for conservation, land use and ag transfers.

Q7: What county do you live in?	Mesa
Q8: What describes your principal interest(s) in water (other than domestic needs)?	Environmental
Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

#32

COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 20, 2015 10:32:29 AM
Last Modified: Friday, March 20, 2015 10:39:22 AM
Time Spent: 00:06:53
IP Address: 71.211.237.66

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must address the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are.

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	5
A robust skiing, recreation, and tourism industry.	2
Efficient and effective water infrastructure promoting smart land use.	3
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:

Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2

Q3: Please indicate your degree of support for these themes in the Colorado Basin Plan:

Protect & Restore Healthy Streams, Rivers, Lakes and Riparian Areas	Support
Sustain Agriculture	Support
Secure Safe Drinking water	Support
Develop Local Water Conscious Land Use Strategies	Support
Assure Dependable Basin Administration (protect Shoshone & Cameo calls & avoid compact curtailment)	Support
Encourage High Level of Basinwide Conservation	Support

Q4: Please indicate your level of support for the following types of actions in support of the themes listed above that you support.

Funding	Support
Incentives	Support
Regulations	Neutral
Education	Support

Q5: Do you have any comments on the Colorado Basin priority projects listed here (http://www.coloradomesa.edu/watercenter/documents/DraftProjectListColoradoBasin.pdf)?

Irrigation ag and residential waste tremendous amounts of water. Education. Incentives may be a good approach. Address industrial use.

Q6: Do you have other concerns about the future of the Colorado River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Respondent skipped this question

Q7: What county do you live in?

Mesa

Q8: What describes your principal interest(s) in water (other than domestic needs)?

Fishing, Water Professional,

Other (please specify)
Advanced Mast Gardner, everybody's future.

Q9: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

pjred11@gmail.com

PUBLIC INPUT
ITEM 8

Systems, Inc.

Mr. James Eklund, Director
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

March 31, 2015

Mr. Eklund,

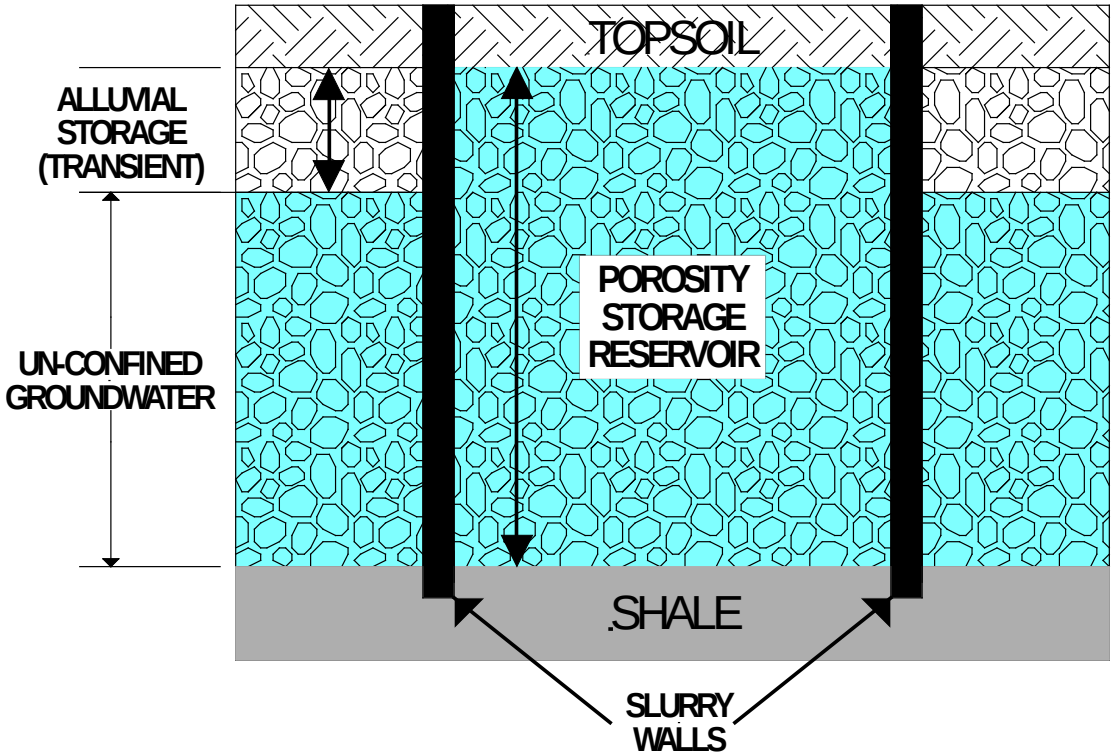
I have read the first draft of the Colorado Water Plan, as well as the BIPs for the South Platte and Colorado River Basins. I am impressed with the time and effort of so many Coloradans with these documents and the progress being made for future generations of Colorado residents. I was glad to see the Plan cited the benefits, challenges and disadvantages of traditional water storage in alluvial aquifers, as listed below:

- Free from evaporative losses
- Offers natural infrastructure
- Generally considered to have fewer environmental impacts
- Difficult to manage, due to the transient nature of groundwater flow
- Slow recharge rates from recharge ponds on the surface
- Accounting for alluvial storage requires sophisticated groundwater modeling
- No rules currently for storage in alluvial aquifers, such as with the Denver Basin
- Storage is limited to the unsaturated zone of the alluvial deposit (not mentioned)

I would like to introduce you to porosity storage reservoirs (PSRs), and a new implementation strategy on how they might be used in solving Colorado's water challenges. I've attached a visual depiction of a PSR, as well as a copy of the existing SEO guidelines for operation and accounting for PSRs. A brief video clip and more information are available on our website.

The potential water storage difference between traditional alluvial storage and porosity storage in a PSR is shown in the sketch below. Other advantages of a PSR include:

- Suitable for long-term storage (years); useful for drought protection
- Simple water accounting; SEO guidelines for operation & accounting exist
- Allows more acre-feet of storage per acre than traditional alluvial storage
- Compatible with conservation easements for the use of the land
- Does not require surface land to create recharge ponds, although can be
- Faster injection rates with vertical wells than with recharge ponds (horizontal transmissivity often is 6-10 times greater than vertical transmissivity).
- Can be created where mining can't occur, or won't for years
- Can be used in advance of gravel mining; staged water storage development



FREE - RIVER FARM RESERVOIRS

Porosity storage reservoirs could be incorporated into current Agricultural Transfers of water between Farmers and the Cities, to provide needed storage to capture free-river water during "wet" years. This concept actually develops more water on the South Platte. Free-river conditions also occur for short periods even during "normal" years, allowing intermittent re-filling between "wet" years. This would allow more of the Farmer's firm-yield, senior water rights to be diverted closer to the City, eliminating the need to construct a pipeline back, and re-occurring pumping costs, than if the free-river water stored was pumped back to the City for municipal use. The free-water would be captured and stored beneath the Farmer's fields for use.

The benefits are the farmer already owns the land, so land acquisition is not needed. Some of the infrastructure likely exists, lowering the costs of developing and utilizing this new storage concept. Rapid filling could be incorporated with existing head-gate structures, conveying free-river water through ditches, into inexpensive, simple to construct recharge ponds on the farm, easily maintained by the farmer between fillings. Additional head-gate wells and subsurface recharge facilities could also be constructed, to increase filling rates whenever free-river conditions exist. Existing alluvial wells and sprinklers may already exist, to extract and utilize the stored water as needed for irrigation. The infrastructure needed for PSRs is flexible.

Approximately 8 to 10 feet of sand and gravel thickness is required to store 2 feet of water, typically enough for one year of crop irrigation. Thicknesses of the South Platte alluvium upstream of Greeley are typically 40 feet thick. Downstream depths of the alluvium are typically 60 feet to much deeper; new slurry wall equipment can construct to depths of 120' or more. So 4 to 12 years of free-river irrigation water could be stored beneath the farm on a single filling in a "wet" year, with no evaporative losses between wet years, as exists with shallow open reservoirs.

The examples of storage and utilization under the Free-River Farm Reservoir strategy are based on the South Platte River, where my gravel mining experience started. Suitable alluvial materials exist on the Arkansas, Colorado, Yampa, Gunnison, and other rivers in Colorado. Attached are maps of the South Platte and Colorado River basins, where suitable geology exists. Similar maps for other basins are available upon request.

If you or others have any questions, or would like more information about PSRs, please feel free to contact me. I would welcome the opportunity to discuss PSRs further.
Sincerely

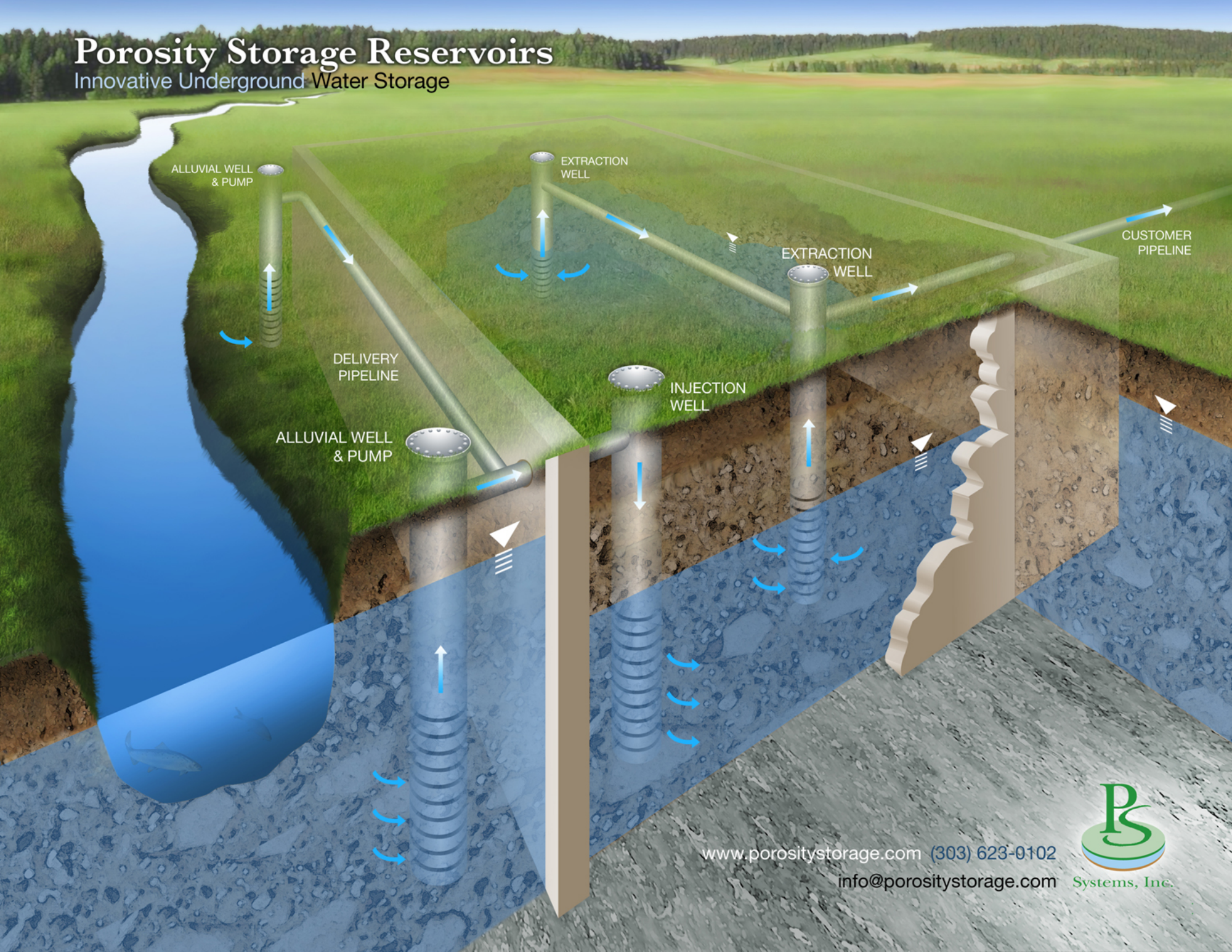
Stan Peters, P.E.

Attachments, as stated

CC : Dick Wolfe, State Engineer, Division of Water Resources
John Stulp, Director of the IBCC
Mark, Koleber, Chair of Metro Roundtable
Joe Frank, Chair of South Platte River Roundtable
Jim Pokrandt, Chair of Colorado River Roundtable
Jim Broedrick, Chair of Arkansas River Roundtable

Porosity Storage Reservoirs

Innovative Underground Water Storage



www.porositystorage.com (303) 623-0102
info@porositystorage.com
Systems, Inc.

PUBLIC INPUT
ITEM 9

Colorado Ag Water Alliance

"Commited to the preservation of agriculture through the wise use of Colorado's water resources"

March 31, 2015

Mr. James Eklund
Executive Director
Colorado Water Conservation Board
1313 Sherman St., Room 718
Denver, CO 80203

Dear Director Eklund,

The Colorado Agricultural Water Alliance (CAWA) wants to thank you, your staff and the Board for the work that has gone into preparing the first draft of the Colorado Water Plan. We recognize that much of the plan is dedicated to meeting Colorado's future water needs while sustaining a vibrant agricultural economy in our state. CAWA strongly endorses a coordinated approach to protecting agriculture in all basins across Colorado, as farmers, ranchers and agribusiness are a critical component of Colorado's future. We respectfully offer the following comments on the draft Colorado Water Plan from CAWA members, representing all aspects of Colorado agriculture. More information about CAWA and the member organization can be found at www.coagwater.org.

CAWA Comments on the draft Colorado Water Plan:

Comment 1. Much of the CWP is focused on the need to protect irrigated agriculture, but few Coloradans will read beyond the Executive Summary to understand the issue. Citizens need to realize what is at stake if agriculture is sacrificed for growth, recreation and environmental flows. We suggest the addition of the following language on page 1, as paragraph 3 of the Executive Summary:

The majority of water diverted in Colorado is used to grow our food. Without planned interventions, the path we are on is drying up vast areas of irrigated lands. Colorado's farmers and ranchers contribute $41 billion to the state economy and employ nearly 173,000 people, providing local food and energy, as well as over $1 billion annually in international exports sustaining Colorado's economy. In addition, the value of Colorado's diverse agriculture is much more than purely economic, it's also about communities and the "public good" associated with aspects of a vibrant agricultural sector. Private working lands provide the majority of wildlife habitat and open spaces that offset some of the unwanted aspects of urban growth such as sprawl, traffic congestion, noise, habitat loss and air pollution. The stewards of the land on more than 37,000 farms and ranches care for 31.6 million acres, almost half of Colorado's land

area. As we lose irrigated agriculture, we are losing our heritage, our rural communities, and we are losing water that travels through our rivers to downstream farms, providing recreational flows as well as environmental amenities such as wetlands and aquatic habitat."

Comment 2. Section 6.4 (beginning on page 189) of the CWP is overly focused on Alternative Ag Transfer Methods, which in fact will also result in reduced irrigated acres. While we support this work, it is only a fraction of what needs to be accomplished to implement the goals of the Water Plan. We propose Section 10 of the CWP include a recommendation for a statutory revamping of CWCB's current ATM program by expanding and renaming it the Ag Water Program. The refocused program should include the ATM program as well as other methods and innovations to keep, develop and conserve Ag water.

Communities routinely offer financial incentives to new commercial and industrial development, thereby increasing the demand for more M&I water. CAWA supports establishing a long term funding mechanism committed to steady and significant funding for the renamed Ag Water Program to provide funds for grants, cost sharing and low interest loans to facilitate:

- Conservation easements on irrigation water
- Developing ways to incentivize water staying in Ag in addition to developing alternative methods for urban transfer.
- Upgrading irrigation and diversion systems
- Purchasing water rights specifically to create a pool for leasing to agriculture
- Providing adequate staff resources to manage and coordinate the Ag Water Program.
- Developing strategies to remove or minimize the numerous disincentives that are causing the loss of farms and ranches in Colorado.

Comment 3. The General Assembly should provide additional funding for the Colorado Department of Agriculture to create a new program funded and staffed for Ag Water Coordination charged to:

- Work cooperatively with CWCB on the Ag Water Program to strengthen irrigated agriculture
- Provide public education to improve public understanding of irrigated agriculture
- Improve public understanding of trade-offs related to conservation and fallowing
- Coordinate site visits to successful projects and pursue demonstration pilots for recommended methods and programs to increase agricultural productivity in CO.
- Explore opportunities to help new and young farmers acquire irrigation water.

CAWA endorses the outreach and education plans delineated in CWP Section 9.5 but believes an additional program within the Colorado Department of Agriculture will be best positioned to work with USDA and other federal agencies, Extension, Conservation Districts, and CSU to provide the needed program outlined above. We ask CWCB to include this recommendation in Section 10 of the CWP.

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Comment 4. CAWA endorses the mechanisms outlined in the draft CWP Section 6.5 and within the various Basin Implementation Plans to prioritize the development of unallocated water to provide for Colorado's needs beyond the foreseeable future (within the framework of the draft conceptual agreement, CWP page 280). CAWA calls upon state leadership to prioritize state support for new multi-use storage projects (new surface reservoirs, refurbished existing storage, and aquifer storage) that include dedicated agricultural water storage. CAWA endorses the investigation of regional partnerships to look at all possible sources of water from out of state to meet the gap and recommends that the CWP call for continued investigation of interstate water augmentation opportunities.

Comment 5. CAWA supports the language in draft CWP Section 9.4 page 306 calling for the streamlining of federal and state permitting processes for new and renovated infrastructure projects. Additionally, CAWA calls on the state to work with the Western Governors, Colorado Water Congress, and Colorado Ag Water Alliance member organizations that are dedicated to the reduction of unnecessary federal, state and local permitting roadblocks.

Comment 6. CAWA supports the proposal in draft CWP Section 6.5, p. 211 Action 9 to prioritize state support for multi-use water projects that benefit agriculture. Additionally, we recommend the final CWP list, prioritize, and provide State support and funding mechanisms for IPPs and new projects. Unless there is significant new state or federal funding for projects and infrastructure, it is unlikely that these projects will directly address the agricultural gap identified in the Basin Implementation Plans. We believe the State should propose a large funding initiative dedicated to new water infrastructure as an outcome of the Water Plan (as described in Section 9.2).

Comment 7. CAWA believes more focus should be placed on importance of groundwater for agriculture in the CWP. Groundwater depletions in certain aquifers and restrictions in others will significantly increase the agricultural water gap and vulnerabilities for Ag production in the near future, particularly as drought and high temperature events occur. The CWP should explicitly recognize the importance of groundwater as a reliable supply during drought and appropriate focus should be placed on institutional mechanisms to improve sustainable groundwater use within the scope of Prior Appropriations Doctrine and pursuant to Colorado water law. The importance of better groundwater management is outlined in the South Platte and Rio Grande BIPs (draft CWP, 4th bullet on page 40 and 5th bullet page 44). Additionally, the draft CWP (Page 54) mentions the importance of groundwater in meeting the state's water needs. However, little attention is given in the draft CWP to developing innovations in brackish groundwater utilization, treatment of produced waters, or the development of new institutional mechanisms to provide sustainable utilization of Colorado's groundwater resources. CAWA recommends that the CWP call for the state to launch an effort focused specifically on groundwater to:

- Work with agricultural organizations to develop additional surface water storage specifically for more reliable augmentation supplies in the San Luis Valley, Ark Valley and S. Platte.

- Identify aquifer storage and recovery opportunities for increasing conjunctive use where feasible.
- Assist producers using non-tributary groundwater, perhaps with a program of voluntary financial incentives and risk management alternatives to reduce groundwater pumping where needed.

Comment 8. The CWP should better document the importance of innovation and technology in future agricultural water management. CAWA recommends the CWP include an action item in Section 6.3.4 (page 179-180) for the State to foster, fund and support innovations in agricultural research, biotechnology, irrigation water saving technologies, information technologies, pest and phreatophyte management to increase our adaptive capacity and resiliency to deal with reduced water supplies. The draft CWP essentially projects "business as usual" in terms of technology and innovation, which is not at all the expected pathway in US agriculture. However, Colorado agriculture will need to be on the front wave of technology adoption to remain competitive and we recommend additional State focus and investment in agriculture through a dedicated agricultural innovation fund.

Comment 9. While conservation is a responsible water use practice in municipal and industrial use and may help reduce pressures on agricultural water, it should be emphasized more clearly in Section 6.3.4 (page 177) that urban water conservation in some situations can reduce delivery to downstream water users and cause negative agricultural, municipal and environmental impacts. Additionally, it should be pointed out in this section that the Ag Gap will continue to widen as trans-mountain water rights holders increase their urban conservation and reuse programs that diminish return flows.

Comment 10. Section 6.3.4 should more clearly state (on page 172) that agriculture water, through use and reuse, provides for exponential benefits to the entire ecosystem beyond abundant and safe food production. Removing or reducing agriculture water use will potentially impact stream flows, affecting downstream water availability and thereby restrict wildlife habitats and wetlands, reduce nutrient cleansing, and reduce critical food and energy production, as well as recreational benefits.

Comment 11. CAWA recommends that the CWP include a call to investigate implementation of an **"Ag Impact Assessment Statement"** as a requirement in large change cases involving agricultural dry-up (for example; transfers of 500 AF or more). This process will provide transparency for local communities as they assess the impact of large agricultural transfers and attempt to mitigate losses to the local economy. CAWA will participate in the development of appropriate process criteria.

Comment 12. On page 77 the section titled "Municipal reuse" we recommend that language be inserted in this section that although "reuse" sounds like a viable answer to reduce the overall diversions from a river there are often times legal restrictions that prevent "reuse" of some water and even if the water can legally be used to extinction there are often unintended consequences. As an example, as the Denver metropolitan cities begin to reuse more of their trans-mountain waters the net result is less water for

downstream agriculture so some people believe that the estimated shortages for agriculture downstream of Denver may be underestimated because of this. (Note; CAWA Comment 9 also makes this point but specifically for section 6.3.4 as we feel it is important to include this information in both places.)

Comment 13. (New language for this Comment) One of the problems for current agricultural water rights holders is the escalating legal and engineering costs associated with defending their water right in court cases. In chapter 5 of the CWP on page 79 we would recommend adding an additional bullet to the list under the "Overview of agricultural needs" section that identifies this issue. We also suggest that the IBCC and/or the Ag Water Coordinator identify this as a topic for discussion to explore ways to minimize this disincentive for agricultural water rights holders to keep their water rights.

Comment 14. On page 189, CAWA believes that the dialog box found on that page is confusing especially to those who have not participated in the roundtable discussions about scenario planning. Currently with it taken out of that context is makes it appear that all we need is for ATM's to come up with 50,000 AF. We would recommend that this dialog box be removed and that the first full paragraph on page 190 state that under the Low to No regret scenario 50,000 AF is the needed goal of ATM's to meet this planning outlook and yet this still would result in agricultural dry up but only reduce the full transfer of water rights from ag to M&I use.

Comment 15. On page 191, under the section titled "Potential Impediments to ATM Success" because Colorado agriculture is so diverse from livestock operations to vegetable production, one size does not fit all. CAWA would like to include language in this section that reinforces that fact. We would recommend the first sentence of that section be replaced with: "Executing ATM's can be difficult or impossible because of institutional, legal, financial, court-related barriers and the type of agricultural operation. For example the ATM concept of rotational fallowing would not work on an established orchard since the trees would not survive without water for a season." In the third paragraph of that section CAWA is concerned by the last two sentences that seem to suggest that legislative mandates are a way to implement ATM's. CAWA would suggest that language be inserted in that section that states that the strength of Colorado's agriculture is its diversity and to mandate specific conservation methods or ATMs across all sectors would cause the loss of more agricultural water rights rather than protect them.

Comment 16. On page 295, CAWA would like to see two additional bullets added to the discussion about productive legislation:

1. Change federal tax code that currently removes the not for profit status of a mutual ditch company when outside income for the mutual ditch company exceeds 15% of their total income. Many mutual ditch companies are struggling to find alternative sources of income to help fund the replacement of aging infrastructures and to improve the efficiencies of water delivery but if outside income exceeds the 15% threshold suddenly they are burdened with paying federal taxes on all of their income.

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2. Allow water and land conservation easements to be traded up to more land or water upon approval of the purchaser of the original conservation easement. A major impediment for farmers to enter into a conservation easement for perpetuity is that it removes the possibility of increasing the farming acres by trading up to a larger piece of ground. This option would allow a farmer and the holder of the conservation easement to increase not only the farmable acres but the amount of land under the conservation easement at little or no cost in those cases when a piece of land has become much more valuable and its use no longer makes sense for farming.

Comment 17.
CAWA requests that the paragraph below be added to the bulleted list on page 327.

- Colorado Ag Water Alliance (CAWA) is an organization comprised of agricultural organization representatives open to all ag sectors from all Colorado watersheds which is committed to the preservation of agriculture through the wise use of Colorado's water resources.

Comment 18.
CAWA requests that the paragraph below be added to the bulleted list at the bottom of page 338.

- Engage agricultural producers in future dialog and education with outreach to all parts of the agricultural community in order to maximize participation and knowledge of the program and planning.

Thank you for this opportunity to comment on the draft Colorado Water Plan. We invite you and your staff to meet with CAWA to discuss these comments and recommendations.

Sincerely,

Charlie Bartlett, CAWA President
970-522-9302
cbartlet@kci.net

DRAFT

PUBLIC INPUT
ITEM 11

COMMENTS ON
COLORADO'S WATER PLAN
First Draft, 12/10/2014

COMMENTS by Sandy White, Arkansas Basin Roundtable

General observations:

- the CWP represents a *lot* of work and probably the expenditure of a *lot* of money. Some of it is very good, excellent. Other portions are not -- in detail and sometimes in concept tending to be sophomoric.
- Of specific general concern are
    - the continual reference to (100+) and blaming of the bogeyman, "climate change," rather than simply recognizing the uncertainties of climate variability and the necessity to account for it in water supply planning.
    - the profoundly ill-founded notion that recreational and environmental uses are "nonconsumptive" (*e.g.* Chapter 5, p. 81).
    - Failure to address the related issue of the water-related management of public lands from which a significant portion (68% NFS) of Colorado's water supply arises.
- The CWP is more a status report than a plan.
- The next version of the CWP should put the appropriate section number(s) (in addition to the page number) on each page in either a header or a footer.

Specific comments, by page:

Page	Comment
v	TOC appears to have some pagination problems, *e.g.* § 9.3 is actually on p 299 rather than 295. Need to check carefully, since it is quite off putting to find an error right off the bat.
x	Listing of Acronyms & Abbreviations is a very good idea, although needless repetition (*e.g.* of BIP and BOR) could be avoided by having but one list for the entire volume.
	Chapter 1: Introduction
2	Text box: What is "smart land use?" I glanced through the report, based on the TOC, and could find no definition. As a county planning commission member, I suppose that it means land use with which I agree.… Or is it planning with which everyone agrees? For the purpose of the CWP is it a strategy, using the LUCIS Model? The term needs to be explained in the CWP.
3	1st ¶, last sentence: "Colorado's Water Plan is the map that will guide decisions and actions in the face of future water needs and demands." Perhaps it would be best to state that this will guide the *Executive Branch's* decisions and actions. At the moment, at least, it will have no effect on the decisions and actions of the legislative and judicial branches.

3 In the bottom margin, left hand side, there appears to be a spurious "16."

Chapter 2: legal and institutional setting

8 Last ¶, 6th + 7th line: "To become an enforceable perfected water right…." I think this is inaccurate. I am aware of several conditional water rights which are exercised and enforced prior to being made absolute; indeed, in order to be made absolute, a conditional right must be exercised in priority. Perhaps this sentence might be revised to: "To avoid the requirement of further diligence applications, a condition right must be exercised in priority and be established as an absolute right by court decree."

9 1st ¶, line 6: Consider inserting "or administrative" between "court" and "approval" thereby including the SWSP process.

9 3rd ¶, first sentence. I believe this is incorrect. The purpose of the depletion assessment is to make sure that future depletions do not exceed historic depletion, not to balance consumptive use with returns as suggested in the first sentence.

10 2nd ¶, 2nd line: Consider changing "a full allocation" to "its entitlement." This would recognize the frequent situation where seniors are only partially in priority, *e.g.* when a senior right for 10 cfs can divert only 6 cfs without impinging on an even more senior right.

10 Next-to-last ¶, 2nd sentence: For clarity, consider changing the sentence to: "Because the prior appropriation doctrine forbids the change of one water right to the injury of another, making such changes is a costly proposition with complex legal and engineering analyses required."

25 Last ¶, 2nd + 3rd line: "cannot be lost through nonuse" is an erroneous statement that I once made in a U.S. Supreme Court argument only to be hammered by Justice Byrom White who said, "You don't know that!" I had made the statement for effect and he was absolutely right. Reserved rights are creations of the judiciary and, while lots of lower courts have opined about the rights' characteristics, only the U.S. Supreme Court could conclusively establish that they "cannot be lost through nonuse." It has not. Consequently, because of the continuing tension between reserved rights and state appropriative rights, please consider removing the phrase "—and cannot be lost through non-use."

Chapter 3: Overview of each basin

34 Under "Basin Challenges" for the Colorado mainstem, consider adding the uncertainty of compact administration. Until water users understand how the State intends to meet compact shortages, *i.e.* who if anyone will be called out, there is simply no way to plan for such contingencies. I know that it is now fashionable to say that such planning is not necessary if we avoid compact shortages. Unfortunately, that is nothing more than whistling in a graveyard.

Chapter 4: Water supply

56 2nd ¶, 1st line: change "report" to "plan."

58-61 There seems to be a lot of waffling in this climate discussion. Anyone long involved in the water business is aware that the annual water supply in Colorado suffers wild annual fluctuations. That is the reason that most municipal water systems are so focused on "firm yield." Table 4-4 is in need of clarification, especially the negative values in the last two columns and the expression "209 climate projections" in footnote "d."

67 In this water quality discussion there appears to be a major omission, indirect reuse whether voluntary or involuntary. Regarding involuntary it might be appropriate to mention the practice and perils of using reusable effluent as substitute supply for fresh water diverted by exchange or in an augmentation plan. While water quality standards must be met so must the water quality needs of substitute supply recipients – often dramatically different. See *Thornton v. Denver*, 44 P.3d 1019 (Colo 2002).

Chapter 5: Water Demands

70 Last ¶ which carries over to the top of p. 71. The first sentence is right on. The following sentences are clumsy and need some work. Consider replacing them with: "Approximately 13.7 million af of water originate in Colorado. Of that, a cumulative 5.3 million af are diverted and consumed by Colorado users, leaving return flows of around 8.4 million af to exit the State.

71 2nd ¶: It is important to point out that environmental and recreational uses are consumptive. Indeed, it is not clear that the water budget summarized on p. 70 accurately reflects that recreational and environmental consumptive use. Millions of acres of public lands (populated by forest and grasslands) are used for recreation and inevitably have demands for evapotranspiration. Open water recreation results in significant evaporative loss. Where are those consumptions reflected and accounted for on pp 70+71?

77 Regarding municipal reuse, see the comment above for p. 67.

81 Next-to-last ¶: Can this be true: "water is not consumed by environmental or recreation uses?" Between vegetation on public lands and surface evaporation from open water, both used for recreational and environmental purposes, the statement is categorically false. Indeed, for other users, the SEO charges stream transportation losses from 0.5% to 1.0% per mile. **THIS NEEDS A TOTAL REWORK!**

82 Figure 5-6: This is entitled as a "nonconsumptive" needs assessment. Instead it should be entitled "environmental and recreational" needs assessment. As described above, there is nothing nonconsumptive about recreational and environmental uses.

Chapter 6: Water supply management

87 1st ¶, last line: "emplyong" probably should be "employing"

100 In meeting M&I gap, the SWSI 2010 did not even attempt quantify the needs of small, rural communities or water providers in the Arkansas.

126 Measuring this water gap in "stream miles" is clumsy at best. More importantly, it obscures the trade-off and relative value of sustaining environmental and recreational values. Those values are in competition for water with traditional consumptive uses; only by using equivalent units for all needs/gaps can thoughtful decisions be made when one is pitted against another.

126 Figure 6.2-3: what is meant by "direct" v. "indirect" protections?

127 It probably is a mistake to include "watershed health" among environmental and recreational goals. At least as the term is being used quite recently in the Arkansas basin, watershed health is includes far more than environmental and recreational concerns.

144 What is "programmatic consistency?" Sounds suspiciously like "one size fits all."

149 Regarding "past legislation," as I recall the first mentioned 2010 legislation does not apply to small communities, less than 2000 af/yr.

171 Ag uses 80-90% of water? How about environment/recreation?

174 There are <u>two</u> types of abandonment: common law (intent), statutory (non-use, abandonment lists, C.R.S. § 37-92-401)

179+ "Actions" ag conservation; most are pretty obscure, *e.g.* #3 "high priority diversions?" Important? Juniors?

190 ATMs, Table 6.4: rotational fallowing, is contrary to SEO's SWSP reqmt of permanent dry-up.

191 What are the "water court procedures" that are an impediment to ATM?

214 3rd ¶:Prior to 1973, contrary to the text, many other entities adjudicated instream flows in their names. (see *Araphoe County v. Collard,* 827 P.2d 546 (Colo 1992). After 1973, however, only the CWCB could make such appropriations. Is that a good thing?

247 2nd ¶: Neglects to mention that, as water passes through the forest, it is consumed. That consumption or cost, should be attributable to the recreational and environmental attributes of that forest. Needless to say, thoughtful forest management (which we don't seem to have now) can reduce unnecessary ET and make additional water available for downstream users. I wonder what analyses, if any, have been made of the differences in water produced by National Forests before and after the Multiple Use Act (1960? 1964?)

250 ARB BIP re watershed health.

252 Actions: Pretty spooky; unaccountable coalitions run amok apparently without regard for cooperating and accountable local governments. "Watershed master plans:" who adopts, funds, enforces? Statutory authority? #10, I'm not sure about "statewide coordination of watershed coalition" – one size fits all? Derogation of local control?

253 Climate change effects: pretty thoughtful, no doomsday predictions, "uncertain."

255 Flood Hazard Mitigation Plan for Colorado; The Colorado Drought Mitigation and Response Plan; Natural Hazard Mitigation Plan???

287 Appropriation doctrine is "ever evolving and will need to adjust appropriately. *** There is room for improving water management within this allocation system." **Such as?**

289 **How** will the State "work collaboratively with local governments with this existing framework and Colorado's Water Plan is a valuable tool for both levels of government in that work?" [this is reminiscent of that famous "polysyllabic piffle")

290 What are "watershed level master plans?" Authorizing legislation in place? Who prepares? $200K each? How cost derived?

290 Having trouble reading Fig 9.2-1. Huerfano County $70-140M?

290+ CWCB to develop list of priority projects from BIPs? ("projects that have the potential to move forward quickly, have cross-basin and statewide benefits, and have a possible funding plan") What is left for RTs to do?

291 "Water users need to be aware of the true costs inherent in providing water." How about the true costs in "buy and dry" (BAD), i.e. the destruction of rural communities?

309 §. 122.2 applies only in the event of an application for a federal permit, see 37-60-122.2(1)(b).

310 WQCD Reg 84 applies only to direct reuse of reclaimed water.

311 HB1041 regs may not be "completely prohibitive?" They certainly may be prohibitive in effect. Casemaker headnote: "If a proposed project fails to satisfy even one criterion contained in the applicable regulations, the permit must be denied. *Colo. Springs v. Eagle County Bd. of County Comm'rs*, 895 P.2d 1105 (Colo. App. 1994)."

PUBLIC INPUT
ITEM 14

April 9, 2015

Tri-County Water Conservancy District
647 N. 7th Street
Montrose, CO 81401

Regarding: Gunnison Basin Implementation Plan (Colorado Water Plan)

Thank you for the opportunity to comment on the GBIP. I would like to address the three values that are listed in the Quick Guide to the Colorado Water Plan and the Gunnison Basin Water Plan.

Value 1. "A productive economy that supports vibrant and sustainable cities, viable and productive agriculture, and a robust skiing, recreation and tourism industry."

Comment: These values are going to have to be prioritized. Agriculture should be the number one priority. Not only is our food produced by farmers and ranchers, but their craft produces a variety of other jobs. I do a lot of traveling and I always brag about living in Colorado. People talk about Olathe Sweet Corn and the Palisade Peaches. They know about those much more so than they do about where to go skiing or hiking or fishing. Tourism should also be high on the list of priorities. We live in a beautiful state that everyone should be able to visit and enjoy at least once in a lifetime. If we keep our agriculture base strong and our tourism opportunities effectively advertised, people will come. When they do, they will get hooked on the state's beauty and stay as I did. They will start up their businesses or retire here, and be well fed due to our robust agriculture. They will buy homes which will help the real estate market thrive.

Grants should be awarded to food producers who have degenerating irrigation systems. Along with the grant, mandatory conservation/use education should be given.

Vibrant and sustainable cities should not include unlimited water for private swimming pools and golf courses when there is such a serious shortage of water. Cosmetic watering should be limited. Anyone going over the limit should be taxed and the money used to build projects that will store and/or enhance the conservation of all types of water.

Make the general public aware that we are in trouble and that every citizen of Colorado needs to help conserve water. Encourage zero-based landscaping. Reward people for converting. Educate! Educate! Educate!

Value 2. "Efficient and effective water infrastructure promoting smart land use."

Comment: Clean out and around all waterways to eradicate harmful vegetation and brush which consumes more water than people.

Repair all existing infrastructure when it is needed. Don't wait until it has deteriorated to the point of being useless.

Value 3. "A strong environment that includes healthy watersheds, rivers and streams, and wildlife."

Comment: You have people who know what it takes to create and sustain that type of strong environment. Share that information with the general public. Let us help.

Keep politics out of the way when working at accomplishing the values. Otherwise, they won't get done.

Thank you for your time.

Sincerely,

Modene Gaulke

Modene Gaulke
443 Golden Drive
Montrose, CO 81401

PUBLIC INPUT
ITEM 17

Comments on the draft Colorado Water Plan
April 14, 2015
Submitted by the Audubon Society of Greater Denver

Thank you very much for providing this opportunity to comment on Colorado's State Water Plan.

The Audubon Society of Greater Denver is a grassroots conservation organization founded in 1968, with approximately 3,000 members in the Denver metro area. Our mission is to advocate for the environment, connecting people with nature through research, education and conservation.

We commend the Governor and the Colorado General Assembly for their willingness to create a long-term plan for water resources management in Colorado. The challenge is to formulate a plan that will provide for human use and will also protect our native rivers, streams, lakes, riparian ecosystems and river substrates, the wildlife (including fish) that inhabit those ecosystems, and the recreation and tourism that depend on our wildlife and fish resources. We believe the State Water Plan should include the following components:

Acknowledge natural limits. Colorado is an arid state. We cannot indefinitely stretch our limited water supplies to accommodate new residents and growth, and it is better to acknowledge that now than to wait until our rivers and streams are completely decimated and then acknowledge it in a crisis. We can accommodate some level of growth with careful planning, but that planning must also restore and maintain the native ecosystems on which we depend.

Water Conservation. The Plan should prioritize water conservation (the cheapest, easiest and fastest way to "create" more water), including municipal water conservation, municipal reuse, agricultural efficiency, and water-efficient energy supplies. These measures can save substantial amounts of water and can help ensure that no new water diversions are needed from our already-depleted streams; they can make water available to restore degraded stream reaches. Some of these measures may require changes in Colorado law. We support conservation measures such as:

· Municipal and industrial wastewater reuse and recycling; water metering, tiered pricing, leak detection and repair, xeriscaping incentives, limiting development near stream banks, restoration of stream banks, and incentives for upgrades to water-saving appliances

· Temporary water sharing agreements between agriculture and cities when agriculture has surplus water

· Regulations that ensure that adequate and proven long term water supplies are available, before new developments are approved.

· Significant increases in water efficiency by agricultural users.

- Removal of legal barriers that restrict water providers from sharing conserved water.

- Establishment and requirement for of a statewide minimum level of conservation for municipalities, industries, and agricultural entities.

Quantification of Non-consumptive water needs. So far the documentation for the Plan has focused on quantifying the need for water for agricultural, municipal and industrial uses - the consumptive uses of water. However, Colorado's economy and our Colorado lifestyle benefit from a strong tourist industry based on our scenery, fish and wildlife resources, and these non-consumptive uses should also be quantified and added into any consideration of future water allocation in Colorado. Non-consumptive uses or "attributes" have been mapped, but much more work is needed to quantify the amounts of water required to keep our rivers healthy and productive. Rivers need scouring flows in the spring, adequate winter flows to support aquatic life and summer/fall flows to maintain invertebrate and vertebrate aquatic species and riparian vegetation. These must be integrated into plans for M&I and agricultural uses.

Currently the Plan discusses only the needs and management for cold-water trout streams. This part of Chapter 5 needs significant expansion to outline water needs for maintaining riparian areas, wetlands, and perennial streams in a healthy condition.

Chapter 5, with its map of "Statewide Environmental and Recreational Needs" (Fig. 5-6) does not include signification of Audubon Important Bird Areas, which were included in the South Platte BIP as "Environmental and Recreational Attributes" (Fig. 2-11, South Platte BIP), and nor does the South Platte BIP indicate them on its maps. As an Audubon Chapter, we have a particular interest in having such areas recognized and included in water management planning, where appropriate (for instance, Barr Lake State Park, Chatfield State Park, Cherry Creek State Park).

River and stream restoration. Over the last 100 years we have drained, dammed and diverted our rivers and streams to the detriment of most species and to the detriment of the rivers themselves. As you are fully aware, we are not starting out in this planning process with healthy rivers! Most of Colorado's rivers are imperiled, diminished and sometimes drained completely dry. Any further diversions will cause the loss of the water-based recreation (such as rafting and fishing) and wildlife resources that add billions to Colorado's income each year. The State Water Plan needs to outline a strategy to restore ecological health and balance to our rivers and streams and preserve and enhance our remaining riparian ecosystems. Additionally, the State needs to plan/provide resources for more detailed inventory and assessment of river ecosystem conditions and actual water needs.

Coordination between land use, growth, and water supply. Until recently no developer had to consider where the water for his development would come from, and

consumers had no information about it. This has changed slightly since 2008, but we still have a long way to go to integrate water supply planning and land use. While many Coloradoans oppose the "buy and dry" option because it would eliminate productive farmland, that is likely to be our future source of water if we don't plan ahead. Water providers claim that they cannot be responsible for land use planning, but some of that is happening even now. Why not integrate water and land use, rather than depending on the helter-skelter, water-wasteful system we have now? Legislation passed this year (2015) requiring the Colorado Water Conservation Board to provide training for local governments in integrating land use and water supply, is a good start, but much more needs to be done. The Colorado Water Plan provides an excellent place to specify measures to accomplish this integration.

Give environmental and recreational needs and values equal status with consumptive water needs. So many times, plans for water projects and water management move "full steam ahead" and only include environmental and recreational considerations as an afterthought. For example, in the case of the Chatfield Reallocation, described in glowing terms in the South Platte BIP, the Corps of Engineers and the State have chosen the most environmentally damaging alternative for providing the south metro area with increased surface water supply, jeopardizing an important recreation site (Chatfield State Park) and destroying hundreds of acres of migratory bird habitat, wetlands, and critical habitat for a Threatened species. In Colorado, recreation, wildlife and scenery support a multi-billion dollar industry, as important to the state's economy as agriculture and industry. The Colorado Water Plan should give them equal importance in planning for water policies that will support our State into the future.

Other points we would like to have considered:

Minimum stream flows are not adequate. While they can accomplish some environmental goals, minimum stream flows are not adequate as a sole protection for environmental needs and values – they are too little, and the water rights too recent. Streams need spring floods to flush out sediment as well as adequate flows the rest of the year to support riparian and river bottom ecosystems. These needs should be incorporated into all BIPs.

Minimize construction of new dams and reservoirs. These store water on the surface where a large percentage is lost to evaporation. "Smarter" storage should be encouraged: underground, in aquifers, or in deep gravel pits where evaporation can be minimized. The State Water Plan should be flexible enough to deal with changes caused by the warming of our planet due to fossil fuel consumption and the ensuing increase in evaporation and transpiration rates.

Retain native phreatophytes. The draft mentions removal of phreatophyes; however native phreatophytes like willows and cottonwoods stabilize streambanks, reduce water evaporation, and provide riparian habitat that is vital for wildlife; something like 75% of wildlife, and 90% of Colorado birds, spend some part of their life cycle in riparian zones. We urge that only non-native phreatophyte control be included as part of the CWP.

Storage in itself does not equal new water supplies.
There seems to be a philosophy in Colorado that yield follows storage, much as the old, and disproved, adage that "Rain follows the plow." The Colorado Water Plan should ensure that slavish adherence to this false principal does not dominate water planning, especially in light of changes caused by climate alteration. As mentioned above, surface storage can result in increased evaporation; the types of water rights involved may preclude reliable yield from storage; other considerations may make storage in and of itself ineffective.

Rivers and streams need to be viewed as continuous systems, not isolated reaches. Diversions and pollution upstream can have severe impacts on downstream ecosystems. The State should be protecting the upper reaches of our mountain streams, for example, even when they are intermittent, so as to ensure water quality and quantity for downstream users and resources. In the South Platte BIP, there is continuous denigration of water conservation as causing dewatering of streams – this results from a view of only certain reaches below the conserving entity, while in other reaches water conservation could result in greater stream flows if less water is diverted there. Evaluation of water management measures such as conservation and reuse must integrate the various demands and uses along the complete length of our streams.

Ground and surface water should be viewed as interrelated systems. Recent controversy over the use of ground water in the South Platte alluvium should have taught us a lesson: often ground water and surface water resources are closely related. Water planning needs to take this into account and acknowledge that ground water depletions can affect the quantity and quality of surface water in some areas.

Transbasin diversions should be a last option. The Colorado River is over-appropriated and, due to climate change, it is unlikely that additional water will be available from that river basin. The Front Range should not count on augmenting our water supplies via diversions across the Continental Divide. In addition, mitigation for water removal from a basin cannot be satisfactorily accomplished, especially in light of degradation that has already occurred. Rather, we should focus on conservation, reuse, recycling and efficient use of both our native water on the Front Range and of the 500,000 acre-feet of water now imported from the Colorado River Basin.

Updating of Colorado's Water Plan must be done on a regular basis. The draft CWP contains no recommendations for updating the Plan. We strongly suggest that it be updated at least every 5 years. The draft frequently mentions the need for innovation and further study; periodic, regularly-scheduled updates can provide the mechanism for incorporating such studies and innovative measures into the Plan and into the BIPs. Revisions should be accomplished via a transparent, inclusive process, with ample public notification and participation.

Will the Plan provide a Statewide mandate, or will it simply be a collection of Basin Implementation Plans without coordination? The current draft of the CWP doesn't answer this question.

The mission of the Audubon Society of Greater Denver, to advocate for the environment by connecting people with nature through education, conservation and research, fully supports Governor Hickenlooper's Executive Order of May 13., 2013 which cites " A strong environment that includes healthy watersheds, rivers and streams and wildlife". Our Nature Center located at Chatfield State Park and on the South Platte Watershed makes us acutely aware and engaged on water issues and the impact to wildlife and recreational uses. We are encouraged by the extensive work already completed by the Interbasin Committee and look forward to providing further input.

Submitted on behalf of the Audubon Society of Greater Denver,
Pauline P. Reetz, Conservation Chairman
9308 S. Wadsworth Blvd.
Littleton, CO 80128
Tel. 303-973-9530

PUBLIC INPUT
ITEM 18

RUEDI WATER & POWER AUTHORITY
0238 Fawn Drive
Carbondale, Co 81623
970.963.4959
www.rwapa.org

April 14, 2015

Mr. Jacob Bornstein
Colorado Water Conservation Board
Denver

Dear Jacob,

The following comments on the draft Colorado Water Plan are submitted on behalf of the Ruedi Water and Power Authority, a quasi-governmental agency made up of representatives from Eagle and Pitkin Counties, the Towns of Carbondale, Basalt and Snowmass Village and the cities of Aspen and Glenwood Springs. The Authority has acted as the Roaring Fork Valley's voice on water issues since 1981.

The Western Slope, and particularly those areas that are dependent on recreation as a major economic driver, require adequate in-stream flows to preserve the environment which is so important to this area and to the entire State. We would like to see the State Water Plan make specific recommendations aimed at strengthening the State's Minimum Stream Flow Program so that it can better assure sustainable streamflows. In addition, the Plan should make recommendations for evaluating the adequacy of streamflows according to consistent and defensible criteria. The Colorado Basin has identified a Stream Management Plan as a critical next step in securing and sustaining healthy streams in the Colorado Basin. We think that this is a need throughout the State and the Water Plan should address this need directly and thoroughly. Although the current draft addresses watershed health on a broad scale, and addresses recreational and environmental needs in a cursory fashion in Chapter 5 of the current draft, it does not acknowledge that current recreational and environmental needs are not being met by the programs that are currently in place nor does it make specific recommendations for evaluating and providing environmentally sustainable flows.

Specifically, we would like the Plan to identify short-term leases of agricultural and municipal water rights for in-stream use as a reasonable means of supplementing in-stream flows while protecting those rights in the context of state water law. This is an approach that has been explored in previous legislative sessions without resolution. An endorsement of this as a reasonable means of applying common sense solutions to short-term streamflow problems could make a significant difference in pushing this approach towards implementation.

The Plan must be clear and emphatic in stating that water supplies generated by successful West Slope water projects are needed to provide flexibility in the system, provide for future needs, provide for enhanced streamflow and recreational opportunities and to bank against any future Colorado River Compact calls. If at some point more water is available in the Colorado basin, for instance, than is required for immediate domestic, industrial and agricultural uses, the excess water should be seen as a long-term insurance policy for the entire Upper Colorado Basin and not as a convenient target for water-needy areas elsewhere in the state. The ongoing drought in downriver states such as California, and the low-water situations in Lake Mead and Lake Powell indicate that the Colorado River and other waterways on the western side of the Continental Divide will be subject to more pressure from lower in the basin in the future. New water developments on the western slope will act to keep existing transmountain diversions in priority but will not necessarily support additional transmountain diversions.

On a more local note, the undeveloped water diversion rights in the upper Roaring Fork and the upper Fryingpan basins continue to be a significant local concern. Development and diversion of these waters would touch off significant controversy and a State Water Plan that encourages or facilitates that development would be seen locally as a failure.

Given their political, financial and environmental costs, development or enlargement of transbasin diversions in general should be recognized as a drastic, last-resort option for addressing shortages. The 'IBCC Conceptual Framework' must not be characterized as a pathway to future transmountain diversions. Instead, it is a menu of considerations that can form the basis for evaluation of transbasin diversions in comparison with all other alternative methods of meeting future water needs.

The major water providers in the Roaring Fork Valley are in the process of completing a Regional Water Efficiency Plan aimed at improving local water management, conserving water resources, reducing infrastructure needs and educating the public regarding wise water use. This Plan was developed with the support of the CWCB and we will be looking to the CWCB for further support of our implementation actions. We think that the process whereby we have brought together local utilities to upgrade and coordinate their efficiency measures provides a useful template that can be applied in other watersheds and even on a broader scale to help meet future conservation goals. Likewise, land use planning that takes water efficiency and conservation into account will be essential to meeting those goals. Just as water quantity and quality must be seen holistically, land use and water use must be seen as two sides of the same resource-management coin. It is not enough to simply state that Colorado will continue to support local control over land use as is found in Chapter 9.1 of the current draft. The State must work with local governments to help them incorporate water concerns into their land use regulations and to provide them with adequate tools to evaluate those concerns and respond to them proactively.

We appreciate the opportunity to comment on the current Draft Plan. Please contact me if you have questions about any of the points raised by this letter.

Yours truly,

Mark Fuller, Director
Ruedi Water and Power Authority

Cc: Governor John Hickenlooper
State Senator Kerry Donovan
State Representative Millie Hamner
Jim Pokrandt, Colorado Basin Roundtable
Louis Meyer, SGM

PUBLIC INPUT
ITEM 23

April 17, 2015

The Honorable John Hickenlooper
Governor of Colorado
136 State Capitol
Denver, CO 80203

James Eklund
Director, Colorado Water Conservation Board
1313 Sherman St, Rm 721
Denver, CO 80203

Governor Hickenlooper and Director Eklund:

Colorado's incredible outdoor legacy has been built on the clean waters and healthy rivers that our state's fish and wildlife species call home. We applaud you for producing a draft Colorado Water Plan that recognizes that legacy. However, we urge you to improve the current draft in ways that will keep our state a special place in America to hunt and fish.

Recent polling[1] clearly shows the support among the state's sportsmen for strong conservation measures in Colorado's Water Plan.

- 74 percent of Coloradans support using our current water supply more wisely by encouraging more water conservation, reducing use, and increasing recycling of water instead of diverting from rivers.
- 84 percent of Coloradans say low levels of water in rivers is a serious problem.
- 89 percent of Colorado hunters and anglers say keeping Colorado's rivers and streams healthy and flowing is extremely or very important to consider in crafting the state water plan.

Colorado's rivers, streams and riparian areas are necessary habitat for over 80 percent of Colorado's wildlife (and 100 percent of its fish). Maintaining these resources is critical for hunters and anglers, for the state's economy, and for our quality of life. In particular, as you know, outdoor recreation is an important driver for Colorado's economy. A 2014 Colorado Parks and Wildlife survey[2] found that 2.7 million Colorado residents and nonresident visitors spent $5.1 billion dollars just that year in our state to hunt, fish, and view wildlife.

The Colorado Water Plan should include the following four critical components in order to support Colorado's hunting and fishing economy and ensure we can pass that heritage on to our children:

1. **Keep Colorado's rivers healthy and flowing** – Strong, flowing rivers are vital for fish and

[1] 2015 Colorado College State of the Rockies poll (https://www.coloradocollege.edu/stateoftherockies/)
[2] The Economic Contributions of Outdoor Recreation in Colorado: A regional and county-level analysis, Colorado Parks and Wildlife, February 24, 2014 (https://cpw.state.co.us/Documents/Commission/2014/May/ITEM21-2013COEconImpactReport.pdf)

wildlife, and provide access to Colorado's world-class hunting and fishing opportunities. They are an integral part of our heritage and Colorado way of life, which is why nearly 90 percent of sportsmen rate this issue as highly important. The Colorado Water Plan needs to provide consistent and significant funding to assess, protect and restore the health of our rivers, including through streamflow management plans all across the state.

2. **Increase water use efficiency and conservation**– Colorado's population is projected to double in the next 35 years, placing increased demands on already stretched water supplies. However, Colorado Water Conservation Board (CWCB) studies have shown that we could reduce today's water use levels 35 percent by 2050. Improving water use efficiency and conservation is the cheapest and most readily available way to provide water for growing communities while protecting rivers. The Colorado Water Plan should set a statewide goal to reduce water use by expanding conservation incentives, increasing indoor and outdoor efficiency, and by developing and financially supporting water recycling programs.

3. **Modernize agriculture and water sharing practices** – Sportsmen and –women rely on access to farmers and ranchers' private land for some of the best sporting opportunities in Colorado. In addition, a healthy agriculture industry is vital for our communities, our state and overall economic health. The Colorado Water Plan should support the state's producers by promoting voluntary, compensated, flexible water-sharing agreements between agricultural producers and growing communities that respect existing water rights, and providing incentives to improve infrastructure that benefits agricultural operations and healthy river flows.

4. **Avoid new large trans-mountain diversion projects** – Trans-mountain diversion projects are both controversial and can exacerbate problems for rivers, fish and wildlife. Conservation, efficiency, alternative agriculture transfers and reuse are less expensive, less contentious and more effective. As our colleagues at Trout Unlimited say, "keep our rivers at home."

We – sportsmen and non-sportsmen alike – are all in this together, and we appreciate that the draft Colorado Water Plan includes cooperative ways to protect healthy rivers, help growing urban areas meet their water needs, and sustain working landscapes for agricultural production. However, while the draft plan is a good start, we urge you to include in the final plan specific and meaningful goals, as well as actionable steps to reach those goals, that will enable us to achieve the four critical components we have described.

We appreciate the opportunity to engage in a dialogue with you and CWCB members about our concerns. To that end, we would like to request a meeting with Director Eklund at his convenience. David Nickum, Executive Director of Colorado Trout Unlimited (dnickum@tu.org; (720) 581-8589) will follow up to schedule a time.

Thank you for your consideration of our comments. We look forward to helping you finalize a strong Colorado Water Plan.

Sincerely,

Bull Moose Sportsmen's Alliance
Colorado Backcountry Hunters and Anglers
Colorado Wildlife Federation
Colorado Trout Unlimited
Theodore Roosevelt Conservation Partnership

PUBLIC INPUT
ITEM 24

COMMENTS ON COLORADO DRAFT STATE WATER PLAN

Gene R. Reetz, April 24, 2015

Governor John Hickenlooper's Executive Order calling for the development of a Colorado Water Plan identified many critical issues that should be addressed in the water plan. Unfortunately the draft water plan falls short of adequately responding to many of the issued identified in the executive order.

ENVIRONMENTAL AND RECREATIONAL WATER NEEDS

It is critical that the environmental and recreational water needs be QUANTIFIED as have the more traditional (municipal, industrial, and agriculture) consumptive "needs".

According to the draft South Platte Basin Plan, individuals were asked to identify the "most important water needs" and 46 % of the respondents identified "environmental" and "recreational" water needs as "most important". This priority does not seem to be reflected in the draft plan.

While quantifying environmental/recreational water needs is more challenging, accepted methodologies have been developed to quantify water needed to maintain healthy river/riparian systems. These needs clearly go beyond simply having "minimum" flows. While a listing of environmental attributes is a worthy start, the water needs of these attributes should be recognized in a State Water Plan.

The water plan should go beyond maintaining the "status quo" as many rivers have been degraded thru severe depletion, channelization, and degradation of water quality. Clearly not all streams and rivers can be restored to "pre-settlement conditions, but the plan should look at opportunities to RESTORE degraded systems to regain their ecological and recreational values.

CONSERVATION AND EFFICIENCY

Strong programs to promote water conservation and efficiency must be the foundation of the State Water Plan. No matter how one looks at the water situation, water supplies are finite, and perhaps even shrinking. The current drought in California, coupled with the forecasts of climate scientists, are a clear message that ALL Colorado water users must recognize the limitations on water supply. Recent USGS studies have shown an over-all decrease in water use despite the growing population of the United States.

The State Water Plan should identify specific water conservation objectives and state water funding programs should include them as a criteria to receive state funding and/or state approval.

TRANSMOUNTAIN DIVERSIONS

There is little doubt among water experts that the Colorado River is over-allocated. Furthermore, climate scientists are in agreement that Colorado River flows will decrease in the future, further exacerbating water shortages.

Many Colorado headwater streams are already severely depleted and any additional diversions from these streams would push them over the ecological brink. Perhaps even more critical, any new transmountain diversions could increase the likelihood of a "call on the river" which could have very detrimental consequences on many current water users.

Given the above, it would seem that additional transmountain diversions should NOT be given serious consideration in the development of the State Water Plan. Instead efforts should focus on more realistic, attainable measures to meet Front Range water needs.

While the goal to maintain irrigated agriculture is commendable, the reality is that over 80% of water used in Colorado is for irrigated agriculture and that as water limits are reached, more water will be transferred from agriculture to other uses. Therefore, the State Water Plan should consider legal and policy options that ensure such transfers are in the broader public interest. Such options include dry-year leasing, water banking, water transfers from the least productive/marginal lands, and increasing water conservation/efficiency in irrigation practices.

CHATFIED REALLOCATION PROJECT

The proposed Chatfield Reallocation Project should NOT be included in the State Water Plan as, according the Corps of Engineers, it has a dependable yield of "0" and would destroy the heart of Chatfield State Park, one of the most visited State Parks in Colorado.

Almost half of the original project proponents have withdrawn from the project (presumably they have found better alternatives) and as of December 2014 the State now holds "orphan shares" amounting to 26% of the requested storage.

SUMMARY

I suspect most Colorado citizens acknowledge that Colorado faces severe water challenges in the future. If Colorado's Water Plan is to truly address these challenges, the plan must recognize that water supplies are limited and therefore improving water conservation and efficiency must be the foundation of the State Water Plan. The plan also must respond to public values such as environmental and recreational water needs. Also, the plan must go beyond simply reliance on more dams and diversions.

However, if the State Water Plan is simply a façade for "business as usual" we all will have squandered a critical opportunity.

PUBLIC INPUT
ITEM 25

COLORADO FRUIT & VEGETABLE GROWERS ASSOCIATION

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970-667-4949 ph
info@coloradoproduce.org

April 22, 2015

Mr. James Eklund
Executive Director
Colorado Water Conservation Board
1313 Sherman St. Room 718
Denver, Colorado 80203

Dear Director Eklund,

The Colorado Fruit and Vegetable Growers Association (CFVGA) would like to thank you, your staff and the CWCB for the tremendous amount of work that went into the first draft of the Colorado Water Plan (CWP). We would especially like to commend John Stulp for all of his hard work and outreach efforts through this process. He has always made himself available with the goal of finding workable solutions.

The CFVGA have worked closely with the Colorado Ag Water Alliance and fully support the recommendations that they offered. We provide the following comments from the perspective of our members whose livelihood depend more so than any other aspect of Colorado Agriculture on a reliable, high quality source of water not only for irrigation but also for post-harvest activities found on many farms.

According to the 2012 Ag Census less than 2% of the state's population is farmers and/or ranchers but what is really shocking is that less than 0.03% of the population in Colorado is fruit and vegetable farmers. Because the other 98% of the population are now more than two generations away from any agricultural background we feel that it is not only important to include CAWA comment #1 in the executive summary but also in the first chapter of the CWP. Fewer and fewer people understand what it takes to grow the fruits and vegetables that are so important for their good health.

The CFVGA supports the idea of creating an Ag Water Program in the Colorado Department of Agriculture (CDA). Because Colorado agriculture is so diverse from apples to zebras, we feel that the strength of having those connections currently in the CDA to reach out and coordinate efforts as it relates to agricultural water will benefit the entire state.

