AGENDA

WATER RESOURCE PLANNING COMMITTEE
MEETING NO. 1-15

March 20, 2015
Upon Adjournment of the Board Meeting

Idaho Water Center
Conference Rooms 602 B,C,D
322 East Front Street, Boise, Idaho 83720

1. Welcome and Introductions
2. Sustainability
   a. Draft Sustainability Policy
      - *discussion led by Neeley Miller (IDWR) and Harriet Hensley (AG's Office)*
   b. Potential Water Sustainability and Efficiency Grant
      – *discussion led by Neeley Miller (IDWR)*
   c. Sustainability of the ESPA/ increasing consumptive use patterns on the ESPA
      – *presentation by Mike McVay (IDWR)*
   d. Water Efficiency Strategies
      – *Presentation by Liz Paul (Idaho Rivers United)*
3. Moscow/Palouse Aquifer – discussion of PBAC presentation and other studies
   – *discussion led by Neeley Miller (IDWR)*
4. Adjourn

Committee Members – Jeff Raybould (Chairman), Albert Barker, Chuck Cuddy, Bert Stevenson, Pete Van Der Meulen

Americans with Disabilities

The meeting will be held in facilities that meet the accessibility requirements of the Americans with Disabilities Act. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email Mandi.Pearson@idwr.idaho.gov or by phone at (208) 287-4800.

TO: Idaho Water Resource Board

FROM: Neeley Miller, IDWR Planning & Projects Bureau

DATE: March 17, 2015

RE: Sustainability Policy

Background

On September 5, 2012, Governor Otter sent a letter (attached) to the Idaho Water Resource Board ("Board" or "IWRB") requesting the Board develop "visionary procedures and policies that will sustain the reliability of water supplies in the future." Additionally, the Governor directed that the Board "define water sustainability in a way that ensures that our values are respected and the unique qualities of our resources are protected." On June 7, 2013 the Board replied to the Governor's request with a letter (attached) indicating the Board would develop this policy through the Board's Water Resource Planning Committee.

Between November 2013 and May 2014 the Water Resource Planning Committee met several times to develop a recommendation for a sustainability policy. These meetings included presentations and panel discussions from experts on the topic of sustainability. Panel members included: Mariel Platt, City of Hailey; Shelley Zimmer, Hewlett-Packard; John Bernardo, Idaho Power Company; Randy MacMillan, Clear Springs Foods; David Miles, City of Meridian; Alex LaBeau, Idaho Association of Commerce and Industry; Mark Davidson, Trout Unlimited; Paul Kjellander, Idaho Public Utilities Commission; Barry Burnell, IDEQ; Alan Prouty, J.R. Simplot Company; Greg Wyatt, United Water.

Sustainability Vision Concept

The Idaho State Water Plan (SWP) adopted by the Board in 2012 contains 49 policies which are intended to guide water management, development, conservation and optimum use of Idaho's water. Although there is no specific policy titled "sustainability", the theme of sustainability is a fundamental concept throughout the SWP. The policies provide support and identify actions which will lead to reliability for water supplies to meet current and future demands and changing conditions.

Selected Examples:

Policy 1E: Conjunctive Management: Where a hydraulic connection exists between ground and surface waters, they should be conjunctively managed to maintain a **sustainability water supply**.

Policy 1K: CAMP (Narrative): Board will be responsible for implementing the CAMPs to obtain **sustainable water supplies** and provide for the optimum use of a region's water resources.

Policy 1L: Surface Water Supply Enhancement: Surface water development will continue to play an important role in **meeting Idaho's future water needs**.

Policy 3E: Water Resource Planning Program: Comprehensive water planning will help ensure **sufficient water supplies to satisfy Idaho's future water needs**.

Policy 4B: Snake River Milner Zero Minimum Flow (Implementation Strategies): Develop and maintain a **reliable supply of water for existing uses and future beneficial uses** above Milner Dam, and (2) Implement **a sustainable aquifer** recharge program.

Policy 4D: Conjunctive Management of the ESPA and Snake River: The ESPA and the Snake River below Milner Dam should be conjunctively management to provide a **sustainable water supply for all existing and future beneficial uses** within and downstream of the ESPA.

Policy 4F: Snake River Basin Agriculture: Development of supplemental water supplies **to sustain existing agriculture development** is in the public interest.

The guidance from the Governor characterizes sustainability as providing reliable water supply for current needs and water availability for future economic development and job creation. The Governor also requested that a sustainability policy express a commitment to Idaho values, property rights, and state water law. To further the Board's commitment to implementation of the SWP consistent with the Governor's request, staff was asked to draft a *Vision for Sustainability of Idaho's Water Resources* which was reviewed by the Board at the May 2014 meeting.

A copy of this draft language is attached to this memo. There was discussion among the Board members at the May 2014 Board meeting as to whether the draft was responsive to the Governor's request for a sustainability policy. Board members requested that the sustainability policy language be remanded to the Water Resource Planning Committee for reconsideration.

Recommended Actions

1. Work with staff to review and revise draft language.
2. Adopt by resolution the standalone language included in the *Vision for Sustainability of Idaho's Water Resources.*
3. The Board may consider adding the *Vision for Sustainability of Idaho's Water Resources* to the introductory section of the SWP during the next SWP revision process.

VISION FOR SUSTAINABILITY OF IDAHO'S WATER RESOURCES

Draft May 2014

Water is the foundation of Idaho's economy and culture; the lives and livelihoods of Idahoans depend on a reliable supply of water. Sustainable water management strategies that meet current and future needs must be based on adequate knowledge regarding available supplies, existing use, competing economic and social demands, and future needs. Planning and management actions that promote water sustainability will provide certainty that existing water rights are protected and the economic vitality of Idaho is optimized.

The policies and actions set out in the Idaho State Water Plan address a range of current and future water supply needs. The implementation strategies are designed to meet multiple water supply management goals. Their effectiveness in achieving water sustainability will be evaluated on an ongoing basis. An inclusive process with stakeholders statewide is fundamental to meeting the ever-increasing challenges associated with sustainable water management in Idaho.

