

**Providing for Colorado's Statewide and West Slope water needs  
Colorado Basin Roundtable White Paper  
Draft 4.3.2 – approved at the Nov. 26, 2013 CBRT meeting**

**Introduction**

The Colorado River Basin is the “heart” of Colorado. The basin holds the headwaters of the Colorado River that form the mainstem of the river, some of the state’s most significant agriculture, the largest West Slope city and a large, expanding energy industry. The Colorado Basin is home to the most-visited national forest and much of Colorado’s recreation-based economy, including significant river-based recreation.

Colorado’s population is projected by the State Demographer’s Office to nearly double by 2050, from the five million people we have today to nearly ten million. Most of the growth is expected to be along the Front Range urban corridor; however the fastest growth is expected to occur along the I-70 corridor within the Colorado Basin.

The Colorado Basin is the state’s major “donor” basin of water, providing between 450,000 to 600,000 acre-feet to farms and cities of eastern Colorado. Climate change, West Slope Gaps, undefined environmental and recreational needs and existing IPP’s will likely take what water remains to be developed on the West Slope and Colorado Basin. Some of the significant IPP’s poised to take more water for the Front Range include the following average annual yields:

- 50,000 to 70,000 acre-feet left for the full use of existing Trans-Mountain Diversions (TMDs);
- 50,000 acre-feet in new depletions through Moffat and Windy Gap;
- Potential cooperative projects as contemplated by the Colorado River Cooperative Agreement; and
- 20,000 acre-feet contemplated with the Eagle River MOU

Recent studies show that continued development from the Colorado River towards full compact entitlement (if indeed there is sufficient water left to develop) is simply unsustainable. It will increase the already looming risk of a compact curtailment. If such a curtailment were to occur, it would seriously harm all of Colorado. New Trans-Mountain diversion projects, if any, should be the very last “tool” out of the box.

Any new TMD would also be prohibitively expensive, especially when compared with the wide range of alternative actions that should be taken to fill the Gap. Colorado citizens have consistently shown a strong aversion to fund large and expensive initiatives.

It has been rightfully stated that the past is no longer a guide to the future, and the old paradigms in water supply no longer work. The notion that increasing demands

on the Front Range can always be met with a new supply from the Colorado River, or any other river, are no longer valid. We must develop a plan that is truly proactive, not reactive. We cannot afford to wait until crisis becomes the guide behind our decisions.

### **The Colorado Basin Vision**

The Colorado Basin Roundtable crafted a Vision Statement to serve as a guide for how we see the Basin's future and water needs.

***The Colorado River Basin Roundtable envisions a Colorado River basin that is home to thriving communities benefiting from vibrant, healthy rivers and outstanding water quality that provides for all of the Colorado Basin's needs.***

***We acknowledge the interdependence of the varied Basin water users. Protecting the water and river flows that will ensure the future for all of us is a high priority. We also recognize that the influence of historic drought patterns, the uncertainty of climate change, population growth, energy development and compact compliance are interwoven within this vision. Much of this vision's success depends on how we collectively adapt to these forces.***

The Vision Statement includes "sub-visions" regarding future uses and purposes for water development. One of the most significant is:

***Compliance with the Colorado River Compacts is a statewide responsibility because Colorado River users reside on both sides of the Continental Divide. Existing users should not bear the risk of a compact curtailment caused by overdevelopment of the remaining increment of the Colorado River. Compact administration in the Colorado River Basin must be avoided. Impacts from a compact curtailment, or strategies to avoid a compact curtailment, must be borne equitably by all Colorado River users.***

The four West Slope Basins must not carry alone the statewide responsibility for providing water downstream as required under the Colorado River Compact. Nearly 70% of the river's native flow is obligated to pass the state line. Any new TMD would be vulnerable to shortage and unreliability, potentially subjecting current users to the risk of curtailment. This is no small matter. As demands grow throughout Western Colorado and the water available to meet these demands shrinks, the prospect of a compact curtailment looms ever larger.

### **The Colorado River Basin water uses, needs and "Gap"**

The Statewide Water Supply Initiative identified a large discrepancy between the anticipated supply and the projected need for water by the year 2050. The Gap is, however, a generalized number that requires specificity as to locations and amounts before it can accurately inform state water policy. Although the largest gaps are in the three East Slope basins, the Western Slope basins, along with the Rio Grande and

North Platte, have their own significant gaps. These gaps are just as important as those anticipated on the East Slope.