Currently the Department of Natural Resources, State Engineers Office and the Colorado Water Conservation Board work closely with water "providers" from across the state but what we feel is missing with regards to agriculture is working with the end users... the farmers!

COLORADO FRUIT & VEGETABLE GROWERS ASSOCIATION

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To accomplish gains in farm water efficiency, alternative cropping systems and other potential ways to help with the agricultural water gap it will be critical to work directly with the farmers. We feel there can be more success with efforts to develop Alternative Transfer Methods (ATM) if the efforts were initiated at the grassroots level rather than at the ditch or basin level.

The CFVGA would like to stress the importance of CAWA comment #7 about the importance of groundwater. In the production of fresh fruits and vegetables the quality of water is critical especially with regards to food safety. Because groundwater sources are much less likely to become contaminated from potential human health hazards they are ideal sources of water for fruit and vegetable production.

The new FDA Food Modernization Act Rules that will be released this Fall will most likely have specific limits on E. coli that can be present in irrigation water. Most surface water sources will need to be treated to be able to meet these new standards. Because each groundwater source is so unique and because so much needs to be learned about how each aquifer can be sustainably managed we encourage the CWCB to ask each Basin Roundtable to develop a groundwater strategy and determine what additionally information is needed to accomplish this important goal.

With regards to CAWA comment #8 that recommends that the CWP document the importance that innovation and technology should play in meeting future water demand we would agree with this and feel that this is another argument for starting a new AG Water program in the Colorado Department of Ag. The USDA is keenly aware of the dwindling water resources and is supporting research in this area. The Colorado Department of Agriculture can leverage these efforts within an Ag Water Program and then play a critical role is the development of the new technologies like remote sensing, drought tolerant varieties, tillage practices and etc. Many of these technologies and innovations could have impacts on the amount of water that irrigated crops in Colorado will require in the future.

CAWA comment #15 suggested language is in no way meant to diminish the importance of ATM but with the current draft language of the CWP we are concerned that this section suggests that the barriers to ATM's like rotational fallowing or deficit irrigation be overcome by legislative or regulatory mandates and with the diversity of Colorado Agriculture we feel this would only lead to greater loss of productive agricultural land. Fruit and Vegetable production relies on prime agricultural soil and reliable water supplies because the current retail market demands that the produce that we sell be free from any defects and meet the USDA quality requirements. The general public often doesn't understand the big difference between vegetable crops like sweet corn grown for the grocery stores versus field crops like grain corn that is grown for animal feed. Sweet corn has UDSA minimum requirements in order to be marketed as U.S. #1 grade and retailers often impose additional specific requirements. For example for sweet corn the kernels have to fill to the top end of the ear and will be rejected if the tip has "dry-tip" or undeveloped kernels on the end due to inadequate irrigation water. For field or grain corn the net yield will decrease if the tip is not filled but the cow or chicken doesn't care. So not only are the input costs for fruit and vegetable production so much more than grain crops but the tolerances to be able to sell the product are also very much narrower.

P.O. Box 2255
Loveland, CO 80539
970-667-4949 ph
info@coloradoproduce.org

If the CWCB feels that the idea of the Ag Water Program in the CDA is not a feasible option we hope that you would consider developing an Agriculture Subcommittee in each Basin roundtable to begin to reach out to the individual farmers within the basins. Although the representation in some Roundtables may appear to have adequate "agricultural" representation we feel it really could be lacking because of the diversity of Colorado agriculture and because the agricultural water suppliers participating in the Roundtable process may not actually be farmers, it is very important to have first had representation from actual "irrigators" at the table discussing ideas to help meet future water needs. This could also help to educate farmers about the water issues around the state.

Specific to Colorado fresh fruit and vegetable production the CWP should note the net environmental benefits of supporting locally grown produce. Strengthening programs like the Colorado Proud program indirectly reduce environmental impacts by decreasing the amount of imported fruits and vegetables as well as improved health and wellness of our citizens. Individual fruit and vegetable farmers don't have the resources to market these advantages but it would benefit the state on multiple levels if incentives could be developed to promote the consumption of locally grown produce. If the Ag Water Program was housed in the Department of Ag it could partner with the Colorado Proud program to not only strengthen it's outreach but help overall environmental sustainability.

The Colorado Fruit and Vegetable Growers Association was just formed in 2014 and is just getting it's feet "wet" in providing input into policy development but we would welcome the opportunity to partner with the CWCB to help bridge the gap of knowledge about the many ways that fruits and vegetable are grown in Colorado as well as provide that conduit of information exchange with the fruit and vegetable growers in the state. Please don't hesitate to contact us if we can be of any assistance. To find out more information about the Colorado Fruit and Vegetable Growers Association go to www.ColoradoProduce.org or feel free to contact me anytime with an ideas about ways that we can help.

Sincerely,

R.T.Sakata

Robert T. Sakata
Colorado Fruit and Vegetable Growers Association, President

PUBLIC INPUT
ITEM 26

PROTECT COLORADO'S RIVERS
WATER for COLORADO

April 24, 2015

Kate McIntire
Colorado Water Conservation Board
1313 Sherman St., Room 718
Denver, CO 80203

Re: Comments on Colorado's Water Plan

Dear Kate:

Please accept these comments from over one thousand Colorado residents regarding the draft Colorado Water Plan (CWP). Thousands of Coloradoans have joined WaterForColorado.org in order to promote water conservation and healthy rivers in our state.

These 1122 individual comment letters were submitted to Governor Hickenlooper's office and to the Colorado Water Conservation Board between February 1 and March 30, 2015 in response to the first draft of the water plan. These Coloradoans have submitted their comments in an effort to ensure that our environmental, recreational, and economic concerns are adequately addressed in the final plan.

Their comments call on the CWCB to include in the final Colorado Water Plan the following:

1) A state-wide municipal water conservation goal of 10% by 2020.

2) No new large trans-mountain diversions. They are costly, damaging, and unpopular with Coloradans.

3) Increased funding for programs that assess and protect the health of our rivers and their flows.

4) Provide farmers the funds and incentives they need to modernize agriculture and water-sharing practices that will keep more water in our rivers.

5) Increased and accelerated water recycling programs in the Front Range, which will decrease the need for new water projects.

Sincerely,

Water For Colorado
Sue Brown
303-605-3530
sue@rivercampaign.org

Gov. John Hickenlooper

Dear Governor Hickenlooper

I wanted to thank you for featuring water issues prominently in your State of the State address and your recent remarks to the Colorado Water Congress.

You've stated that "there is no magic" when it comes to balancing our booming population with our increasingly strained water supply, and I agree.

As a citizen of Colorado, I want you to know that I support a Colorado Water Plan that establishes a clear water conservation goal for our cities and towns, fosters the reuse and recycling of water, avoids new large trans-mountain diversions, and incentivizes modern water sharing practices in our agricultural sector.

As you know, water conservation is faster, better, and cheaper than new water projects, which would cost billions to build, harm our environment, wreck our rivers, and increase our water bills.

Thank you for your leadership on this issue, and your ongoing efforts to protect the future of Colorado's rivers.

PUBLIC INPUT
ITEM 27

Mark Squillace
Professor of Law
University of Colorado Law School*
mark.squillace@colorado.edu

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28 April 2015

Colorado Water Conservation Board
313 Sherman St., Room 718
Denver, CO 80203

Transmitted via email to: cowaterplan@state.co.us

To whom it may concern:

Thank you for the opportunity to comment on the draft State Water Plan. I applaud Governor Hickenlooper and the Colorado Water Conservation Board for undertaking this planning effort, and I look forward to the evolution of this plan. I would also like to thank the CWCB for providing the public with a substantial opportunity to comment and participate in this planning process. I hope much good will come from it. Most of my comments are structural but a few relate to specific issues such as Colorado's role in managing the water resources of our interstate rivers and some ideas for alternative transfer mechanisms (ATMs). Each of my comments is preceded by a heading with the goal of making it easier for the agency to understand and distinguish my individual comments. I hope that you will find these comments useful as the process moves forward.

Comment 1: The State Water Plan Should Establish "SMART" Goals for the State

Section 6.1 of the draft Plan describes a process of scenario planning and the development of an adaptive water strategy. I share what I perceive to be the goal of this effort but I am concerned about what I see as significant weaknesses in the process. As I understand it, scenario planning is designed to deal with the many uncertainties regarding supply and demand by studying and planning for multiple scenarios. To this end the Plan focuses on various strategies that might help to address supply and demand issues with careful focus on each of the major water basins in the State. Calling this an *adaptive* strategy, however, very much overstates the case. While the Plan lays out in the most general terms "goals and measurable outcomes" they are so general that there is nothing to

* Provided for identification purposes only. These comments are my own and do not necessarily reflect the views of my employer, the University of Colorado Law School.

measure and the Plan does not set out any metrics for the CWCB to use to see whether even these very general goals are being met.

What is needed are concrete objectives, with specific and clear baseline data, and specific metrics for making future judgments about whether Colorado is in fact moving in the right direction. A useful model for thinking about metrics is the so-called "SMART" model, which promotes criteria that are "specific, measurable, achievable, realistic (or results-oriented), and time-bound." Doran, G. T. et al. *There's a S.M.A.R.T. Way to Write Management's Goals and Objectives*, 70 MANAGEMENT REV. 35 (1981). The Fish and Wildlife Service has successfully employed this model for its comprehensive conservation plans.

To give a specific example, the State might establish specific conservation goals for various water uses. The goal for residential water consumption in 2030, for example, might be set at an annual average of 100 gallons per person per day, perhaps with interim targets or milestones along the way. (It would be interesting to consider how achieving the 100 gallons per person per day goal might change the analysis of the plan's estimated municipal water supply gap of 500,000 acre feet per year.) These goals would, of course, have to be accompanied by recommended measures that would help municipal utilities to achieve them but I suspect we could learn a great deal from this exercise. And while these goals might be aspirational, the State could still make clear that it would not support new municipal water supply efforts and new transmountain diversions for cities that are not meetings established milestones for achieving the State's water conservation goals.

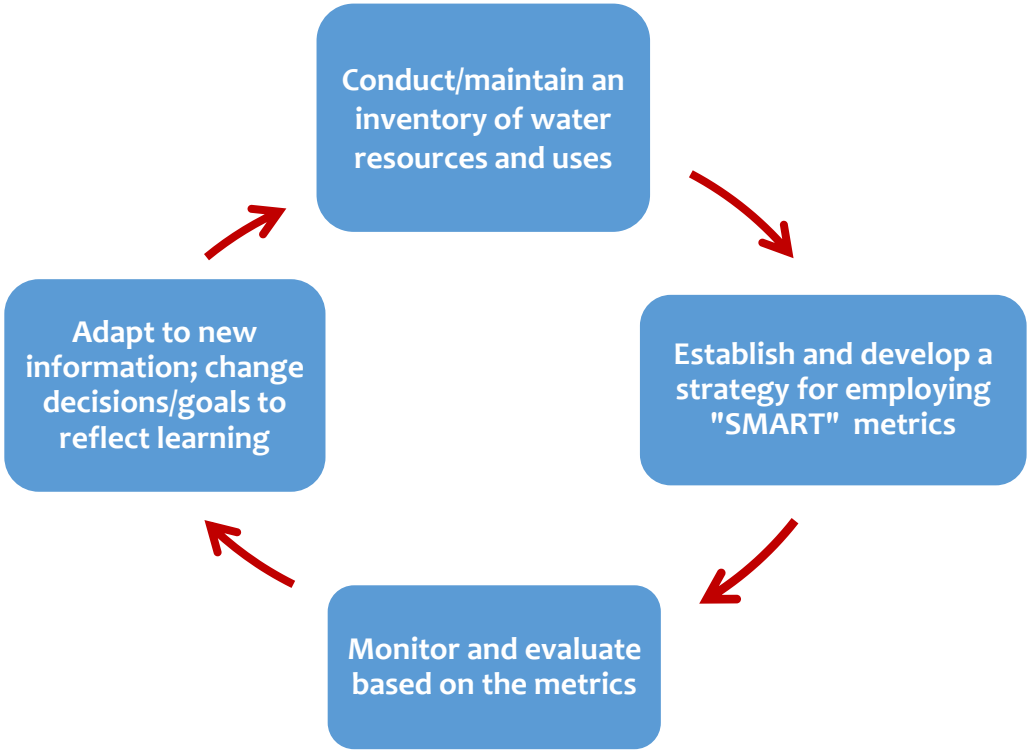
For agricultural conservation goals might be established for different crops in different parts of the State, perhaps with the assistance of experts at Colorado State University and other research centers. Again, recommended irrigation practices for achieving these goals would have to be established and could prove controversial. They could, for example, be used to establish "beneficial use" standards for particular crops in particular basins, but they could also be sued to set goals without making them binding mandates. If used in this way they might achieve fairly broad acceptance, and they could teach us much about the potential for water savings from agricultural if and when we face the kind of unprecedented drought that currently faces California.

In like manner, SMART standards should be established for recreational, ecological, and aesthetic values associated with our State's water resources. For waters that currently meet these objectives, the plan should be designed to maintain them. For waters that are impaired, the plan should set specific goals for restoring them.

Comment 2: The State Water Plan Should Explicitly Adopt an Adaptive Management Framework

The CWCB seems committed to treating the Plan as a living document that will evolve over time. I applaud this notion. The draft Plan also purports to support an "adaptive strategy," and while this suggests to the reader an adaptive management scheme, the draft Plan itself does not describe such a scheme.

To help ensure that our water planning actually improves over time, the State should explicitly adopt an adaptive management framework. Adaptive management is sometimes described as "learning by doing." It has the advantage of allowing the State to put off some hard choices when dealing with high levels of uncertainty about critical factors like water supply and demand, and in their place adopt an explicit and aggressive monitoring, evaluation, and adaptation program, that can lead us to our goals far more quickly and efficiently than without an adaptive scheme. As the diagram below suggests, adaptive management is not possible without clear metrics, a monitoring and evaluation program, and a commitment to changing the decisions based upon the active learning that results from the process.



The State has developed a pretty good set of baseline data as a result of the Statewide Water Initiative and this current planning process. But the State has thus far failed to articulate specific, measurable, achievable, realistic, and time-bound that are critical to adopting a truly adaptive management program.

Comment 3: The State Water Plan Should Establish SMART Goals for Alternative Transfer Mechanisms

The State Water Plan rightly focuses on the potential value of alternative transfer mechanisms (ATMs) like rotational fallowing for addressing future water supply needs. What is still needed, however, is to put more flesh on the bones of the ideas that have been percolating around the State for the past decade or so. Legal reforms will probably be

needed but much more must be done to establish the infrastructure necessary to accommodate the reforms that many desire. Interim legal reform goals would be enormously valuable in moving the State forward toward achieving the more efficient use of the State's water resources. These interim goals might include:

1. Outlining a plan for defining water rights in terms of consumptive rights;
2. Setting up efficient institutional mechanisms for quantifying consumptive use and for quantifying water savings from rotational fallowing, crop switching, and deficit irrigation;
3. Identifying compliance and enforcement needs and efficient strategies for managing for ATM programs;
4. Establishing pilot projects to test out ATMs; and
5. Drafting legislation and rules that can help accomplish these goals.

While the draft plan tends to focus most the ATM attention on rotational fallowing, my own research has been looking at the potential water savings from crop switching and deficit irrigation -- two other mechanisms that can avoid the "buy and dry" problems created by past transfers. While the potential water savings from these mechanisms is relatively easy to show, they present their own unique challenges for designing an institutional structure that will receive support and acceptance from the water user community. I hope to have a published article to share with the CWCB on this subject sometime this summer.

Comment 4: While the Basin Roundtables Have an Important Role to Play They Should Not Drive Planning

The Basin Roundtables have proved to be a useful tool for identifying and managing water resource issues and needs and they are obviously helpful to the State in understanding the local concerns and challenges that the Basins are facing. But they also understandably focused on protecting their own Basin's particular water needs. Thus, it should not be surprising that the bottom up process that the CWCB has employed to develop the State Water Plan tends to be too reflective of the parochial interests of the individual Basins. This is not meant as criticism of the Basin Roundtables; it merely points out the reality of the Basin Roundtable process. The Basin Roundtables have an important role to play in planning but the State Water Plan cannot be overly reliant on input from the Basins, The State needs to look at water planning more holistically and that is simply not feasible under the current model. More specifically, while the Basin Roundtables can be enormously helpful in capturing the baseline data necessary to understand the State's water resources, they should not be used to decide the metrics that the State will use to determine whether sufficient progress is being made toward our water supply and demand goals.

Comment 5: The State Water Plan Should Expressly Articulate the Goal of Managing State Water Resources in the Public Interest

Article XVI, Sec. 5 of the Colorado Constitution famously declares that:
The water of every natural stream, not heretofore appropriated, within the state of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the state, subject to appropriation, as hereinafter provided.

Notwithstanding this inspirational declaration of the public's proprietary interest in the State's water resources, the Colorado Supreme Court has determined that Colorado alone among the Western prior appropriation states should not recognize the state's obligation to protect the public interest in managing the State's water resources, absent some further direction from the legislature. Specifically, in *Appl'n of Board of County Comm'nrs. . of Arapahoe Countv. United States*, 891 P.2d 952, 972-73 (Colo. 1995), the Court held that:

> [c]onceptually, a public interest theory is in conflict with the doctrine of prior appropriation because a water court cannot, in the absence of statutory authority, deny a legitimate appropriation based on public policy."

While the Constitution recognizes that public rights are "subject to appropriation," that phrase cannot be read to wholly undermine the language that precedes it. Indeed, the public interest is a sufficiently flexible concept that it can be interpreted in a manner that is fully consistent with protecting the rights of appropriators. But the State has a strong interest, which is recognized in the draft State Water Plan, in protecting the ecological health and recreational values of our waterways and that protection can be given voice by acknowledging the important role of the public interest in managing our water resources.

Comment 6: Intestate Waterways Must be Managed Cooperatively with a Sensitivity Toward Ecological Values.

As the draft Plan recognizes, Colorado is a headwaters State with interstate compacts and Supreme Court decrees that shape the management and use of every major river system in the State. Understandably, the State wants to "vigorously protect[]" those instruments. Yet, as the draft State Water Plan seems to recognize, Colorado must do so in a manner that is sensitive to recreational opportunities and the ecological health of these interstate water systems. Colorado's acquiescence in the approval of Minute 319 on the Colorado River is a good example of how we can work together with other jurisdictions and the federal government to achieve ecological goals even while protecting the State's water rights. But climate change, increasing water demand, and cyclical drought are likely to make this balancing act more and more difficult going forward. One need only consider the desperate state of the water resources on the Rio Grande and Colorado rivers to realize that a reckoning may be coming. We can respond to these challenges by vigorously asserting our legal rights or we can respond by working cooperatively to jointly solve these serious water resource challenges.

Colorado and the other jurisdictions that share the resources of the Colorado River have learned a great deal about the value of working together to address stresses in the system. But we have not yet been tested by the severe shortages that we may face in the very near future on our shared river systems. We don't know what the future holds for our water resources but we can articulate in our State Water Plan a philosophy that is less focused on strictly protecting legal rights and more amenable to solving the future challenges we will face by working cooperatively with our neighboring states to achieve our water supply needs while at the same time protecting our shared ecological and aesthetic values. That seems to be the thrust of the current draft but I urge the CWCB t make this even more clear as the planning process moves forward.

Thank you again for the opportunity to offer these comments on the draft State Water Plan. I look forward to seeing the interim results of this effort and to seeing how the Plan evolves over time.

Sincerely,

Mark Squillace

PUBLIC INPUT
ITEM 28

Rebecca Smith
3301 Arapahoe Ave #120
Boulder, Colorado 80303
resm1653@colorado.edu

Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

April 28, 2015

Dear Colorado Water Conservation Board:

I'm submitting this comment as both a concerned citizen of the South Platte Basin and a student of water resources engineering at the University of Colorado in Boulder. The focus of both my master's degree and now my PhD has been decision support for water utilities and I have spent the past two years becoming familiar with the legal and physical contexts that drive water supply dynamics in Colorado. These are exciting and critical times for the water future of Colorado, and I'm glad to have a chance to both observe and contribute to the state's efforts to coordinate our shared water future.

The Statewide Water Supply Initiatives of 2004 and 2010 have resulted in a comprehensive inventory of the state's resources, actors, and future prospects, and the efforts to quantify large scale dynamics have been put to practical use as the foundation of the State Water Plan. Similarly, the formation and support of the Basin Roundtables and the Interbasin Compact Committee for the last decade have been important for producing structured dialogue and cross-sector participation at the basin and interbasin levels. These initiatives certainly built momentum for the production of the Plan, and Governor Hickenlooper's Executive Order was a timely contribution to the energy building around cooperative, communicative action for optimal water outcomes.

In my comment I make the following recommendations, organized by headings, and in this order:

1) Compile a concise "Actions" document;
2) Commit to Adaptive Management;
3) Support basin-level Adaptive Management;
4) Research and adopt best management practices for water utility risk management;
5) Research and adopt best management practices for water utility conservation;
6) Develop and implement a strategy for shortage sharing during acute drought conditions.

Thank you for your attention and efforts,

Rebecca Smith, MS, EIT

Compile a concise "Actions" document

The Plan has a large volume of useful background information, and for those needing context for various projections and actions, the compilation of the facts and data are useful. The thoroughness of the content also suggests the nuanced and data-oriented approach to getting a state-wide picture of supply and demand challenges. The lengthy and vast document doesn't lend itself to getting a practical understanding of proposed actions and next steps, though. In the multiple sittings it took me to read the Plan, it was challenging to keep track of the actions and next steps embedded in each section.

Appendix D, the IBCC Conceptual Agreement, is an excellent example of a clearly and concisely stated purpose, an explanation of each component, and short descriptions of actions accompanied by links to supporting documents. This would be incredibly useful in the future, and would have eased the task of those interested in offering substantive comments on the core propositions of the Plan. The state of California, after over 50 years of producing a state water plan, has now begun offering the short and concise compilation of the actionable agenda in its California Water Action Plan Implementation Report.[1]

The proposed concise compilation of actions and next steps should be organized by sector and further divided between funding proposals, needed infrastructure, permitting, and legislation. Each of these subdivisions should be accompanied by a point of contact (probably within the CWCB) who organizes and tracks efforts to accomplish the items. This would offer more accountability to the roundtable participants and make it easier for citizens and organizations to stay informed and to engage the CWCB in a more meaningful way. Additionally, outcomes that require a large amount of coordination are generally much more successful if there is a champion at their helm.[2]

Commit to Adaptive Management

The broad goals of our state water plan should be to support progress towards-- (1) a structure that allows our "water values" (which are thoroughly explored and agreed upon in the Plan) are protected in a holistic way, (2) reducing conflict over water due to competition for scarce resources, and (3) a management program that water users believe is fair, efficient, and responsive to changing needs. After reading the Plan and reflecting back on the directives in the Executive Order, I believe that the Plan adheres to the Order in spirit, but perhaps has not been

[1] California Natural Resources Agency. (2015). *California Water Action Plan Implementation Report 2014-2018.* Sacramento, California

[2] Benson, T. (2011). *Cross-Sectoral Coordination in the Public Sector: A Challenge to Leveraging Agriculture for Improving Nutrition and Health.* International Food Policy Research Institute. Washington, D. C.

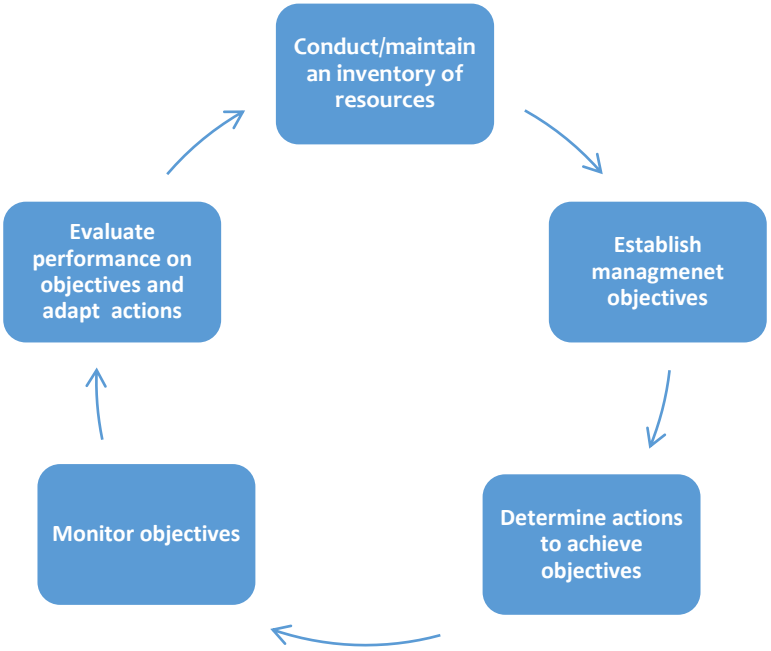
built around a structure that will lead to successful implementation, and it may not lend itself to constant reevaluation and adjustment so that we can continuously improve water management over the long term.

Regarding the first item listed above, structured protection of our "water values", I propose organizing the Actions, Next Steps, and Goals and Measurable Outcomes included in the Plan and the BIPs into an Adaptive Management (AM) structure. Over its 40+ year history, AM has become a somewhat nebulous concept, but as originally conceived,[3] [4] it consisted of these key components:

1) Participation of those outside the management institution in order to manage conflict and increase the pool of contributions to potential management solutions,
2) Defining and bounding of the management problem, including the setting of management objectives,
3) Representing existing understanding through system models that include assumptions and predictions as a basis for further learning,
4) Identifying uncertainty and alternate hypotheses based on experience,
5) Implementation of actions/policies to allow continued resource management or production while learning (reducing uncertainty),
6) Monitoring of the effect of implementing new policies,
7) Reflection on, and learning from, monitoring results, comparison with original expectation in order to revise models and/or management actions based on what has been learned, and
8) Iterative repetition of this cycle (points 1-6) so that management reduces uncertainties and leads to improved management outcomes over time.

In order for the Plan to avoid becoming simply a document that proves the issues are known and ideas were put forth that could address them (as it seems many state water plans are viewed), it should commit to a process of acting, learning, and revising. The chart below is a simple way of visualizing the cycle:

[3] Holling, C.S. (1978). *Adaptive Environmental Assessment and Management*. Chichester, UK: John Wiley and Sons.
[4] Walters, C.J. (1986). *Adaptive Management of Renewable Resources* New York, NY, USA: Macmillan.



Colorado has done a thorough job of conducting an inventory of resources, and the Plan lays out some broad objectives and specific actions, but adherence to a robust AM strategy requires a bit more. For best results, the management objectives and their associated actions should be based on the "S.M.A.R.T." framework promoted by George Doran in 1981:[5] Specific, Measurable, Achievable, Relevant, and Time-bound. An example of translating the content already in the Plan into an AM-worthy objective and action would be:

> **Objective**: Increase participation in alternative transfer methods by 10% statewide by 2020.
>
> **Actions**: Pass law increasing flexibility for temporary agriculture to urban transfers; increase funding to ATM research; develop financial incentives for participation in ATMs.
>
> **Monitoring**: Measure the percentage of transfers that involve mechanisms other than permanent dry up of farmland; interview the parties involved in buy-and-dry transactions to learn about impediments.
>
> **Adaptation**: Increase awareness of incentives, pass further legislation, etc. based on responses to interviews, achievement of objective. Possibly set a more aggressive objective based on new climate or population information.

[5] Doran, G. T. (1981). "There's a S.M.A.R.T. way to write management's goals and objectives". *Management Review* (AMA FORUM) **70** (11): 35–36.

Before continuing the discussion of AM, I should acknowledge that section 6.1 of the Plan describes an "adaptive strategy to try to plan for uncertainties" based on scenario planning, but scenario planning focuses on being able to adapt to multiple futures by incrementally implementing plans or portfolios; it does not provide for any internal adaptation of approach. As time passes, future climate and population will become less uncertain, and that information should be accounted for as it becomes known; however, without a structure for adapting management tools to account for observed *intermediate* outcomes, the approach remains static and potentially inappropriate in the face of changing circumstances. Furthermore, if we do not learn about the abilities of various actions to achieve our goals, we can't rely on them to adequately address an uncertain future.

The no and low regret actions described in section 6.1 provide a convenient starting point for developing S.M.A.R.T. objectives. Objectives based on these broad goals can be developed for state-level action and related objectives can be developed for basin-level action. State level actions encompass things like legislation, financial incentives, and research. Basin-level actions could include establishing cooperative groups of utilities, exploratory committees to develop agricultural and municipal sharing agreements, developing multi-purpose projects, and dedicating funds to instream flows. Additional bases for basin-level objectives should be each BIP's goals and measurable outcomes.

Once the specific, measurable, achievable, relevant, and time-bound objectives are established, a binding plan for monitoring and a schedule for evaluation should be established. The outcomes of monitoring and the proposals for adaptation should be included in subsequent editions of the Plan, and a five year time horizon seems appropriate. The emphasis in AM is learning, so consistent attention and participation by relevant parties and structure are more important than initial objectives. This relieves the need to set perfect objectives or consider them set in stone (a fear that was expressed at multiple BRTs I attended) if the commitment to monitoring and adapting based on results and new information are sound.

A final word on the necessity of incorporating AM into the Plan is this: the fact that the document is called a "plan" suggests reasoned, ordered actions to achieve goals. The current document provides plenty of reason, actions both vague and specific, and resources that may be employed to take the actions, but it does not commit to any order or organize any structure or authority to see them carried out. The foundation of data and urgency to act are apparent, and this is a critical accomplishment of the process so far; our plan for Colorado's water future just needs "teeth". If a more substantive set of steps is not laid out, periodic updates to the Plan may devolve into increasingly frantic calls for action and bleak climate updates.

Support Basin-level Adaptive Management

The process of developing the Plan relied on implementation plans produced by BRTs (as directed by the Executive Order), and while it makes sense in some ways to use existing structures to assign regional responsibilities, the original purpose of the BRTs involves dynamics that may be counterproductive in item two of my proposed goals of the Plan (reduce tension that results from competition for scarce resources). As originally conceived in the Colorado Water for the 21st Century Act, the BRTs were to be a forum to discuss water management issues within and between basins. The natural position of any basin is to optimize its outcomes (i.e. preserve as much agriculture as possible, support as much economic growth as possible), and part of how this is accomplished is to externalize some of the costs of growth to other basins. This is most prominent in the issue of transbasin diversions, but it's fair to say that placing the full weight of aggressive reuse on one or two basins is also an externalization of the costs that statewide growth produces; for example, the recreational opportunities touted and protected by West Slope basins cause growth on the East Slope.

One way to reduce the suspicion among basins is for the CWCB to support an AM process at the basin-level. If the entities within the basin are responsible for monitoring their collective progress toward their own stated goals (BIPs), there can be quantified transparency to prove that a basin is acting in good faith to cooperate for improved outcomes at the state-level, and with transparency would come either a relaxation of tensions or the accountability necessary to encourage more aggressive action within a basin. Though the CWCB can't compel individual entities to complete or cooperate in specific projects or programs, by requiring the BRTs to set S.M.A.R.T. objectives and specify associated actions, monitor their progress, and report to the IBCC, it's more likely that the culture of shared responsibility for basin-level outcomes that lead to better statewide outcomes will prevail over an individual entity's localized pursuits.

Additionally, the support of basin-level AM should be one of the actions for state-level AM; it's hard to see how even the best efforts of state agencies and actors can result in good progress toward sustainable water management if there is no accountability at lower levels. The nested AM processes will also support the third item on my list of state water plan ideals: fostering a sense that water-using entities feel that the regulatory system is appropriate and responsive to changing needs. The on-the-ground experiences of the entities involved in the BRTs should be monitored and accounted for in the state's monitoring for the best understanding of how the state can support its broad outcomes.

Research and adopt best management practices for water utility risk management

Water utilities are forced to be very reactionary and absorb much of the uncertainty inherent in water supply, demand, and future climate. For those that can afford it, this means extensive modeling and scenario planning to evaluate risks and plan for even very remote possible supply and demand futures. For those utilities that can't afford it, the high standard expected of them means relying on supplies that are unsustainable and paying very high prices for somewhat undesirable backup supplies. Part of the cause of this is public perception of conservation and restrictions, and part of it is the institutional hurdles inherent in prior appropriation and water court.

Utilities have a wide range of ways of defining reliability, or the percentage of time the utility is able to meet certain levels of demand. For example, some use frequency of having to enact different levels of restriction and some use percentage of annual demand in storage. The combination of many different ways of defining reliability and the public's low acceptance of service curtailment and high prices reduce clarity about how much water the utilities really need. This may translate into speculative water accumulation that water courts cannot detect nor prevent, which in turn could lead to more agricultural water transfers than necessary and excessive reliance on new infrastructure.

Just as the state is funding ATM research, it would be beneficial to deeply explore the mechanisms that shape the behavior of water utilities and potentially develop best management practices. These guidelines could not only reduce pressure on the utilities but provide standards that water courts and citizen participants may use to gauge the necessity of water development and transfers. Given that projected supply gaps figure prominently in the Plan and there is debate about how best to meet them, an effort to define and standardize a reasonable level of supply and reliability would benefit all sectors and potentially give greater opportunity to smaller utilities to pursue necessary supplies. Along with the guidelines, public outreach and education regarding the tradeoffs between meeting current demand and maintaining storage for longer term security would also be useful.

Research and adopt best management practices for water utility conservation

Colorado water utilities have taken a wide range of actions to promote (and sometimes mandate) conservation: tiered pricing, education campaigns, smiley faces on bills, scheduled lawn watering, rebates for efficient appliances, incentivized xeriscaping, etc. These all have a range of effectiveness and, of course, varying utility participation. Since water utilities are likely

the most practical and visible actors to promote a change in citizens' water attitudes, it is important that all utilities participate aggressively in these practices (and more- the City of Santa Cruz offers Water School for those caught violating water use restrictions.[6] By surveying the practices and per capita water usages of other western cities, specifically those who have already had to take water conservation very seriously, Colorado can get an idea of what's achievable. The results of this research should be both the conservation practices and seasonal per capita use targets.

Similar to my suggestion that research be performed to establish best practices to characterize water utility supply reliability, I recommend that the state research effective conservation practices that should be incorporated into all utilities' policies and set S.M.A.R.T. targets for adoption of the suite of practices and corresponding per capita water use reductions. Additionally, these practices and use targets should be heavily considered by water court before approving new water supply. For water utilities to be granted more water while not having enacted a base level of conservation could be considered a wasteful use of water, in violation of the (admittedly and problematically vague) concept of beneficial use.

Develop and implement a strategy for shortage sharing during acute drought conditions

While the Plan thoroughly explores the possible paths toward meeting supply and demand gaps that fall within the basic framework of prior appropriation and property rights, it acknowledges that even perfect implementation of these projects and procedures leaves most basins with a gap in the future. Additionally, the scenarios explored address long term shifts in streamflow and temperature, but do not cover the potential for more climate variability and greater magnitude of extremes. For this reason, I urge the State to develop a strategy for shortage sharing during severe, sustained drought conditions, and to recommend appropriate legislative changes to implement the strategy if necessary.

The near certainty of having to deal with future severe, sustained droughts is a powerful driver of M&I planning, and the responsibility for avoiding critical system failures leaves them with little choice but to develop and purchase more and more water. This constant water grab is detrimental to every sector, and in some possible scenarios, the most Herculean of utility efforts may prove insufficient.

[6] City of Santa Cruz (2015). *Santa Cruz Water School.* Santa Cruz, California. http://cityofsantacruz.com/departments/water/2014-drought/water-school.

The ongoing crisis in California provides a useful illustration of how the lack of regulatory structure to deal with vast and lasting shortages makes the shortages more politically and economically painful. The drought conditions there are a prime example of the severe, sustained drought situations that are not covered by the state water plan. California has passed two emergency drought relief bills in the last two years[7] and on April 1, 2015, mandatory restrictions were enacted by executive order. These steps have all been reactionary, and surely not the most productive and efficient means of dealing with extreme water shortages. On April 8, the California State Water Control Board released recommendations for how urban water providers are to comply with Governor Brown's order- just a week to work out an emergency response- imposing severe, if warranted, cuts on several communities. The Board also warned of further restrictions to agriculture.[8]

The economic impact of California's lack of drought preparedness would have been much more severe if not for the unregulated use of groundwater. As measured in 2014, 5.1 million acre feet of the 6.6 million acre foot surface water shortfall was made up for by groundwater, limiting the statewide economic cost to $2.2 billion for the year.[9] But the unbridled reliance on groundwater has compromised California's ability to weather future droughts and support certain crops long term. It is unlikely this approach and outcome would have been chosen if planning measures had been vetted and implemented.

For a cautionary tale in how lack of structured shortfall planning can affect cities specifically, we can look to Sao Paulo, Brazil. While human activities in preceding decades (mostly related to large-scale deforestation) set the stage for a severe reduction in streamflows and inability to take advantage of them when they occur,[10] city officials' failure to enact timely emergency drought management (because it was politically unpopular, some say) led to the current precarious state of affairs: the city has only four to six months of municipal demand left in storage heading into the dry season. The late and poorly designed municipal restrictions imposed on parts of the city have led to unpredictable indoor water use outages that last for days and concerns over safety and health in the absence of a cogent plan to ensure critical services. While it is hard to imagine things getting so far gone in America, is there any backstop

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[7] Megerian, C., & Mason, M. (2015, March 19). $1 billion in California drought relief may just be the beginning. *Los Angeles Times*. Retrieved from http://www.latimes.com/local/political/la-me-pc-brown-emergency-drought-20150318-story.html

[8] Nagourney, A., & Fitzsimmons, E. G. (2015, April 7). Under New Water Rules, Beverly Hills Must Turn Off Taps; Santa Cruz, Less So. *The New York Times*. Retrieved from http://www.nytimes.com/2015/04/08/us/californias-water-conservation-slowed-in-february.htm

[9] Howitt, R., Medellín-Azuara, J., MacEwan, D., Lund, J., & Sumner, D. (2014). *Economic Analysis of the 2014 Drought for California Agriculture*. Davis, California: UC Davis Center for Watershed Sciences. Retrieved from https://watershed.ucdavis.edu/files/biblio/DroughtReport_23July2014_0.pdf

[10] Postel, S. (2015, March 13). Lessons from São Paulo's Water Shortage. *National Geographic's Water Currents.* Retrieved from http://voices.nationalgeographic.com/2015/03/13/lessons-from-sao-paulos-water-shortage/

in Colorado once a utility has reached the end of its supply? Must every utility plan for the worst, and then hope for the charity of its neighbors to relieve them in the event that even those plans were not enough or there was not enough water to meet such a gap?

These two examples are case studies in how lack of planning, forward thinking, and timely governmental action can make bad situations worse in both the present and future. Putting what amounts to disaster response in the hands of many small, competing entities and relying on research, technology, and market forces to settle things is a gamble that Colorado doesn't have to make. If we see our situation as a water supply problem instead of a water management problem, the answer will always be to develop or buy more water, likely resulting in environmental degradation and certainly agriculture dry up. If we have mechanisms in place to force us to live within our means, however tight or abundant supply is in any given decade, then we can self-determine our path instead of experiencing painful shocks that come with deeply uncertain variations in weather and climate.

If the states of the Lower Colorado River Basin can come to a shortage sharing agreement to give greater certainty about the management of the storage in the system in severe drought conditions,[11] why can't the entities within each basin in the state of Colorado undertake the same task? The relationships and data developed through the basin roundtable process provide a good foundation to support each basin's negotiations. The basin-scale is practical for a shortage sharing agreement because of the shared hydrologic circumstances and the connected fates of entities in response to hydrologic and policy realities. Designing shortage sharing agreements at the basin level allows each basin to address its particular supply challenges and demand patterns in the most appropriate way, with the state playing a financially supportive role, not a prescriptive one. Furthermore, by having this structure in place, it reduces the uncertainty about what happens in the event of shortages or new guidelines on the Colorado River Basin.

One approach for such an agreement would be to set hydrologic, storage, and municipal use triggers that would allow the State Engineer to designate that certain agricultural rights be temporarily curtailed by a small percentage to shore up critical municipal storage. The water retained by or reallocated to municipal storage would be reduced by the percentage historically consumptively used, so downstream flows would be minimally affected. The reductions in agricultural income attributed to the curtailments could be compensated by a basin fund paid into by various mechanisms based mostly on taxing M&I users. The qualification of utilities to receive relief water would include both past efforts at conservation and reuse as well as mandatory restrictions while curtailments are in place. The reductions in utility income that

[11] United States Bureau of Reclamation. (2007). *Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead*. Washington, D.C. Retrieved from http://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf

result from restrictions should be offset by insurance or the aforementioned state fund to prevent severe rate hikes in the aftermath of the drought event.

Based on principles of economics, the natural dynamic of water distribution favors the sector with the highest incremental benefits until marginal net benefit equilibrium is reached.[12] This means that, absent transaction costs, water supply should naturally transfer from agriculture to M&I use because agricultural use provides less economic benefit than M&I for a given volume of water. Prior appropriation and high transaction costs for transferring water ownership or changing use impede that dynamic from occurring in Colorado. While creating the conditions for a very active water market in Colorado would lead to achieving the greatest possible economic benefit from water, the highly fluid dynamics of a market create engineering challenges and the imbalance of monetary resources may produce results that are not desirable from a social values perspective. The economic damage caused by acute drought may be reduced without instituting a market, however. A shortage sharing agreement can temporarily impose the necessary dynamics prescribed by economics: the more price-elastic user (agriculture) bears a larger share of the supply shortfalls.[12] The long term impact of temporarily lower production in agriculture is also lower than the opportunity costs associated with lost M&I revenue, which have far reaching economic ripples. Additionally, spreading the curtailments over many agricultural users minimizes the impact to any one farm or crop.

It can be argued that interruptible supply agreements provided for in Colo. Stat. 37-2-309 achieve this goal, but they are piecemeal, term-limited, and can require substantial negotiations between parties and lengthy re-approval processes. Furthermore, the borrowing entity cannot get supplementary water from across the Continental Divide, so a supply shortfall on the West Slope may have to be supplemented by water on the East Slope. Because there is already precedent for the State Engineer to administer temporary changes in the points of diversion, locations of use, and types of use of absolute water right without the need for an adjudication, the expansion of this responsibility for basin-wide emergency drought management is not as big of a legislative hurdle as may be imagined. Beyond preparedness, this expansion provides other benefits, discussed below.

A state-backed, non-voluntary, basin-wide shortage sharing agreement can provide a buffer between municipal water providers and the compounding effects of deep short term droughts, climate change, and population growth. This buffer allows them to scale back their pursuit of new supplies, thus reducing the rate of buy and dry- a major concern for several of the basins. The long term transfer of water from agriculture to M&I will still happen, so ATM research and improved water court efficiency are still desirable, but some portion of water that would have

[12] Ward, F. A. (2007), Decision support for water policy: A review of economic concepts and tools, *Water Policy*, **9**, 1–31, doi:10.2166/wp.2006.053.

been transferred to manage the risks of acute droughts will be able to stay in agricultural production. Furthermore, the motivation for individual farmers to find ways to maximize production with less water may increase as a result of the shortages. The state-backed reassurance of critical water supply levels reduces the burden on individual utilities, especially those without the money or personnel to participate in the competition for scarce additional resources that emphasize expensive rights and infrastructure.

On top of reducing the constant strain on agriculture and M&I, the reduced need to develop new supplies and build new infrastructure has environmental and recreational benefits. Fewer new reservoirs will be needed, so less natural land use will be disrupted, and less permanent agricultural dry up will mean fewer abandoned fields and dwellings. Recreational and instream flows can also derive large benefits from relatively small impacts to agriculture, so their provision may be included in the shortage sharing.

The triggers for shortage sharing can be based on a precise system that considers previous years' water yields, precipitation projections, snowpack conditions, temperature, fullness of municipal storage, and per capita municipal use. For example, if a basin has experienced below 50% of its long term average streamflow at critical locations in each of the past two years, and the projected April 1 snow-water equivalent is below 50% on February 1, the state engineer can declare the basin to have entered a severe, sustained drought. Then, utilities who get supply from the basin who have maintained per capita water use below 100 gallons per day for the previous year and have less than 50% of their average annual demand left in storage can qualify for emergency supply produced from a 5% curtailment of 1925 and earlier agriculture rights in the basin. The triggers can be negotiated with tiered curtailments and municipal restrictions that account for critical supply needs in all sectors. The basic structure can remain in place and the specific triggers can be renegotiated in light of new climate and population data or experience in their implementation that recommends refinement in future updates (another opportunity for Adaptive Management). Periodic updates of the triggers will help Colorado respond to changing supply and demand conditions and provide a mechanism for the state to maintain sustainable water use and have the ability to respond before a drought becomes a crisis.

When combined with sufficient monitoring and modeling of the relevant data and systems, a determination of shortage can be made months in advance, as seen with the Interim Guidelines for Colorado River shortages as determined by the Bureau of Reclamation. Twenty-four month projections of inflows into Lake Mead are modeled every summer, and if the elevation of the lake is projected to be lower than 1075 feet above mean sea level on January 1 of the next year,

shortage is declared and the Lower Basin states have months to prepare.[13] A similar approach can be used by each basin in the state of Colorado, but it will need to be supplemented with some oversight of utilities' efforts at conservation and reuse as well.

As mentioned in the description of the basic concept of the shortage sharing agreement, the lost agricultural revenue that results from curtailment should be compensated through a fund that includes money collected through M&I service rates, tap fees, tax collections, and state contributions. Since M&I users will benefit most directly from the agreements, it is appropriate that they be prominent participants in insuring themselves against damage from acute droughts, and the added costs to development in a water scarce location will promote smart land use and construction choices. The utilities' reductions in revenue associated with the restrictions necessary to qualify for relief water from agricultural shortages can be partially or fully mitigated through third party insurance to avoid steep drought surcharges.[14]

Section 16 of the Colorado Constitution's Bill of Rights prohibits the taking of private property for public use without just compensation. Because the shortage sharing agreements provide for the compensation of lost farm revenue due to curtailment, the curtailments are temporary, and the amount of water associated with the right is not decreased, they should not qualify as takings. The ongoing efforts by the state to find ways of compensating farmers for volunteering to permanently or temporarily reduce their use via ATMs and leases do not seem to have reduced the value that senior water rights command on the market, so shortage sharing should not impact this either. Section 16 of the Colorado Bill of Rights also provides for judgment on whether a use really is public, but even though there will be instances of water being provided to private water utilities, the *purpose* of the water would be public, and the justly-compensated transfer of private property to another private owner to support a broader public agenda has been upheld by the Supreme Court.[15]

A shortage sharing agreement could not occur within the structure of prior appropriation, but is suggested as a temporary overlay on existing law to approach disaster mitigation under certain circumstances. It is hard to deny that the development and adoption of prior appropriation in the West did not occur with the growth and importance of large urban areas in mind. As the economic base and concentration of people has shifted to western cities, while the vast majority of water rights have been developed for agriculture, adherence to prior appropriation

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[13] United States Bureau of Reclamation. (2007). *Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead*. Washington, D.C. Retrieved from http://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf

[14] Zeff, H. B., and G. W. Characklis (2013). Managing water utility financial risks through third-party index insurance contracts, *Water Resources Research*, 49, 4939–4951, doi:10.1002/wrcr.20364

[15] Berman v. Parker, 348 U.S. 26 (1954)

creates more and more tension between sectors. This dynamic is what makes senior water rights so valuable, and a shortage sharing agreement would not interfere with that; because the shortage sharing would only be triggered under certain dire circumstances, it will still be desirable to obtain senior water rights and thus the property value will not be undermined. Under circumstances that do not trigger shortage sharing, prior appropriation principles and processes will remain in effect.

Though it would require major legislation to create the authority and funding to accomplish the shortage sharing agreement proposal, it is not unthinkable to enact such reform. Consider the broad groundwater management bill signed by California Governor Jerry Brown in 2014- it authorizes groundwater monitoring and management where there was none. Big changes are possible, and I would argue necessary, for Colorado to become sustainable and responsive to critical supply and demand signals. The current system of individual efforts, meager voluntary cooperation, and reliance on reuse and conservation are not by themselves dramatic enough levers to prevent crisis-level damages from inevitable severe, sustained droughts. A big legislative change and the resulting basin-level negotiations would take years, but if we start now, the structures can be in place in time to supplement the longer term efforts put forward in the draft State Water Plan to address supply gaps.

PUBLIC INPUT
ITEM 29

Citizen Comments, May 1, 2015 Submission Date Colorado Water Plan

Thank you for this opportunity to comment on the developing Colorado Water Plan.

Colorado's water laws were developed during the second half of the 1800s. When Colorado's total population was on the order of the current population of Englewood, CO, the needs of people and the environment were very different. Many of the laws, however, are unchanged. Also unchanged are the ways many people think about water use and water rights in Colorado. Water laws and water use must change if we are to to meet people's basic needs (food, water, shelter, health) without destroying the natural beauty and abundance of Colorado.

One of the biggest gaps in today's water laws is the lack of adequate water to protect our rivers, wildlife and native plant species. These needs are not quantified and considered the way the "human need gap" is. More than a century ago, when a family walked a thousand miles to establish a farm or ranch in Colorado with a few or no other farms or ranches on the horizon, the native environment was understandably not their focus. Today it must be a major focus if Colorado is to sustain the qualities most residents value, and perhaps even if people are going to survive here in the long term.

The Colorado Water Plan must accomplish the following in order to sustain Colorado as the wonderful place where we choose to live:

I. Require and find funding sources for water for rivers, wildlife and native plants sufficient to support our ecosystems throughout Colorado.
   A. In some areas, this will require new water allocations for ecosystem support.
   B. Timing the flows to water rights holders to correspond to the historic high and low flows of our rivers can preserve natural cycles of growth while meeting the needs of people, but will not always be sufficient.
II. Integrate water planning into land use planning throughout Colorado.
   A. Leave most control local, but have State guidelines that must also be followed, perhaps by demanding reductions in water use overall and a specified, very high level of efficiency in new development that will change as technology makes even more efficiency possible.
   B. Clearly small towns (think Karval, CO) that depend on wells must have different rules from major cities, but the goal should be to minimize water use for decorative landscaping, encourage use of native plants for landscaping, improve plumbing efficiency, etc.
III. Every person, business, industrial facility, recreational facility, farm, and ranch throughout the State must share the burden.
   A. There are places where growing of water-intensive crops to supply the country's needs are appropriate. Colorado is not generally one of them. California's Governor Brown said, "Farmers don't waste water" and used that idea to only require change in California's cities. I believe he off base.
      1. Wasting water, being water efficient and making good choices about what to grow and where to grow it are different but important pieces of the water puzzle. Even farms that don't waste water may be able to reduce their water use.

2. Transitions need to be somewhat gradual. We don't want to make it so one cannot buy fruits and vegetables anywhere. This will be a challenging but worthwhile national as well as local issue. Our water plan must contribute to the discussion and become a leader for agricultural water solutions, not just "buy and dry" or "let ag have as much as they ever did."

B. Recreational industries such as rafting and fishing, that will be greatly impacted by the water plan, must be given serious consideration. To a large extent, these needs are compatible with ecosystem-related flows.

C. Carrots and sticks are in order.

1. Grants to help upgrades are appropriate.
2. Cutting, cutting, and more cutting of human water use must happen.
3. Care must be taken to see that those who improved efficiency before it was required are not penalized. If there are specific reductions (say 5% decrease in water use) required more or less across the board, the possibility of considering actual efficiency rather than current change in total amount used should be possible for efficiency pioneers and earlier volunteers.

IV. Storage of clean water in aquifers should be widely used.

A. This eliminates evaporation and could avoid the destructive aspects of large dams and other water projects.

B. Increased research, technological development and increases in alternative energy sources may make this a cheaper, easier matter.

C. Extreme care should be taken to protect our aquifers from all threats.

V. Trans-mountain diversions should be a solution of last resort and very rare.

A. They damage the rivers, ecological systems, and water availability for people in the basin below the point where water is taken.

B. They increase the risk of flooding in the basin where the water is delivered.

C. They proliferate pipelines requiring maintenance and relatively barren ditches for the transporting of the water to the new basin.

D. They are often used when increased efficiency in the receiving basin could have solved the problem.

VI. Natural wetlands should be encouraged by the protection of beavers in places where this is possible, perhaps especially at high altitudes.

A. Wetlands reduce flooding, keep moisture available for plants and animals.

B. Wetlands have been recently found to absorb much larger amounts of carbon than previously believed. Before Europeans arrived in Colorado and trapped out much of the beaver population, wetlands were far more widespread in Colorado than currently. They may help limit global climate change.

VII. There should be some sort of protection for a minimal amount of daily water for each individual, so that water for drinking, cooking and basic cleanliness is guaranteed. We do not want a time when lack of money for a bottle of water results in death or poor health for individual people.

Although the following two items are not specifically required to be in the Colorado Water Plan, legislation and social norms should be considered to do the following:

I. Find ways to limit the boom and bust cycles of the energy industries, such as gas and oil, coal, solar and wind.. Particularly in the gas and oil industry, this will:

A. Allow better water planning.
B. Allow recycling of water for such things as fracking (which is done to a 100% level by some companies in Texas).
C. Limit the impact of other aspects of these unstable industries, such as extreme population swings in rural areas and businesses that flourish and then go broke, leaving us with environmental damage without rehabilitation and little benefit.
D. Limit the socially and financially huge impacts of such industries without eliminating the opportunity for energy development in Colorado.

II. Ultimately, Colorado must figure out ways to stabilize its population over time. If we don't want to end up with the specter of people's dying of plagues, starvation, thirst or a horrible policy such as China's one child policy, we need to accept that a sustainable, stable human population must be established. We certainly do not have total control over this, but social pressure, policy and laws can help

A. Smaller families should be subtly encouraged. Advertisers can be helpful with this if encouraged to pictures small, happy families.
B. Businesses must find ways to operate successfully within a no- or limited-growth plan.
C. A sudden transition rather than a gradual one will be very painful. We should try for gradual movement toward stability.
D. Colorado should not be trying to attract large numbers of people to move here. They will come without that push, but perhaps at a smaller rate.

Thank you for considering my comments.

PUBLIC INPUT
ITEM 30

TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.
HEADQUARTERS: P.O. BOX 33695 DENVER, COLORADO 80233-0695 303-452-6111

April 28, 2015

VIA COLORADO'S WATER PLAN GENERAL INPUT WEBSITE

James Eklund, Esq.
Director
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

Re: Tri-State Generation and Transmission Association, Inc. Comments – First Draft of the State Water Plan

Dear Mr. Eklund:

Tri-State Generation and Transmission Association, Inc. ("Tri-State") transmits this letter to provide comments on the first draft of the State Water Plan ("Plan"). The second draft of the Plan will be released in July 15, 2015 and we anticipate providing further comments prior to the deadline of September 17, 2015.

Tri-State is a not-for-profit, wholesale electric power supply cooperative providing power to 44 member distribution systems serving customers throughout 250,000 square miles in Colorado, Nebraska, New Mexico and Wyoming. Tri-State provides electricity to members based on a diverse mix of generation sources including coal, natural gas, hydroelectric, solar and wind power. Tri-State holds water rights in five of the seven water basins in Colorado.

Comment One: We appreciate the Colorado Water Conservation Board's ("CWCB") Staff diligently considering Tri-State's input on Section 6.3.5 of the State Water Plan.

Throughout the development of the State Water Plan, Tri-State has participated in the drafting of the Yampa-White-Green Basin Implementation Plan, monitored other Basin Implementation Plans and attended numerous meetings on the State Water Plan, including the Statewide Basin Roundtable Summits. In addition, Tri-State offered comments on Section 6.3.5 in the drafting process. We are grateful for the time the CWCB Staff spent learning more about the water-energy nexus. As noted below, we would like to continue to work with CWCB Staff to further develop the "Action" items for Section 6.3.5.

Comment Two: As noted in the State Water Plan, thermoelectric power generation uses a very small portion of the State's water.

Even though the generation of thermoelectric power uses no more than one percent of the State's water, electric utility providers demonstrate their commitment to sustainable water supplies by working closely with other water users in various Basins to ensure flexibility and certainty in water supply deliveries. Tri-State has worked closely with the Colorado Water Trust, Upper Yampa Water Conservancy District and the Routt County Conservation District to implement agreements and projects which positively impact the Yampa River's watershed and water availability.

Comment Three: "Action" items should avoid recommendations which conflict with existing authority of various federal and state agencies.

The Plan provides "Action" items for the Self-Supplied Energy Sector. We are concerned that "Action" items Nos. 7, 8 and 9 may conflict with Colorado laws, Public Utilities Commission resource planning obligations and the authority provided to various federal agencies, including Federal Energy Regulatory Commission, North American Electric Reliability Corporation and the Environmental Protection Agency. We would welcome the opportunity to work with CWCB Staff on these "Action" items.

Comment Four: "Action" items should be made in the context of regional differences and private property.

We applaud CWCB's commitment to making sure the State Water Plan does not conflict the doctrine of prior appropriation. In addition, we would ask the CWCB to consider that planning decisions around electric generation infrastructure in urban or high density areas is quite different than those that are viable in rural communities. Also, the "Action" items should reflect that water rights are private property rights and may be used by the user in the manner provided by the water rights' decree. As mentioned in Comment Three, we would welcome the opportunity to work with CWCB Staff on "Action" items.

Comment Five: "Action" items and the-yet-to-be-drafted Chapter 10 (Legislative Recommendations) should reflect the goals contained in the Basin Implementation Plans and the feedback provided at the March 2015 Statewide Basin Roundtable Summit.

At the March 2015 Statewide Basin Roundtable Summit, which included representatives from all the Basin Roundtables as well as the general public, the participants arrived to a general consensus that "only legislate when it is absolutely necessary" and any proposed legislation should be vetted for unintended impacts and consequences. Furthermore, participants indicated they preferred voluntary incentives. *See Executive Summary, Basin Roundtable Summit* (March 12, 2015).

Each Basin Implementation Plan was developed by Roundtable members with diverse water interests who considered public comments through extensive public outreach activities. Each

Basin is well positioned to make any necessary policy recommendations based on these extensive efforts.

We encourage the development of any further "Action" items and Legislative Recommendations to reflect the actions outlined in the Basin Implementation Plans and Statewide Basin Roundtable Summit consensus.

Thank you for the opportunity to provide comments. If you have any questions about these comments, please contact Laura Chartrand at 303-254-6067.

Sincerely,

Michael G. Sorensen

Michael G. Sorensen
Senior Manager
Fuel and Water Resources

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PUBLIC INPUT
ITEM 31

---------- Forwarded message ----------
From: **Brad Johnson** <bjohnson-jec@comcast.net>
Date: Wed, Apr 29, 2015 at 2:46 PM
Subject: Comment on the CWP
To: cowaterplan@state.co.us
Cc: "Sturm - DNR, Chris" <chris.sturm@state.co.us>

Hi,

I reviewed three chapters of the CO Water Plan. I was initially responding to a request for review by Chris Sturm of the section he authored (7.1). I read some more of the CWP and Chris encouraged me to provide comments, if I had any. I did. My initial review of Chris's section set the tenor for how I reviewed these three chapters. That is, I read them and commented as if I were reviewing the work of a colleague, not as if I were providing typical public comment – including the suggestion of editorial and/or grammatical changes. In this regard, suggestions are just that. Mainly, they signal where I thought the text needs revision in some way. I don't know if the authors wanted such feedback, but there it is!

Chapter 4:
I thought this chapter was very well done. I have just have four minor comments included in the pdf.

Chapter 6:
Again I thought this section was very well done and full of refreshingly innovative thinking. I have a number of comments scattered throughout the pdf - some minor, some substantive (I think). I have two general comments, first I thought wetlands could have been covered a little better. More importantly, however, I thought there was a major omission in basically casting a blind eye towards federal regulations like CWA and NEPA. For example, in discussions about whether or not wetlands and streams were "protected" the CWA didn't enter in, despite the fact it provides the basic protections. More crucially, the issue of permitting or the permitability of projects was barely addressed, yet this is going to be one of the single greatest impediments to carrying out the strategies of the CWP.

For instance, most (all?) future reservoir projects will involve direct impacts to federally-regulated habitats – some of these impacts would likely be substantial. Moreover, the regulatory agencies are now requiring compensatory mitigation for the "indirect" impacts of projects on streams. A water project might cause many miles of indirect stream impacts for which compensation must be produced.

Which brings me to the crux, and that is that compensatory mitigation for federally (and state fish and wildlife impact policy) regulated impacts to aquatic habitats is a keystone concept to consider in strategic planning. And it's not just me saying that. For example, for a growing number of major water providers planning and implementing mitigation is one of the very first steps being taking in project planning. It is even being carried out before a specific project is identified. Witness Denver Water's 4 mile creek mitigation bank and Aurora's (proposed) Headwaters bank. Camp Hale represents another example in the CO River basin. This site, planned as an "In-lieu fee" mitigation site, will provide mitigation for several water providers, with or without specific projects on line at this time.

The rules of compensatory mitigation changed in 2008 with the issuance of new federal policy, and it will (and is) presenting serious challenges to water projects. One of the major impediments has been the lack of regulatory tools to meet the requirements of the 2008 mitigation rule. For instance, there is a federal requirement to provide compensation for direct and indirect stream impacts, yet no tools exist to account for impacts or the adequacy of the mitigation plan. This confounds federally permitting. A second example is that of "In-lieu fee" (ILF) mitigation, which is the second most preferred mitigation according to the 2008 rule. The problem is that Colorado does not have an ILF mechanism, so that option is currently not available to water providers. This has created an intractable situation.

To address this, CWCB along with federal and state partners have come together to fund a string of R & D studies at CSU to develop the technical and administrative tools needed for mitigation planning. These studies include the development of a stream functional assessment methodology, stream mitigation crediting protocols, and ILF protocols. A study to be funded by the Corps includes formalizing wetland banking protocols and developing stream impact debiting protocols. CWCB in conjunction with federal regulatory agencies are empowering themselves with the tools to make project permitting possible. Actually developing viable mitigation plans will always remain a substantial challenge, however.

