December 15, 2010

> We envision a Colorado that balances municipal, industrial, agricultural, environmental, and recreational water needs and promotes cooperation among all water uses.
>
> *Interbasin Compact Committee (IBCC)*
> *Vision Statement, 2007*

Governor Ritter and Governor-Elect Hickenlooper:

We wish to present you with a summary report to inform you of our discussions and accomplishments over the past four years and our proposed work plan for 2011. (A timeline of IBCC and basin roundtable accomplishments is included below.)

The enormous challenge of meeting future water needs facing water users and the State requires the collective input of all stakeholders and a collaborative decision-making process that reaches common ground to plan a sustainable water future that meets our numerous and diverse needs. This is achieved, in part, through the IBCC and the basin roundtable process created by Russ George, Governor Owens, and Colorado's General Assembly. In order to ensure a water future for Colorado that continues our quality of life, our system of water allocation should be guided and supported by a comprehensive framework that will marshal ever-scarcer government resources in a manner that supports economic growth; protects our environment; provides for municipal, agricultural, and industrial needs; and supports rural, recreation, and ecotourism-based economies.

Local control has been a guiding principle for land use and water development in Colorado, and the prior appropriation doctrine that is the bedrock of water allocation in Colorado is a ground-up, individually-driven, and locally-based system. Currently, long-term water resource planning, development, use, and management are all accomplished by local or individual users. The establishment of the IBCC and the basin roundtables is an attempt to take advantage of the best aspects of local control and local water leaders' knowledge, with all the diverse interests at the table, in order to create a statewide framework to meet future water needs.

Despite all that has happened in the economic and political realms, the IBCC has plowed forward. While progress has taken time, the outlines of an approach to and a framework for closing a large future water supply gap have emerged. The basin roundtable process and the work of the IBCC demonstrate that certain key social conundrums are best handled outside the time limits imposed by the political system. While we come from different sectors and represent different constituent groups, there has been a significant coming together, which has resulted in shared understanding and some consensus that could not have happened five years ago. Like all complex issues, real water supply solutions require people to work together with a common purpose, which takes time. Success is determined in part by the building of solid relationships and trust.

We continue to believe that there is a sense of urgency regarding Colorado's water supply future. This sense of urgency was accentuated as we came to understand just what it means to say that there may not be enough water to meet all of our demands. It is heightened by the enormity of the need, the difficulty of the trade-offs posed by limited water supply, and the complexity of our current water allocation process. Recent IBCC work has centered upon exploring a variety of water supply alternatives

that could help build consensus-based plans through which to meet future municipal, environmental, agricultural, industrial, and recreational needs. The Colorado Water Conservation Board's (CWCB's) Statewide Water Supply Initiative (SWSI) and the basin roundtables' consumptive and non-consumptive needs assessments provided the technical basis for the IBCC's discussions. In 2007, we began to explore developing a shared vision for Colorado's water future. We developed a vision statement and proposed vision goals. The vision goals are set out in detail below (on page 12 of this document).

Initially, along with the basin roundtables, we questioned where our current system, the "status quo," will lead. Status quo will likely lead to large transfers of water out of agriculture resulting in significant loss of agricultural lands, more dried-up streams threatening ecosystems and recreation-based economies, water-inefficient land use decisions, and continued paralysis on water supply projects. We have discussed status quo as the default position--the results that will likely occur if we, the water community, allow current trends to continue unchanged. Inaction is a decision itself, a decision with significant consequences. The general consensus was the status quo scenario is not a desirable future for Colorado. This is one of the major reasons the group has been able to find common ground. This consensus emerged even though there is a considerable amount of difference within the group over the role of the market in meeting future water needs. A fundamental aspect of our system is the fact that water rights are fully transferable property rights. Everyone agrees that the market has an important role, particularly regarding the right to sell appropriated waters. That said, we believe that affirmative and pro-active planning that includes more comprehensive consideration of broader benefits and impacts is more likely to lead to water decisions consistent with the vision statement that we formulated.

We have begun scenario planning. Several different future scenarios have been defined and include high-, middle-, and low-water demand and high-, middle-, and low-water supply, and the different combinations that result. In 2009, CWCB staff and Camp, Dresser, McKee (CDM) developed a "portfolio tool," which allows IBCC and basin roundtable members to test various water supply portfolios for different scenarios and understand the implications of such. The proposed portfolios included different mixes of identified projects and processes (IPP) success, conservation, agricultural transfers, and new supply development. The portfolio tool helped the IBCC develop a true understanding of the trade-offs between the potential water sources.

What we have accomplished over the past year

During this past year, we specifically explored different mixes of solutions for the mid-demand/mid-supply scenario. While we have not agreed on a specific mix of solutions or specific amounts of supply, we have made significant progress by putting *everything* on the table for discussion and having the necessary and difficult discussions of concepts, ideas, and sacred cows that are near and dear to both individual IBCC members and stakeholder groups. Diverse interests represented on the IBCC have moved from articulating positions to serious discussions about how to resolve the hard issues in a balanced and equitable manner that respects all water needs and potential sources.

The agreement taking shape seeks to balance meeting municipal, agricultural, and non-consumptive needs by using a mix of new water supply development for West Slope and East Slope uses, conservation, completion of IPPs, and agricultural transfers. All parts of this four-pronged framework should be pursued concurrently. In this effort, we have agreed that a successful framework will be one that shares the burdens and the benefits across all water sources and demands, including consumptive and non-consumptive uses. Thus, we are working on a comprehensive framework. To that end, no

single part of the IBCC documents created herein stands alone; they are all part of a larger interrelated and interdependent framework.

The comprehensive framework

Colorado's population, projected nearly to double by 2050, will increase Colorado's municipal and industrial (M&I) water demands. By 2050, Colorado will need an additional 200,000 to 600,000 acre-feet beyond what is currently being planned for by local water providers in order to meet future M&I water demands and replace reliance on non-renewable groundwater. Looking at all of the strategies (conservation, new water supplies from the Colorado River system, agricultural transfers, and higher success rates on the IPPs), it is clear that no one strategy can meet Colorado's growing water needs without harming values important to all Coloradans. Therefore, a mix of solutions is needed.

At our August 2010 meeting, we agreed that a future mix of water supply solutions should include all four sources to meet the water supply gap in Colorado: conservation, IPPs, agricultural transfers, and new supply development, while also protecting Colorado's significant water-dependent ecological and recreational resources. While still nascent, the framework is coalescing around the following principles:

> First are the identified projects and processes (IPPs). The ability of present planning options to resolve "future" water shortages depends on "existing" planned projects moving forward. Their success demonstrates that well-planned future projects are also possible, while the failure to implement current projects, particularly because of the lack of leadership, may make future options more difficult to realize. Further, the IPPs have the ability to meet some, but not all of the estimated 2050 M&I water needs. Implementing these local projects and plans is critical to minimizing the water supply gap, but IPPs should be implemented in a way that balances the State's responsibilities to protect and restore Colorado's natural resources. The State, through its various agencies, has differing responsibilities ranging from protecting the environment to helping secure necessary water supplies. The IBCC has therefore recommended how the State can better share information among State agencies involved in a project, provide broader context about water issues facing the state to federal agencies with a role in water supply projects and processes, explore ways to address barriers to projects, perform a facilitating role where there is no consensus regarding a project, and potentially support projects.
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> Second, water conservation is exceedingly important. Full implementation of strategic conservation options will require broad political and social acceptance. Water conservation is a critical part of the four-pronged framework and should be pursued aggressively. Success of conservation will reduce agricultural transfers, and defer the need for Colorado River development and the need for new infrastructure. It is not yet clear exactly how much additional water supply will be necessary if a proper balance of conservation measures is implemented, but it is clear that conservation alone will not be enough to meet the projected water supply gap fully. Achieving higher levels of success for conservation objectives will require support by, and implementation through, policy makers in the municipal, industrial, and agricultural arenas. We look forward to working closely with the State, land use planners, town councils, county commissions, and others to understand better the relationship of land use planning and water use, and connecting them to help implement significant conservation measures.

Third, collectively agriculture is the third largest component of our economy. Agriculture is vital to the state's culture and quality of life, food security, wetlands, open space, and rural communities. Large-scale dry-up of irrigated agriculture has considerable adverse social, economic and environmental impacts. While some future portion of M&I water will come from agricultural sources, encouraging alternative agricultural transfers is essential to prevent the large-scale dry-up of agricultural land. The IBCC is recommending some strategies that can make such alternative transfers easier to achieve than traditional "buy and dry" transfers. To the extent that conservation, IPPs, and new water supply development are successful, less water will be transferred out of agriculture to meet the M&I gap, and vice versa.

Fourth, any new trans-basin diversion project in addition to those already planned and in operation will be controversial. However, the necessity, size, and impact of such a project will be informed by the success of the identified projects and processes, conservation, and alternative agricultural transfers. Some believe that if we are to prevent the loss of significant amounts of agricultural land, new water supply projects will be necessary even with implementation of aggressive conservation measures. Therefore, we are exploring what is necessary to ensure that such projects support both East Slope and West Slope needs and protection of the environment. Water supply from a new trans-basin diversion project may not be needed right away if the IPPs, conservation, and reuse are aggressively pursued and successfully implemented. However, concurrent planning for new supplies needs to begin now to ensure that these supplies are developed and available to fill the gap when needed. Further, any new supply should adequately address both Colorado River Compact curtailment risks to existing and new appropriations and water supply certainty issues. These subjects will be discussed more thoroughly in 2011.