The Colorado River Basin's current primary water uses and future needs are as follows:

**Agriculture:** Agriculture in the Colorado River Basin currently uses 584,000 acre-feet to irrigate 268,000 acres. However there is an existing annual average shortfall of 100,000 acre-feet<sup>1</sup>. Both the SWSI 2010 and Colorado Basin Needs Assessments state that as irrigated acreage declines, as expected, so will the needs and demands for irrigation. These reports and the water demands they cite assume "historical climate and hydrology" will continue into the future. This is unlikely according to the State's own "Climate Change in Colorado" report (2008), which determined that "... all recent hydrologic projections show a decline in runoff for most of Colorado's river basins by the mid-21<sup>st</sup> century."<sup>2</sup>

A decreasing snowpack means a reduction in the West Slope's primary water supply "reservoir." Increasing temperatures mean there will be greater evaporation, evapotranspiration by plants and a longer growing season. Furthermore, population growth will create a greater demand for food production. All of this will require more consumptive water for agriculture, not less, even if irrigated acreage declines.

**Municipal and Industrial, SSI water needs:** Like the rest of Colorado, the Colorado River Basin has experienced rapid growth over the past 20 years. The State Demographer's office anticipates the I-70 corridor running the length of the Colorado Basin will be one of the fastest growing parts of the State through 2050. In 2008 the M&I demands for the Colorado River Basin were 68,480 acre feet per year. These demands are expected to double, or more, to between 129,940 to 179,440 acre-feet per year by 2050<sup>3</sup>.

**Energy Development:** Northwest Colorado hosts a substantial natural gas extraction industry. It is not unreasonable to anticipate greater natural gas extraction activity within the Colorado River basin. Both drilling and fracking operations will require substantial quantities of water.

The prospect of future oil shale development also looms in Western Colorado. Current estimates anticipate an average annual need for 120,000 acre feet if oil shale development takes off in any meaningful way<sup>4</sup>. Much of this depends on the

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<sup>1</sup> Colorado Basin Needs Assessment, June 2011 (page 4-22) and SWSI 2010 Report (Section 4.3)

<sup>2</sup> Climate Change in Colorado, 2008; Ray, Andrea, et al.; a report by the Western Water Assessment for the Colorado Water Conservation Board

<sup>3</sup> Colorado Basin Needs Assessment Report, June 2011, pp 4-13

<sup>4</sup> Energy Development Water Needs Assessment Phase II Final Report, Feb. 2011

technology available and used. Conventional methods with large-scale production might require up to 400,000 acre-feet per year.

**Environment and water based recreation:** The economy of the Colorado River Basin depends greatly on varied recreation opportunities and healthy, functioning natural environments. Risks to environmental and recreational uses already exist. For example, many headwater streams currently suffer from late summer depletions by Trans Mountain Diversions and local water use. Water needs for healthy riparian areas are even greater<sup>5</sup>.

Water needs for this West Slope economic sector is valuable to the entire state, not just the Colorado River headwaters<sup>6</sup>. It is a significant factor in why people visit Colorado and make it their home. As population grows, river-based and non-river-based recreation uses will increase as well.

**Trans Mountain Diversions:** The Colorado River, along with its tributaries, provides from 450,000 to 600,000 acre-feet annually for agriculture and M&I needs of East Slope farms and cities. Some existing TMDs have occurred with agreements that have worked to the advantage of people on both sides of the mountains. Some have not. Even when agreements are in place, problems can result from differing interpretations and the march of time.

### **Colorado Water Plan**

In consideration of the Colorado Water Plan that has been mandated by Governor Hickenlooper, the Colorado River Basin Roundtable adopted the following West Slope Principles:

1. **Solutions in the Colorado Water Plan (CWP) to supply water for growth and development in one part of the state should not over-ride land use plans and regulations adopted by local governments in the part of the state from which water will be taken.** <sup>1,2,3,4,5,6,7</sup>
2. **The CWP should protect and not threaten the economic, environmental, and social well-being of the West Slope.** <sup>1,2,3,5,6</sup>
3. **The CWP should identify a process and requirements for each basin to exhaust available water supply within its own basin before planning diversions from another area of the state.** <sup>1,2,3,7</sup>
4. **The CWP should outline mechanisms to mitigate the risk of potential Compact curtailment of the Colorado River. For example, the CWP should adopt low-risk legal and hydrologic assumptions related to Colorado's obligations under the Colorado River Compact and the Upper Colorado River Basin Compact in order to minimize the risk of curtailment on existing uses of Colorado River basin water.**<sup>7</sup>

