Colorado’s Water Supply Future

NAIOP
Water Education Sessions
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Colorado Water Conservation Board's Mission:

Conserve, Develop, Protect, and Manage Colorado’s Water for Present and Future Generations
Goal: Help Colorado maintain an adequate water supply for its citizens and the environment. Today and into the Future

SWSI goals as authorized by Legislature (May 2003):

- Examine all aspects of Colorado water use over the next 30 years
- Evaluate water supply and water management alternatives in each river basin
- Formulate strategies and build consensus on alternatives to meet future water needs
Background, Goals, and Study Process

• Guiding Principles
  – Reconnaissance-level
  – Respect Colorado’s local planning
  – Bottom-up – work with each of Colorado’s 8 river basins
  – All solutions should be considered: conservation, improvements of existing facilities, building new facilities, and others

• Cross-Section of Colorado Water Users and Interests
  – Basin Roundtable Participants
    • Water providers
    • Ranchers and farmers
    • Recreational interests
    • Business community
    • Environmental interests
    • Local government
  – Technical Advisors
    • Specific water expertise

Colorado’s Eight Major Basins

Yampa/White
North Platte
Colorado
Gunnison
San Juan/Dolores
Rio Grande
Arkansas
South Platte
Colorado’s Future Water Supply Needs

What’s Important to Coloradans in Water Management?

- Sustainably Meet Municipal & Industrial Demands
- Sustainably Meet Agricultural Demands
- Optimize Existing and Future Water Supplies
- Enhance Recreational Opportunities
- Provide for Environmental Enhancement
- Promote Cost Effectiveness
- Protect Cultural Values
- Provide for Operational Flexibility
- Comply with All Applicable Laws, Regulations, and Water Rights

SWSI Objectives
Projected Colorado Increase in Population from 2000 to 2030

- West Slope: 420,300
- East Slope: 2,400,600

M&I and Self-supplied Industrial Gross Demand by Basin - 2000 - 2030

- East Slope: Percent change = 63%
- West Slope: Percent change = 88%
- Increase: 630,000 AF
Under Optimistic Assumptions Local M&I Providers Have the Ability to Meet 80 Percent of Colorado's M&I Water Needs Through 2030

80% of Demand (512,000 AF) Met Through 2030

20% Gap (118,000 AF)

2030 M&I Water Demands and Gaps

Identified Projects 404,300 AF

Gap 107,800 AF

Yampa/White/Green
North Platte
South Platte
Colorado
Gunnison
Rio Grande
Arkansas
Dolores/
San Juan/
San Miguel

107,600 AF

10,300 AF
Developing Approaches to Meeting Future Water Supply Needs

Interaction of Basin Needs Assessments with Statewide Technical Work

Consumptive Work Group  Supply Availability  Non-Consumptive Work Group
Addressing Non-consumptive Water Needs

Identification and Prioritization of Environmental and Recreational Uses of Water Must be Considered; Especially in Light of our Increasing Human Needs for Water

- These uses support tourism, provide benefits to our citizens and are important industry
- Without a mechanism to fund environmental and recreational enhancement, conflicts among interests will likely intensify
- Conflicts over these needs and water development arise, driving up costs and delaying implementation
Non-Consumptive Needs - Identification of Environmental and Recreational Attributes

- Other RT priorities
- Native species/system function
  - Native nonlisted
  - Native listed
  - Riparian function/wetland function
- Recreation
  - Rafting
  - Fishing
  - Wildlife viewing
- Sport fish
  - Native salmonid
  - Non-native salmonid
  - Native warm water
  - Non-native warmwater

Figure 3.12
Colorado Basin Key Diversion and Streamflow Gage Locations
Addressing Consumptive Water Supply Needs

Water Supply Options will likely be a mixture of:

- Conservation
- Reuse
- Agricultural transfers
- New water supply development/storage
- Multi-purpose projects may be the most successful
Water Conservation Will Be Relied On as a Major Tool for Meeting Future M&I Demands, but Conservation Alone Cannot Meet All of Colorado’s Future Needs

Estimated Total Potential Additional Water Conservation Savings for M&I and SSI Uses (2000 to 2030)
Defining the Role of Water Conservation

• Use of conserved water
  – New growth, system reliability or in stream flows?
• Project savings for various conservation measures
• Challenges to implementation
  – Political, legal and financial
• Potential for agricultural efficiency improvements
  – Legal and return flow concerns

Agricultural Transfers
Basic Mission

- SWSI recognized that pressure for agricultural transfers of water to M&I and other users would occur
- Are there viable alternative agricultural transfer methods?
Descriptions of Alternative Techniques

- Interruptible Supply Agreements (ISA)
- Rotational Fallowing Arrangements (RFA)
- Water Banks
- Alternative Cropping and/or Irrigation Practices
- Purchase & Leaseback

Irrigated Acres by Water District (2001)

Irrigated Acres Do Not Include Recent Reductions Due to Lack of Well Augmentation Supply
Water Supply Availability

Major Aquifer Systems

[Map showing major aquifer systems in Colorado, including Denver Basin, San Luis Basin, and various other areas.]
2000 Population, Irrigated Acres and Flows

Population:
- West Slope: 467,000
- East Slope: 3,869,000

Irrigated Acres:
- West Slope: 880,000
- East Slope: 2,270,000

High and Low Estimates of 2030 State of Colorado’s Share of Colorado River Compact Depletions

- Colorado’s Compact Entitlement
- BOR Hydrologic Determination
- Multi-basin Project
- Future Exports
- Future West Slope Depletions
- CRSP Evaporation
- Current Exports
- Current West Slope Depletions
Supply Availability involves resolution of key issues:

• Black Canyon/Aspinall Reoperations
• Endangered Species
• Colorado Compact – Water Availability
• Addressing Future Growth in Areas With No Reliable/sustainable Supplies

If Colorado cannot resolve these issues, additional reallocation of water out of agriculture will occur, both east and west slope

Developing Water Supply Alternatives
Example Portfolios to Meet Future Water Supply Needs

The options above can be assembled into portfolios to provide for meeting M&I, agricultural, environmental and recreational needs.
M&I Identified Projects & Processes

Building Alternatives

Phase 2 TRTs

- Agriculture: Alternative to Permanent Dry Up
  - Options
  - Options
  - Options
  - Options
  - Options
  - Options

- Structural Projects

- Conservation

- Environmental and Recreation
New Infrastructure will be Required Regardless of Source of Supply

- Conservation – storage and conveyance between cities
- Agricultural Transfers – storage, treatment and conveyance
- New Supply Development – storage and conveyance

Funding Opportunities

- Water Supply Reserve Account
  - $42 million over 5 years
  - Grants and loans

- Grant Program in CWCB Projects Bill 2007
  - $1.5 million to advance alternative agricultural transfer methods
Additional Information

Questions

www.cwcb.state.co.us