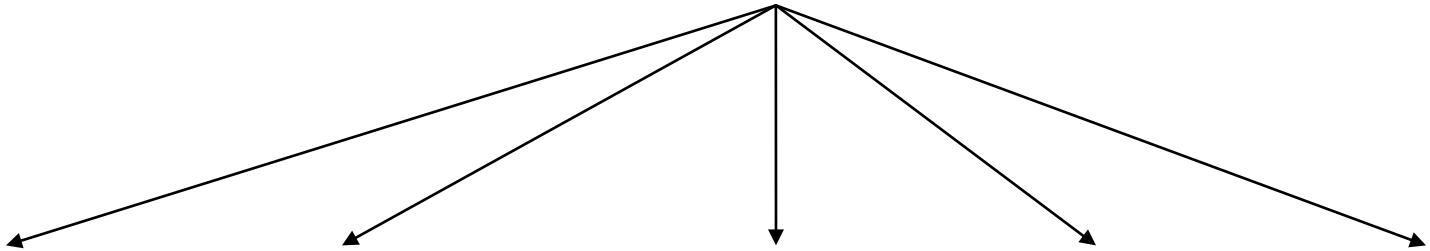
Fundamental Strategies for a Sustainable Water Future in the State Water Plan

- Ensure that all actions taken toward a sustainable water future protect and respect private property rights.
- Inventory Idaho's water supply, current uses, and future water supply needs.
- Identify management alternatives and projects that optimize existing and future water supplies.
- Prioritize and implement management alternatives and projects where competing demands and future needs are most critical.
- Use adaptive management processes to anticipate future uncertainties and design projects that can be adapted to changing conditions.
- Prioritize allocation of funds for projects that ensure water sustainability.

State Water Plan

Vision for Sustainability – A sustainable and reliable water supply is fundamental to Idaho's economic future and quality of life

Optimum Use *Policies,* ***Conservation*** *Policies,* ***Management*** *Policies*



Aquifer Stabilization	**Surface Water Storage**	**Financial Program**	**Water Supply Bank**	**Conservation Programs**
-ESPA CAMP	- Weiser/Galloway Study	-Funding Partnerships	-Water Supply Bank	-State Protected Rivers
-Rathdrum Prairie CAMP	-Island Park Enlargement	-Loan Program	-Rental Pools	-Minimum Stream Flows
-Treasure Valley CAMP	-Arrowrock Enlargement	- Grants		-Water Use Efficiency
-Palouse Aquifer		-Federal Partnerships		
-Wood River Aquifer		-Bonding		
-Mountain Home Aquifer				
-Lewiston Aquifer				

C.L. "BUTCH" OTTER

GOVERNOR

September 5, 2012

Idaho Water Resource Board
322 East Front St.
Boise, ID 83720-0098

Chairman Uhling and Board Members,

I want to first and foremost thank you for your hard work and dedication to protecting the precious water resources of the State of Idaho.

The lives and livelihoods of Idahoans depend upon a reliable supply of water. Pre-statehood development along Idaho's vast river valleys and canyons began a dependence on water and reliance on property rights that created a foundation for the economic growth Idahoans have enjoyed for over 120 years. Looking ahead to the future, economic development and job creation is dependent upon the sustainability of our water supply.

The responsibility for planning for the optimum use of Idaho's water resources is constitutionally vested in the Idaho Water Resource Board. By developing visionary procedures and policies that will sustain the reliability of water supplies in the future, the Board can ensure water is available to meet both present and future needs. As an Idahoan, I believe we should never forget where we came from or the values such as property rights that are the backbone of our Idaho way of life.

Therefore, I request that the Idaho Water Resource Board define water sustainability in a way that ensures our values are respected and the unique qualities of our resources are protected. It is my hope that the Board will develop and adopt a policy to guide management and development of Idaho's water resources to maximize their sustainability. The Board's activities should be an inclusive process which involves stakeholders statewide. I will commit my office to assist and participate throughout this very important project.

I believe that formally incorporating such a policy will enable the Board to identify areas in Idaho where achieving sustainability needs more focused attention. Once identified, the Board can recommend activities that will enhance the reliability of water in these areas. The State, through the Idaho Water Resource Board, needs to proactively establish long-term goals to address today's issues and tomorrow's challenges.

Again, thank you for your dedicated service to the State of Idaho and I look forward to working with you as we address this important issue.

As Always – Idaho, "Esto Perpetua"

C.L. "Butch" Otter
Governor of Idaho

CLO/sg

STATE CAPITOL • BOISE, IDAHO 83720 • (208) 334-2100

IDAHO WATER RESOURCE BOARD

June 7, 2013

The Honorable C.L. "Butch" Otter, Governor
State Capitol
P.O. Box 83720
Boise, ID 83720

RE: State Water Plan

Dear Governor Otter,

By letter dated September 5, 2012, you requested that the Idaho Water Resource Board (IWRB) develop a statewide water sustainability policy to assist with enhancing the reliability of water supplies in the future. The IWRB has appointed a committee to work on this important charge. The IWRB anticipates developing this policy in conjunction with other potential amendments to the Idaho State Water Plan.

Over the next year, the IWRB Planning Committee will work on developing the statewide water sustainability policy through the water planning process, with the goal of adding the sustainability policy to the State Water Plan through the amendment process.

Idaho Code section 42-1734A requires publication of any amendments to the state water plan and establishes a time frame for statewide public hearings and receipt of written comments. In light of this public hearing process, any amendments to the State Water Plan including the sustainability policy will be submitted for consideration during the 2015 Legislative Session.

The State Water Plan provides the framework for the conservation, development, management and optimum use of the water resources and waterways of Idaho in the public interest. The IWRB looks forward to working closely with your staff as we continue to plan for the optimum use of Idaho's water resources. Should you have any question or concerns please contact Brian Patton of our staff at 287-4837.

Sincerely,

Roger Chase

Roger Chase, Chairman

CC: Idaho Water Resource Board members
Gary Spackman, Director

322 East Front Street, Boise, Idaho 83720 Tel: (208) 287-4800 Fax: (208) 287-6700

TO: Idaho Water Resource Board

FROM: Neeley Miller, IDWR Planning & Projects Bureau

DATE: March 17, 2015

RE: Development of Water Sustainability and Efficiency Grant

The Idaho State Water Plan (SWP) adopted by the Board in 2012 contains 49 policies which are intended to guide water management, development, conservation and optimum use of Idaho's water. Although there is no specific policy titled "sustainability" the theme of sustainability is a fundamental concept throughout the SWP. The policies provide support and identify actions which will lead to reliability for water supplies to meet current and future demands and changing conditions.