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<sup>5</sup> CBRT Watershed Flow Evaluation Tool Study, CDMSmith, March 2012

<sup>6</sup> Water and its Relationship to the Headwaters Economies, NWCCOG/QQ, December 2011.

5. **The State should not assume a role as a proponent of a water project until the State regulatory process has been completed and the project has been agreed to by the impacted counties, conservancy districts and conservation districts in the area from which water would be diverted.**

The above principles are taken from many sources of earlier water principles around the state. The numbers in the above principles indicate in which documents a similar principle may be found, including:

- <sup>1</sup> Colorado 58 *Water Principles*. In approximately 1999, 58 Colorado Counties, signed onto these Water Principles, which were passed as a House Resolution as well.
- <sup>2</sup> Colorado River Water Conservation District Policy Statement: Existing Transmountain Diversions, Adopted July 15, 2008, readopted July 2011.
- <sup>3</sup> Colorado River Water Conservation District Policy Statement: Transmountain Diversions, adopted March 16, 2000, revised and readopted July 2011.
- <sup>4</sup> Colorado River Water Conservation District Policy Statement: Water Quality, adopted July 2010.
- <sup>5</sup> NWCCOG Water Quality/ Quantity Committee Policies, readopted November 2012.
- <sup>6</sup> 2012 NWCCOG Regional Water Quality Management Plan (208 Plan).
- <sup>7</sup> Colorado Basin Roundtable Vision Statement (Nov. 2010).
- <sup>8</sup> Orchard Mesa Check Case, 91CW247, Water Division No. 5.
- <sup>9</sup> i.e. Senate Document No. 80, Windy Gap Project, Windy Gap Firming Project, Colorado River Cooperative Agreement

The Colorado Basin Roundtable has submitted comments to the Interbasin Compact Committee (IBCC) regarding the No/Low Regrets Action Plan being developed by the IBCC. In brief, our comments pointed out that the Plan currently does not represent statewide priorities. The CBRT believes that any proposal for a New Supply option that involves further depletions and diversions of water from the Colorado River Basin, including the other three basins of the West Slope, is not appropriate for the No/Low regrets concept.

**Front Range White Papers and Statements:** Various Front Range Basin Roundtables have released reports and statements regarding water supply<sup>7,8,9,10</sup>. Each of these papers address the future water needs and potential supply sources from an East Slope perspective.

A common theme among these papers is the call for developing a wholly new water supply from the Colorado River. The West Slope Caucus stated that “In order to make additional progress on a new supply project from the Colorado River, the Roundtables, IBCC and CWCB must have substantive discussions, and develop additional tools to address the potential development of additional Colorado River Basin water, ***when available, without impairing existing uses.***”

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<sup>7</sup> Water Supply Paper for the Metro Basin Roundtable, May 25, 2012

<sup>8</sup> Metro Roundtable New Supply Development Statement, May 20, 2013

<sup>9</sup> South Platte Basin Roundtable Review Comments of Metro Basin Roundtable Water Supply Paper, June 5, 2013

<sup>10</sup> Filing the East Slope Municipal Water Supply Gap; A Joint Statement of the South Platte, Arkansas and Metro Roundtables, July 23, 2013.

**Water Availability, or not:** The Colorado River Basin Water Demand and Supply Study, a collaboration of the Bureau of Reclamation (BOR) and the seven basin states, concluded that there would likely be an average shortfall of more than 3 million acre-feet in the entire seven-state region by 2060<sup>11</sup>. Furthermore, many climate models suggest that precipitation and flows as they occurred in the 20th century are unlikely to recur. The study projects, under its most likely climate change scenario, that flows at Lee Ferry over the next 50 years will decline 8.7% from the observed mean to 13.7 maf<sup>12</sup>. Other modeled scenarios suggest that the demand for Colorado River water supplies by 2060 could be as high as 16.2 maf.

