Colorado's Water Supply Future

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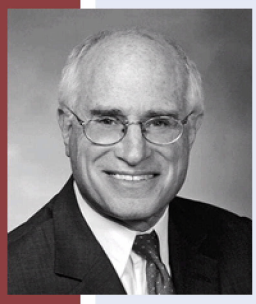
Interbasin Compact Process

Quarterly Newsletter - 1st Quarter 2008



From Harris Sherman

Executive Director of DNR and Director of Compact Negotiations

If we let Colorado's water supply continue to evolve the way it is now, what will our state look like in 50 years? Is that what we want it to look like? If not, what can and should we do about it?

Those are the questions I put to the members of the Interstate Basin Compact Commission—some of the best water minds in Colorado—at our March meeting. They are fundamental and very difficult questions. Yet, it is of vital importance that we answer them.

The responses were thoughtful, insightful, and generally concerned about our future. Farmers and ranchers from the West Slope and the eastern plains, Front Range water providers, and environmentalists all expressed unease about the long-term vision of the state if we let water supply development continue on the path it is on. Dry-up of agriculture, the impact of millions of new residents in Colorado, and the need to do a better job balancing all uses among all users were common sentiments.

When the Interbasin Compact Committee (IBCC) members looked at the status quo, they saw a vision that is not the Colorado they want to see. There is strong desire across the state to take steps now to manage and control our water future.

The question is what can we do, and that issue is far less settled. That is why the IBCC will spend the next several months exploring alternatives to this status quo vision and developing strategies for achieving a better vision for Colorado. Our meeting in May will look at a common vision for Colorado's water supply future and a proposed plan for examining various water supply strategies to achieve that common vision. Based on our progress, we will continue the discussion at the August IBCC meeting and beyond.

The March IBCC meeting was historic. I cannot recall a time when this kind of visioning discussion has taken place. The fact that water leaders from all regions representing all uses can come together and have this dialogue is a statement of just how far we have come these last few years. Prior to the 2002 drought and the Statewide Water Supply Initiative (SWSI), I do not think this dialogue would have been possible.

It is my sincere hope, however, that this dialogue does not end with the IBCC. Others around the state should ask themselves these same questions. The input of all interested stakeholders is critical. The Basin Roundtables in particular should explore these issues, but in turn they should extend it to include community leaders, civic organizations, and chambers of commerce throughout the state.

The March IBCC meeting was just the first step. We have a long way to go and no one is sure what specific solutions will come out of this important discussion. Yet, our state will be better off for having this conversation, and hopefully it will produce sound long-range planning and action that both ensures a secure water future for our state while protecting and even enhancing those qualities that make Colorado such a special place.

Stay tuned, and thanks for all that you do for Colorado.

Update on Basin Roundtable Consumptive Needs Assessment

Quantifying Municipal & Industrial (M&I) Demands to 2050

SWSI projected water demands to 2030. It was understood at the time of SWSI that demands will continue to grow beyond 2030. Since that time it has been the desire of several Basin Roundtables to project their demands out to 2050. The Technical Team will be kicking this off with the Basin Roundtables in April 2008.

Status of IPPs

SWSI compiled Identified Projects and Processes (IPPs) for each basin. IPPs are projects or processes identified by water providers to meet new water demands. The IPPs accounted for 511,800 acre-feet (AF) of new supply to address the demands of 630,000 AF out to 2030. The Technical Team will be working with the Basin Roundtables and water providers to update this information. In addition, CWCB is developing an IPPs database that will be used to track projects and processes into the future. This will be underway this year.

Identify Conservation Opportunities

The conclusions and recommendations made by the CWCB and the Conservation Technical Roundtable will serve as a starting point to further quantify the role water conservation can play in meeting the demands of Colorado's water supply future. This SWSI Phase 2 information will be rolled out to the Basin Roundtables from April through August 2008. Water provider's current conservation plans will be included in the IPP update.

Addressing Agricultural Needs

Agricultural irrigation is widely recognized as one of the most significant uses of water in Colorado, using approximately 85 percent of the state's water. This has led to a public perception that implementation of agricultural water efficiency/ conservation measures can easily provide additional water supplies to meet growing demands for urban, industrial, recreational, and environmental water needs in Colorado. It is also recognized that Colorado's water resources should not be wasted and that century old irrigation systems and practices could benefit from modernization. With this in mind, CWCB worked with the Colorado Water Agricultural Alliance to explore opportunities and challenges associated with potential agricultural water conservation measures. A draft report was issued in February and will be available to the Basin Roundtables for potential incorporation into their needs assessments.

