Colorado's Water Supply Future

Bill Ritter, Jr. – Governor
Harris D. Sherman – DNR Executive Director
Jennifer Gimbel – CWCB Director

Interbasin Compact Process

Quarterly Newsletter - 3rd Quarter 2008

Update on Visioning Process

The Interbasin Compact Committee (IBCC), with input from the Basin Roundtables (BRTs) and the Colorado Water Conservation Board (CWCB), has been engaged in a visioning process. A statewide vision for Colorado's water supply future has three parts: 1) a Vision Statement; 2) Vision Goals; and 3) water supply strategies. These terms are specifically defined as:

1. Vision Statement - This represents, in the broadest sense, the overall directive or mission. It describes "what" is to be achieved.
2. Vision Goals - These define the goals of the vision, and more importantly represent the benchmarks for the evaluation of strategies. The Vision Goals will play an important role in evaluating the performance of water supply strategies. This represents the "why" portion of the vision.
3. Water Supply Strategies - Strategies represent "how" we will achieve the Vision Statement. The performance of strategies is compared against the Vision Goals in order to see how well we are doing in achieving the overall Vision Statement. These strategies will lead to implementation.

Elements of the Visioning Process

The main rule is that the "what," "why," and "how" builds on each other, but are not redundant.

This visioning process is modeled after an integrated planning process and provides a path to sustainability. The elements of an integrated resource planning process involves active stakeholder participation, examines demand-side management as vigorously as supply options, incorporates multiple criteria in decisionmaking (e.g., reliability, cost, environment, quality of life, recreation, etc.), explores risk and uncertainty, and takes a long-term perspective (30 to 50 years).

This visioning process also employs elements of sustainability including finding the right balance between economic, environmental, and social needs; taking a holistic perspective; and consideration of the long-term. This visioning process promotes sustainable solutions because:

- It focuses on the long-term
- It incorporates societal values
- It takes a holistic, interconnected perspective
- It strives for balance in meeting multiple objectives

Vision Statement

After gathering IBCC and Roundtable feedback, the following Vision Statement was drafted. This will be reviewed at the October joint IBCC/CWCB Board meeting.

Vision Statement

We envision a Colorado that balances municipal, industrial, agricultural, environmental, and recreational water needs and promotes cooperation among all water uses.

Vision Goals

Vision Goals constitute the second component of a statewide visioning process for Colorado's water supply future. Vision Goals will be used to compare the performance of water supply strategies.

(*continued next page*)

(continued)

These goals may individually conflict. However, by evaluating all the goals together, more sustainable water supply strategies can be achieved.

The IBCC discussed and generally agreed on the following draft Vision Goals:

1. Meet municipal and industrial (M&I) demands.
2. Meet agricultural demands.
3. Meet Colorado's environment and recreation demands.
4. Encourage cooperation between water supply planners and land use planners.
5. Encourage more cooperation among all Colorado water users.
6. Optimize existing and future water supplies by[1]:
   a. Considering conservation as a baseline water supply strategy.
   b. Minimizing non-beneficial consumptive use (evaporation, non-native phreatophytes, etc.).
   c. Maximizing successive uses of legally reusable water.
   d. Maximizing use of existing and new in-basin supplies.
7. Promote cost-effectiveness by:
   a. Allocating costs to all beneficiaries fairly.
   b. Achieving benefits at the lowest cost.
   c. Providing viable financing mechanisms, including local, state, and federal funding/financing.
   d. Mitigating third-party economic impacts.
8. 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.
9. Protect cultural values by:
   a. Maintaining and improving the quality of life unique to each basin.
   b. Maintaining open space.
10. Provide operational flexibility and coordinated infrastructure.
11. Promote increased fairness when water is moved between basins by:
    a. Benefiting both the area of origin and the area of use.
    b. Minimizing the adverse economic and environmental impacts of future water projects and water transfers.
12. 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.
13. Educate all Coloradoans on the importance of water, and the need to conserve, manage, and plan for needs of this and future generations.