The Colorado River has already reached a point where water supply is outstripped by water use. Water levels in Lakes Powell and Mead have dropped below 50% of capacity. As a consequence 2014 is the first water year that water deliveries from Lake Powell to Lake Mead will be reduced (8.23 million acre feet to 7.48 million acre feet) pursuant to the 2007 Interim Operating Guidelines.<sup>13</sup>.

### **Water supply solutions for the Colorado Basin and the state.**

The Colorado Basin Roundtable, despite its misgivings about the need and capability for another big TMD, must be part of efforts to create innovative solutions not only in providing for our own water needs, but also for the rest of the West Slope and State. To this end, we think that the Colorado Water Plan and other efforts should focus first and foremost on the following:

**M&I Water use efficiency, conservation and re-use.** Several water providers on the Front Range have made admirable strides in the area of conservation and efficiency. The West Slope, including the Colorado Basin, can make greater efforts in this area as well. At the same time the Front Range could do considerably more in the area of outdoor and landscape watering. In many places, 50% of domestic water production is applied to outdoor landscaping. If the Gap is truly dire and significant in size, this use of water must be scrutinized for savings.

Significant additional water savings can be achieved through intelligent land use policies. Water providers can no longer fall back on the excuse that they have no control over land use, growth and development. They must work with land use decision makers to craft and implement regulations that will significantly reduce water needs for future growth. Practices that require Xeriscaping, reuse, higher density, water efficient plumbing and establishing sustainable water supplies must be adopted. Today, water utilities routinely provide “Can and Will Serve” letters for

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<sup>11</sup> Colorado River Basin Water Supply and Demand Study, US Bureau of Reclamation, December 2012.

<sup>12</sup> Ibid, Final Study Report, Section 5.2.2, p SR-20

<sup>13</sup> Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, 2007, Bureau of Reclamation.

disconnected land use decisions. This needs to stop. Water providers must develop urban growth boundaries within which they can reasonably expect to serve given the realities of their existing water supply plans.

Status quo planning based on hopes for new supplies from “somewhere” are no longer tenable. We need a significant paradigm shift for guiding water law, administration and land use planning to accommodate the reality of a water short future.

### **Keeping Agriculture viable**

Agriculture in the Colorado Basin, the products it provides and the economy it supports are as vital to the state’s future as any other basin’s agricultural sector. Water supply solutions that target agriculture must be crafted to provide the water needed to keep West Slope agriculture whole and thriving, able to produce at current and expanded levels.

- The State’s policy should be to keep agricultural land productive, economically viable and superior to M&I water used for outdoor landscaping.
- Land use decisions should be made that protect as much productive cropland as possible.
- Practices, policies and laws that provide incentives for efficient irrigation practices should be encouraged and supported.

### **Environmental and Recreation needs**

- The state’s instream flow program is too often inadequate or too junior in priority and still leaves most streams in the state with little or no protection whatever.
- Where instream flows are chronically not met, efforts that can improve instream flows should be initiated.
- Adequate occasional high flows to protect the riparian habitat and improve aquatic habitat should be provided.
- Land use policies should be adopted to protect and provide for healthy, functioning streams and riparian areas.
- Dam operations should accommodate recreational and environmental needs downstream.
- Native headwater flows are necessary to maintain water quality and temperature.

The Colorado River Basin has developed a Watershed Flow Evaluation Tool (WFET) that can provide a “high altitude” picture of environmental and recreational flow needs. It can help identify areas where the historical alteration of stream flow is most likely to have modified ecological resources from conditions that may have existed prior to the time that water was first diverted for irrigation, domestic use and other purposes. The WFET can also identify where additional removals of water or alterations of flow may place stream reaches under greater threat of damage.

Quantitative, non-consumptive flow needs should be established, based on the WFET or other similar methodology for the remaining basins within the state. We need a consistent and reliable standard for data and methodology, based on accepted science, regardless of how that science and the results may be interpreted from a purely political or public relations concern.

### **New Supply**

New supply is a euphemism for a new Trans-Mountain Diversion from the Colorado River system. The Colorado River Basin Roundtable does not dismiss this idea out of hand, but strongly believes that this option must be the last option, after all means of significant conservation, reuse, land use and agricultural transfers based on substantial improvements in efficient water use are exhausted. Further development of significant Trans-Mountain diversions from the Colorado River are not in the best interests of Colorado as a whole.