Alternative Agricultural Water Transfer Methods for Water Supply

SWSI Phase 2 provided an extensive look at alternatives to a traditional transfer including:

- Interruptible supply agreements
- Long-term rotational fallowing
- Water banks
- Reduced consumptive use through agricultural efficiencies or cropping while maintaining historic return flows
- Purchase by end user with leaseback

This information will be presented to the Basin Roundtables. CWCB has also developed a $1.5 million grant program to help evaluate alternatives to traditional agricultural transfers. The first of three grant applications will be considered at the May CWCB Board Meeting.

Assessing the Effects of Climate Variability

Climate change has the potential to impact our state's water supply availability as well as our consumptive demands. Climate-based changes to supply availability will be examined through the Colorado River Supply Availability Study. The change in consumptive water demands in Colorado will be evaluated using the CWCB's consumptive use model StateCU. The Technical Team will work with the Basin Roundtables on this evaluation once demands are calculated to 2050.

The CWCB is planning a conference this fall titled "Governor's Conference on Managing Drought and Climate Risk."

Recalculate the Gap

The current Gap identified in SWSI is 118,200 AF based on the ability of the IPPs to address new demands. An update to the IPPs and the new demand projections out to 2050 will be used to recalculate the Gap for each basin. Additional considerations of climate variability and groundwater sustainability will also be considered in recalculating the Gap.

Delineate a Process for Decisionmaking

Through the SWSI process, a set of nine major "water management objectives" were developed (Figure 1), refined, and then used to evaluate options for addressing Colorado's future water needs. These objectives represent the overarching interests in water management — they define major goals of water users in clear, understandable terms. These objectives can be used in decisionmaking to move stakeholders towards common ground for developing future water supply alternatives. This will be integrated with the IBCC Visioning Process.

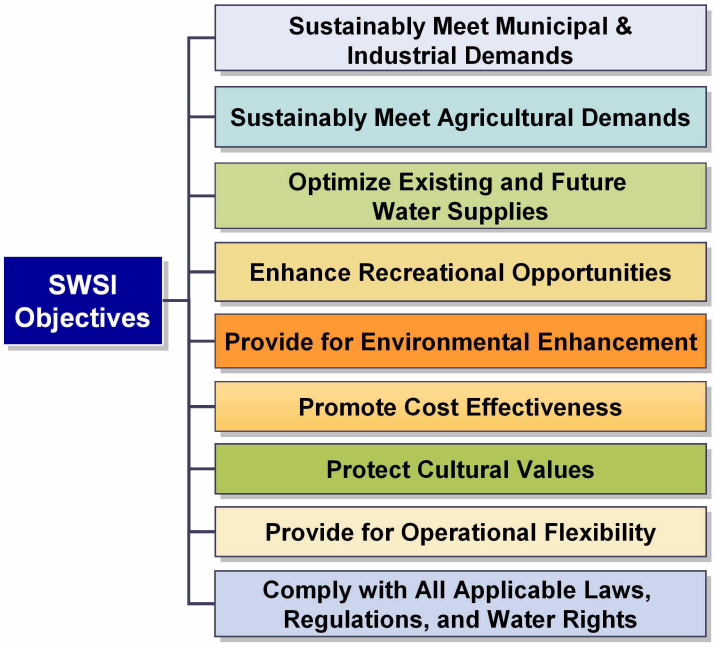


Figure 1
SWSI Objectives

Update on Basin Roundtable Nonconsumptive Needs Assessment

The goal of the nonconsumptive needs assessment (NCNA) is to provide an objective, science-based set of evaluation tools for basin roundtables and other stakeholders to utilize in making informed decisions about future water supply management. Science-based evaluation tools will facilitate analyses of ways to maintain or enhance the environmental and/or recreational values associated with rivers, reservoirs, and lakes while developing water supplies to meet current and future domestic, municipal, commercial, industrial, and agricultural water supply needs. In fulfillment of this goal, the process will seek to identify both non-flow aspects (i.e., habitat, geomorphology, public access, etc.) and the minimum flows needed to achieve the resource management objectives.