Fifth, in addition to the four water supply issues, we recognize the need to protect and enhance Colorado's non-consumptive water needs. It is clear that we will need to agree to protecting existing water bodies that are in good health, and to restoring important environmental, wildlife, and recreational values, while we also support the development of properly mitigated water supply projects. In meeting Colorado's non-consumptive water supply needs it is important to: (a) protect identified environmental and recreational values and restore environmental values; (b) promote recovery and sustainability of endangered, threatened, and imperiled species; (c) protect and enhance economic values to local and statewide economies derived from environmental and recreational water uses; (d) pursue projects and other strategies, including the CWCB's Instream Flow Program, that benefit consumptive water users, the riparian and aquatic environments, and stream recreation; and (e) recognize the importance of environmental and recreational benefits derived from agricultural water use, storage reservoirs, and other consumptive water uses and water management. The IBCC recognizes that quantification of non-consumptive needs and further identification of projects or methods to meet those non-consumptive needs is necessary.

Unfortunately, knowing what can and needs to be done does not automatically translate into getting it done. To provide water for Colorado's future needs is not just a simple question of project funding, but also raises social and cultural issues inherent in managing increasing scarcity and competition for available water. Success will require an unprecedented commitment by all parties. Neither the IBCC nor other Colorado water policy bodies have fully addressed the magnitude of the necessary commitment. This is why the IBCC has resolutely worked toward achieving a balance of conservation, new development, limited agricultural transfers, and environmental protection, while also reaching

agreement that existing plans should have a reasonable chance of implementation. A significant barrier to execution is funding, although this is perhaps less significant than the political will that is needed in the long run.

Also during the past year, we began working to understand the implications of different mixes of solutions and, in the latter half of 2010, to outline frameworks by which a particular mix of solutions might be implemented. To this end, we created subcommittees to flesh out what needs to be understood and accomplished to implement a state water supply framework. One of the significant next steps will be to integrate the subcommittees' work into a single whole. Further, the mix of solutions and framework development is iterative and each informs the other. The initial work of the subcommittees is included below.

An important next step is bringing the IBCC's ideas to the basin roundtables and other stakeholders for input and feedback. This will create an opportunity to develop a comprehensive statewide framework with the basin roundtables and other stakeholders. With the basin roundtables included, the IBCC will begin to accomplish that which has never been done in Colorado, but which is necessary now: creation of a comprehensive water supply framework for Colorado that departs from historical practices. The IBCC's visioning effort has a chance of success because the process embraces the local nature of water allocation and charges the local users with creating the framework. If successful, the IBCC and the basin roundtables will take an historic step. We have made significant progress towards this goal, but we are not finished.

Looking ahead to 2011, the IBCC will continue its work of seeking consensus around a mix of solutions and frameworks, refining its vision, and exploring mechanisms to implement its ideas. Our work plan is detailed below.

There remain significant aspects that the IBCC has not yet begun to address. Addressing these issues will require significant input from the basin roundtables and other stakeholders. Success will require the ability to address alternatives and recognition that no single option is perfect. As we engage with stakeholders and basin roundtables we will need to discuss how to address the costs of implementing the framework.

Whether or not this work ultimately results in a statewide framework, the IBCC and the basin roundtables have already seen success in several important areas. We have:

- Expanded and diversified the individuals involved in the state's water issues;
- Fostered collaboration and understanding among the stakeholders in the basins;
- Developed additional technical information on basins' consumptive and non-consumptive needs;
- Begun to address local water needs through the use of Water Supply Reserve Account grants; and
- Begun a dialogue across basins that has led to better understanding and comity among stakeholders.

The planning process has led to broader acceptance of the need for collaboration among water users who understand the pressing needs and limited options. The visioning process has clarified the trade-offs and the probable results of no action.

We have been honored to serve the state in this capacity and look forward to working closely with the new administration, the basin roundtables, the CWCB, and all stakeholders in creating a comprehensive

state water supply framework. We look forward to spending the next several months taking our proposed framework "on the road" to engage all of Colorado's water stakeholders in a conversation about how to improve the framework and appropriate next steps. So far the members of the IBCC have approached this process non-politically. We believe that the continued success of this process rests on it remaining non-political. Water issues can and do become politically charged. However, in order to find a vision that addresses all of our water supply needs and shares the benefits and the burdens equitably, we must get beyond interest-based and basin politics.

We thank Governor Ritter for attending our December meeting. We invite Governor-Elect Hickenlooper to our February meeting, so that we can discuss these important issues with you at the beginning of your term. We look forward to hearing your thoughts on how to move this process forward.

Sincerely yours:

The Interbasin Compact Committee

The Interbasin Compact Committee Members

Basin Roundtable/ Appointing Authority	Name	City	Previous Representatives
Arkansas	Jay Winner	Pueblo	Alan Hamel
Arkansas	Jeris Danielson	La Junta	
Colorado	Stan Cazier	Granby	
Colorado	Carlyle Currier	Molina	
D/SJ/SM	John Porter	Cortez	
D/SJ/SM	Steve Harris	Durango	Jenny Russell
Gunnison	Marc Catlin	Montrose	
Gunnison	Bill Trampe	Gunnison	
Metro	Mark Pifher	Aurora	Chips Barry
Metro	Rod Kuharich	Greenwood Village	Doug Scott
North Platte	Kent Crowder	Walden	
North Platte	Carl Trick	Cowley	
Rio Grande	Steve Vandiver	Alamosa	
Rio Grande	Travis Smith	Center	Raymond Wright
South Platte	Mike Shimmin	Boulder	
South Platte	Eric Wilkinson	Berthoud	
Yampa/White	Dan Birch	Steamboat Springs	
Yampa/White	Jeff Devere	Rangely	Darryl Steele
Senate	Bruce Whitehead	Denver	Jim Isgar
House	Randy Fischer	Denver	Kathleen Curry and Dan Gibbs
Governor	R. Eric Kuhn	Glenwood Springs	
Governor	Taylor Hawes	Boulder	Rita Crumpton
Governor	Wayne Vanderschuere	Colorado Springs	
Governor	Melinda Kassen	Boulder	
Governor	T. Wright Dickinson	Maybell	
Governor	Peter Nichols	Denver	Peter Binney
Director of Compact Negotiations	Alexandra Davis	Denver	Russell George and Harris Sherman

CWCB's Draft SWSI 2010 Key Findings

Background and Key Findings

The Colorado Water Conservation Board completed several reports leading up to the 2010 update to the Statewide Water Supply Initiative (SWSI). These reports informed the IBCC's discussions during 2010, and their findings provide important context for the four-pronged framework outlined by the IBCC. The Draft SWSI 2010 found that Colorado faces a shortage of water for meeting the state's consumptive and non-consumptive water needs. Additionally, the reports found that in order to meet Colorado's water management objectives, a mix of local water projects and plans, conservation, reuse, agricultural transfers, and the development of new water supplies should be pursued concurrently. Further detail about the Draft SWSI 2010 findings is provided below.

Consumptive Needs

Agricultural Demands

Each basin faces continued shortages associated with existing agricultural demands.

There are upward economic pressures to keep agriculture viable, and some basins, such as the Yampa, are seeking to expand agriculture. However, the state could also face a significant decline in irrigated acres by 2050 due to urbanization and water transfers to meet municipal needs. Between 500,000 and 700,000 irrigated acres could be dried up by 2050 to meet municipal needs, and large-scale dry-up of irrigated agriculture has adverse economic and environmental impacts.

In 2050, Colorado's agricultural demands are projected to be approximately 3.9 million acre-feet.

Municipal Demands

Significant increases in Colorado's population—together with agricultural water needs and an increased focus on recreational and environmental uses—will intensify competition for limited and possibly declining water resources.

- Colorado's population is projected to nearly double to between 8.6 and 10.5 million people by 2050.
- Colorado will need between 600,000 and 1 million acre-feet of M&I water by 2050 (this includes population growth, energy needs, passive conservation, and replacement of non-tributary groundwater).
- The Front Range of Colorado will continue to be the most populous place in Colorado with over 80 percent of the state's population residing in the Arkansas, Metro, and South Platte Basins.
- The West Slope of Colorado will grow at the fastest rate of any area in Colorado between now and 2050. Growth rates on the West Slope are as high as 250 percent, whereas on the Front Range the growth rate is approximately 70 percent. Population on the West Slope is expected to more than double in the next 40 years.

Energy Demands

An oil shale industry producing 1,550,000 barrels of oil per day could use between 0 to 120,000 acre-feet, depending upon what technologies are implemented, and whether the increased workforce can use water produced by the oil shale process. Due to ramp-up rates, by 2050 projected water use ranges from 0 to 44,000 acre-feet for an industry providing 550,000 barrels of oil per day.

Supply

Supply Availability

Natural supplies correlate poorly with demands; localized shortages exist, especially in headwater areas. Colorado River Compact entitlements are not fully utilized. In the South Platte, Arkansas, and Rio Grande Basins, unappropriated water is extremely limited.