[1] Basin Roundtables have also identified conservation, use of groundwater, and development of unappropriated water as components of optimizing water supplies. These could be categorized as a goal but will be directly dealt with in the evaluation of Strategies.

Water Supply Strategies

The third part of a statewide vision for Colorado's water supply future is water supply strategies. During their May and August meetings, the IBCC discussed which water supply strategies may help meet our state's consumptive and nonconsumptive water supply needs. They agreed on a draft list of strategies for further evaluation. These included:

Demand Side Strategies

- Growth, Land Use, and Density Development
- M&I Conservation
- Agricultural Conservation (non-beneficial losses), Efficiency, and Alternative Cropping Patterns
- Reduction in Water Demands for Energy Development (Traditional and Renewable Energy)

Supply Side Strategies

- Reuse and Desalination
- Agricultural Transfers: Traditional Permanent Transfers and Alternatives to Traditional Transfers
- Optimizing/Rehabilitating Existing Storage and Delivery Systems
- New In-basin Storage that can Meet Multiple Consumptive and Nonconsumptive Needs
- Colorado River Compact Development
- Transbasin Diversions that Benefit the Area of Origin and the Area of Use
- Coordinated Reservoir Operations, Infrastructure Development, and Opportunities for Shared Infrastructure
- Integrated Management of Groundwater and Surface Water including the optimum use of groundwater and surface water supplies and the use of aquifer storage and recovery

At the July CWCB Board meeting, the CWCB Board reviewed this draft list and asked staff to begin evaluating these strategies.

Task Order Update

House Bill 05-1177 requires each Basin Roundtable to develop a basin-wide water needs assessment consisting of:

- Consumptive needs
- Nonconsumptive needs
- Water supply availability
- Propose projects or methods to meet water needs

The following table describes the status of each roundtable with respect to completing their needs assessments. At this time, no roundtable has proposed projects or methods to meet their water needs. CWCB is in the process of developing demands to 2050 and updating identified projects and processes statewide.

Status of Basin Roundtable Needs Assessments

Basin	Consumptive Needs Assessment	Nonconsumptive Needs Assessment	Water Supply Availability Assessment
Arkansas	• Used SWSI 1 as baseline needs assessment • Updated SWSI 1 Identified Projects and Processes	• Developed priority mapping • Participating in pilot of watershed flow evaluation tool • Identifying areas to quantify nonconsumptive needs	• Used SWSI 1 as baseline • Assume no additional water availability
Colorado	• Used SWSI 1 and UPCO as baseline needs assessment • Developed energy water needs work plan and implementing under WSRA	• Developed priority mapping and matrix • Participating in pilot of watershed flow evaluation tool and site-specific quantification methods	• Participating in Colorado River Supply Availability Study
Gunnison	• Used SWSI 1 as baseline needs assessment • Revised basinwide demands, identified vulnerabilities, and updated snowmaking demands • Developed work plan for WSRA grant to examine ag shortages	• Developed preliminary priority mapping	• Participating in Colorado River Supply Availability Study
Metro	• Used SWSI 1 as baseline needs assessment • Analysis of completing supplies, examine unappropriated water, discussion of river appropriation, examination of conservation plans	• Developed preliminary priority mapping	• Used SWSI 1 as baseline needs assessment • Assume no additional water availability
North Platte	• Used SWSI 1 as baseline needs assessment	• Developed preliminary priority mapping	• CWCB is assisting in supply availability modeling through DSS
Rio Grande	• Used SWSI 1 as baseline needs assessment • Conducted groundwater level study	• Developed preliminary priority mapping	• Groundwater study conducted
South Platte	• Used SWSI 1 as baseline needs assessment • Analysis of completing supplies, examine unappropriated water, discussion of river appropriation, examination of conservation plans	• Developed preliminary priority mapping	• Used SWSI 1 as baseline needs assessment • Examination of unappropriated water found little to no water availability
Southwest	• Used SWSI 1 as baseline needs assessment	• Developed preliminary priority mapping	• Participating in Colorado River Supply Availability Study
Yampa/White	• Used SWSI 1 as baseline needs assessment • Developed energy water needs work plan and implementing under WSRA	• Developed preliminary priority mapping	• Participating in Colorado River Supply Availability Study