The methodology for completing the NCNA focuses on a two-step process for evaluating nonconsumptive needs — prioritization and quantification.

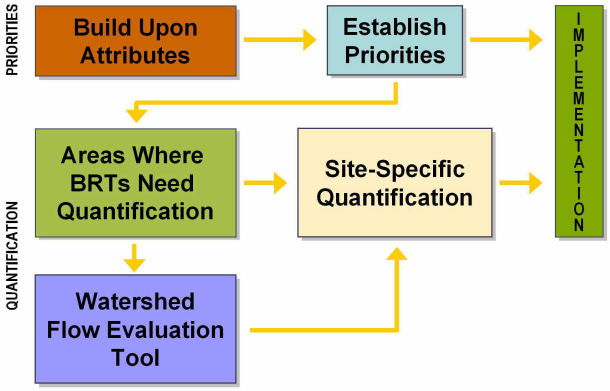


Figure 2
Nonconsumptive Needs Assessment Overview

Methodology Overview

Prioritization

Build Upon Attributes: The first step the Basin Roundtables are taking in completing their nonconsumptive needs assessments is building upon the GIS information that was gathered during the Statewide Water Supply Initiative Phase 2 (SWSI Phase 2). The Basin Roundtables are suggesting additional data that are specific to their basins be added to the SWSI Phase 2 GIS database.

Establishing Priorities: The attributes gathered by the roundtables will become the basis for establishing priorities for the basins. Establishing priorities will rely upon local input and knowledge. The technical assistance team is providing GIS tools to the Basin Roundtables as an initial starting point for their priority setting.

Quantification

After priorities are set for their basins, the roundtables will have to determine if and where they would like to utilize quantification methodologies. The technical assistance team can assist the roundtables in developing site-specific and watershed level quantification information. Both of these methods will be piloted within the next several months to provide further information to the roundtables.

Schedule

The schedule for completing the majority of the products for the nonconsumptive needs assessments is shown in Figure 3 below. It is anticipated that the Basin Roundtables will have established priorities by June 2008. During the remainder of 2008, the roundtables will be reviewing information generated from the quantification pilot studies and applying these quantification strategies in their basins. Work on site-specific quantification and the flow evaluation tool will occur through 2009.

Nonconsumptive Needs Assessment Products

Following are the anticipated products of the Basin Roundtable Nonconsumptive Needs Assessments:

- A complete set of GIS coverages that represent Colorado's important environmental and recreational attributes.
- A map of prioritized areas and reaches, as determined by the individual BRTs.
- Generalized or "coarse" flow evaluation tools and site-specific instream flow quantification methodologies that will help BRTs understand areas that might require more site-specific investigation.