The Colorado River Water Availability Study confirmed planning ranges that may be available from the Colorado River system to meet future needs and identified local water availability throughout the Colorado River Basins. Projects and methods to manage risk will be needed in order to develop new water supplies in the Colorado River system.

Groundwater Supply

Between now and 2050, the State will need to decrease reliance on non-renewable, non-tributary groundwater for permanent water supply. Without this, there are reliability and sustainability concerns in some areas, particularly in the Denver Basin.

In addition to meeting future M&I water needs, the South Metro area and northern El Paso County will need to replace 35,000 acre-feet of non-tributary groundwater with a renewable water supply.

Non-Consumptive Needs

Each basin roundtable has mapped its non-consumptive focus areas, and over 700 projects and methods have been identified to help meet these needs.

In general, cold-water fisheries have more existing and planned protections than warm-water fisheries.

Addressing the M&I Gap

Identified Projects and Processes

"Identified projects and processes" (IPPs) are defined as projects and methods local water providers are pursuing to meet future water supply needs. IPPs include:

- Agricultural water transfers
- Reuse of existing fully consumable supplies
- Growth into existing supplies
- Regional in-basin projects
- New trans-basin projects
- Firming in-basin water rights
- Firming trans-basin water rights

Portfolios and Strategies

A mix (i.e. portfolio) of solutions will be necessary to address the M&I gap and all elements of the portfolio should be pursued concurrently. This will include the implementation of IPPs, agricultural transfers, new water supply development in the Colorado River system, reuse, and both passive and active conservation. No one strategy alone will meet Colorado's future water supply needs, and portfolios explore possible mixes of strategies to weigh the trade-offs that must be made.

IPPs, if successfully implemented, have the ability to meet some, but not all, of Colorado's 2050 M&I water needs. Implementation of these local projects and plans are critical to meeting Colorado's future water supply needs.

Colorado faces a significant M&I water supply gap in 2050. The M&I gap varies between 200,000 and 600,000 acre-feet, depending on the success rate of the IPPs. By 2050, Colorado's M&I gap could mean that between 31 percent and 64 percent of new demands would not be met.

Conservation

Water conservation can be an important tool for meeting future M&I demands. Per-capita water demands have decreased by about 18% statewide since 2000, although not all of this reduction can be attributed to permanent conservation savings. There is insufficient information at this time to determine how much conserved water can be used to meet future demands.

Agricultural conservation has limited potential to address the M&I gap due to the ability to transfer only the consumptive use.

Alternative Agricultural Transfers

Alternatives to permanent agricultural water transfers represent a viable way to meet a portion of the M&I water supply gap. However, there are significant hurdles to implementing these programs such as the need for better scientific methodologies to measure and administer them, potentially high transaction costs, water rights adjudication and administration questions, and the certainty of long-term supply for municipalities.

Land Use Planning

There needs to be a closer connection between land use planning and water supply planning. This should take place at the local government level with encouragement and support from the State.

Collaboration

Developing new water supplies in the Colorado River Basin for use on both the East and West Slopes can reduce the need for agricultural transfers. This can only be accomplished through continued discussion and negotiation. A multi-purpose project could address the consumptive and non-consumptive water supply needs for the East and West Slopes.

Funding

State funding will be required at increased levels in order for Colorado to meet its water supply needs. Preliminary funding analysis indicates that implementing a portfolio of solutions to address Colorado's 2050 M&I water supply needs will cost between $16 and $18 billion. These costs could increase if Colorado relies on a single strategy rather than a mix of solutions.

Without a mechanism to fund environmental and recreational enhancement beyond the project mitigation measures required by law, conflicts among M&I, agricultural, recreational, and environmental users could intensify.

The ability of smaller, rural water providers and agricultural water users to adequately address their existing and future water needs is significantly affected by their financial capabilities.

Costs for Water Supply Infrastructure

SWSI 2010 analyzed example projects that transport water from the lower South Platte and Arkansas to the Front Range, as well as pumpback projects from the Yampa Basin, Gunnison Basin via Blue Mesa Reservoir, and Green River Basin via Flaming Gorge Reservoir. A reconnaissance analysis of capital costs for these projects indicates a range from $5 to $9 billion for 250,000 acre-feet of water ($20,000 to $36,000 per acre-foot). The cost for developing 250,000 acre-feet increases if developed incrementally through several smaller projects. The costs presented here represent only one part of the portfolio needed to address Colorado's future M&I demands, and they are based on projects that have been discussed in the past but may or may not be implemented.

Timeline of Major Accomplishments for the IBCC and Basin Roundtables

2004
September—Director Russ George first describes the idea of Interbasin Compacts at the Colorado River Water Conservation District's annual seminar.

2005
January—Governor Owens calls for the establishment of the Interbasin Compact Process at his State-of-the-State address.

January—House Bill 05-1177 (Colorado Water for the 21st Century Act) sponsored by Representative Penry and Senator Isgar is introduced.

June—Governor Owens signs the Colorado Water for the 21st Century Act in Grand Junction establishing the Interbasin Compact Process.

August—First basin roundtable meeting – Yampa-White Roundtable meeting in Rangely.

August – December—First meeting of each basin roundtable to elect at-large members, establish by-laws, and elect IBCC representatives.

2006
January—Governor Owens appoints Russ George as the first Director of Compact Negotiations, and Director George holds the first meeting of the IBCC.

April—IBCC adopts its Charter and refers it to the General Assembly.

May—General Assembly passes House Bill 06-1400 approving the IBCC Charter and establishing funding for the basin roundtables and IBCC.

May—General Assembly passes Senate Bill 06-179 establishing the Water Supply Reserve Account (WSRA).

May—First joint meeting of the four West Slope basin roundtables.

May 2006 – October 2007—IBCC meets jointly with each basin roundtable to better understand the water supply issues in each basin.

October—The IBCC and CWCB jointly create and adopt criteria and guidelines for the disbursement of WSRA funds.

November—First joint meeting of the three East Slope basin roundtables.

2007
January—Basin roundtables submit "task orders" to further develop their consumptive and non-consumptive needs assessments.

March—The first WSRA grants are awarded by the CWCB.

March—Governor Ritter appoints Harris Sherman as the second Director of Compact Negotiations.

September—Joint meeting of the South Platte and Yampa-White Basin Roundtables to discuss the Yampa Pumpback Project.

2008

January—Director Sherman addresses the Colorado Water Congress asking the IBCC and the water community to embark on a "visioning exercise."

March—IBCC drafts a vision statement and vision goals, and agrees to work on combinations of strategies for meeting Colorado's future water supply needs.

October—IBCC agrees that the status quo solution for meeting future water needs is the "buy-and-dry" of irrigated agricultural water and that the status quo is not acceptable.

2009

March—IBCC begins scenario planning with the use of the Portfolio and Tradeoff Tool.

July—CWCB and CDM completes draft reports, including *2050 Municipal and Industrial (M&I) Projections, Strategies for Colorado's Water Supply Future,* and *Non-Consumptive Needs Assessment Focus Mapping*.

July—WSRA passes $20 million mark in awarded funds for implementing water supply solutions and leveraging more than twice that amount in matching funds.

September—All basin roundtables approve their non-consumptive maps.

December—Arkansas Basin Roundtable completes its needs assessment and forwards its Resource Document to the IBCC and other basin roundtables.

2010

January—Governor Ritter announces at the Colorado Water Congress conference that he wants two additional IBCC meetings in 2010 and a report with recommendations by the end of the year.

March—Governor Ritter appoints Alexandra Davis as the third Director of Compact Negotiations.

March—The South Platte Basin Roundtable holds public progress meetings throughout the basin describing the results of its basin-wide water needs assessment to local elected officials.

June—Joint meeting of the Arkansas and Gunnison Basin Roundtables to discuss use of Blue Mesa Reservoir.

June—The IBCC begins facilitated discussions on solutions for meeting Colorado's future water supply needs.

July— CWCB and CDM complete final reports , including *2050 M&I Projections, Reconnaissance Level Cost Estimates for Agricultural and New Supply Strategy Concepts,* and *Non-Consumptive Needs Assessment Focus Mapping.* Draft reports completed including, *Summary of Alternative Agricultural Transfer Methods, Current and 2050 Agricultural Demands,* and *Non-Consumptive Needs Assessment Phase II Update*.

August—The IBCC affirmatively agrees that any water supply portfolio should include conservation, agricultural transfers, new supplies from the Colorado River system, and locally-identified projects and

processes. In order to determine what this portfolio might look like, the IBCC created three subcommittees.

October—Conservation, new supply, and IPP subcommittees report to the IBCC. IBCC creates non-consumptive and agricultural transfers subcommittees.

December—IBCC finalizes report to Governor Ritter.