Water Supply Reserve Account

Overview and Accomplishments July 2006 through September 2008

Background

The 2006 legislature passed Senate Bill 06-179, which established the Water Supply Reserve Account (Account) to help citizens identify and meet their critical water supply and management needs. Monies from the Account may be used to:

- ✓ Identify human, environmental, or recreation water needs (also commonly referred to as "Needs Assessments")
- ✓ Evaluate available water supplies in the river basin
- ✓ Build projects or identify methods to meet the water supply needs of the river basin

The authorizing legislation provides funds for a broad range of eligible activities including: construction of infrastructure (storage, pipelines, river improvements, etc.), feasibility studies, studies of human and environmental needs, and technical assistance for permitting or environmental compliance.

Overview

The Account is administered by the CWCB in collaboration with the IBCC and the 9 Basin Roundtables established under House Bill 05-1177. Requests for funding begin at the Basin Roundtables. If approved by the Roundtables, then the funding request is submitted to the CWCB. To date, all except one funding request has been for grants. However, a large number of project sponsors have provided matching funds.

Monies from the Account are distributed according to the Criteria and Guidelines, which were jointly developed by the CWCB and IBCC in collaboration with the Basin Roundtables. The Criteria and Guidelines are reviewed annually in October to determine if changes to the operation of the Account are needed.

Program Highlights

- ♦ $13.2 Million Granted for 66 Projects Across Colorado
- ♦ Projects Recommended by Local Basin water Roundtables on a Consensus Basis with Final Approval by the CWCB

Accomplishments

Water Supply Reserve Account projects have been approved across the entire state.

Figure 1 shows the number of approved projects.

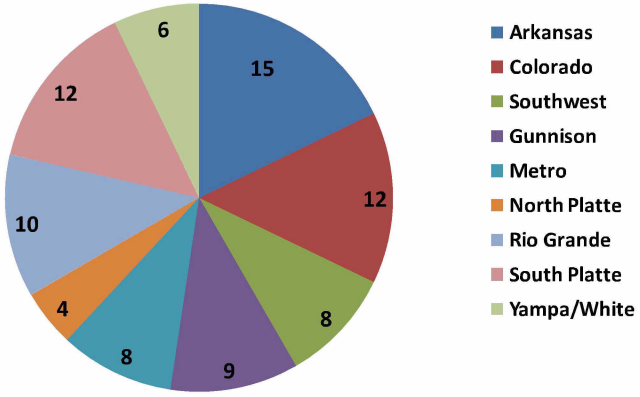

Figure 1. Number of Funding Requests Approved by Basin Roundtables

The distribution of funds based on total dollars is shown in Figure 2. The Arkansas Basin has received the largest amount of funds, followed by the Colorado Basin.

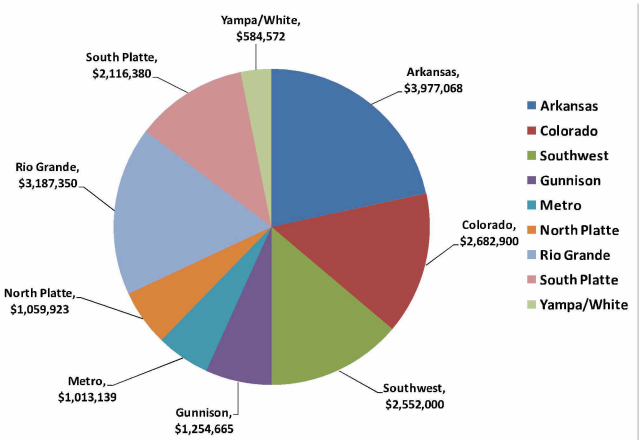

Figure 2. Funds Approved by Basin - August 2008

Projects funded from the Account have addressed both Consumptive and Nonconsumptive Needs (see Figure 3); 11 percent of the funds have addressed Nonconsumptive Needs, 47 percent are addressing Consumptive Needs and 42 percent address multiple purposes.