The challenge of mitigation also includes the specter of water rights, since they are required for many mitigation projects. Water rights and mitigation is a current topic that DWR has been wrestling with. If required water rights are not available, mitigation cannot be approved by the Corps. If mitigation is not approved, it stands to reason that the project is not permittable. The CWP expressly describes the importance and legitimacy of environmental uses of water. Mitigation will likely be an important way that water is devoted to environmental maintenance. Setting aside water rights specifically for mitigation may need to become standard thinking in water projects.

I think it's also important to note that required mitigation provides strong incentive for water providers to seek out and carry out many of the environmentally beneficial projects identified by basins. Mitigation provides compulsory environmental opportunities.

Chapter 7: Comments are included in the pdf
Section 7.1: I thought this section was really well done, too.

Four points for consideration:

1) Intermountain parks and valleys are not really represented despite their importance in water supply and watershed health.

2) I believe wetlands were only mentioned once, and in passing. To me this is obviously going to be a grievous omission. The importance of headwater wetlands (including beaver complexes) and riverine wetlands in particular is hugely important to watershed health and water supply. To me this section is the ideal place to interject notions of how healthy aquatic systems store water and maintain WQ. In Chapter 4 they talk about the snowpack being the largest storage facility. Talking about the role of healthy aquatic habitats (particularly wetlands) in this regard, seems a natural and important extension of concept of "natural infrastructure" broached in the earlier chapter.

3) I don't know if your section is the right place, but I might suggest adding a section about maintaining watershed health in light of necessary water projects. This is a challenge that everybody is taking really seriously. This brings up mitigation as discussed at length above. Particularly relevant here is the idea of ILFs and their ability to empower watershed groups to realize the aspirations articulated in their "priority" lists.

4) Mitigating the potentially far reaching effects ("indirect effects") of water projects on watershed health is and will be a major obstacle that watershed groups and providers will have to overcome.

Section 7.2- comments in pdf. My main substantive comment is that I think the role of healthy ecosystems in creating resistance and resilience to natural disasters needs far more consideration.

Section 7.3 –
To my eye, this section was the roughest of the ones I read. I would recommend some technical editing for consistency of style with other parts of the CWP and perhaps organizational revision. It seems like the section could be substantially shortened, perhaps with less detail explaining current conditions or past practices and a more focused narrative on the "plan".

I thought the organization was a little difficult to follow. For instance, there's a section on Water Management Relationships and one on Water Quality Management. It's difficult to intuit the difference in focus. Could these be condensed into one section?

Please don't hesitate to contact me if any of these comments need additional explanation or clarification.

Best,
Brad

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PUBLIC INPUT
ITEM 32

Feedback from Colorado Springs Utilities on Colorado's Water Plan DRAFT Chapter 9.5: Outreach, Education & Public Engagement

Thank you for the opportunity to comment on this important chapter of the plan. We appreciate the definition offered in the first paragraph of this chapter: Coloradans need to know enough about water to be "sophisticated water users." We appreciate the definition that clarifies the difference between Outreach (awareness) and Education (deeper understanding). This has real value and establishes a clear context within the framework of the Plan.

> To give these definitions more specificity, it will be important to clearly define the actions, changed behavior and underlying values we intend our water education and outreach programs to attain from our efforts. This further refinement of the plan will clearly define objectives for all of us and help determine where we start our work to "achieve a sustainable water future," and assure the sophistication of Coloradans as water users.

We appreciate the documentation of what outreach, education and public engagement has been done in the past and as part of the Basin Roundtable efforts. It may be more effective to document the goals, objectives and action plan up front rather than at the very end of this chapter.

As this is a state plan, in addition to the Denver area, we think it's important that other communities along the Front Range should show representative examples of what's already happening. If that is possible, a brief overview of the education and outreach efforts in Colorado Springs could state:

Under "Regional and Local" (page 328):

> Colorado Springs Utilities reaches over 5,000 adults through xeriscape classes, water system tours, business partnerships and landscape efficiency training programs.

Under "K-12 Education" (page 328):

> Colorado Springs Utilities reaches more than 10,000 children and their families through classroom presentations and field trips, and collaborates with over 14 local organizations to extend the reach of water education across our community.

We also feel that Agricultural efforts in education and outreach could be better represented in this section.

We agree that the true benefit of making headway across Colorado for water is "to improve the coordination of existing programs to maximize their effectiveness."

Complementary ideas around those stated under "Actions" (page 338-339) in the Plan include:

1. Create a new outreach, education, and public engagement grant fund—

- While there are scores of organizations engaged in water education across our state, those organizations with the most "per capita" ownership have the greatest responsibility for such efforts. It's important that these organizations are inspired and incentivized to lead the charge in outreach, education and public awareness. As part of the refinement of this section, such organizations should be collectively engaged to better understand how they would be motivated to lead implementation efforts across the state.

2. Develop a CWCB-led effort to update and reassess the status of statewide outreach, education, and public engagement—

- Define a "map" of all potential water educational institutions within each community and region. Encourage these organizations to collaborate and share water education programs/efforts for better reach. Perhaps there are creative ways to offer grant funding where collaboration is encouraged, as it will assure that more Coloradans receive more water education opportunities.
- It would be valuable to define, organize and categorize the different groups already offering water education throughout the state—their focus, audience, content, etc. For educators, knowing who is actively involved, their expertise and their programs makes it possible for us to share and draw upon those resources regardless of where our own efforts take place.
- By making successful Water Education programs available for other users, we can maximize our effectiveness and efficiency. This needs to be more than a website with links—it requires training and a solid understanding of how these programs are best offered and adapted for the needs of the audience. Many organizations like Colorado Springs Utilities have award-winning programs, know what works best for adults and children and why, and are willing to share. Perhaps a grant could be made available to make the best Colorado Education Programs accessible and better understood across the state.

3. Improve the use of existing state resources—

- The Water Education Task Force should develop a collaborative way to report on what's working (i.e., how have Coloradans demonstrated that they are sophisticated water users) and discuss changes or improvements to water education and outreach efforts as those efforts evolve. This reporting must be quantitative, qualitative and consistently measured.
- Establish a set of water education and outreach sub-teams across the state. These would be experts focused on statewide possibilities and action plans vs. Basin-specific programs. These sub-teams could drive more of the common, macro water education programs and outreach we all would use and leverage regardless of where we live. The Live Like You Love It Campaign is an excellent example of what might be possible with a small investment for all of us to share.

    - One sub-team could be tasked with establishing the best common key messages and themes that resonate across the State. This could take the Live Like You Love It Campaign to the next step as that campaign started with where we know most Coloradans needs to start (i.e., where their water comes from, what's available and how it's used across the state). These key messages would evolve as the water situation evolves in our state.
- A successful evolution of the Water Education Task Force is to move from a statewide update/discussion group to an action plan implementation group for water education and outreach programs. Participation should be predicated on supporting specific objectives as determined by the State Plan and measuring and reporting on same. This team also could act as the overarching link across all education efforts, in particular those initiated at the BIP/Roundtable level.

Submitted by:

Julia Gallucci
Water Education Coordinator
Colorado Springs Utilities
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PUBLIC INPUT
ITEM 38

City of Aurora

Water Department
Administration
Phone: 303-739-7370
Fax: 303-739-7491

AURORA WATER

April 29, 2015

Mr. John Stulp
Ms. Rebecca Mitchell
Mr. Jacob Bornstein
Colorado Water Conservation Board
313 Sherman Street, Room 720
Denver, CO 80203

Dear John, Rebecca, and Jacob:

Aurora Water is the third largest water utility in the State of Colorado, serving a population of more than 348,000. Our mission is to enhance and protect the quality of life for Aurora citizens by providing safe, dependable and sustainable water, sewer, and storm water services, today and into the future. We have been a strong supporter of the Colorado Water Plan (Plan) effort and our staff have actively participated in the HB 1177 Roundtable process, with memberships and participation on the IBCC and Metro, South Platte, Arkansas, and Colorado River Basin roundtables since their inception.

On October 3, 2014, we submitted Aurora's comments on the ATM section of the Plan. Aurora submitted additional comments on the overall Plan and on specific draft chapters of the Plan on October 10, 2014. Many of those comments were addressed in the December draft. Thank you for addressing those concerns and recognizing the City of Aurora's efforts. With that said, there are some sections of the Plan that warrant additional attention and enhancement. It is our sincere hope that these comments will add clarity and focus to the Plan. Note that some of the following comments reiterate statements made in our earlier comment submittals where we believe additional changes to the Plan are still warranted.

Section Comments

Chapter 4: Water Supply

Uncertainties affecting supply
As stated in our October 10, 2014 comments, Aurora Water believes that the climate change portion of the discussion falls short. Regardless of the arguments about climate change and potential effects, paleontological records clearly indicate that more extreme variability should be expected beyond the historical record observed from the last 50-100 years, which most water planning is still predominantly based upon. The effect of future climate variability on demand and water supplies, water rights and

compacts administration, and agriculture need to be more fully explored and options defined in the Plan and the next SWSI update.

We do not expect the Plan to solve the issues of climate change and Compact calls, but it should recognize that such variables could significantly affect the State's water planning and require significant modifications to the approaches proposed in the current Plan. It will be necessary for the Plan to adapt to such changes as more information is developed and impacts are defined and observed.

Chapter 6: Water Supply Management for the Future

Chapter 6 is the "heart" of Colorado's Water Plan, describing the various strategies identified to meet Colorado's future water needs. The current organization of Chapter 6 makes it very difficult to follow the discussion and to track and locate related items. It is recommended that the format of this chapter be revised to provide consistency in terms of section and subsection heading font sizes, font colors, and numbering. When presenting information by basin, it would also be helpful if the order, format, and titles were used consistently. Consideration should also be given to potential splitting Chapter 6 into separate chapters according the major headings to improve readability.

Section 6.3: Conservation and Reuse

Conservation is a fundamental component of Colorado's Water Plan. Prudent water supply planning begins with effective conservation. Municipalities across the State have made great strides in water conservation over the past decade. We are pleased to see many conservation efforts have been highlighted in the first draft of the Plan. However, because conservation is such a critical component of the Plan, we believe the conservation section can be enhanced in several ways.

Readers need to be provided with good definitions for Passive and Active Conservation. Even experienced water professionals seem to be having a difficult time speaking the same language when it comes to these terms. If Colorado's Water Plan or the various Basin Implementation Plans (BIPs) are going to have meaningful measureable conservation goals, all of the parties must have a good understanding of these terms. In the summary of the BIPs very few of the basins tied their planned conservation efforts to numerical values. While we understand every basin is different, it would add value to the Plan if common conservation baselines were noted for each basin so readers would have a collective understanding of the current situation.

Aurora Water recognizes that healthy rivers and ecosystems, a robust recreation-based economy, and other environmental and recreational values are important for maintaining Colorado's economy and quality of life. Equally as important is maintaining urban environments with sufficient open areas and healthy landscapes. The concept and value of a reasonable urban experience is mentioned briefly in Chapter 5, but before targets are set for such goals as percentage conservation reductions, gallons per capita per day (gpcd) reductions, or indoor/outdoor usage targets, the urban environment discussion should move forward.

Finally, as has been stated in prior comments from Aurora Water during the development of the Draft Plan and in subsequent discussions, note that the conservation discussion has and still does focus primarily on the M&I sector, with agricultural conservation just recently being part of the discussion (and which has been included in the December 2014 draft Plan). We believe that recreational and

environmental needs and projects should be subject to the same conservation focus. It is the charge of all in the State to put Colorado's precious water supplies to beneficial use in the most efficient manner possible. M&I use has long been held to a high standard in achieving that goal, with no allowance for water waste or allowance of any impact to other water rights. We all should expect that the same level of scrutiny and conservation requirements be put to all uses, whether for consumptive M&I, agriculture, or nonconsumptive uses such as Recreational In-Channel Diversions (RICDs). There is not enough water to go around to meet the full needs of all uses at all times, so the dedication of the State's water to all beneficial uses needs to be carefully weighed and distributed to achieve the greatest benefit to all. This issue is addressed further under Section 6.6 below.

6.3.1: M&I Conservation

IBCC no and low regrets actions

The draft Plan identified that the IBCC No and Low Regrets Action Plan defined a statewide target of 170,000 acre-feet of active conservation would be needed. While it is our understanding that this amount is what is needed to be applied to the statewide M&I gap, it should be clearly stated. We recommend that this target be compared to the active conservation goals defined in each BIP. The final South Platte BIP expressly defines the demand reductions attainable within both the South Platte and Metro Basins by the year 2050. These reductions total 211,000 acre-feet (105,000 passive and 106,000 active). The South Platte BIP estimates that 100% of passive conservation savings and 50% of active conservation savings, totaling 158,000 acre-feet, can be applied to meet the 2050 M&I gap. Of this amount, 53,000 acre-feet is active conservation. If the IBCC target of 170,000 acre-feet of active conservation is to be met, 117,000 acre-feet (69%) will necessarily come from active savings achieved outside of these basins. We do not know at this time if the total active savings in the other basins are projected to reach this level, but given that the combined South Platte and Metro demands represent 63% of the statewide medium M&I demand in 2050 (based on Table 4-3 in SWSI 2010), this implies that 69% of the active conservation goal will be met by 37% of the population in the State, which is unlikely.

We are pleased that the IBCC potential future actions summary was added to the Plan. However, we believe this section should include more discussion regarding the suggested conservation best management practices (BMPs). There was consensus by the IBCC that implementation of best management practices (BMPs) could be defined goals with measurable outcomes. Achieving the desired outcomes through increased conservation can be accomplished, in large part, by implementing many of the BMPs identified in CWCB guidance and the Guidebook of Best Practices for Municipal Water Conservation in Colorado by Colorado Water Wise. To improve accountability, BMP goals and implementation plans could be incorporated into water conservation plans submitted to the CWCB for approval.

Section 6.4: Alternative Agriculture to Urban Transfers

Background

It should be recognized that in addition to loss of irrigated lands measured as acreage lost, another metric to consider is the loss of economic value of the crops being irrigated. The profit margin of crops can vary widely, and the impact of the loss of X acres of a low net-profit crop is not the same as the impact of the same XX acres of a high net-profit crop. Focusing ATMs on protecting high value crops and/or implementing ATMs that can increase crop value could benefit the individual farmer and the

State overall. It is recommended that this be recognized in this section and it be evaluated in the next SWSI iteration. This is addressed in Recommendation #1 of the IBCC Low and No Regrets Action Plan discussion, but should also be noted in the background discussion of acreage lost.

ATM Related Legislation
The first two sentences of the 5th paragraph of this section (page 194) are key to the success of ATMs, and should be the first two sentences of the opening paragraph of this section. We also recommend adding a 3rd sentence similar to:

> "The key to the success of ATMs is to develop methods that meet the needs and respects the property rights of the agricultural water rights owners and provides long-term surety and financial viability to the municipal water providers."

Thank you for incorporating Aurora's ATM related comments to the ATM related Legislation and Action sections of the Plan. To supplement either of those sections, there is a need to recognize new types or classifications of water uses, such as "leased" or "flex use" water, as legal beneficial uses within current administrative water exchanges and within appropriated water court decrees. Outlining and defining these uses as legal beneficial uses will help ATMs gain legitimacy.

Section 6.5: Municipal, industrial, & agricultural infrastructure projects & methods

Water Supply Projects and Methods
There is little to no mention of transmountain diversions (TMDs) in this section. The concept is alluded to in the summary of the BIPs, but the option should be recognized upfront in this section. A short discussion would be appropriate that at least some of the basins believe TMDs will still be a viable option. Readers could be then directed to Chapter 8 for the discussion of the IBCC Conceptual Framework. Language similar to the following could be included:

> "Consideration of the ability to use and preserve Colorado's entitlement under the Colorado River Compact could be pursued as other strategies are pursued to meet water demands. Investigating, preserving, and developing Colorado's entitlement to Colorado River supplies is beneficial to the State's economic, social, political and environmental future. This may involve large state-level water projects, or small level projects, each with comprehensive West Slope water supply and environmental and recreational components. The IBCC Conceptual Framework (as discussed in Chapter 8 of the draft Plan) provides the framework whereby new Colorado River Basin supply options could be investigated and potentially developed."

Section 6.6: Environmental & recreational projects & methods
As noted previously, it is the charge of all in the State to put Colorado's precious water supplies to beneficial use in the most efficient manner possible. All projects and methods should expect that the same level of scrutiny and requirement for conservation and efficiency, whether for consumptive M&I, agriculture, or nonconsumptive uses. The CWCB's instream flow program adheres to this standard by being designed for the minimum flows needed to protect the natural environment to a reasonable degree. Other environmental flows, including flushing flows, necessary to maintain habitat should also be closely scrutinized to determine if such flows are the minimum necessary to achieve that benefit.

RICDs
To maximize efficiency and minimize waste of water resources, RICDs should be designed to achieve the desired benefit (number of recreational user days, influx to local economies, etc.) at the minimum flow necessary. Most RICD water rights claim significant flow volumes, so the slightest changes in requested flows can significantly affect flows available to other uses.

Upper Colorado River Recovery Implementation Program (UCRRIP)
It is important to note that non-native species control has become a critical element in assuring the UCCRIP continues to show progress and remains in place to protect the existing and new projects in the Colorado River basin. One option to be considered is a must-kill policy to attempt to significantly reduce the non-native populations in critical areas throughout the basin. Aurora Water supports this recommendation, and further recommends the policy be explored basin-wide. Although this section alludes to the management of non-native species, the must-kill policy is not mentioned in this draft. Since this program is a model for other recovery programs, a discussion of the policy may help add to the success of other programs.

Chapter 7: Water resource management & protection

Section 7.2: Natural disaster management
The layout of this section is confusing, with the focus seeming to be on climate change. We recommend that the focus should first be on historic natural disasters, then followed by climate change. We suggest that the each type of natural disaster be discussed in its own subsection. If the State is prepared to respond to the historic extremes of droughts, fires, and floods, that will provide a sound basis to prepare for what may come next. Real changes to climate and Colorado's landscape can be incorporated into subsequent Colorado Water Plan revisions as they occur to better document actual climate change impacts. For this section of the plan to provide meaningful assistance in planning for or obtaining assistance or support for natural disasters, resources locations and contact information could be included for any planning, response, and mitigation program or support that are available.

Chapter 8: Interbasin projects and agreements

Existing Stakeholder Agreements and Projects
In the description of the WISE Partnership, it should be noted that WISE is unique in that it will provide the WISE Authority members with a permanent, though interruptible supply. This is different from most municipal projects where a municipal provider normally only looks for non-interruptible water as a supply must be guaranteed "at the tap" in order to charge development or tap fees. In this case, the concept works for the WISE members as they have a base groundwater supply and also intend to store the WISE deliveries in order to provide a firm water supply to their customers. The concept may not work for other providers, but it demonstrates that considering "out of the box" concepts can lead to successful water supply solutions.

Chapter 9: Alignment of state resources & policies

Section 9.2: Economics & funding
Aurora Water is aware that action committees have been created in the IBCC to help examine ideas related to project funding, and we are hopeful the committee will contribute useful concepts. Aurora

Water is supportive of many of the ideas discussed during the Statewide Basin Roundtable Summit held on March 12, 2015, including the creation of a project funding handbook to highlight funding sources, opportunities and provide guidance on the processes.

In addition, the concept of a State Water Project has been discussed at IBCC and Roundtable meetings, but it has not progressed significantly. Such a project would have the State developing and constructing the project, selling shares or ownership in the project to individual water providers, and then either managing the operation of the project or (more likely the case) delegating the operations over to a new organization set up to manage and operate the project on behalf of the shareholders. It may be valuable to examine this concept further in future iterations of the Plan.

Section 9.4: Framework on more efficient water project permitting processes

NEPA Process
This discussion of NEPA should also cover the definition of Major Federal Actions as the trigger for the NEPA actions, which can result in the process ranging from a categorical exclusion, to an Environmental Assessment, to a full Environmental Impact Statement. A federal agency is required to determine the environmental impacts of a major federal decision before the decision is made. Besides the NEPA triggers of the 404 Permit and FERC licenses, USFS or BLM land use decisions or Special Use Permits may trigger a review. Also, the possible involvement of the USFWS if threatened or endangered species are involved may also give rise to NEPA actions.

Clean Water Act Section 404
Some discussion of EPA's proposed rule-making on Waters of the US should be included. While that is a moving target, it can have significant impacts on the permitting of any type of water resources project affecting a wide range of water users throughout Colorado.

Past and Existing Colorado Efforts to Make the Permitting Process More Effective and Efficient
Thank you for incorporating many of Aurora's comments and the relevant historical information regarding the Colorado Joint Review Process.

We support the final South Platte BIP recommendations concerning permitting. Several solutions have been proposed by the Northern Colorado Water Conservancy District, and we expect similar recommendations to be proposed by the Front Range Water Council in their comments on the draft Plan. In particular, we recommend the following to the State:

- Selecting the Division of Natural Resources (DNR) as the lead agency to coordinate all State agency reviews and comments, in order to minimize overlapping reviews or redundant or conflicting statements.
- The State of Colorado should become a Cooperating Agency for every major Colorado water project requiring federal permitting. As suggested above, DNR could serve in this role and help assure early, timely and coordinated project input beginning early in the process and continuing throughout until conclusion.
- For projects requiring NEPA analysis, State agencies should rely on NEPA studies and analyses to make their decisions and not require additional technical analyses to meet State requirements.

- Early State input into NEPA documents, preferably between the Draft and Final Environmental Impact Statement (EIS), to allow the State the opportunity to voice support for all or portions of the proposed project that meet State requirements.
- Consideration of tailoring state statutes and regulations to specifically meet the needs for permitting water supply projects.
- The formation of a task force, including all State agencies that have involvement in water projects permitting, to study and implement ways to improve State involvement in the permitting process.
- Designation of a task force to evaluate the local 1041 permitting process to (i) identify appropriate and clear criteria for application to water projects; (ii) ensure the advancement of state interests in the beneficial use of state water resources; and (iii) identify how to more closely coordinate with the federal and State permitting requirements, while honoring the authority of 1041 permitting local governments.

Aurora Water supports these suggestions and encourages the CWCB to consider including some or all of these concepts in the final Plan. These suggestions will help make the permitting process more timely and efficient while preserving the permit requirements the process is in-place to protect. We also encourage the State to proactively pursue opportunities to work with permit applicants and cooperating federal agencies in developing approaches to streamline the federal permitting process.

Thank you for this opportunity to comment. Aurora Water hopes that you find this input of value for your discussions and development of the Final Colorado Water Plan. Please contact me if you would like to discuss these comments in additional detail.

Sincerely,

Joseph S. Stibrich, P.E.
Deputy Director Water Resources, Aurora Water

PUBLIC INPUT
ITEM 41

Advocating legislation and regulations which facilitate appropriate water reuse, promoting safe and effective reuse throughout Colorado, and improving public understanding of water reclamation.

April 30, 2015

James Eklund, Director
Colorado Water Conservation Board
1313 Sherman Street
Denver, CO 80203

Re: WateReuse Colorado Comments on the December 2014 Draft Colorado Water Plan

Dear Director Eklund:

WateReuse Colorado is the state section of the national WateReuse Association. WateReuse Colorado is comprised of a broad range of reuse professionals, including the state's preeminent voices in water reuse – municipal water providers, users of recycled water, engineering consultants, researchers, and others. Our primary objectives include supporting the mission of the WateReuse Association[1], advocating legislation and regulations that facilitate appropriate water reuse, promoting safe and effective reuse throughout the state, and improving public understanding of water reclamation. As such, we greatly appreciate this opportunity to provide input on the reuse section of the December 2014 draft of Colorado's Water Plan (Water Plan or Plan). We also had the opportunity to provide input on the April 2014 version.

We commend you and your staff for the work you've done to develop a comprehensive and meaningful document to guide the state's water future. Increased reuse is clearly recognized as an important component of a suite of strategies necessary to meet Colorado's current and future water demands. The Plan includes helpful background on water reuse, treatment technologies, regulations, research, existing and planned reuse projects, and what other states are doing on the forefront of reuse. The Water Plan also identifies issues that must be addressed and lays out key conceptual actions to be taken to facilitate additional reuse in Colorado.

Perhaps most noteworthy is the Water Plan's recognition that "Widespread development of potable reuse should be an important facet of closing the future water supply-demand gap." Indirect potable

[1] WateReuse Association Mission: To advance the beneficial and efficient uses of high-quality, locally produced, sustainable water sources for the betterment of society and the environment through advocacy, education and outreach, research, and membership.

David Takeda, President ▪ 303-903-0918 ▪ dave@mskwater.com ▪ www.watereuse.org/sections/colorado

reuse (IPR) is already being practiced in a few prominent projects in Colorado. While direct potable reuse (DPR) is not in use in Colorado to date, several projects have been implemented or are being implemented in Texas and New Mexico, largely in response to prolonged drought. There is an unequivocal trend toward DPR, with technologies, research, regulatory development, and on-the-ground operational experience all supporting its rapid expansion. Potable reuse addresses many of the limitations of nonpotable reuse (e.g., seasonality of demand, additional networks of distribution piping to construct and operate, etc.). While not without its own challenges, we can clearly envision a day within the Water Plan's planning timeframe where IPR is greatly expanded and DPR is a commonplace tool for meeting Colorado's future water needs.

While the Reuse section of the Water Plan is well developed, we believe the following suggestions would further strengthen the document.

Identify Specific Steps to Advance Reuse

The Actions identified in the reuse section of the Water Plan are important and we appreciate that they have been included in the Plan. We encourage you to consider if there are places that more specific recommendations for actions and next steps can be identified. For example, under "Research and development of additional reuse options" are there specific next steps that the Plan could begin to outline that would allow for "food crop irrigation, IPR expansion, and DPR projects"? The CWCB and the Water Research Foundation are developing a White Paper and convening a workshop of experts to evaluate DPR's potential in Colorado. Any specific recommendations that emerge in that document and from the workshop could be useful to include. As another example, is there a specific process, methodology, or model that might be used to "Improve quantification, planning and tracking for potential reuse projects"? For each Action listed, consider if there are more specific steps that could be identified that are appropriate to include in the Plan.

New Water Supply Challenges

The Water Plan rightly discusses reuse-specific issues that must be addressed, such as the need to gain public acceptance for direct potable reuse. However a long list of "limitations of reuse" are included under the discussion of the South Platte/Metro Basin BIP section that we believe also apply to other new supplies. These include infrastructure capacities, losses, supply and demand timing, water quality, treatment costs and brine disposal, and regulatory requirements. Additionally, potable reuse is said to require more energy, treatment, operating, and infrastructure costs. Many, if not all, of these limitations must also be addressed for many of the new water supplies available to meet future demands, whether transmountain diversions, agricultural transfers, or other. They are not unique to reuse projects. As a specific example, brine disposal is a challenge for treating many lower-quality sources with reverse osmosis (RO) – as evidenced by several facilities in the state that use RO to treat groundwater supplies for potable use. Also, regarding costs, in some circumstances, direct potable reuse (DPR) projects where a utility captures and treats its own return flows could have lower costs and energy use than other new supply options. Rather than tying these more general limitations as being specific to reuse, the Water Plan could include a more general discussion of "New Supply Limitations".

Summary

We thank you and your staff for developing a Colorado Water Plan that recognizes the important role of reuse and that is committed to facilitating additional reuse to help meet our current and future demands. We welcome any questions or comments and would be happy to provide additional information as appropriate.

Again thank you for this opportunity and for your leadership in developing a Water Plan to guide Colorado's future.

Sincerely,

David Takeda, P.E.
President

PUBLIC INPUT
ITEM 42

HIGH COUNTRY CONSERVATION ADVOCATES

P.O. Box 1066 • Crested Butte, CO 81224
970.349.7104 • office@hccacb.org • www.hccacb.org

April 30, 2015

John Hickenlooper, Governor
C/O Kate McIntyre
136 State Capitol
Denver, CO 80203

Re: Comments on the draft Colorado Water Plan

Dear Governor Hickenlooper:

Please accept these comments from Western Slope businesses regarding the draft Colorado Water Plan (CWP). High Country Conservation Advocates (HCCA) has collected these comments from businesses owners that earn their livelihoods by working in the Gunnison Basin. HCCA's mission is to protect the health and natural beauty of the land, rivers, and wildlife in and around the Gunnison Basin. Many business owners share our concern that natural flows are protected to sustain our tourist, recreation, and hunting-based economy.

It's clear that the Colorado Water Conservation Board worked hard to arrive at an initial CWP draft that represents a range of interests. Gunnison Basin businesses want to recognize that work while urging that environmental, recreational, and ecosystem needs are adequately protected in the final draft. The attached comments ask that you encourage strong water conservation measures, protect instream flows, prohibit new transmountain diversions, and encourage the funding of environmental needs assessments in the final Plan. Over 100 businesses have weighed in by signing letters supporting the inclusion of strong environmental protections for river flows in the final CWP.

We believe that these elements are integral to supporting the values that you articulated in the May 2013 executive order. In that order you discussed protecting a productive economy that supports vibrant and sustainable cities, viable and productive agriculture, and a robust skiing, recreation and tourism industry and a strong environment that includes healthy watersheds, rivers and streams, and wildlife.

HIGH COUNTRY CONSERVATION ADVOCATES

P.O. Box 1066 • Crested Butte, CO 81224
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Here in the Gunnison Basin, healthy rivers and streams are an integral part of the economy. Our businesses benefit directly and indirectly from healthy streamflows. Some depend directly on stream flows, including rafting operations and angling shops. Others indirectly benefit from visitors and locals drawn here to use and enjoy our streams for recreational and aesthetic reasons.

The attached pdf contains copies of letters from Gunnison Basin businesses. HCCA has also attached an excel spreadsheet summarizing these comments and concerns.

We look forward to a final Colorado Water Plan that protects our way of life on the Western Slope.

Sincerely,

Julie V Nania

Julie Nania, Water Director
High Country Conservation Advocates
(509)999-0012 | julie@hccacb.org

PUBLIC INPUT
ITEM 43

HIGH COUNTRY CONSERVATION ADVOCATES

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April 30, 2015

John Hickenlooper, Governor
C/O Mary Smith
136 State Capitol
Denver, CO 80203

Re: Comments on the draft Colorado Water Plan

Dear Governor Hickenlooper:

Please accept these comments from Western Slope citizens regarding the draft Colorado Water Plan (CWP). High Country Conservation Advocates (HCCA) has collected comments from over 300 individuals in an effort to ensure that our environmental, recreational, and economic concerns are adequately represented in the final CWP. HCCA's mission is to protect the health and natural beauty of the land, rivers, and wildlife in and around the Gunnison Basin. Gunnison Basin rivers provide our members and the individuals commenting with recreational opportunities and a quality of life that is preserved by the wildlife, habitat, recreational and economic opportunities provided by our water resources.

It's clear that the Colorado Water Conservation Board worked hard to arrive at a CWP draft that represents a range of interests. We want to recognize that work while urging you to ensure that environmental, recreational, and ecosystem needs are adequately protected in the final draft.

The attached documents include 292 comments from individuals that live, work, and recreate in from the Gunnison Valley. Additional comments have been submitted to the CWCB via HCCA's web portal. These comments ask that you include language in the final CWP that supports strong conservation measures, prohibits new transmountain diversions, and encourages the funding of environmental needs assessments. They support instream flow protections for a variety of reasons, ranging from the role that healthy streamflows play in protecting our ecosystems to their role in protecting local economic interests.

HIGH COUNTRY CONSERVATION ADVOCATES

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Citizens have a range of other environmental concerns that they would like to see prioritized in the final plan. One man encouraged you to "Prioritize the headwaters!" while a woman from Crested Butte asked that you emphasize water quality protections. Strengthening these will help protect a strong environment that includes healthy watersheds, rivers and streams, and wildlife.

We look forward to a final Colorado Water Plan that protects these values and our river resources for generations to come.

Sincerely,

Julie V Nania

Julie Nania, Water Director
High Country Conservation Advocates
(509)999-0012 | julie@hccacb.org

PUBLIC INPUT
ITEM 44

ROARING FORK CONSERVANCY

Bringing People Together to Protect Our Rivers

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Sarah Woods
Director of Philanthropy

April 30, 2015

Colorado Water Conservation Board
1313 Sherman Street
Denver, CO 80203
via email: cowaterplan@state.co.us

Re: Comments on the First Draft of Colorado's Water Plan

Madam Chair and Members of the Board,

Thank you for the ongoing opportunity to comment on the creation of Colorado's Water Plan (CWP). Last year, the Roaring Fork Conservancy (RFC) commented on the Colorado Basin Implementation Plan (BIP). Please consider those previous comments restated and incorporated herein, and kindly include the subsequent comments set forth below in the record. RFC wishes to ensure the CWP recognizes the need for the restoration and preservation of the environmental and recreational water uses that are vital to the economic, cultural and ecologic health of, not only the Roaring Fork Watershed, but the broader western slope, and the entire state. RFC also wishes to underscore the importance of employing conservation measures to meet Colorado's future water needs, adequately funding stream health projects, and the environmental and legal hazards posed by additional transmountain diversions (TMDs) from the mainstem of the Colorado River.

1. Water Quality and Water Quantity

Since 1996, RFC has sought to protect the Roaring Fork watershed by bringing people together to keep water in the rivers, monitor water quality, and preserve riparian habitat. Therefore, RFC strongly concurs with the Colorado BIP's position that "[c]ontinued development from the mainstem of the Colorado River toward full Compact entitlement is not sustainable and will harm all of Colorado" and, moreover, RFC "does not promote the use of TMDs to meet future water demands without first considering reuse, conservation, and first developing in-basin water supply projects."[1] Proponents of new TMDs appear willing to accept "hydrologic risk", offering vague assurances that a new diversion will be limited to

[1] SGM, *Draft Colorado Basin Implementation Plan* (Glenwood Springs: Colorado Basin Roundtable, 2014), as cited in CWP First Draft at Chapter 8 p. 282.

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times of high flow.[2] Indeed, the Metro / South Platte BIP calls for multiple new TMDs from the Colorado basin[3] and takes the position, "[a]dditional amounts of Colorado River supply may be developed within the State's Colorado River Compact entitlement, especially during wet years and wet cycles."[4] However, the assumption of "hydrologic risk" and guarantees to only operate any new TMDs during wet years/cycles does not diminish the grave environmental and ecological risks. It is precisely at such times of high flow, when these newly proposed TMDs would divert, that the water is most critically needed for the flushing flows necessary to maintain healthy riparian areas, river conditions and fish habitat.[5] For example, similar concerns have been raised in a CSU Study evaluating the impacts of the Moffat Project which found that the time between flushing flows will be increased by as much as 74% on the upper Fraser River.[6]

RFC concurs with the Colorado Basin Roundtable that the Draft Conceptual Framework ought to be omitted entirely from the CWP.[7] By enacting Senate Bill 14-115, the Colorado General Assembly and the Governor underscored the intent to "engage the people of the state in a public dialogue regarding optimum state water policy[.]"[8] The law requires public involvement and opportunities for public comment before the adoption of any final or significantly amended plan.[9] Therefore, a more open process fostering public engagement, and comporting with the overall framework of the CWP is necessary to deal with a topic as important as any new TMD. Instead, the Draft Conceptual Framework lacks public input, and is a "top-down" product of a small coterie, rather than the much wider group of stakeholders envisioned in the Governor's executive order and Colorado law.

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[2] See for example, Point 1. of the Draft Conceptual Agreement, CWP First Draft at Chapter 8 p. 280.

[3] HDR, WestSage Water Consultants, *Draft South Platte Basin Implementation Plan* (Denver: HDR, West Sage Water Consultants, 2014) Section 4.8.2.

[4] HDR, WestSage Water Consultants, Draft South Platte Basin Implementation Plan (Denver: HDR, West Sage Water Consultants, 2014) Section 4.8.2 as cited in CWP First Draft at Chapter 8 p. 282-3.

[5] See e.g., BIO-WEST, Inc. 2008. Lower Provo River Flow Recommendations, Final Report. Salt Lake City (UT): Utah Reclamation Mitigation and Conservation Commission at C-1. Available at: http://www.mitigationcommission.gov/watershed/provoriver/pdf/provo_flow_recoms_final_08.pdf.

[6] Trout Unlimited 10/7/13 Comment Letter on the Moffat Collection System Project's Draft EIS. Available at: http://www.coheadwaters.org/News/FlushingFlowsMoffattFirming.aspx.

[7] See CWP First Draft at Chapter 8 p. 280.

[8] C.R.S. 37-60-106(1)(u)(II)(C).

[9] C.R.S. 37-60-106(1)(u)(III)(A).

The substance of the Draft Conceptual Framework is also inadequate and provides no certainty to donor basins. The framework is too nebulous and lacks concrete definitions and meaningful metrics. For example, Points 6 and 7 are too vague and require elaboration regarding how conservation will be promoted and how exactly environmental needs will be assessed.[10] The framework's seven enumerated points ignore the role of agriculture, and the framework as drafted raises concerns that agricultural water is at-risk as the "insurance policy" against involuntary curtailment.[11] This undermines one of the cornerstones of the CWP, to fight "buy-and-dry" and protect "viable and productive agriculture"[12] in Colorado.

2. Risk of a Colorado River Compact Call Increased From New TMDs

Conditions on the Colorado River indicate that a compact call looms. Contingency plans across the basin recognize this stark reality. For example, the Colorado River System Conservation Program will allocate millions of dollars to finance pilot projects in the basin geared towards encouraging municipalities, industries, and farmers, to reduce their use of Colorado River water, thereby increasing levels in the basin's two largest reservoirs.[13] Any new TMDs in the Colorado Basin would hasten a future compact call and place the western slope in an even more precarious position when that occurs. Acknowledging this reality, provisions of the Colorado River Cooperative Agreement (CRCA)[14] maintaining the Shoshone power plant protocol are crucial to maintaining healthy rivers throughout western Colorado. The Shoshone call is important to local economic[15] and river health. Alternations in the Shoshone power plant protocol could lead to Ruedi Reservoir contract water being called downstream to protect endangered fish species and altering the hydrology of the Fryingpan and the lower Roaring Fork rivers. In short, there is no more water to develop in the Colorado Basin for a new TMD and the extent of the dramatic legal and ecological ramifications are impossible to foresee.

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[10] See CWP First Draft at Chapter 8 p. 280.

[11] See CWP First Draft at Chapter 8 p. 280, Point 4.

[12] Executive Order D 2013-005, p. 3 at III.A.

[13] CWP First Draft at Chapter 8 p. 275.

[14] *Id*.

[15] In our previous comment letter we discussed the findings of The Fryingpan Valley Economic Study (Crandall, 2002) including the estimated $1.8 million annual contribution to the local economy. RFC is in the process of updating the study and the results will be discussed in our next comment letter.

3. Integrating Water Quality and Water Quantity Analysis

As the both the Governor and the CWP acknowledge, water quality and water quantity are inextricably linked.[16] The CWP discusses the complexity of the current water quality and quantity management regimen, noting that five different state agencies share responsibility for protecting water quality.[17] RFC supports the concept of integrating water quality and water quantity management and believes that the steps outlined in Chapter 7.3 are a good start.[18] The status quo allows flows on the Roaring Fork to perennially fall below the CWCB's Instream Flow right of 32cfs at Aspen and also presents listing issues under Section 303(d) of the federal Clean Water Act. Given the highly fractured regulatory structure, there is currently a lack of accountability and lack of clarity regarding who is responsible amongst diverters, municipalities, and other entities. The CWP's efforts to integrate water quality and water quantity management must address this dilemma, and include protocols on remediation and how those efforts will be funded.

4. RFC Encourages the Adoption and Promotion of Conservation Policies

Energy development in Colorado has boomed, however the importance of protecting roadless areas cannot be overstated. Roadless areas provide a plethora of both in-stream water quality benefits, as well as off-stream benefits such as soil stabilization and erosion control, saving some $490 million annually in waste treatment services.[19] Noting that inventoried roadless areas in Colorado are estimated to provide an equivalent of nearly 2.5 times Denver's annual water use,[20] RFC encourages land use policies that make "water sensitive planning" and "high conservation" a cornerstone. Water and land use planning on both the east and west slope needs to consider the vital importance of roadless area to protecting our water sources. Therefore, RFC endorses the Northwest Colorado Council of Government's position outlined in the Consensus Statement that the Land Use subsection of the Water Plan (Ch. 6.3.3) should be elevated in importance and expanded, with additional language underscoring the importance of local land use policies reflecting the link between water quality and land use.[21] Additionally, local land use codes should mandate green infrastructure and water-

[16] See CWP First Draft at Chapter 7.3 p. 256.
[17] CWP First Draft at Chapter 7.3 p. 259-60.
[18] See CWP First Draft at Chapter 7.3 p. 262.
[19] Dominick A. DellaSala, James R. Karr, and David M. Olson, *Roadless Areas and Clean Water*, Journal of Soil and Water Conservation, May/June 2011—Vol. 66, No. 3, at 79A - 80A, available at: http://www.jswconline.org/content/66/3/78A.full.pdf.
[20] *Id*. at 80A.
[21] Please see the addendum to this letter.

efficient native landscaping in new development, and incentivize conversion. For example, the Southern Nevada Water Authority's "cash for grass" program has realized a savings of 7.7 billion gallons of water annually.[22]

Lastly, RFC strongly supports efforts to promote watershed health and develop watershed coalitions as outlined in Chapter 7.1. RFC has been educating and engaging the public, monitoring water quality and quantity, working to protect riparian areas, promoting conservation, developing a watershed master plan, and studying the Roaring Fork watershed's economic impact for nearly 20 years. As one of the oldest, and well-respected watershed organizations in Colorado, RFC is uniquely well positioned to mentor and assist existing organizations, or help facilitate the development of new watershed coalitions. Therefore, RFC's experience ought to be leveraged to build capacity in areas without watershed organizations, to advise stakeholders in existing groups, to identifying funding sources, and to develop watershed master plans in critical areas. RFC also has the expertise to facilitate statewide coordination of watershed coalitions.[23]

We respectfully request the comments above be considered and incorporated into the development of the CWP. Thank you for your ongoing efforts and consideration.

Sincerely,

Rick Lofaro
Executive Director

cc via email: Eagle County, Garfield County, Pitkin County, City of Aspen, Town of Snowmass Village, Town of Basalt, Town of Carbondale, City of Glenwood Springs, Colorado River District, Colorado Basin Roundtable, Ruedi Water and Power Authority

[22] Charles Fishman, *The Big Thirst: The Secret Life and Turbulent Future of Water*, Simon and Schuster (2011) at p. 70.
[23] See CWP First Draft at Chapter 7.1 p. 252, Actions Items 2, 3, 4, 6 and 10.

PUBLIC INPUT
ITEM 45

WATER QUALITY / QUANTITY COMMITTEE (QQ)

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April 30, 2015

VIA EMAIL: COwaterplan@state.co.us
Colorado Water Conservation Board
Diane Hoppe, Chair

Re: Northwest Colorado Council of Governments Water Quality/ Quantity Committee (QQ) Comments on December 2014 Draft of the Colorado Water Plan

Dear Chair Hoppe and Board Members,

The following are the Northwest Colorado Council of Governments Water Quality/ Quantity Committee (QQ) comments on December 2014 draft of Colorado's Water Plan.

As you know, QQ is a subcommittee of and the official water policy arm of the Northwest Colorado Council of Governments. QQ began more than 35 years ago and its members address a broad spectrum of water policy and land development matters facing headwater communities interested in protecting the region's water resources.

The purpose of QQ is to enable its member jurisdictions to protect and enhance the headwaters of Colorado while facilitating the responsible use of water resources for the good of all Colorado citizens and its environment. Its membership comprises municipalities, counties, and water and sanitation districts in Grand, Summit, Pitkin, and Eagle County, as well as Gunnison County, Park County and the Towns of Crested Butte and the City of Steamboat Springs. The Colorado River Water Conservation District is an associate member of QQ.

Thank you for your hard work in compiling this document and attention to QQ's earlier comments on draft sections of the Plan. We look forward to continuing to work with the CWCB on this process. Our comments are organized by chapter of the plan.

Chapter 5. Water Demands

The introductory material is helpful, especially the section on the "[s]tate of knowledge on water conservation." In particular, this section states:

> During the latest IBCC discussions, it was determined that Colorado should strive for a high conservation standard that recognizes that each water utility has unique opportunities and capacity for conservation. The IBCC is working to further define what this high conservation standard means." (p. 76)

The draft Plan does not mention the IBCC's interest in the "high conservation standard" anywhere else. Including this interest in the high conservation standard in other parts of the draft Plan may be helpful in driving commitments to higher conservation levels throughout the state. We recommend including this information in section 6.3.1, "Municipal Water Conservation."

Municipal land use. This section focuses almost wholly on increased density as a water savings method. Increased density is one important land use tool. However, this section should identify the multitude of tools available to local governments. For example, counties have statutory authority to approve clustered subdivisions to reduce water consumption and infrastructure expenses. Local government consideration of adequate water supplies before approving development is another important tool statewide. We recommend this section stress the variety of tools available that can be tailored to individual community needs and circumstances. QQ's white paper, *Response to Perceptions Influencing the Water Plan,* explains the land use planning and zoning authority that can have a significant impact on the rate of population growth and the ultimate population of the state.[1]

Overview of environmental and recreational needs. Generally, this section does an excellent job of describing the measure of environmental and recreational needs around the state. We would like to reiterate one comment QQ voiced about an earlier draft of this section. On page 81, the CWP states:

> The ability to decree water using instream flows and recreational in-channel diversions provides Colorado with important, effective tools for meeting environmental and recreational needs and for supporting state and federal values.

[1] QQ white paper is available at http://www.nwccog.org/docs/qq/Response%20to%20Perceptions%20REVISED%2003.12.14.pdf.

While QQ agrees that these are important and often effective tools for meeting environmental and recreational needs, they are not always effective. In many ways, these tools provide the minimum for meeting environmental and recreational needs, and do not take into account important ecological functions such as flushing flows, bank flows, water quality needs, and many other factors in overall stream health. Also, many instream and RICD flows regularly go unmet, especially in drier years, as they hold more junior water rights in most basins.

QQ recommends adding an additional sentence:

> *These tools can be supplemented in the future to be more effective; they are best implemented within the context of stream management plans that analyze the environmental and recreational needs of individual stream reaches.*

Chapter 6. Water supply management

6.2 Meeting Colorado's water gaps

This section takes important first steps to begin identifying how each basin might meet its identified water gaps. QQ anticipates that this section will identify more refined action steps in upcoming drafts to ensure the Water Plan identifies ways to actually close Colorado's water gaps.

A summary of how each basin plans to meet water gaps would be an appropriate addition to this section. For example, on p. 98 this section describes how different BIPs approached meeting Colorado's municipal water needs through conservation and identified projects and processes. It states that "Every BIP discusses the importance of conservation," but does not mention the varying levels of conservation to which different BIPs commit. The differences among BIPs are worth mentioning in this brief introductory paragraph instead of just discussing commonalities.

Table 6.2-1 on p. 97 would be more useful with some indication of differences between the BIPs such as varying commitments to water conservation or varying attitudes towards utilizing land use planning tools to address future water demands.

Page 99 discusses BIP treatment of water quality management needs, saying:

> Although water quality is not an issue traditionally studied by the basin roundtables, every BIP addresses water quality. Section 7.3 summarizes the BIP water quality efforts.

However, basin roundtables regularly approve grants for projects that improve water quality, either through a multipurpose project or as a stand-alone benefit. We recommend changing this wording to reflect that basin roundtables do regularly address water quality:

> *Every BIP addresses water quality. Section 7.3 summarizes the BIP water quality efforts.*

This section also describes efforts to "protect and restore watershed health" on page 99 by citing several BIPs that focus on forest fire prevention, response, rehabilitation, and general forest health. The significant on-going watershed efforts throughout the state and BIP efforts other than forest health would be appropriate to identify here.

Meeting Colorado's environmental and recreational (E & R) needs.

This section focuses on the number of stream miles with existing protections. The BIPs still identify needed projects on these stretches, indicating that these protections aren't necessarily adequate. This section should at least acknowledge that even stream sections with some protection may need further protection.

Table 6.2-4, "Summary of how each basin meets its E & R gaps," is confusing, especially when compared to information in the below text describing each BIP. The Table lists the "number of new projects with stream mile information" for each BIP. It's unclear why this particular metric is important in the table, especially since those numbers are very small when compared to the actual number of E & R projects identified in each BIP. For example, Table 6.2-4 only lists three new projects in the Colorado BIP "with stream mile information," but the text of this section points out that the Colorado BIP identifies 59 E & R projects. The introduction to the table would benefit from a separate column for total number of E & R projects identified in BIPs.

We also encourage the CWCB to highlight ongoing innovative work to address environmental and recreational issues in tandem with agricultural issues. The Colorado Ag Water Alliance has done considerable work around this issue. In addition, the Plan should highlight existing innovative projects, such as the recent Colorado Water Trust deal to agreement amongst farmers and ranchers to leave more water in the heavily diverted Little Cimarron River.[2]

6.3.1 Municipal Conservation

In general, this section should be clear about the differing water conservation levels recommended among the BIPs. Different roundtables commit to different levels of

[2] For more information on this project and its potential applicability around the state, see http://www.postindependent.com/news/16089562-113/innovative-water-use-plan-could-help-crystal.

conservation in their BIPs. While each basin's commitments are mentioned later in this section in the description of each BIP, highlighting these differences more generally up front would be helpful.

This chapter only mentions the IBCC water conservation standard of low/medium as a baseline "no and low regret action." In contrast, Chapter 5, page 76, says:

> During the latest IBCC discussions, it was determined that Colorado should strive for a high conservation standard that recognizes that each water utility has unique opportunities and capacity for conservation. The IBCC is working to further define what this high conservation standard means.

This is an important statement and worthy of repeating in this section.

The plan should include the Eagle River Water and Sanitation District in the bulleted list of water conservation examples across the state on pages 145-146 to provide more examples from different regions of Colorado. We recommend including the below paragraph as an additional bullet point:

> ***Eagle River Water and Sanitation District/Upper Eagle Regional Water Authority.*** *These water providers operate under a CWCB-approved water conservation plan whose goal is to preserve in-basin water resources for stream flows, recreation and future consumptive and non-consumptive needs, while still meeting their municipal water supply obligations. Tiered rates, first implemented in response to the drought of 2002, permanent year-round water use regulations and educational outreach to customers have reduced water sales per single family equivalent by 24 percent. Current efforts are focused on additional improvements to outdoor water use efficiency, which consumes resources that could serve future needs, reduces local stream flows and results in water quality impacts from landscaping runoff. These entities are developing water budgeting and working with land use authorities to coordinate water use and water quality approval criteria for new development and landscaping guidelines that support water use efficiency objectives.*

Recent legislation.

Please include legislation from this legislative session such as HB 15-1016, creating additional incentives for precipitation harvesting, HB 15-1259 which would allow for residential use of rain barrels, and SB 15-008 promoting water conservation in land use planning through free training opportunities.

IBCC no and low regrets actions. Chapter 5 states that:

> During the latest IBCC discussions, it was determined that Colorado should strive for a high conservation standard that recognizes that each water utility has unique opportunities and capacity for conservation. The IBCC is working to further define what this high conservation standard means.

A similar statement should be included in this section as well as Chapter 5.

Actions.

Action 5. Stretch target discussion. This goal is particularly important because many of the BIPs advocate for a high level of conservation statewide. The Plan should identify the BIPs where a high level of conservation is recommended in support of this action point.

Action 9. Strengthen Partnerships. Please add "local governments" because of their role as land use regulators, water supply and treatment providers, and leaders in environmental protection and watershed health.

Action 12. Changing threshold for covered entities. This action should include an analysis of the benefits and burdens of this concept.

6.3.3 Land use

This is an important section of the Water Plan, but many people statewide may not understand why and how this connection is so important. The introductory language says on page 165, "The manner by which Colorado develops into the future will have a strong influence on Colorado's future water supply gap and vice versa," but provides no information on how that would occur.

This section would benefit from additional information on how local land use planning affects water demands and how water sensitive land use planning can reduce water demands, and thus the Gap, in the future.

Please add the following or similar introductory language:

> *Local governments can condition the approval of development applications on whether water is available to serve the new growth.*[3] *In fact, local governments can deny development applications if sufficient water is not available for the proposed development.*[4] *Local governments can also influence population growth patterns. For example, many counties have enacted regulations that encourage rural development to be clustered in a central area instead of spread out over*

[3] C.R.S. § 29-20-303 (1).
[4] *P-W Investments, Inc. v. City of Westminster*, 655 P.2d 1365 (Colo. 1982).

a larger acreage to maximize water efficiency, to preserve agricultural land, and to promote open space and wildlife habitat.[5] *Clustered development is specifically identified in the Metro/South Platte BIP as a method for reducing the gap.*

Control over the timing of development is another way that local communities can manage population growth. Municipalities and counties have the authority to require phased development in order to ensure adequate services will be available, such as water and sewer services, and to ensure that existing services will not be unduly burdened by new users.[6] *There also is ample authority to make sure that growth pays its own way. Local governments can condition the issuance of a building permit on making or paying for necessary public improvements*[7] *and can assess impact fees to lessen adverse impacts from development.*[8] *Ensuring that new development mitigates the impacts it causes is a long-standing concept in Colorado land use planning.*[9]

The rate of population growth can be regulated through growth management systems.[10] *For example, municipalities and counties have successfully regulated population growth by establishing a set number of development permits available on a competitive basis,* [11] *a set number of water and sewer taps distributed to proposed developments on an as-available basis,*[12] *or a set rate of growth that limits the number of development permits issued per year.*[13] *Local governments may even*

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[5] Section 5: Land Preservation Subdivision Exemptions, Subdivision Regulations, Routt County, Colorado," Adopted 7 Mar. 1972 Amended and Reinstated 27 Sept. 2011 <http://www.co.routt.co.us/DocumentCenter/View/144>; *see also* Zoning Regulations, Routt County, Colorado, Adopted 7 Mar. 1972 Amended and Reinstated 27 Sept. 2011 <http://www.co.routt.co.us/DocumentCenter/View/145>.
[6] C.R.S. § 29-20-104 (1)(f).
[7] *Bethlehem Evangelical Lutheran Church v. City of Lakewood*, 626 P.2d 668, 671 (Colo. 1981).
[8] C.R.S. § 29-20-104 *et seq.*; C.R.S. § 30-28-133 (4)(a)(II); *Bd. of County Com'rs of Douglas County, Colo. v. Bainbridge, Inc.*, 929 P.2d 691, 698-99 (Colo. 1996).
[9] *Bainbridge*, 929 P.2d at 698.
[10] *Construction Industry Associate of Sonoma v. City of Petaluma*, 522 F.2d 897 (9th Cir. 1975), *cert. denied*, 424 U.S. 934 (1976).
[11] Chapter 6: Growth Management Quota System (GMQS) and Transferable Development Rights (TDR), Pitkin County Land Use Code, July 2006 <http://www.aspenpitkin.com/Portals/0/docs/county/countycode/chapter%2006.pdf>; *Wilkinson v. Bd.of County Com'rs of Pitkin County,* 872 P.2d 1269, 1276 (Colo.App. 1993).
[12] Title 11 Chapter 3, Growth Management Program, Westminster Municipal Code, 1 Jan. 2011 <http://www.ci.westminster.co.us/CityGovernment/CityCode/TitleXI/3GrowthManagementProgram.aspx#s8>; *see also P W Investments, Inc. v. City of Westminster*, 655 P.2d 1365 (Colo. 1982).
[13] Chapter 18.70, Residential Growth Management, City of Golden Municipal Code, updated through October

place a moratorium on new development while figuring out how to regulate population densities to protect sensitive environmental areas and other resources before new development is approved.[14]

Local governments also can control the intensity of development based on impacts to the community or surrounding lands,[15] *such as to prevent overcrowding or to avoid harmful concentrations of population, to encourage appropriate uses of land,*[16] *or to protect wildlife and wildlife habitat.*[17]

Land use regulations may also benefit water quality and overall stream health. For example, the Town of Winter Park attempts to purchase as much of the river corridor through town as possible to protect river health and water quality and to add recreation and tourist opportunities. Generally, a new annexation to Winter Park requires town ownership of the river corridor. The Town also does not allow outside irrigation anywhere in Town limits. Through a management plan, the Town of Eagle identified values in Brush Creek that should be protected and now requires new development to preserve those values in order to be approved for a development permit. Pitkin County regulates permissible areas of development within a property with an eye on riparian habitat protection, and imposes limits on landscaping outside of the design area.

This Land Use section discusses several example projects and initiatives on pages 165- 167, but would benefit from additional information on the success of these projects, the conveners and participants in these various initiatives plan to coordinate and work together in the future, and what on-the-ground changes or improvements have occurred through this work. It also would be useful to list additional resources regarding land use and water supply planning. QQ would be happy to work with the staff to develop this information.

This section is written with focus solely on the CWCB and what the CWCB can do regarding land use. However, an important part of the CWP is educating Colorado on all the different methods for closing future water gaps, not just from the CWCB perspective. Other state

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2013 <http://sitetools.cityofgolden.net/Code.asp?CodeID=728>.

[14] Droste v. *Bd. of County Com'rs of the County of Pitkin*, 159 P.3d 601 (Colo. 2007).

[15] C.R.S. §29-20-104 (1)(g).

[16] *Nopro Co. v. Town of Cherry Hills Village*, 504 P.2d 344, 349 (Colo. 1972).

[17] *Droste v. Bd. of County Com'rs of Pitkin County*, 85 P.3d 585 (Colo. App. 2003); *Colo. Springs v. Eagle County Bd. of County Com'rs,* 895 P.2d 1105 (Colo. App. 1994).

agencies, special districts, and municipal and county governments all have a role in both driving and closing gaps.

More specifically, under the action item Strengthen Partnerships on page 170, the first listed partnership, Local Municipalities/ Local Water Providers, omits counties. Land use decisions made by county commissioners directly influence the timing, location, intensity and water demands of new growth. Likewise, the water use and supply decisions made by county commissioners affect the state as a whole: the way future water demands are addressed in one part of the state necessarily affects water availability and the capacity for future growth in other areas of Colorado. We recommend including counties as essential partners. Also missing are water conservation districts and water conservancy districts that have a strong influence on regional water policies.

Under the Education/ Training action item, the State, either through the CWCB or DOLA, might also consider facilitating interactive discussions about cross-basin land use goals and values. Work among local governments and water providers like the LULA model is important, but cross -basin discussions are essential to the success of the CWP process.

Finally, we encourage the CWCB to create more specific action points. For example, the education/ training action item could include goals for instituting the free trainings likely to be authorized in SB 15-008, and could get more specific about what would be needed for the state to help fund or facilitate "training based on the Land Use Leadership Alliance model."

Chapter 7. Water resource management & protection

7.1 Watershed health & management

This section's summary blue box refers to the development of "watershed master plans." The "managing partnerships for healthy watersheds" section on page 249 talks about developing "watershed plans." Chapter 9.2 refers to "watershed level master plans." QQ and the Colorado Basin Roundtable have advocated for regional "stream management plans." Other BIPs similarly advocate for a more holistic understanding of flow and water quality needs within a specific basin along with an identification of challenges and opportunities to restore or improve conditions for environmental and recreational uses.

It's unclear whether the terms "watershed plans" and "stream management plans" are used interchangeably or are distinctly different. Other parts of this Chapter focus heavily on forest health and forestfire mitigation as "watershed management." We are unclear if "watershed management" is meant to address forest fires, floods, and other extreme events, or if the terminology is meant to refer to holistic stream and river health.

QQ recommends clarifying what is meant by the above terminology. The Colorado Basin Roundtable offers an explanation of "stream management plan" in their BIP, and the CWCB should consider similarly providing information on whatever consistent term the Plan will use. We recommend including the language describing stream management plans from the Colorado BIP:

> *Well-developed stream management plans are grounded in the complex interplay of hydrology, channel morphology, alternative water use and management strategies, and include the flow dynamics needed to support both recreational uses and ecological function. Such plans serve a wide range of stakeholders and help resource managers better understand and manage stream flows. These plans provide a framework for decision making and project implementation around instream needs for the Basin Round Tables (BRTs).*
>
> *Stream management plans utilize both existing and new data sources to analyze and identify necessary flows for habitat, water use, recreation, and water quality. The plans synthesize available data, ranging from stream gauges to model output (e.g., StateMod and Watershed Flow Evaluation Tool [WFET]) to identify baseline conditions and potential gaps in flow needs, and to ensure the protection of existing uses, and the long-term viability and resilience of river ecosystems. While recognizing the fundamental nature of the prior appropriation system, these baselines are crucial in evaluating how current and future uses will impact nonconsumptive values, and in identifying appropriate protection or restoration actions. Stream management plans should provide data-driven flow targets that have a high probability of protecting environmental and recreational values on streams and rivers across the state.*
>
> *Critically, effective stream management plans must recognize the importance of accommodating existing and future human use needs while striving to maintain or improve the current state of aquatic ecosystem health and integrity. In anticipation of stakeholder conflicts associated with future water planning and use, stream management plans must aim to provide a scientific and socially supported foundation for negotiating non-consumptive water resource use protection issues as they arise.*
>
> *Connectivity between stream reaches must also be considered. This is important not only from an environmental perspective but also from a*

perspective that looks at all of the combined flow quantification needs along the length of a stream.

We suggest discussing watershed plans/ watershed master plans/ stream management plans in a separate heading to highlight their importance and separate them from the discussion of managing partnerships.

7.3 Water Quality

QQ appreciates the excellent work in this section and supports all of the actions listed in this draft. We note that the water quality/quantity integration goal that was articulated in drafts submitted by the Water Quality Control Commission do not appear in this draft. For the QQ region, integrating quality and quantity in water resource planning is essential and we believe that this is true for the state as a whole. We recommend that this critical goal be included in the draft CWP as written by the Water Quality Control Commission.

QQ believes that the description of current conditions is extremely important and recommends that Figure 7.3-4 be augmented with a discussion of the generally good water quality throughout the streams in Colorado. Of equal importance is a description of streams that are not meeting water quality goals. We recommend adding a description of the streams that are not meeting water quality standards. That information is available through the WQCD.