IBCC Vision Goals

The IBCC discussed and generally agreed on the following draft vision goals. All goals have equal priority:

- Meet M&I demands
- Meet agricultural demands
- Meet Colorado's environment and recreation demands
- Encourage cooperation between water supply planners and land use planners
- Encourage more cooperation among all Colorado water users
- Optimize existing and future water supplies by :
  - Considering conservation as a baseline water supply strategy
  - Minimizing non-beneficial consumptive use (evaporation, non-native phreatophytes, etc.)
  - Maximizing successive uses of legally reusable water
  - Maximizing use of existing and new in-basin supplies
- Promote cost-effectiveness by:
  - Allocating costs to all beneficiaries fairly
  - Achieving benefits at the lowest cost
  - Providing viable financing mechanisms, including local, state, and federal funding/ financing
  - Mitigating third-party economic impacts
- Minimize the net energy used to supply water, including both the energy used and/or generated with raw water delivery, and the energy used for treatment
- Protect cultural values by:
  - Maintaining and improving the quality of life unique to each basin
  - Maintaining open space
- Provide operational flexibility and coordinated infrastructure
- Promote increased fairness when water is moved between basins by:
  - Benefiting both the area of origin and the area of use
  - Minimizing the adverse economic and environmental impacts of future water projects and water transfers
- Comply with all applicable laws and regulations, meet all applicable compact obligations, and protect water rights including the right of water right owners to market their water, while recognizing some institutional changes may be needed to implement certain strategies
- Educate all Coloradans on the importance of water and the need to conserve, manage, and plan for needs of this and future generations

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Subcommittee Reports

Comprehensive Framework to Meet Water Supply Gap
Prepared for Discussion by the IBCC's New Supply Subcommittee
Working Document Only – Not a Consensus or Decision Document

Subcommittee Members

Dan Birch	T. Wright Dickinson	Peter Nichols (co-convener)
Stan Cazier	Steve Harris	Mark Pifher (co-convener)
Carlyle Currier	Taylor Hawes	Mike Shimmin
Jeris Danielson	Melinda Kassen	Eric Wilkinson
Alexandra Davis	Eric Kuhn (co-convener)	

The IBCC believes that four sources are necessary to meet the water supply gap in Colorado -- conservation, IPPs, agricultural transfers, and new supply development – while also addressing non-consumptive needs. The IBCC also believes that each of these four sources of supply is essential, and that each source should play an equally important role in filling the water supply gap. Stakeholder support for and successful implementation of each of the sources are inextricably inter-related, and related to addressing non-consumptive needs.

This document outlines a strategy to implement new supply development, one part of the four-pronged framework the IBCC envisions as necessary to meet the gap. IBCC support for new supply development, however, necessarily rests on support for conservation, IPPS, and alternative agricultural transfers, and addressing non-consumptive needs, as set forth in the recommendations of the respective subcommittees. The comprehensive framework aims to meet the needs of the interests on the IBCC (and in the larger stakeholder community) as much as possible and to allocate any costs among those same interests equitably. In particular, the document aims to:

1. Ensure that irrigated agriculture on both the East and West Slopes can continue to play its essential role in Colorado's economic and community values and does not become the default – sole or preferred -- source of water to fill the gap.
2. Ensure that environmental and non-consumptive water needs are integrated into water supply planning and projects.
3. Provide additional certainty to water providers pursuing projects to fill the gap.

The IBCC discussed this document at its August, October, and December meetings, the subcommittees met number times, and both the IBCC and the subcommittee revised the document. While this document still does not reflect consensus by the New Supply Subcommittee or the full IBCC, it outlines concepts, criteria, and issues that should be addressed, in whole or in part, in a comprehensive, balanced, robust framework to meet the gap and non-consumptive needs. The IBCC also recognizes the need to discuss this approach with the basin roundtables and other stakeholders in its effort to reach consensus.

I. New Water Supply Development

A. **Three guiding principles** likely to enable the development of new water supply are:

1. Any new supply from the Colorado River should be used to address both East and West Slope needs (needs include both consumptive and non-consumptive). An

explicit part of the goal is to allow for full development of Colorado's Colorado River Compact allocation.

2. As we develop Colorado River water for new supply, such development should be accompanied by a risk management program that helps us determine when we are comfortable taking water and when we are not, in other words, a 'water supply plan' accompanied by or integrated with 'triggers' and utilizing other dry cycle sources to fill the gaps when the new supply water is unavailable.
3. Such development should also be accompanied by an emergency plan that addresses needs if extended drought results in Compact curtailment.
4. "New water supply development" means the amount of water supply needed to fill the gap not being met by other aspects of the four-pronged framework.

B. **Background and concept**:

3. With the completion of the Phase I draft Colorado River Water Availability Study (CRWAS) report, it is very clear that that there is no simple or single answer to the question as to how much Colorado River water Colorado has remaining to develop. The answer will always be a range, and because of the inherent legal, hydrologic, and climate uncertainties, the range is big. The Subcommittee also recognizes that it will be virtually impossible to reach a consensus among the IBCC or basin roundtables on a water availability number that could be used for planning purposes. Therefore, rather than focus on water availability, the committee recommends pursuing an approach that minimizes the risk of a future Colorado River Compact curtailment on all Colorado River users, both East Slope and West Slope.
4. The Subcommittee is moving ahead under the assumption that an extended curtailment of post-1922 uses under the 1922 Colorado River Compact would be a very serious problem for the entire State of Colorado and all post-1922 water rights. Therefore, we are recommending a two-pronged approach. The first would be to put in place an "early warning" system that shuts down, curtails, or offsets new water development supply projects on the Colorado River in advance of a Compact curtailment. The early warning system would be based on hydrologic triggers.
    i. Additional work is needed to define which triggers would be used for new supply projects and how they would work.
    ii. The water supply triggers would be coupled with an emergency water bank or other operational scenario that would meet the critical needs of all of Colorado's post-1922 users if a curtailment cannot be avoided. This water bank would utilize the consumptive uses of Colorado's pre-1922 water rights on a willing buyer/lessee–willing seller/lessor basis. The bank could be combined with or include the use of the capacity of existing reservoirs such as Blue Mesa. The concept of such a bank is the effort of a current study by West Slope and Front Range water users.
    iii. The supply availability triggers and water bank concept are interrelated from a risk management perspective. If the triggers are too "loose," then the risk of a curtailment will be more frequent and the length of the curtailment could be longer. Therefore, the bank would need access to more pre -1922 water resources, the impact to West Slope agriculture would be greater, and the cost to existing users that require protection would be much higher. If the triggers are too "conservative,"

then the cost of emergency supplies will be greater and could undermine the feasibility of the new supply project.

iv. Whether post-1922 users, such as a new water supply development, can legally or should practically or politically be treated differently in the event of a Compact call requires further discussion and clarification with regard to the implementation of the triggers. Any trigger would need to be constitutional, comply with Colorado water law, and treat everyone equally under the law.

5. A new water supply development project would likely need to be augmented by a back-up source of water for when the project does not have access to Colorado River water if 100% reliability is desired. Back-up options include additional storage, temporary agricultural transfers/interruptible supply agreements, and integrated operations and infrastructure of water supplies.
6. The Subcommittee recommends that the IBCC, CWCB and the basin roundtables discuss the need for a detailed analysis of future risk and risk management strategies, taking into account information available under the Colorado River Water Availability Study, the Compact Compliance Study, and other related work.

II. Additional considerations for new water supply development

In addition to crafting a mechanism that would reflect the three guiding principles (listed above) and under which new supply development projects could proceed, there are remaining impediments (e.g., permitting hurdles) to actually constructing and operating new supply projects. Further, a question exists as to the appropriate "phasing" of such projects as compared to other water supply alternatives. In response to such issues, the Subcommittee recommends the following:

A. Timing/Phasing

1. Aggressive pursuit of conservation, reuse, and IPPs to minimize risk, defer the costs, and delay the need for and reliance on new supplies and agricultural transfers
2. Concurrent planning for new supplies and temporary agricultural transfers, including infrastructure, to ensure these supplies are developed and available to fill the gap when needed

III. Process Issues for New Water Supply Development, and for Permanent Large Agricultural Water Transfers to M&I Use

1. Water Transfer Fee
    i. Project beneficiary(s) could agree to pay an annual water transfer fee for each acre-foot of new water development to establish a fund to be used to address projected and ongoing social, economic, environmental, and recreational impacts of the new supply project or permanent large agricultural transfer. Additional work is needed to define more specifically how this fee and fund would work.
    ii. The projected and on-going impacts of the new water development or a permanent large agricultural transfer would be reevaluated at a specified regular interval to facilitate the effective use of the water transfer fee.

iii. "Permanent large agricultural water transfer" means a permanent change in the type of use of water rights decreed for irrigation and stock watering use only to municipal and industrial use (M&I) use of 1,000 acre-feet or more per year of consumptive use.
iv. The IBCC respects that water rights are private property and does not intend to interfere with the exercise of such rights by the owners thereof. The IBCC, however, also recognizes that if permanent large agricultural transfers are not subject to the same or similar requirements as new water supply development, the effect would be to make permanent large agricultural transfers not only the default water source to fill the gap, but in fact the preferred water source to fill the gap, which the IBCC believes would prevent irrigated agriculture on both the East and West Slopes from playing its essential role in Colorado's economic and community values.