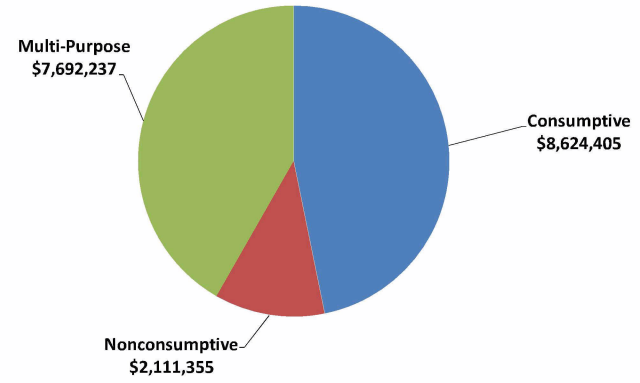

Figure 3. Consumptive and Nonconsumptive Projects (Total Requests = $13,207,768)

Grants from the Account have also provided the means to conduct study/design work and project implementation. Figures 4, 5 and 6 show how the Account has supported both study/design and implementation aspects of water projects.

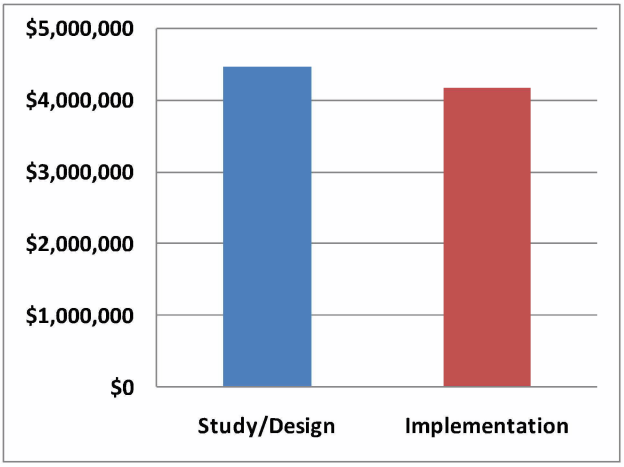

Figure 4. Total Funds for Consumptive Use Projects for Study/ Design and Implementation

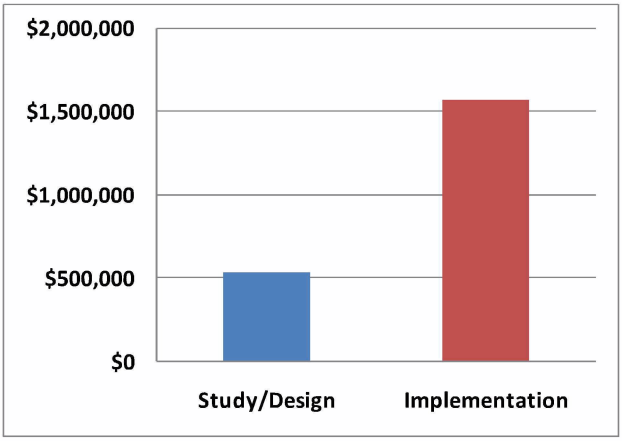

Figure 5. Total Funds for Nonconsumptive Projects for Study/ Design and Implementation