In addition to the concept of sustainability, the conservation policies included in the SWP focus on careful planning and prudent management of Idaho's water and encourage water conservation practices and efficient management of water resources for the benefit of Idaho citizens. The conservation policies indicate that conservation and water efficiency practices should be implemented through voluntary, market-based programs, when economically feasible.

2A - WATER USE EFFICIENCY

Water conservation and water use efficiency should be promoted.

Discussion:

The legislature, in Idaho Code § 42-250(1) determined that voluntary water conservation practices and projects can advance the policy of the state to promote and encourage conservation, development, augmentation, and utilization of Idaho's water resources. "Water conservation practice" means any practice, improvement, project, or management program that results in the diversion of less than the authorized quantity of water while maintaining the full beneficial use(s) of the water right. Idaho Code § 42-250(2). Water conservation practices include, but are not limited to, practices that reduce consumptive use as defined in Idaho Code § 42-220B, reductions in conveyance losses, and reductions in surface and seepage losses occurring at the place of use. Idaho Code § 42-223 encourages conservation of water resources by providing that no portion of any water right shall be lost or forfeited for nonuse if the nonuse results from a water conservation practice which maintains the full beneficial use(s) authorized by a water right. As water efficiencies increase, conserved water may be available to supply existing uses, new demands, or improve instream flows. Conservation and water efficiency practices may offset the need for new water supply enhancement projects. Policies that promote water conservation and efficiency should be encouraged, where such practices do not result in adverse consequences to other users of the resource.

Implementation Strategies:

- *Review existing laws and regulations and identify inconsistencies or constraints to implementing water efficiency practices.*

- *Develop partnerships with local, state, and federal governments and non-governmental organizations to coordinate and support water conservation programs.*
- *Establish a public information program and conservation guidelines for a range of water uses.*
- *Evaluate opportunities for conservation and water efficiency practices in conjunction with the evaluation of new water supply enhancement facilities, including existing and new water metering for all municipalities that provide public drinking water and water for other uses.*
- *Identify localized opportunities for water conservation.*

Milestones:

- *Number of conservation guidelines implemented.*
- *Number of partnerships developed to coordinate water conservation.*
- *Number of water use efficiency practices implemented.*
- *Effects of conservation efforts quantified.*

Staff has been coordinating with individual Board members to develop a proposal for a Water Sustainability and Efficiency Grant Program that could provide financial assistance to municipal providers and other eligible entities interested in pursuing ground water efficiency projects. Pursuing ground water efficiency projects can help water providers reduce water demands, lower operational costs such as pumping and water treatment, and reduce or postpone the need for additional water supplies.

Proposed Water Sustainability and Efficiency Grant Program

Program Annual Budget: $100,000 (set annually by the Finance Committee)

Grant Amount: $5,000 - $15,000

Matching Funds: Entities requesting funding under the Water Sustainability and Efficiency Grant Program must provide $2 (66%) for every $1 (33%) awarded by the Board. In-kind services can be used for one-third (33%) of the projects costs.

Funding Distribution: 50% of the grant funds will be distributed at the start of the project and 50% of the grant funds will be distributed at the end of the project.

Application Requirements: 1) Name and contact information for project manager of entity seeking the grant, 2) A list of organizations and/or individuals retained by entity to assist with project, 3) Background information characterizing the water system and, potential growth and any other pertinent issues, 4) Project description including project goals, description of potential water savings and how those savings will be measured and monitored, description of educational component if applicable, 5) Detailed project budget broken down by task identifying all costs associated with the project including a plan for long-term maintenance of project.

Project Deliverables: Entities that receive grant funding will be required to provide a written final project report to the Board including a review of the activities completed, an estimate of actual water savings realized and other information that may be relevant to the Board. Future grant funds will not be considered if a final project report is not submitted.

TO: Idaho Water Resource Board

FROM: Brian Patton

DATE: January 12, 2015

RE: Sustainability of the Eastern Snake Plain Aquifer

Attached are four (4) charts for your consideration:

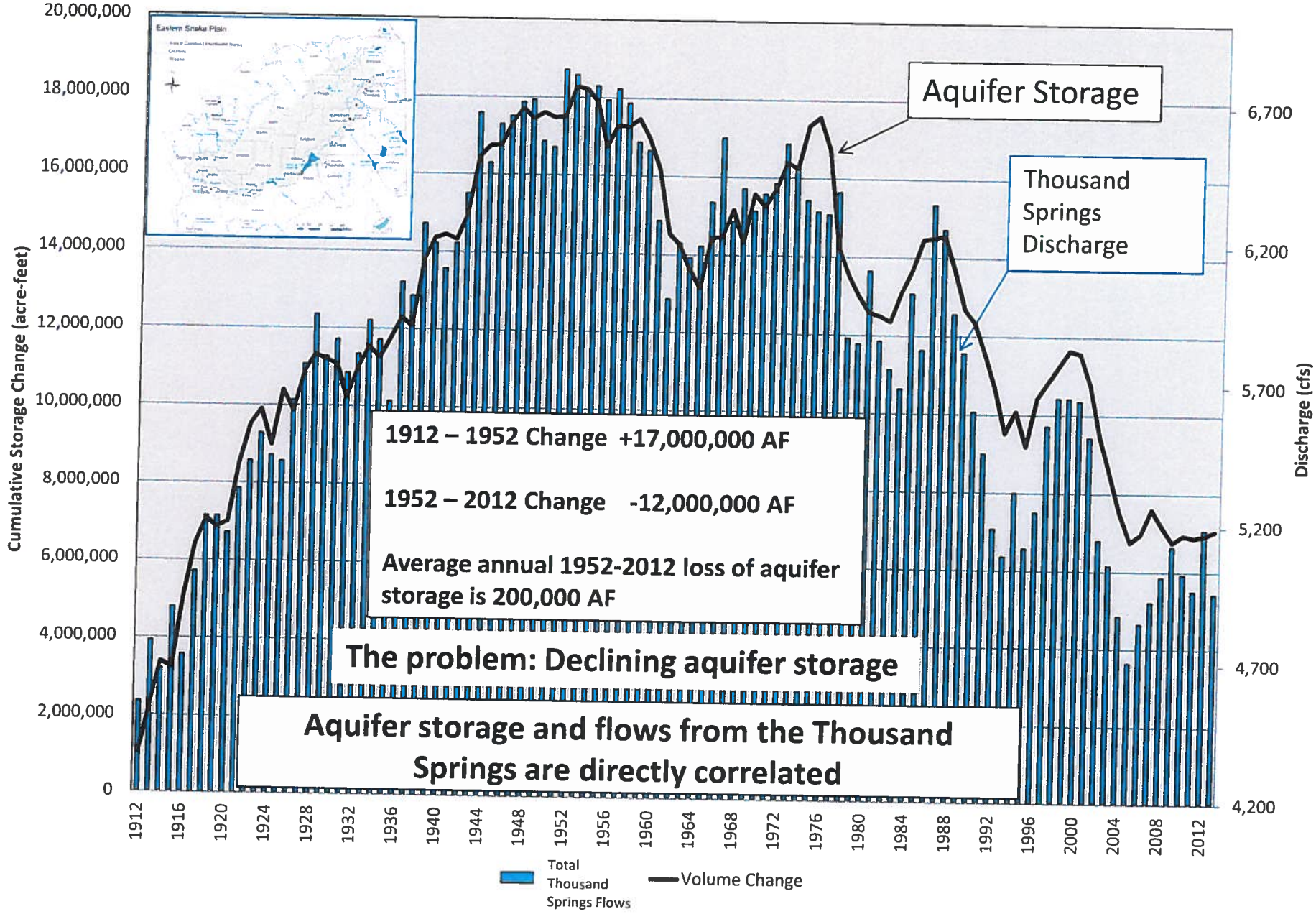
1) Aquifer Storage Within the ESPA and Thousand Springs Discharge – although the 1952-2012 trend is downward with an average annual loss of 200,000 AF from aquifer storage, there appears to be a leveling off in the last few years of the chart. This seems consistent with aquifer management measures starting to take effect.

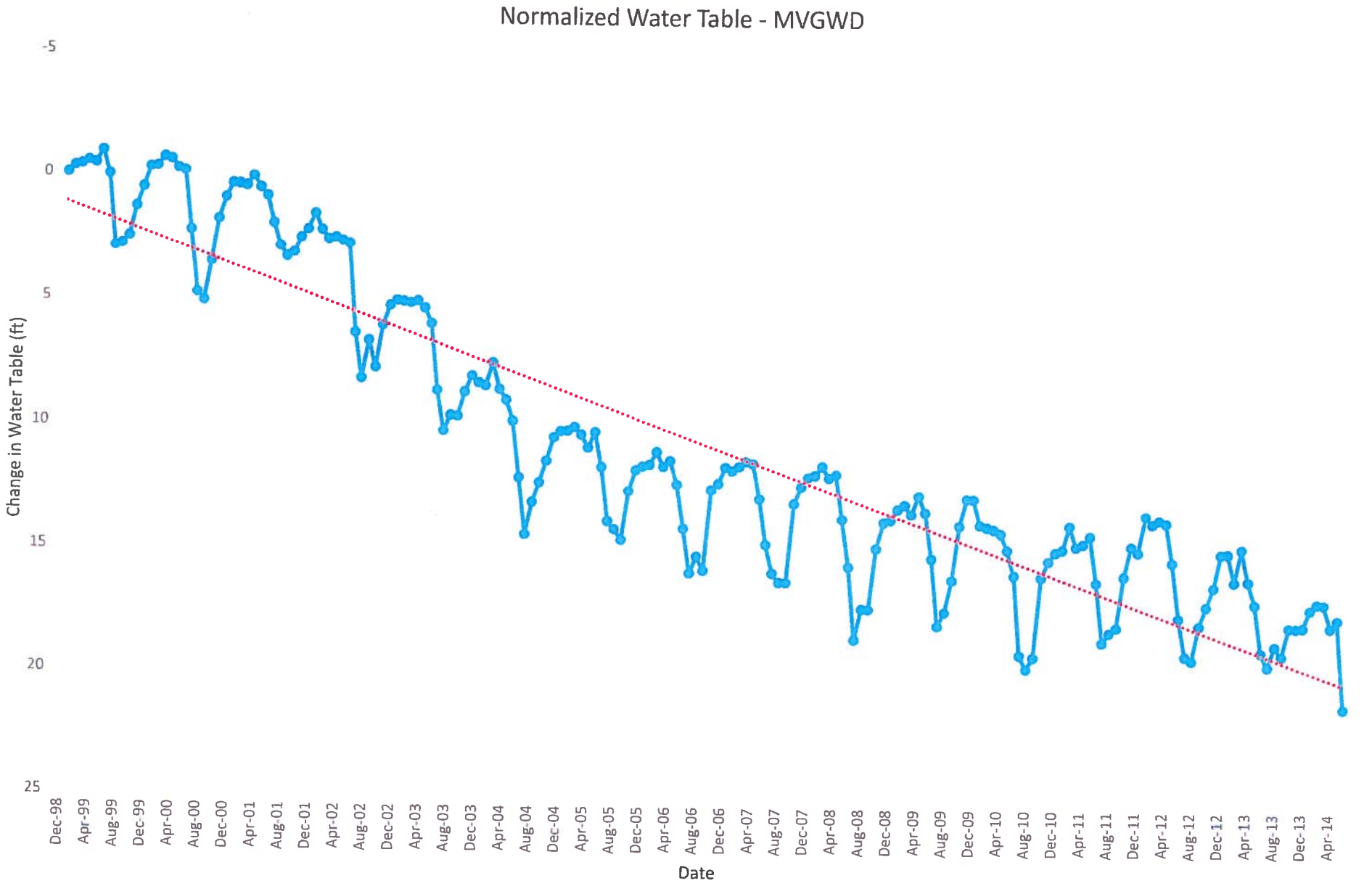
2) Normalized Water Table – MVGWD – this chart was provided by the Magic Valley Ground Water District (MVGWD). It shows ground water level declines within the MVGWD between 1998 and 2014. Consistent with the "Aquifer Storage Within the ESPA" chart, the rate of ground water level decline appears to slow after about 2006, although it is still declining.