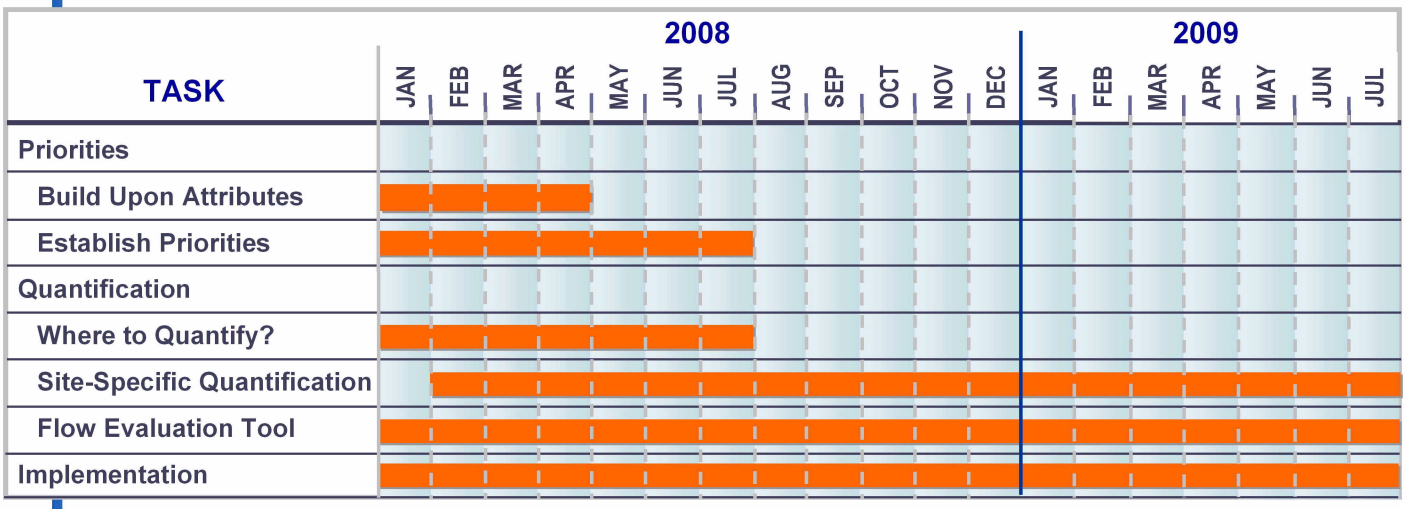


Figure 3
Schedule

- An identification of non-flow related resource management options and strategies.
- A set of BRT-directed implementation strategies for priority rivers and streams within their basins, including both flow and non-flow related resource management options and strategies.
- A resource that can be used to help identify where and how Colorado can develop future water supplies while maintaining or enhancing environmental and/or recreational values.

Examples of the GIS coverages and prioritized areas are shown in Figure 4 below.

Integration

The integration of consumptive, nonconsumptive, and supply availability needs will occur as follows:

- Completion of nonconsumptive needs assessment will influence meeting in-basin and statewide needs
- Completion of consumptive needs assessment will influence how we address nonconsumptive needs
- Addressing consumptive and nonconsumptive needs will assist us in developing probability of risk analysis under the water supply availability study

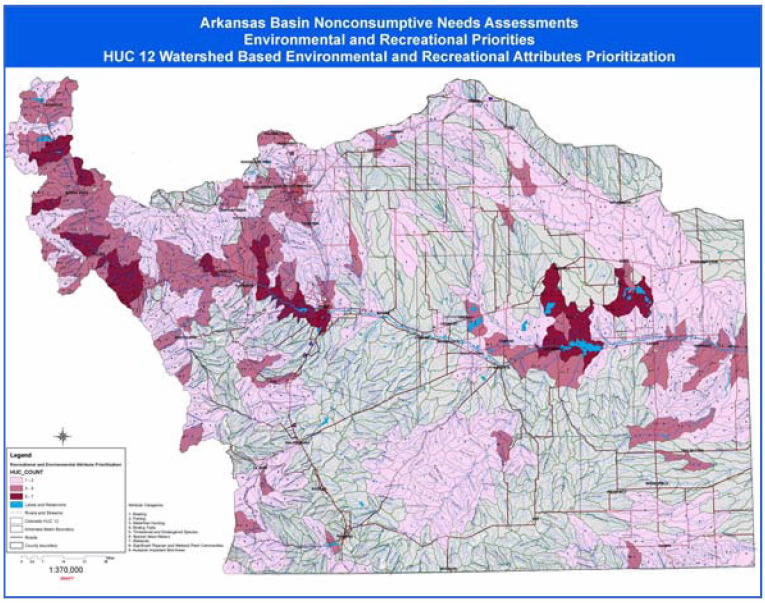


Figure 4
Example of Environmental and Recreational Coverages for the Arkansas Basin

Basin Roundtable Nonconsumptive Needs Assessment Progress

A summary of each roundtable's progress in completing their nonconsumptive needs assessment is shown in the following table:

Basin	Summary of Progress on Nonconsumptive Needs Assessments
Arkansas	• Finalized their requests of additional GIS information • Established preliminary priorities for environmental and recreational needs that will be discussed by the roundtable during their April 2008 meeting
Colorado	• Finalized their requests of additional GIS information • Established preliminary priorities for environmental and recreational needs that will be discussed by the roundtable during their April 2008 meeting
Gunnison	• In the process of finalizing their requests of additional GIS information
Metro/South Platte	• In the process of finalizing their requests of additional GIS information • Started their prioritization process
North Platte	• In the process of finalizing their requests of additional GIS information
Rio Grande	• In the process of finalizing their requests of additional GIS information • Started their prioritization process
Southwest	• In the process of finalizing their requests of additional GIS information
Yampa/White/Green	• In the process of finalizing their requests of additional GIS information

