



Arber NEWS

Water, Wastewater & Reuse Engineers

Volume 1, 2007

**Providing
Economical
Solutions to
Water, Wastewater
and Water Reuse
Infrastructure Needs
of Colorado
Communities**

WATER CONSERVATION AND DROUGHT MITIGATION PLANNING

Water conservation continues to be an important topic for the public and water providers across the United States. As reported by the Colorado Water Conservation Board (CWCB), Colorado's annual precipitation averages 17 inches statewide and the majority of the state receives only 12 to 16 inches annually. Long term water conservation planning is needed now to

meet the future water demands of Colorado's growing population. The Colorado legislature recognized the importance of long term water conservation by requiring water conservation and drought mitigation planning and appropriating grant money for communities to assist in the development of plans.

HISTORY OF COLORADO REGULATIONS

The Colorado Water Conservation Act of 1991 created the Office of Water Conservation and Drought Planning (OWCDP) and required that retail water providers who sell 2,000 acre-feet or more of water annually, submit a water conservation plan for approval. The Act of 1991 also included a list of minimum plan requirements. The Colorado Water Conservation Act of 2004 expanded the OWCDP's duties and amended the minimum plan requirements.

(CWCB) or the Colorado Water Resources and Power Development Authority (CWRPDA) submit a new or revised plan to the CWCB for approval prior to release of new loan money. This significant provision applies to the release of approved loan money by the CWRPDA for both water and wastewater projects if the entity receiving the loan meets the annual 2,000 acre-foot requirement.

Entities that provide 2,000 acre-feet or more of water annually must have an approved water conservation plan prior to the release of CWRPDA loan funds for a project, even if the project is a wastewater project.

The Act of 2004 also required that as of July 2006 water providers seeking financial assistance from either the Colorado Water Conservation Board

Entities providing wastewater services only are not required to complete a water conservation plan.

WATER CONSERVATION PLAN REQUIREMENTS

The Colorado Water Conservation Board (CWCB) defines a Water Conservation Plan as "a strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, and for increasing the reuse of water."

The goal of water conservation planning is to achieve lasting, long-term improvements in water use efficiency.

The CWCB has developed the following nine planning steps to assist entities with achieving the goal of water conservation planning.

Nine Water Conservation Planning Steps

1. Profile the existing water system
2. Characterize water use and forecast demand
3. Profile proposed facilities
4. Identify conservation goals
5. Identify conservation measures and programs
6. Evaluate and select conservation measures and programs
7. Integrate resources and modify forecasts
8. Develop implementation plan
9. Monitor, evaluate and revise conservation activities and the conservation plan

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Although implementation of the nine planning steps will be different for each entity, the goal of the nine steps is to provide a process to assist entities in meeting the minimum water conservation plan requirements. The following is a list of the minimum water conservation plan requirements that must be met for approval of a plan. The CWCB's Water Conservation Plan Development Guidance Document outlines an example plan, worksheets and additional information for development of a water conservation plan.

MINIMUM WATER CONSERVATION PLAN REQUIREMENT

- ◆ A schedule of plan implementation
- ◆ Identification of the water-saving measures and programs including consideration of the following:
 - Water-efficient fixtures and appliances (toilets, urinals, showerheads and faucets).
 - Low water use landscapes, drought-resistant vegetation, removal of deep rooted plants and efficient irrigation.
 - Water-efficient industrial and commercial water-using processes.
 - Distribution system leak identification and repair.
 - Public education, customer water use audits and water saving demonstrations.
 - Rate structures and billing systems designed to encourage efficient water use.
 - Regulatory measures designed to encourage water conservation.
 - Incentives to implement water conservation techniques (rebates for installation of water saving devices).
- ◆ Statement regarding the role of the water conservation plan in the overall water supply planning.
- ◆ Identification of the steps used to develop, implement, monitor, review and revise the water conservation plan.
- ◆ Identification of the timeframe for updating the plan (may not exceed seven years).
- ◆ An estimate of the amount of water that has been saved through previous and current water conservation planning efforts (as a percentage or in acre-feet).
- ◆ Proof of adoption of the final plan by the entity.
- ◆ Address comments received from the 60 day minimum public review period.