3 & 4) Crop Survey Data for Minidoka and Cassia Counties – these charts are also provided by the Magic Valley Ground Water District from USDA crop survey data. These charts show, over time, a reduction in acres of low water-use crops (wheat, beans) and an increase in acres of high water-use crops (alfalfa, corn).

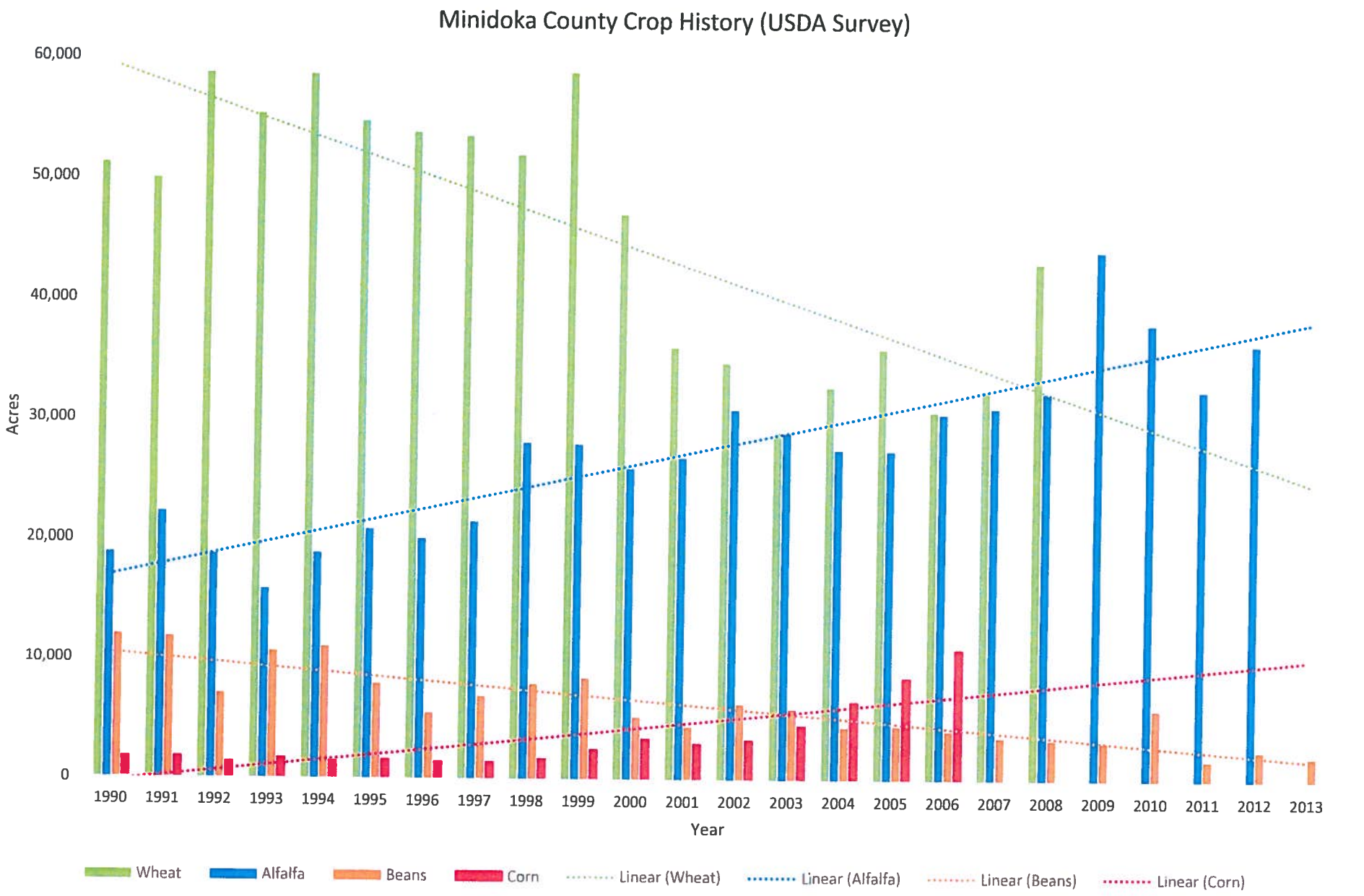
The take-away from these charts is that we are experiencing increasing water use on existing acres through shifting crop patterns to higher water-use crops. This trend will have to be considered in the Water Board's efforts to stabilize the Eastern Snake Plain Aquifer.

Cumulative Volume Change of Water Stored Within ESPA and Thousand Springs Discharge