2. Process to be administered by [IBCC/CWCB/?]. The Subcommittee intends that implementation would use existing processes whenever possible to satisfy the following:
    i. Thresholds to a new water development or a permanent large agricultural water transfer could include:
        1. Minimization of impacts to existing water rights and uses
        2. Existence of a water conservation program approved by CWCB
        3. Existence of a conservation program in compliance with urban landscaping codes and/or statewide plumbing code, if any
        4. Implementation of land use controls to reduce average gallons per person per day (gpcd) demand of new growth
        5. Implementation of conservation best management practices
        6. Water conservation of a specified amount of water from the proponent's existing supplies for each acre-foot of new water development or permanent large agricultural transfer
        7. Reuse of a specified percent of the proposed new water development
        8. Integrated operations of water facilities and supplies

3. Potential new water development or permanent large agricultural water transfer project review criteria
    i. Public notification requirements
    ii. Avoid, minimize, or mitigate environmental impacts of proposed water transfer and provide environmental restoration and enhancement opportunities.
    iii. Compliance with fish and wildlife mitigation requirements
    iv. Existing and future demand for the new water development or permanent large agricultural transfer is consistent with anti-speculation principles
    v. Examine, in consultation with local regulatory entities, the role of the 1041 permitting process in new water supply development. Additional work is needed to investigate and discuss with local regulatory entities how the concepts in this framework will interface with 1041 authority in the future.
    vi. Compliance with water conservancy and water conservation district mitigation requirements

vii. Project proponent would still need to obtain any necessary water court approvals; any local location or construction impact approvals; any necessary federal approvals; and any required water quality approvals or certifications. However, it is the intent of the IBCC that the concepts expressed in this framework are intended to assist and enable project proponents to meet requirements and obtain these approvals, and not to create any additional impediments to project development.

IBCC's Water Conservation Sub-Committee

Purpose:
Review Water Conservation Best Practices Guidebook and Conservation Strategy to create broad policy statements based on the results of the BMP Guidebook. If the task group feels it is appropriate and can make progress, they will also discuss options for better quantitative measure of conservation. In its June meeting the IBCC concluded that the task group will focus on the ability of utilities to adopt and implement best management practices rather than percent reductions.

Members:

- Alex Davis
- Jeff Devere
- Steve Harris
- Taylor Hawes
- Mike Shimmin
- Steve Vandiver
- Wayne Vanderschuere (Organizer)
- Jay Winner

Activities:
At the October IBCC meeting, the IBCC asked the Subcommittee to incorporate input from IBCC, refine the recommendations, and prepare for presentation at the December IBCC meeting. One new member was added to the Subcommittee. The Subcommittee members conducted conference calls and exchanged drafts.

Approach:
Water conservation should be pursued and integrated with a statewide multi-faceted framework that will contribute to closing the state's projected water gap. Water conservation should be pursued to a reasonable degree within the context of a water provider's obligations to provide surety under severe drought and water shortage conditions, as well as providers' obligations to provide water for economic vitality and growth.

For planning purposes at this time, a reasonable estimate of the amount that passive water conservation measures can predictably play in meeting the projected 2050 water supply gap, when considering the economic impacts and other practical considerations that are involved with implementing future conservation measures, is approximately 154,000 acre-feet per year.

Additional work is needed by the IBCC to quantify a reasonable estimate of the amount that active water conservation measures can predictably play in meeting the projected 2050 water supply gap, and studies are underway by the CWCB staff to assist the IBCC in achieving this task.

Conservation recommendations for consideration

Immediate implementation (beginning in 2011)

1. The State should educate and promote stewardship of water resources that recognizes water's critical role in supporting the quality of life and economic prosperity of all Coloradans. Develop unified statewide messaging about water and water conservation that is consistent, sustained, and simple.
2. The State should adopt and require water efficiency standards that meet or exceed the US Environmental Protection Agency's (EPA's) WaterSense fixture and appliance specifications in all indoor building codes; and periodically updates such codes to include new product specifications adopted by WaterSense.
    a. All new residential and commercial construction and renovation that requires building permits or certificate of occupancy should be required to install water efficiency fixtures and appliances that meet or exceed WaterSense specifications.
    b. Compliance should be approved by an appropriate authority.
3. Issue an Executive Order for all State agencies to prepare and implement a water use reduction and conservation plan to reduce water demand by X% by (date certain) and annually report on Agency's success in meeting its plan to the Governor's Office along with annual budget requests. This Order is similar in intent and in parallel with Executive Order D0012 07 "Greening of State Government: Detailed Implementation Concerning Reducing Energy Use." Such order should outline that State agencies implement landscape plans that replace turf and higher-water-requiring landscapes with xeriscaping, keeping in mind the need for tree canopies to reduce urban heat sink.
4. The State should consider and develop ways to help water utilities to accomplish the following goals. This should include funding assistance where possible.
    a. Water entities should pursue best available technologies and practices to minimize water loss in conveyance, storage, treatment, and distribution.
    b. Water providers should include in consumers' water bills or in other related publications concise information on cost, consumption, and rates for water in their areas of distribution. The State of Colorado should convene discussions with water providers to develop guidance on how this information can be refined to be consistently presented across the state and provide uniform consumer information within the constraints any one provider faces.
5. The State should adopt water efficiency standards that meet or exceed EPA's WaterSense product and certification specifications in all new landscaping plans and projects requiring supplemental irrigation; and periodically update such codes to include new product and professional certification specifications adopted by WaterSense.
    a. All new landscape construction excluding those performed by a homeowner, should be required to adhere to WaterSense specifications, inclusive of installed technology and the use of certified irrigation design, installation, and auditing professionals.
    b. Major landscape renovations that require a building permit should be required to adhere to WaterSense specifications, inclusive of installed technology and the use of certified irrigation design, installation, and auditing professionals.
    c. Compliance should be approved by an appropriate authority.

Conservation recommendations for consideration

The recommendations listed below are offered at this time to stimulate dialogue and consideration of additional water conservation measures. They are not endorsed by the IBCC literally as written.

Longer term implementation (2012+)

1. Work on amendments to the statutes to require all "covered entities" to report on all "foundational" water conservation practices (customer tracking, water loss, rate structures). These should include a decrease in the size of "covered entities" to include more (smaller) water entities.
2. To achieve and accelerate realization of passive water conservation potential projections, the Subcommittee suggests that real estate point-of-sale legislation applicable to commercial and residential sales be investigated. The investigation should outline the cost/benefit and steps that would be required to implement legislation requiring the installation of high-efficiency dishwashers, clothes washers, and toilets (to be defined as readily available in the year of sale) as a condition of the sale of residential and/or commercial property. Compliance would be approved by an appropriate authority.
3. Investigate and discuss whether acceptable revisions to Colorado water law can be made to allow storage and reuse of consumptive use or fully consumable water saved from municipal or non-consumptive water conservation activities, without requiring additional court adjudication of the rights to such conserved water.
4. Recognizing that agriculture is the largest segment of water consumption, the State and water organizations should continue to investigate and discuss potential improvements in agricultural water use efficiency and whether such changes will create any conserved water that can be redirected towards other beneficial uses while benefiting the water rights holders and without injuring other water users or the State's Compact obligations.
5. The State should investigate and discuss how to assist local governments to revise their land use regulations to encourage and provide incentives so that new development will be designed to use less water and to conserve water.
6. The State and water organizations should investigate and discuss whether non-consumptive water use efficiency (demand/flow reductions) can be increased in times of hydrologic shortage, and whether such conserved water can be redirected towards other beneficial uses, while maintaining minimum stream flows to support environmental purposes and without injuring other water users or the State's Compact obligations.

Non-Consumptive Needs Subcommittee

Subcommittee Members

- Alexandra Davis
- Taylor Hawes (Organizer)
- Randy Fischer
- Melinda Kassen
- Rod Kuharich
- Mark Pifher

Guiding Principles

A. Protect identified environmental and recreational values; restore environmental values.
B. Promote recovery and sustainability of endangered, threatened, and imperiled species.
C. Protect and enhance economic values to local and statewide economies derived from environmental and recreational water uses.
D. Pursue projects and other strategies, including CWCB's Instream Flow Program, that benefit consumptive water users, the riparian and aquatic environments, and stream recreation.
E. Recognize the importance of environmental and recreational benefits derived from agricultural water use, storage reservoirs, and other consumptive water uses and water management.

Background

In order to protect existing environmental and recreational values and restore environmental values in places where critical values have been diminished, it is important to identify where efforts are underway to protect and/or restore these values and where such efforts are lacking or are insufficient. Toward this end, the Non-Consumptive Needs Assessment Phase 2 is identifying existing and planned projects and methods for meeting non-consumptive needs throughout the state. The CWCB is working with basin roundtables, local watershed groups, water providers, the environmental community, and others to identify where local entities are working on projects or other strategies to meet non-consumptive needs in the focus areas (stream reaches or sub-watersheds) identified by the basin roundtables. Once these non-consumptive projects or strategies are identified, the next step will be for the IBCC and CWCB to work with the basin roundtables to determine if additional projects and methods are needed to address non-consumptive needs in areas: 1) where there are no existing or planned projects or methods in place, and/or 2) where the existing or planned projects and methods are insufficient for protecting identified environmental and recreational values and for restoring environmental values. It is acknowledged that meeting such needs benefits all of Colorado and is not the sole obligation of those developing new water supplies.

Additionally, it is important that addressing non-consumptive needs becomes integrated into larger planning efforts on future water supply projects and processes, even though it may not be possible to protect and restore all environmental and recreational values. Providing proponents of water supply projects and processes with accepted methods to determine non-consumptive flow needs, sound information about stream flows in a larger geographic area, and reach-specific data can help inform water supply project siting and design to facilitate the development of water supply projects and processes that meet the guidelines outlined above.