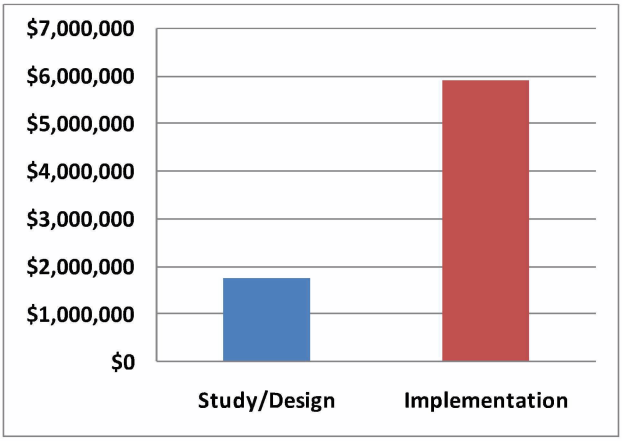

Figure 6. Total Funds for Multi-Purpose Use Projects for Study/ Design and Implementation

Observations

The Water Supply Reserve Account Program has been a tremendous success. The Account has funded a mix of consumptive and nonconsumptive water projects and promoted multi-purpose projects throughout the state. The Account is integral to meeting our water supply needs with funding that was not available until the passage of the legislation.

The annual review of the Criteria and Guidelines allow for program adjustments. While specific changes have not been needed to date, a few trends are emerging.

- A number of requests have been for treated water distribution systems. Cut backs of financial resources for treated water projects have increased the attractiveness of the Account. It will be important to ensure that significant funding is directed to raw water supply projects as these are priority for CWCB.
- Few structural water storage projects have been completed. This is likely due to the timing, complexity, and funding issues associated with multimillion dollar projects. It will be important to ensure the seed money provided from the Account helps leverage funding for project completion in addition to funding studies and project design.
- The complexities of project scoping, financial accountability, and monitoring activities remain a challenge. At the local level there is a need to work with applicants on preparing a detailed project plan, budget, and schedule. At the state level, given the tremendous growth in the number of applications, project monitoring has been limited. The CWCB is in the process of addressing these issues.

Sustaining Mineral Severance Tax Funding – Vital for Ongoing Success

Colorado has at least $3 billion in funding needs for water supply and water management projects. The mineral severance tax fund was established to help local communities offset the impacts of extracting nonrenewable resources. The distribution formula for severance tax emphasizes water supply in order to provide a renewable resource – ***water*** – to help offset the impact from extractive natural resource development. The WSRA furthers this objective by helping to provide an adequate water supply for Colorado's citizens and environment.