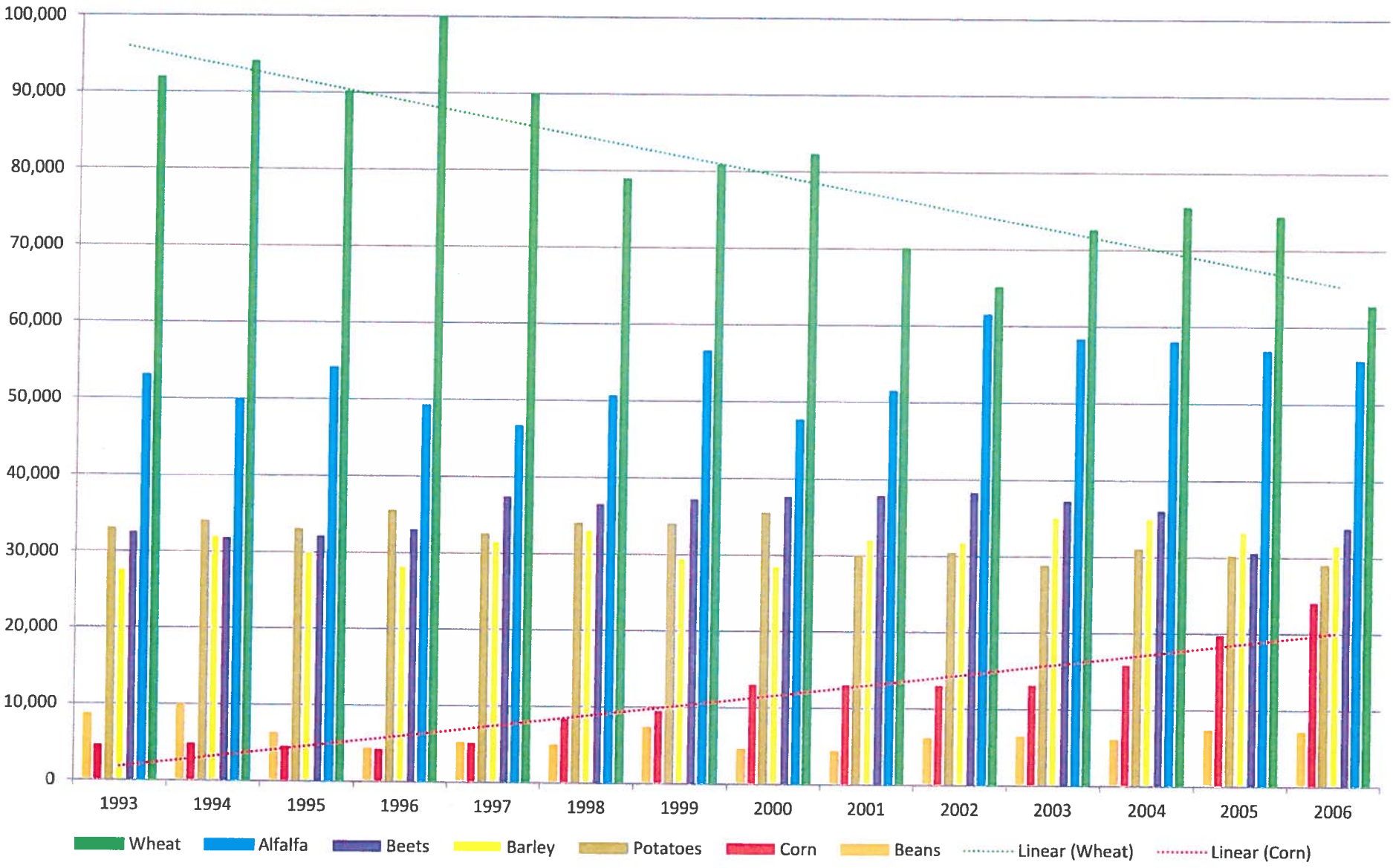


*Data collected by WWC Inc. for Magic Valley Ground Water District



*NRCS Crop Survey Data - quickstats.nass.usda.gov

Cassia County Crop Survey Data



*NRCS Crop Survey Data - quickstats.nass.usda.gov

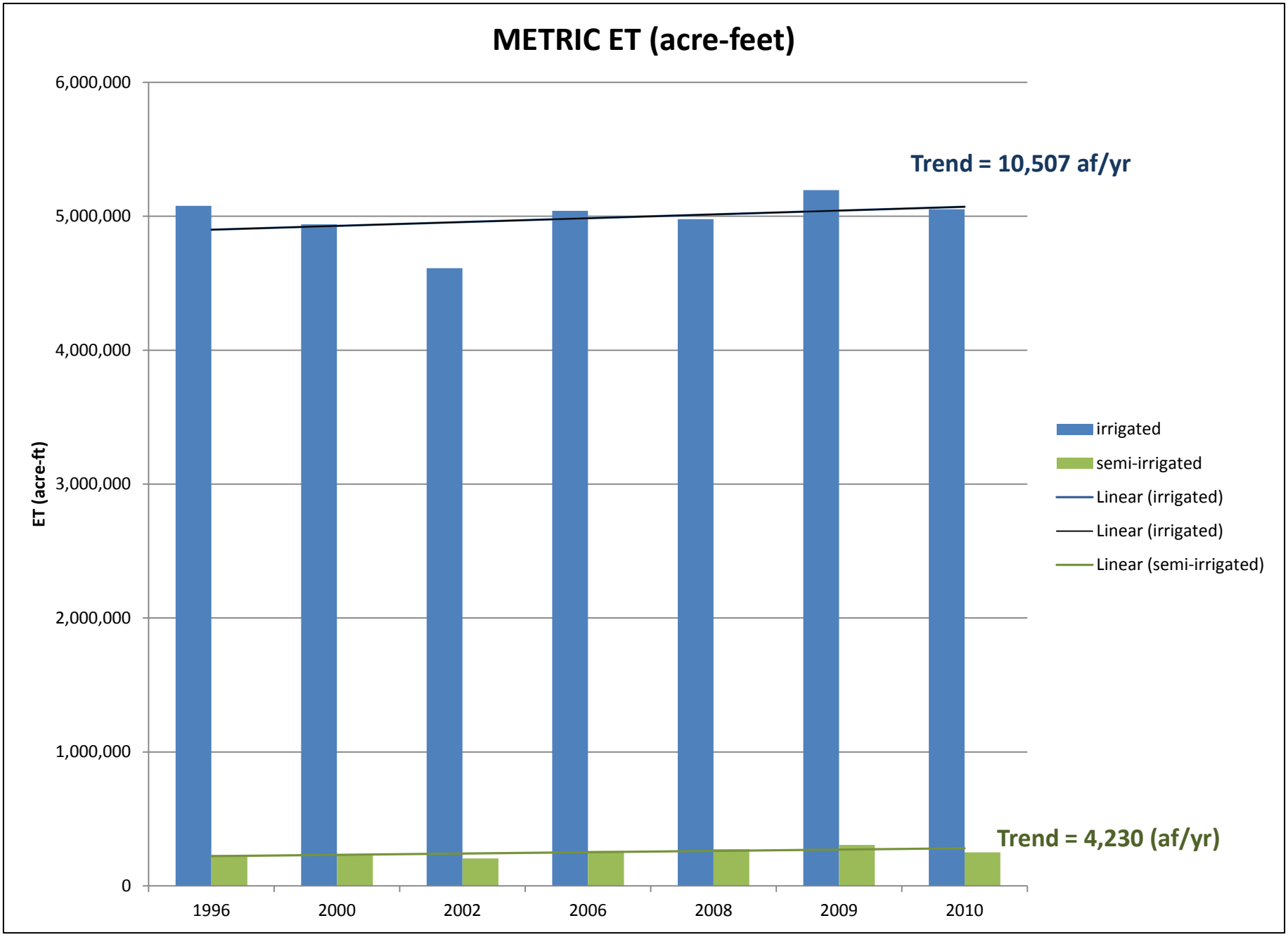
ET Trends due to Crop-Mix Changes (preliminary analysis)