Recommended Strategies

Short-Term Strategies

The IBCC recommends that the CWCB, the basin roundtables, and other state agencies as appropriate should:

1. Continue to identify "non-consumptive gap" reaches or sub-watersheds in which there are no projects or methods, or the existing or planned projects or strategies are insufficient to protect or restore the non-consumptive attributes.
2. Target funding toward these reaches and sub-watersheds, focusing on the guiding principles listed above.
3. Work with basin roundtables to implement non-consumptive projects and strategies consistent with the guiding principles listed above.
4. Continue to provide technical support to identify:
    a. Reaches and sub-watersheds with important non-consumptive attributes,
    b. What projects and strategies exist or are planned to protect and restore those attributes,
    c. Where there are opportunities to protect and restore attributes for which there are insufficient flows now or projected even after planned implementation of planned projects and strategies , and
    d. What types of projects or strategies would protect or restore flows in those situations.
5. Support mitigation and enhancements consistent with the guiding principles listed above for future decision making, including that relevant to development of water supply projects or processes.
6. Develop a GIS overlay of non-consumptive and consumptive uses to indicate potential for collaborative and mutually-beneficial projects. (Note: A pilot case is underway.)

Longer-Term Strategies

1. Project proponents could consider incorporating tools to address non-consumptive needs in their permit applications as a voluntary, pro-active means of demonstrating their commitment to protecting environmental and recreational attributes. (For example, a project proponent could commit to acquiring water rights for a project and releasing them to the stream as an in-stream flow to meet environmental and/or recreational needs.)

2. As part of its 2011 work plan, the IBCC should explore and refine methods for quantifying environmental needs. The resulting information would then be available to the proponents of projects and strategies, other stakeholders, and regulators to understand better the non-consumptive needs in a project area. For water supply projects and processes, this information is not intended to serve as a roadblock but rather to promote better decisions about where to site and how to design projects, how to avoid, minimize, or mitigate the impacts of water supply projects and processes on environmental and recreational values and, if possible, how to restore environmental values. To understand projects and strategies, stakeholders should have two types of data about non-consumptive needs:

a. At a broad scale, stakeholders should have flow evaluation data to provide context for a particular project or strategy. For water supply projects and processes, having these data will provide greater understanding of the potential impacts of such a project or process to the area's non-consumptive needs. Having these data is intended to help water supply project or process proponents make more strategic decisions about where to site their projects and how to design them to maximize the benefits and minimize their impacts to environmental and recreational values. Several basins have already begun to gather this broad-brush data (including the Colorado and Yampa/White River Basins and Fountain Creek in the Arkansas Basin). At this time, however, only basins that have a Colorado Decision Support System can easily gather these data.

b. Stakeholders also need site-specific data to provide finer-grain detail about the non-consumptive needs in a given stream reach or sub-watershed for guidance on how to pursue a water supply, multi-purpose, or non-consumptive project or strategy to avoid, minimize, or mitigate negative impacts to environmental and recreational values and, where possible, restore environmental values. There is already a wide array of site-specific studies in Colorado, and basin roundtables are conducting additional work in the Colorado River mainstem and lower Arkansas River. Proponents, regulators, and other stakeholders will need site-specific data about how a water supply project or process affects non-consumptive values prior to building such project or process.

3. With assistance from staff, in 2011, the IBCC should also investigate, evaluate, and recommend sustainable funding options to help pay for protecting and restoring these non-consumptive values, which are often of statewide and public benefit.

4. Explore ways for all interested stakeholders to collaborate with water supply project proponents to design, fund, and implement projects that benefit consumptive and non-consumptive needs.

Interbasin Compact Committee (IBCC)
Statement on Role of the State in Supporting Water Supply Processes and Projects

Subcommittee Members

Dan Birch	Travis Smith	Steve Vandiver
Alex Davis	Carl Trick	Eric Wilkinson
Melinda Kassen	Wayne Vanderschuere	

The IBCC makes the following recommendations to promote State assistance of proposed water supply processes and projects of all sizes and types in Colorado. The IBCC determined that State support is necessary. These recommendations seek to define how State support should be provided. The recommendations focus on: coordination between and within State agencies, education of federal entities on Colorado's water supply needs, and state financial support.

The "identified projects and processes" or "IPPs" addressed by this document are defined as projects and methods water providers are pursuing to meet their future needs. IPPs are diverse, including: agricultural water transfers, reuse of existing fully consumable supplies, growth into existing supplies, regional in-basin projects, new trans-basin projects, firming in-basin water rights, and firming trans-basin water rights.

1. The IBCC recommends a joint agency task force be created. This could be done through executive order and should include representatives from all State agencies involved with water supply development for the purposes outlined in 2 and 3 below.
    a. The Department of Natural Resources will be the coordinating agency.
    b. The task force will consist of all State agencies that might have a role in evaluating, assessing, permitting, overseeing, coordinating, or administering a proposed project. These agencies include, but may not be limited to, CWCB, the Division of Wildlife, the Colorado Department of Public Health and Environment, the Division of Water Resources, and the Attorney General's Office at the request of its client agencies. There should be one contact person from each agency.
    c. The task force will design a clear sequential process of internal and external actions necessary to move the project through the regulatory process. The process will identify responsible parties and deadlines for each action.
    d. Project proponents have the option to directly coordinate with and educate the task force and seek the task force's involvement, as the project proponents pursue a new water supply project or process.
    e. The project proponent and the task force will engage in an open dialogue to help avoid, minimize, and mitigate the project's impacts per federal and state requirements.
    f. Opinions from agencies represented by the task force should be issued after sufficient information is provided by project proponents as detailed in the task force process.

2. The State of Colorado and its constituent agencies should seek to *solve* problems and help identify ways to overcome obstacles related to water projects rather than *make* problems and create obstacles to those projects. The IBCC recommends that State agencies act creatively and flexibly within the context of their regulatory responsibilities to facilitate the implementation of solutions to Colorado's urgent water supply needs. The joint agency task force will establish a process to

coordinate multiple State agencies' evaluations, responses, and other efforts regarding water supply projects early in a project's life and in an ongoing and regular fashion.

3. The State of Colorado through the joint agency task force should actively and regularly confer with and educate federal agencies and the State's Congressional delegation about Colorado's water supply needs and the importance of local water projects and processes to address those needs.
    a. The Department of Natural Resources should be the coordinating agency that ensures that such consultation is occurring sufficiently and by the appropriate State agency or agencies.
    b. This direction is not intended to undermine or diminish federal agency authority or the protections provided by federal oversight. Rather, it seeks to ensure that federal agencies understand the pressing nature of the water supply issue in the state and the importance of appropriate coordination.
    c. This direction focuses on the overall water supply needs and shortages in the state.

4. The State of Colorado through the Legislature and directed agencies should continue to provide funding through grants and loans to local entities to assist them in evaluating and funding proposed projects.
    a. State financial support has been critical in meeting the State's water needs. For instance, the Colorado Water Conservation Board (CWCB) has approved over 400 loans totaling over $700 million. In addition, CWCB's Water Supply Reserve Account (WSRA) program has assisted over 140 water projects with over $26 million, while leveraging over $45 million in local and federal funds. For example, the CWCB provided financing and a $1 million mitigation grant for the enlargement of Elkhead Reservoir near Craig, CO. This 12,000 acre-foot enlargement is a $30 million multi-purpose project that provides water supplies for long-term human and environmental needs. Other examples of the CWCB providing critically important support include Chatfield Reservoir Storage Reallocation and the Animas-LaPlata Project.
    b. Funds for such assistance should continue to be made available by the basin roundtables and the CWCB through the CWCB loan program, WSRA, and other programs that support local basin planning.

5. In cases where there is local and/or stakeholder disagreement about a proposed project, if the project proponent requests it, the State of Colorado and/or Interbasin Compact Committee should initiate efforts to convene stakeholders in a process that aims to resolve conflicts and address concerns. The joint agency task force should participate in this process. The State can itself serve as the facilitator or mediator of such an effort, or it may provide financial assistance to support hiring an outside facilitator or mediator.

6. Once the joint agency task force has substantially completed its process and achieved consensus[1] that a proposed project should proceed, and the stakeholder process in #5, if any, has reached a conclusion, then the State of Colorado and its constituent agencies should become public advocates for a project.
    a. Direction to publicly advocate for a project should come from the Governor and be shared with all State agencies.

[1] Consensus means a broad general level of support.

b. When appropriate, the Legislature could pass a resolution in support of a project.
c. Directors of individual State agencies could then determine how best to proceed to effectively advocate for the project.

Alternative Agricultural Water Transfers Subcommittee

Subcommittee Members

T. Wright Dickinson
Randy Fischer
Peter Nichols
John Porter
Mike Shimmin
Travis Smith
Jay Winner

Guiding Principles

1. Four sources of water will be needed to meet Colorado's water supply gap: IPPs, conservation, new supply, and agricultural transfers. Agricultural transfers are part of the solution, but should be pursued in conjunction with contributions from the other three areas.
2. Agricultural transfers should not become the default approach to meeting the gap.
3. Alternative agricultural transfers are likely to be preferable to permanent transfers because they would implement the following policies that the IBCC views as important to Colorado's future economy:
    a. They will promote ongoing agricultural ownership of irrigation water rights.
    b. They will assist in keeping agricultural land in production, even if on a reduced basis.