COLORADO
DEPARTMENT OF NATURAL RESOURCES

Approved Water Supply Reserve Account Applications by the CWCB Board

Name of Water Activity	Basin Account	Statewide Account	Total Request
Arkansas Basin Total Request	**$783,781**	**$3,193,286**	**$3,977,067**
Arkansas Valley Conduit		$200,000	$200,000
Tamarisk		$50,000	$50,000
Upper Black Squirrel Creek Aquifer Recharge Investigation	$45,200		$45,200
Ground Water Conference	$24,721		$24,721
Fountain Creek Vision Task Force	$75,000		$75,000
Round Mountain Water & Sanitation District Water System Improvements Project	$120,000		$120,000
Rotational Land Fallowing-Water Leasing Program-Lower Arkansas Superditch Company	$150,000		$150,000
Upper Big Sandy Water Balance	$45,000		$45,000
Model Transfers-Agriculture to Urban, Arkansas Basin	$23,860		$23,860
Arkansas Headwaters Diversion Structure Improvement Project Arkansas River Basin		$57,954	$57,954
City of Las Animas Sewer System Improvements	$100,000	$200,000	$300,000
Colorado State Parks - Zebra Mussels Pueblo Reservoir		$1,000,000	$1,000,000
Geospatial Decision Support System for Integrated Water Management	$100,000	$775,000	$875,000
Telemetry Data Collection Platforms at Six Reservoirs Plus Flow Control Equipment and Gauging at Six Reservoir Outlet Channels & Nine Streams within the Upper Arkansas River Basin	$75,000	$210,332	$285,322
Demonstration of Membrane Zero Liquid Discharge Process for Drinking Water Systems	$25,000	$700,000	$725,000
Colorado Basin Total Request	**$455,000**	**$2,227,900**	**$2,682,900**
Energy Development Water Needs Assessment (300,000 Joint Application see Yampa)		$150,000	$150,000
Enlargement of Eagle Park Reservoir		$250,000	$250,000
Roaring Fork Watershed Assessment	$40,000		$40,000
Upper Colorado Endangered Fish Recovery Alternatives Analysis (10,825 Study)		$200,000	$200,000
Vail Ditch Project		$1,500,000	$1,500,000
Bull Creek Reservoir No. 5 Spillway Adequacy Analysis	$50,000		$50,000
Missouri Heights Monitoring	$25,000		$25,000
Grand County Streamflow Management Plan	$100,000		$100,000
Old Dillon Reservoir	$100,000		$100,000
Fraser Sedimentation Basin	$60,000	$127,900	$187,900
Roaring Fork Watershed Assessment - Phase 2	$40,000		$40,000
Battlement Reservoir #3 Dam Reconstruction to Enhance Recreational & Environmental Opportunities	$40,000		$40,000
Gunnison Basin Total Request	**$413,965**	**$840,700**	**$1,254,655**
Lake San Cristobal Controlled Outlet Structure	$35,000		$35,000
Safety and Serviceability Needs Inventory for Reservoirs in the Lerou Creek Drainage Basin	$60,000		$60,000
Orchard City Water Reservoir Project (Task 1-3)	$60,000		$60,000
Orchard City Water Reservoir Project (Remaining Tasks)		$480,000	$480,000
Off-System Raw Water Storage Project 7 Water Authority/Uncompahgre Valley Water Users Association	$56,700		$56,700
Paonia-Feldman Diversion Reconstruction; North Fork of the Gunnison River (Part 1 of 2)	$48,000	$62,700	$110,700
Sedimentation Management Study for Paonia Reservoir - North Fork of the Gunnison	$79,000	$230,000	$309,000
Overland Reservoir Dam Expansion/Restoration		$68,000	$68,000
Phase II Engineering for Lake San Cristobal Outlet Modification	$75,265		$75,265

Approved Water Supply Reserve Account Applications by the CWCB Board

Name of Water Activity	Basin Account	Statewide Account	Total Request
Metro Basin Total Request	**$813,139**	**$200,000**	**$1,013,139**
Chatfield Reallocation EIS/FR (South Platte BRT contributing $27,000)	$103,000		$103,000
Zero Liquid Discharge Pilot Study	$200,000	$200,000	$400,000
Parker Water and Sanitation and Colorado State University Joint Project on a Rural/Urban Farm Model	$150,000		$150,000
Upper Mountain Counties Water Needs Assessment (South Platte contributing)	$43,580		$43,580
Solicitation of Stakeholder Input through a South Platte Edition of Headwaters	$16,019		$16,019
South Metro Water Supply Authority - Regional Aquifer Supply Assessment	$100,540		$100,540
South Platte River Restoration and Habitat Feasibility Study	$150,000		$150,000
Demonstration of Membrane Zero Liquid Discharge Process for Drinking Water Systems ($50,000 Metro Basin Fund Contribution)	$50,000		$50,000
North Platte Basin Total Request	**$799,305**	**$260,617**	**$1,059,923**
New Pioneer Ditch Diversion Reconstruction Project	$116,000		$116,000
Town of Walden Supply Improvement Project	$385,000		$385,000
Effects of Mountain Pine Beetle and Forest Management on Water Quantity, Quality, and Forest Recovery North Platte and Upper Colorado River Basins	$212,306	$164,618	$376,923
Identification and Assessment of Important Wetlands in North Platte River Watershed	$86,000	$96,000	$182,000
Rio Grande Basin Total Request	**$569,950**	**$2,617,400**	**$3,187,350**
Alamosa River Instream Flow Project	$64,500		$64,500
Preliminary Design Multi-use Rio Grande Reservoir Rehabilitation and Enlargement		$288,000	$288,000
Rio Grande Basin Conservation Reserve Enhancement Program	$36,750		$36,750
Alamosa River Watershed Restoration Project		$104,000	$104,000
Romero-Guadalupe Channel Rectification Project	$83,700		$83,700
Rio Grande Initiative	$200,000	$1,300,000	$1,500,000
Santa Maria and Continental Reservoirs: Rehabilitation and Multiple Use Studies	$50,000	$141,700	$191,700
2008 Rio Grande Riparian Stabilization Project	$35,000	$250,000	$285,000
Platoro Reservoir Restoration	$50,000	$200,000	$250,000
Conejos River and North Branch Diversion and Stabilization	$50,000	$333,700	$383,700
South Platte Basin Total Request	**$563,110**	**$1,553,269**	**$2,116,379**
Chatfield Reallocation EIS/FR (Metro BRT contributing $103,000)	$27,000		$27,000
Clear Creek Water Banking/High Altitude Storage	$52,000		$52,000
Ovid Reservoir Comprehensive Feasibility Study	$176,000		$176,000
Lower South Platte Wetland Initiative Phase I South Platte River, CO		$278,476	$278,476
Stage Discharge Data Loggers and Telemetry	$48,800		$48,800
Upper Mountain Counties Water Needs Assessment (Metro contributing)	$130,763		$130,763
Weld County School District RE1 Wetland Partnership	$42,109		$42,109
Solicitation of Stakeholder Input through a South Platte Edition of Headwaters	$16,019		$16,019
South Platte Water Protection and Restoration		$1,118,552	$1,118,552
Arickaree River Well Retirement Program, Republican River Basin, Colorado	$19,984	$79,936	$99,920
Halligan Seaman Water Management Project Shared Vision Planning Model	$25,435	$76,305	$101,740
Demonstration of Membrane Zero Liquid Discharge Process for Drinking Water Systems ($25,000 South Platte Basin Fund Contributions)	$25,000		$25,000