Chapter 8. Interbasin projects and agreements

The introduction to this section says that the reason for creating intrastate agreement is to "align key parties' interests and understanding so that Colorado has a united voice when dealing with interstate and federal negotiations and litigation about water exiting the state." Many of the example agreements listed do not pertain to water leaving the state or interstate agreements. Some of them are explicitly to provide water supply for a particular water provider while taking into account some of the concerns of the areas from which the water comes. These agreements are multi-purpose and have significant benefit to many regions of the state. This section should be clear that the focus of the examples listed was not to better situate the state in interstate negotiations, but to benefit particular stream sections, address stream- or segment- specific problems, and to benefit water users.

The summary box at the beginning of this chapter should be revised for additional clarity. Bullet "C" states that this chapter will "[u]se the Draft Conceptual Agreement as an integrated package of concepts" to address environmental resiliency, higher conservation commitments, and facilitate a possible transmountain diversion project in the future. QQ

members are concerned about any plans to facilitate a transmountain diversion project and would recommend a more general reference for future water projects, whether they are in-basin or cross-basin. Finally, we recommend that this chapter add additional language explaining how the conceptual agreement would be used and the roles of various stakeholders in any sort of conceptual agreement.

Existing stakeholder agreements and projects.

Windy Gap Firming Project.

The discussion states :

> This water will be supplied via the Colorado-Big Thompson Project, so the BOR must approve a contract allowing use of federal facilities.

This sentence should be updated to refer to the Amendatory Contract that was finalized last year. QQ would be happy to provide this to the staff.

The description also does not explain that the Colorado-Big Thompson is a federal transmountain diversion project. QQ recommends the following changes to explain this to readers:

> *Chimney Hollow Reservoir would allow the Subdistrict to divert more water from the Colorado River because the Subdistrict can use it to make more room in Granby Reservoir.* This water will be supplied via the *federal* Colorado-Big Thompson Project, so the *Bureau of Reclamation* must approve a contract allowing use of federal facilities.

The Water Plan states "[Windy Gap Firming Project] is operated by Northern Water's Municipal Subdistrict."

Please revise the statement to read as follows:

> *[Windy Gap Firming Project] is operated by Northern Water's Municipal Subdistrict, and as a result Northern has unique obligations to mitigate impacts in the Colorado River basin imposed by statute*

under the Water Conservancy Act.[18]

Please revise the next sentence as follows to be more accurate:

> *As part of the 1041 permit approved by Grand County, the Subdistrict has entered into agreements with the County, Middle Park Conservancy District, Northwest Colorado Council of Governments, and the Colorado River Water Conservation District that provide ecological enhancements to the Colorado River to offset some of the historical and projected impacts caused by diversions.*

Draft IBCC Conceptual Agreement

The Table 8-1 captures the controversy surrounding new TMDs. It is also essential to be clear that the Conceptual Agreement was developed by the IBCC, not Basin Roundtables. We suggest additionally clarifying this in first couple of paragraphs, perhaps with the following addition:

> *The Draft IBCC Conceptual Agreement reflects consensus only of the members of the IBCC, not of the Basin Roundtables.*

The Draft IBCC Conceptual Agreement does not include any discussion of the role of local governments. The list of seven points of consensus does not include the need to address socio-economic impacts of water projects, nor does it include the requirement for local approval of a proposed TMD. The key lesson learned from the CRCA and the WGFP process is that no water projects will be successful unless the project proponent begins the process by working with the locally affected communities and that local governments have approval of the projects. The CRCA and the WGFP agreements would never have been successfully negotiated unless approval of water projects by the affected conservancy district, conservation district, and municipal and county governments was included in the agreement.

---

[18] C.R.S. 37-45-118 (b)(II):

> Any works or facilities planned and designed for the exportation of water from the natural basin of the Colorado river and its tributaries in Colorado, by any district created under this article, shall be subject to the provisions of the Colorado river compact and the "Boulder Canyon Project Act". Any such works or facilities shall be designed, constructed, and operated in such manner that the present appropriations of water and, in addition thereto, prospective uses of water for irrigation and other beneficial consumptive use purposes, including consumptive uses for domestic, mining, and industrial purposes, within the natural basin of the Colorado river in the state of Colorado from which water is exported will not be impaired nor increased in cost at the expense of the water users within the natural basin. The facilities and other means for the accomplishment of said purpose shall be incorporated in and made a part of any project plans for the exportation of water from said natural basin in Colorado.

Chapter 9. Alignment of state resources & policies

9.1 Protecting Colorado's compacts & upholding Colorado water law

Actions. This section seems out of place at the beginning of a chapter, since all the other chapters close with particular "actions" addressing the issues from the chapter. We recommend changing this term to maintain consistency.

This section says on page 288 that the State will "continue to assure the proper balance between the State and Federal roles in Colorado's water law and water management system." While this statement alone is an acceptable goal for the Water Plan, the information that follows is concerning for several reasons. First, this paragraph lists several federal policies that have "called into question the balance in State and Federal roles," but does not explain why or how these policies affect the State or water law and management. The Forest Service has withdrawn its directive on groundwater management. Resource management plans are not in any way a "new policy" and should not be included as such.

Second, this paragraph makes a concerning statement about bypass flows. The paragraph states:

> …[T]he State has also had to grapple with the federal assertions of authority to mandate bypass flows as a resource management tool. To the extent they interfere with and potentially undermine water rights as decreed and administered within the State, Colorado maintains that bypass flows should not be a preferred method for managing water on federal lands. Rather, before federal agencies seek to impose bypass flows as a resource management tool, they should work with the State to identify how such use will comport with the water rights administration under Colorado law.

In the QQ region, bypass flows that require water to be releases to save a stream from dry up have been and continue to be a central method to protect watershed health as mitigation for transmountain diversions on federal lands. The federal government often imposes bypass flows as part of their special use permitting of a water project on federal land as part of the agency's mandate to protect the health of the public lands. Courts have upheld bypass flows as part of the Forest Service's special use permitting process. *See Trout Unlimited vs. U.S. Dep't. of Ag*, 320 F. Supp. 2d 1090 (D. Colo. 2004), *appeal dismissed,* 441 F 3d 1214 (10th Cir. 2006).

The next action is that the State will "continue to work within Colorado's local structure." QQ appreciates this point and would like to stress that because of the significant role local

governments play in permitting water projects, this statement is of the upmost importance to this chapter. This paragraph points out that local governments have considerable authority "explicitly conferred to them by state law." We recommend clarifying that local governments, especially home rule authorities, also have considerable *implied powers* under their police power to protect public health, safety and welfare.

9.2 Economics & funding

QQ does not support the use of state funds for a TMD except through existing programs available through the CWCB or the Water Resources and Power Authority. Page 294 of this section identifies the potential need for additional state funding to:

> . . . support innovative water projects, such as multi-use, alternative agricultural transfers, or a new TMD with a sufficient back-up supply on the East Slope alongside significant environmental and recreational support that meet the criteria of the IBCC consensus . . .

Because the idea of state funding for a new TMD does not have consensus throughout the state, the CWP should not discuss the use of state funds for such a project as if it were a well-accepted proposal.

9.4 Framework on a more efficient permitting process

QQ continues to recommend that coordinated permitting for water projects be accomplished through something similar to a joint review process managed by DNR, and appreciates the attention the draft plan gives to this process. The CWCB and other state agencies are better suited to the neutral role of facilitating discussions among competing interests rather than advocating for or against projects in permitting, especially when the state may have a regulatory responsibility. QQ supports the idea of tying state funding to a set of criteria for what a "good project" looks like, but does not support extending this idea to state advocacy of a project through the permitting phase.

Additional stakeholder outreach. Table 9.4-2 includes NWCCOG as a stakeholder but does not show that QQ submitted written comments regarding permitting. Please revise to reflect that QQ submitted written comments along with meeting with the CWCB on this important issue. As you know, QQ member jurisdictions have issued permits for all of the existing major TMDs since the authority to do so was upheld by Colorado courts.

Summary of the process for each process within water permitting. The State of Colorado has a very limited role in water project permitting, which is primarily 401 certification by the WQCD (with oversight by EPA), and fish and wildlife mitigation recommendations by the CPW Commission. In actuality, local government permit processes, such as special use or 1041 permits address many more of the issues associated

with water projects and afford an opportunity for quasi-judicial proceedings where concerns of the project proponent and the area affected by the project can be aired, discussed, and resolved. The CWP should acknowledge this and encourage greater consultation with local governments in water project permitting rather than providing only cursory recognition of this situation.

Potential conceptual framework for state of Colorado support of a project. The proposed framework for a water project to receive a state endorsement (Figure 9.4-1) establishes additional factors and regulatory burdens to demonstrate consistency with those new factors for a project proponent instead of easing regulatory burdens.

These new factors also introduce new potential for intrastate conflict. For example, one factor is whether the proposed project is identified in a BIP. This raises the question of which basin's BIP controls, especially if a situation arises where an applicant wants a TMD identified in one BIP when the BIP from where the water would be diverted opposes a TMD. A similar conflict arises when a BIP of one basin opposes transfers from agricultural to municipal uses while another BIP supports a project to make such a transfer. Another factor is whether a project meets a SWSI-defined need. The factor is unclear both whether the factor is limited to an M&I need and what happens if fulfilling one need conflicts with another identified need such as a nonconsumptive need.

Another factor evaluates whether a project "[i]nvolves local government consultation." QQ recommends that this factor be changed to read:

> *The project has been agreed to by the affected counties, conservancy districts and conservation districts in the area from which water would be diverted*.

The CRCA never would have been agreed to by the west slope without this language. The need for local approval is supported by QQ and also by thirty local governments and the Colorado Basin Roundtable in the Headwaters Principles for the Colorado Water Plan.[19] Moreover, agreements that led to the Moffat Expansion Project, and the Windy Gap Firming Project all rest on the ability of local governments to approve a proposed water project.

While many of these new factors, such as requiring a conservation plan to reduce demand and avoiding impacts on agriculture are laudable and important, they should be part of the front loaded discussion of projects among permitting agencies and affected interests and not included as new project factors necessary to attain state endorsement.

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[19] These Principles are available at http://nwccog.org/docs/qq/waterplan/Principles%20w%20updated%20endorsement%20100614.pdf.

This section recommends that the State be involved in early coordination in order to

> . . . complete preliminary or contingent 401 certifications and wildlife mitigation plans before the final EIS.

QQ does not support the State issuing a preliminary 401 certification before a Final EIS is issued. Most projects and the analysis of their impacts change between the Draft and Final EIS in order to address comments received from agencies and the public, and so the final proposed project may differ from the state -endorsed project. Endorsement may limit flexibility to react to issues and concerns identified between draft and final stages of NEPA. Most importantly, draft EISs often do not contain mitigation plans at all since those are delayed until the FEIS is released. QQ supports the WQCD acting as a cooperating agency during the EIS process as long as its regulatory impartiality and authority is protected.

Instead of endorsing a project through new regulatory requirements outlined in the framework, state leadership and good governance would suggest that the State help community water projects work through the permitting system by balancing needs of the project proponent and those of the impacted citizens. A front loaded process that provides that balance early in project permitting would accomplish this and actually help, not hinder, new projects. Again we turn toward the idea of a joint review process to accomplish this objective.

State endorsement. This section still does not explain what state endorsement of a project means. The Water Plan should spell out exactly how the State would advocate for (or against) a project based on an endorsement. Being clear about the intentions up front will allow other stakeholders and permitting agencies to provide comment on this process of state endorsement.

This section states that:

> Such state endorsement would allow the state to encourage completion of the final EIS and ROD.

This Section should provide additional information on how the state would proceed with such "encouragement" without being "predecisional."

Quicker regulatory process. Our comments above explain our concern about "quicker" regulatory processes as a goal in and of itself.

We recommend Section 9.4 focus primarily on "frontloading" permitting processes through joint review such that significant issues, local concerns, information and data requirements, level of detail, agreement on mitigation concepts, etc. are addressed up front before a project gets mired in NEPA. The State could provide a valuable role in facilitating this up

front coordination of permit requirements among local, state, and federal permitting entities. This could result in such permitting improvements such as an applicant needing only one water quality impact analysis to adequately address fisheries assessment for CWP, NEPA needs, and state 401 permitting; clarity on the level of detail necessary for both local and NEPA socio-economic analysis; and identification of wetland issues for the ACOE and local permits. This coordination would be difficult but extremely helpful for the applicant.

We look forward to continuing work with the CWCB on the Water Plan.

Thank you.

Sincerely,

Northwest Colorado Council of Governments Water Quality/ Water Quantity Committee

cc: James Eklund
Rebecca Mitchell
Jacob Bornstein
Kate McIntire

PUBLIC INPUT
ITEM 47

Thank you for the opportunity to comment on the 2014 Draft of Colorado's Water Plan.

The most obvious and serious deficiency in the draft is the omission of legislative recommendations in Chapter 10. Here are some things I'd like to see included:

- Allowing homeowners to collect rainwater from their roofs and reuse gray water in their yards.
- Prohibiting new developments without proven sustainable water supplies.
- Encouraging water-responsible landscaping by prohibiting covenants that require things like maintaining bluegrass lawns.
- Modifying water law to discourage waste. Our current “use it or lose it” water rights policy does just the opposite. For example, we might consider allowing water rights to be leased. Agriculture is by far the largest water user in Colorado. Allowing farmers to lease unused water would both encourage conservation and provide farmers with a new source of income.
- Establishing science-based standards for flow characteristics required to maintain plants, fish, and wildlife dependent on streams and rivers for propagation and survival.
- Modifying water policies to assure that environmental standards are met before water is extracted for other uses. Instream flow rights begin to address this issue. Unfortunately, these are usually junior rights. The doctrine of prior appropriation should be modified to recognize rights of the stream and the animals that depend on it. They got here first.
- Recognizing stream health as a beneficial use and allowing non-governmental water rights to be established for maintaining stream health.
- Establishing standards for cleaning industrial wastewater and returning it to the environment. I'm particularly concerned about the practice of injecting toxic fracking effluents into deep wells.

Finally, and perhaps most importantly, I'm concerned that the scope of Colorado's Water Plan is limited to water. The plan assumes unsustainable growth without making any effort to address it. Water shortages are just one of many problems created by unfettered growth. Others include increased air pollution, traffic congestion worthy of Los Angeles and the concomitant perpetual need to expand our highway system, overcrowded open space, and the need to expand public schools.

Two simple legislative actions could begin to address these problems:

- Defunding state agencies whose primary mission is to encourage businesses to move to Colorado. The longterm costs of encouraging people to move here far outweigh any short term benefits associated with bringing jobs to our state.
- Prohibiting state and local governments from giving tax breaks to businesses that relocate to their jurisdictions. Again, longterm costs far outweigh any short term benefits.

Preventing growth may be difficult, but we should not be doing anything to encourage it.

Sincerely yours,
Robert N. Stocker

PUBLIC INPUT
ITEM 48

Northern Water
Northern Colorado Water Conservancy District
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www.northernwater.org

April 28, 2015

Colorado Water Conservation Board
1313 Sherman Street, Suite 721
Denver, CO 80203-2239
Attn: Mr. James Eklund

Dear James:

Northern Water appreciates the opportunity to comment on the December 10, 2014, Draft Colorado Water Plan. We commented earlier concerning the Water Plan in a letter dated October 10, 2014. Specific recommendations in that letter focused on Colorado's permitting process for projects. We have divided comments in this letter into the following areas:

- State Permitting Processes
- Value of Additional Storage
- Safeguarding Colorado River Supplies
- Conservation and Reuse
- Uncertainties Affecting Supply (Potential Climate Change)
- General Comments

State Permitting Processes

Northern Water sees improvements in the State permitting processes as a key area where Colorado can significantly move the "ball forward" for the betterment of Colorado's water future. We are heartened to see that the Draft Water Plan includes a discussion focused on improving the State's involvement in the permitting processes. We are hopeful that the additional comments contained in this letter will further embolden the State to more specifically describe and include an expanded State role in the permitting process in the Water Plan. The ideas presented in this letter have been vetted with the South Platte Basin Roundtable and included in the April 17, 2015 South Platte Basin Implementation Plan (BIP).

Northern Water is very supportive of the State of Colorado developing "a pathway for a water project to receive a State endorsement and facilitate a quicker regulatory process." (Draft Water Plan, page 316). We also appreciate and strongly support the subsequent comment that "Such a process must be designed to reduce rather than increase regulatory burdens on project proponents." We believe that it is important that the Water Plan also state that proposed projects already moving forward, such as the Northern Integrated Supply Project (NISP) and the Windy

Gap Firming Project (WGFP), not be delayed while such a framework is developed and implemented.

The Draft Water Plan states "Once State Processes are complete, state endorsement is possible without being pre-decisional" (page 318). The State should commit to supporting existing project proposals once they have successfully completed the State permitting processes. For example, the State should endorse construction of Chimney Hollow Reservoir (the storage component of the WGFP) once it has received the Colorado Department of Health and Environment 401 Certification. State endorsement of water projects which have met established statutory requirements is consistent with the need to aggressively address Colorado's significant water supply gap. Further, State support of projects which have met Colorado's permitting requirements is necessary for Colorado to reach the optimistic Identified Projects and Processes (IPP) success rate purported in the Water Plan.

Northern Water recommends adding the following South Platte BIP (Section 5.5.11.2) language to the Water Plan "Preliminary technical review for state processes" discussion (page 318): "For projects that require NEPA analysis, State agencies should rely on NEPA studies and analyses to make their decisions. This coordination and involvement would eliminate the requirement for additional technical analyses by project proponents to meet State requirements."

Northern Water and the South Platte BIP support the formation of a task force to "study draft recommendations and, where appropriate, implement ways to improve State coordination in the permitting process" (Draft Water Plan, page 318). Northern Water would volunteer to participate on such a Task Force. As specifically recommended in the South Platte BIP (Section 5.5.11.2), "a date certain for formation of the task force should be set along with membership, specific goals and timeline for completion of goals."

The following Northern Water and South Platte BIP (Section 5.5.11.2) recommendations should be included in the Water Plan. In addition, Northern Water would advocate that Item 2 and Item 3 immediately below be included in the Legislative Recommendations section of the Water Plan.

1. Colorado should designate the Colorado Department of Natural Resources (DNR) as Colorado's lead agency for any water project requiring State or local permits, and as Colorado's Cooperating Agency for every water project in Colorado that is required to comply with NEPA and that requires any type of federal permit. This would allow coordination minimizing overlapping reviews or redundant or conflicting comments by involved state agencies. In this role, DNR would have to recognize other State agencies' statutory responsibilities and requirements for permitting. This would also assure Colorado's early, timely and coordinated input into the NEPA process so the appropriate NEPA studies could be conducted in a coordinated manner, eliminating redundancy, while satisfying the many and varied informational and permitting needs of multiple State and federal agencies.

2. Consideration should be given to tailoring state statutes and regulations to specifically meet the needs for permitting water supply projects. As an example, current Colorado Department of Public Health and Environment (CDPHE) 401 Certification regulations require an anti-degradation review of proposed water projects. Such reviews are designed for, and are applicable to, permitting of point source discharge, such as wastewater treatment plants. These analyses are difficult to adapt to water supply project evaluations and reviews. This inconsistency requires extensive additional analyses and studies, thus causing additional incurred costs by the project proponent and increased time for State employees to review projects.

3. Changes should be made to applicable Colorado statutes and regulations in an effort to bring efficiency to the permitting process. Regulations or guidance should specify that State input into any NEPA compliance actions associated with a water project should begin early in the process and continue throughout the process to conclusion.

In addition to forming a task force to define ways to improve the effectiveness and efficiency of Colorado's involvement in the permitting process for a water project, Northern Water and the South Platte BIP (Section 5.5.11.2) recommend the formation of a Task Force to analyze how the 1041 permitting process can be more closely coordinated with the Federal and State permitting requirements, while not reducing the 1041 permitting authority of local governments.

Value of Additional Storage

The South Platte BIP has been modified to include 11 rather than 10 Key Elements (Section S.5.7). The added element is to "Promote multi-purpose storage projects that enhance other South Platte Basin solutions." The Roundtables and their consultants added this element because they understand that success of water supply solutions is dependent upon having additional storage.

1. As discussed in more detail in Item 3 of the Conservation and Reuse section of this letter (below), indoor conservation and reuse only increase the overall water supply when paired with adequate storage.

2. Storage reduces the amount of "buy and dry" necessary for water suppliers to meet their demands. Having storage allows a water supplier to store the changed agricultural water in times when there is excess, and then use the stored water to meet demands in times when the changed agricultural supply is not available due to drier hydrologic conditions.

3. The need for transbasin water is reduced if South Platte Basin water can be stored during periods when flow exceeds needs.

4. Often, even recreational and environmental needs can be better met with multi-use storage projects.

In summary, the Water Plan should clearly articulate and advocate the value of storage in meeting the water supply gap for a multitude of consumptive and non-consumptive uses. These concepts should be clearly articulated in "The role of storage" section starting on page 62 of the Draft Water Plan. A second place to advocate the important role additional storage can play in meeting the requirements of Colorado's water future is in the "South Platte BIP Themes" section starting on page 48 of the Draft Water Plan.

"The role of storage" section of the Draft Water Plan includes "Table 4-5: Largest potential reservoir storage increase by storage delta factors." While this table is interesting, we are unsure of the intent, practicality, or application of this table. Is the Draft Water Plan implying that enlarging reservoirs such as John Martin, Cherry Creek, Lake Granby, and other very large reservoirs should be considered? Likewise, we are not sure what Table 4-6 ("Number of dams by water division that fall into the various ranges of storage delta") adds to the Water Plan. "Storage delta factor" is only one of many very important factors to include in evaluating potential reservoir enlargements. Thus, we would suggest that you delete the last portion of "The role of storage" discussion starting at the top of page 64.

Safeguarding Colorado River Supplies

Colorado River Compact compliance requirements and Colorado River operational challenges resulting from prolonged drought conditions within the Colorado River Basin can threaten the certainty of the state's Colorado River water supplies. As part of the Water Plan process, we believe the Colorado should take the following steps.

1. Create an ATM program, which is either implemented independently or is State implemented and administered, which is complementary to the System Conservation Agreement program to test methods for voluntary, compensated, short-term reductions in consumptive water use as part of a drought contingency plan for the Upper Basin of the Colorado River.

2. Continue to support the exploration of a voluntary, compensated water banking program that helps to maintain the viability of West Slope agriculture while helping to protect critical water uses from drought curtailment under the Colorado River Compact.

3. Empower the State to act aggressively and proactively to avoid Compact curtailment, using the Interbasin Compact Committee (IBCC) Conceptual Framework as a guideline for how Colorado River water would be developed in the future.

4. Commit to developing an administrative protocol in the next several years that Colorado would follow to achieve required curtailment levels should conservation programs or other voluntary curtailment programs fail to achieve necessary results. Definition of this

administrative protocol would allow potentially affected entities to plan alternative courses of action and alternative sources of water as needed to address such a situation.

Conservation and Reuse

The Draft Water Plan includes multiple comments concerning the value of reuse and conservation. Northern Water is in a unique position to comment on conservation and reuse as it understands both agricultural and municipal suppliers. While Northern Water and members of the South Platte Basin Roundtable support conservation and reuse to maximize supplies for municipal water suppliers, we also understand the limitations of reuse and conservation.

1. Except when summarizing statements from the South Platte BIP, the Draft Water Plan does not recognize the tremendous municipal conservation savings that have occurred in the South Platte Basin since 2002. If this information is not prominently included, the Water Plan will fail to educate Colorado citizens concerning steps that have already been taken to conserve water and possible limitations on conservation in the future. At a minimum, we suggest a description of recent municipal conservation since 2002 as described in the South Platte BIP be included in the Water Plan "State of knowledge on water conservation" section starting on page 73. A better description and understanding of the recent water conservation efforts by Front Range entities along with their continued commitment to conservation will increase trust on both the East and West slopes.

2. The No/Low regrets action plan recognizes the difference in value between indoor and outdoor conservation – indoor water use is only approximately 5 percent consumptive while outdoor use is 70 to 85 percent consumptive. The No/Low regrets action plan thus states "Subsequently, best practices that limit municipal outdoor water use have the greatest potential for reducing the projected M&I supply gap." We believe the Water Plan should highlight this difference between indoor and outdoor conservation more prominently. One possible place to include this is in the "State of knowledge on water conservation" section starting on page 73.

3. The South Platte BIP makes it very clear that reuse and conservation have limitations (pages S-4, S-5, 3-3 and 3-4). While Northern Water supports water suppliers' efforts to maximize their supply through indoor conservation and reuse, indoor conservation and reuse reduce the supply available for irrigation, environmental and recreational purposes. This reduction in supply occurs even in the non-irrigation season as indoor conservation and reuse reduce water available for storage. The only time indoor conservation and reuse increase overall basin supplies are days when there are excess flows for all users, and there is adequate storage to keep the saved water until it is needed later. The Draft Water Plan discusses what conservation means in terms of agriculture in great detail

(beginning on Page 171); in a similar manner, we believe the description of the impact of municipal conservation and reuse on other non-municipal water users within the basin should be highlighted more clearly in the Water Plan. Once again, one area where an expanded discussion might be helpful is in the "State of knowledge on water conservation" section starting on page 73. Without additional information, citizens will continue to be misinformed about the advantages and limitations of conservation and reuse and the effects of those practices on the overall basin water supplies.

4. The Draft Water Plan states "Implement Reuse Strategies: 25,000 acre-feet per year of yield resulting from new agricultural transfer and TMD." The Roundtables and Northern Water question whether this is a realistic value when so many of the existing IPPs already include reuse. After reviewing available information, the South Platte BIP does not include reuse in meeting the municipal gap.

5. The Draft Water Plan repeats the Statewide Water Supply Initiative (SWSI) 2010 estimates for conservation on page 100. We believe the Water Plan should reflect the most up-to-date estimates contained in the South Platte BIP. These values have been vetted with actual water suppliers.

Uncertainties affecting supply (Potential Climate Change)

The discussion of the impacts of potential climate change in the Draft Water Plan is very difficult to understand (starting on page 58). For instance, Table 4-2 is labeled "Annual flow values for varying conditions at select gages." Are these the anticipated flows after potential climate change, or are they anticipated flows during different weather conditions under the present climate? If these are flows after potential climate change, what assumptions are used in determining these flows (for instance, increase of X degrees average temperature)? Concerning Table 4-3, we do not agree that groundwater usage could increase with warmer temperatures. If anything, usage of groundwater may decrease as required augmentation will increase while available surface water augmentation supplies will decrease. "Table 4-4: Projected depleted flows for 2050 (acre-feet per year)" and the associated footnotes are very difficult to understand.

We believe the "Uncertainties affecting supply" section should include:

1. potential impacts from climate change in the municipal and agricultural supply and in demand projections under reasonable future climate scenarios;

2. impacts to water rights under reasonable future climate scenarios with the current system of administration;

3. programs to assist smaller water providers to develop "climate change" adaptation plans;

4. and the potential need for the construction of additional storage projects to mitigate the impacts of climate change.

General Comments

1. We believe the State is almost always better equipped to assist meeting the water needs of Colorado citizens than the federal government. In this regard, we strongly recommend that the Water Plan clearly support alternatives to Wild and Scenic River designation that protect identified values while retaining the maximum flexibility possible for the management of Colorado's water resources.

2. Page 191 of the Draft Water Plan discusses "Potential impediments to ATM success". We believe one important impediment is that individual farmers are concerned that they will not obtain the maximum price (that reflects not only the agricultural value but also the development value) for their water if that water is subject to an ATM. Likewise, water suppliers are concerned that they will pay more for assuring the same amount of firm yield if the water being acquired is subject to an ATM. In addition to adding this issue to the list of impediments, we would recommend adding the following to the list of "options in support of ATM goals" on page 197 of the Draft Water Plan:

   Explore the possibility of third parties assisting with the funding of ATM's to assure that the farmer is appropriately compensated and that water suppliers are paying a reasonable incremental cost for firm yield. In this case, the third party (i.e. local community, county, open space authority, economic development organization, chamber of commerce, etc.) would provide the funding required to realize and retain the desired community or state value, for example, continued viable agricultural production, irrigated agriculture, or "working landscape" open space, rather than the individual farmer doing so by receiving less compensation or water supplier doing so by paying a higher incremental cost for water supply yield.

3. Page 23 of the Draft Water Plan lists water conservancy districts as a project proponent that "sells water to local water providers." Northern Water and other water conservancy and conservation districts do not generally "sell" water to local providers. Thus, we would suggest that the words "that sell water to local water providers" be deleted.

4. On Page 70, the Draft Water Plan states that "the portion of water that is not consumed makes its way back to the river (referred to as return flows)." The text that follows states "Colorado consumes 5.3 million acre-feet, but this water can be used multiple times…" If the water is "consumed", then it cannot be used multiple times. It is important that the Water Plan is clear about the differences between "diversion and use" and "consumption" throughout the document.

Northern Water would like to once again thank the State for the opportunity to comment on the Draft Water Plan. We believe it is critical the Water Plan be as specific and accurate as possible to provide the best direction for Colorado's water future.

Sincerely,

Eric W. Wilkinson
General Manager

Jim Hall
Project Manager
Northern Water Representative on South Platte Basin Roundtable

PUBLIC INPUT
ITEM 50

Colorado Water Supply and Climate Change: A Business Perspective

Water is crucial to the economic vitality and growth of Colorado. It is the most critical resource issue facing our state today. Businesses have a stake in the development of water management policies and practices that take into consideration both known and likely risks. Failure to plan for future water shortages will not only inflict tangible hardships on Colorado's businesses and residents, but also undermine Colorado's greatest economic asset—its reputation as a great place in which to live, work, and visit.

Colorado's basic, underlying water challenges are well known. The state projects that municipal and industrial (M&I) demands could increase by as much as 81 percent by 2050, driven mostly by population growth. How these additional water needs will be met is uncertain, with an identified M&I gap of from 600,000 to one million acre-feet per year. (One acre-foot supplies two families for a year.)

What is not as well known is the extent to which climate change is likely to exacerbate the state's water challenges, by both reducing water supplies and increasing water demands. The first decade of the 21st century has shown us what we can expect, however. Water in the Colorado River during that 10-year period is down 16 percent compared to the last century, while the Rio Grande is down 23 percent. The state's only study so far on climate change impacts on water demands, meanwhile, suggests that Western slope crop irrigation needs could increase by as much as 27 percent by mid-century.

Water risks associated with climate change will be magnified by the operation of interstate compacts.

Water users in Colorado are not free to use all of the water in the rivers within state borders, but must let defined amounts of water flow into downstream states. If the lower-basin states do not receive their entitled river flows, they can require cutbacks on water storage and use in Colorado. This is a unique risk and burden for Colorado, as the natural flows of all our rivers may diminish but every downstream state can still require undiminished deliveries to them.

In response to the mounting evidence that climate change will make it harder to meet the state's future water needs, the Rocky Mountains chapter of the nonpartisan, nonprofit business group Environmental Entrepreneurs (E2) commissioned a research paper that takes a close look at the economic threats that come with water shortage risks. The paper, *Colorado Water Supply and Climate Change: A Business Perspective*, is the first step in E2's ongoing work on water supply issues in Colorado. E2 is a national organization of business leaders who promote sound environmental policy that builds economic prosperity.

Action now is both crucial and timely. Much more is known now than even a year ago about how much climate change intensifies Colorado's long-standing water challenges. Governor Hickenlooper's recent call for a new State Water Plan provides an ideal opportunity to identify the key actions to reduce the state's water and climate risks—an opportunity we cannot afford to waste.

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For more information, please contact Bob Keefe, *communications director, Environmental Entrepreneurs (E2)* at bkeefe@e2.org or 202.289.2373.

As a step in that direction, E2 Rocky Mountains recommends the following actions be taken, and calls on the business community to join us in promoting comprehensive solutions to Colorado's water challenges:

1.	**Leadership and collaboration:** Colorado's governmental leaders need to give the state's water supply and climate change risks the priority and urgency they deserve.
2.	**M&I water conservation goal:** We urge the governor to set a state goal of reducing per capita M&I water use by 25 percent by 2025 and 50 percent by 2050, compared to 2010 levels. This goal should be incorporated into the State Water Plan and implemented by legislation. Setting and meeting an aggressive state water conservation goal is the single most important step that can be taken. Conservation is more cost-effective than other options, and frees up water to supply new growth, meet needs in times of shortage, and protect the environment.
3.	**M&I conservation pricing:** The State Water Plan and subsequent legislation should ensure 100 percent adoption of water rates that create incentives for M&I conservation. Conservation-oriented rates are effective and, as a market-based approach, give water users an incentive and the freedom to choose the ways in which they want to reduce their water consumption.
4.	**Planning for climate change impacts:** The state government should immediately begin developing detailed analyses of how climate change may affect M&I and agricultural water demands in the state. The governor should direct that the State Water Plan to consider at least one possible future scenario of very low water supply and very high water demand, a combination that is a realistic possibility as a result of climate change.
5.	**Water reuse:** The State Water Plan should identify new measures to expand the reuse of M&I water in Colorado. The Colorado Oil and Gas Conservation Commission should establish new requirements to expand reuse of wastewater from hydraulic fracturing (fracking) operations, which consume a rapidly growing share of M&I water in the state.
6.	**Agricultural water use:** The State Water Plan should identify new measures to reduce "buy and dry" permanent transfers of agricultural water to urban water providers. The governor should direct that the plan begin to define a path forward to improve water efficiency on farms and ranches.
7.	**Planning for compact curtailments:** The state government should develop for each major river basin a mechanism to deal with potential legal curtailments of existing water supplies and rights under interstate compacts—curtailments that loom more likely than ever in a hotter, drier climate.

If Coloradans want our economy to keep growing while preserving our state's unique natural resources, all of us—business, agriculture, government, residents—must work together to address the risks to our water supplies. The best and quickest way to start down this path is by reducing municipal and industrial water demand today, while properly planning for the water risks in the future.

Read the full report online: e2.org/coloradowater

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August 2013

PUBLIC INPUT
ITEM 51

Navigating a Pathway Toward Colorado's Water Future

A Review and Recommendations Colorado's Draft Water Plan

Report of the
Getches-Wilkinson Center
Colorado Water Working Group

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April 30, 2015

Table of Contents

Executive Summary 3

Conclusions and Recommendations 4

One – Colorado's Water Future 7

Two – Meeting New Consumptive Use Demands 12
- Options for Meeting the Gap 13
- Selecting Actions for Inclusion in Basin Plans 14
- Conservation and New Water Supply Projects 16
- Transferring Water from Agriculture 19
- Transmountain/Transbasin Diversion Projects 22
- Funding for Projects Adopted in Basin Plans 23
- Facilitating Review and Permitting of Projects Included in Basin Plans 24

Three – Maintaining and Enhancing Watershed Health 26

Four – Real Water Management 29

Five – Climate Change Risk Management 32

Appendix A – Acknowledgements 36

Appendix B – A Proposed Process for ATMs 37

Executive Summary

The Colorado Water Plan represents a unique opportunity to shape and direct Colorado's water future. The Draft Plan summarizes the remarkable efforts of many people over a ten-year period to define that course. Important progress has been made in determining current supply and demand conditions, projecting a range of demand futures, and considering alternative approaches to meeting these demands. Broad agreement has been reached that conservation measures should be implemented to manage future demand, that alternative forms of transfers of water from irrigated agriculture should be encouraged and permanent transfers discouraged, and that additional water supply projects will be necessary. The Draft strongly embraces efforts to maintain and enhance watershed health. But, in its current form, the Draft lacks any guiding mechanisms for directing actions towards these ends in a manner consistent with the Draft.

This report provides conclusions and recommendations in five areas. First, it calls for a concise Final Plan that sets forth a clear vision for Colorado's water future, with specified objectives and with well-defined processes for achieving those objectives consistent with articulated state policies.

Second, the report supports adoption of policies that emphasize the importance of actively managing projected demands through implementation of best conservation practices, that commit the state to implement facilitated alternative transfer procedures for moving some water from agriculture to other uses while discouraging permanent water transfers, that promote new or expanded water supply projects that are consistent with maintenance and enhancement of watershed health, and that support continued efforts to find a basis under which additional transmountain/transbasin projects might be acceptable. We propose strengthening the role of basin roundtables in evaluating proposed projects and activities for inclusion in basin plans on the basis of well defined review criteria. We suggest encouraging proponents to submit proposals to basin roundtables by making proposals adopted in basin plans potentially available for state funding and by promising them broad governmental support for review and permitting processes.

Third, the report promotes the use of watershed planning to identify the status of watershed health in water management areas and to develop specific actions to be taken to improve and maintain desired watershed conditions.

Fourth, the report calls for increased attention to water management to identify ways that Colorado's water resources can serve a broader range of interests and values.

Fifth, the report urges a commitment to actions that will help manage the risks associated with climate change, including the formation of a task force charged with highlighting those areas of risk and identifying actions that can be taken to manage their adverse effects.

Conclusions and Recommendations

One – Colorado's Water Future

Conclusion No. 1: The Draft Plan provides a lengthy recounting of the remarkable effort over the past ten years, through extensive state- and basin-level discussions and study, to develop a common understanding of Colorado's water situation, including the water resources available in the state, existing uses of those resources, and projected future demands—primarily for new urban uses but also for industry and agriculture as well as for nonconsumptive purposes. The Draft focuses on a projected "gap" between expected urban demands and known sources of supply and discusses the primary options available for meeting new demands. The Draft also addresses the importance of watershed health. It does a good job of capturing and recounting the information and ideas developed through studies, discussions, and reports. But it provides little guidance respecting how the planning process will actually help guide and direct those actions. As written, the Draft is not really a plan; it is a summary of a process that has identified problems, has discussed a number of options, has concluded that entities in need of new water supplies should move ahead with those efforts regarded as no/low regrets, and has suggested the state will support those efforts.

Recommendation No. 1: *The CWCB should prepare, as the Final State Plan, a concise, readable document that provides a broad vision for Colorado's water future, establishing clear objectives and the steps necessary to achieve those objectives. It should account for the full array of interests in the use of Colorado's rivers and aquifers, including consumptive and nonconsumptive values. It should account for the significant uncertainties associated with climate change. It should use the basin planning process to promote actions consistent with plan policies and objectives.*

Two – Meeting New Consumptive Use Demands

Conclusion No. 2: The planning process and its antecedents resulted primarily because of concerns about meeting future demands for water associated with continued urban growth in the state. The Draft Plan projects a "gap" in the water available to meet municipal and industrial (M&I) needs in 2050 of between 190,000 to 600,000 acre-feet, "dependent on the success water suppliers have in getting new projects built and the actual rate of population growth." It appears to support actions that would be consistent with what it terms a "no/low regrets" strategy, an approach that would rely heavily on development of new water supply projects, would achieve a low/moderate level of conservation, and would involve modest transfers of water from agriculture.

While the Draft suggests that actual steps taken to meet new consumptive use water demands will be monitored (presumably to see whether they follow this suggested approach), no concrete state policies or actions are provided that would guide and direct water suppliers to act in a manner consistent with these stated objectives.

Recommendation No. 2: *The CWCB should adopt policies and procedures in the Final Water Plan that would provide clear incentives to water developers to take the actions necessary to meet new water demands in a manner consistent with the broad*

understanding reached through the basin roundtables, IBCC discussions, and the supporting analysis. Those policies should:

- emphasize conservation and reuse as the threshold strategies for managing additional M&I demands;

- clarify that new water supply projects involving additional water depletions meet standards for the protection of the water source's health;

- commit to putting in place viable alternative transfer mechanisms that would enable some water to move from irrigation to other uses in ways that minimize permanent dry up of irrigated lands; and

- acknowledge that any future development of transmountain diversion projects is contingent upon a determination of actual need and agreement on the terms and conditions under which such projects would be built and operated.

The CWCB should include in the Final Plan provisions that would invite all parties intending to take actions to meet additional consumptive demands to submit such proposed actions for inclusion in basin action plans. Basin roundtables would review proposed actions based on specified criteria respecting consistency with the policies outlined in the Final Plan.

Proposed actions found consistent with state policies and included in basin plans would be eligible for funding from the CWCB and would have support in related review and permitting processes.

Three – Maintaining and Enhancing Watershed Health

Conclusion No. 3: Watershed health, including environmental resiliency, is included as an objective of the Draft Water Plan, and the planning process has begun identifying areas of special environmental interest that warrant protection, but the mechanisms by which the current condition of Colorado's watersheds will be assessed and actions needed to improve and maintain watershed health will be identified and taken are not adequately defined, nor are the effects of a changing climate much considered.

Recommendation No. 3: *The CWCB and the Basin Roundtables should implement procedures under which watershed plans, developed at the level at which water rights are administered (water management districts), will be prepared. These watershed plans should assess the condition of the land and water within watershed boundaries and, where those conditions are not acceptable or where improvements are desired, define actions needed to achieve desired conditions. Plans should incorporate climate change risk management using the best available science, data, and impact monitoring. Plans should be developed first in watersheds in which new or additional water development is planned to help identify ways such new development can occur consistent with the maintenance of desired watershed health. Watershed plans should also identify opportunities for improved water management that would provide additional benefits.*

Four – Real Water Management

Conclusion No. 4: The Draft Plan pays only limited attention to existing water uses and management, focusing instead primarily on ways to meet future consumptive use water demands.

Recommendation No. 4: *The CWCB should direct the Basin Roundtables to develop strategies under which existing water uses and supporting stream flows can be managed to more effectively achieve greater benefits from the use of Colorado water, taking into account the changes that are resulting from climate change.*

Improved watershed management opportunities should be explored in the watershed planning process, and actions should be taken for their implementation.

Five – Climate Change Risk Management

Conclusion No. 5: The Draft Plan summarizes the current state of the science regarding the effects of climate change on Colorado's water resources but considers the consequences of these effects primarily in relation to the water supply-demand gap. It offers little guidance about actions the state, water suppliers, and water users should take in response to these effects.

Recommendation No. 5: *The CWCB, using best available science, should make explicit the increased risk associated with climate change to the array of interests in the uses of Colorado water and put in place the actions necessary to respond to and manage these risks. Climate change considerations should be built into the criteria to be used by the basin roundtables and the CWCB for including projects and activities in the Colorado Water Plan.*

The basin roundtables, together with the CWCB, should establish processes for monitoring climate-related conditions in the state's water basins and should develop responses as necessary to manage the adverse effects of climate change.

The Governor should establish a task force of climate scientists, water suppliers, water users, and other representative interests to identify those aspects of water use in the state that are most at risk because of climate change and to develop guidance for the basin roundtables and water suppliers and managers for managing these risks.

One – Colorado's Water Future

Conclusion No. 1: The Draft Plan provides a lengthy recounting of the remarkable effort over the past ten years, through extensive state- and basin-level discussions and study, to develop a common understanding of Colorado's water situation, including the water resources available in the state, existing uses of those resources, and projected future demands—primarily for new urban uses but also for industry and agriculture as well as for nonconsumptive purposes. The Draft focuses on a projected "gap" between expected urban demands and known sources of supply and discusses the primary options available for meeting new demands. The Draft also addresses the importance of watershed health. It does a good job of capturing and recounting the information and ideas developed through studies, discussions, and reports. But it provides little guidance respecting how the planning process will actually help guide and direct those actions. As written, the Draft is not really a plan; it is a summary of a process that has identified problems, has discussed a number of options, has concluded that entities in need of new water supplies should move ahead with those efforts regarded as no/low regrets, and has suggested the state will support those efforts.

Recommendation No. 1: *The CWCB should prepare, as the Final State Plan, a concise, readable document that provides a broad vision for Colorado's water future, establishing clear objectives and the steps necessary to achieve those objectives. It should account for the full array of interests in the use of Colorado's rivers and aquifers, including consumptive and nonconsumptive values. It should account for the significant uncertainties associated with climate change. It should use the basin planning process to promote actions consistent with plan policies and objectives.*

Discussion: In 1984, a former director of the Colorado Department of Natural Resources offered a highly skeptical assessment of water planning, suggesting it was a futile search for utopia.[1] In his view, "Colorado's plan for its water resources was put in the Constitution more than one hundred years ago."[2] We've come a long way since that time. Responding to an unprecedented drought in 2002, state water leaders recognized that growing water demands and highly variable and increasingly uncertain water supplies meant it was time for an extended conversation about Colorado's water future. No longer would it be sufficient simply to rely on the uncoordinated actions of thousands of appropriators, big and small, to determine that future.

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[1] [1] D. Monte Pascoe, Plans and Studies: The Recent Quest for a Utopia in the Utilization of Colorado's Water Resources, 55 U. COLO. L. REV. 391 (1983-1984). Interestingly, Colorado had already produced a water plan, working in cooperation with the Bureau of Reclamation under the 1965 Water Resources Planning Act. Colorado State Water Plan, Phase I – Appraisal Report (February 1974).

[2] Pascoe, 55 U. COLO. L. REV. at 417.

A subsequent DNR director—and law school Dean, David H. Getches, viewed water planning as articulating policy and applying that policy to facts in pursuit of "informed decisionmaking."[3] In the water resources context, planning has most often been applied to the process preparatory to building water development facilities, such as dams. As expressed interests in the uses of water and its sources broadened, water planning also broadened to address these additional interests. As Dean Getches noted, early state water planning processes varied widely in approach, and "these usually have been little more than proposals for particular structural developments. Few plans assess a full range of alternatives for water supply or deal with water management issues."[4] Consequently, "western states have not developed a future vision for use and protection of their water resources."[5]

In May 2013, Governor Hickenlooper issued an executive order directing the Colorado Water Conservation Board (CWCB) to prepare a Colorado Water Plan.[6] The Executive Order explained the need for a plan to address (1) the gap between water supply and water demand; (2) the effects of drought on the supply gap; (3) the "unacceptable" rate of purchase and transfer of water rights from irrigated agriculture; (4) the work of the Interbasin Compact Commission (IBCC) and the basin roundtables;[7] (5)

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[3] David H. Getches, Water Planning: Untapped Opportunity for the Western States, 9 J. ENERGY L. & POL'Y 1 (1988-1989) (hereinafter Getches)("water planning must be a strategic effort that integrates policy with the best available resource information, providing guidance and assistance for future actions.").

[4] Getches at 2.

[5] *Id*.

[6] D2013-005, Executive Order, Directing the Colorado Water Conservation Board to Commence Work on the Colorado Water Plan, May 14, 2013 (Executive Order).

[7] In 2005, the Colorado General Assembly enacted the Colorado Water for the 21st Century Act for the described purpose of "Negotiation of Interbasin Compacts Regarding the Equitable Division of the State's Waters." HB 05-1177, *codified at* Colo. Rev. Stat. §§37-75-101 to -106.This legislation formalized the basin roundtables and described their purpose as "to facilitate continued discussions within and between basins on water management issues, and to encourage locally driven collaborative solutions to water supply challenges." Colo. Rev. Stat. §37-75-104(1)(a). The roundtables were directed to, "[u]sing data and information from the statewide water supply initiative and other appropriate sources and in cooperation with the on-going statewide water supply initiative, develop a basin-wide consumptive and nonconsumptive water supply needs assessment, conduct an analysis of available unappropriated waters within the basin, and propose projects or methods, both structural and nonstructural, for meeting those needs and utilizing those unappropriated waters where appropriate." Colo. Rev. Stat. §37-75-104(1)(c). In addition, the legislation established a 27-member Interbasin Compact Committee (IBCC) "to facilitate the process of interbasin compact negotiations." Colo. Rev. Stat. §37-75-105(1)(a).

the need to integrate water quality and water quantity considerations; (6) interstate water concerns; and (7) the ability of the CWCB to perform this work.[8]

James Eklund, Director of the CWCB, transmitted a draft of the Water Plan to the Governor on December 14, 2014. The transmittal letter states:

> Ultimately, the CWCB intends for Colorado's Water Plan to be a meaningful document that meets the following criteria:
> 1. Fosters collaborative solutions to responsibly address the looming gap between supply and demand. The effect of this is to fortify Prior Appropriation Doctrine, not undermine it.
> 2. Identifies and tests cost-effective alternatives to the permanent "buy & dry" of irrigated lands.
> 3. Asserts that Colorado will protect its compact entitlements, act affirmatively to avoid compact curtailments where possible, and demonstrate effective state-based policy to prevent federal erosion of state and local water authority.
> 4. Encourages strong cooperation by interested stakeholders to move regulatory and permitting efforts more quickly through the processes by front-loading state involvement.
> 5. Aligns state policies, resources, and funding to support Colorado's water values and actionable objectives.[9]

While this transmittal letter identifies only a limited set of objectives, the Draft Plan in fact addresses a considerable array of policy issues in the context of discussing approaches to meeting Colorado's future water needs. It recognizes the need for additional water supply projects but promotes a collaborative approach to developing such projects that could result in such projects incorporating additional objectives with broader benefits that would produce more widespread support. It seeks to guide the process of addressing new consumptive use water demands away from transfers of water from irrigated agriculture, except under arrangements that would not require permanent loss of irrigated land or transfer of water right ownership. It makes a strong case for the many benefits of reducing new demands through conservation measures. It suggests the possibility of additional transmountain diversions to bring water from the Colorado River basin to the Front Range but only under mutually agreeable conditions. It acknowledges the importance of nonconsumptive uses of water, supports future protection and restoration activities, and embraces watershed management as a valuable means of

[8] Executive Order at 2-3.
[9] Letter from James Eklund to Governor Hickenlooper, Submittal of 2014 Draft of Colorado's Water Plan, December 10, 2014.

achieving multiple interests in uses of land and water. In a state that historically has taken a very decentralized approach to water matters, the Draft Plan suggests a considerably more active role for the state itself and for collaborative decision-making processes at the state, basin, and local level.

The Draft is written in terms of challenges to be addressed. It summarizes these challenges as

- Growing water supply gap;
- Agricultural dry-up;
- Critical environmental concerns;
- Variable climatic conditions;
- Inefficient regulatory process;
- Increasing funding needs.[10]

The Draft Plan offers a summary of what it calls "Colorado's water values."[11] The values are stated as:

- A productive economy that supports vibrant and sustainable cities, viable and productive agriculture, and a robust skiing, recreation, and tourism industry;
- Efficient and effective water infrastructure promoting smart land use; and
- A strong environment that includes healthy watersheds, rivers and streams, and wildlife.[12]

An important objective of the Water Plan is to "[a]lign[] state policies, resources, and funding to support Colorado's water values and actionable objectives."[13]

We would encourage a reframing of a more focused final Plan to offer an affirmative vision of Colorado's water future along the lines suggested by this statement of water values. That reframing would begin with the health of its watersheds, including its rivers and aquifers, as the basis of that future, would acknowledge the array of values and uses served by state water resources, would state clearly its policies respecting the manner in which the state's water resources are currently being used and the manner in

[10] Colorado Water Conservation Board, Colorado's Water Plan (Draft), December 10, 2014 at 3 (Draft Plan).
[11] Draft Plan at 2.
[12] Id.
[13] Draft Plan at ii.

which future needs and interests in the use of state waters should be achieved, and would clearly articulate the ways in which the actions outline in the Plan will help achieve and maintain these stated objectives.[14] To be meaningful, that vision must also take full account of the realities of climate change and its effects on water resources and their uses.

The present document, in many respects, serves more as a summary of the planning process than as a plan. It does a good job of pulling together the materials developed throughout the process into a single document, but the product is lengthy and does not readily serve the function of guiding the state and its water community toward a well-articulated water future. The Draft should stand alone as a comprehensive summary document, but the CWCB should produce a more focused document as the Final Plan, with a clear vision for the future, well defined objectives to be achieved, explicit policies that will guide actions necessary to achieve those objectives, and a plan for how those actions will occur.

[14] A similar conclusion is reached in Harris Sherman, Colorado Water Plan Close, But Not There Yet, Denver Post, March 28, 2015, available online at http://www.denverpost.com/opinion/ci_27798660/colorados-water-plan-close-but-not-there-yet.

Two – Meeting New Consumptive Use Demands

Conclusion No. 2: The planning process and its antecedents resulted primarily because of concerns about meeting future demands for water associated with continued urban growth in the state. The Draft Plan projects a "gap" in the water available to meet municipal and industrial (M&I) needs in 2050 of between 190,000 to 600,000 acre-feet, "dependent on the success water suppliers have in getting new projects built and the actual rate of population growth." It appears to support actions that would be consistent with what it terms a "no/low regrets" strategy, an approach that would rely heavily on development of new water supply projects, would achieve a low/moderate level of conservation, and would involve modest transfers of water from agriculture.

While the Draft suggests that actual steps taken to meet new consumptive use water demands will be monitored (presumably to see whether they follow this suggested approach), no concrete state policies or actions are provided that would guide and direct water suppliers to act in a manner consistent with these stated objectives.

Recommendation No. 2: *The CWCB should adopt policies and procedures in the Final Water Plan that would provide clear incentives to water developers to take the actions necessary to meet new water demands in a manner consistent with the broad understanding reached through the basin roundtables, IBCC discussions, and the supporting analysis. Those policies should:*

- emphasize conservation and reuse as the threshold strategies for managing additional M&I demands;

- clarify that new water supply projects involving additional water depletions meet standards for the protection of the water source's health;

- commit to putting in place viable alternative transfer mechanisms that would enable some water to move from irrigation to other uses in ways that minimize permanent dry up of irrigated lands; and

- acknowledge that any future development of transmountain diversion projects is contingent upon a determination of actual need and agreement on the terms and conditions under which such projects would be built and operated.

The CWCB should include in the Final Plan provisions that would invite all parties intending to take actions to meet additional consumptive demands to submit such proposed actions for inclusion in basin action plans. Basin roundtables would review proposed actions based on specified criteria respecting consistency with the policies outlined in the Final Plan.

Proposed actions found consistent with state policies and included in basin plans would be eligible for funding from the CWCB and would have support in related review and permitting processes.

Discussion: The driver of the Water Plan and its antecedents was concern about having sufficient water available to meet future consumptive use needs, especially for urban and industrial growth. To emphasize this concern, the analysis characterizes the difference between the projected demands for water out to 2050 and the sources of supply identified

today as a "gap."[15] In the Draft Plan, the gap is listed first on the list of challenges: "The gap between municipal water supply and demand is growing, and conservation and the completion of proposed water projects are likely insufficient to address projected 2050 shortfalls that could total more than 500,000 acre-feet statewide."[16] Many assumptions are packed into the analysis that projects such a gap, beginning with expected population growth, including expected per capita water uses, projected levels of active and passive conservation,[17] the "success rate" in constructing identified new water supply projects, and the amount of water shifted from agricultural to urban uses. It assumes that ordinary efforts of water suppliers will fall short, dramatically short, of meeting demands, though the reasons for the inability of water suppliers to meet future demands are unspecified. In reality, there is no gap today and there may not be a gap in 2050.

Options for Meeting the Gap

More usefully, the process made explicit the options for meeting future consumptive use and discussed their advantages and disadvantages. No one option is sufficient; some mix of approaches will be necessary. The Draft Plan employs "scenario planning" with associated water demands to project a range of possible supply responses.[18] In addition, the IBCC identified those potential actions regarded as likely and necessary no matter the precise magnitude of future demands, denominated as the "no and low regrets" actions.[19] The Draft Plan reviews each of the basin implementation

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[15] Draft Plan at 100 ("The Statewide Water Supply Initiative in 2010 indicated that under current conditions the M&I gap could be between 190,000 and 630,000 acre-feet, depending on how many planned projects are implemented and the rate of population growth in Colorado.").

[16] Draft Plan at 3.

[17] The Draft Plan distinguishes these two sources of conservation, referring to conservation that occurs because of "natural" replacement rates of plumbing and appliances as passive and conservation resulting from specific actions taken by water providers, called active. Draft Plan at 73, 76.

[18] Draft Plan at 86-96. Scenarios include business as usual, weak economy, cooperative growth, adaptive innovation, and hot growth. Id. at 90-92. The IBCC synthesized five "portfolios" of actions that could be taken to meet the projected low, medium, and high demands associated with the scenarios. The portfolios represent different mixes of conservation, new supply, and water transfers.

[19] Draft Plan at 92. *See* Memorandum from Rebecca Mitchell to Colorado Water Conservation Board Members, September 13, 2013 (no and low regrets summary). As summarized, these include: (1) implement "low/medium" conservation strategies; (2) successfully implement at least 80% of the IPPs; (3) implement reuse strategies; and (4) plan for new water supplies. Draft Plan at 100-01. Note that ag to urban transfers are not included.

plans (BIPs) prepared by the roundtables and the proposals for meeting gaps but concludes that, even with these proposals, gaps remain.[20]

The scenario planning approach, while perhaps useful conceptually, presupposes the planner is also the implementer and that the actions taken by the implementer are better informed and more capable of adapting as new information becomes available. In fact, the actions discussed in the Draft Plan and in the BIPs will be taken by hundreds of water suppliers of widely varying sizes all around the state. The Draft Plan provides no suggestion as to what will guide the actions of these many and diverse entities, what will motivate water suppliers to implement even low/medium conservation measures, what will motivate them to implement water-conscious land use planning, what will encourage them to use alternative transfer mechanisms (ATMs) rather than permanent water right acquistions, what will encourage them to improve and protect watershed health.

Selecting Actions for Inclusion in Basin Plans

We believe a more productive strategy would be to have all actions for meeting future needs that would like to be included in basin plans undergo a structured review process that would ensure their compatability with basin interests and state policies.[21] We would design the review process to encourage implementation of best available conservation practices to manage and limit demands for new consumptive uses, including the use of land use management. We would require that new water supply projects involving removal and depletion of water from streams and aquifers meet standards for mantenance and enhancement of the health of these sources. We would favor use of alternative transfers of water from agriculture by enabling such proposed transfers included in basin plans to be able to use specially-established transfers procedures designed for their facilitation.[22]

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[20] Draft Plan at 143. The basin roundtables attempted to identify all IPPs in their basins and were supposed to make at least a preliminary evaluation of their viability, but it appears these efforts varied widely across the roundtables and were not based on a clear, comprehensive set of review criteria. In practice, the basin implementation plans appear to have included virtually all proposals presented to the roundtables.

[21] Water suppliers would, of course, be free to pursue meeting new water demands as they chose. The option of working through the basin planning process would be potentially attractive because it would evidence widespread support for the action, would make the action available for funding, and would likely greatly facilitate the various approval processes needed for implementation.

[22] Our proposal is set out in Appendix B.

Uses of water begin at the source from which the water is taken. Colorado's water basins represent logical geographic, hydrological, and political units within which to do meaningful planning for water development, protection, and management. The basin roundtables are in the best position to judge the conditions of the surface and ground water sources within their region. With appropriate direction from the CWCB and the IBCC, they are best positioned to evaluate the benefits and costs of existing and new water development. The roundtables can continue to develop collaborative approaches to meeting state and basin water needs and interests while working under guidance developed at the state level and with the support of CWCB staff, local water providers and users, and other stakeholders to identify actions to be taken to meet Colorado's water needs.

The basin implementation plans developed under the first phase of the planning process provide a good starting point for the next phase—development of basin action plans. We propose that the roundtables engage in a rigorous screening process to determine the suitability of proposals for inclusion in their basin action plans. Criteria to be applied in this screening process should be developed by the CWCB and the IBCC, potentially using the suggestions offered in this report and other ideas. Inclusion in the plans would represent a firm commitment to move these projects and activities ahead. In this way we believe the actions taken to achieve Colorado's desired water future are more likely to reflect the policies developed in this planning process. To incentivize this approach we propose making state funding potentially available to help bring actions included in basin plans to fruition. We believe that the screening process would result in the development of plans and activities with widespread support among an array of interests and would enable state and local governments to support efforts to obtain the permissions necessary for their implementation. The availability of funding and permitting support should help insure the implementation of these desired projects and activities.

Conservation and New Water Supply Projects

The Draft Plan suggests that the most important option for meeting the gap is successful development of already planned water supply projects.[23] While such projects have historically been the primary means of meeting new consumptive use demands, there is nothing in the Draft that explains why development of these proposed projects is the preferred strategy. At a time when the state's water community is taking a fresh look at how we should meet our future water needs, a look that acknowledges the changing interests of its citizens in the uses made of water, there is a surprising lack of discussion about what constitutes a "good" water supply project. Despite recognition of the many benefits of actively managing demands for water rather than simply assuming water suppliers should meet whatever demands are made, there is nothing in the Draft that would encourage water suppliers to first implement best conservation practices before determining the extent of additional actions needed to meet remaining demands. We believe the final plan should make express as state policy that local governments, including special districts, should first actively implement best measures to manage demand and then pursue additional actions as necessary to meet remaining demand for new water supplies.

The Draft Plan emphasizes the essential role that water conservation and water reuse will play in reducing the gap and talks about taking a "comprehensive statewide approach."[24] Governor Hickenlooper is quoted as saying: "Every conversation about water should start with conservation."[25] The Draft Plan recognizes additional benefits associated with water conservation beyond reducing water demands.[26]

In 2010, with funding from the CWCB and with the help of a technical and stakeholder workgroup, Colorado WaterWise produced a *Best Practices Guidebook for Municipal Water Conservation in Colorado*.[27] It features "fourteen best practices that outline the potential benefits and costs for active water conservation measures, indoor and outdoor, residential and non-residential practices."[28] Based on these best practices,

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[23] Draft Plan at 93.
[24] Draft Plan at 144.
[25] Draft Plan at 145.
[26] Draft Plan at 145. Listed are reducing wastewater discharges, reducing outdoor irrigation runoff, and delaying the need for new projects.
[27] Draft Plan at 73.
[28] Id.

SWSI 2010 developed low, medium, and high strategies for "active" water conservation.[29] Estimated savings statewide by 2050 range from 160,000 acre-feet under the low strategy to 461,000 acre-feet under the high strategy.[30] The study forecasts an additional 154,000 acre-feet of savings by 2050 because of "passive" conservation.[31] In addition, SWSI 2010 forecasts that water reuse will provide from 41,000 to 63,000 acre-feet of additional supply.[32] The Draft Plan notes that higher density development would result in reduced water demands as well.[33]

The "no and low regrets" path developed by the IBCC contemplates conservation actions that would produce savings of 340,000 acre-feet, with half of that amount dedicated to reducing new demand.[34] In addition, passive conservation is expected to produce savings of 150,000 acre-feet by 2050. According to the Draft Plan, "[w]hile conservation and reuse are not 'silverbullets,' we can achieve benefits by creating scalable technical resources, bolstering local initiatives through financial incentives, and sharing best-practices."[35] The Draft Plan lists thirteen conservation-related actions that emerged from the various efforts associated with the planning process.[36]

While the Draft Plan clearly envisions an important role for conservation in helping to reduce future demands for water, it leaves open how this is to occur. The process appears to have done a good job of helping to develop substantial information

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[29] "For the purposes of CWCB's technical work, conservation savings were divided into two categories. The first is passive conservation, which was used to reduce demand projections. Passive conservation results from the replacement of old indoor fixtures and appliances with newer, more efficient ones. Active conservation, which takes a concerted effort on the part of water providers and/or property owners, is treated as a method to address the water supply gap." Draft Plan at 71, footnote a.