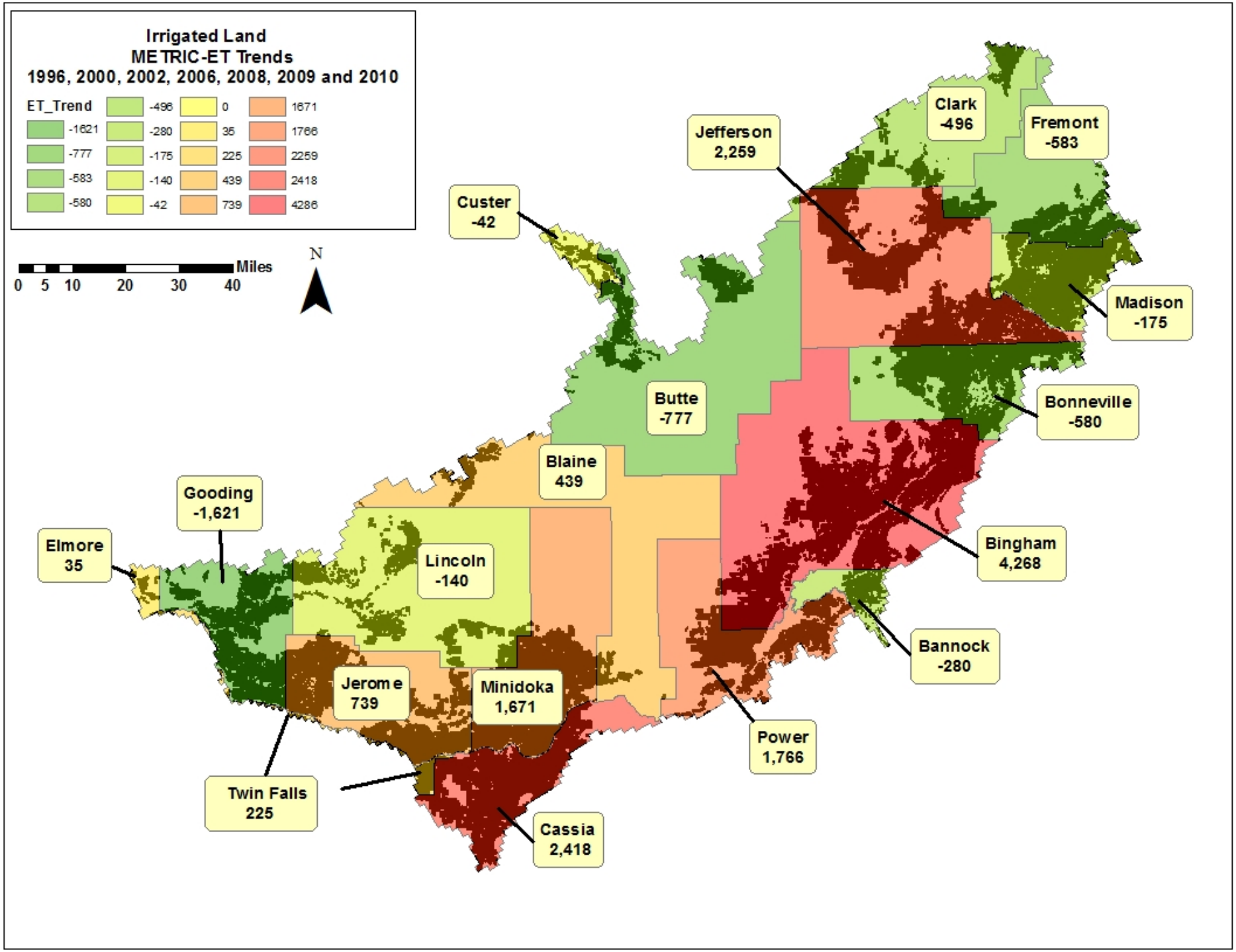
March 20, 2015

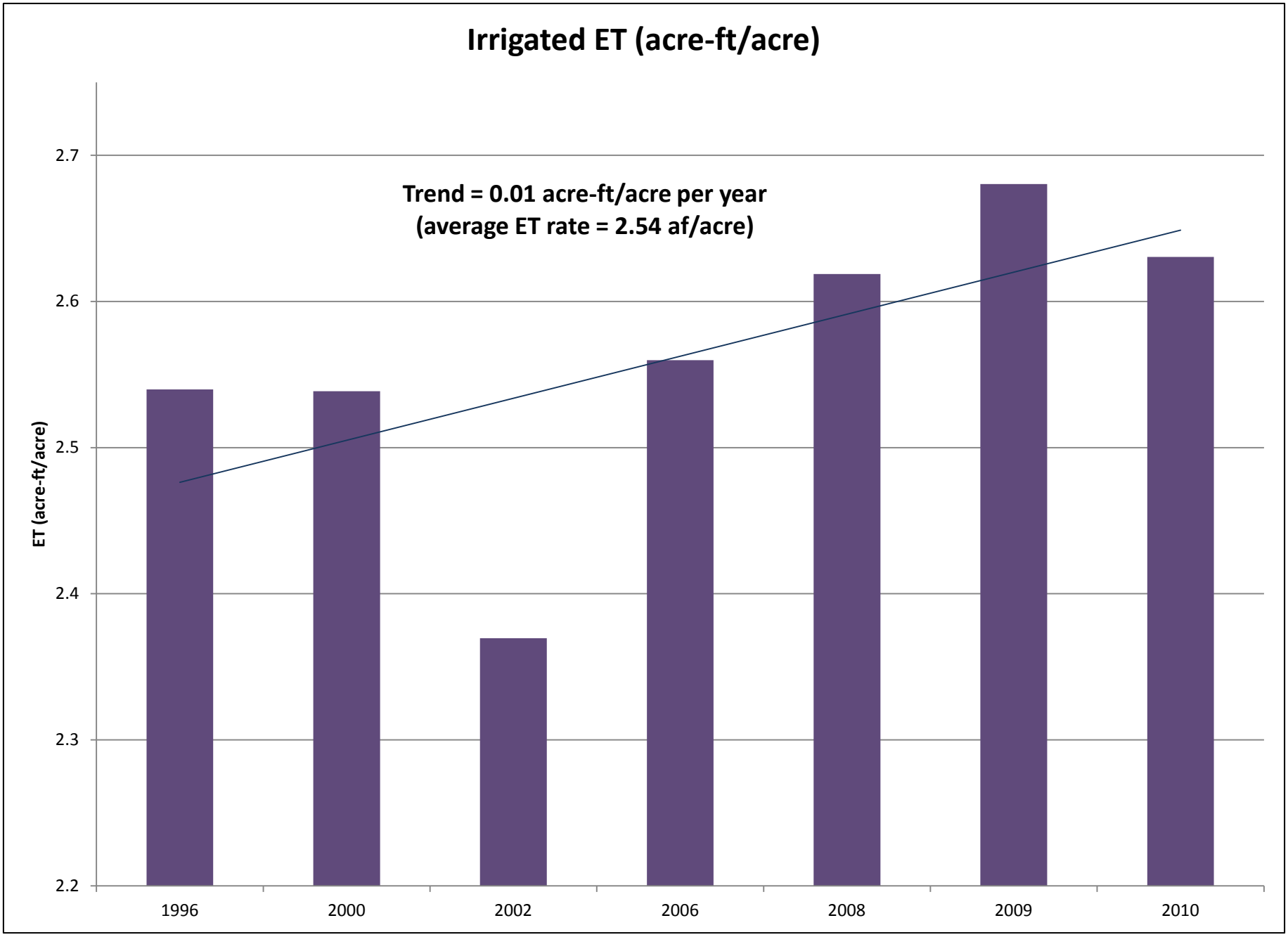
Mike McVay P.E., P.G.