Approved Water Supply Reserve Account Applications by the CWCB Board

Name of Water Activity	Basin Account	Statewide Account	Total Request
Arkansas Basin Total Request	**$483,781**	**$1,507,954**	**$1,991,735**
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		$200,000	$200,000
Colorado State Parks		$1,000,000	$1,000,000
Colorado Basin Total Request	**$275,000**	**$2,227,900**	**$2,502,900**
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		$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
Basalt Water Conservancy District	$25,000		$25,000
Old Dillon Reservoir	$100,000		$100,000
Fraser Sedimentation Basin	$60,000	$127,900	$187,900
Gunnison Basin Total Request	**$338,700**	**$840,700**	**$1,179,400**
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
Metro Basin Total Request	**$453,000**	**$200,000**	**$653,000**
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 the Rural/Urban Farm Model	$150,000		$150,000
North Platte Basin Total Request	**$116,000**	**$0**	**$116,000**
New Pioneer Ditch Diversion Reconstruction Project	$116,000		$116,000
Rio Grande Basin Total Request	**$384,950**	**$1,692,000**	**$2,076,950**
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

Approved Water Supply Reserve Account Applications by the CWCB Board

Name of Water Activity	Basin Account	Statewide Account	Total Request
South Platte Basin Total Request	**$303,800**	**$278,476**	**$582,276**
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
Southwest Basin Total Request	**$272,700**	**$2,260,000**	**$2,532,700**
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
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
Yampa/White/Green Basin Total Request	**$357,510**	**$150,000**	**$507,510**
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

Status of Technical Assistance Task Orders

Name of Water Activity	Status
Arkansas Basin	
• Update the status of identified projects and processes (IP&Ps) from SWSI • Articulate implementation status of conservation and reuse programs • Evaluate potential opportunities for rotational fallowing and/or leasing agreements • Evaluate groundwater sources that were not included in SWSI Phase I, especially designated basins. • Examine the relationship between Colorado River Compact supplies, imports from the Colorado River Basin and exports of native water supplies from the basin.	Consumptive tasks, as outlined, have been scoped and will be completed by June 2008.
Colorado Basin	
Energy Development Water Needs Assessment Scoping (Joint with Yampa Basin Roundtable)	A workplan was completed for this effort. The energy study is being implemented through at Water Supply Reserve Account Grant.
Gunnison Basin	
• Basinwide - Review, refine, and/or confirm the estimate of current and future water demands and supply for the smaller water providers • Basinwide - Review and refine the estimate of current and future rural domestic demands and supply • Basinwide - Identify vulnerabilities to water supply shortages for Gunnison Basin municipalities • Sub-basin Specific: Upper Gunnison - Review, refine, and/or confirm the estimate of future snowmaking demands in the Upper Gunnison	Technical work for this first task order will be completed by June 2008.
Metro Basin	
• Analysis of where providers are looking at the same water as a future supply • Update of unappropriated water in the South Platte Basin • Impact of water administration changes on the availability of water • Impact of reusable water not being available to downstream users • Status of Conservation • Status of IPPs	First draft at technical work for this first task order has been completed. Consumptive tasks, as outlined, will be completed by June 2008.

Status of Technical Assistance Task Orders

North Platte Basin	
Town of Walden Water Supply Evaluation	Task order has been completed.
Water Supply Availability	The requested water supply availability task will be completed through Decision Support System modeling updates.
South Platte Basin	
• Analysis of where providers are looking at the same water as a future supply • Update of unappropriated water in the South Platte Basin • Impact of water administration changes on the availability of water • Impact of reusable water not being available to downstream users • Status of Conservation • Status of IPPs	First draft at technical work for this first task order has been completed. Consumptive tasks, as outlined, will be completed by June 2008.
Yampa Basin	
Energy Development Water Needs Assessment Scoping (Joint with Colorado Basin Roundtable)	A workplan was completed for this effort. The energy study is being implemented through a Water Supply Reserve Account Grant.
Evaluation of Agricultural Needs	A workplan for this evaluation has been completed. Moffat County has been awarded a Water Supply Reserve Account Application to implement this study.

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.

Information on the Water Supply Reserve Account and continuing SWSI activities is located on CWCB's webpage:
http://cwcb.state.co.us/IWMD/.

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