Any discussion of such projects must include all of the West Slope stakeholders. The framework developed by the Flaming Gorge Task Force provides a good structure for any such discussions.

The following must be incorporated in any future project proposal:

- West Slope gap requirements are filled first, with as much reliability as can be provided without the threat of compact curtailment
- A well-defined quantification of current undeveloped conditional trans-mountain rights and IPP's must be made prior to considerations of any new projects.
- The Front Range must unequivocally prove that the water available for such a diversion truly exists in a reliable and long term, sustainable measure without adversely affecting the West Slope.
- Serious and meaningful Basin of Origin protections are incorporated.
- There will be no further degradation or diminishment of West Slope stream and river ecosystems or recreational opportunity.
- There will be neither diminishment of existing West Slope agricultural activity and production, nor unnecessary constraints on agricultural expansion.
- Local control, land use regulation and policy, must be adhered to.
- The Shoshone Power Plant water right and operations remain intact, with flows as recognized in Senate Document 80 recognized and maintained.

### **Water Rights protections and “streamlining”**

While the Governor's call for a more streamlined process does have some merit, we worry that streamlining could become a means for circumventing local controls and other social or environmental evaluations and concerns. Establishing the relationships required between parties if meaningful negotiations are to occur takes time and cannot be “streamlined.” Streamlining as a means of forcing West Slope acquiescence to any new supply project “for the good of the State” is unacceptable.



It is imperative that pre-compact water rights are protected. There also needs to be an effort to revise and streamline the process by which water rights may be changed, exchanged and made more efficient without loss of existing seniority or injury to other rights. The current system has become far too expensive and cumbersome for most water rights holders. It has become something to avoid rather than an effective tool for meeting future water needs.

It should also be incumbent on the State Engineer to take greater care in the evaluation of water rights, especially in regards to pre-compact rights. Pre-compact water rights must not be abandoned. The State must develop a consistent, statewide policy that can adequately guide the State Engineer's Office, rather than allowing current procedure to dictate and act as policy.

### **Conclusions**

Given the situation outlined by SWSI, the CWCB Climate Change Report and the Colorado River Basin Water Supply and Demand Study, it would be unrealistic to look for significant new supplies of water for the East Slope from the Colorado River as a primary source. Any further depletion of water from the Colorado River increases the risk of a compact curtailment.

It is time that we also recognize that looking for water to satisfy needs up to an arbitrary date such as 2050 is meaningless. Time will not stop at 2050. It is incumbent on us to find real solutions to meet all of Colorado's water needs far beyond 2050. This is a problem that we cannot afford to pass on to our children and grandchildren.

We face no less a crisis in water today than the pioneers faced in the late 1800's. Yet the needs, values, technologies and social structure of Colorado have changed considerably since 1876. We must not be afraid to reach beyond the boundaries of tradition to create real and sustainable solutions.

The scenic nature and recreational uses of our rivers are as important to the West Slope as suburban development and service industry businesses are to the Front Range. They are not and should not be seen as second-class water rights, which Colorado can preserve the option of removing at the behest of Front Range indulgences. These water rights and uses are a valid part of developing Colorado's allocation of Colorado River water.

Last, but hardly least, agriculture is as important to Colorado's future as it was in 1876, if not more so. Agriculture sustained Colorado when the mines ran out and it will be an essential, indeed critical part of our "sustainable" future. This does not mean that East Slope agriculture can be maintained at the expense of West Slope agriculture. Agricultural water use can be improved significantly with 21<sup>st</sup> century technology, but only if there is a thriving agricultural economy in the first place.

Both the East and West Slopes of Colorado must honestly face the looming crisis from decreasing water supplies and increasing demands. Failure to do so means crisis will dictate decisions regardless of any plan. Policies must be established and put into action that protects the State as a whole. The West Slope of Colorado, indeed no part of Colorado, can be sacrificed for Front Range growth.

As Justice Hobbs noted a few years back, we are no longer seeking to develop a resource, but to re-allocate a fully developed resource. Recognizing and working from this reality is required.

We must learn to work fairly with the water we have, to reallocate and reuse within our means, and keep in mind that these existing, fully allocated supplies are likely to decline.