[30] Draft Plan at 74.

[31] Id. The proposed actions under each strategy and the expected results are summarized in the Draft Plan at Table 5-2, at 75.

[32] Draft Plan at 77.

[33] Draft Plan at 78.

[34] "Implement strategies to meet medium levels of conservation and apply at least half of these savings to meet future M&I needs to support approximately 1 million people and the jobs needed to support them in the near future (170,000 acre-feet)." Draft Plan at 93. At another point the Draft Plan states: "Implement strategies at the basin level to meet medium levels of conservation, and apply half of that to meet the M&I Gap, equivalent statewide to 67,000 acre-feet per year by 2030 and 167,000 acre-feet by 2050." Draft Plan at 100. The assumption that only half of the conservation savings would be applied to reducing new demands is obviously conservative. All reductions in demands, whether for new or existing uses, reduce the need for the water supplier to be able to reliably meet demands within the service area.

[35] Draft Plan at 144.

[36] Draft Plan at 156-58.

about the many ways that urban water demands, both existing and new, can be reduced.[37] Most of the basin roundtables emphasized the need for conservation, and some identified specific conservation implementation plans that are presently in the works. Interestingly, the IBCC determined that only the most modest of the three defined levels of conservation would be appropriate as part of the no/low regrets actions.[38] Consequently the Draft Plan only assumes that this level of conservation will be achieved—only a third as much as would be achieved by taking actions needed to achieve a high level of conservation by 2050.[39]

Several of the larger urban water providers on the Front Range have in fact been actively pursuing conservation and have already adopted many of the strategies identified in SWSI 2010 report.[40] According to the Draft Plan, "[m]any water providers have adopted best practices, including landscape efficiencies, water loss management, and inclining block rate structures."[41] But much of the expected new demand will occur outside of these water supply areas, raising the question of what will motivate these water supply entities to implement aggressive conservation measures.

We believe a better way to encourage adoption of best conservation practices, including for land use, would be for the Final Plan to adopt a clear policy favoring aggressive use of practicable best conservation practices by all entities having to meet new consumptive use demands. To encourage water suppliers to follow this policy, we suggest that local governments, special districts, and their water suppliers submit proposals for conservation actions to the basin roundtable, together with their proposals for acquiring additional water supplies. Assuming these proposals meet the review criteria and are included in the basin plans, the activities they propose would be eligible

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[37] See, e.g., *Best Practices Guidebook for Municipal Water Conservation in Colorado*.

[38] The SWSI 2010 report identified low, medium, and high levels of conservation actions that could be taken and estimated the likely demand reductions associated with each level. Colorado Water Conservation Board, *Appendix L: SWSI 2010 Municipal and Industrial Water Conservation Strategies* (2011), 12. http://cwcb.state.co.us/water-management/water-supplyplanning/Documents/SWSI2010/AppendixL_SWSI2010MunicipalandIndustrialWaterConservationStrategies.pdf. Draft Plan at 74, Table 5-1.

[39] The "low" level is projected to produce about 160,000 acre-feet reduction in demand by 2050 statewide while the "high" level would be expected to produce a demand reduction of about 460,000 acre-feet. Draft Plan, Table 5-1.

[40] Draft Plan at 145-46.

[41] Draft Plan at 145.

for state funding. In our view, state funding support should be used to encourage implementation of best conservation practices.

Transferring Water from Agriculture

One of the six primary "challenges" identified in the Draft Plan is "agricultural dry up:"

> Irrigated agriculture is being lost by the purchase and permanent transfer of agricultural water rights. At the current rate of transfer, there will be a major reduction in Colorado's agricultural lands in the future. This could impact Colorado's economy and food security. In addition, rural communities could dry-up along with agriculture if enough agricultural business goes away.[42]

The Draft Plan suggests as much as 700,000 acres of irrigated farmlands might be dried up by 2050 if current patterns continue, including as much as one third of the irrigated lands in the South Platte basin.[43] The Draft states: "The status quo is counter to Colorado's Water Values, …, leading to large quantities of water being transferred out of the agricultural sector to satisfy M&I water supply needs."[44]

Irrigated agriculture accounts for 89 percent of all water consumed in Colorado.[45] Municipalities consume an additional 7 percent, and industrial uses account for about 4 percent.[46] Approximately 3.3 million acres of land in the state are irrigated.[47] All forms of agriculture in Colorado generate combined revenues of about $7 billion per year, in an economy with a total value of $294 billion, or about 2.3% of the state's total revenues.[48] Colorado's agricultural economy employs about ½ of 1 percent of the state's workforce.[49] While maintaining a strong agricultural economy is important to Colorado, some of the

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[42] Draft Plan at 3.
[43] Draft Plan at 189
[44] Draft Plan at 89.
[45] Draft Plan at 71.
[46] Id.
[47] USGS, Estimated Uses of Water in the United States 2010, Table 7.
[48] U.S. Bureau of Economic Analysis, Colorado Gross Domestic Product – 2013, available online at http://www.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=1#reqid=70&step=10&isuri=1&7003=200&7035=-1&7004=naics&7005=-1&7006=08000&7036=-1&7001=1200&7002=1&7090=70&7007=2013&7093=levels. *See also* Summit Economics and The Adams Group, Water and the Colorado Economy, at 29.
[49] Elizabeth Schuster et al., Understanding the Value of Water in Agriculture: Tools for Negotiating Water Transfers, University of Arizona (Jan. 2012).

water presently consumed to grow crops needs to be available for other uses. The question is not whether this should happen but how.[50]

The Draft Plan commits Colorado to develop mechanisms that promote making some agricultural water available for new uses,[51] but in a manner that actually strengthens the state's agricultural sector. We support this goal. The modest state-level economic importance of irrigated agriculture dramatically underrepresents its local and regional importance, especially in that large part of the state that is still predominantly rural in character. Without irrigated agriculture, many rural parts of the state would have little economic activity. Moreover, it neglects the widespread preference for irrigated meadows and fields over many dry landscapes and the importance of ranching and farming for maintaining productive open spaces. A major attraction of making irrigation water available through ATMs is the revenues these transactions would return to the irrigators, to their agricultural operations, and to their communities. We would expect these revenues to exceed those that would be returned through traditional agricultural use of the water and that some of these additional revenues would be invested in improving agricultural operations. Thus, new water municipal and other demands for water could become a source of revenue for the strengthening of Colorado's agricultural economy.

The Draft Plan provides a list of "types of ATMs promoted in Colorado" that illustrates a range of options but without much discussion about their different purposes, their strengths and weaknesses, and what would be necessary for their successful implementation.[52] The Draft suggests the need for more data, developed through pilot programs.[53] It notes that "[e]xecuting ATMS can be difficult because of institutional, legal, financial, and court-related barriers."[54] Thus the Draft serves more to raise questions about the viability of ATMs as a meaningful alternative to permanent transfers than to point the way to their implementation.

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[50] Peter W. Culp, Robert Glennon, and Gary Libecap Shopping for Water: How the Market Can Mitigate Water Shortages in the American West (Oct. 2014). *See also* Colorado Water Institute, Agricultural/Urban/Environmental Water Sharing: Innovative Strategies for the Colorado River Basin and the West (undated).

[51] The Draft Plan expresses a strong desire for the state to develop "alternative transfer mechanisms" in place of permanent transfers. Draft Plan at 189.

[52] Draft Plan at 190, Table 6.4-1.

[53] Draft Plan at 191.

[54] Id.

It is true that ATMs are not business as usual. But neither are they absolutely unknown or completely different in nature from traditional transfers. The purpose is to make water historically used under existing irrigation water rights available for other uses, just as with permanent transfers. Such transfers must be accomplished in a manner that does not unreasonably impair other existing water uses, just as with permanent transfers. The only difference is that ATMs are to be designed and implemented in a manner that avoids the permanent dry up of irrigated land, and ownership of the water right is to stay with the irrigator.

In 2013, the Colorado General Assembly enacted legislation authorizing pilot programs to test fallowing-leasing arrangements.[55] The Colorado Water Conservation Board and the Colorado Division of Water Resources adopted criteria and guidelines for such pilot projects.[56] The Super Ditch in the Lower Arkansas Valley has obtained a grant under this program and is moving ahead with a pilot project in the 2015 irrigation season.[57] Experience with this project should help determine whether this approach might prove workable and establish a model for other similar projects.

As exemplified in this pilot process, the state must continue to actively support the development of ATMs involving the most straightforward approach—making the consumptive use of water saved by temporarily fallowing lands available for other uses.[58] As enabled in the pilot legislation, special procedures are needed to facilitate such rotating transfers of consumptive use. We offer a proposed approach, similar to that set out for the pilot program, for facilitating such transfers in Appendix B.

If Colorado is serious about minimizing permanent transfers of water out of irrigated agriculture, then the state must take the steps necessary to enable such viable alternatives. Most importantly, we must remove unnecessary limitations now existing in our change of use

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[55] HB 13-1248, codified at Colo. Rev. Stat. §37-60-115 (8).

[56] Colorado Water Conservation Board, CRITERIA AND GUIDELINES FOR FALLOWING-LEASING PILOT PROJECTS, Nov. 13, 2013.

[57] Draft Plan at 194. Chris Woodka, "CWCB approves Catlin Canal lease to Fowler, Security, and Fountain for augmentation and exchange," Coyote Gulch, available online at https://coyotegulch.wordpress.com/2015/01/28/cwcb-approves-caitlin-canal-lease-to-fowler-security-and-fountain-for-augmentation-and-exchange/. It is noteworthy that the State Engineer imposed 60 conditions on this temporary transfer.

[58] We have been moving slowly but surely in the direction of defining water rights in terms of consumptive use, as well as diversion/withdrawal rates. Especially with increasingly limited water supplies, the consumption associated with a water use becomes more and more important. Environmental concerns have placed restrictions on new depletions of water in many western rivers and streams. And, of course, changes of water rights and plans for augmentation are conditioned on not causing any increased depletions of water.

laws and procedures so that alternative transfers become more attractive to new users than permanent transfers. Approaches such as the one we offer in Appendix B need to be worked out, authorized legislatively, and implemented by the Colorado Water Conservation Board and the Colorado Division of Water Resources.

Transmountain/Transbasin Diversion Projects

The IBCC reached agreement on a preliminary set of principles that should guide future discussions respecting development of additional transmountain diversions (TMDs). As outlined in the Draft Plan, the principles are:

1. The eastern slope is not looking for firm yield from a new TMD project and would accept hydrologic risk for that project.
2. A new TMD project would be used conjunctively with eastern slope interruptible supply agreements, Denver Basin Aquifer resources, carry-over storage, terminal storage, drought restriction savings, and other non-western slope water sources.
3. In order to manage when a new TMD will be able to divert, triggers are needed.
4. An insurance policy that protects against involuntary curtailment is needed for existing uses and some reasonable increment of future development in the Colorado River system, but it will not cover a new TMD.
5. Future western slope needs should be accommodated as part of a new TMD project.
6. Colorado will continue its commitment to improve conservation and reuse.
7. Environmental resiliency and recreational needs must be addressed both before, and conjunctively, with a new TMD.[59]

While concerns have been raised by some about these principles and their meaning, and all agree they require further development, these concepts represent an important step forward in finding potential common ground upon which any future TMDs might be based. It is not at all clear that any additional TMDs are necessary in the foreseeable future if steps are taken to aggressively pursue conservation, to develop effective ATMs, and to build new projects that meet the standards proposed here. In our view, that should be Colorado's goal—to meet its water needs without additional TMDs. But if all other measures prove insufficient, the framework set out above seems to us to provide a reasonable starting point for developing agreement about any new TMDs.

In particular, we believe it would be necessary for the proponent of any new TMD to demonstrate that the demands sought to be addressed had been managed aggressively through implementation of all conservation best management practices, including those

[59] Draft Plan at 280.

related to land use. In addition, there would need to be agreement on measures taken to ensure that the watershed(s) from which water would be removed would remain in at least the same or better condition once the project was in operation. Climate change reductions in flows threaten many existing post-Colorado River Compact diverters, including numerous Front Range cities. Under the principles it is not clear how these diverters would be protected from a compact curtailment. Finally there would need to be agreement on the nature of the additional benefits the proponent would make available to the area of origin.

Funding for Projects Adopted in Basin Plans

At present, the CWCB has several funds of money available to support water-related projects. We favor pursuing options for creation of a substantial additional fund that would be used to support new projects and activities, for meeting both new consumptive uses and for nonconsumptive uses, determined to be consistent with state and basin interests and with the review criteria used by basin roundtables and approved by the state. We support investigation of imposing a modest surcharge on all water uses that would vary dependent on the value of the water use. [60]

The Draft Plan offered the following list of factors to determine whether proposed water supply projects would be consistent with the intention of the plan (and presumably would be given direct state support):

- Addresses an identified gap through one of the following:
  - -Is identified in a BIP,
  - -Meets a defined need in a basin needs assessment,
  - -Meets a defined need in the Statewide Water Supply Initiative, or
  - -Is identified as being needed as part of the "no and low regrets" strategy
- Demonstrates sustainability
  - -Provides a conservation plan or plans aimed at reducing demands
  - -Includes environmental mitigation and enhancements in the planning phase,
  - -Mitigates or avoids impacts to or enhance water quality, and
  - -Mitigates or avoids impacts on agricultural and rural community
- Involves local government consultation
- Includes a stakeholder and public input process

[60] For a discussion of employing a public goods charge to help pay for water-related improvements, *see* Kim Quesnel and Newsha Ajami, Funding Water in Times of Financial Uncertainty: The Case for a Public Goods Charge in California, Water in the West (Jan. 2015).

- Establishes fiscal and technical feasibility[61]

These considerations are similar to those we suggest be used by the basin roundtables in their screening process, though they lack sufficient specificity for objective application. Nevertheless, they represent a good starting point for the final development of state review criteria by the CWCB that would ultimately determine the availability of state funding.

Facilitating Review and Permitting of Projects Included in Basin Plans

The Draft Plan, following the direction of Governor Hickenlooper, gives considerable attention to the proposal that permitting processes for new water development projects should be "streamlined."[62] The Draft Report states: "One of the main purposes of the Colorado's Water Plan is to find ways to support the implementation of the BIPs."[63] It adds: "Increased efficiency in the permitting process, while not predetermining the outcome and supporting the statutory and regulatory requirements of each permitting agency, is a significant way to assist project proponents."[64] It proposes several ways that this objective might be met:

1. Improve coordination
2. Increase early involvement
3. Coordinate technical methods
4. Increase state and other resources
5. Increase clarity
6. Improve the quality of Draft EIS documents
7. Encourage multi-purpose projects[65]

Ultimately it suggests the state would endorse projects that meet specific requirements, thus somehow facilitating the permitting review processes.[66] The difficulty is that the

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[61] Draft Plan at 317.
[62] As set out in the Draft Plan, the Governor's Executive Order stated: "The CWCB is directed to align the state's role in water project permitting and review processes with the water values and to streamline the state role in the approval and regulatory processes regarding water projects." Draft Plan at 1.
[63] Draft Plan at 318.
[64] Id.
[65] Draft Plan at 315-16.
[66] The factors are those listed above at note 61.

state has little direct responsibility for environmental permitting, virtually all of which is managed by federal agencies.

We believe our proposal would more effectively accomplish the objective of facilitating the regulatory processes. By putting proposed projects through the review process at the basin level, most issues that will be considered in the various permitting processes will have already been addressed. Endorsement of the project by the basin roundtables, with approval of the CWCB, will mean the project satisfies a broadly agreed-to set of considerations. Presumably the project would have the support of the array of interests represented by the basin roundtables, potentially including affected counties, local governments, water users, and environmentalists. Much of the information needed to satisfy local, state, and federal permitting processes would have already been reviewed. With such a foundation, the permitting processes should be greatly facilitated and the likelihood of active opposition greatly reduced.

Three – Maintaining and Enhancing Watershed Health

Conclusion No. 3: Watershed health, including environmental resiliency, is included as an objective of the Draft Water Plan, and the planning process has begun identifying areas of special environmental interest that warrant protection, but the mechanisms by which the current condition of Colorado's watersheds will be assessed and actions needed to improve and maintain watershed health will be identified and taken are not adequately defined, nor are the effects of a changing climate much considered.

Recommendation No. 3: *The CWCB and the Basin Roundtables should implement procedures under which watershed plans, developed at the level at which water rights are administered (water management districts), will be prepared. These watershed plans should assess the condition of the land and water within watershed boundaries and, where those conditions are not acceptable or where improvements are desired, define actions needed to achieve desired conditions. Plans should incorporate climate change risk management using the best available science, data, and impact monitoring. Plans should be developed first in watersheds in which new or additional water development is planned to help identify ways such new development can occur consistent with the maintenance of desired watershed health. Watershed plans should also identify opportunities for improved water management that would provide additional benefits.*

Discussion: The Draft Plan chapter, "Water resource management & protection," [67] has the feeling of an appendage to the main body. It is not addressed to solving the "gap" but clearly arose out of the discussions that led to preparation of the Draft Plan. As indeed it should have. As we suggested earlier, the health of Colorado's watersheds and their water is the foundation upon which all uses depend. In our view, all discussions about water use in Colorado should begin with the recognition of the fundamental importance of watershed health.

Although overly-narrowly limited to mountain watersheds, the Draft Plan explains the importance of watershed health: "Healthy watersheds provide ecosystem services that benefit ecological processes, local and state economies, and social stability. Ecosystem services include flow regulation, flood attenuation, water purification, erosion control, and habitat protection."[68] The Draft Plan suggests a role for stakeholder-based, collaborative watershed planning and management. It highlights concerns about forest

[67] Draft Plan, Chapter 7.
[68] Draft Plan at 245.

health, especially related to fire and erosion, concerns that have motivated watershed management actions in forested areas serving as major sources of drinking water.[69]

But watershed management is much broader than forest management. In theory, it is intended to comprehensively consider land and water conditions within the identified watershed, to assess whether these conditions are adequately supporting the desired uses of these resources, to identify factors that are preventing achievement of these desired conditions, and to develop plans and implement actions that will restore and maintain these conditions. Often, these processes are motivated originally by particular concerns: sedimentation; mine drainage; impaired fisheries. But they can be (and have been) used to take a more comprehensive view, engage a wide range of people interested in the health of the watershed, build support for actions, and help find funding for their implementation. Colorado already has an active network of watershed groups at work around the state.[70]

The use of watershed planning is now well established as an essential step in determining local land and water conditions and identifying actions necessary to improve and maintain those conditions. Our experience with the recovery programs for the Platte and Colorado rivers, developed under the Endangered Species Act, demonstrates the value of working proactively to achieve the conditions necessary to sustain populations of threatened and endangered species. Our work with classifications and standards, impaired waters, and nonpoint source management under the Clean Water Act demonstrates ways to take actions needed to restore and maintain the water quality of our rivers and lakes. Work related to development of this water plan has helped identify so-called "focus areas."[71] These areas were identified, based on a list of attributes that included the presence of threatened and endangered species, special riparian and wetland plant communities, and decreed instream flows.

Watershed management plans can help guide the actions determined to be necessary to meet future water needs, both consumptive and nonconsumptive. Their characterization of existing conditions can help to establish a baseline. These conditions

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[69] Draft Plan at 248, 249-50.
[70] For a listing of watershed groups, *see* *http://www.coloradowater.org/Watershed%20Group%20Directory*.
[71] Draft Plan at 221.

can be evaluated to determine whether they are satisfactory. Are water quality standards being met? If not, what actions should be taken to achieve established standards? Are flows adequate to support and maintain desired aquatic conditions? If not, what actions should be taken to improve and maintain those conditions? Can existing consumptive water uses be better managed to achieve desired watershed conditions? How can additional consumptive water uses be accommodated consistent with maintaining desired conditions?

Each watershed is distinctive. Land and water management needs vary widely across Colorado's watersheds. Historically there has been no mechanism available to enable coordinated consideration of management actions necessary to effectively address the conditions existing in our watersheds and to work toward taking actions needed to bring those conditions to desired levels. Rather our actions have been decentralized, uncoordinated, often in opposition, without any clear vision of a desired future.

We have begun the process of organizing ourselves into more manageable units, beginning with basin roundtables, and have brought together the wide array of people concerned about the future of their communities within these basins. In some locations we have already started the work of developing more localized watershed planning processes, often led by local watershed groups. Now is the time to begin building on this work to move toward creation of coherent, coordinated, broadly based, manageable basin subunits that can help guide our future efforts to manage our watersheds and their water resources.

Four – Real Water Management

Conclusion No. 4: The Draft Plan pays only limited attention to existing water uses and management, focusing instead primarily on ways to meet future consumptive use water demands.

Recommendation No. 4: *The CWCB should direct the Basin Roundtables to develop strategies under which existing water uses and supporting stream flows can be managed to more effectively achieve greater benefits from the use of Colorado water, taking into account the changes that are resulting from climate change.*

Improved watershed management opportunities should be explored in the watershed planning process, and actions should be taken for their implementation.

Discussion: The Draft Plan focuses almost entirely on ways to provide water to meet the "gap," neglecting the matter of management of existing water uses except in so far as it would reduce demands or provide more water for new uses. In its section on agricultural conservation, efficiency, and reuse, the Draft Plan does a good job of explaining how water is used in irrigated agriculture and why improving efficiency, measured as the difference between the amount of water diverted or withdrawn and the amount of water evapotranspired by crops,[72] does not normally produce water for new consumptive uses.[73]

But the purpose of water management is to improve the benefits associated with all uses of water, not just to free up water for additional consumptive uses.

There are many reasons to promote water use efficiency in irrigated agriculture. Most obviously, it can improve crop yields by ensuring that the water actually needed by crops is available in the amounts and at the times most beneficial for growth.[74] Second, it can improve water quality in streams and aquifers by reducing the amount of water that returns to these sources after passing through soils in which it picks up salts, fertilizers, pesticides, selenium, and other pollutants.[75] Third, reduced diversions may, in some locations, enable improved stream flows necessary to facilitate fish passage and improve

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[72] Draft Plan at 173

[73] Draft Plan at 171-77. "While there are numerous reasons and methods to improve irrigation efficiency there are limited opportunities for true agricultural water conservation for the purpose of creating new supplies." At 176.

[74] As noted in the Draft Plan, the result can actually be an increase in the consumptive use of water.

[75] Perhaps the best example of such a program in the state is the one in the Uncompahgre that is referenced in the Draft Plan at 175-76.

water quality.[76] Improved head gates can make it possible to divert only the amount of water actually required, leaving more water in the stream. Diversion dams can be redesigned to enable fish passage while still ensuring that sufficient water can be diverted. Removal of undesirable phreatophytes along stream banks may also reduce the consumption associated with these "water-loving" plants, thus improving stream flows.[77]

Except for improved crop yields, these are all general improvements that don't have individual beneficiaries. But there are constituencies potentially interested in such improvements. Urban or industrial water users downstream from agricultural areas may be willing to invest to improve stream water quality. Conservation groups such as The Nature Conservancy, the Colorado Water Trust, and Trout Unlimited are engaged in working with the agricultural community to make improvements where there can be measurable benefits to the instream values important to such groups. The Natural Resources Conservation Service has an active program providing assistance to irrigators wanting to improve the efficiency of their water diversion and use facilities. The CWCB provides financial support for such actions.[78] In addition, we believe that properly structured "alternative transfer mechanisms" (ATMs) can provide funding for irrigators to make improvements in their irrigation facilities that will help increase the productivity with which agriculture uses water.[79]

Stream flows around the state have been altered, sometimes radically, to meet the needs and interests of those with water rights. Yet we have learned that there often is flexibility in the way water is stored, diverted, and used that can improve stream flows for instream benefits. The quantities of water diverted can sometimes be reduced in low flow periods to maintain viable stream conditions. Direct flow diversions can sometimes be replaced with groundwater withdrawals to protect a critical stream reach. Substantial progress in implementing such changes has been made; much more can be done.

Stream management, especially in the heavily developed Front Range of Colorado, has become increasingly complex because of the growing use of plans for augmentation, exchanges, and other forms of substituted water supplies to enable new,

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[76] The Draft Plan references the opportunities for agricultural needs and noncunsumptive needs to be mutually supportive. At 179.
[77] See Draft Plan at 177.
[78] Draft Plan at 179.
[79] See discussion in Part 2 and Appendix B.

out-of-priority, and changed water uses. Each of these plans has been decreed individually, establishing a procedure under which sources of replacement water are to be used to ensure that the new, out-of-priority use does not increase stream depletions or alter the timing of flows, with responsibility given to the Division Engineers to ensure they are operated properly. Yet there is virtually no coordination among these plans, no modeling to determine whether the stream flows necessary to protect water rights can be met more effectively through coordinated management of the numerous sources of replacement water.[80]

Still another need emerging for more active stream management is the change in stream hydrographs resulting from warmer temperatures. Spring runoff already is occurring earlier and is likely to get even earlier. We will need to adjust historical patterns for storing water in reservoirs to better match the changes in runoff. In addition, the timing of calls on the rivers by senior users is likely to change, creating a shorter window for some appropriators to be in priority. Later irrigation season flows are likely to be lower, leaving only those with the most senior rights able to divert water during this period. Diversions of these low flows are likely to further impair the in-stream conditions relied on by resident aquatic life. Under such conditions, there will be an increasing need to more actively manage flows and make adjustments as necessary to protect the array of interests dependent on this use of water.

It is time for Colorado to move beyond water rights administration and develop the means to manage storage, releases, diversions, and replacement water to enhance other water-related values while continuing to meet authorized water uses. Otherwise, the full promise watershed management cannot be fulfilled. We believe the most effective way to accomplish this important set of objectives is, initially, through the watershed planning process in which opportunities can be identified and then, through specific actions, to implement better ways to manage water to provide an enhanced set of benefits while still serving uses established under the appropriation system.

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[80] *See, e.g.,* Reagan M. Waskom, ***Report to the Colorado Legislature*** *Concerning:* HB12-1278 *Study of the South Platte River Alluvial Aquifer*, Colorado Water Institute, December 31, 2013.

Five – Climate Change Risk Management

Conclusion No. 5: The Draft Plan summarizes the current state of the science regarding the effects of climate change on Colorado's water resources but considers the consequences of these effects primarily in relation to the water supply-demand gap. It offers little guidance about actions the state, water suppliers, and water users should take in response to these effects.

Recommendation No. 5: *The CWCB, using the best available science, should make explicit the increased risk associated with climate change to the array of interests in the uses of Colorado water and put in place the actions necessary to respond to and manage these risks. Climate change considerations should be built into the criteria to be used by the basin roundtables and the CWCB for including projects and activities in the Colorado Water Plan.*

The basin roundtables, together with the CWCB, should establish processes for monitoring climate-related conditions in the state's water basins and should develop responses as necessary to manage the adverse effects of climate change.

The Governor should establish a task force of climate scientists, water suppliers, water users, and other representative interests to identify those aspects of water use in the state that are most at risk because of climate change and to develop guidance for the basin roundtables and water suppliers and managers for managing these risks.

Discussion: A changing climate poses substantial risk to almost all aspects of current water management, including supply, demand, the operation of prior appropriation, water quality, reservoir operations, interstate compact deliveries, and environmental and recreational flows. These impacts will need to be monitored, and water management will need to be adjusted as the century proceeds. Despite uncertainties and large ranges of predictions, we already know enough to understand that climate change will significantly affect water supplies, and we should manage to minimize that risk.

Such risk management would include not overusing water supplies in a manner that would create compact liabilities, managing diversions and uses to keep reservoirs as full as possible, responding rapidly to the onset of drought, and monitoring all aspects of water use and supplies. The CWCB and other state agencies should take the lead on supporting data collection and developing climate impact and risk management models. These tools should be made available to water providers throughout the state.

The most important climate change impacts in Colorado will derive from changes in the water cycle. In essence, climate change is water change. These physical impacts are well known and include more rain and less snow, earlier runoff, higher

evapotranspiration, more frequent, longer, and more severe droughts, earlier date of maximum snow pack, longer and more vigorous fire seasons, lower flows in late summer, reduced water quality from late season flow reductions, higher stream temperatures, less dissolved oxygen, more invasive species, increased dust on snow, and changes in groundwater recharge. It is also likely that in some years we will have floods of a magnitude not previously experienced even as drought in many parts of the state becomes more common and of higher intensity.

These physical impacts will then manifest as legal, managerial, and social impacts. Many of the established 20th century norms around water management will change. Indeed, it has been said that, with respect to water management, "stationarity is dead," meaning that past records of climate variability will no longer be able to reliably guide 21st century water management.

The shifting hydrograph will pose particular problems to diverters by providing more early runoff and then less flow in the longer and hotter peak periods of summer. Some junior storage rights may gain at the expense of senior direct flow diverters. Some seniors historically able to divert in late summer may not find enough flow to divert. Senior agricultural diverters in priority may be able to legally expand use of their water rights to get additional yield from forage and alfalfa crops. Cities desiring firm yield in dry years will continue to seek out only the most senior water rights to acquire. Exchanges that operate in late summer may be impaired by low flow reductions and decreases in water quality. Reservoirs will store earlier and release flows later.

The changing hydrograph also raises questions of effects on instream values. There will be a premium on storing peak flows, reducing that part of the cycle essential for many critical riverine functions. Increased diversions will further reduce flows during the irrigation season, leading to warmer streams and more limited habitat for aquatic life. Stream flows seem especially at risk in the later portion of the irrigation season when natural flows already are at their lowest level. Environmental needs may require additional storage releases in late summer to improve water quality, reduce stream temperatures, and provide adequate minimum flows. Maintenance of sufficient environmental flows will be challenging.

Colorado's interstate compacts raise special considerations respecting effects of climate change. The Colorado River Compact burdens Colorado and other Upper Basin states with fixed deliveries, even in the event of large flow reductions. Climate models indicate the possibility for a north-south water gradient, with less water in the south and more in the north. In the Colorado River Basin, this gradient may mean physical shortages in the Lower Basin and legal shortages in the Upper Basin, despite the physical presence of water in the North. The Lower Colorado Basin is nearing a first-ever shortage declaration, in large part due to a 20% decline in flows over the last fifteen years. This is likely to place pressure on Upper Basin water management, despite the bifurcated basin structure under the Colorado River Compact. We believe it is time for the basin states to commit to a "no net depletion" policy in the basin to avoid becoming even more overcommitted.[81] In the Rio Grande, Colorado may be faced with declining flows, further straining Compact deliveries. Changes in supply and demand may impact other compacts and decrees.

Federal permitting requirements are likely to respond to account for the environmental effects of climate change. EIS documents under NEPA, permitting under the Clean Water Act, and ESA compliance actions all will be affected.

The Draft Plan discusses the likely consequences of increased warming on both the supply and demand of water:

> In recent decades, Colorado has warmed and will likely continue to do so in the future. Average yearly temperature has increased 2˚F in the last 30 years, and 2.5°F in the last 50 years across the state. This has affected the timing of snowmelt and peak runoff, which occur earlier, and there has been an increase in heat waves and wildfires. Climate projections show Colorado warming an additional 2.5°F to 5°F by mid-century, with summer temperatures increasing more than winter. While projections are less clear whether precipitation will increase or decrease, warming temperatures that drive physical processes, such as evapotranspiration, are projected to result in an earlier run-off, longer irrigation season, and a decrease in annual stream flow, especially in the state's southern basins. Even moderate increases in precipitation will not be sufficient to overcome the drying signal. All of these changes are likely to affect water available for beneficial use in Colorado in the coming decades.[82]

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[81] For a proposal to this effect, *see* Lawrence J. MacDonnell, The Disappearing Colorado River, *Western Economics Forum*, Fall 2010.
[82] Draft Plan at 58.

The Draft foresees the possibility of increased demands associated with warming as well.[83] It suggests the overall effect of warming will be to increase the gap and attempts to account for these effects in its scenario planning process.[84] But the Draft does little to provide a framework for managing this risk. The Draft states that "[i]n partnership with the Climate Change Technical Advisory Group, the CWCB will monitor the potential impacts of climate change to Colorado's water needs."[85] While necessary, these actions do not provide a meaningful risk management framework.

Climate change science is unlikely to change much in the next ten years despite some refinements in modeling. Despite uncertainties and large ranges of predictions, we already know enough to understand that climate change will significantly affect water supplies, and we should manage to minimize that risk through efficient use of storage, improved management of existing uses, and aggressive management of new demands. The state should take the lead on supporting data collection and developing climate impact and risk management models. These tools should be made available to water providers throughout the state. The basin roundtables should identify specific risk concerns within their basins, put in place monitoring to track these risks, and develop actions that will be implemented at the basin and watershed levels to manage these risks as necessary. The Governor, through the CWCB should empanel a group of climate scientists, water leaders, and representatives of key interests to help develop guidance for the basin authorities and watershed management authorities.

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[83] Municipal demands are projected to increase as much as eight percent. Draft Plan at 72. Agricultural demands could increase by as much as 26 percent. Draft Plan at 79. Warming is also likely to affect instream values. For example, warming water would reduce the habitat available for cold-water fisheries. Draft Report at 83.

[84] "As discussed throughout this plan, warming temperatures can affect water supply, water availability, and demands. Should average annual temperature continue to increase at projected levels (2.5-5° F), by mid-century, it is reasonable to expect that the existing gap would increase." Draft Report at 102.

[85] Draft Report at 102.

Appendix A – Acknowledgements

We would like to thank the Gates Family Foundation, and especially Tom Gougeon and Beth Conover, for their support of this project. We benefited from discussions with many people who have been directly involved in this process. Included in our formal interviews were Carlyle Currier, James Eklund, Joe Frank, Tom Gougeon, Taylor Hawes, Torie Jarvis, Melinda Kassen, Eric Kuhn, Jim Lochhead, Bart Miller, Peter Nichols, and Travis Smith. They shared their insights and experience generously. Mr. Eklund joined the Colorado Water Working Group for a portion of a day-long session on April 7, 2015 offering his views on the planning process, the draft plan, and in response to some preliminary ideas proposed by the work group. Thanks also to David Gillilan for his editing assistance.

Appendix B – A Proposed Process for ATMs

The key to making alternative transfers a viable option to permanent transfers is to establish procedures that make ATMs faster, easier, and cheaper to complete than permanent transfers. We offer here one possible way this outcome might be accomplished.

We suggest focusing on fallowing of irrigated land under which a predetermined amount of consumptive use associated with particular acres of irrigated land would be potentially available for other use whenever that land is temporarily removed from irrigation.[86] The CWCB and the Colorado Division of Water Resources have already developed criteria to govern such fallowing arrangements.[87] We envision the development of a consumptive-use credit system[88] under which the Division of Water Resources would determine and assign such credits[89] to each irrigated acre of land the owner would like to be potentially available for temporary transfer. Credits then offered for temporary transfer would be assembled, either by the irrigators themselves (such as through a Super Ditch), by the potential purchasers, or by some entity such as a water bank[90] created especially for this purpose.

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[86] This is the approach taken by the Super Ditch Company. Draft Plan at 189. We recognize there are other possible ways of freeing up some irrigation water for other uses such as deficit or seasonal irrigation. A helpful discussion of these options is provided in Brad Udall, *The Colorado River Critical Conservation Program: Recommendations and Considerations for a Successful NRCS Regional Conservation Partnership Program*, November 2014.

[87] *Criteria and Guidelines for Fallowing-Leasing Pilot Projects*, Nov. 19, 2013 (Criteria and Guidelines).

[88] For a discussion of using consumptive use credits, *see* Mark Squillace, Water Transfers for a Changing Climate, 53 NAT. RESOURCES J. 55, 102-03 (2013). *See also* Lawrence J. MacDonnell, Public Water—Private Water: Anti-Speculation, Water Reallocation, and High Plains A&M, LLC v. Southeastern Colorado Water Conservancy District, 10 U. DENV. WATER L. REV. 1, 15 (2006); *Protecting Local Economies*, Report to the Legislature – State of Washington 57 (2008).

[89] As part of the fallowing-leasing pilot project, these agencies have developed the Lease Fallowing Tool:

> The Lease Fallowing Tool ("LFT") is another computational model and predictive tool developed by DWR and the Colorado Water Conservation Board with a technical committee consisting of approximately 20 water engineers. The LFT is used to implement ag-municipal water sharing pursuant to HB 13-1248. It employs a number of conservative assumptions, e.g., irrigation efficiency, surface runoff and deep percolation, specific aquifer yield, that together underestimate historical consumptive use (HCU) and overestimate return flows by at least 5% to 10% or more according to the consulting water engineers involved in its development.

Getches-Wilkinson Center, A Roundtable Discussion on Colorado's No-Injury Rule (undated), at 5, fn. 3 (Roundtable).

[90] A useful discussion of water banking is provided in O'Donnell & Colby, *Water Banks: A Tool for Enhancing Water Supply Reliability* (January 2010). The water bank established in 2001 was extremely restricted (e.g., only storage water) and thus unused. *See* Colorado Water Conservation Board, Brief History of Ark Basin Water Bank, Feb. 21, 2012, available online at http://cwcb.state.co.us/LoansGrants/alternative-agricultural-water-transfer-methods-grants/Pages/main.aspx.

The major hurdle in change-of-use cases is the no injury rule.[91] To satisfy this requirement, the applicant for the change must demonstrate that there will be no change in stream conditions associated with the proposed change of use, i.e., in quantity of flows, their location, or their timing. This requirement may sound simple but, in water court proceedings, is enormously complicated to meet in practice.[92] As noted in a recent report: "As currently implemented, <u>any</u> type of impact, no matter how small or distant in the future, is deemed to be 'injurious'."[93] This report added:

> Proving lack of "injury" can lead to costly engineering and expensive and lengthy litigation, and can result in the imposition of burdensome terms and conditions. In many cases, the risk of these negative effects can deter applicants from even attempting to change the use of a water right, and in other cases changes that would foster maximum utilization of the state's water resources do not proceed because the costs required are simply too high.[94]

In addition, the Colorado Supreme Court has applied the anti-speculation doctrine to permanent changes of water rights, requiring applicants to specifically identify the new uses to which the changed right(s) will be placed and their locations.[95] Moreover, the Court has limited the historic consumptive use associated with a water right in a change case to the use(s) and on the lands authorized under the decreed water right and has upheld the requantification of a water right based on contemporary and legally authorized use.[96] Legislative provisions intended to mitigate some of the local adverse effects of permanent transfers of water out of irrigation add still another set of requirements that must be met.[97]

We suggest that proposals for alternative transfers be eligible for use of special procedures that simplify and streamline the change of use process. First, we would handle

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[91] This limitation is expressed in statute as follows: "A change of water right, implementation of a rotational crop management contract, or plan for augmentation, including water exchange project, shall be approved if such change, contract, or plan will not injuriously affect the owner of or persons entitled to use water under a vested water right or a decreed conditional water right." Colo. Rev. Stat. §37-92-305(3)(a).

[92] First, it is necessary to document the historic rates of diversion over some substantial period of time that includes a range of water supply variability. Then it is necessary to determine the amounts of beneficial consumption (including delivery efficiency and crop evapotranspiration) and losses (such as ditch and field seepage) associated with the use during that time period. The analysis of consumption can be complex, depending on the nature of the use. Return flows to the water source, both on the surface and underground, must be determined both in amount and timing.

[93] Roundtable at 2.

[94] Roundtable at 2-3.

[95] High Plains A&M, LLC v. Southeastern Colo. Water Cons. Dist., 120 P.3d 710 (2005).

[96] Santa Fe Trail Ranches Property Owners Ass'n v. Simpson, 990 P.2d 46 (1999). *See also* Concerning the Application for Water Rights of Central Colo. Water Cons. Dist., 147 P.3d 9 (2006).

[97] Colo. Rev. Stat. §§37-92-305(4.5)(a), (b).

such transactions administratively, similar to the process now authorized for pilot transfers projects. Second, we propose that such procedures apply a standard of no unreasonable harm to other water rights.[98] Third, we favor placing the burden of proving unreasonable injury on opposers.[99] Fourth, we believe the anti-speculation requirements applied by the Colorado Supreme Court in the High Plains A&M case should be waived for ATMs.[100] Fifth, we suggest that the only requirement for determining consumptive use credits for ATMS should be that the water has been beneficially used on identified irrigated lands for the preceding ten years, without regard to whether that use was strictly in accord with associated water right decrees.

Irrigators interested in participating in a fallowing-leasing arrangement would offer certified credits associated with specific lands to an entity serving as the transfer facilitator. Based on demands for use of credit water, the facilitator would have the responsibility of putting together suitable packages of consumptive-use credits and to do so in a manner that avoids unreasonable harm. These arrangements could be for different periods of time, depending on purchaser needs and interests and irrigator willingness. Thus, a water user with a high aversion to reductions of use that might be necessitated by extreme but short-term droughts could enter into an interruptible supply agreement, in effect acquiring an insurance policy against drought risks. Another user might only need short-term use of water and would be satisfied with use of water for that specific period of time. Still another user might need a long-term, reliable supply of water; such a user would probably want a long-term arrangement that offered the kind of supply security needed for the purpose of use. The facilitator would work with the irrigators and their water supply organizations to rotate fallowed lands as necessary to provide sufficient water while ensuring their periodic return to irrigation use.[101]

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[98] For a discussion of this standard, *see* Lawrence J. MacDonnell, Prior Appropriation: A Reassessment, U. DENV. WATER L. REV. (forthcoming 2015).
[99] This shift in the burden of proof also was proposed in the Roundtable report.
[100] High Plains A&M, LLC v. Southeastern Colo. Water Cons. Dist.,120 P.3d 710 (2005).
[101] The fallowing criteria provide that no acre of irrigated land could be fallowed more than three years in ten, and no more than thirty percent of a single irrigated farm could be fallowed during a ten-year period. Criteria and Guidelines at 6.

PUBLIC INPUT
ITEM 53

May 1, 2015

Colorado Water Conservation Board Members
c/o Director James Eklund
1313 Sherman Street, Room 718
Denver, Colorado 80203

Delivered Via Email

Re: Trout Unlimited's Comments on Draft Colorado Water Plan

Dear Colorado Water Conservation Board Members,

Trout Unlimited (TU) appreciates this opportunity to provide continuing input on the draft of the Colorado Water Plan (CWP). To date, our organization has provided state-level comments on the CWP, as well as more specific comments on individual basin implementation plans (BIPs). Likewise, TU's Our Colorado River program submitted a list of five "core values" and 635 signatures of support from Colorado counties, cities, conservancy districts, water users, businesses and individuals representing thousands of Colorado citizens.

With eight months remaining before the end of the year, TU now focuses on three concrete principles that we hope will guide the Colorado Water Conservation Board (CWCB) and its staff as you go about the task of completing the final draft of the CWP. Consistent with our previous comments and the five core values, these three principles are critical to maintaining and improving Colorado's rivers and streams, to supporting our outdoor recreation and tourism economies, and to sustaining the high quality of life that Coloradans enjoy.

Principle #1: The Colorado Water Plan should support innovative water management techniques and irrigation infrastructure upgrades that improve agricultural operations and increase river flows.

Why is this principle important?

- Rural and semi-rural communities in Colorado rely on flowing rivers and streams to support their primary livelihoods: agriculture, recreation, and outdoor tourism. These industries are the backbone of Colorado's economy, heritage, and quality of life.
- Water shortages, the conversion of agricultural water rights to municipal uses, and the deterioration of irrigation infrastructure all detrimentally impact agriculture in Colorado. Likewise, lowered flow regimes, reduced springtime flushing flows, and increased water temperatures all detrimentally impact aquatic and riparian habitat and outdoor recreation and tourism.

- Innovative water management techniques and irrigation infrastructure upgrades can improve agricultural operations and benefit river flows at the same time. Across Colorado, TU is working with agricultural groups and individual water users to develop such projects. The Colorado Water Plan should promote these projects because of their importance to Colorado's agriculture, recreation, and outdoor tourism industries and our economy, heritage and quality of life.

How can the CWP promote this principle?

- We fully expect that the Colorado Water Plan will acknowledge that, under the status quo, increases in municipal and industrial water demand will adversely impact agriculture and the environment. The plan should identify ways to avoid this negative outcome.
- First, the Colorado Water Plan should identify new funding opportunities that enable agricultural and conservation interests to continue to implement innovative water management techniques and irrigation infrastructure upgrades that benefit agriculture and the environment. Funding for these projects is critical.
- Second, the Colorado Water Plan should recommend that the Colorado General Assembly enact substantive legislation that will facilitate these projects. Senate Bill 2014-23 and House Bill 2015-1222 were missed opportunities that Colorado should revisit.

<u>Principle #2</u>: The Colorado Water Plan should provide funding to ensure that each basin roundtable adopts a stream management plan (SMP) and implements projects to meet gaps identified through the SMPs.

Why is this principle important?

- Stream management plans would identify flow needs for environmental and recreational water uses. SMPs will enable both consumptive and non-consumptive water users to cooperatively manage streams and rivers to meet beneficial flow regimes within the structure of the prior appropriation system.
- Agricultural, municipal and industrial water use has been quantified and adjudicated for 130 years in Colorado. Environmental and recreational uses have only recently been recognized as beneficial. As such, water flow needs for healthy rivers and streams remain largely unquantified.
- Basin roundtables have been directed to identify "gaps" in water needs for all users, including environmental and recreational uses. SMPs would develop information to quantitatively identify environmental and recreational gaps.

How can the CWP promote this principle?

- The Colorado Water Plan should instruct each basin roundtable to adopt SMPs that identify minimum flow regimes needed for all stream segments identified as having environmental or recreational value in a BIP.
- While there need not be a prescribed format for the SMPs, each SMP should:
    1) Identify minimum flow needs for environmental and recreational water uses.
    2) Incorporate ecological and recreational values and goals identified in the basin roundtable's BIP.
    3) Identify the actions and opportunities to maintain or improve flow regimes.

- The Colorado Water Plan should provide dedicated funding, through the CWCB Projects Bill, Water Supply Reserve Account or other annually-recurring funding sources, to each basin roundtable to prepare SMPs and to help fund implementation of projects addressing needs identified through those SMPs. The roundtables can contract with outside consultants and utilize other resources as necessary to prepare the SMP documents.
- Providing funding for the implementation of projects under SMPs will help ensure investment in these vital public water needs which lack a "user pays" funding mechanism as for other types of water uses. Funding for SMP projects could also encourage multi-purpose projects that serve both consumptive and non-consumptive water needs.

<u>Principle #3</u>: Consistent with the "Conceptual Framework," the Colorado Water Plan should reject all new trans-basin diversions (TBDs) unless the project proponent (1) is employing high levels of conservation; (2) demonstrates that water is available for the project; and (3) makes commitments that guarantee against environmental or economic harm to the basin of origin.

Why is this principle important?

- The Front Range diverts approximately 550,000 acre-feet of water from the West Slope annually. Plans are in place for additional transbasin diversions. Environmental impacts to the affected rivers have been, and will continue to be, substantial.
- Through the "Conceptual Framework," Front Range water users propose additional TBDs that would only divert water during very wet cycles. Such diversions have the potential to eliminate flushing flows in the affected rivers and undermine Colorado's ability to meet downstream delivery obligations.
- The Colorado Water Availability Study (CRWAS) concluded that, under the Colorado River Compact, the amount of available Colorado River water on the West Slope ranges from as little as zero to as much as 1 million acre feet annually. The Bureau of Reclamation's Colorado River Water Supply and Demand Study estimates that Colorado is overusing its share of the upper Colorado River by as much as 6% per year. If Colorado is overusing its compact share, development of additional TBDs will result in serious impacts to West Slope rivers and to communities across the state.

How can the CWP promote this principle?

- The Colorado Water Plan should reject all new TBDs unless the project proponent (1) is employing high levels of conservation; (2) demonstrates that water is available for the project; and (3) makes commitments that guarantee against environmental or economic harm to the basin of origin. The Colorado River collaborative agreement is an example of how these concepts can be applied in a real-world setting.
- The CWP must clearly state that additional environmental or economic harm to West Slope communities from TBDs is unacceptable.

On behalf of TU's 10,000 members in Colorado, we want to thank the CWCB and its staff for continuing to provide a grass-roots process that will empower the citizens of Colorado with their first water plan. We look forward to the next iteration and to seeing the aforementioned principles incorporated.

Sincerely,

Drew Peternell
Director
TU Colorado Water Project

David Nickum
Executive Director
Colorado TU

PUBLIC INPUT
ITEM 55

COLORADO CATTLEMEN'S ASSOCIATION
"Representing the interests of Colorado's beef industry since 1867"

April 30, 2015

Mr. James Eklund
Executive Director
Colorado Water Conservation Board
1313 Sherman St., Room 718
Denver, CO 80203

Dear Director Eklund:

The Colorado Cattlemen's Association is pleased to offer the following comments related to the draft Colorado Water Plan (CWP). CCA appreciates the effort, outreach and feedback that has gone into the CWP and looks forward to ongoing engagement and refinement of this important topic and process.

The Colorado Cattlemen's Association (CCA), founded in 1867, represents the interests of Colorado's ranching, feedlot and associated businesses in Colorado. CCA member families possess water rights from the most senior to those recently adjudicated. Members utilize surface water and groundwater to produce a variety of agricultural, environmental, recreational and public attributes. Without adequate irrigation and livestock water, implications to Colorado's environment, economy and society will assuredly be imperiled.

CCA supports the focus in the CWP on the need to sustain irrigated agriculture. CCA suggests that this focus continue and manifest itself into an actionable plan with adequate resources being allocated toward outreach, research and water projects. Furthermore, CCA supports the inclusion of the following statement in the plan:

> *The majority of water diverted in Colorado is used to grow our food. Without planned interventions, the path we are on is drying up vast areas of irrigated lands. Colorado's farmers and ranchers contribute $41 billion to the state economy and employ nearly 173,000 people, providing local food and energy, as well as over $1 billion annually in international exports sustaining Colorado's economy. In addition, the value of Colorado's diverse agriculture is much more than purely economic, it's also about communities and the "public good" associated with aspects of a vibrant agricultural sector. Private working lands provide the majority of wildlife habitat and open spaces that offset some of the unwanted aspects of urban growth such as sprawl, traffic congestion, noise, habitat loss and air pollution. The stewards of the land on more than 37,000 farms and ranches care for 31.6 million acres, almost half of Colorado's land area. As we lose irrigated agriculture, we are losing our heritage, our rural communities, and we are losing water that travels through our rivers to downstream farms, providing recreational flows as well as environmental amenities such as wetlands and aquatic habitat."*

- Section 6.4 (beginning on page 189) of the CWP has a monolithic feel toward ATM's versus a broader sense of other methods and innovative approaches for sustaining agriculture water use. CCA supports a much broader approach to include, but not limited to the following:

- Conservation easements on lands that secure the water for lease arrangements (Upon initial dialogue, CCA members do not support easing water alone but rather the land and water as a unit with the opportunity to lease. CCA members are currently refining our policy on the topic.)
- Developing ways to incentivize water staying in agriculture in addition to developing alternative methods for transfer.
- Explore and implement irrigation, conveyance and other efficiencies within the system and use of water.
- Upgrading irrigation and diversion systems.
- Providing adequate staff resources.
- Developing strategies to remove or minimize the numerous disincentives that are causing the loss of farms and ranches in Colorado.
- Lead by example. Colorado needs to experiment and expand its consideration of projects and approaches that deliver desired results

- CCA supports the mechanisms outlined in the draft CWP Section 6.5 to prioritize the development of unallocated water to provide for Colorado's needs beyond the foreseeable future (within the framework of the draft conceptual agreement, CWP page 280). CCA calls upon state leadership to prioritize state support for new multi-use storage projects (new surface reservoirs, refurbished existing storage, and aquifer storage) that include dedicated agricultural water storage. CAWA endorses the investigation of region (intra and interstate) partnerships to look at all possible sources of water from out of state to meet the gap and recommends that the CWP call for continued investigation of interstate water augmentation opportunities.

- CCA supports the language in draft CWP Section 9.4 page 306 calling for the streamlining of federal and state permitting processes for new and renovated infrastructure projects. Additionally, CCA supports convening multiple stakeholders to dissuade political, legal and societal barriers resulting in "win win" projects.

- CCA supports multi-use water projects that benefit agriculture. Additionally, we recommend the final CWP list, prioritize, and provide State support and funding mechanisms for new projects. Unless there is significant new state or federal funding for projects and infrastructure, it is unlikely that these projects will directly address the agricultural gap identified in the Basin Implementation Plans. We believe the State should propose a large funding initiative dedicated to new water infrastructure as an outcome of the Water Plan (as described in Section 9.2).

- Technology and innovation have consistently proven to be the masters of progress. CCA suggests that the CWP better illustrate the importance of technology and innovation to the future success of Colorado's water stability. Innovation and technology areas of focus include research, biotechnology, irrigation water saving technologies, information technologies, pest and phreatophyte management to increase our adaptive capacity and resiliency to deal with reduced water supplies.

- Conservation, while a laudable and critical practice related to water use, is not appropriate to apply equally across all water users. CCA supports a dimensional analysis of all conservation strategies, previous to implementation, in order to consider the intended and unintended consequences. In short, CCA prefers efficiency implementations in agriculture versus traditional conservation applications. Our primary reasoning is that conservation will limit agriculture production and associated amenities.

- Section 6.3.4 should more clearly state (on page 172) that agriculture water, through use and reuse, provides for exponential benefits to the entire ecosystem beyond abundant and safe food production. Removing or reducing agriculture water use will potentially impact stream flows, affecting

downstream water availability and thereby restrict wildlife habitats and wetlands, reduce nutrient cleansing, and reduce critical food, as well as recreational and environmental benefits.

- CCA supports a change in the federal tax code that currently removes the not for profit status of a mutual ditch company when outside income for the mutual ditch company exceeds 15% of their total income. Many mutual ditch companies are struggling to find alternative sources of income to help fund the replacement of aging infrastructures and to improve the efficiencies of water delivery but if outside income exceeds the 15% threshold suddenly they are burdened with paying federal taxes on all of their income.

- CCA requests enhanced engagement throughout the generations of water users. Water knowledge and engagement should not be a "water buffalo" only society. Engagement of the next generations of agriculture producers should be a focus of stakeholders and the state. For instance, CCA has programs such as the Ranching Legacy Program and its corresponding leadership track that offer the perfect entre to this audience.

- CCA requests that the state analyze the legal and engineering questions that will likely arise from multi-use, efficiency, conservation, reuse, etc. opportunities to remove/minimize the barriers and risks on a go-forward basis.

- CCA is concerned about increasing rigidity and inconsistent enforcement from the state engineer's office. Examples are available, but these comments are not an appropriate venue. CCA recommends a comprehensive review and potential oversight in these areas that deliver consistent and CWP aligned outcomes.

- CCA is concerned about water loss in the system. Be it leaking reservoirs and conveyances or municipal infrastructure. A high degree of attention and resources needs to be allocated and swift remedies implemented.

In closing, CCA recognizes and appreciates the hours, dollars and sacrifice that have gone into the development of the draft Colorado Water Plan. Water, is the very backbone of Colorado and must be addresses in a sustainable (economy, environment and society) fashion. Thank you for considering these comments and please call upon our organization for further engagement in this endeavor.

Sincerely

Frank Daley
President

PUBLIC INPUT
ITEM 56

City of Aurora

Steve Hogan
Mayor
Phone: 303-739-7015
Fax: 303-739-7594
Email: shogan@auroragov.org.

April 28, 2015

The Honorable John Hickenlooper
Governor, State of Colorado
136 State Capitol Building
Denver, CO 80203

Dear Governor Hickenlooper:

The City of Aurora would like to commend you and the Colorado Water Conservation Board (CWCB) on the initial draft of Colorado's Water Plan. As you may know, Aurora Water is the third largest water utility in the State of Colorado, serving a population of more than 348,000. In addition to our mission to enhance and protect the present and future quality of life for Aurora citizens by providing safe, dependable and sustainable water, sewer, and storm water services, we strongly support the overarching water values you have identified in Colorado's Water Plan. We would also like to thank you for recognizing the City of Aurora's outstanding performance in the areas of conservation, reuse, alternatives to agricultural transfers, and regional partnerships in the Plan.

Aurora takes conservation very seriously and the City's conservation efforts have yielded extraordinary results. Although Aurora's population increased by 33% from 1997 to 2011, the total water use by our citizens only increased by 2% during the same period, resulting in our per capita water use rate dropping by 23%. The current per capita water use rate is 126 gallons per capita per day (gpcd)! In addition, we tout some of the best conservation education programs and cutting-edge conservation tools in the State. Thank you for recognizing these efforts and valuing the use of water to sustain urban environments in the Plan. Although there is no one-size-fits-all solution to conservation across the State, we encourage you to consider expanding the philosophy, and stating the importance of smart conservation across all water uses within Colorado's Water Plan, including agriculture, recreational and environmental uses to ensure that the State's precious water resources are put to beneficial use in the most efficient manner possible. Aurora takes that responsibility seriously, as should all users of Colorado water.

Efficient use of water supplies and infrastructure will be extremely important as Colorado advances into the future. We are very pleased Aurora's Prairie Waters Project has been selected as one of the State's top reuse projects to be outlined in the Plan. It is our hope that Colorado's Water Plan will help forge pathways for alleviating constraints to expanding reuse statewide and help progress to successful completion the Plan's Identified Projects and Processes.

The viability of agriculture in our State is crucial; however, the loss of some agricultural water to support the growth of the State is a reality. The City of Aurora is very proud of the work Aurora Water is doing in the field of Alternative Transfer Methods (ATMs), particularly our Continued Farming Program, which improves irrigation efficiency for the benefit of both municipal needs and agricultural viability. We have been working closely with the CWCB to provide comments and information on the ATM's outlined in Colorado's Water Plan. We are optimistic the State will continue to make strides in ATM implementation and add more flexibility in water rights administration that will allow innovative water-use relationships between municipalities, agricultural users, and environmental and recreational entities.

Finally, Aurora recognizes that successfully meeting the future needs of the State's projected population growth will require partnerships extending across local and jurisdictional boundaries, involving regional water providers, municipalities, counties, potentially private entities, and State government. Optimizing the efficient use of existing water supplies, infrastructure, and financial resources to meet municipal, industrial, agricultural, environmental, and recreational needs will allow the State to grow responsibly and continue its prominence as one of the best locations in which to live, work, and play. The WISE Partnership between Aurora, Denver Water, and the South Metro WISE Authority is an example of the future of water supply planning in this State – thank you for recognizing this important partnership in the Plan.

Again, we applaud you and the CWCB staff on your continued commitment to advancing efficient statewide water use and planning. It is our sincere hope that the City of Aurora's efforts and contributions in these areas will add value to Colorado's Water Plan and the advancement of Colorado as a whole.

Sincerely,

Mayor Steve Hogan and the Aurora City Council

cc: John Stulp, Special Policy Advisor to the Governor for Water
James Eklund, Director, Colorado Water Conservation Board

PUBLIC INPUT
ITEM 58

9.5 Outreach, Education, and Public Engagement

Colorado's Water Plan provides technical and financial assistance for high quality, balanced, and grassroots water education and outreach efforts that inform Coloradans about the issues so they engage in determining Colorado's water future.

To achieve a sustainable water future, Coloradans must be sophisticated water users. Colorado's Water Plan expands outreach and education efforts that engage the public and promote well-informed community discourse around ~~balanced~~ water[H1] solutions. The plan addresses a number of topics that would benefit educated water consumers including increased conservation, reuse, preservation and enhancement of the natural environment, multi-purpose water projects, and other efforts to meet our future supply gap. Section 9.5 focuses on the extensive work that has already occurred to help educate and engage local stakeholders and the public in the formation of basin implementation plans (BIPs) and Colorado's Water Plan. Moreover, this chapter charts a path to expand this work in the future.

Outreach creates public awareness of policies and processes, whereas **education** promotes a deeper understanding of these topics. Both are prerequisites to **public engagement**.

Coloradans are paying more attention to water issues today and are becoming increasingly aware of the limitations of Colorado's water supply. In a recent survey, more than two-thirds of those polled believe that Colorado does not have enough water for the next 40 years.[i] Despite concerns, most residents are unaware of the main uses of water in the state and are uncertain of how to best meet Colorado's future water needs.[ii,iii]

Natural disasters—including more than a decade of systemic drought, the catastrophic wildfires in 2012 and 2013, and the flooding on the Front Range in 2013—have increased the public's sense of urgency and desire to get involved in water issues. Outreach, education, and public engagement helps ensure that Coloradans have access to accurate information and are empowered to participate in stakeholder decision-making processes.

The development of Colorado's Water Plan is a unique opportunity to build on past efforts. In conjunction with statewide outreach and education by the Colorado Water Conservation Board (CWCB), the nine basin roundtables held more than 125 meetings to engage the public as they developed their BIPs. Additionally, many water providers, watershed groups, schools, districts, and authorities offer many ongoing water education activities. The recommendations in this section of Colorado's Water Plan involve strategies designed to continue to advance these outreach, education, and public engagement efforts and enhance the overall water supply planning process.

9.5.1 Overview of Outreach, Education and Public Engagement Related to Water Supply Planning in Colorado

Overview of Water Outreach, Education, and Public Engagement in Colorado

Colorado has a long history of water education. As early as the 1800s, explorers on the Pike and the Long expeditions through Colorado shared their experiences in the region and warned westward

settlers of the limited water supply.[iv] Following John Wesley Powell's historic 1986[H2] journey down the Colorado River, Powell brought his concerns on water supply "west of the hundredth meridian" to Congress.[v] Now, more than 150 years later, water education is evolving to meet the needs of a population whose direct interactions with water resources and supply are far less than in the past. Currently, there are nonprofits solely dedicated to water education and water providers working with school districts to engage younger generations in smart water use.