Background

Rotational fallowing, interruptible supply agreements, leasing/fallowing agreements, water banks, purchase and lease-backs, deficit irrigation, and changing crop type are options that have been identified as potentially available as alternatives to permanent agricultural transfers. With the exception of purchase and lease-backs and some short-term lease/fallowing, these alternative agricultural transfer methods (ATMs) are just beginning to be explored as viable options for meeting other water demands. While promising, there are numerous technical, legal, institutional, and financial issues associated with ATMs that need further study. CWCB and others are currently exploring ways to address these issues and to stimulate greater awareness, interest, and participation from agricultural water users and municipalities with alternative agricultural water transfers, while still being careful to protect other water rights.

Through the CWCB's ATM Program, numerous hurdles have been identified that will need to be overcome for these alternative water transfer methods to be successful in Colorado. They include the need to develop specific methodologies for measuring, calculating, and monitoring the amounts of water that can be made available through ATMs without injury to other water rights, the potentially high transaction costs associated with temporary transfers, water rights administrative uncertainties, water rights accounting questions, the procedures needed for protection of other water rights, and ways to increase the certainty and permanence of long-term supply that may be made available through ATMs.

Need for specific methodologies

Although some studies have been initiated and may be partially completed, there is not yet a consensus about how to measure, calculate, and monitor the amounts of water that can be made available as the result of implementing many of the ATM options discussed above without injury to other water rights. Leasing/fallowing seems to be ahead of the others in this regard, as it would likely use the same methodologies that have been used in conventional agricultural transfers. However, the other options

definitely need more basic scientific research before such methodologies will be known and potentially gain acceptance in the water community.

Potentially High Transaction Costs
Currently, there are few incentives for water providers to seek alternatives to permanent water transfers. The cost of water court adjudication for changes of use is sometimes quite large, and absorbing that cost for a temporary transfer or other ATM can be a disincentive. Establishing a viable process for approving ATMs without always facing a potentially expensive water court process has been raised by some as a needed incentive to encourage participation in ATM programs. Reducing transaction costs while still protecting other water rights, and providing the tools needed for proper oversight by Division of Water Resources (DWR) staff could be incentives that may help alternative agricultural transfer programs to succeed.

Water Rights Administration and Accounting Issues
While alternative agricultural transfer methods may be permissible under Colorado water law, there is some uncertainty as to how these alternative methods would be administered by the Division Engineer. They may require significant work by the Division Engineers and the water commissioners to properly administer an alternative program as compared to a permanent dry-up of irrigated agricultural lands. Other water users expect that the DWR will provide the oversight needed to verify that an irrigator is not expanding his water right and that other water right holders are not injured. It may be that a third-party could provide the verification and report to the Division Engineer paid for by the city and/or farmers. However, additional tools and methodologies are needed before water users can be assured that this can and will be done. Leasing/fallowingalso seems to be ahead of the others in this regard, as it would likely use the same methodologies that have been used in conventional agricultural transfers.

Certainty/Permanence of Long-Term Supply
Municipal water providers have made it clear that they are interested in securing permanent and firm-yield water supplies for their portfolios. An issue often raised in the ATM discussion is the need to reduce the uncertainty and address the permanence of supply for municipal water providers so they would be willing to participate in an alternative agricultural transfer program. Additional discussion is needed about how alternative agricultural transfer programs can work within a municipal provider's overall water strategy to provide firm yield, such as using dry-year leasing/fallowing or interruptible water supply agreements to provide for future water needs related to drought, drought recovery, and declining Denver Basin groundwater.

<u>Recommendations</u>
The Subcommittee recommends three steps that should be pursued in the near term to facilitate the development of alternative agricultural transfers and to advance our understanding about how they can be measured and administered.

1. **Peer-reviewed studies are needed to develop specific methodologies for measuring, calculating, and monitoring the amounts of water that can be made available through alternative agricultural transfers without injury to other water rights.** It appears likely that some of the grant applications in the upcoming funding round of the Alternative Agricultural Water Transfer Program (ATM Program) and the Water Supply Reserve Account (WRSA) may seek to address one or more components of this methodological question. If not, the IBCC recommends continued funding and support for encouraging such research through the basin roundtables, CWCB, or other funding sources.

2. **Additional research is needed to explore how alternative agricultural transfers would be administered by the Division Engineer and related entities.** In addition to the above information about how alternative agricultural transfers would be quantified and monitored, there is a need to develop specific information about how ATMs would be brought into the existing water rights administration process, how downstream water rights would be protected, and other related issues. Additional tools and methodologies are likely needed and should be developed.

3. **Amendments to the existing interruptible supply agreements statute should be considered to facilitate longer-term agricultural lease/fallowing programs.** Amendments to the statute on interruptible supply agreements have been suggested to facilitate the longer-term temporary transfer of irrigation water rights via lease/fallowing agreements to another user. This could include allowing the State Engineer to approve these transfers (using a process similar to existing authority to approve substitute water supply plans) without requiring the potentially high transactional costs associated with a water court change case, while still providing that other vested water rights and decreed conditional water rights are not injured. Any proposed amendment to this statute should take into consideration the differences between basins, and this recommendation is made with the understanding that any amendment may need to be basin-specific.

The Subcommittee also recommends that the IBCC commit to exploring several issues in greater detail as part of its 2011 work plan.

1. **Presumptive consumptive use**
   In some areas, the adoption of presumptive historical crop consumptive use (CU) procedures might help to streamline the process of using a water right through lease/fallowing agreements. For example, the State Engineer is using presumptive historical crop consumptive use from the H-I Model to facilitate new rules on irrigation efficiency improvements in the Arkansas Basin. It is suggested that any presumptive CU amounts would need to be conservative in nature to minimize concern and opposition by other water right holders. Additional discussion is needed to consider how and where these could be developed and how they could work.

2. **Determining historical consumptive use analysis for a canal or ditch system**
   A ditch-wide assessment of CU could also streamline the process for some ATMs. For example, this could provide both the irrigators and cities some additional certainty before negotiating lease/fallowing agreements. This might significantly reduce the engineering and other transaction costs for a rotational fallowing program or other ATM. Additional work is needed to discuss how and where these could work to incentivize alternative transfers rather than to facilitate permanent water transfers.

3. **State funding of infrastructure cost**
   Another incentive is for the State to help fund infrastructure (i.e. pipelines, SCADA systems, storage, etc.) necessary to help ATMs work. Additional work is needed to define how this could work to encourage the use of ATMs.

4. **Transferring a portion of a water right**
   Many of the ATM programs being pursued in Colorado are examining the potential of transferring for M&I purposes a portion of the historical CU of a water right through deficit irrigation, different crop types, and/or irrigation scheduling. This type of transfer could be permanent or temporary. While the transfer of water in this manner may be possible under current Colorado water law, it has not yet been tested in water court or codified by the General Assembly. This increases the uncertainty associated with these types of transfers. Additional discussion is needed to evaluate whether changes are needed to encourage the use of these ATMs.

2011 Work Plan

This section outlines the topics for further IBCC discussion and/or investigation in 2011. Each of these items was suggested in a report from an IBCC subcommittee and/or raised during IBCC meetings. There is more detail in each of the above subcommittee documents.

Goal for 2011

Solicit, Discuss, and Incorporate Feedback on IBCC Recommendations & Work Plan: The IBCC members have invested a lot of time over the last 5 years learning about Colorado's water supply gap and options for addressing it. The IBCC explored many different issues in great depth and have gained a remarkable understanding of all sides of the opportunities, constraints, and tradeoffs involved in meeting the gap. Over the last several months, this effort has led the IBCC to identify the components of a comprehensive framework to address the gap. These components are outlined in the subcommittee reports above. A critical next step is for the IBCC to spend some time in 2011 discussing the opportunities, constraints, and tradeoffs with the basin roundtables and other stakeholder groups throughout the state, collecting input, ideas, and feedback on the framework described in the subcommittee reports. This effort needs to be one of dialogue and collaboration with the many stakeholder groups throughout Colorado; anything less would undermine the larger goals of the IBCC's efforts to identify and build consensus around a four-pronged water supply framework. One step to engage the broader stakeholder community for which planning is already underway is a statewide basin roundtable meeting scheduled for March 3rd at the Doubletree Hotel Denver – North. This exercise should result in stronger IBCC recommendations with broader support and understanding that can then move forward in 2011 and beyond.

General Tasks

1. Developing the Framework: As outlined in the subcommittee documents and the IBCC letter to the Governor and Governor-elect, the IBCC identified the components of a comprehensive framework to meet the M&I water supply gap while at the same time supporting agricultural and non-consumptive needs and minimizing risks associated with a Compact curtailment on the Colorado River. While the work accomplished represents a level of consensus, much of what the IBCC agreed to is actually a comprehensive list of issues that need to be addressed in order to develop a statewide water supply framework. The work reported herein was a large first step. In 2011, the IBCC will need to discuss those topics in more depth; seek consensus on potential portfolios, and explore the details of how the pieces might be comprehensively implemented. Additional discussion is needed to outline a framework for developing new supply; moving water conservation beyond the water community; quantifying and incorporating non-consumptive uses; creating tools that more easily allow temporary agricultural transfers; etc. The IBCC's work to date needs a significant amount of additional detail concerning all of the issues on the table.