COLORADO
DEPARTMENT OF
NATURAL
RESOURCES

Approved Water Supply Reserve Account Applications by the CWCB Board

Southwest Basin Total Request	**$312,000**	**$2,240,000**	**$2,552,000**
Dry Gulch Reservoir/San Juan Reservoir Land Acquisition		$1,000,000	$1,000,000
Goodman Point Water Association Pipeline Environmental Assessment	$7,700		$7,700
Goodman Point Phase 2	$20,000	$240,000	$240,000
Jackson Gulch Reservoir Expansion Project	$80,000		$80,000
Lake Mancos Dam (Jackson Gulch Reservoir Expansion Project)		$20,000	$20,000
Bauer Lakes	$40,000		$40,000
La Plata West Rural Water Supply System	$100,000	$1,000,000	$1,100,000
Town of Sawpit - Engineering/Planning for Domestic Water System; Southwest Basin	$25,000		$25,000
MVIC Summit Irrigation Company Feasibility Study	$39,300		$39,300
Yampa/White/Green Basin Total Request	**$434,572**	**$150,000**	**$584,572**
Energy Development Water Needs Assessment (300,000 Joint Application see Colorado)		$150,000	$150,000
Morrison Creek Reservoir Feasibility Study	$49,500		$49,500
Agricultural Water Needs Assessment	$201,410		$201,410
Common Data Repository	$106,600		$106,600
Sparks Reservoir	$16,000		$16,000
Town of Yampa Water Facilities Plan and Storage Tank Upgrades	$61,062		$61,062

Further information regarding the Interbasin Compact Process accomplishments and support provided to the basin roundtables to further their basinwide needs assessments can be found at: http://ibcc.state.co.us.

For more information, please contact:

Eric Hecox
1313 Sherman St., Room 718
Denver, CO 80203
Phone: (303) 866-4895 • Fax: (303) 866-4474
Internet: www.ibcc.state.co.us
eric.hecox@state.co.us

Todd Doherty
1580 Logan St., Suite 600
Denver, CO 80203
Phone: (303) 866-3210 • Fax: (303) 866-4474
Internet: www.cwcb.state.co.us
todd.doherty@state.co.us