Previous and Ongoing Efforts and Research

The Colorado Foundation for Water Education (CFWE) was created by the General Assembly in 2002 to promote a better understanding of Colorado's water resources and issues. CFWE is a nonpartisan, nonprofit organization that provides, "basic water information and educational programming, but also enhances leadership among water professionals, creates networking opportunities, helps advance the water planning dialogue in the state, and reaches out to those who aren't already involved in the world of Colorado water"[vi].

The Public Education, Participation, and Outreach (PEPO) Workgroup was established in 2005 through the *Colorado Water for the 21st Century Act* to support the Interbasin Compact Committee (IBCC) process. The PEPO Workgroup operates by basin and informs, involves, and educates the public about the IBCC's and basin roundtables' activities and negotiations.[vii] In addition, the workgroup is tasked with creating a mechanism for providing public input to IBCC and roundtable members. IBCC representatives, education liaisons from each basin roundtable, and other key stakeholders in the water education community comprise the PEPO Workgroup. Under direction and funding through CWCB, CFWE has facilitated the PEPO workgroup since 2008.

Led and funded by the CWCB, several PEPO Workgroup members and the Colorado Watershed Network joined forces with the Colorado Alliance for Environmental Education and other water outreach specialists in 2008 to form a group called the Water Education Task Force. The task force sought to better understand the status of water education in Colorado and published a report containing recommendations for improvements in water education in Colorado that include:

- supporting a statewide public education initiative;
- developing information and communication tools that can be used statewide;
- establishing long-term funding for intrastate and interstate collaboration opportunities;
- coordinating efforts across state agencies; and
- increasing coordination with the Colorado Department of Education on K-12 water resource content.[viii]

CFWE assumed management of the Water Education Task Force after the report was published in 2008. CFWE established a partnership workshop that carried out several recommendations through the Colorado Water 2012 campaign, a celebration of water—past, present, and future. Colorado Water 2012 leveraged hundreds of passionate volunteers, nonprofits, and other organizations to raise awareness about water, increase support for management and protection of Colorado's water, showcase exemplary models of cooperation and collaboration, connect Coloradans to their water, and motivate them to participate in planning the future of their water resources.[ix] The group commented on Colorado Department of Education's revision of state content

standards, developed a teacher training program, and set the stage for the Value of Water project, which is….

There are numerous efforts that address public engagement in Colorado's water supply issues. Below are just a few examples.

State Agencies: Many Colorado state agencies conduct water education. These agencies also offer funding for outreach and education efforts and have developed their own programs.

- The Water Quality Control Division (WQCD), an agency of Colorado's Department of Public Health and Environment (CDPHE), funds outreach efforts on water quality through Section 319 of the "Clean Water Act" of 1972.
- Colorado Parks and Wildlife (CPW) has many education programs that focus on youth engagement in water issues. The agency funds the Colorado River Watch program, in partnership with the Colorado Watershed Assembly, which supports student volunteers who collect data on water quality and watershed health throughout the state.[x] Parks and Wildlife also supports Project WILD, which engages students in environmental education and conservation.[xi]
- The CWCB funds and coordinates stakeholder outreach through the basin roundtable process. The CWCB provides education funding through their Water Efficiency Grant Program and also helps to fund CFWE. In 2013, the CWCB hired an outreach, education, and public engagement specialist to manage these efforts.

Statewide Nongovernmental Organizations (NGOs): Various nonprofit organizations with a statewide reach have water education programs. These groups have specific target audiences and distinct objectives related to water supply planning.

- CFWE is a source of balanced water education for all Coloradans.
- Colorado Water Congress provides leadership on key water resource issues and is the principle voice of Colorado's water community.
- The Colorado Watershed Assembly collaborates with diverse stakeholders to protect and improve the conservation values of land, water, and other natural resources of Colorado's watersheds.
- The Colorado WaterWise Council provides resources to stakeholders in the water efficiency and conservation community.
- The Colorado Foundation for Agriculture provides Colorado educators with current information about state agriculture and natural resources.
- There are many membership-based, environmental and recreational nongovernmental organizations, such as Conservation Colorado, Trout Unlimited, the Audubon Society, Nature Conservancy, and Western Resource Advocates that provide outreach and education to their members on many environmental issues. This list is not fully inclusive.

Universities: There are also several institutions of higher education actively involved in water supply planning, research, dialogue, and education.

- Colorado Water Institute and Colorado Climate Center at Colorado State University, Western State Colorado University, the One World One Water Center at Metropolitan State University of Denver, and the Water Center at Colorado Mesa University are all engaging students, faculty, and the greater community in water issues.
- The ~~Mesa Water Center~~Water Center at Colorado Mesa University assisted the Colorado and Gunnison Basin roundtables in their outreach and educational efforts.

Regional and Local: Many of Colorado's conservancy and conservation districts, water providers, and water utilities operate public outreach and education programs to inform and educate a variety of audiences (including customers, news media, and elected officials) about water supplies, conservation, drought, regulations, rebates, watershed protection, capital improvement projects, water quality testing, and many other important local issues.

- Denver Water has developed a successful water conservation and public education program that encourages reduction in daily water use through behavior-change and permanent fixture and landscape retrofits. Denver Water uses community based social marketing and media in addition to more traditional campaign methods like advertising.
- The City of Grand Junction, Ute Water Conservancy District, and Clifton Water District collaboratively run a similar conservation-based outreach program known as the Drought Response Information Project which helps water providers conduct public outreach and education activities about drought and the Drought Response Plan.
- The Rio Grande Watershed Conservation and Education Initiative provides conservation education to the San Luis Valley community to promote stewardship of natural resources.
- The Roaring Fork Conservancy brings people together to protect rivers through watershed action and education in their respective areas of the Colorado River Basin.
- The Water Information Program is sponsored by water districts and agencies in the Dolores/San Juan River Basin and provides general information to the public on water topics. The Water Information Program has assisted the Southwest Basin roundtable in educating the region about local and statewide water issues and found in it is the longest-standing program of its kind.
- The Rio Grande Watershed Conservation and Education Initiative assisted the Rio Grande Basin roundtable in their engagement efforts along with many other education programs.
- Aurora Water's Water Conservation Program offers web-based instructional material and in-person classes in xeriscape landscaping, irrigation systems, landscape maintenance, alternatives to turf grass, and vegetable gardening to its customers.
- The Community Agriculture Alliance assisted the Yampa/ White/ Green Basin Roundtable with public education and outreach on the BIP.

K-12 Education: Water providers such as statewide administer several K-12 programs. All of these programs use education and outreach to help address specific water supply issues, many of them aimed at educating the public on how to reduce municipal and agricultural water use across the state. Numerous other efforts through water conservancy districts reach thousands of students each year at children's water festivals and special initiatives with area school districts. Below are a few examples.

- The South Metro Water Supply Authority's Water Ambassador Program trains high school students to teach fifth graders about watershed health.
- Aurora Water reaches more than 6000 students a year with K-12 education programs providing classroom presentations, assemblies, and field trips.
- Boulder and Aurora school districts partners with the U.S. Forest Service to train teachers on water education through the "Forests to Faucets" workshops.
- Project WET (Water Education for Teachers) is a national program that trains teachers in Colorado how to educate their students about water. Several local organizations sponsor Project WET trainings throughout Colorado, and the national program has developed curriculum that is specifically applicable to different regions in Colorado.
- Ute Water coordinates the state's largest children's water festival, reaching over 2,500 fifth graders in the Grand Junction area each year.

9.5.2 Review of Outreach, Education, and Public Engagement Activities during Development of Colorado's Water Plan

Colorado's Water Plan outreach, education, and public engagement efforts are unprecedented and build on a decade of stakeholder involvement. Because Colorado's Water Plan rests upon stakeholder engagement, it is critical to demonstrate education and outreach efforts to date and to further expand them in 2015. This is a grassroots effort and this section demonstrates the high level of local and volunteer efforts to reach out to the public.

Background and Overview of Statewide Outreach, Education, and Public Engagement Activities

Throughout the development phase of Colorado's Water Plan, public engagement, coupled with consistent and clear communications, was crucial. Both statewide and within each basin, information was distributed to the water community, to interested stakeholder groups, and to the general public. These activities built upon the strong foundation of outreach efforts by the basin roundtables and the CWCB through the PEPO Workgroup over the past nine years. The CWCB developed an Outreach and Communications Plan in September 2013 to provide a cohesive strategy and structure for all Colorado's Water Plan communications and outreach activities. The outreach and communications plan was crafted around four clearly defined goals, listed below. Table 9.5-1 provides a review of the methods used to achieve those goals. Following the table is an analysis of the input generated from these activities.

The outreach and communications plan goals are:

- to engage the public and to create general public awareness and dialogue about Colorado's Water Plan and its role in ensuring a secure water future for Colorado;
- to build support within the water community for Colorado's Water Plan and increase the level of understanding of the plan and its components;
- to proactively identify and address issues that may create barriers to success for Colorado's Water Plan and mitigate/manage negativity; and
- to share the responsibility of implementing and executing communications about Colorado's Water Plan across CWCB leadership and key stakeholders to foster a collective voice.

Table 9.5-1: Methods Used by the CWCB to Achieve Goals Outlined in Colorado's Water Plan Outreach and Communications Plan	
Basin Roundtable Engagement	In addition to regular CWCB attendance and participation at basin roundtable meetings, CWCB staff worked together with the basin roundtables to develop communications materials and messaging about Colorado's Water Plan. Much of this work happened through the existing PEPO Workgroup. Basin roundtable education liaisons partnered with BIP consultant teams to create opportunities to share information regarding the BIP development process and how it relates to Colorado's Water Plan.
Grassroots Stakeholder Group Outreach	The CWCB established and used a database of key community, civic, and water organizations (e.g., Chambers of Commerce, Colorado Municipal League, Water Congress, and regional advocacy groups, among others) with established communications networks (websites, newsletters, email updates, etc.) and partnered with them to distribute Colorado's Water Plan materials. The CWCB engaged these groups in the development of the plan and assist designated information to their constituents. These groups also provided important speaking opportunities at various meetings and gatherings.
Public Input and Response	In all communication materials related to Colorado's Water Plan, public input was actively solicited. A public comment form was built into the Colorado's Water Plan website and a new email account, cowaterplan@state.co.us, was established specifically to receive input on Colorado's Water Plan. Guides for submitting public input were created for key stakeholder groups and posted online. All comments received via Colorado's Water Plan website or by email were provided to the CWCB Board members. CWCB staff member responses and recommendations regarding all input, based on Board feedback, are available for review online. In addition, members of the public were encouraged to engage directly with their basin roundtables.
Opportunities for Public Comment at CWCB Board Meetings	At each meeting of the CWCB, an opportunity for public input was provided to encourage comment regarding Colorado's Water Plan. Interested parties gave presentations at the March, May, July, September, and November 2014 meetings of the CWCB. Members of the CWCB also responded to those making comments during the

	meetings. These opportunities will continue in 2015.
Media Relations	CWCB worked with the press to clearly articulate Colorado's Water Plan development process and to establish an initial foundation of knowledge and awareness in the media. This included CWCB produced op-eds, news releases and other means, and spokespeople.
DNR/CWCB/IBCC Leadership Presentation Circuit	Meetings with the Department of Natural Resources (DNR), CWCB, and IBCC leadership helped enhance understanding of and build support for Colorado's Water Plan in the water community. CWCB identified over 100 key organizations and individuals, listed in Appendix E, throughout the state for one-on-one meetings or group briefings regarding Colorado's Water Plan.
Speaker's Bureau	In coordination with the IBCC and the basin roundtables, CWCB identified representatives from geographically diverse areas who spoke about Colorado's Water Plan in various forums across the state. This included engaging key partners (e.g., agricultural and municipal water providers). CWCB prepared a master calendar of events to promote existing opportunities to reach key stakeholders. CWCB arranged speaking engagements, and developed materials and training sessions for spokespeople.
Branding	CWCB developed an overarching brand (logo, templates, and consistent look and feel) that reflected Colorado's Water Plan purpose and values.
Digital Engagement	CWCB developed a robust online presence for Colorado's Water Plan that served as a hub for stakeholders and the public to obtain information, subscribe to updates, provide input, and get involved with the process. This strategy included a Colorado's Water Plan website, social media channels, and targeted email campaigns tied to key milestones such as the release of the BIPs.
Social Media	CWCB created Facebook and Twitter accounts and integrated them into the Colorado's Water Plan website. CWCB launched and promoted the accounts through a variety of channels, including the website and email campaigns. These social media tools continue to provide an informal and interactive venue for dialogue and the exchange of ideas. CWCB staff monitor and administer these accounts and regularly post relevant information, answer questions, and participate in the conversation.

Print Materials	CWCB developed a suite of printed materials. The materials are available for download on the Colorado's Water Plan website and were distributed as to community at speaking engagements and conferences.
Key Meeting Outreach and Follow-Up	As appropriate, staff conducted targeted pre-event outreach and follow-up to increase stakeholder attendance at important events and created opportunities for additional interaction and dialogue.

Input Generated on Colorado's Water Plan Between September 2013 and September 2014

Since work on the first draft of Colorado's Water Plan began in September 2013 through October 10, 2014 the CWCB received, reviewed and responded to over 13,000 comments for consideration in the 2014 draft of the plan. Those comments included over 780 unique email submissions, 120 webforms submitted through Colorado's Water Plan website, 121 handwritten comments, and 322 typed letters. Over 180 documents were also reviewed. To date, CWCB staff members have met with over 100 organizations, agencies, and other partners statewide regarding their involvement in the development of Colorado's Water Plan. A list of those organizations is included in Appendix E.

Pursuant to SB14-115, the Water Resource Review Committee held public hearings in each basin for comment on Colorado's Water Plan.[xii] Input submitted to the CWCB on November 1, 2014 included over 200 public comments.

How is public input being included in the development of Colorado's Water Plan?
Input submitted by email to cowaterplan@state.co.us or through the webform on Colorado's Water Plan website, is read by CWCB staff, who then identify which section of Colorado's Water Plan each comment addresses and draft a tailored response. All input is catalogued and presented at the subsequent CWCB Board meeting and can be found on www.coloradowaterplan.com under the "Get Involved" tab, on the "Record of Input Received to Date" page. Public input is considered as CWCB staff continue to revise the draft components of Colorado's Water Plan, including the framework, the Guides for Public Input, and several draft chapters and sections of Colorado's Water Plan. Updated draft chapters and sections will be re-released in November 2014 for final review before submission of the first draft of Colorado's Water Plan to the Governor on December 10, 2014. Input will continue throughout 2015 before the final version of Colorado's Water Plan is submitted to the Governor on December 10, 2015. The CWCB will also continue to forward input related to specific basin roundtables to the basin outreach teams.

Colorado's Water Plan Website

Colorado's Water Plan website launched on November 1, 2013 to provide outreach and education resources on Colorado's Water Plan. The CWCB promotes the website through social media, CWCB staff presentations, and publications related to Colorado's Water Plan. To date there has been a steady rise in the number of people visiting the website each month. Through November 7, 2014 there were nearly 10,000 unique visitors to the website.

The website will continue to be the primary access point for the public to review draft versions of Colorado's Water Plan. Other documents and information will continue to be made available on the site, including the BIPs, all input on Colorado's Water Plan received directly by the CWCB, and the formal responses provided to commenters by the CWCB.

Background and Overview of Basin Outreach, Education, and Public Engagement Activities

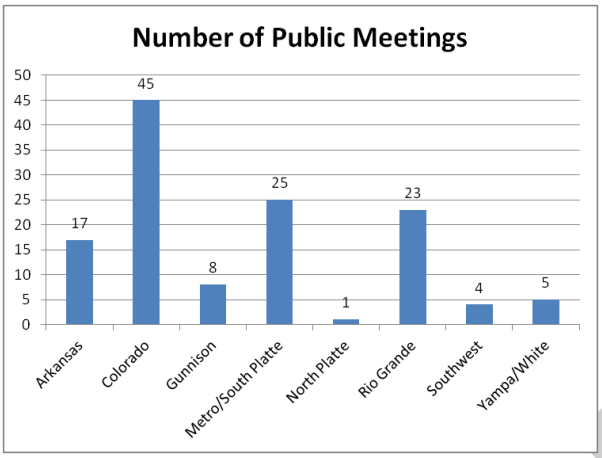
Between February 1 and July 31, 2014, the basin roundtables collectively hosted 126 public meetings, in addition to regular basin roundtable meetings. All in all, 3296 participants were counted among those basin roundtables that collected data on attendance. [H3]

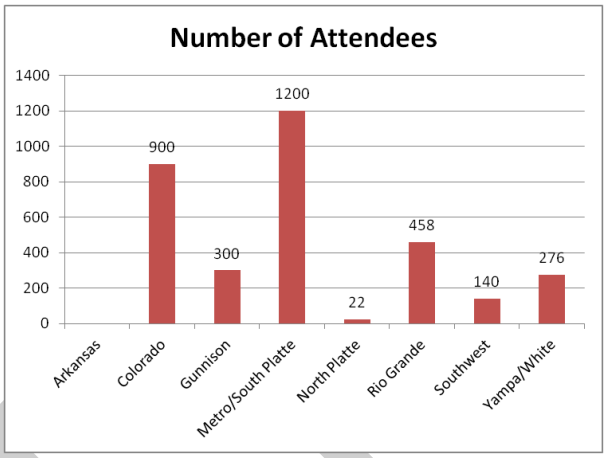
This section provides an explanation and summary of basin roundtable and PEPO outreach efforts, including public meetings, over the development phase of the respective BIPs and Colorado's Water Plan. Each basin's education liaison and roundtable leadership have supported information and input opportunities. This includes targeted technical outreach meetings between the BIP consultants and stakeholders to identify specific water needs and projects, as well as meetings with the general public to obtain responses to the BIP goals, needs assessments, and proposed projects. The scope of these efforts far exceeds any other year of roundtable driven activities and the impact of each basin's education and outreach program on public engagement in water supply planning protection has yet to be captured, analyzed, and communicated. However, data from the BIPs has provided significant quantification on:

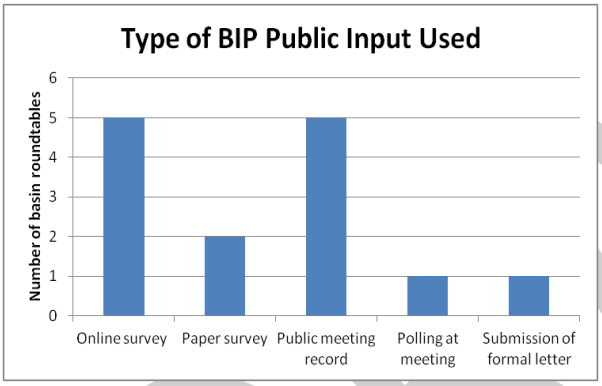
- the number of public and technical outreach meetings held by each roundtable and cumulatively by all roundtables, and the number of attendees;
- the other outreach activities of each roundtable;
- the groups and stakeholders with whom each roundtable met;
- the type of input the roundtables received;
- how the input was factored into the BIPs; and
- a summary of future planned outreach activities.

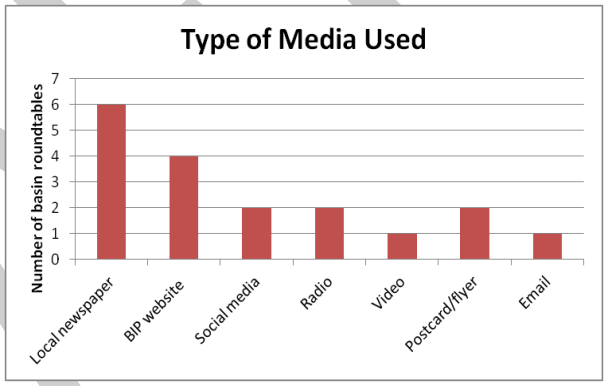
Outreach activities conducted by the basin roundtables during the first half of 2014 focused on public meetings in addition to the regular roundtable meetings. A summary of these meetings by basin can been found below. In addition to hosting public meetings, the roundtables all employed innovated approaches to education and outreach. They participated in radio shows, created websites designated to share BIP information, produced printed materials to hand out at local events, gave presentations and hosted speaking engagements, surveyed basin residents on BIP issues, solicited public input and incorporated comments into their BIPs, and targeted and engaged diverse stakeholder groups and individuals basin-wide. Local n~~N~~ewspapers published almost 70 articles ~~in local newspapers on these efforts during~~related to the water plan during the development of the draft BIPs, and many of these were written and submitted by Roundtable

members and partner groups. A total of 757 public comments from three reporting basins were documented and incorporated in the final BIP documents, although many basins did not have the capacity to report on this level of detail for public input.[xiii]









In addition to assistance from the BIP consultant teams during the drafting of the respective BIPs, each basin roundtable used their education action plan to guide their outreach strategies, ~~including~~ utilizing the $2,000 available through the PEPO each year. Some roundtables are using current funds and staff to implement outreach activities while others have sub-contracted with the BIP consultants or are relying on external partnerships. Some basins have also used Water Supply Reserve Account (WSRA) grants to fund their education and outreach activities. Regardless, all roundtables are collaborating with their outreach teams more than ever before and it will be imperative to consider how to sustain this momentum throughout 2015 and into the future. It will remain the role of the PEPO Workgroup to assist CWCB and the roundtables in continuing strategic planning, implementation, and evaluation of their education and outreach activities.

Below is a summary of the outreach efforts of each basin roundtable.

Arkansas Basin Roundtable Outreach Summary

Number of meetings: 17

Number of attendees: N/A

The basin roundtable's outreach focused on internal organization such as creating basin roundtable letterhead for correspondence and other documents, scripts for public service announcements

distributed to roundtable members for use in attracting participants to meetings, and the development of a website (www.arkansasbasin.com) for archived materials and as a venue for submitting comments online. The Arkansas Basin roundtable hosted a total of 17 public meetings across the basin and has tracked online input and analyzed comments by county, type, and summary of input. Additionally, one full day was dedicated to presentations on Colorado's Water Plan and the Arkansas BIP in conjunction with the Arkansas River Basin Water Forum in April which hosted a "clicker poll" of participants to obtain additional data.

Colorado Basin Roundtable Outreach Summary

Number of meetings: 45

Number of attendees: 900

Outreach focused on presentations at meetings to community groups, local elected officials, water providers, and watershed groups. A series of more than 30 local newspaper articles is archived on the CMU Water Center website and the team is actively using social media and a separate website to disseminate information, meeting notices, and to collect input forms at www.coloradobip.sgm-inc.com. Two distinct paper and online surveys (one on "basin values" and another titled "how community water needs should be met") have been developed and distributed via newspaper articles and email. The surveys collected over 500 responses from adult audiences and student groups, which were compiled in the BIP. Also of note are the extensive partnerships developed with organizations to help spread the word and generate input through formal letters, such as Roaring Fork Conservancy, Eagle River Watershed, Trout Unlimited, and Club 20.

Gunnison Basin Roundtable Outreach Summary

Number of meetings: 6

Number of attendees: 300

The approach to outreach focused on building roundtable capacity to hold public information-and-input meetings in six distinct areas for both the general public and groups of decision-makers as well as numerous BIP technical meetings with target stakeholder groups. The roundtable promoted these meetings through press releases, placing shopper publication advertisements, and personal contact through email, phone calls, or face-to-face encounters. The BIP Committee reviewed comments from the meetings and incorporated them into the BIP, as appropriate. The roundtable also prepared and distributed a booklet titled: *The Gunnison River Basin, A Handbook for Residents,* which includes a compendium of basic information about water use, water law, and water organizations in the Basin.[xiv] This booklet was distributed as an insert in newspapers across the basin. In addition, Roundtable members and partners wrote numerous articles related to the plan that were published in local newspapers.

Metro/South Platte Basin Roundtable Outreach Summary

Number of meetings: 25

Number of attendees: 1200

The roundtable approached outreach by hosting targeted outreach meetings for BIP stakeholders groups, water boards, legislators, and other community leaders and developed extensive online content on the website (www.southplattebasin.com) where included social media links, several

videos of narrated by roundtable leaders, and an online survey for comments. Roundtable members also participated in two community radio shows. Looking ahead, the roundtable and consultants will do an analysis of public and stakeholder comments for incorporation into the joint BIP.

North Platte Basin Roundtable Outreach Summary

Number of meetings: 1

Number of attendees: 22

Outreach focused on one public outreach meeting, which was announced in the local newspaper along with distribution of a public input survey. The roundtable has also called several special BIP work sessions.

Rio Grande Basin Roundtable Outreach Summary

Number of meetings: 23

Number of attendees: 458

The roundtable engaged in outreach activities through meetings in locations across the basin and targeted three distinct groups: the general community, county commissioners, and stakeholder groups. This has resulted in increased public attendance at regular roundtable meetings. In addition, six separate BIP subcommittees have met a total of 21 times. The team has also produced bi-weekly newspaper articles, monthly radio shows, and created a website (www.riograndewaterplan.com) for archiving materials and public submission of comments. The roundtable also developed a Water 101 booklet specifically for the Rio Grande Basin. In the long-term, they will continue the momentum of existing outreach activities and create a forum to discuss "Multiple Use Project Implementation."

Southwest Basin Roundtable Outreach Summary

Number of meetings: 4

Number of attendees: 140

The approach has focused outreach activities such as distribution of the BIP fact sheets, a "talking points" PowerPoint presentation for roundtable members, seven local newspaper articles, 67 statewide articles specifically referencing Colorado's Water Plan posted on the Water Information Program website, and information about the IBCC/roundtable process presented at the Water 101 Seminar hosted annually by the Water Information Program. Roundtable members have delivered special presentations to water boards and Rotary Clubs plus the BIP consultants have met with and talked to over 100 individuals throughout the basin. Unique to the roundtable is the "social hour" before each Roundtable meeting for the public to attend and network.

Yampa/White/Green Basin Roundtable Outreach Summary

Number of meetings: 5

Number of attendees: 267

The roundtable conducted outreach activities early in the BIP process consisting of meetings hosted by roundtable members and inviting community groups. These meetings have included polling to collect data on participant demographics, water usage, and values. Meetings were advertised through a variety of means including newspapers, radio, postcards, flyers, email, and personal

contacts. Stakeholder groups have been encouraged to submit white papers and there is a Roundtable email account for receiving comments. Three special meetings to consider public input in additional to the regular basin roundtable meetings were scheduled and continue developing the BIP. In addition, the Community Agriculture Alliance arranged for the publication of 17 articles in four local newspapers across the basin roundtable's territory.

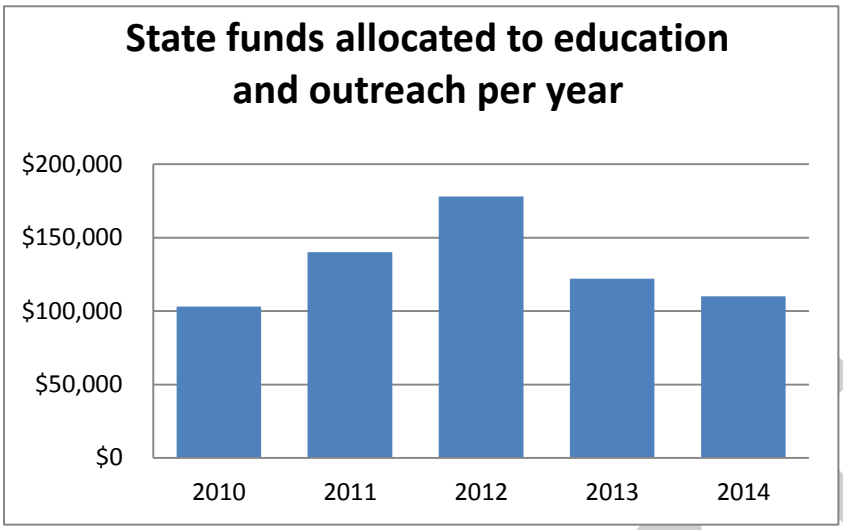
9.5.3 Outreach, Education, and Public Engagement Funding Summary and Recommendations

Despite the immense efforts of various organizations, projects, and partnerships, there is a need for improved coordination of existing programs to maximize their effectiveness. Collaboration creates new opportunities for water education, outreach, and public engagement activities to target new and diverse audience groups statewide. Moreover, there is a need to reassess existing statewide programs that focus on water supply requirements and solutions. The plan will build upon efforts such as the Colorado WaterWise Education Toolkit, the Colorado Watershed Assembly Network, and CFWE's ongoing Water Educator Network. Additionally, the 2008 Water Education Task Force Report recommendations should be updated in the near future, allowing the community to determine what unmet needs exist and identify the most effective strategies to address them.

The Funding Gap

Figure 9.5-1

NOTE: The chart does not include outreach and education by consultants



for BIPs; this will be included in future draft versions.

During the development of Colorado's Water Plan and the BIPs, it became clear that the $2000 of funding available to each roundtable could not fully support and sustain educational programs. To meet each basin's unique outreach and education goals, the roundtables used a creative mix of funding sources including WSRA grants and billed services from their consultants. The basins also relied on partnerships with the CWCB, the PEPO Education Liaisons, the roundtable education committees, and the BIP consultant teams to plan and execute public engagement. The following graph illustrates the state funds allocated to education and outreach through the PEPO Workgroup, the basin education action plans, and related WSRA grants. The peak in FY2012 is directly linked to increased WSRA grants to support the Colorado Water 2012 initiative.

On average, the costs for outreach activities have been between $15,000 and $30,000 per roundtable over the past year; nevertheless, most roundtables have indicated that for their level of current BIP outreach this amount is insufficient. The Rio Grande Basin roundtable, for instance, spent an additional $40,000 on outreach, beyond what was originally planned, and projects up to $10,000 in their 2015 education action plans.[xv] Without securing this additional funding from state and local sources, implementation of the education action plan activities will not occur. Education and outreach cannot rely on a dedicated volunteer base alone, which has been the approach for many basin roundtables over the past five years. All 17 of the Arkansas Basin roundtable's outreach meetings were organized and run by volunteers.[xvi]

Despite the insufficient funds, each roundtable increased their outreach activities. In the future, the roundtables will not be able to rely on assistance from the BIP consultants. Additionally, WSRA funds were not intended to fund many types of educational projects and several restrictions are placed on the types of educational programs that are eligible. Therefore, despite the prevalence of planned programming related to outreach, education, and public engagement, many potential projects do not have sufficient funding to move forward.

Furthermore, the Water Education Task Force report stated that the annual amount of revenue for water education across the state was $7.3 million with respondents indicating that $1.6 million of that amount came from state sources.[xvii] Monetary and time limitations were cited as the largest barriers to implementing education programs – more than half of the water education providers surveyed indicated they conduct water education for less than $5,000 annually. The report stated

that limited resources should provide additional incentives and focus for federal and state funding agencies.[xviii] Funding must go to the basin roundtable work as well as other important efforts.

It is imperative that the Colorado water community sustain the momentum for outreach and education activities once the development of the BIPs and Colorado's Water Plan end in 2015 and that funding for such activities increase as water supply solutions begin to be implemented.

CWCB's Role in Water Outreach, Education, and Public Engagement

Outreach, education, and public engagement related to the state's water supply planning efforts, including Colorado's Water Plan, the BIPs, and the Statewide Water Supply Initiative (SWSI) are an ongoing and iterative effort. The CWCB needs to continue the leadership it has demonstrated regarding outreach, education, and public engagement activities during the development of Colorado's Water Plan by continuing to aid in research, coordinate efforts, and providing funding and guidance for water education projects statewide.

The CWCB, the PEPO Workgroup, and the basin roundtables will continue education and outreach activities for Colorado's Water Plan and the BIPs for the remainder of 2014 and throughout 2015. In the long-term, the partnerships and communication channels developed by these entities over the past several years will be crucial in the effort to conduct public outreach and education activities on water supply planning and solicit input to implement balanced solutions. Each BIP articulated long-term goals and strategies for cultivating a supportive and engaged citizenry, such as the following selections from basins across the state:

1. Identify milestones and changes in Colorado's Water Plan and the BIP process in which additional media coverage and public participation is needed.
2. Identify the institutional changes necessary to address increasing water demands and the related cultural and economic adaptations in Colorado life.
3. Ensure a diverse and active basin roundtable membership and provide communication tools to inform their constituents and in return deliver meaningful feedback to the roundtables.
4. Maintain a steady traditional, online and social media presence throughout the basin.
5. Engage respected community leaders to champion the solutions set forth in the BIPs.
6. Work closely with organizations that specialize in the facilitation of public education and outreach programs to leverage existing resources within each basin to increase overall impact.
7. Enhance coordination and financial support for watershed groups and other grassroots organizations to effectively engage the public and increase participation.
8. Develop leadership programs for college students to explore water careers through scholarships or training opportunities in water supply planning projects and processes.
9. Establish metrics to evaluate the success and effectiveness of statewide and basin-level communication and education programs and modify strategies as needed.

The lack of financial support and professional resources is a large barrier for implementing these goals. To maintain the momentum of Colorado's Water Plan beyond 2015, outreach and education projects need a dedicated grant fund for information and communication tools that address

Colorado's water challenges. The basin roundtables were created to serve as key forums for conversations and planning to address water supply issues. Creating a new fund creates the opportunity for stakeholders interested in water outreach, education, and public engagement to move important projects forward.

Actions

Based on the analysis above, the following recommendations will enhance Colorado's water outreach, education, and public engagement and advance the water supply planning process.

1. **Create a new outreach, education, and public engagement grant fund**
   - A new outreach, education, and public engagement grant fund should be included in the annual bill that appropriates money from the CWCB construction fund for specific projects, also referred to as the Projects Bill, and should be administered by CWCB through the basin roundtables.
   - The grant fund should be modeled on the WSRA program. It should consist of statewide and basin funds available for eligible outreach, education, and public engagement projects that meet specific criteria and guidelines developed by CWCB that align with Colorado's Water Plan goals.
   - Guidelines should prioritize grants that are dedicated to projects that assist the basin roundtables with communication, outreach, and public education efforts related to issues that were addressed through the BIP, basin roundtable Needs Assessments, Statewide Water Supply Initiative, IBCC, and Colorado's Water Plan processes and products.
   - Guidelines should stress the importance of measuring success, targeting specific audiences and approaches, and include other education and outreach best practices that lead to public engagement.
   - Guidelines should encourage partnerships that increase the collective impact of local groups and programs.

2. **Develop a CWCB-led effort to update and reassess the status of statewide outreach, education, and public engagement programs related to water supply planning**
   - The CWCB will work collaboratively to:
     - conduct a survey to update the Water Education Task Force Report that assessed what water education programs exist across the state;
     - determine where there are critical gaps in water education both geographically and topically; and
     - evaluate those recommendations set forth by recent studies that have been adequately addressed and those that need to be revisited.
   - These steps will help determine what unmet needs exist and identify the most effective strategies to meet those needs.
   - Research results will aid in the creation of criteria and guidelines for the new outreach, education, and public engagement grant fund recommended in item 1.

3. **Improve the use of existing state resources**

- The CWCB will incorporate education and outreach components in the WRSA Grants' criteria and guidelines.
- The CWCB will initiate efforts to improve coordination between state agencies on outreach and education activities. This should include the development of performance metrics and a database to track efforts.
- CWCB intends to foster continued engagement of the Water Education Task Force to use the network of existing water educators in a coordinated fashion to educate the various and diverse audiences in Colorado.

DRAFT

[i] BBC Research & Consulting, Public Opinions, Attitudes and Awareness Regarding Water in Colorado (Denver, 2013) Section III Page 9.

[ii] BBC Research, Public Opinions, Section IV Page 2.

[iii] James Pritchett, Alan Bright, Andrea Shortsleeve, Jennifer Thorvaldson, Troy Bauder, and Reagan Waskom, Public Perceptions, Preferences, and Values for Water in the West (Fort Collins, 2009) 6-7.

[iv] Reagan Waskom, "Editorial" in Colorado Water 30 (2013) 1.

[v] Justice Greg Hobbs, "Colorado Water Law: An Historic Overview" in The Public's Water Resource: Articles on Water Law, History, and Culture. (Denver: CLE in Colorado, 2007) 69.

[vi] Caitlin Coleman, "Celebrating 10 Years of Statewide Water Education with the CFWE." Colorado Water 30 (2013) 20.

[vii] C.R.S. § 35-75-106 (1) 2012.

[viii] Colorado Water Education Task Force, *Colorado Water Education Task Force 2008 Final Report* (Denver, 2008) 3.

[ix] Colorado Foundation for Water Education, *Colorado Water Initiative 2012 Final Report* (Denver, 2013) 3, 9.

[x] "About Us," River Watch of Colorado, http://www.coloradoriverwatch.org/sample-page/.

[xi] "Project Wild" Colorado Parks and Wildlife, http://cpw.state.co.us/learn/Pages/ProjectWild.aspx.

[xii] C.R.S. § 37-60-106 2014.

[xiii] Kate McIntire, memorandum to the Colorado Water Conservation Board, "Agenda Item 9a, Statewide Outreach Status Update – May 2014", 2014.

[xiv] Gunnison Basin Roundtable, *The Gunnison River Basin: A Handbook for Inhabitants* (Grand Junction, 2014).

[xv]Rio Grande Basin Roundtable, *Rio Grande Basin Water Plan* (Alamosa, 2014) 286-290.

[xvi] Arkansas Basin Roundtable, *Arkansas Basin Implementation Plan: Draft* (Pueblo, 2014) Section 4.1 Page 4

[xvii] Water Education Task Force, *Final Report*, 6.

[xviii] Water Education Task Force, *Final Report*, 6-7.

PUBLIC INPUT
ITEM 59

Audubon ROCKIES

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May 1, 2015

Kate McIntire
Colorado Water Conservation Board
1313 Sherman St., Room 718
Denver, CO 80203

RE: Summary of National Audubon's Colorado Western Rivers Action Network (CO WRAN) First Draft CWP Comments February – April 30, 2015

Dear Kate:

Thank you for your time and efforts accepting and organizing Colorado Water Plan (CWP) public input. The Colorado Western Rivers Action Network (CO WRAN) has grown to over 12,000 constituents across the state. We represent a significant percentage of the unprecedented civic involvement engaged in the development of our Water Plan. From February to April 30th 2015 Audubon, through CO WRAN, generated 1,523 CWP individual comments through two action alerts, one in February and the other in April 2015. All comments were submitted to both Governor Hickenlooper's office and to the Colorado Water Conservation Board.

The February action alert focused on increased river water stewardship, including an ask for a conservation commitment to reduce per person water use in our cities and towns by 10 percent by 2020. This alert generated 712 total responses. To access the full alert and message: http://www.audubonaction.org/site/MessageViewer?dlv_id=64989&pgwrap=n&em_id=52741.0

The April alert asked for a state commitment in the CWP to assess, protect, and restore the dynamic river flows that support statewide river health, and to establish stream management plans. The April alert generated 811 total responses. To access the full alert and message: http://www.audubonaction.org/site/MessageViewer?dlv_id=67122&pgwrap=n&em_id=54262.0

I have attached two spreadsheets containing respective alert responses. Each contains the names, towns, and customized response text in the first sheet, and a list of respondents who signed on to the alert as written in the second sheet.

Please let me know if you have any further questions.

Thank you,

Abby Burk

aburk@audubon.org
Western Rivers Outreach Specialist
Audubon Rockies, Rocky Mountain Regional Office

PUBLIC INPUT
ITEM 60

Colorado Water Conservation Board
1313 Sherman Street
Denver, Colorado 80203

May 1, 2015
Snowmass, Colorado

Re: comments on Colorado Water Plan

Dear Members of the Colorado Water Conservation Board,

Thank you for providing an opportunity for the public to comment on the draft Colorado Water Plan. Some input from me has already been provided to you through my participation for the past couple of years in the Colorado Basin Roundtable meetings, and through my position as chair and member of the Pitkin County Board of County Commissioners. The following comments are my private thoughts based on over 50 years as an irrigator and water rights holder on our ranch in western Colorado, as a community activist over that same period concerned with the long-term sustainability of the economic, agricultural, and environmental systems which are core values of many Coloradoans, and as a well-educated and thoughtful citizen of Colorado concerned about the future of our state, nation, and world.

I am taking a 30,000 foot view of the water plan, and looking far into the future to the world that my children and grandchildren will inherit. Most of the comments I have heard and read from various parts of the state take a parochial view toward trying to protect the interests of just that river basin or economic interest, and ignoring the common good of the entire region. My thoughts are in no particular order, but just as I have jotted down my notes over weeks and months of contemplating this Water Plan.

1) "No and low regrets, or high regrets?" "The IBCC identified the following no and low regrets goals… Establish low to medium conservation strategies" (p. 279) The IBCC has set the bar too low for what we need. The state is short of water right now. The water shortages facing the state are huge, with a projected doubling of our population, decreased water flows in our rivers due to increased temperatures, and increasing and conflicting demands on our water supply from many users in the state and in other downstream states. I am disappointed that only the Colorado Basin Roundtable took a position setting a high conservation strategy. We are the basin that has suffered the consequences of the majority of the Trans Mountain Diversions, and the people here realize the importance of having a high conservation strategy, and I think that every basin in the state should adopt such a strategy. We are all in this together, and I do not want to end up in the position California is in today, taking steps that are too little and too late to be very effective in dealing with persistent water shortages that exist today and will be the normal state of affairs long into the future. We will all have high regrets if we do not take a stronger stance right now and put a much higher value on conservation.

Rocky Mountain Institute has studied water use and conservation in the same way that they study energy use, and have shown that conservation is by far the least expensive way to provide more water to the end user in the most efficient manner. High conservation should be the number one priority in trying to figure out how to provide more water, and in developing the budget to figure out how to pay for our Water Plan.

2) "South Platte Reservoir" A mainstem reservoir downstream on the South Platte River is an essential part of our Water Plan. The catastrophic precipitation events that our state has periodically suffered over the past century show the need for more reservoir storage for flood prevention and to capture the floodwaters for future use. The Arkansas River has the John Martin Reservoir far downstream to capture any big flood event in that basin. But the South Platte only has far upstream reservoirs that are used more to hold water diverted from the West Slope. The South Platte Basin BIP calls for more water from the Colorado River, but does not address how they will capture and use the native flows that already exist. I see the need for a large instream reservoir that would act much like the John Martin Reservoir, and would capture floodwaters to be used for a multitude of things such as: satisfying the compact obligations to Nebraska from the South Platte, recharging the Ogallala and other aquifers, getting more water into the Republican River system, and providing irrigation water for South Platte agriculture, thus freeing up water upstream for municipal users.

This reservoir would benefit the entire state, and should be paid for by the entire state. The Western Slope basins would all benefit since there would be less need for water from the West Slope, the

Colorado River Compact obligations would be easier to maintain, and more water would be made available to the front range municipal users.

In my mind it is imperative that the South Platte Basin take care of the water that falls there naturally before contemplating any call for more water from TMD's. I, for one, am willing to help pay for the infrastructure needed to do that. It would also be better to flood some farm ground with a new reservoir than to dry up several hundred thousand acres of farm ground on both sides of the Continental Divide just to provide more water to the front range municipalities.

3) "Use it or Lose It" - The draft plan continually calls for the tenants of Colorado Water Law to be upheld. But one part of our Water Law leads to a huge waste of water and causes a lot of damage to the health of our river systems. That rule has to do with the fact that historical use of a water right is used to calculate what potential future use that right has. Every year irrigators do what is necessary to jack up the amount of water recorded in their water diversion records which must be turned in every year to the Division of Water Resources. Even in a wet year, with the ground saturated from abundant precipitation, people will run their ditches and irrigate even though their crops don't need the water, just to "protect their water right".

The Division of Water Resources has enough data already that a baseline could be established for every water right in the state. This would be the amount that a person is allowed to divert, and they would be allowed to use less of their water in a wet year, or to take all of their water right in a drier year (conditions of water availability permitting of course). They would not be penalized for taking less than their water right, and in future years would be allowed to take their full water right.

Another thing that typically happens is that people will run water in their ditches "just to protect their water right" even though the water is not being put to beneficial use. The water runs down the ditch or canal, and eventually is put back into the river far downstream from the headgate, without ever being used to irrigate. This helps contribute to the existence of "holes" in the river where there will be a stretch of river largely dewatered between the lowest headgates and the point where return flows start coming back into the river. Changing water law to encourage people to leave water in the river if they do not need it right then, without penalty of jeopardizing their water right, would go along way in improving the health of many streams in western Colorado. It would also lead to leaving more water in the rivers to meet compact obligations downstream.

4) "New Supply" There is no more water available in western Colorado except in the wettest of years for "new supply" to be made available to front range interests. The data that was used to calculate Colorado's share of water from the Colorado River was based on false premises, with the baseline years measured in a very wet period. The entire Colorado River Compact is based on this false premise, and the reality is that there is simply no more water. Any more water diverted by existing IPP's to use their conditional water rights will only will lead to further lowering of the levels of water in Lake Powell and Lake Mead, and put everyone in the entire state of Colorado in jeopardy of a compact call.

There are only two supplies of water that I see as having potential to replace Colorado River water (including the Yampa, White, Green, and Gunnison since those all flow into the Colorado), and that is the Pacific Ocean and the Missouri River. There are existing projects or dreams of projects that should be explored as part of the Colorado Water Plan.

There is some desalination of the Pacific Ocean being done in southern California. I think that Colorado should seriously consider participating with California in building and paying for huge desalination projects to provide fresh water to the Metropolitan Water District of Los Angeles. We should get credit for the water provided to them, as they would not have to use as much Colorado River water to provide their needs. The amount of water credited to us would be a sum of the water they are getting from the desalination plus a factor to account for the savings in transmission losses in delivering water through the long series of reservoirs and canals with their high evaporation losses. (Think of the "end use" from Rocky Mountain Institute logic of thinking). To be practical, the desalination process would need to be driven by a renewable energy source such as solar, wind, or tidal power to keep the energy cost down to a reasonable level.

The state of Kansas has a Missouri River Aqueduct project in the planning phases, which would bring water from the Missouri River at the northeastern corner of Kansas across the state to the southwestern region of the state near their part of the Arkansas River. Their purpose in wanting to divert this water is to recharge the Ogallala Aquifer which is being severely overdrawn by all the states, including Colorado, who use the aquifer. I think that Colorado should explore the possibility of participating with

Kansas in this project. We could either get water delivered to areas of our state where we are using the aquifer or the Arkansas River, or could use it as an exchange for water from the Arkansas River which we would then be allowed to keep and use in our state. The consequences are very severe to U.S. agriculture if we do not start to deal with the implications of the depletion of the Ogallala and other aquifers.

Another scenario using the Missouri River is that proposed by Representative J. Paul Brown this past legislative season to study the feasibility of bringing Missouri River water across Nebraska to the South Platte basin.

Any of these projects involving water in other states would need a large cooperative effort, and possibly involve Congressional approval. But the fact that other states are thinking of such large grandiose plans illuminates the fact that the entire southwestern portion of the United States is in the grips of a severe drought. There is the very real possibility that this drought is caused or exacerbated by global climate changes which will be very hard to reverse in the near term. We need to be planning for the worst case scenarios in the Colorado Water Plan, and thinking of big solutions involving cooperation with other states should be a necessary part of our plan.

5) "Land Use" There is a call by many entities saying that land use needs to be elevated to a much higher level of consideration in the Colorado Water Plan. I wholeheartedly agree with this assessment. When you consider that subdivisions continue to be approved by local entities and built in areas of the state that do not have enough water to satisfy even the needs of the existing residents, the need for some sort of state override of local rules should be implemented to ensure that adequate water supply is available for the whole state.

When you consider that so much of the water diverted from western Colorado is used to water blue grass lawns which are out-of-place in the semiarid region where they are grown, one realizes that we need some sort of state-mandated landscaping rules that would preempt local ownership and rules that allow such a waste of water. Another idea for the state to pursue would be to have Colorado State University horticulturalists do extensive research into alternative turf crops and xeriscape plants that could be used to substitute for blue grass lawns.

6) "Agricultural Efficiency" Since agriculture uses the vast majority of the water used in the state, it is logical that agriculture be part of the solution to solving our water situation. There are a lot of proposals included in the plan which act as good alternatives to the worst option of "buy and dry" which we are all trying to avoid. The one area which I think needs a lot more consideration is the fact that we are growing a lot of water-intensive crops in our state. Corn, alflalfa, and irrigated grass pastures all consume a lot of water (and I am guilty of being one growing the later crop). An overriding goal of the Colorado Water Plan should be to keep as much of irrigated agriculture in production as possible. We absolutely need to keep land in production for food , fiber, and fuel sources, and we need to keep as much water as possible with the land to make it as highly productive as possible. To accomplish this goal of keeping agricultural viable as the major industry it is in Colorado, we need to change the mix of crops that are being grown, and change the way we deliver water to those crops.

For instance, corn uses a lot of water, while milo uses a lot less. What other crops are there available that could be substituted for what is grown in Colorado? The Water Plan should call for a robust effort involving farm organizations, researchers at CSU and the USDA, farmers, and ranchers to come up with some alternative crops and production methods.

Another approach would be a laissez faire one - just cut back on the amount of water that each irrigator is allowed to use, and let them come up with the best use for the water. Or start charging everyone in the state for the water they are using. Either approach would yield quick results in innovation by people making more efficient use of their water.

7) "Energy" Energy production and use are inexorably tied to the use of water in Colorado, and the issue is dealt with fairly extensively in the Water Plan. Taking the high-above-the-ground look at where and how we get our energy supplies gives me some ideas. Every energy source should be evaluated in relation to how much water it takes to produce it and use it. For instance, if thermal power plants need so much water for production and cooling purposes, maybe they shouldn't be allowed to exist, or be required to become more efficient in their use of water. If large reservoirs involve a lot of evaporation of water, maybe small hydroelectric projects which don't involve reservoirs should be encouraged.

As part of the Colorado Water Plan, I propose that there be an entire section dealing with energy

production. Since we are so short of water, we need to begin to emphasize those energy production processes which don't use so much water, and begin to phase out those that do. There are some things which we probably cannot afford to do. An example in my mind would be oil shale production in northwestern Colorado. The SWSI figures state that we need something on the order of 150,000 to 200,000 Acre Feet of water for energy development in my part of the state. That water simply does not exist unless you are talking about drying up a lot of agricultural land. Since there are many better alternatives to oil shale for producing energy for transportation and lubricants, alternatives that don't have the very serious side effects that oil shale production would have, I believe it should be taken off the table.

These kind of decisions are major land use choices which we are being forced to make or at least consider because of our serious water shortages. We can produce our energy supplies from a lot of renewable and traditional resources, most of which don't use much if any water. Some of these involve a change in the scenery and landscape, such as large scale wind or solar farms, large scale mining operations, or large reservoirs built primarily for hydroelectric production.

If we are going to solve our water shortage problems, there really need to be some changes in how we think about and use water. I believe it will take a paradigm shift in our water thinking to be successful. Some of these may involve lifestyle changes, and changes in the way our state looks. But to keep the Colorado we all know, with relatively healthy streams, recreational opportunities in scenic areas with flowing water, attractive and sustainable farms and ranches, livable cities, and all the things we all love, it will be worth it. The future generations will thank us if we are successful.

Thank you for consideration of my ideas for inclusion in the Colorado Water Plan.

Steve Child
5050 Capitol Creek Road
Snowmass, Colorado 81654
steve.child@pitkincounty.com

PUBLIC INPUT
ITEM 61

Hi – Below are some comments on the Colorado Water Plan, section 6.4, alternative agriculture to urban transfers

Page 190, **Table 6.4-1.**

- **Rotational fallowing** is also, and probably better, suited for municipal drought supply, drought recovery, and conjunctive use with groundwater supplies (especially Denver Basin groundwater) than as a base supply.
    - **Erosion and weed control** as well as revegegation, more accurately a cover crop, are important issues for farmers to address on fallowed land.
- **Municipal-Agricultural Water Use Sharing** – there needs to be an explanation of what "continued farming" means.

Page 190, **Goals of ATM Programs**

- I agree that it is "highly unlikely that any one concept will be universally accepted in every basin." It is also highly unlikely that any one concept will fit every municipal or every irrigator's needs in any basin or subbasin, and the Plan should recognize that one size won't fit all, therefore there need to be many alternatives available for both ag and other users to use to meet specific needs.

Page 194, **HB 13-1248**

- Penultimate paragraph: SB15-198 expanded the program to include ag to ag, ag to environment, ag to industrial, and ag to recreation. The Governor signed this into law today.
- Last paragraph: Please update the status of Catlin Pilot Project, which the CWCB approved in January, and is being implemented. Tom Browning or Bill Tynor in Division 2 knows the details.

Page 196, **Table 6.4-2**

- 1)c) What "selective and systematic considerations" are is not obvious (at least to me)and should be explained.

Pages 196-97, **Actions**

- "monitor ... encourage … support … continue … assess …explore … seek … consider" are not really "actions." These all rely on someone else to take the initiative and actually take action. The Plan should include some State actions, or example:
    - CWCB has existing authority to foster and financially support demonstrations of ag sharing pilot projects, and could do so in preference to additional study.
        - One very useful approach would be for the CWCB to solicit proposals and provide grants to defray the substantial front-end costs of putting together applications under HB13-1248/SB15-198, and implementing ag sharing pilot projects that the CWCB selects and approves.
    - Changes to Colorado Water Law, particularly the no-injury standard, burden of proof, and use of presumptive historic consumptive use and return flow models, to make ag sharing easier and cheaper to implement than buy and dry (reduce transaction costs in all respects: less risk, less time, less $). For example, these changes could be applicable to ag sharing, but not applicable to permanent changes. These concepts are included in the Legislative Task Force recommendations of the IBCC for study.
    - Incentivize/subsidize ag sharing as a water supply strategy – both irrigators and temporary users will respond to economics
        - This may well require additional funding sources, as advocated by the Ag Viability Task Force of the IBCC.

Regards – Peter

PUBLIC INPUT
ITEM 62

BOARD CHAIR
Paul R. Vahldiek Jr.
The High Lonesome Ranch • CO

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May 1, 2015

Colorado Water Conservation Board
1313 Sherman St., Room 718
Denver, CO 80203
RE: WLA Comments on Draft State Water Plan

Dear Board Members:

The Western Landowners Alliance advances policies and practices that sustain working lands, connected landscapes , and native species. Our members represent ownership and management of over a half million acres of agricultural production land that also provides critical watershed, wildlife, open space, and recreation values to Colorado's rural economies and state.

WLA is pleased to submit the following comments related to the first draft of the State Water Plan and looks forward to continued participation and dialogue on the future of Colorado's water resources, including agriculture and landowners' roles in conservation and policy:

- The Plan should ensure the availability of effective **landowner water conservation tools and incentives** that contribute to vibrant communities, productive agricultural sectors, sustainable aquifers, and healthy rivers. Tools should ensure landowner flexibility to leave water instream (without water right diminishment), practice adaptive management, and manage for multiple objectives and revenue streams.

- Planning should encourage prioritization and availability of **water delivery infrastructure improvement funds** where beneficial to aquifers, resources, and water supply.

- The Plan should include natural flow hydrographs and documentation of related **fish and wildlife species' dependence** on specific flow elements, current flow-related habitat impairments, and opportunities for restoration.

- Chapter 10 should include policies and programs that acknowledge and **foster public and private landowner stewardship** to protect and restore stream flows, riparian areas, and watershed health, as well as foster collaborative water management and drought response.

- **Water quality** issues must be integrated with quantity issues - both must be solved.

- The Plan should ultimately foster **water right transfer mechanisms** that help meet other water resource objectives, maintain consistency with the Prior Appropriation Doctrine, avoid adverse effect to other water users, and minimize incentives for water hoarding or speculation.

- Changes in **water administration** should be evaluated before additional physical supply is planned; states must have the means to determine who owns what right to water, and take action to stem illegal use.

- Planning and related data analysis must recognize and address **hydrogeologic connections** between surface water and groundwater. Where they are lacking, laws and policies should be updated to recognize these connections and address related issues.

- Water use must capitalize on **re-use, conservation, and low-use planning** to minimize impacts to other sectors, and public investments should foster related technological innovation (e.g., desalination, process water treatment, etc.) and ensuring such innovation is environmentally sound.

- Where aquifers or surface supplies are **over-allocated**, planning must develop tools and approaches to reverse shortages. Planning should recognize that over-allocating water resources is more expensive to correct than not over-allocating in the first place, and ensure the more practical course is taken.

- Any discussions of additional **storage** should include comparisons of water storage that could be accomplished through healthy watersheds and riparian areas, evaluate proposals for losses due to evaporation, ensure fish passage issues are addressed, and provide release regimes that foster channel stability, flushing flows, and needed habitat. Reoperation, maintenance, and upgrade of existing facilities should be considered prior to new supply construction.

- Modeling and projections should include various **scenarios** - high and low projected growth, climate change/variability, and other elements to illustrate the range of futures possible in the basin and to help contribute to practical approaches, reasonable likelihood of incorporating relevant technology, adaptive management opportunities, and to reduce risk of overbuilding.

- Planning should ensure that state agencies work collaboratively with landowners and federal agencies on **recovery and restoration** of at-risk water-dependent wildlife species, and that state water policies foster rather than hinder species recovery.

- Planning should be transparent, grassroots-initiated, and represent the full spectrum of interests, with effective **participation and communication** networks and mechanisms.

- Planning and its products should evidence a commitment to **data** collection, analysis, modeling and monitoring that is useful, cost-effective, long-term, understandable and accessible to stakeholders, and that fosters improved management of water resources.

- Updates of the **SWSI** and related demand projections should incorporate the findings of a recent American Planning Association paper that discussed reductions in municipal water use in the West. The Draft Plan refers to the potential for such reductions, but has a citation older than the APA article. Related projections and calculations should be updated based on more recent information. Article citation: Frost, Douglas, 2013. "The Water Demand Revolution", IN *Planning*, August/September 2013. American Planning Association, Chicago, IL.

- At a 2014 WRRC meeting, a participant commented that when Denver Water Board called for water **conservation**, there was so much that they had to again call for more water use because they couldn't otherwise pay their bills. If this is correct, the documents should be updated to show the strong latent ability of municipal water users to conserve.

- Any discussion of the economic "benefit" of urban **landscaping** should be informed by whether such benefits are only due to water-thirsty landscaping, or whether attractive xeriscaping also provides similar economic benefits. Santa Fe and other cities certainly have attractive urban design and use much less water on their outdoor landscapes.

Sincerely,

Lesli Allison, Executive Director

PUBLIC INPUT
ITEM 63

May 1, 2015

James Eklund, Director
Colorado Water Conservation Board
1313 Sherman Street
Denver, CO 80203

Re: Comments on December 2014 Draft of Colorado's Water Plan

Dear Director Eklund:

The undersigned conservation organizations appreciate the opportunity to provide comments on the Draft Colorado Water Plan. We first should acknowledge the tremendous amount of work undertaken—by you, your staff, your board, and sister agencies in Colorado—over many months compiling the state's first ever draft Water Plan. It's a momentous task if there ever was one.

The comments below highlight places where we believe the Plan can be refined to become the most helpful guide for the future of water in Colorado and reflect the interests and concerns of thousands of Colorado citizens.

Though already distributed widely, we reiterate here what we find to be **Essentials** for the Plan:

- *Keep Colorado's rivers healthy and flowing, which will require consistent and significant funding to assess, protect and restore rivers. We must use streamflow management plans to identify necessary flows and strategic options, and then fund implementation of those options to protect fish and wildlife and support recreation, including fishing and boating.*
- *Establish an urban conservation target for water users (e.g., a 10% reduction in per capita use between 2010 and 2020) and the complementary actions that state agencies can take to assist water users to meet the targets;*
- *Modernize agricultural infrastructure and allow water sharing practices that are voluntary, flexible, and compensated, and*
- *Avoid large, new transmountain diversions that drain water from West Slope rivers to supply growing Front Range demands, especially since conservation, reuse and water sharing agreements are less expensive, less controversial and more effective*.

In the pages that follow, we've commented in detail on many sub-chapters of the Draft Plan:

- Urban Conservation and Reuse (Chapter 6.3)
- Alternative Agriculture to Urban Transfers (ATMs) (Chapter 6.4)
- Environmental & Recreational Projects & Methods (Chapter 6.6)
- Inter-Basin Projects & Agreements (Chapter 8)
- Economics and Funding (Chapter 9.2)
- State water rights and alignment (Chapter 9.3)
- Permit streamlining (Chapter 9.4)
- Water Quality (Chapter 7.3)
- Action Plan (Chapter 10)

Urban Conservation and Reuse (Chapter 6.3)

Urban water conservation is the most important strategy for meeting Colorado's future water needs, and filling the gap between demand and supply. It is the cheapest, fastest, and most flexible way to meet future needs and should be prioritized above all other solutions in the State Plan. The Governor and the Board has already received over 15,000 comments from members of the public expressing their desire for the Water Plan to include a robust, state-wide conservation goal, and thousands more are piling on. And legislators participating in SB 115's statewide listening tour came to a similar conclusion in their report to the CWCB, with their first summary point stating:

> Colorado citizens support a strong and robust statewide commitment toward achieving increased levels of municipal, commercial, and industrial water conservation as one of [the] top priorities for meeting future water demands.[1]

This sentiment is mirrored by Colorado voters in polling data.[2] Notably, 78% of voters prefer solving our water challenges using water conservation and recycling instead of diverting water from rivers in Western Colorado to the Front Range, and 88% of voters support a statewide goal of reducing urban per capita use 10 percent by 2020. The public is willing, able, and expecting to follow strong leadership from the Governor and CWCB on water conservation.

The existing goal for conservation in the State Plan, medium conservation, is too low to realize conservation's full potential.[3] The IBCC's no/low regrets action plan for water conservation is described as the "minimum amount necessary" for water planning. The Plan should aim for a high level of conservation savings for all the reasons mentioned above. Importantly, the Governor and Board will find support for this level of savings from virtually all Western Slope roundtables, including the Southwest, Gunnison, and Colorado, who call for a high level of conservation statewide.