DROUGHT MITIGATION PLAN REQUIREMENTS



The Colorado Water Conservation Board (CWCB) defines a Drought Mitigation Plan as “a strategy or combination of strategies for temporary supply management and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies.”

The goal of drought mitigation planning is to ensure an uninterrupted supply of water in an amount sufficient to satisfy essential human needs.

A secondary goal is to minimize adverse impacts on the quality of life, the economy and the environment.

The CWCB has developed the following six steps to assist entities with achieving the goal of drought mitigation planning:

- 1. Obtain public input and involvement**
- 2. Define goals and objectives**
- 3. Assess water supply and demand conditions**
- 4. Define drought indicators**
- 5. Identify and assess drought mitigation measures**
- 6. Develop a drought index and management strategy**

Although implementation of the six drought mitigation steps will be different for each entity, the goal of the six steps is to provide a process to assist entities in meeting the minimum drought mitigation plan requirements.

MINIMUM DROUGHT MITIGATION PLAN REQUIREMENTS

- ◆ A schedule of plan implementation.
- ◆ Identification drought mitigation actions and programs including consideration of the following:
 - Establish a drought task force combining various organizational entities and stakeholders.
 - Complete a vulnerability assessment of the water supply considering seniority of water rights, reliability of infrastructure, availability of alternative supplies, flexibility of water demand, and development of relevant policy, emergency response, and public education and awareness programs.
 - Assess, revise and/or create policy related to key areas that impact effective drought mitigation including establishment of drought response principals; objectives and priorities; authorities for declaring drought; triggers for drought-related actions; ordinances for drought measures; lines of internal and external communications protocols; and content and means for monitoring for drought and/or water supply scarcity.
 - Develop a list of emergency response needs and associated actions and programs including declarations of drought, emergency water supply programs and methods, extending boat ramps and docks, managing new taps, identifying partners and sources for assistance.
 - Maintain ongoing public education and awareness program related to water supply, water conservation and drought preparedness.
 - Link drought mitigation with water supply and water conservation planning.
- ◆ Proof of adoption of the final plan by the entity.
- ◆ Address comments received from the 60 day minimum public review period.

GRANTS AVAILABLE

The Colorado Water Efficiency Act of 2005 made grant money available for the implementation of water conservation measures and programs and drought mitigation plans. Over \$1.5 million is available to fund plans and projects that meet CWCB approved grant guidelines.

>\$50,000 GRANT SCHEDULE

| Phase: | Applications Received During: | Approval at Board Meeting in: |
|---------|--|-------------------------------|
| Phase 1 | July 1 st to Aug. 1 st | September |
| Phase 2 | Aug. 2 nd to Oct. 1 st | November |
| Phase 3 | Oct. 2 nd to Dec. 1 st | January |
| Phase 4 | Dec. 2 nd to Feb. 1 st | March |

AVAILABLE GRANT PROGRAM MONEY

Grant money is available to communities, water providers and eligible agencies for three separate programs:

1. **Water conservation plan development and update grants.**
2. **Drought mitigation and response plan grants.**
3. **Water efficiency project grants for implementation of the public education and outreach portions of a water conservation plan.**

All grant money must be expended by June 30th of the year granted.

Recent water conservation planning grants ranging from \$12,000 to \$50,000 have been awarded to the Castle Pines North Metropolitan District, the Town of Castle Rock, the City of Fort Lupton, the Town of Firestone, and the City of Northglenn.

ADDITIONAL WATER CONSERVATION INFORMATION

Water conservation information including plan development, implementation, available grant money and a calendar of events may be found at the Office of Water Conservation and Drought Planning's (OWCDP's) website at www.cwcb.state.co.us.