2. Scenarios/Portfolios: In order to allow time for the recent in-depth discussions about components in a comprehensive framework to address the gap, the IBCC tabled its previous examination of the portfolio tool and the different water supply scenarios. The IBCC will resume its work on the mid-demand/mid-supply portfolios and examine additional scenarios involving high demand and/or low supply (among others).

3. Specific Recommendations: Some of the subcommittees developed specific recommendations for action by the State or others. The IBCC needs to determine how to move these recommendations forward.

New Supply Tasks

The Subcommittee discussions were far-ranging and attempted to put all of the issues raised by the different interest groups with respect to all sources of supply and consumptive and non-consumptive needs on the table. The Subcommittee's document is an articulation of those issues. It is not yet a consensus or decision document. It is a working document that contains the parameters of what should inform any new water supply project. With regard to 2011, the Subcommittee recommended that the Subcommittee and IBCC continue discussion on the following topics:

1. Risk management: The Subcommittee agreed that any discussion of developing additional Colorado River water should include a risk management program that addresses existing and new post-1922 water rights. The Subcommittee recommends that the IBCC and basin roundtables discuss: (a) the legality of treating any subset of water supply developers using post-1922 waters rights differently; (b) the need for a detailed future risk analysis; (c) risk management strategies; (d) potential triggers; and (e) alternative dry-year supply.

2. Conceptual outline for benefits and trade-offs: The Subcommittee recommended a proposed conceptual outline to the issue of new supply development for further discussion in 2011. This outline included a variety of proposed West Slope and water provider benefits and trade-offs that need to be further discussed such as a water transfer fee/fund, consultation with local regulatory agencies on 1041 issues and statewide conservation standards. The Subcommittee recommends additional work on this conceptual outline and its individual components.

3. Process for managing new supply projects: The Subcommittee discussed potential processes regarding implementation of their ideas in an actual new supply project. The Subcommittee discussed potential fees, processes, thresholds, and criteria for implementation. The Subcommittee suggests additional IBCC discussion on what these might include.

4. Discussion about permanent large agricultural transfers: The Subcommittee concluded that if permanent large agricultural transfers are not subject to the same or similar requirements as new water supply development, the effect would be to make permanent large agricultural transfers not only the default water source to fill the gap, but in fact the preferred water source to fill the gap, which would prevent irrigated agriculture on both the East and West Slopes from playing its essential role in Colorado's economic and community values. The Subcommittee recommends additional discussion with the agricultural community and other stakeholders about this problem and how it can be prevented.

Conservation Tasks

The IBCC needs to determine what it can do to help further the near-term recommendations, which include:

1. The State should educate and promote stewardship of water resources that recognizes water's critical role in supporting the quality of life and economic prosperity of all Coloradans. Develop a unified statewide messaging about water and water conservation that is consistent, sustained, and simple.

2. The State should adopt and require water efficiency standards that meet or exceed the US Environmental Protection Agency's (EPA's) WaterSense fixture and appliance specifications in all indoor building codes; and periodically updates such codes to include new product specifications adopted by WaterSense.
    a. All new residential and commercial construction and renovation that requires building permits or certificate of occupancy should be required to install water efficiency fixtures and appliances that meet or exceed WaterSense specifications.
    b. Compliance should be approved by an appropriate authority.

3. Issue an Executive Order for all State agencies to prepare and implement a water use reduction and conservation plan to reduce water demand by X% by (date certain) and annually report on Agency's success in meeting its plan to the Governor's Office along with annual budget requests. This Order is similar in intent and in parallel with Executive Order D0012 07 "Greening of State Government: Detailed Implementation Concerning Reducing Energy Use." Such order should outline that State agencies implement landscape plans that replace turf and higher-water-requiring landscapes with xeriscaping, keeping in mind the need for tree canopies to reduce urban heat sink.

4. The State should consider and develop ways to help water utilities to accomplish the following goals. This should include funding assistance where possible.
    a. Water entities should pursue best available technologies and practices to minimize water loss in conveyance, storage, treatment, and distribution.
    b. Water providers should include in consumers' water bills or in other related publications concise information on cost, consumption, and rates for water in their areas of distribution. The State of Colorado should convene discussions with water providers to develop guidance on how this information can be refined to be consistently presented across the state and provide uniform consumer information within the constraints any one provider faces.

5. The State should adopt water efficiency standards that meet or exceed EPA's WaterSense product and certification specifications in all new landscaping plans and projects requiring supplemental irrigation; and periodically update such codes to include new product and professional certification specifications adopted by WaterSense.
    a. All new landscape construction excluding those performed by a homeowner, should be required to adhere to WaterSense specifications, inclusive of installed technology and the use of certified irrigation design, installation, and auditing professionals.
    b. Major landscape renovations that require a building permit should be required to adhere to WaterSense specifications, inclusive of installed technology and the use of certified irrigation design, installation, and auditing professionals.
    c. Compliance should be approved by an appropriate authority.

The IBCC also needs to discuss what it can do to help investigate the Subcommittee's long-term recommendations.

Non-Consumptive Needs Tasks

1. Recommendations for implementation by the CWCB, in coordination with other state agencies as appropriate: The IBCC should discuss with the CWCB and the basin roundtables how they might identify "non-consumptive gap" reaches or sub-watersheds; target funding towards these reaches

and sub-watersheds; implement non-consumptive projects and strategies; continue technical support; support mitigation and enhancements; and develop a GIS overlay of non-consumptive and consumptive uses to indicate potential for collaborative and mutually-beneficial projects. The Subcommittee recommends that the IBCC finalize these requests, vet them with appropriate stakeholders, and determine how to further this proposal.

2. Methods for quantifying environmental needs: The IBCC should explore and refine methods for quantifying environmental needs as part of its 2011 work plan. The resulting information would be available to help the State and stakeholders promote means and methods by which to meet non-consumptive needs and to help project proponents, stakeholders, and regulators better understand the non-consumptive needs in a project area and to assist in better decision making regarding project siting, impact mitigation, and restoration or protection of environmental values.

3. Ensuring adequate data regarding non-consumptive needs: Two types of data are needed to provide more complete information about non-consumptive needs: modeled results from the Watershed Flow Evaluation Tool and targeted site-specific data. The IBCC should discuss how best to obtain and use the requisite data.

4. Sustainable funding for protecting non-consumptive needs: In 2011, the IBCC should (with assistance from staff) investigate, evaluate, and recommend sustainable funding options to help pay for protecting non-consumptive values, which are often of statewide and public benefit.

5. Longer-term strategies for implementation by project proponents: The Subcommittee suggests that the IBCC should discuss how to facilitate and help project proponents' consideration of incorporating tools to address non-consumptive needs in their permit applications as a voluntary, pro-active means of demonstrating their commitment to protecting environmental and recreational attributes.

6. Multi-purpose projects: Explore ways for all interested stakeholders to collaborate with water supply project proponents to design, fund, and implement projects that benefit consumptive and non-consumptive needs.

Alternative Agricultural Transfer Tasks

The IBCC Agricultural Transfers Subcommittee recommends three steps that should be pursued in the near term to facilitate the development of alternative agricultural transfers and to advance our understanding about how they can be measured and administered.

1. Develop measuring, calculating, and monitoring methodologies: Support and encourage peer-reviewed studies to develop specific methodologies for measuring, calculating, and monitoring the amounts of water that can be made available through alternative agricultural transfers without injury to other water rights. The IBCC recommends continued funding and support for encouraging such research through the basin roundtables, CWCB, or other funding sources.

2. Additional research to explore administration of alternative agricultural transfers: Additional tools and methodologies are likely needed and should be developed. The Subcommittee specifically recommends that the IBCC explore in greater detail: (a) presumptive consumptive use; (b)

determining historical consumptive use analysis for a canal or ditch system; (c) state funding of infrastructure costs; and (d) transferring a portion of a water right. The Subcommittee recommends the IBCC finalize the request, vet it with appropriate stakeholders, and determine how to further this proposal.

3. Legislative amendments: Amendments to the existing interruptible supply agreement statute should be considered to facilitate longer-term agricultural lease/fallowing programs. The Subcommittee recommends the IBCC further discuss and explore the options to facilitate such programs.

Identified Projects and Processes (IPPs)

1. Formation of joint agency task force: The IBCC recommends that the Governor issue an Executive Order regarding on the formation of a joint agency task force that includes representatives from all State agencies involved with water supply development. The Subcommittee recommends the IBCC finalize the request, vet it with appropriate stakeholders and the public, and determine how to further this proposal.

2. Convene stakeholders: In cases where there is local and/or stakeholder disagreement about a proposed project, if the project proponent requests it, the State of Colorado and/or Interbasin Compact Committee should initiate efforts to convene stakeholders in a process that aims to resolve conflicts and address concerns.

3. State funding: The IBCC will monitor state budgetary decisions that could affect funding through grants and loans to local entities to assist them in evaluating and funding proposed projects and methods.

Other Issues to be addressed or discussed

- Reuse as an independent issue (separate from IPPs and conservation)
- Improved forest management
- Tamarisk/Russian olive removal
- Model land use codes