As defined by SWSI, a high conservation scenario is equivalent to a 1%/year reduction in per person water use - a rate of savings water utilities have bested for the past decade and should continue based on conservation plans on file with the CWCB. Other Western States, including Utah, Texas, and California – states we directly consulted in the development of our Water Plan – use this same goal, as does the Federal Government. To set clear expectations for the public, and to prove this Administration is taking action and leadership on a secure water future, our state should adopt a 10% by 2020 conservation goal in the Water Plan.

Goal setting is powerful; it turns the conversation from "Can we do this?" to "Let's do this!" Colorado must commit to using existing supplies in the most efficient manner possible before

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[1] Water Resources Review Committee. 2014. Senate Bill 14-115 Report to the Colorado Water Conservation Board. http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1252042805657&ssbinary=true

[2] Keating and Weigel. 2014. *Colorado Statewide Water Poll Key Findings*. Poll conducted September 5-8. Available at: www.waterforcolorado.org/resources.

[3] P. 150.

pursuing costly, damaging, and controversial diversion projects. Urban conservation decreases the need for other water supply options – be they agricultural fallowing or TMDs. Financial assistance from the State for conservation planning and implementation of conservation programs will support the goal; along with way, the State should expand funding to ensure even broader success. Conservation should be the first, biggest tool out of the box, every single time.

The reuse sub-chapter of the Draft Colorado Water Plan is greatly improved from the April 2014 initial draft and we thank you for addressing many of the concerns in our initial reuse comment letter dated October 10, 2014. The current plan shows the leadership necessary to promote additional municipal reuse in the state and recognizes the high priority this source of supply has received from roundtables across the state. The numerous reuse "Actions" are significant additions that we strongly support.

We suggest, that, where possible, more specific actions with timeframes be specified for future actions. For example, the first action listed is "Improve quantification, planning and tracking for potential reuse projects." We agree that this is extremely important and of interest to stakeholders throughout the state; but when, through what process, and by whom does the Plan recommend this research be undertaken?

Directly related, another comment in our October letter was to quantify the reusable supplies associated with IPPs. While the Draft Plan states up front in the reuse section that "there are various sources of water that can reused to extinction such as: water from transbasin diversion, agricultural-municipal water transfer, and non-tributary groundwater" [also should add "supplies with decreed reuse"], reuse is only quantified for IPPs when project proponents have chosen to do so, which does not appear to be often. The Water Plan could more clearly acknowledge that additional project yield is likely from IPPs and that reusable supply components should be quantified to help understand the additional yield potential.

We also appreciate the recognition of the role potable reuse will play in meeting future demands and support for work to advance it.

Alternative Agriculture to Urban Transfers (ATMs) (Chapter 6.4)

Chapter 6.4 provides a helpful outline of the need for alternative agricultural transfer methods to play a role in meeting Colorado's future water needs. Agricultural water use and management will need to become more flexible and efficient both to remain profitable in the face of climate change and to help address water supply gaps in other sectors.

However, those gaps are not limited to what we expect to see in growing urban areas. Flexibility and alternative agricultural transfers can and should be structured to address environmental needs, changing agricultural demands, and growing M&I demands. The title of the chapter should reflect that. A more appropriate title would be either "Alternative Agriculture Transfers" or "Agricultural Flexibility."

The sub-chapter does a good job identifying the many public benefits of ATMs and the existing barriers to their implementation. However, it does not provide enough solutions or recommendations to expand ATM implementation. As such, Chapter 6.4 should:

- Incentivize and prioritize research and investment in increased automation of delivery and application systems, piping or lining of ditches, conversion to more efficient water application systems like sprinklers or drip, and improved or automated irrigation water scheduling. Without these improvements, farmers and ranchers will be unable to profitably participate in ATMs.
- Reduce the barriers to participation in ATMs by supporting new incentives (such as FLEX Markets and Water Efficiency Savings).
- Condition subsidies (e.g., direct payment to compensate agricultural water rights holders who participate in ATMs with quantifiable public benefits) on projects that leave 5-10% of the water to be transferred instream for environmental and recreational benefit. Legal and policy incentives alone are likely insufficient to garner broad support; subsidies and public funding should be provided, as well.
- Clarify the distinction between ATM transactional forms (Interruptible Supply Agreements, Water Banks, etc.) and methods to reduce consumptive use: such as temporary rotational "idling" of grass crops or fallowing of row crops; regulated deficit irrigation; and split season irrigation.
- Continue supporting research and demonstrations of temporary rotational "idling" of grass crops or fallowing of row crops; regulated deficit irrigation, and split season irrigation to reduce consumption without harm to underlying agricultural operation and profitability.
- Support continued development of water banking approaches. Public benefits can be generated through water banks by retiming releases from storage and strategically positioning conservation and transfer projects to improve flows during critically dry seasons through delivery to downstream needs or storage. Such multiple benefits ATMs should be required in the same way as large infrastructure will only be considered if it is multi-benefit. We should look to the Super Ditch concept as well as examples from other states to develop a workable model.
- Provide additional outreach and education to and by the agricultural community to study and determine how ATMs can be made more profitable and appealing to farmers and ranchers.
- Promote new project funding structures (such as Public-Private Partnerships and bonding initiatives) to bring private investment and conservation dollars to bear on agricultural infrastructure needs.
- Fund new/emerging projects & methods (Chapter 6.5 box), and include in the list agricultural infrastructure, efficiency and sharing projects, reuse, and E&R.
- Identify, prioritize, and fund infrastructure needed to implement and share ATM water. The chapter currently only discusses the need for storage infrastructure to expand adoption of ATMs. Diversion, delivery, and application infrastructure improvements are

needed as well, and there may be opportunities to re-operate or expand existing reservoirs to storage and shepherd ATM water without the need for new construction.

- Incorporate improved water use, consumption, and return flow data use (from Remote Sensing and other sources) into State Engineer, CWCB, and other agency decision making processes to reduce uncertainty for all water managers. Data collection and the creation of conservative, basin-specific models for use in water court change cases will also reduce transaction costs and improve flexibility in changes of use.

Environmental & Recreational Projects & Methods (Chapter 6.6)

The opening text box (p. 119) commits Colorado to identify and implement the projects and methods needed to protect and restore the environmental and recreational (E&R) values that roundtables and other state efforts have already identified. We appreciate the many statements and commitments in the Draft Plan that so clearly elevate non-consumptive water uses onto the same plain as consumptive uses.

However, given the relative dearth of specific commitments in the Basin Implementation Plans, the Colorado Water Plan needs to go farther. It should commit to close the environmental and recreational gap shown in Figure 6.2-3. To achieve this end, Colorado and its water users need not only to examine how to develop multi-purpose projects and methods that achieve both environmental and recreational, as well as agricultural, municipal and industrial goals (per Actions 5 & 7), but also undertake sufficient projects and methods that exclusively build ecosystem resiliency to enable Colorado rivers and riparian systems to remain healthy in the face of growth and climate change.

The BIPs don't appear to have gone thru their needs assessments systematically to fill E&R gaps. (Action 3). The CWCB will need to place a greater emphasis on supporting and assisting the basin roundtables in moving forward the environmental and recreational projects and methods identified in their draft BIPs and SWSI Phase 2, and continue to track nonconsumptive projects and methods.

Identification:

The first action listed at the end of the sub-chapter is for CWCB & the roundtables to work in partnership on conducting additional technical work to better determine the levels of existing protections, and where additional projects and methods should be focused. Based upon this work, BRTs and relevant agencies can work together to establish and achieve measurable outcomes for listed species, imperiled species, and economically important recreational uses. We urge the CWCB to expand this action to include outcomes for other environmental values beyond just listed species, e.g., sustainable riparian communities. We also appreciate that the Draft Plan commits the CWCB to "provide tech support for further quantification of project and methods costs, new acre feet developed, new irrigated acres developed and new stream miles protected."

To claim a number of stream miles protected, one must first know the status of the stream. As the Draft Plan notes, there are some significant knowledge gaps—i.e., streams and watersheds

that roundtables identified as having environmental or recreational values worth being protected, but where the CWCB and its contractors cannot say whether the stream reach currently supports the identified values or what, if any, level of protection for those values exists. Stream Management Plans (SMPs) targeted at the reaches and watersheds where roundtables identified environmental and recreational values can begin to fill these knowledge gaps.

The $1 million in the CWCB Projects Bill making its way through the 2015 legislative session will provide a start to doing those SMPs, perhaps as many as 20. Thereafter, SWSI 2016 can continue this process of evaluation – not for all 100,000 miles of streams in Colorado, but for those where the roundtables have identified relevant values. It will help for SWSI 2016 to set out a timeline for completing this important work.

To get the most value from the SMPs, the CWCB should collaborate with sister state (CPW, WQCD), federal (FWS, USFS) and local agencies, as well as the roundtables, conservation NGOs, watershed groups and others, to ensure use of the entire existing pool of knowledge. There are NGOs, local governments, and other agencies in Colorado with experience building both relatively simply as well as more complex SMPs. In creating a template of what these SMPs need to incorporate to have successful outcomes, the CWCB should reach out to these entities in putting together its SMP program. Some roundtables, notably the Gunnison, Yampa and Colorado, have identified the need to do SMPs and may be ready to take advantage of the new funding relatively quickly.

Unless there is other information already available, SMPs can be the first step for quantifying existing flows and calculating the delta between those flows and the flow regime necessary to support identified environmental and recreational values. We appreciate that the Draft Plan recognizes the importance of quantification.

With flow needs quantified, SMPs can identify options for filling the gaps. In some cases, there may be a suite of projects and methods to implement; in other cases, a single act, e.g., appropriation of an instream flow water right, may be all that's required. Where a roundtable has identified multiple environmental and recreational values for a stream or watershed, it may be necessary to protect or restore different levels of flow on a seasonal basis: e.g., to support, enhance, or restore riparian plant communities through episodic dynamic spring flows with slow recession rates to sustain riparian vegetation flow-ecology; or to protect fish during the late fall and winter would require a minimum flow, whereas to provide nursery habitat during the spring would require higher flows. Some of the public comments already submitted—e.g., those from Colorado Trout Unlimited—contain examples of strategies for specific, important reaches.

The Plan must also commit to determine the effects on environmental and recreational attributes from climate change and new consumptive IPPs. While SWSI 2016 can take a look at such effects at a statewide level, stream management plans can complement that effort by examining potential effects more locally. The Yampa BIP provides a good model for how to approach this task, having looked at the impacts of climate change together with those anticipated from IPPs on the basin's environmental and recreational values.

This commitment is slightly different both from the listed action and from the description in section 6.1, which says the CWCB will "*monitor*" potential impacts of climate change on state water needs. Rather, we urge looking at how climate change models suggest rivers and streams may change in ways that would affect existing projects, IPPs, and E&R values. With those predictions in hand, Colorado can integrate that information into its planning efforts to prioritize projects that make sense assuming climate change will continue to affect our water supplies and demands. (Action 4) BRTs & CWCB will incorporate the potential effect of climate change on environmental and recreational attributes into the BIPs and the next update of SWSI.

Implementation

As stream management plans and strategies from other sources (e.g., TU comments, BIPs, other CWCB programs) bubble up, the next step, as the Draft Plan rightly recognizes, will be implementing the projects and methods necessary to fill environmental and recreational gaps and achieve ecosystem resiliency. Implementation can build on existing programs and efforts, but will require new levels of commitment as well as seizing new opportunities.

The Draft Plan describes some of the existing programs and efforts that will become the foundation for the broader effort that Colorado must undertake to build ecological resiliency. Many of these are well described in the Draft Plan, such as the collaborative work between state and federal agencies on species protection and Colorado's 40 year-old instream flow protection program. Actions at the end of the chapter call for continuing these efforts. With regard to strengthening the state's instream flow protection program, going forward, Colorado should expand funding for this program to acquire water, and continue to pursue the kind of alternative appropriations seen on Big and Little Dominguez Creeks, the Upper Colorado, and elsewhere, whether to create alternatives to federal Wild & Scenic designation, protect federal wilderness values using state tools, restore endangered species, or prevent future listings.

One of the actions listed at the end of the chapter would have the CWCB continue to provide local governments seeking recreational in-channel diversion (RICD) water rights technical consultation and funding. If Colorado wants to improve protection for recreational water, the existing RICD program is quite limited. Not only should the CWCB reconsider whether all of the constraints on that program are warranted, but also how to protect recreational flows outside that program by creative means, including exploring ways to shepherd water downstream through recreational reaches, whether to other water users who will divert, to storage for later use, or to meet compact delivery requirements.

A separate chapter of the Draft Plan (chapter 9.3) describes state-owned consumptive use water rights. We urge the CWCB to start a strategic and comprehensive assessment of how these rights could be used to protect and restore already identified environmental and recreation values.

Finally, one aspect of recent state activities that is less well described in the Draft Plan is efforts the CWCB has led in response to the 2013 flood. It is our understanding that the CWCB has taken advantage of the need to rebuild to improve rebuilt infrastructure, like dams and diversions, in a way that is more friendly to the environment, e.g., by incorporating fish passage.

The Plan should add more on lessons learned from these efforts, to help lay a path for future work.

Funding

Please also see our comments on Draft Plan Chapter 9.2.

To identify what will be necessary to make Colorado's river and riparian environments resilient and then to implement the strategies identifies will require a greater financial commitment for environmental and recreational projects than Colorado has previously made.

We agree that achieving the necessary level of funding presents a challenge. Given the historical imbalance between government priorities being on, and funding flowing to, water supply development for agricultural, municipal and industrial projects, especially in the 20th Century, the 21st Century is the time to make protection of environmental and recreational values a priority for funding. The State has many priorities. We understand that the CWCB expects to align its grant and loan programs to prioritize multi-purpose projects, as noted in the list of actions at the end of this chapter and throughout the draft. However, to ensure that Colorado's rivers, streams and riparian areas are sufficiently resilient to withstand climate change and growth, and to accommodate consumptive IPPs, Colorado must first establish that resiliency. This will require investing in environmental flows and habitat protection and restoration projects as never before.

Achieving the necessary level of investment will require taking Action 2 to strengthen funding opportunities by determining funding needs, coordinating existing funding opportunities and developing new ones. However, the Plan should complement these efforts by setting a goal of directing 10% of the money it will spend on all water projects and methods between now and 2050 to identify and implement projects and methods that create ecological resiliency and benefit the large sector of Colorado's economy that benefits from healthy rivers.

CPW and nonprofit organizations that work on river protection and restoration have demonstrated the ability to match government grants with private and non-profit investors to stretch how far government dollars go. Colorado rivers will benefit as the CWCB, other state agencies and NGO and private partners expand our ability to marry USDA Farm Bill and Bureau of Reclamation WaterSMART grants or money available from the Fish and Wildlife Service or other federal agencies, with state grants, NGO indirect and direct contributions and foundation or private capital investments for projects that build ecosystem resiliency.

Some of these projects will result in upgrading aging irrigation infrastructure. Some may include water conservation where some of the saved water is used to maintain or enhance flows. These kinds of projects are happening around the West. In addition, there are strategies, like water banking, which may come on line in the next decade to help Colorado avoid a compact call while simultaneously creating market opportunities for existing water users and providing flows for the environment and recreation.

Inter-Basin Projects & Agreements (Chapter 8)

IBCC Conceptual Framework:

The organizations submitting these comments have been consistent in promoting some ***Essential*** elements for Colorado's Water Plan. One ***Essential*** is that the Plan "Avoid new large transmountain diversions (TMDs)." It explains:

> Avoid new large transmountain diversions. We need to change the status quo. Looking across the state to secure our water needs is no longer the answer. TMDs that drain water from West Slope rivers to supply growing Front Range demands are controversial, costly and harm our rivers. Conservation and efficiency are less expensive, less contentious and more effective.

We believe that the best strategy for the Plan would be to incorporate this point**.** So would the thousands of individuals and groups who have reiterated this point in their public comments on the Draft Plan. The West Slope Roundtables all raise significant concerns with new TMDs, and/or have set out substantial additional conditions before allowing a new TMD while also urging that additional explanations be added to the Framework, or that it not be incorporated into Plan at all.

The 2015 annual State of the Rockies poll confirms that 74% of Colorado voters oppose a new TMD.[4] Scientists and scholars from around the region caution against consideration of a new TMD.[5] Large Front Range water suppliers seem focused on building IPPs, rather than risking construction of a new TMD that could threaten the 500,000AF yield from their existing TMDs. Even entities like the South Metro Water Supply Authority who have, in the past, suggested a large new TMD are now engaged in the WISE partnership, which reduces their need for a new TMD.[6]

The IBCC's Conceptual Framework, while not a substitute for our ***Essentials,*** does include some important points for additional consideration. The longer discussion of its seven points notes in at least two places that Colorado cannot make a decision regarding a new TMD because it will not be clear if or how much water might be available for one until the Basin States and Reclamation re-negotiate the Interim Shortage Guidelines (due in 2026). Thus, we read the Framework as not committing Colorado to build a new TMD now, and putting off for a decade any serious discussion whether to do so. If the CWCB does not take a TMD off the table entirely in the Plan, we support the Framework's sequencing because we are confident that evidence that comes in over the next decade will show what is already apparent to many today: a new TMD is unnecessary, unwarranted and financially infeasible, in other words, counter to Colorado's interests.

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[4] Colorado College, State of the Rockies Report, Conservation in the West poll, available on line (4/29/15) at https://www.coloradocollege.edu/dotAsset/5835e9d4-f437-44f0-b1b4-04e696b6c2ae.pdf.

[5] Colorado River Research Group (2014), *The First Step in Repairing the Colorado River's Broken Water Budget: Summary Report*, available on line (04/29/15) at http://www.coloradoriverresearchgroup.org/uploads/4/2/3/6/42362959/crrg_summary_report_1_updated.pdf.

[6] Eric Hecox (2014), *Denver Post Op-Ed: Creating a secure water future for south metro Denver*, available on line (04/29/15) at, http://www.southmetrowater.org/latest-news/denver-post-op-ed/.

Colorado River Basin Reality:

The Colorado River Basin is in the midst of a drought that has lasted more than a decade. As a result, its largest storage reservoirs, Powell and Mead, are less than half full. In 2012, the Bureau of Reclamation and seven states who are party to the Colorado River Compact released a Basin Study that explains the imbalance between the Basin's water supplies and demands and analyzes how various options and strategies to address the imbalance would affect the Basin's many users and values. The fact that the Lower Basin uses approximately 1.2 million acre feet (AF) more water than the Compact allocated, coupled with modeling that shows the Upper Basin rarely has as much water available for use as contemplated at the time the Compact was signed, likely will drive the reservoir levels down further over time. The drought exacerbates the imbalance, but use levels have grown enough that, even without severe drought, the imbalance would exist. States are examining drought contingency plans, while the Basin's largest municipal water users are working with Reclamation on system conservation pilots, as Chapter 8 briefly notes.[7]

The notion that Colorado would build a large new project to take 100,000 AF or more out of the Basin seems disconnected from this context. The next draft of the Plan should include a thorough explanation of what is happening in the Basin and how that affects plans for a big new TMD in Colorado. While there is a brief explanation in Chapter 9.1, consistent with the suggestion of the IBCC's Conceptual Framework Task Group, we urge the CWCB to expand this section – and reference it elsewhere in the Plan wherever there's mention of the possibility of a new TMD.

Actions:

The "actions" that Chapter 8 lists include one that restates Colorado's long standing legal position of protecting its right to develop its compact entitlements, one about planning for scarcer water supplies in the future, and one, "refine conservation targets" elsewhere in the Water Plan, that is indirectly related to a new TMD. These are insufficient to tackle this critical issue.

This list of actions should include the CWCB undertaking an additional analysis of real hurdles related to compact compliance for a new TMD in an era of climate change. Also, because the Framework calls for any entity considering a new TMD to develop an alternative water supply for when Colorado River water is unavailable, the Plan should direct the CWCB to analyze the costs of providing an alternative water supply that protects existing users and firms the yield of a new TMD in a drier future. We believe such a study would make clear that a TMD could never be cost effective.

The Framework assume that Colorado must starts working on several of its complementary elements now, in preparation of a drier future, and regardless of whether anyone tries to permit a TMD sometime in the future.

For example, the Framework requires Colorado to build environmental resiliency in our rivers so that they can withstand shocks in the future, whether from the effects of climate change, or new

[7] Pp. 275-76.

dams and diversions (transmountain or otherwise). Thousands of public commenters on the Draft Plan, along with most of the Basins, agree that keeping Colorado's rivers healthy and flowing is not only a water value but an imperative. Identification and implementation of actions to achieve this outcome must be part of the Plan. As noted elsewhere in these comments, the draft has excellent language but falls short in terms of commitments and strategies for implementation, starting with stream management plans in critical reaches, and including funding.

Another point in both the Framework and our ***Essentials*** is to increase municipal water efficiency and recycling. Our ***Essentials*** suggest that the Plan include "a statewide municipal water conservation goal of 10% by 2020 [and] expand conservation incentives, increase indoor and outdoor efficiency, and develop support for water recycling programs."

Finally, both the Framework and our ***Essentials*** urge the Plan to articulate ways for Colorado to "modernize agricultural and water sharing practices . . . [by] provid[ing] incentives, and funding to modernize irrigation infrastructure and support voluntary, flexible, compensated water-sharing agreements."

We urge the CWCB to work hard over the course of the next six months, to help both statutory entities and the interested public reach consensus on the appropriate way to include a meaningful discussion in the final Plan about the challenges and potential impacts of a new TMD. We stand willing to assist. However, we hope that the CWCB can limit the resources devoted to having this essentially theoretical discussion, and focus instead on directing state resources to implementing solutions that improve urban water conservation, protect streamflows and modernize irrigated agriculture.

Economics and Funding (Chapter 9.2)

There remains a significant imbalance between the public's overwhelming support for protecting Colorado's rivers and the minimal funding sources available to secure that protection. A key task for the Plan is to find ways to accelerate funding for identifying and implementing projects to meet non-consumptive needs, including through Environmental and Recreational (E&R) projects. A good first step is to make more funding available for existing programs that benefit these E&R projects, which can be supplemented as new sources of funding become available.

Meeting Consumptive Needs

Draft Chapter 9.2 suggests a potential need for as much as $19 billion for municipal and industrial water infrastructure projects by 2050 (p. 290). The tally of data from the BIPs may result in an even larger number.[8] As we noted in our October comments, a long history suggests large structural projects often are delayed by many years and run over-budget.[9]

[8] It is unclear whether the data-set from the Water Information Network, underlying Figure 9.1.1-1, is connected to the BIP analysis. One could expect the BIPs to be the most refined list of potential projects.

[9] In the late 1990s Colorado's Springs Utilities' Southern Delivery System was projected to cost $400-500 million; the final price tag for Phase I is now $840 million (excluding financing costs). There are many other examples,

But the CWCB does not have billions to spend on water projects. Indeed, the state has no history of high levels of state involvement in water projects and no previous voter acceptance of large state water bonds. As the Draft Plan notes (p. 296) after the drought of 2002, Colorado voters soundly rejected Referendum A, a state bond proposal for $2 billion to finance unspecified water projects. We expect similar results from another big referendum.

The multi-billion dollar examples noted from other states (p. 297) are distinguishable from Colorado, due in part to the much larger populations in states like California and Texas and the "emergency room" situations existing there; indeed, Colorado has the advantage—a pathway offered by the Plan—to avoid the emergency room. In addition, in California's 2014 Proposition 1, only one third of the bonding authority was for traditional consumptive projects, where the future selection and approval of these projects are subject to stringent requirements that make it unclear how many might move forward. Indeed, the majority of Prop 1 funding is for conservation, re-use, watershed restoration, and avoiding contamination.[10]

Before future expenditures, the May 2013 Executive Order states the CWCB must set out ***criteria*** to prioritize which projects best qualify to receive funding or support. The December 2014 draft Plan set out draft criteria and, in sub-chapter 9.2, committed to review the BIPs to determine potential "priority" projects through applying these criteria (pp. 290-91). These and other criteria can help the state be as efficient as possible through emphasizing the impact/results of funds spent and avoiding redundant efforts. We hope that the next draft of the Plan, to be released in July, will provide some insight into how these criteria will be applied. Please see our input on the "criteria" at pages 16-18 of these comments.

Meeting Non-consumptive Needs

We are encouraged that Draft Colorado Water Plan lists several potential ways to increase funding (pp. 294-96), many applicable to non-consumptive (a/k/a E&R) projects. This could ameliorate the historical difficulty that E&R projects usually are not eligible for CWCB's larger sources of funding.

In particular, we support proposals (p. 295) to increase funding to the WSRA grant program account, particularly to assist in meeting E&R needs; to extend the instream flow tax credits for water rights donations to the instream flow program; to use Conservation Tax credits; and to return unspent General Fund transfers back to funds that can be spent on E&R projects.

In addition to these state-based sources of funds, the Plan should research and list available (or potentially available) sources of federal funding. For example, Colorado Parks and Wildlife can receive federal funds through the Land and Water Conservation Act.

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from the Animas La Plata project and the Arkansas Valley Conduit, to projects elsewhere in the West, such as the Tarrant (TX) Regional Water District integrated pipeline now projected to cost *at least* $700 million more than it's initial $1.6 billion price tag, and the estimated $7 billion cost to Southern Nevada Water Authority for its proposed northern pipeline, which has nearly doubled over the past few years.

[10] See http://ballotpedia.org/California_Proposition_1,_Water_Bond_%282014%29

In the short-term, the Plan can seize additional opportunities to provide wet water, like the proposed lease between Ute Water and the CWCB to use water stored in Ruedi Reservoir to benefit flows in the mainstem Colorado.

Support for heathy rivers spans the state. Non-governmental conservation organizations are not the only ones who support greater state support and funding for E&R projects (p. 293). The values articulated in the Executive Order, by CWCB board and staff, BIPs, local governments, and citizens from all over the state[11] agree that securing E&R values are essential to the Plan. It's time to match these values with funding resources.

Streamflow Management Plans

For basins that have not yet fully identified or prioritized E&R values to be protected, the State should accelerate financial and technical assistance it provides to conduct streamflow management plans. The draft suggests "up to 90 watershed level master plans are necessary" at an estimated cost of $18 million (p. 290). We expect far less than 90 plans will be needed, as priorities can be established through input from the roundtables (including what appears in BIPs) and other stakeholders, including non-profit conservation groups, local governments, and others.

We believe strongly this funding should go toward *streamflow management plans*. In contrast to "watershed" planning, which is likely to include a host of land use planning issues, streamflow management plans focus on flows.[12] We are extremely pleased the CWCB is securing $1 million for this effort inside the projects bill making its way through the 2015 legislative session. This a key first step and it will form a template for use of significant additional funding.

As Colorado's Water Plan allocates funding to secure E&R values, it needs to begin to rectify decades of under-funding. Even if the $18 million noted immediately above were directed toward streamflow management plans, it would be just 1/10 of 1% of what has been identified for potential water project infrastructure. To better match-up with state water values, E&R funding should be 10% or more of water-related state funding.

Next Steps / Actions

The draft sub-chapter suggests using BIPs and other resources to determine funding needs. Getting the complete picture of funding needs will require matching E&R projects to projected costs; unfortunately, in most BIPs, cost estimates for E&R projects are incomplete. This shortcoming should be rectified as soon as possible.

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[11] This includes recent polls that show tremendous majorities supporting healthy rivers. Keating and Weigel. 2014. *Colorado Statewide Water Poll Key Findings*. Poll conducted September 5-8 (available at: www.waterforcolorado.org/resources) and Colorado College, State of the Rockies Report, Conservation in the West poll, available on line (4/29/15) at https://www.coloradocollege.edu/dotAsset/5835e9d4-f437-44f0-b1b4-04e696b6c2ae.pdf.

[12] A useful short definition is: "An evaluation of flow and water quality needs to support environmental and recreational uses within a specific basin together coupled with identification of challenges and opportunities to protect, improve, or restore conditions for those uses."

While we support the view that multi-purpose and multi-partner projects may elevate their consideration for state funding (p. 290), it's important to note that a purely flow-related project that benefits recreational *and* environmental needs qualifies as multi-purpose.

The proposed actions (pp. 297-99) will continue to benefit from input from around the state, including conservation NGOs. Because the roundtables have a disproportionately small number of E&R representatives, committees and task forces (e.g., the "water investment funding committee" noted on p. 298) should welcome NGO representatives, including some not currently on roundtables.

Among the near-term opportunities to increase funding resources, we are especially encouraged by the consideration toward increasing reliance upon, and funding for, the Instream Flow Tax Credit program, Conservation Tax Credit for stream restoration, Water Efficiency Grant program (and additional loan opportunities for municipal conservation), and WSRA funding for E&R projects.

State water rights and alignment (Chapter 9.3)

The Draft Plan reveals the extraordinary amount of work—over the past few decades—by staff of the Colorado Water Conservation Board (CWCB), Colorado Parks and Wildlife (CPW), and State Land Board to secure water rights, with those held by CWCB and CPW directly focused on protecting environmental and recreational values (pp. 300-04). It provides some ideas for moving forward, but can expand the path forward to maximize the benefit of those rights for E&R values.

Under proposed Actions (p. 306), we highlight our strong support for #5 (CWCB working with local stakeholder groups to determine where instream flow rights can provide the greatest benefits to E&R values). We expect the just-completed BIPs and additional stakeholders—e.g., Trout Unlimited and The Nature Conservancy—have provided and will continue to provide much useful information that can inform this effort, and that CWCB can increase its interaction with roundtables and stakeholders to explore how the instream flow program can assist meeting basins' E&R values.

We also strongly support #7 (CPW working with CWCB and interested stakeholders to maximize use of CPW water rights to help fill E&R gaps). The Plan should articulate a more accelerated path, with CPW in the lead, to seize opportunities where CPW water rights can help meet E&R gaps, while still being consistent with its own mission. There may even be cases where CWCB could purchase—on a willing seller, willing buyer basis—CPW water rights.

The Plan would be greatly improved if it included a discussion and Action items related to funding, and administrative and/or legal tools that, if implemented, could better utilize existing and future state-owned water rights to meet E&R values. If the State is truly to make the most of these assets, there is much work to be done and additional resources need to be applied to get the job done.

Additional Actions over the coming year could include:

- CWCB and CPW joining stakeholders to prioritize selection of the first phase of stream management plans, utilizing $1 million in the projects bill set aside for this purpose.

- Using the analyses done elsewhere for BIPs and in the Plan's Chapter 6 to determine where CPW water rights upstream might be available to fill an E&R flow gap.

Permit streamlining (Chapter 9.4)

We appreciate the improvements this sub-chapter reflects from the original draft released in the spring of 2014. We agree with all but one of the proposed process improvements, although as discussed in more detail below, we would oppose contingent 401 certifications that would, by definition, be based on incomplete and inadequate draft analyses. We agree with the proposed actions, as well. We provide additional reflections on these items, below.

1. *Process Summaries*.

We appreciate that this chapter now includes information about reclaimed water regulation. Elsewhere in the Plan we hope to see additional information and recommendations for improving regulation of reusable water, given how critical to our water future it will be for Colorado to significantly increase the amount of safe, reusable water available.

We continue to believe that the Plan should also describe the anti-degradation review process in this section.[13] In addition, given the consideration elsewhere in the Plan of the need for green infrastructure and better storm water regulation, we encourage inclusion of a description of that process here.[14]

Finally, we would again ask that the first sentence of the description of the 401 certification process directly reference the purpose of certification, by adding the phrase "to protect water quality" at the end.[15]

2. *Potential Process Improvements*

We appreciate that these draft proposed improvements endorse improving the quality of the analyses on which the agencies base their regulatory decisions. However, we continue to oppose, strongly, the suggestion that a better draft EIS would allow the state to provide contingent 401 certification and thereby allow Colorado to endorse a project based on draft analyses.[16] As we noted in earlier comments, the last decade has seen multiple examples of incomplete and inaccurate Draft – and even Final – EISes, necessitating major revisions and supplements. The point of having drafts and finals is to allow the process and analyses to mature, and to discover more and better relevant information about a project's potential impacts.

[13] P. 309.
[14] P. 311.
[15] P. 309.
[16] P. 318.

Shortcutting this process would be irresponsible and inconsistent with other values articulated in the May 2013 Executive Order.

We were pleased to see the draft Plan now quotes one of the existing regulations (82.5(C)(2)) about agency cooperation.[17] No one opposes better coordination. However, for the reasons described in our October 2014 comments, maximizing coordination under existing regulations – and adding regulations to make coordination a two way street (e.g., by the CWCB adopting parallel requirements for it to coordinate its activities with the agencies who have regulatory authority) may result in as much streamlining as would reinstatement of the joint review process that was in place for decades without any entity using it to completion.[18]

While CPW and CWQCD have different authorities, and different points of view, both agencies provide valuable information on how to protect Colorado's rivers from the adverse impacts of new water supply projects. Because of their different missions, the two agencies' comments on a project are unlikely to be redundant.[19] However, coordinating so that each knows the other's concerns as early in the process as is feasible may improve overall quality of state input to federal permitting agencies.

The Clean Water Act requires states to ensure water quality protection for projects seeking federal permits and licenses through both the requirements for 401 certification and anti-degradation review. These are not processes, therefore, that Colorado may relax. By contrast, Colorado could streamline its section 122 wildlife mitigation planning, with its two sets of political board reviews, because these plans are purely a state creation. As we noted in our comments last year, eliminating one or both appointed board approval processes – or the entire 122 plan process – would substantially streamline state permit processes. CPW biologists and other experts would go back to submitting their technical comments and recommendations directly to the federal permitting agencies and Water Quality Control Division, as they did before section 122.

We believe that the most important step to take to streamline Colorado's permitting process would be to increase the resources available to the Water Quality Control Division for their 401 certifications and anti-degradation reviews. This item is listed both as process improvement and action. Passage of the Fee Bill (HB 15-1249) for the Division is an important first step in garnering the necessary resources. We supported that bill and hope that its passage and the funding it provides will help the Division speed its processes. Finding other ways to supplement the Division's resources could include allowing permittees to fund the Division's hiring consultants, as South Metro suggested.

3. *Conceptual Framework for State Endorsement – a/k/a "Criteria"*

We appreciate that the draft plan includes criteria for state support of projects, as the Executive Order directed. And, we agree that these factors are, for the most part, the ones Colorado should consider. However, we have comments on developing these factors and sub-bullets further

[17] P. 317. See also, Regulation 82(C)(3) & 82.5(A)(6).
[18] Pp. 314-15.
[19] P. 315.

As a preliminary matter, the purpose of "State Endorsement" should go beyond the process goals of "upholding regulatory review responsibilities while making the process more effective and efficient" to better reflect a desire to align state water policies and projects to state values, to create opportunities for new and emerging technologies, and to provide for a more balanced and sustainable water future through vetting, prioritization and a cooperative process from the onset of the project.

- Initial Studies and stakeholder involvement

These should apply to all projects and not just those in need of upfront technical or financial support. This element should be embedded in the overall "factors."

- Project meets factors

The factors are prefaced with "Project proponents who participate in the cooperative approach should commit to factors that align the project with Colorado's Water Values (see Chapter 1)." Despite the significant work and efforts on this section, which we largely support, it remains unclear what the "cooperative approach" entails, if all of these factors are required or weighted based on how many met, and how weighted the alignment to Colorado's Water Values is in the overall determination of state endorsement. Further, there is not a factor for multi-purpose or multi-benefit aspects of a project.

We are concerned that the factor requiring a project to solely address an "identified" gap (as identified in a BIP, needs assessment, SWSI or No and Low Regrets) is not sufficiently rigorous for this process. Chapter 6.5 identifies more than 400 projects and methods which roundtables, at least, determined meet "identified gaps." As described briefly in Chapter 9.2, the Plan must refine and further prioritize this list for this factor to provide a meaningful way to distinguish worthy projects. For example, in addition to meeting a real gap, factors should include: the project also meets a goal or measureable outcome as identified in a BIP, needs assessment, SWSI, or No and Low Regrets; satisfies or addresses multiple gaps [weighted factor and not a requirement]; and does not address a gap that another project or process, qualified for state endorsement pursuant to these factors, is already addressing.

Given the grave danger a compact call would pose for existing Colorado water users, we urge the addition of "does not interfere with compact compliance" as a sub-bullet under "Demonstrates Sustainability".[20] If the topic of risk management is included elsewhere in the Plan, e.g., as part of the Conceptual Framework for New Supply projects[21] another sub-bullet that incorporates that framework by reference is also warranted, because the state should not support projects that would increase Colorado's risk of triggering a compact call. Additionally, nothing under the sustainability factors addresses avoiding impacts to stream flows. While environmental mitigation may address it, it should be called out in a sub-bullet.

[20] P. 317.
[21] Chapter 8.

With regard to the factor on local government consultation, while consultation and even coordination are appropriate, they are ultimately insufficient where local government is exercising independent permitting authority, e.g., by issuing a 1041 permit. Therefore we recommend that the second draft change this factor to read, "Demonstrates local government approval."

The inclusion of the public input process is key and needs to ensure there are meaningful opportunities for stakeholder and public input and approval. We suggest a requirement that public notice is provided, public meetings are held, and there is a demonstration that reasonable efforts are made to accept, review, and respond to comments submitted.

Finally, it remains unclear as to what "state endorsement" entails – based on Figure 9.4-1 resource prioritization and a quicker regulatory process are separate and distinct from state endorsement.

4. *Actions*

- The CAWS[22] agreement should be transparent and finalized only after an appropriate process that seeks and incorporates public comment. As noted in our earlier comments, we believe that the EPA Region 4 MOU on conservation would be a good model for Colorado and EPA Region 8. In addition, we believe that, while DNR initiated conversations with EPA and the Corps about state planning and permitting issues, the state agencies with Clean Water Act regulatory authority are the appropriate partners with EPA and the Corps on such an agreement, as opposed to DNR, which does not have Clean Water Act statutory permitting responsibility.

- Improve Coordination. All interests should embrace increased state agency coordination. A task force may be able to refine the many ideas and approaches already circulating about how best to accomplish this end. We believe that including stakeholders – local governments, non-governmental organizations, water users – in such a task force, rather than merely consulting with these parties, would streamlining the process of coming to agreement on guidelines and recommendations to ensure meaningful coordination. In encouraging coordination, however, Colorado must also not allow agencies without regulatory authority to interfere with the work of those agencies with statutory responsibilities.

- CWCB will continue to gather technical information and stakeholder input to explore how to make the permitting process more effective and efficient based off of the potential process improvements described above, including by coordinating technical methods to reduce duplication across state agencies, increasing the clarity of state input and emphasizing issue identification earlier in the EIS process. These are of course laudable goals. Because the CWCB does not have regulatory permitting authority, its efforts must not impinge on the duties of agencies that do. Moreover, despite the best of intentions, Colorado must recognize that it cannot control the federal process. Thus, for example, having state agencies participating in issue identification early in the federal process is good, but does not preclude

[22] Pp. 312 & 318.

new issues from arising later in the process as more thorough analyses come in. And, creating a template or formula for certain analyses may be useful, but not if they fail to cover all of the aspects of a problem that the regulatory agencies must consider. A standardized format for an analysis must neither set too high a bar for smaller, simpler projects, nor be so basic as to overlook important nuances in a larger more complex one.

5. *BIP and other suggestions*

We appreciate the list of roundtable ideas on permit streamlining, and agree with the statement in the draft that inclusion on the list does not equate to CWCB, or State of Colorado, endorsement. The summary at Table 9.4-3[23] should also include relevant comments received through the SB 115 hearings that took place in 2014 (and will again in 2015).

Water Quality (Chapter 7.3)

We appreciate that the draft Water Plan retained virtually all of the excellent product of the Water Quality Control Commission's public process of writing this section. We support all of the actions listed in the final portion of this section.

We do believe that both the Salinity Control Program and the Measurable Results Programs deserve mention in the Quality-Quantity Connections section. In particular, the salinity control program is a great example of joint agency action by quality (EPA) and quantity (Reclamation) agencies at the federal level.

The Quality-Quantity Integration Goal seems to have been – we assume inadvertently – dropped. It should appear between the last paragraph on p. 261 and the first paragraph at the top of page 262. Please reinsert this important goal, which reads "Strategies designed to meet Colorado's current and future consumptive and recreational/environmental needs will recognize the inter-relationship between quality and quantity in order to protect and restore water quality."

In the description of current conditions, the inclusion of Figure 7.3-4 is important. We would urge the second draft of the Water Plan to go beyond this graphic to celebrate the good quality of so many of Colorado's waters. Two of every five stream miles support not just some aquatic life but a diverse and robust assemblage, and almost three out of five support primary contact recreation. There are also 74 reaches of outstanding waters. Of the thousands of reaches in the water quality data base, only 152 meet just the bare minimum quality necessary to support their uses.

At the same time, we believe it is important to acknowledge that those reaches where the Commission has adopted site specific water quality standards have suffered irreversible damage due to human alternations of the natural environment. Similarly, those reaches subject to temporary modifications of water quality standards have been damaged as a result of human activities that may not be corrected for decades.

[23] Pp. 320-24.

Finally, as noted in our comments above on permit streamlining in Chapter 9.4, we would strongly oppose any move towards directing the Water Quality Control Division to provide a "conditional" 401 certification.

Action Plan (Chapter 10)

The Colorado Water Plan should prioritize these essentials: keep our rivers healthy and flowing; establish a state-wide target for urban conservation of a 10% reduction in use by 2020; and modernize agricultural infrastructure and allow water sharing practices that are voluntary, flexible, and compensated. These, coupled with accelerating reuse will be sufficient to avoid a large new trans-mountain diversion of water from the West Slope.

Chapter 10 will be the most critical part of Colorado's Water Plan. It will contain the next steps for state agencies, and propose actions for the state legislature take, to move Colorado towards a sustainable water future on both sides of the Continental Divide, with vibrant cities, ecologically resilient rivers, a healthy recreational economy and viable agriculture.

As a matter of process, the chapter should do more than compile action items from Chapters 6 through 9. The Plan should:

- Assign responsibility and establish time lines for state agencies to complete the actions;
- Set goals for state agencies and roadmaps to accomplish them;
- Describe the actions state agencies need to take to enable roundtable actions necessary to meet their basin consumptive and non-consumptive needs, consistent with Plan values and the targets that the Plan sets. In some cases, there are actions listed in Basin Implementation Plans (BIPs) but in many cases, especially with regard to environmental and recreational needs, the BIPs have described needs without also presenting the actions and funding necessary to meet them. In such situations, the Plan should include the actions required to meet these needs, and assign responsibilities and time lines for doing so.

As a matter of substance, the Plan should:

- Keep Colorado's rivers healthy and flowing, which will require consistent and significant funding to assess, protect and restore rivers. We must use streamflow management plans to identify necessary flows and strategic options, and then fund implementation of those options to protect fish and wildlife and support recreation, including fishing and boating.
- Establish an urban conservation target for water users (e.g., a 10% reduction in per capita use between 2010 and 2020) and the complementary actions that state agencies can take to assist water users to meet the targets;
- Modernize agricultural infrastructure and allow water sharing practices that are voluntary, flexible, and compensated, and

- Avoid large, new transmountain diversions that drain water from West Slope rivers to supply growing Front Range demands, especially since conservation, reuse and water sharing agreements are less expensive, less controversial and more effective.

While the Plan should focus on what state agencies can do using their existing authorities—including revisions to regulations and program criteria or guidance, entering into new Memoranda of Agreement/Understanding and aligning existing funding programs to maximize the value they provide—it should also include a section recommending actions by others, notably the Colorado General Assembly. Moreover, even though the Governor's Executive Order makes the CWCB responsible for issuing this water plan, the CWCB must not usurp statutory responsibilities of sister agencies, and must ensure those agencies lead the activities necessary to carry out their missions in the context of the Plan.

Between now and the July 2015 version of Plan, the CWCB and IBCC policy and legislative subcommittee should sort proposals for change into two categories: administrative (where state agencies can take action to change policy within their existing authorities) and legislative (where the general assembly must amend the law). Those in the first group should be added to the list of actions from Chapters 6 through 9 and the Plan should assign responsibilities and establish time lines as described above.

For example, the IBCC policy subcommittee will be recommending to the full IBCC at its April 30th meeting three changes: the first, that water use efficiency guidance for new developments is something DOLA would do; the second, water loss reporting is something that the CWCB could do for some entities, but should be expanded which would require legislative action; while the third, limiting retailers to selling only WaterSense outdoor watering fixtures, is something that is exclusively within the purview of the general assembly.

We have the following specific suggestions for actions:

- *Conservation*: the Plan recommends that either: 1) during the 2016 session, the General Assembly adopt a statewide goal for every "covered entity" to reduce their 2010 per capita use rate by 10% by 2020; or 2) the Governor produce an executive order calling for a statewide water conservation goal for all "covered entities" to reduce their 2010 per capita use rate by 10% by 2020.
- *Environment & Recreation*: We support three actions recommended to the IBCC legislative subcommittee to enhance and protect resilience of the water-dependent natural environment, including:
    1. Direct CWCB to work with CPW and stakeholders to continue efforts to prioritize projects and initiatives in each basin that will result in long-term protections of and/or enhancements to identified water-dependent environmental attributes;
    2. Determine a range of costs associated with prioritized projects and initiatives; and
    3. Develop funding sufficient to cover the State's share of the projected cost of the highest priority projects and initiatives over the next 20 years, subject to an extension or reauthorization at the end of this period depending upon state of knowledge and need for additional expenditures.

- *Short-term legislative concepts*: We support the general concepts proposed by the IBCC legislative subcommittee as listed under the "Short-Term Legislative DRAFT Concepts" prepared for the April 30th IBCC meeting. Obviously, before these become law, they would need appropriate public vetting. They include:
    1. New development water use efficiency local guidance;
    2. Water loss reporting; and
    3. WaterSense lawn irrigation fixtures.
- *Short-term administrative concepts*: With the exception of item #8 (Instream Flow carve outs) we support the "Short-Term Administrative or On-hold DRAFT Concepts" prepared for the April 30th IBCC meeting. These include:
    1. Training landscapers;
    2. Leak detection & management training and support;
    3. Expended uses for graywater and reuse water;
    4. Permit task force;
    5. State water rights statutes task group;
    6. Watershed health tax credit; and
    7. Green stormwater management.
- *We strongly oppose Short-term administrative concept* #8, a/k/a Instream Flow carve outs. A statewide policy to make state instream flow rights subordinate to future speculative uses is antithetical to ensuring that Colorado's rivers are healthy and resilient. It runs counter to the history, purpose, and operation of the state's instream flow program. CWCB working with local water districts "to evaluate potential future demands" is already the practice of CWCB staff, who work with local water users to enable them to get a new appropriation ahead of (i.e., senior to) the instream flow.
- *Generally - Task Force Membership*: Some of the short-term administrative concepts above may involve formation of a "task force" or "task group" to further study a particular issue. Ones currently noted include: #4 - "Permit task force" and #5 – "State water rights statutes task group." We believe these groups will benefit greatly from public involvement, including by conservation NGOs. As a result, if these concepts move forward, we would like to be involved.

Thank you again.

[Signatory groups on next page]

Sincerely,

American Rivers

American Whitewater

Audubon

Conservation Colorado

Environmental Defense Fund

High Country Conservation Advocates

San Juan Citizens' Alliance

Western Resource Advocates

CC: Diane Hoppe, CWCB Board chair

PUBLIC INPUT
ITEM 64

Comments by Tom Easley, Director of Programs
The Rocky Mountain Climate Organization
On December 2014 Draft of Colorado's Water Plan

May 1, 2015

Thank you for the opportunity for the Rocky Mountain Climate Organization (RMCO) to provide these further comments on the current draft, dated December 2014, of Colorado's Water Plan.

We are encouraged that the current draft of the plan is a substantial improvement over the prior draft with respect to its consideration of climate change and its potential impacts on Colorado's water supplies and water quality—the topics addressed by the comments that RMCO provided in October 2014 on the previous draft of the plan. In the current draft, climate change is given further coverage, in the general direction of many of the comments that we and others previously submitted. Substantive additions have been made to the water supply and demand chapters, particularly in the sections regarding recreational and environmental needs, and also to the scenario planning section in Chapter 6. Still, there are further revisions that we believe should be made in the next draft, to bring into much sharper focus what the state government, water suppliers and users, and the general public can do to fully address the substantial risks that climate change poses to water supplies and water quality.

We have not repeated here what we said in our October 2014 written comments, and again commend those comments to the attention of the Colorado Water Conservation Board and its staff. Although changes were made in the December 2014 draft of the water plan that amounted to substantial progress toward the points we outlined in our earlier comments, those comments remain almost entirely relevant to the current draft. In these comments, we return to some of the main themes of our earlier comments, and highlight how further revisions in the draft water plan are still needed to incorporate not only our earlier comments but also the September 2014 comments of Denver Water and also the comments being submitted this week by the Colorado Water Working Group at the Getches-Wilkinson Center at the University of Colorado Law School.

1. The draft should be revised to further emphasize and provide details on how climate change increases the risks to Colorado's water supplies and water quality.

As we said in October 2014, "the final plan should clearly lay out the ways in which climate change magnifies Colorado's water challenges, as that information is necessary to document why new actions are needed to meet our water needs in the future." As Denver Water, in the first of the 10 points it addressed in its September 2014 comments, wrote:

> we also think the climate change portion falls short. The state should include in the Plan more information addressing the effects of and the need to adapt to climate change. Other western states have been more proactive in including climate change into their statewide planning. While some general information is provided in the Plan, the full breadth of the potential impacts of climate change needs to be explicitly included and explained.

Similarly, the Colorado Water Working Group commented, “The CWCB should make explicit the increased risk associated with climate change to the array of interests in the uses of Colorado water . . .”.

Despite the changes made in the December 2014 draft, all of the above comments, as well as the specific suggestions that followed the general statements by RMCO and Denver Water quoted here, still apply.

As we stated in our October comments, Western Water Assessment’s August 2013 update of its 2008 report for the CWCB, *Climate Change in Colorado*, provides much excellent information about how Colorado’s climate may change and how those changes may affect our water resources. We suggest in particular that key information about projected climate changes (from section 5 of that report and from the supplemental online information on the WWA website) be included in the water plan. More such detailed information is needed so that the water plan clearly defines Colorado’s climate change-related water risks.

Denver Water, in its September 2014 comments, made a similar recommendation:

> The recently released 2014 CWCB Climate Change in Colorado Report has a wealth of information that needs to be incorporated into the Plan, including a summary of the projected range of changes in weather, snowpack and stream flow found in chapter 5.

2. The draft should be revised to provide an actual plan for what the Colorado state government will do to address the risks—from climate change and other factors—to the state’s water supplies and water quality.

Although there are some possible state actions identified in various parts of the current draft of the water plan, we believe what is included falls short of an actual plan, and that the next draft needs to clearly indicate the actions that the state government proposes to take to address the risks to our water supplies and water quality.

This general point is also consistent with Denver Water’s September 2014 comments, which included multiple recommendations for actions to be added to the water plan to provide “state leadership” in addressing Colorado’s water needs. Denver Water also said:

> The state, however, does not have a viable plan to adapt to climate change. The problem is exacerbated by the fact that many smaller water providers will be looking to the state for guidance because they lack the resources necessary to take on this matter by themselves.

Perhaps even more clearly, the Colorado Water Working Group, in its comments this week, identified how the current draft does not amount to an actual plan with respect to climate change risks:

> But the Draft does little to provide a framework for managing this risk. The Draft states that ‘[i]n partnership with the Climate Change Technical Advisory Group, the CWCB will monitor the potential impacts of climate change to Colorado’s water needs.’ While necessary, these actions do not provide a meaningful risk management framework.

We recommend that the CWCB provide in the next draft, as explicitly and implicitly called for in the comments quoted above, an actual framework for actions the state government will take to

address the state's water risks, especially as magnified by climate change. The current draft, in Chapter 10, acknowledges that this may be done in the next draft with respect to possible state legislation. We think that additional state government actions—not just legislation but also other types of action—need to be clearly laid out in the next draft of the water plan so that it actually constitutes a state government plan of action. In our October 2014 comments, we identified some of these needed state actions focused particularly on climate change. One key point is Colorado Water Conservation Board guidance to the basin roundtables on how to consider their basin implementation plans in the context of projected climate changes. (See more on this in point 4 below.) By contrast, the state water plan seems to be headed toward hands-off deference to the basin roundtables, which are employing widely varied approaches; this does not really amount to a statewide plan.

3. The draft should be revised to provide quantified details on two key inputs to the plan that currently lack sufficient details: the scenarios of possible futures, and the analysis of how climate change may impact future demands for water.

As described on pages 90-92 of the current draft, five scenarios have been developed by the IBCC and CWCB to collectively capture a broad range of future supply-and-demand possibility and uncertainty. These are short, subjective descriptions of possible futures. RMCO supports the use of multiple scenarios and the inclusion of climate change impacts on both water supplies and water demands as components shaping those scenarios. However, we continue to believe it is important that quantified climate change analyses be used to further define these scenarios. We understand that the CWCB has been working on this, and we emphasize that we think it essential that such quantification of the scenarios be completed, incorporated in the next draft, and used as benchmarks to evaluate possible future water actions (see item 4 below).

Also, the current draft includes figures depicting a range of projected impacts of climate change on future demands for municipal and industrial water uses and for agricultural water uses (Figure 5-2 on page 72 and Figure 5-5 on page 80). This is important information, and we applaud the CWCB for commissioning this needed analysis and including the summary information shown in the figures. However, this analysis needs further explanation, both as to its results and to the assumptions which went into it. For both figures, the cited source is a draft technical memorandum which, as far as we know, is not available to the public. We recommend that the next draft of the plan include more information on this analysis, that the analysis be used as one input to the quantification of the five scenarios, and that the analysis itself be made available to the public.

In addition, the next draft should also summarize other existing information on how climate change may affect water demands, as detailed in our October 2014 comments.

4. The draft should be revised to:

- **include an initial analysis of how the current basin implementation plans would contribute to addressing (or not addressing) the state's projected M&I water gap in the quantified scenarios, after incorporating the projected quantified impacts of climate change on future water demands; and**
- **establish a process, to follow the December 2015 completion of this water plan, for further reconsideration by the basin roundtables of how their initial basin implementation plans would contribute to addressing or not addressing the state's projected M&I water gap in the quantified scenarios, after incorporating the projected quantified impacts of climate change on future water demands.**

As stated in our October 2014 comments, rather than entirely deferring to the different basin roundtables on how they consider climate change impacts (leading to widely divergent results), the CWCB should provide state leadership in bringing about some consistency. With a December 2015 deadline for a final report, two different steps are probably needed. The CWCB should itself perform an analysis of how the current basin-roundtable-drafted implementation plans would contribute to addressing (or not addressing) the state's projected M&I water gap in the quantified scenarios, using the quantified analysis that we recommend (and expect) will go into fleshing out the five scenarios of possible water futures. That initial analysis could be included in the final report. Secondly, as time probably does not permit the basin roundtables to revisit by December their implementation plans in light of the quantified analysis for the scenarios, the final plan could set forth a process for the basin roundtables to do so in late 2015 and early 2016.

5. The draft should be revised to further emphasize and provide details on how, especially because of projected climate change impacts, the greater possibility in the future of curtailments under interstate compacts increases the risks to Colorado's water supplies, and how the state government will prepare for and address these increased risks.

As our October 2014 comments stated, the water plan should much more clearly lay out how climate change greatly increases the risks of curtailments under interstate compacts of Colorado water rights, as that ultimately may be Colorado's greatest water risk. As Denver Water stated in its September 2014 comments, "Although the risk of Colorado River Compact curtailment is low, the consequences are potentially disastrous." The comments continued to recommend that the plan be revised to "[r]ecognize the need for and identify ways to empower the state to act aggressively and proactively to avoid compact curtailment in the current drought as well as in the long- term."

The above comments still apply, and we believe the next draft should address the compact issues in greater detail, as they arguably represent the strongest reason why new actions may be needed to meet our water needs in a changed future.

6. The draft should be revised to propose that the Governor establish a task force to advise the state government on identifying and addressing climate change risks to the state's water supplies.

The Colorado Water Working Group in its comments recommends that "the Governor establish a task force of climate scientists, water suppliers, water users, and other representative interests to identify those aspects of water use in the state that are most at risk because of climate change and to develop guidance for the basin roundtables and water suppliers and managers for managing these risks." We support this recommendation. Such a high-level, broadly representative task force can help to bring to bear the full range of expertise and interests in our state to meet these important challenges.

We appreciate the Colorado Water Conservation Board's consideration of these comments.

PUBLIC INPUT
ITEM 65

April 30, 2015

Colorado Water Conservation Board
1313 Sherman Street, 7th Floor
Denver, CO 80203
Via cowaterplan@state.co.us

RE: Feedback on Draft 1 Colorado Water Plan

Dear Colorado Water Conservation Board,

National Parks Conservation Association commends Governor Hickenlooper, the Colorado Water Conservation Board, and members of IBCC and basin roundtables, for undertaking collaborative statewide water planning in Colorado.

This endeavor has implications well beyond the future of one resource. In an arid state such as ours -- where every industry, every community, every treasured place, every stream, every species… either flourishes or withers depending on the availability of water – water planning is more or less equivalent to defining a vision for our society and environment. As recognized by the first draft plan, this effort is made all the more complicated under today's highly dynamic social and environmental conditions. Thus, Colorado's water plan should be underpinned chiefly by the principle of adaptability, even above adherence to convention. The goal should be to lay out a vision that provides a framework for accommodating an uncertain future, and for deeply considering the permanent effects of some decisions and management activities.

NPCA is a national organization, with a field office in Boulder, Colorado that works to protect and enhance the properties and resources within the National Park system under the management of the National Park Service (NPS). This includes following significant management units, in addition to several national historic trails and smaller units, in Colorado:

- Bent's Old Fort National Historic Site, La Junta (Arkansas Basin)
- Black Canyon of the Gunnison National Park/Curecanti National Recreation Area (Gunnison Basin)
- Colorado National Monument, Fruta (Colorado Basin)
- Cache La Poudre River Corridor National Heritage Area (South Platte Basin)

- Dinosaur National Monument (Yampa-White-Green Basins)
- Florissant Fossil Beds, Florissant (Arkansas Basin)
- Great Sand Dunes National Park & Preserve (Arkansas Basin)
- Hovenweep National Monument (Southwest Basin)
- Mesa Verde National Park and Yucca House National Monument (Southwest Basin)
- Rocky Mountain National Park (Colorado and South Platte Basins)
- Sand Creek Massacre National Historic Site (Arkansas Basin)

Considering that NPCA's interests span nearly all of the basins in the state, our comments apply to the structure and content of the statewide water plan, as opposed to specific basin implementations plans (BIPs), although specific BIPs are also referenced.

General Comments

Overall, the water planning process has done a considerable amount to involve many segments of the state's population and to elevate the importance water issues. For instance, it has water planning process has helped to promote a more unified understanding of and commitment to water conservation, across sectors and uses in the state. As the plan aptly notes, conservation measures in municipal, industrial and agricultural uses will play a significant role in to reducing future water supply shortages. NPCA understands that, before finalizing their BIPs, all of the basin roundtables agreed to strive for high conservation measures. We recognize that this was a challenge, as some agricultural interests – especially on the West Slope -- were rightfully concerned about committing to higher levels of conservation themselves in order to support the growing municipal Front Range population, without the East Slope's shared commitment.

Additionally, NPCA fully supports the CWP's inclusion of a "strong environment that includes healthy watersheds, rivers and streams, and wildlife," in its stated values, mirrored in the objectives of all of the BIPs. This value accurately reflects a relatively recent shift in the way that our society thinks about the significance and use of its water resources. In previous eras, environmental values have not been adequately reflected (when at all) in the laws, codes and processes that governed water in the state. As a result, we are now in a position to have to retool our legal and institutional frameworks to better accommodate the environmental qualities that are so important to our state's economies, heritages and identities. The CWP represents an important opportunity in this regard.

Additional comments follow.

Accounting for Environmental and Recreational Interests

In spite of strong support for environmental values and considerable "space" dedicated to it in the individual BIPs, the plan and associated BRTs fall short of fully accounting for recreational and environmental objectives, needs, or contributions.

Notably, most of the BRTs defer the need to quantify or inventory environmental needs within their basins, especially as compared to agricultural needs, and the CWP does not provide a clear mechanism – let alone a commitment – to ensuring that these inventory processes to take place. NPCA concurs with the Bureau of Land Management's suggestion that these inventories be included among the "no and lo regrets" actions recommended in the plan on page 93.[1]

Additionally, no meaningful attempts to account for recreational and environmental contributions to the state's economy are made in the plan, whereas those of other sectors are considered, both in the CWP and in the BIPs.[2] The Outdoor Industry Association (OIA) estimates Colorado's recreational economy to be $13.2 billion per year, which would put it on par with other water-dependent sectors.[3] This bears acknowledgement in the plan.

Also, while Chapter 7 explains the importance of watershed management and touches on the ecosystem services (i.e., contributions to environmental conditions as an end-goal) that our states' watersheds provide, for instance, to fire and flood prevention, the plan does not translate these services into economic terms.

Finally, while considerable attention is given to flexible programs to incentivize alternative agricultural transfer methods (ATMs) to municipal uses, far less attention is paid to agricultural transfers to environmental uses.

These values may seem more abstract and more difficult to quantify than, say, the amount of irrigable acreage or number of municipal users in the state, but NPCA believes that the CWP has a responsibility to place environmental and recreational values on a level playing field with other interests addressed in the plan in order to present a more balanced perspective and more comparable information.

Federal Government Interests and Management Roles

Chapter 2 includes a brief description of federal interests and roles in managing Colorado's water resources. The description, however does not adequately examine the extensive cooperation required between the state federal agencies in managing both land and water resources. While federal land management agencies, including NPS, are indeed responsible for National Environmental Policy Act oversight and compliance, as stated on p. 23, their role in managing Colorado's water resources – and the impact of Colorado's water resources on federally managed resources – is far more extensive than presented.

Additionally, the characterization in the plan in Chapter 2 of federal water rights could be interpreted as implying speculation or intentional undermining of state authorities or interests on the part of the

[1] Colorado Water Plan, Public Input Item 4, Bureau of Land Management letter, Feb 19, 2015, p. 2.
[2] Colorado Water Plan, Chapter 5, p. 71.
[3] See OIA, https://outdoorindustry.org/images/ore_reports/CO-colorado-outdoorrecreationeconomy-oia.pdf

federal government. In fact, it's important to consider that several NPS units were explicitly designated to protect outstanding landscape features that were created by river and lake systems – the plummeting walls of Black Canyon of the Gunnison; Colorado National Monument's turrets; Great Sand Dunes' dunefields and wetlands; and that others are managed to maintain water resources and watershed qualities, notably the Green and Yampa canyons within Dinosaur National Monument.