Grant applications for less than \$50,000 are accepted between July 1st and February 1st, annually and are reviewed by the OWCDP staff. Grant applications of \$50,000 or more must be submitted in accordance with the following schedule to be placed on an OWCDP Board agenda for possible action and award.

ARBER PROJECT UPDATE

City of Alamosa, Colorado Arsenic Treatment Project

The City of Alamosa has recently awarded construction of the Membrane Arsenic Treatment Plant to Moltz Construction, Inc. of Salida, Colorado. Construction began in March 2007 and is anticipated to be completed in the fall of 2008. Arber will provide construction administration services for this \$10 million dollar membrane water treatment plant.

Arapahoe County Water & Wastewater Authority Lone Tree Creek Water Reuse Facility

Construction of the ACWWA's Lone Tree Water Reuse Facility is approximately 40% complete. Construction is expected to be completed in August 2008. Glacier Construction, Co. Inc. has started construction of the majority of the structures at the site. Arber is providing construction administration services for this \$29 million dollar wastewater treatment facility expansion project.



Arapahoe County Water & Wastewater Authority,
Lone Tree Creek Water Reuse Facility

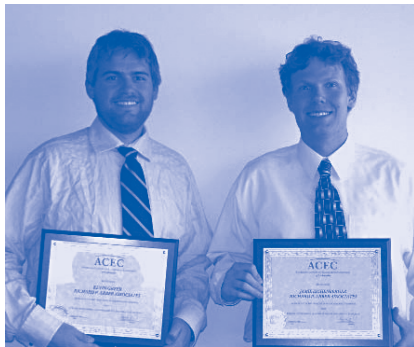
Town of Eagle Wastewater Treatment Plant Expansion

Arber is completing the design of the Town of Eagle's Wastewater Treatment Expansion Project. Weaver General Construction Co. will begin construction of the plant in the summer of 2007. Arber will provide construction administration services for this \$13 million dollar wastewater treatment plant expansion project.

ARBER PEOPLE

YOUNG ENGINEERS RECOGNIZED

Kevin Greer, EI and **Jamie Eichenberger, EI** were recognized as nominees in the American Council of Engineering Companies of Colorado's Young Professional of the Year Award which is held in conjunction with the National Engineers Week's New Faces in Engineering 2007 Competition.



L-R: Kevin Greer, EI
and Jamie Eichenberger, EI

Kevin Greer is a Project Engineer with Arber and graduated from the University of Colorado in 2004. He holds his BS in Environmental Engineering and his BS in Civil Engineering with an emphasis in water and wastewater treatment. Kevin is an active member of the Rocky Mountain Water Environment Association (RMWEA), the Water Environment Federation (WEF), the American Academy of Environmental Engineers (AAEE), Engineers Without Borders (EWB) and is a licensed Engineer in Training in Colorado.

Jamie Eichenberger is a Project Engineer with Arber and graduated from the Colorado School of Mines in 2005. He holds his BS in Environmental Engineering and his MS in Environmental Science specializing in water and wastewater treatment. Jamie is active in the Rocky Mountain Water Environment Association (RMWEA), the Water Environment Federation (WEF), the American Water Works Association (AWWA) and is a licensed Engineer in Training in Colorado.

ARBER'S NEW STAFF ADDITIONS:



D. Ryan Walsh, EI – Design Engineer

Ryan joins Arber Associates as a design engineer and received his BS in Environmental Engineering from the University of Florida, his MS in Environmental Science in Engineering from the Colorado School of Mines and is a licensed Engineer in Training in Colorado. Ryan is currently working on the Clear Creek County Wastewater Master Plan.



Matt Hirschbeck, EI – Project Engineer

Arber welcomes back Matt Hirschbeck to its staff. Matt is a Project Engineer with 4 years experience in water and wastewater treatment design. Matt holds his BS in Civil Engineering from Bucknell University, his MS in Environmental Engineering from Yale University and is a licensed Engineer in Training in Colorado. Matt is currently working on the Town of Frisco's Membrane Water Treatment Plant.