These federally-managed properties provide important economic benefits to the state, especially local communities, and environmental benefit to the state and beyond. NPS (and other federal agency) management practices directly impact Colorado's river systems and the quality and quantity of water resources, beyond federal property boundaries.

Conversely, the state's management of its water resources directly impacts the health of these NPS units, whether they retain federal reserved water rights or not. For instance, base and peak flows within streams and rivers not only affect aquatic species and riparian vegetation, but also help maintain hydrologic process that have contributed to forming some of these protected landscape features, and distribute sediment and nutrients further downstream.

Recreational and Environmental Supply (Sec. 6.6)

Section 6.6 acknowledges the importance of watershed health, endangered species protection and recreational needs, as well as the relative lack of funding for projects supporting these interests, as compared to agricultural, or municipal and industrial interests. It points to cooperative funding opportunities as the most viable approaches for supporting projects with environmental and recreational goals. (Sec 6.6., p. 213) NPCA completely agrees that every attempt should be made to incentivize projects that genuinely jointly benefit the environment, recreation and other objectives. However, we take issue with the example provided to characterize such opportunities – a new storage project that could be designed to support fishing or boating – as an appropriate one supporting environmental or recreational goals. From the plan:

> "Although there can be impacts to the environment and recreational interests from municipal or agricultural projects, these uses can also provide benefits. A reservoir provides wildlife and fish habitat, and recreational opportunities for visitors, and provides a mechanism for the beneficial management of stream flows." (Sec 6.6, p. 213)

This section suggests that proponents of new storage or water development projects essentially couch their projects in terms of recreational interests in order to gain more support (and less conflict), rather than addressing the need to identify viable projects whose *primary* goals are to support watershed health or environmental values. "Greenwashing" of such projects is a common strategy for downplaying environmental impacts in order to advance other interests. In fact, reservoirs often harbor non-native

aquatic and riparian species that compete with native ones, and disrupt the life cycles of native species[4]; interrupt natural variations in the hydrograph, or flow regimes, that our state's ecosystems have adapted to depend on; prevent the distribution of sediment and nutrients throughout the river system; and alter water temperatures and water quality. Indeed, stream flow regulation can help to mitigate some of these negative effects *to a degree* once a reservoir is in place, but there are very few circumstances in which building one in the first place is preferable for environmental goals.

On its own, this example is only a minor concern, but it points to a fundamental issue in how environmental projects are treated throughout the BIPs, in the 2010 SWSI IPPs, and in the CWP, namely, that they are neither inherently valuable, nor fundable. The promotion of projects whose primary goal is storage or development, with distant secondary advantages to recreational or environmental interests, gives short shrift to environmental and recreational objectives and their benefits to the state. Furthermore, it discourages the identification of sources of support for practical projects improve our state's river systems. NPCA suggests that the plan would be better served by challenging conventional perceptions of "multi-use" projects by highlighting ones that have more direct environmental benefits, and examining creative solutions for supporting them.

Future Trans-mountain Diversions (TMDs) and IBCC "Points of Light"

The IBCC has introduced seven principles for consideration in its 'framework' for in future trans-mountain diversion (TMD).

Even though Colorado is legally one state, with a statewide water supply limits, and with statewide compact commitments to meet, this planning process, and the IBCC's recommendations in particular, have underscored the long-standing division between east and west slope priorities, needs, and goals. Within the draft BIPs, and during the recent 2015 statewide meeting of basin roundtables, western slope representatives have continually voiced concerns about shifting water away from their basins in order to meet the future needs of a growing Front Range population. In particular, they cite their strong desire to maintain – and grow -- the agricultural economies, landscapes and cultural heritages that remain central to western slope life.[5] As the plan notes, presently 450-600 acre-feet of water is diverted to the east slope from the Colorado River and its tributaries.

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[4] This subject is well documented in research by the Upper Colorado Endangered Fish Recovery Program, as well as other Colorado River research programs, such as the Glen Canyon Management Research Center. Indeed, the creation of these programs stems from conflict stemming from the impacts of existing and proposed development projects with endangered fish species and other environmental conditions. See, e.g., Breton, A. R., et al. 2013. *Escapement rates of translocated smallmouth bass (Micropterus dolomieu) from Elkhead Reservoir to the Yampa River*. Final report to the UCEFRP, Denver, Colorado. Larval Fish Laboratory Contribution 168; *Swimming Upstream*, Upper Colorado River Endangered Fish Recovery Program and San Juan Basin Recovery Program report, Winter 2013.

[5] A side note: the "straw poll" conducted at the statewide BRT meeting in March 2015, which resulted in widely publicized supposed support for a TMD, reflected considerable bias. Many participants – myself included – were not willing to be put on the spot by demonstrating their opposition to the IBCC "points of light" in such a public forum. This type of activity is a waste of

Securing the viability of West Slope agriculture is an important goal, and one that should be prioritized, but there are other, strong arguments for keeping remaining West Slope water – all of which ultimately drains into the main stem of the Colorado River – from being diverted out of the Colorado Basin. To this end, the IBCC framework has fundamental flaws:

a. **Lack of consideration of the value of "peak flows"** - Future diversions would be "triggered" by certain conditions, one of them being "wet year" conditions, understood to be those years above specific threshold levels in Lake Powell. The framework fails to recognize that "wet years" not only satisfy consumptive and non-consumptive allocated water rights, but they also result in spring "peak flows", or floods, that are a natural part of the Colorado Basin's hydrograph.[6] Historically, Colorado River flooding is responsible for carrying nutrients (mainly from alpine forest decomposition) downstream and depositing them the basin's fertile valleys; for carrying sediment loads, bulky minerals (such as the rocks that were responsible for forming Black Canyon of the Gunnison, according to the rationale for its water right[7]); maintaining native fish populations; and maintaining native riparian vegetation, such as cottonwood and willow. [8]
b. **Colorado Basin is a highly strained system** – Thanks to existing infrastructure and diversions, and persistent, recurrent drought, the Colorado River Basin is already in dire straits: both Lake Powell and Lake Mead are at historic low levels; native fish populations and vegetation have been ravaged; water quality and temperatures have been significantly altered. Considering these conditions and continued climate change produces even more uncertainty, any additional diversion of water away from the Colorado and its tributaries produces further risk to the system. There are 11 national park units in the Colorado River system which include Dinosaur National Monument, Black Canyon of the Gunnison National Park and Curecanti National Recreation Area, Arches and Canyonlands national parks, Mesa Verde National Park, and the Grand Canyon, among others. These protected places – as well as many other treasured landscapes in the fragile, arid Colorado Plateau -- rely on adequate water and a functioning, dynamic river system, and would be directly impaired by an additional future TMD.
c. **ROI** – Even if we put aside the issue of the importance of recognizing peak flows in the Colorado Basin, and the health of a fragile watershed overall, there's a strong possibility that the benefits of a future TMD would not outweigh the costs, considering that the Colorado River has experienced a decade-long drought and that scientific analysis indicates that such periods are relatively normal, the risk that that water storage levels could not support TMDs regularly enough to make worth the investment, is high. A study project would cost millions – millions that could be otherwise used toward more productive purposes, such as stream restoration; infrastructure repair; or the acquisition of in-stream flows, ATMs, or leases.

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valuable time and has the potential to diminish CWCB's credibility and neutrality. If CWCB intends to gage state support for IBCC's framework, it should consider a more appropriate and accurate, anonymous survey method.

[6] See, e.g., O'Connor, J.E., et al., "A 4500-year record of large floods in the Colorado River in Grand Canyon, AZ," Journal of Geology, V. 102, p. 1-9, 1994; Greenbaum, Noam et al. (2014) "A 2000 year natural record of magnitudes and frequencies for the largest Upper Colorado River Floods near Moab, UT," Water Resources Journal, June 2014.

[7] http://www.nature.nps.gov/water/Homepage/Black_canyon.cfm

[8] Scott, ML, Auble, GT, and Friedman, "Flood Dependency of Cottonwood Establishment Along the Missouri River,' Ecological *Applications*, 7(2), 1997, pp. 677–690.

d. **Transparency** – Many BRTs have expressed fear that water developers with Front Range economic interests in mind could apply for water rights several years before a proposal is formalized, and partially pave the path to a TMD approval under the radar of a fully transparent, public process. The IBCC framework fails to account for this administrative blind spot.

Leaving the possibility open for a future TMD from the Colorado Basin in this iteration of the state's water plan reinforces a rift that has divided the state for decades. It undermines the plan's stated commitment to supporting healthy watersheds and other environmental objectives, and providing for the security of the West Slope's agricultural economy and heritage. **Considering the above factors, NPCA supports closing the door on a future TMD in this iteration of the plan instead of passing this difficult decision on to future panning processes.**

NPCA welcomes the opportunity to discuss these concerns and will play an active role in engaging in future aspects of Colorado's water planning process.

Sincerely,

(electronic submission)

Vanessa Mazal
Colorado Program Manager
vmazal@npca.org

PUBLIC INPUT
ITEM 66

Conservation Colorado

The future is worth the fight

May 1, 2015

Kate McIntire
Outreach, Education and Public Engagement
Water Supply Planning Section
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

RE Conservation Colorado Members' Unique Comments

Dear Ms. McIntire:

Please be advised that from January 1, 2015 through May 1, 2015, Conservation Colorado has facilitated the generation of more than 425 comments regarding Colorado's Water Plan. Conservation Colorado consistently does educational outreach to our members on the plan and provides various platforms to provide feedback – online comment forms, postcards, and comment forms, to name a few. Other efforts have included hosting educational events, a telephone town hall, tabling events and member emails. Additionally, we often direct our members to your website, www.coloradowaterplan.com to submit comments and many have advised us they have done so.

Throughout 2015, our engagement has focused on email action alerts. Through the May 1 deadline, over 425 Coloradans have submitted the following comment via online submission:

The initial draft of Colorado's Water Plan lays the groundwork for protecting our rivers and making more efficient use of our existing water supply, but we need meaningful, substantive goals if we are going to have a sustainable water future.

As a citizen of Colorado, I want you to know I support a water plan that establishes a clear water conservation goal for our cities and towns, increases in reuse and recycling of water, and focuses on water projects that are multi-purpose to maximize conservation. This helps protect our rivers, our farms and our future.

The Governor supports water conservation and I do too. Conservation and efficiency will help protect Colorado's natural environment and way-of-life that depends on robust outdoor recreation and agricultural economies. I am counting on you, and the Colorado Water Conservation Board, to ensure Colorado has sustainable water use that supports all our state's needs.

We thank the CWCB for the opportunity for our members to weigh in on this incredibly important process, and look forward to seeing a final plan that incorporates the robust amount of public input received to date.

Sincerely,

Theresa M. Conley

Theresa M. Conley

CC: Lindsay Cox (lindsay.cox@state.co.us), Colorado's Water Plan (cowaterplan@state.co.us

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(303) 534-7066 conservationco.org @ConservationCO ConservationColorado

PUBLIC INPUT
ITEM 67

Boulder County | City & County of Denver | City & County of Broomfield | Eagle County
Grand County | Pitkin County | Summit County

To the Colordo Water Conservation Board,

We respectfully submit the following comments regarding the importance of integrating land use planning in the development of the Colorado's Water Plan (CWP). Six boards of county commissioners, including Boulder, City & County of Denver, Eagle, Grand, Pitkin and Summit, are signatories to these comments. Mayor Randy Ahrens and city council member Sam Taylor from City & County of Broomfield are also signatories.

The local government perspective is essential to the CWP. The CWP uses growth projections that indicate that Colorado's population may as much as double by 2050. Land use decisions made by county commissioners directly influence the timing, location, intensity and water demands of this new growth. Likewise, the water use and supply decisions made by county commissioners affect the state as a whole: the way future water demands are addressed in one part of the state necessarily affects water availability and the capacity for future growth in other areas of the state. Because of its structure, the CWP process does not easily allow for problem-solving engagement among local policy makers to address these statewide issues. Roundtables are largely technical and locally-focused; they are not designed to address the local land use issues connected to water planning across Colorado. CWCB comment opportunities are limited to short statements, or one-way written communication.

We believe that interactive discussions about cross-basin land use goals and values are essential to the success of the CWP process. Our interjurisdictional meetings and comments are one step toward assisting the CWCB to accomplish move in that direction.

We developed these comments during a series of five meetings held between commissioners from front range and west slope counties over several months. These meetings consisted of joint discussions about how Colorado can continue to thrive with adequate water resources for future needs while protecting the economy and environment that makes this state such a great place to live and visit.

At the first in the series of meetings, the commissioners developed a guiding statement that framed discussions over the next few months:

> Every community can do better on water conservation and efficiency via locally determined measures such as but not limited to reinvestment in aging infrastructure, community education, enhanced building codes and water sensitive land use planning.

The below recommendations would help create a stronger Land Use Section of the Water Plan.

A. The Land Use subsection of the Water Plan (Ch. 6.3.3) should be elevated.

B. The Water Plan should include additional introductory language emphasizing the importance of local land use planning. As county commissioners, we respect the need for local control and therefore believe in supporting proactive and not reactive solutions that are appropriate for the varying needs and regions of the state. These solutions must address concerns related to current resident needs and future population growth. The following are examples of why water-sensitive land use planning should be stressed in the Water Plan.

Water sensitive land use planning can:

1. Decrease the water supply Gap. As Colorado's population continues to grow, well thought out, effective, sustainable, and predictable land use planning is essential.

2. Provide low cost alternatives for meeting the Gap. Water sensitive land use often results in less stress on water systems, indoor and outdoor water savings, and reduction in expensive longterm capital outlay.

3. Protect the values of Colorado, including vibrant economies, agriculture, open space, and recreation. Local land use planning should be among the first points of consideration in order to protect and support all of Colorado's values and economic drivers.

4. Create more predictability and reliability as well as reduce risk in water supply planning, in turn creating more sustainability for current and future residents.

5. Encourage shared solutions including best management practices, collaborative physical projects and practical land use models to address water quality and quantity challenges.

6. Result in benefits that reduce infrastructure and service costs, and enhance a community's quality of life.

C. The Land Use section of the Water Plan should coalesce common elements in various Basin Implementation Plans (BIPs) into policy recommendations, and should more substantively outline the existing and ongoing tools/ best management practices available to date.

1. The current draft of Section 6.3.3 on Land Use Planning includes summaries of four ongoing studies regarding water planning and land use planning. While this is useful, we believe it is more useful to explain how the studies are consistent or where they differ, what their recommendations are, and how their recommendations may be used in the future.

   The Water Plan should collect ongoing studies and other data from local governments, associations, and state agencies related to water and land use planning. Section 6.3.3 of the Water Plan could also serve as a clearing house for other resources on the subject of water sensitive land use planning, such as Model Land Use Codes or case studies.

2. The current draft of Section 6.3.3 recaps land use planning recommendations from different BIPs, with many of the Basins sharing similar recommendations. We hope that the CWCB will gather the recommendations from various BIPs and produce some suggested action points to better integrate land use planning and water planning.

3. Water sensitive land use planning is a statewide issue. As such, it is proper for the CWCB and DOLA to have a role in coordinating and encouraging that integration while honoring Colorado's proud history of local control.

D. We recommend potential "Action Steps" in the Water Plan be more specific.

The action items could be broken into steps best-suited for various communities based on various factors, including geography, demography, population, expected rate of growth, etc.
Because we believe that Colorado should move forward quickly to consider land use planning practices that that take into account water usage and supply, we suggest that two additional steps be included in the Plan:

1. **Evaluate potential impacts on the Gap of land use planning and water planning integration.** We suggest that CWCB include an analysis of the impact of land use planning practices on the Gap in the next update of the Statewide Water Supply Initiative.

2. **Establish goal timelines for implementation, including funding, of identified actions**. Goals relating to land use planning must be a high priority for the Water Plan, on equal pace for successful project development and funding as any other part of the Plan.

Thank you for your consideration of our comments in the formation of Colorado's Water Plan,

Commissioner Deb Gardner
Boulder County Board of Commissioners

Commissioner Merrit Linke
Grand County Board of Commissioners

Mayor Michael B. Hancock
City & County of Denver

Commissioner Stephen F. Child
Pitkin County Board of Commissioners

Commissioner Kathy Chandler-Henry
Eagle County Board of Commissioners

Commissioner Dan Gibbs
Summit County Board of Commissioners

Randy Aherns
Mayor, City & County of Broomfield

Sam Taylor
Town Council Member, City & County of Broomfield

PUBLIC INPUT
ITEM 68

April 29, 2015

Colorado Water Conservation Board
c/o Mr. Jacob Bornstein

Dear CWCB Members and Staff

RE: American Rivers additional comments on the Colorado Water Plan.

American Rivers appreciates this opportunity to provide additional comments to the draft Colorado Water Plan. We are also signatories to comments submitted by the larger Colorado conservation community.

1) Section 6.6. We are pleased to see that the CWP identifies and supports the statewide environmental goals and policies that:

- Promote restoration, recovery, and sustainability of endangered, threatened, and imperiled aquatic and riparian dependent species and plant communities
- Protect and enhance economic values to local and statewide economies derived from environmental and recreational water uses, such as fishing, boating, waterfowl hunting, wildlife watching, camping, and hiking
- Support the development of multi- purpose projects and methods that benefit environmental and recreational water needs as well as water needs for communities or agriculture
- Understand, protect, maintain, and improve conditions of streams, lakes, wetlands, and riparian areas to promote self- sustaining fisheries and functional riparian and wetland habitat to promote long-term sustainability
- Maintain watershed health – protect or restore watersheds that could affect critical infrastructure and/or environmental and recreational areas .

This section also describes the existing methods by which environmental and recreational needs (not attributes) are being protected through the States Instream Flow program, RICD's, Endangered Species programs and Wild and Scenic Rivers. All of these are good programs, well worth the efforts by the State and other organizations such as American Rivers to support and engage in. It would be good however to note the shortcomings of these efforts. These shortcomings are not the fault of the programs themselves, but by the various legal and cultural roadblocks they face.

The Instream Flow program does provide protections within a limited scope. Most of the ISF rights held by the CWCB are both junior and for minimal amounts. These rights, under strict prior appropriation, are often called out, especially in times of drought, times when the streams need at least a minimal flow the most.

RICD's are affected in much the same way that Instream Flow Rights are.

Endangered species agreements and protection programs are also important. However they generally come about as a way to avoid the threat of more draconian actions under the Endangered Species Act. It would be great if we could pre-empt the need for these agreements by institutionalizing actions and policies that help preclude a potential ESA action in the first place.

Wild and Scenic Rivers are something that Colorado should be known for, not avoided at all costs. There are few states in this country with rivers as wild, scenic and recreationally important as in Colorado. Yet we only have one such designation. New Jersey has five. Wild and Scenic Rivers designation provides protections for the free flowing nature of important rivers. At the same time, it has no impact on existing water rights, diversions and uses, both within or below the designated reach. Federal reserve water rights may, or may not be aquiered through designation. That depends on how the legislation creating designation is written. If a Federal Reserve water right is deemed appropriate, the Federal agencies must file for such a right through the Colorado Water Courts and are fully subject to administration and adjudication within State law.

As noted above, all of these measures are good, even in their limited capacities, and should be continued and enhanced. Unfortunately they do not have much capacity for furthering the goals and policies listed in Section 6.6, particulary when the goal is to move beyond minimal protections but to actually engaging projects that will "Promote restoration, recovery, and sustainability of endangered, threatened, and imperiled aquatic and riparian dependent species and plant communities."

We will also need far better and more detailed definitions of "environmental resilience" and stream/river ecosystem health. Resilience is the ability of an ecosystem, watershed wide down to riparian/aquatic systems, to recover function after disturbance. The greater the resilience, the better the ecosystem is able to repair and maintain itself without human intervention. Resilience is wholly dependent on the health of the ecosystem(s). Stream ecosystem health covers the full spectrum of viable, productive and resilient riparian and aquatic systems, much of which is based on flows that maintain the connections between the dynamic channel, riparian forest and wetlands and adjacent alluvial aquifers.

The rather vague reference to hydrology and flow regimes mentioned in Section 7.1. is important, but the stream ecosystem and how flow functions to create productivity, species diversity, and both aquatic and riparian health needs its own section and description separate from Watershed Health. This section starts out well, but quickly shifts focus to forest management efforts needed to protect the flow regime solely for water supply and storage. If we are to honestly address the issues of environmental resilience and stream ecosystem health we need to clearly define what that means. And a Gold Medal fishery alone does not define a healthy or

resilient stream ecosystem. Great fisheries can still thrive even in a heavily degraded or managed river.

The CWP needs to devote a separate section to resilience and healthy river and stream systems like the one on Watershed Health/Forest Management and water quality. All of the stated goals and policies regarding environmental needs listed in 6.6 are dependent on that. Without this the whole concept of resilience and ecosystem health remains vague, undefined and too easily misunderstood, or worse, ignored. Truly healthy and resilient rivers and streams are as important as healthy and protected water supply systems.

From this we can start working on legislative solutions that might provide flow regimes that rivers and streams really need. Automatically lopping off the top of the hydrograph isn't necessarily a good thing. Engineered systems may have surplus water, natural systems. If we are to propose realistic projects that might promote restoration, recovery and sustainability of streams, at the same time protecting other needs, we need to first know in detail what it is we're talking about.

The CWP should also suggest that we engage in local assessments of the economic value and importance of river based recreation. A broad statewide assessment is fine, but many small communities, especially on the West Slope, are as dependent on a strong river based recreational economy as others are on a strong agricultural base. Agricultural water may be what grows the food to put on our tables, but for many Coloradans river based recreation is what allows them to buy that food for their tables.

Thank you for this opportunity to comment on the draft Colorado Water Plan. We look forward to continued participation and commenting as the draft progresses through the rest of 2015.

Sincerely,

Ken Neubecker, Associate Director
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PUBLIC INPUT
ITEM 69

SAN MIGUEL COUNTY

BOARD OF COMMISSIONERS

ELAINE FISCHER ART GOODTIMES JOAN MAY

April 24, 2015

Ms. Rebecca Mitchell
Chief, Water Supply Planning Section
Colorado Water Conservation Board
1313 Sherman Street, 7th Floor
Denver, Colorado 80203

Dear Ms. Mitchell:

The San Miguel County Board of Commissioners ("Board") submits the following comments on the draft Colorado Water Plan.

Environmental and Recreational Use of Water. The Board strongly supports protection of water for environmental and recreational purposes, which are critical components of San Miguel County's economy. The Board believes that it is necessary for the State to develop and provide tools to determine the quantity of water necessary for environmental and recreational uses and to permanently protect water for those uses. The quantity of water for environmental and recreational uses must be adequate to ensure a healthy, fully functioning river environment and to provide a quality river recreational experience for boaters and others.

The Board supports watershed and land use collaborative groups and efforts, and we have participated in several collaborative watershed groups including Public Lands Partnership, Dolores River Dialogue, and San Miguel Watershed Coalition. These watershed collaborations are critical to implementing projects that benefit entire watersheds, but they often have difficulty funding their facilitation efforts and administration. We request that the State encourage and provide funding for these groups, not just for projects, but also for administration and staff to better enable them to undertake important watershed projects.

In general, the Board supports increased and innovative funding for nonconsumptive projects, as spending for these projects is well below State spending on consumptive projects. We also encourage the State to create innovative mechanisms for funding nonconsumptive projects. For example, the State could require that any funding of a consumptive project – particularly a large consumptive project – include funding for a related nonconsumptive project that would mitigate any environmental or recreational impacts caused by the project (i.e., not simply adding recreational use to a reservoir).

Agriculture and Alternatives to Agricultural Water Transfer. The Board also strongly supports preserving existing senior water supplies for agricultural uses in order to prevent drying up productive agricultural land and to preserve a vibrant agricultural economy. To that end, the Board supports efforts to implement alternatives to the transfer of agricultural

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water rights to municipal and other uses, including tools and pilots to encourage agricultural water efficiency and more flexibility, such as HB 15-1222, which recently failed in the legislature.

Land Use Planning. The Board supports the section of the Colorado Water Plan that addresses land use planning, including the action steps to strengthen and encourage land use development tools. The CWP should provide a mechanism for coordinating land use planning with water supply planning and should consider linking the two planning efforts as a requirement of funding projects.

Evaporation. The Board has read and supports the concerns addressed by Robert L. Grossman, PhD regarding reservoir evaporation, which were previously submitted to the State and are attached here. In particular, we support the concept of a Symposium on Colorado's Reservoir Future suggested by Dr. Grossman, as well as providing information and education regarding evaporation issues with reservoirs to water managers and proponents of reservoir projects. We believe that any future reservoirs should be constructed to minimize evaporation.

Suggested Actions. We suggest that all actions recommended in the CWP be moved into a single appendix for easy use and reference.

Sincerely,

SAN MIGUEL COUNTY, COLORADO
BOARD OF COUNTY COMMISSIONERS

Joan May

Joan May, Chair

Attachment: Comments on the Draft Colorado Water Plan about Reservoir Evaporation submitted by Robert L. Grossman, PhD

PUBLIC INPUT
ITEM 70

Comments on the Draft Colorado Water Plan

about

Reservoir Evaporation

Respectfully and humbly submitted **by Robert L. Grossman**, PhD (CSU, Atmospheric Science, 1973)

As requested and as a private citizen representing no one but myself, I have the following assessment of an important omission in the current draft of the Colorado Water Plan – EVAPORATION FROM RESERVOIRS, LAKES, AND LARGE CANALS. I will focus my remarks on Reservoirs and Lakes used for domestic, industrial, and agricultural water use. I argue that this crucial and irreversible loss by to the water system has not received the attention it should and that a comprehensive assessment of storage and canal evaporation within the State is wanting. While, as I suggest, we may not know the percentage of water lost to evaporation in our State, better understanding of this critical aspect of water resource management is important for the State to understand its current water supply in the face of rapid climate change and how additional water storage infrastructure will meet its gaps.

For ease in reading and timely submittal, with two exceptions, I'm foregoing the use of references and footnotes. If references are requested, I'll supply them for each statement of fact made.

I will cover these main topics - **History, Monitoring of Evaporation from Reservoirs and Storage Lakes, Climate Change Consequences, and Conservation at the Source** that inspire a **Call for Action**: consideration of a revised Colorado Water Plan, Symposium on Colorado's Reservoir Future, a White Paper for the Governor's Office, and the formation of Scientific Steering Group for Reservoirs and Storage Lakes.

History

Water in the Western USA, which includes Colorado, has been the foundation of recent European settlement and indigenous folk successfully inhabiting the West's desert landscapes for centuries. In general terms, the management of water resources, whether explicitly stated or not, has used the following model for dealing with the scarcity of water resources in the Western landscape:

Input (I) – Output (O) – Evaporation (E) – Infiltration (L) = Storage change (S), *1*

where, Input is encapsulated as a river or stream source but ultimately it is runoff and seepage of groundwater from precipitation, Output is the delivery of a portion of that Input to the community of users, Evaporation is the movement of water molecules from the water surface into the atmosphere, L is infiltration of lake/reservoir water into the ground water system, and S, indicates the change in storage (watercourse, lake or reservoir, even beaver dams!) with time. From a system point-of-view I is a gain while O, E, L are losses as expressed in equation *1* (*1*). In a pristine hydrological system without man-made reservoirs, S is a "residual" in the "balance" equation comprising the terms on the left-hand-side of *1* and is often small. When S is the result of a constructed reservoir or storage lake, S acts as a buffer to the system, changing with time, and ensuring a constant supply of Output and reducing the effect of flooding. In contrast to a pristine system, S in a reservoir system can be large; especially during the seasonal draw-downs and fill-ups of a reservoir.

The argument to be placed before you relies upon *1* so a short discussion of the equation is necessary for clarity. Since all terms in *1* are in units/time, sampling rate and averaging time to estimate and analyze resulting time series of each term in *1* is important and would probably be tailored to the problem at hand. It is important to note that there are time relationships among the terms; for instance, a change in I may affect E after some delay. For most uses, and because of the time relationships among the terms, it would be helpful, perhaps necessary, to have the sampling of all the terms simultaneously made. Consideration of sampling is covered below.

It is my opinion that until recently the emphasis on water management within Colorado has been on the first two terms, I and O, with little regard, if any, to E and L. Evidence of this is within the current Draft of the Colorado Water plan where the string "evap" does not appear!

Historically this is probably due to:

a) <u>the need to insure a constant supply of water</u>, O, to the population by the management of I and O, often the largest terms in the equation over a period of time. Storage, though, varies with time as a result of the time variation of the four terms on the left-hand-side (LHS) of (*1*). There are often large uncertainties in the determination of I, E, L, and S; less so for O, which should be carefully monitored at the dam or water treatment plant. Faced with these large uncertainties, a cogent engineering approach to water management, which appears to have been followed, would be to overwhelm the system with augmented I and conserve O, using S as a buffer against flood, seasonal variability, and drought with small amounts for hydroelectric power (water release = time integration of energy, as in kilowatt-hours) as well as the important task of providing agricultural water during dry, growing seasons. The buffering aspect of S and its large uncertainty caused the water managers of those early times (1880s to 1960s) to neglect E and L, which was often mitigated by choosing reservoir sites with geologically "hard" bottoms, thus considering L negligible terms in *1*.

and

b) <u>the lack of scientific and engineering understanding of the processes of Evaporation and Infiltration in the early days of specifying water storage facilities in a desert landscape.</u> Serious study of the atmospheric boundary layer processes that accompany evaporation was not begun until the 1930's and continues to this day. So water managers had little quantitative information concerning these two *irreversible, or consumptive, losses*, Infiltration and Evaporation. While Infiltration did impact some geological underpinning for the specification of storage areas, Evaporation was elusive. Little was known about it quantitatively and measurement practices were only being tested and formulated at the time.

Colorado State University was, in the early days of reservoir construction, and, currently, is a national and international leader in hydrology and later the emerging field of Boundary Layer Atmospheric Science, which underpins the study of Lake and Reservoir Evaporation. This was especially true after the formation of CSU's Department of Atmospheric Science by Dr. Herbert Riehl in 1961 as well as the historical work in hydrology, watershed management and irrigation at CSU (vis. The Parshall Flume). Professor Riehl was very aware of the West's water problems (in fact, I'm suggesting one of his evaporation loss solutions, high altitude reservoirs, in the Conservation section below) and saw high synergy possible between atmospheric science and water management by locating his "mostly Univ. of Chicago" faculty within the on-going work at CSU. One of my early field experiences as CSU a graduate student in that new department was participation in the Bureau of Reclamation's Lake Hefner

Evaporation Reduction Experiment in Oklahoma City in the summer of 1967. Boundary layer expertise within the State also resides at Univ. of Colorado, NOAA, UCAR/NCAR, research companies, and private consulting firms. Remember that the scientists within these institutions and companies are citizens of the State and probably as interested in its water security future as I am.

As the role of landscape evaporation in atmospheric science gained acceptance, especially with respect to agriculture, the difficulty of adequately estimating evaporation outside of the laboratory became apparent. So in addition to the historical lack of basic understanding of evaporation, water managers at the time were faced with little to no operational methods for estimating it, opening the door to the "educated guess" (often small) or outright "neglect".

Thus there has been little historical incentive to comprehensively address Evaporation with respect to Reservoir and Lake Storage in the West though it appears to be emerging as a recognized problem in Western water management. This oversight needs to be addressed in the current Draft of the Colorado Water Plan.

In fact, the evaporation estimation problem in Colorado remains to this day and should be addressed comprehensively in the Colorado Water Plan. Breakthroughs in scientific approaches to reservoir evaporation estimation can be shared with other Western states less endowed with the expertise Colorado enjoys. Additionally, as I will show, climate change may increase evaporation from Colorado's water storage facilities and storage needs, due to population demand (including the demand for more food and energy), will require the specification of more water storage facilities across the State (and region for that matter). *Evaporation will be needed to be taken into account for any newly specified or augmented storage facility.*

Monitoring Reservoir and Storage Lake Evaporation

I begin this section by posing a series of questions that State and private (licensed) water managers need to answer for the citizenry:

1. What is the current state of estimating evaporation from Colorado Reservoirs and Storage Lakes? What methods are used? When was the last time a comprehensive evaluation of evaporation from Colorado Reservoirs and Lakes made using the latest scientific techniques? Has there ever been a multi-year evaluation to estimate inter-annual variability?
2. Does the State issue regular reports on the management of Colorado's Reservoirs and Lakes, using *1* as a template?
3. How often is evaporation sampled from Colorado Reservoirs and Lakes to estimate the mean annual evaporation for each? Do mean values have estimates of variability associated with them; in other words, what do the frequency distributions look like? Are we missing important episodic occurrences of evaporation due to low sampling rates?
4. If evaporation is an issue with respect to conservation, what can be done to reduce evaporation from current Colorado Reservoirs and Lakes?
5. Major GRACE (satellite retrieval of ground water burden) scientists are resident at the Univ. Colorado. Is this expertise being utilized? GRACE has recently been in the news with respect to the California Drought.

6. Given that snowpack is likely to decrease, air and reservoir temperatures increase, and a drier future atmosphere as projected by climate models, what long-term strategies to reduce reservoir evaporation should Colorado be discussing? Should there be/is a Colorado basin-wide discussion of the reservoir evaporation situation? If there is a basin-wide discussion, how will Colorado prepare for it and who will represent us?
7. As more reservoir storage will be needed as snowpack declines and/or early runoff persists and demand increases, will evaporation be considered in the planning for future reservoirs? If so, how?

As far as I know current State practice for estimating E in *1*, the use of evaporation pans, though inexpensive, may be woefully inadequate. In some cases tabular values from a 33-year old national atlas of evaporation (Farsnsworth, et al, 1982) based on an earlier time period are used. These estimates are then applied to the storage area and partitioned, percentage-wise, across the seasons with no reference for the partitioning values; perhaps from the annual variation of the one station in Colorado, Wagon Wheel Gap, provided in Farnsworth? From the beginning, circa 1920-30's, the use of evaporation pans to estimate evaporation from the large surfaces of reservoirs and lakes has been problematic and a large scientific literature on the topic generally agrees on the method's large uncertainty and inability to adequately estimate E, except, perhaps, in the immediate vicinity of the pan. Here is a quote from a recent (2015) U.S Bureau of Reclamation report (Technical Memorandum No. 86-68210-2014-01): "Evaporation pans are typically used to estimate lake and reservoir evaporation, however the timing and magnitude of pan evaporation is not necessarily representative of actual evaporation from a lake or reservoir for numerous reasons, including significant time lags between peak pan evaporation and peak reservoir evaporation during a year, and has been shown to be highly uncertain (Hounam, 1973; Morton,1979)"; and go on to state they will attempt another estimation method for their study. If a reservoir or lake is large, placement of one evaporation pan, even if correct for its local area, may not be representative of the entire lake surface; in other words the observational "footprint" is not representative of the area being monitored. Other problems are inadequate accounting for precipitation or disturbance by animals and humans as well as inadequate sampling for substantial but episodic evaporation events.

The Farnsworth Atlas is based upon evaporation pan data or free water surface evaporation estimates from meteorological data. It consists of highly interpolated data, contoured across the contiguous USA with no range of uncertainty. The authors give several "warnings" about the use of the map data and the extrapolation data for higher altitudes in the West had large uncertainty. The Atlas is based upon data from about 400 stations across the USA (few in Colorado) for the period 1956-1970 (not even a 30 yr average). Note that NOAA has a 30-year averaging interval to determine climate normals for temperature, humidity, and precipitation for various locations in the United States, revising them recently. The Colorado revised normals generally show state-wide increased temperature and slightly decreased to no change in humidity from the previous period. That combination will increase evaporation as described below in the Climate Consequences section. Furthermore, the scale of the contours in the Atlas indicate substantial high-frequency filtering. The Atlas is not localized enough to account for important topographical effects on reservoir evaporation as described in the Conservation at the Source section. Nor does it give any basis for future planning as inter-annual variability was not discussed nor were any data regarding that important planning variability presented.

If this is the case, this relatively informed citizen can only come to the conclusion that evaporation from Colorado's Reservoirs and Storage Lakes is unknown! This major flaw in the current water management system for the State must be corrected and soon! The current Draft is inadequate and misleading if it is not included. From what I know, we can do better in the 21st Century. Yes, it will be more expensive but far more accurate than the early 20th Century methods currently used. This will be necessary if Conservation at the Source is considered as important as Conservation by the User.

Climate Change Consequences

Whatever the attributed cause, the fact is that global and regional climate is changing; mean temperature is increasing along with its variability. Folks will say that climate is always changing and that it true. However, the rapidity of climate change is catching humanity off-guard and the intensity of this period of climate change is geological in character not to speak of what the future holds. It portents to seriously impact the State of Colorado's economy and population in two major ways: 1) Increasing temperature will affect Coloradans' health, lifestyle, and ability to work (especially those outside) and the State's infrastructure (roads, railways, pipelines); all important to a viable economy and 2) decreasing precipitation, increasing dust-on-snow, decreasing humidity, and increasing temperatures will affect the State's crucial water resources.

In particular E in *1* above will inevitably increase as I will show in a simple parameterization of the evaporative process,

$$E = K\,U\,dq/dz, \qquad *2*$$

where K is called an Exchange Coefficient (and also can provide for convenient units), U is the mean wind speed, dq/dz is the local vertical gradient of atmospheric moisture. The Exchange Coefficient, K, is determined by observation and has dependence on local terrain, cover, surface layer (first few meters above the surface) stability and the dynamics and structure of the atmospheric boundary layer above the surface layer. Luckily for most Reservoirs and Lakes the difficult problem of evapotranspiration from vegetative cover is not present (but could be a problem at the shoreline), so the E in *2* is from what is specified as "an infinite, plane, water surface" when, in fact, this situation is never achieved as the water surface is not infinite, nor is it "plane" subject to wind waves, white caps, vegetative growth, human intervention, and debris. I must remind the reader at this point that I have noted earlier that this problem of E estimation is important but not easy. Nor is it inexpensive as I'll outline later.

Expanding *2* as in finite-difference form (used in computer simulations),

$E = K\,U\,(q_z - q_{sfc})/(z - z_{sfc})$, where the subscript, z, is altitude above the surface and $z_{sfc} = 0$, so *2* becomes

$$E = K\,U\,(q_z - q_{sfc})/\,z < 1, \text{ indicating water and energy loss from the surface} \qquad *3*$$

Now bear with me! As this is fundamental understanding of the role of evaporation in climate-change's impact on water management in the State.

The moisture content of the surface parcel of air in contact with the water surface, q_{sfc}, is known as the saturation moisture content (all the moisture a parcel of air can hold) and is temperature

dependent. Importantly, this temperature dependency is non-linear according to the Clausius-Clapeyron equation (can be found in standard meteorology texts). The effect of temperature on saturation moisture content looks somewhat like the well-known "hockey stick" for global mean temperature and population. In other words, saturation water content, q_{sfc}, the amount of moisture that surface air parcel can 'accept' from the evaporating reservoir or lake, increases much more at higher temperatures (summer, climate change) than at colder temperatures (winter, historical, high vs low altitude storage). The moisture content at some distance above the surface, q_z, however, is not saturated because it is out of contact with the reservoir's water surface and more representative of ambient atmospheric conditions, which for the West is DRY. That dry air sucks up water from the reservoir and deposits it as vapor into the atmosphere to be carried by the wind very far downwind; likely out of the State.

So taking the third term in the right-hand-side of *3*, $(q_z - q_{sfc})/ z$, we can heuristically contemplate the effect of climate change on it. The term increases because solar radiation and, as air temperatures increase, sensible heat transfer from the warmer atmosphere into the reservoir's water increase the water surface temperature (only takes a few millimeters for evaporation to take place). In turn the saturation moisture content, q_{sfc}, goes up according to Clausius-Clapeyron because of the temperature increase of the water surface in contact with air parcels. At the same time the atmospheric moisture content, q_z, remains dry or even goes down as the atmosphere becomes drier as projected by climate models. Since z remains constant, <u>the increased difference in the numerator, $(q_z - q_{sfc})$, increases the term, increasing the rate of evaporation</u>. The big question is: by how much?!!

Adding to the problem, current climate projections for the SW USA indicate that surface winds, U in our case, will increase.

So the effect of climate change is to potentially increase reservoir and storage lake evaporation from current, possibly unknown, values and by an unknown amount.

If current practice is inadequate to frame the problem or pose solutions, a plan to investigate the best method of operational evaporation monitoring and implementing the plan will take a concerted effort from experts, management of a complex plan, and extensive field work resulting in a substantial expense. Implementation of a resulting operational monitoring effort state-wide will also be complex and expensive so be prepared. However, water managers, should be able to argue that such expense is cost-effective.

Conservation at the Source

Historically, it appears to this citizen, that water management in the West has been dominated by considerations of Input and Output with a nod to Evaporation and Infiltration. Evidence of this is shown in the location of the reservoirs, which to me were constructed considering only the ease of obtaining Inputs and delivering the Output as well as legal decisions. Current climate change demands this approach be revisited with a highly critical eye. Here is why.

I have outlined in some detail why evaporation potential from reservoirs and storage lakes *will likely increase* as climate changes but climate projections also point to reduced precipitation in the SW USA, reducing Input fundamentally. Furthermore, a combination of warmer temperatures and more

dust storms (episodic increases in U) changing the reflective properties of snow will result in early runoff instead of snow storage; this is already happening. Combining increased Evaporation, reduced Input, and, via population increase, demand for increasing Output, and contemplating *1*, makes reservoir and lake storage more important to State water managers than in previous history. By how much and what would be the effect of increasing evaporation? That is the topic of a research effort.

The main conservation efforts have historically centered on the Output component of *1*; for example: xeriscaping, recycling waste water, and other user considerations (shorter showers). There are attempts at increasing Input via the highly uncertain, geoengineering practice of cloud-seeding and the contentious diversions of rivers and streams from "remote areas" to "populated areas".

In our State's climate-dominated water future, it is time to consider conservation at the source as much as conservation at the endpoint user and that means serious consideration of reducing reservoir and storage lake evaporation. This is especially true for siting the reservoirs of the future (and there will be many as the population of Colorado and SW USA increases).

Recently some consideration of evaporation reduction has been discussed. The relatively old (1950's-60's) use of organic films covering a reservoir as attempted with Lake Hefner, Oklahoma City, OK, in 1967 have been frustrating and now subject to intense environmental impact analysis (EIA) not present back then. Other methods, such as dispersing reflective material and storage underground is relatively untested may not prove feasible and also subject to EIA.

I'm not a water manager, just an old field scientist who has seen better days (and these aren't bad!), but I wonder what metrics they use to monitor the overall efficiency of their effort. I'd like to propose a metric that might already be in use, using the concept of efficiency as the ratio of Loss to Gain. Contemplating *1*, we can divide it by the Gain in this presentation, Input (I), and not changing the relative importance of each term, to get

$$1 - O/I - E/I - L/I = S/I$$

Rearranging

$$O/I = 1 - E/I - L/I - S/I \qquad *4*$$

The term O/I, Output (a loss) divided by Input (gain), is the overall efficiency of the system and S/I could be construed as a storage efficiency (or potential) and should be related to the head of the reservoir or lake and its time varying surface area; alternatively, (O + S)/I could also be considered overall efficiency. E/I and L/I are also efficiency terms and can be used as metrics for monitoring and policy decisions.

Without any change in storage, a perfectly efficient system, with no evaporative or infiltrative loss, would deliver as much water as it collects; O/I = 1. However, storage change is linked, non-linearly to E and L making the system more complex. Furthermore, the equation needs to be integrated over time, depending upon its use, which further complicates matters. Nevertheless, I propose that the

terms, E/I (evaporative efficiency) and L/I (infiltration efficiency), properly handled statistically, can be used as operational metrics.

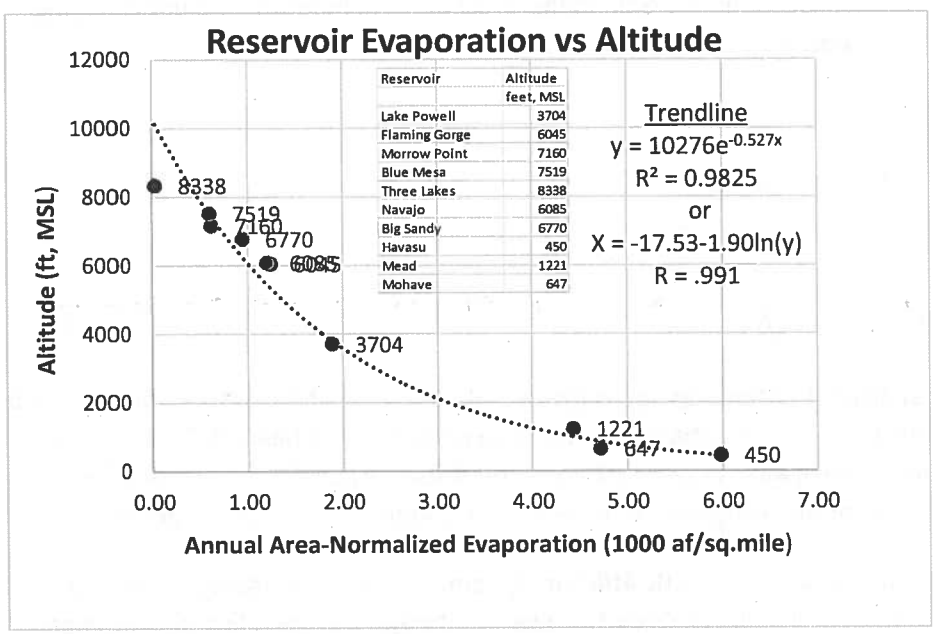
For instance, a proposal to increase the area of an existing reservoir by bringing water from the Western Slope to the Front Range makes no sense if a large portion of that water is irreversibly lost to evaporation. In other words, this NOT "good and beneficial" use according to Water Law and is likely to be challenged in court as part of an Environmental Impact Analysis.

In terms of the metric,

$$\Delta E/\Delta I << 1, \text{ for approval of reservoir construction,} \qquad *5*$$

Where Δ is the change of the two components before and after the enlargement. It is up to policymakers to decide how much less than 1 the metric should be in order to approve the enlargement. The same metric could be used for planning new reservoirs and storage lakes. This topic is ripe for a discussion of cost/benefit and risk analysis, which is beyond the scope of this comment, thus my emphasis on statistical integrity of the terms in *1*.

From the discussion of *2*, we saw the dependence of saturation moisture content on temperature and how a slight increase in reservoir surface temperature can greatly increase evaporation potential. Using this principle, the colder a reservoir or lake is the lower its evaporation potential compared to one of similar size but warmer. Since temperature decreases with altitude, higher reservoirs should have relatively lower evaporation as shown in the Figure showing the dependence of annual area-normalized evaporation versus altitude. Note that the list of reservoirs is from a large geographical area.



The non-linear trend line of the highest correlation in the Figure also shows the "power" of the non-linear Clausius-Claperyon relationship with about 50% of the decrease in the first 1550 ft of the 7880 ft range. Blue Mesa and Morrow Point reservoirs at about 7000 ft have only 14% of Lake Mead's area-normalized evaporation at about 450 ft. It is worth noting that Farnsworth et al (1982) contains two similar graphs (Figs. 5 & 6) for raw pan evaporation observations versus altitude. The recent and area-normalized annual evaporation estimates as shown above considerably improved the correlation coefficient they published (R^2= 0.73).

So placing a reservoir at high altitude with reduced infiltration is the best and most ecologically sensitive way to address the coming problem; as mentioned earlier, this was my late mentor, Professor Riehl's idea, not mine, and data pointing to that solution was available in Farsnworth, et al (1982). Additionally, the reservoir should be relatively small in area but deep to preserve storage volume while reducing evaporation potential.

Beside altitude, two other considerations should be taken into account for current reservoir appraisal and future reservoir siting: Fetch and orientation to the wind. Fetch is the distance air travels prior to and over a given area under consideration; in our case along the mean-wind direction dimension of the reservoir. Orientation is the placement of the reservoir with respect to the mean wind direction, which is time dependent. I suggest seasonal averages of wind-direction, based on the warmest months, should be used to determine fetch and orientation. Fetch and orientation determine the prior conditioning of the air parcel and then the amount of time an air parcel sojourns over the lake picking up water never to be seen again. Evaporation would be reduced for high altitude, cross-wind reservoirs with a relatively moist fetch (forest or grass/shrub land). In contrast, large along-mean-wind oriented reservoirs with fetches over very dry ground are inherently inefficient; a good example is Lake Mead on the Colorado River, a reservoir with extremely high evaporation as shown in the Figure.

Thus for future reservoirs consideration of altitude, fetch and orientation to the warmest months' wind direction should be of equal importance to consideration of ease of obtaining Inputs and delivering Outputs in order to reduce Evaporative loss and increase overall efficiency.

Call for Action: A Symposium on Colorado's Reservoir Future

Colorado is the home of world-class experts and research in water resources covering all aspects of *1*: Input (precipitation, hydrologists, watershed and river management, diversion), Output (water delivery and treatment), Evaporation (Atmospheric scientists, hydrologists), Infiltration (Geologists, hydrologists), and Storage (reservoir management). If not already being pursued, these groups of expertise need to be tightly and officially involved in the consideration of this Draft Water Plan along with stakeholders and policy makers.

I would like to propose that a symposium, covering several days, be convened among the State experts, stakeholders (including the general public), water lawyers, and policymakers (politicians) to take on this important water management problem facing our State: How should the State manage current and planned Reservoirs and Storage Lakes in the Face of Climate Change and Population Growth? With a burgeoning economy drawing in new residents by the million, Colorado needs to do something and soon. The Symposium should also address the impact of increased evaporation potential on the interaction between Upper and Lower Basin States within the context of the Colorado Compact.

The output of the **Symposium on Colorado's Reservoir Future** should be a White Paper to the Governor outlining a plan of action that would augment a revised Colorado Water Plan. It should also form the basis for negotiations between Colorado and the other States within the Colorado Compact. A further and important output of the Symposium would be the formation (with appointments at some future date) of a State Scientific Steering Group for Reservoirs and Storage Lakes that would provide the best and most relevant scientific understanding to the State scientific staff and policymakers for the

management and construction of reservoirs and on-going negotiations within the Colorado Compact. The Scientific Steering Group should also be tasked with timely and regular reports on State water reservoir management and construction for stakeholder, Colorado Compact negotiators, and general public interests. The Steering Group will need a staff and supportive budget.

There is little room for error and, given the rapidly changing climate now on record, time may be short.

****End of Comment****

Reference: Farnsworth, Richard K., Edwin S. Thompson, and Eugene L. Peck. 1982. Evaporation Atlas for the Contiguous 48 United States. NOAA Technical Release. NWS 33. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service.

PUBLIC INPUT
ITEM 71

PITKIN COUNTY

530 E. Main Street, 3rd Floor
Aspen, Colorado 81611
phone (970) 920-5200
fax (970) 920-5198

April 28, 2015

Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, CO 80203

RE: Comments Concerning the First Draft of the Colorado Water Plan

Dear Members of the Colorado Water Conservation Board:

The Board of County Commissioners of Pitkin County is writing to express its concerns and recommendations regarding the First Draft of the Colorado Water Plan. Comments are centered on four fundamental matters related to the statewide planning for water resources: (1) Drought Planning Based on Adequate Hydrologic Modeling; (2) Adoption of a High Level of Conservation Statewide; (3) Recognition of the Lack of Water Available for new Transmountain Diversions ("TMD") and implementation of Identified Projects & Processes ("IPP"); and (4) Local Land Use Planning.

River flows in Colorado primarily originate from snowmelt and changes in precipitation and temperature patterns have the potential to greatly impact long-term water availability. Drought planning must be well-grounded in measured climatic and hydrologic data over an extended timeframe. Model-based forecasts grounded upon studies of precipitation and temperature futures across the state are essential as modest temperature increases could result in marked reductions in water availability. Modeling must consider anticipated reductions in snowpack, an earlier peak in spring snowmelt, higher rates of evapotranspiration, reduced late spring and summer flows, and reductions in annual runoff and stream-flow. Accurately assessing the future hydrological reality of the state is essential to the success of the Colorado Water Plan.

Adoption of a high level of conservation by the state for all basins should be a guiding precept of the Colorado Water Plan. Water efficiency, conservation, & reuse programs and the promotion of agricultural conservation while maintaining viable rural agricultural economies are essential components of a statewide high level of conservation. Examination of future and existing land uses will ensure a reduction in any shortfall of water availability. Adequate funding for nonconsumptive use must not be lost and is essential to environmental resiliency and recreational needs statewide.

The assumption that all IPP's will be completed and produce the projected yields is an imprecise assumption. The IPPs, or at least those "principal" IPPs, must be vetted as to viability, realistic yield and potential detrimental impacts to existing consumptive and non-consumptive uses. Only with a careful analysis of the disclosed IPPs can the water supply gap be accurately assessed and the feasibility of any new TMD evaluated.

Further, there must be recognition that a Colorado River Compact ("Compact") call would impose a statewide obligation to provide water to the Lower Basin states and appears to be an increasingly

reality. As an obligation of the entire state, there must be recognition of the disparate impact a transbasin diversion, has on Colorado's ability to meet that statewide obligation. Simply put, there is not enough water available for any additional transbasin diversions from the Western Slope to the Front Range. The Colorado River Basin Water Supply and Demand Study demonstrates an average shortfall of 3.2 million acre-feet ("MAF") by 2060. A transbasin diversion is an inherently greater hit to the Colorado River system than diversions by users in the Roaring Fork basin, as basin return flows contribute to the water to satisfy our state's compact. An effective statewide water plan will recognize and account for this reality.

Successful management of future water demand is directly tied to local land use planning. Local land use planning provides the opportunity to develop practical solutions to anticipated water supply shortfall and should be elevated as a subsection of the Water Plan. Local water sensitive land use planning is an essential tool to: (1) decrease the water supply gap; (2) provide low cost alternatives in addressing the gap; (3) be reflective and protective of Colorado values; (4) increase predictability and reliability in water supply planning, reducing risk; and (5) encourage adoption of best management practices and practical land use models to maximize water efficiency or minimize water use.

Thank you for the opportunity to comment. We encourage you to support the inclusion of these concerns and recommendations in any legislation concerning the state water plan.

BOARD OF COUNTY COMMISSIONERS OF
PITKIN COUNTY, COLORADO

Respectfully submitted,

Steven F. Child

Steven F. Child
Chair

cc: Aspen City Council

PUBLIC INPUT
ITEM 72

April 20, 2015

Hand written
Thank you

Mr. Frank Kugel
Chair, Gunnison Basin Roundtable Implementation Plan Committee
210 W. Spencer, Suite B
Gunnison, Colorado 81230

TRI-COUNTY WATER
CONSERVANCY DISTRICT

Dear Mr. Kugel:

The Tri-County Water Conservancy District Board wishes to thank the Gunnison Basin Roundtable and their committee for its work on the Gunnison Basin Implementation Plan (GBIP) which addresses future water needs of the Gunnison Basin and the State of Colorado. The District's Board supports your analysis of the challenges facing water users and water providers moving forward into the 21st century, but wants to reiterate some specific points.

The Colorado Water Plan (CWP) must protect current statewide uses and commitments before allowing any additional future depletion. We fully support the prior appropriation doctrine to preserve and protect current resources. Shortages already exist within current uses and any new project increases the risk of limited supplies.

We acknowledge the importance of Colorado's agricultural productivity in both the GBIP and CWP, and the importance of sustaining that agriculture and its use of water into the future even though some of its land and water will eventually be converted to municipal and industrial uses.

We support the Roundtable's decision to set the highest level of conservation as a basin-wide goal. We believe this must be the standard for all of Colorado. Given the anticipated population growth and the dire projections surrounding climate change, it is imperative to develop a strong conservation ethic.

We are pleased to see that the GBIP takes a firm stand on stringent conditions that must be met for any future trans-mountain diversions (TMD). The CWP should clearly define "hydrologic risk" and the "triggers" that would preclude further diversions that would increase the risk of a Colorado River Compact call and threaten the quality of life for all Coloradoans.

Sincerely,

Mike Calhoun
President

Cc: Mr. James Eklund, Executive Director, Colorado Water Conservation Board

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TRICOUNTYWATER.ORG

Water GENERATION
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647 N. 7TH STREET
MONTROSE, CO 81401

PUBLIC INPUT
ITEM 73

MIDDLE PARK WATER CONSERVANCY DISTRICT
POST OFFICE BOX 145
GRANBY, COLORADO 80446

Handwritten
thank you ✓

April 24, 2015

Mr. James Eklund, Director
Colorado Water Conservation Board
1313 Sherman Street, Suite 721
Denver, CO 80203

Re: Comments, December 10, 2014, Colorado Water Plan

Dear Mr. Eklund:

At a recent meeting of the Board of Directors of Middle Park Water Conservancy District, the Board determined it would be appropriate to submit some limited comments on the Colorado Water Plan. The Board is cognizant that many other entities have submitted comments, many of which they would concur with but thought on a general basis it would be useful to note a few of their concerns.

First of all, the Board would be remiss in not pointing out that this document is one of the best that has been generated in Colorado addressing the many issues involving Colorado's future water planning. You and your staff are to be commended for an exceptionally comprehensive and instructive presentation of Colorado's past and future water situation.

Middle Park's comments are to a large extent based upon information that may be generated in the future.

The Board's comments are as follows:

1. The Southwestern Water Conservation District has pointed out that with the continuing concern about the lack of available water supply in the Colorado River Basin, the State needs to look seriously at other

alternatives such as imports from the Missouri Basin. Kansas has looked at a pipeline from the Missouri River.

2. The recent criticism of the complete lack of California's planning for its drought has raised additional concerns about what would happen in Colorado with that type of prolonged severe drought. The Board feels that lessons from the 2002 drought haven't made it into the conservation section of the plan and would note that comments from an employee, of one of the best managed front range water providers in 2002, indicated that another year like 2002 would lead to the total restriction on use of watering for lawns. In other words, we are not as far removed from California's situation as people would think, nor have we discussed the need for appropriate legislation in the event of such an occurrence.

3. At the start of the HB1177 process, it was felt that there were adequate water supplies for a potential Transmountain Diversion. The Colorado Water Supply Study, Risk Management discussions, as well as the recent Bureau of Reclamation study of water supply in the Colorado River Basin have increased the questions regarding available water supply. Tied into that issue are not only concerns about the status of water levels in Lake Powell but also power generation issues at Lake Powell. In summary, the concerns of the West Slope with respect to water availability have increased, not decreased, which is stated in the terms of Paragraphs 1, 2 and 4 of the "Conceptual Agreement" attached to the Plan. Additionally, when the IBCC addressed the No/Low Regrets scenario the level of those concerns wasn't at the stage they are today. The Board would reiterate the importance of agriculture in Colorado and would emphasize that not only is it important for a number of the reasons that are enumerated in the Plan but it is also a quality of life issue as well as a cultural issue since many of the attributes that we value including self reliance are imbedded in agriculture as it was passed down from the pioneers who settled Colorado.

4. Chapter 6 on Conservation and Reuse is particularly instructive and includes a lot of the work that was done by staff of the CWCB on Best Management Practices. The approach is good but it seems like whether

we are looking at Las Vegas, El Paso or California, Colorado's ability to address a significant drought will require additional efforts.

5. Chapter 6.4 details recent legislation that allows for or increases the likelihood of ATMs. While it may be too early to judge the effectiveness of those provisions, other provisions should be looked at to incentivize maintaining agricultural such as evaluation of loan programs, analysis of impacts on transfers and perhaps creation of an Ombudsman to promote and encourage agriculture as well as find revenues such as grants to assist agriculture.

6. On Page 276, the Windy Gap Firming Project is mentioned as an example of Interbasin Projects. While it is a good example, it needs to be pointed out that the Windy Gap Firming Project needs to be looked at in conjunction with the Windy Gap Agreement that provided other benefits such as compensatory storage for the West Slope and maintenance of instream flows and the Windy Gap Firming Project Agreement is designed to compliment the earlier agreement.

7. The Seven Points from the "Draft Conceptual Agreement" are found on Page 280, as well as an attachment. It is important to note that with the input from the various Roundtables, some want the term "agreement" changed to a framework. Additionally, it is important to note that the Colorado River Roundtable has raised some issues as to the Seven Points. Importantly, in Middle Park's estimation, Points One and Two need to be read to not to adversely impact the West Slope including preventing a TMD from purchasing West Slope water rights to increase the yield of a TMD. Also, Point 4 is important in that without an insurance policy with our <u>present</u> knowledge of water availability on the Colorado River under the existing and projected analysis it is clearly important that the existing users and a small portion of West Slope needs has to be provided for before consideration is given to a future TMD.

8. The financing provisions on Pages 291 through 296 are a good analysis of possible financing alternatives. However, what is missing is any analysis of feasibility of any TMD. The Middle Park Board feels that the only project that was looked at by the CWCB in any level of detail was the Big Straw Project which involved pumping from the vicinity of Grand Junction to the East Slope. Other potential projects haven't been looked

at in detail but those involving a TMD from the Colorado River could be prohibitively expensive and involve huge environmental, engineering and permitting concerns. Overall, the cost of a new TMD would dwarf the available funds and it is next to impossible to determine whether the voters would ever approve such a proposal which could well be in the tens of billions of dollars versus the proposal on Amendment A.

9. Tying into the overall process is just a question of why the entirety of the State should be involved in financing a project whose primary benefits are going to be with the entities that need the water. Precious little has been heard about the formation of an entity such as was done with Northern (understanding that it was a different time and federal money) that could finance such a project.

In conclusion, the Middle Park Water Conservancy District thinks the study is very good but one of its significant weaknesses, because the foundation hasn't been laid as of yet, is determining an entity to finance a project, the overall cost and feasibility of any project from the Colorado River Basin, let alone whether there is any water available even under the Seven Points in the framework.

Very truly yours,

Duane Scholl

Duane Scholl, President
Middle Park Water Conservancy District