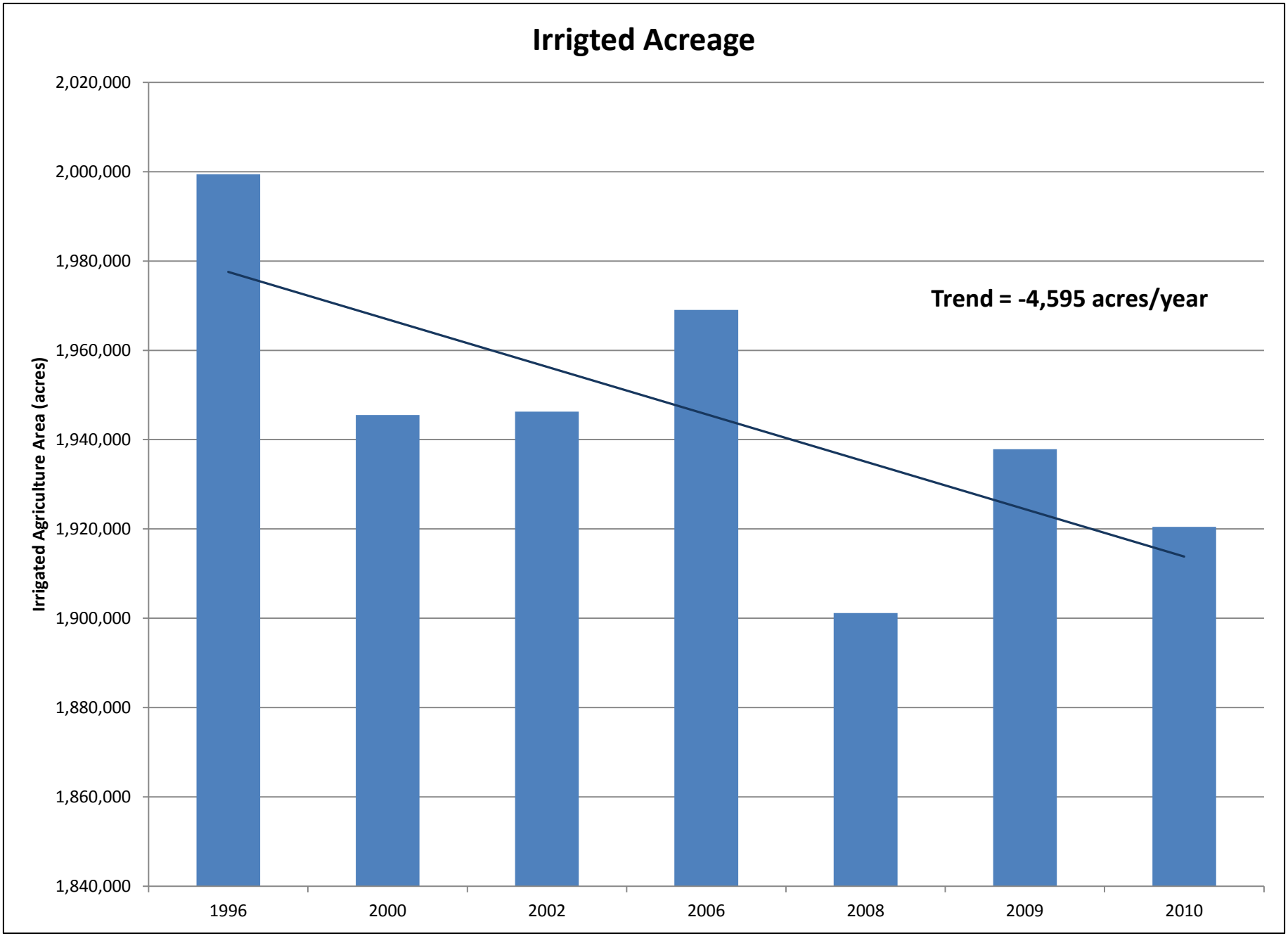
METRIC ET

- METRIC is our best estimate of ET.
- Only 7 years complete (expecting 3 more this year).
  - 1996, 2000, 2002, 2006, 2008, 2009, and 2010.
  - Trends not statistically significant.


METRIC ET (acre-feet)
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
ET (acre-ft)
1996
2000
2002
2006
2008
2009
2010
Trend = 10,507 af/yr
Trend = 4,230 (af/yr)
irrigated
semi-irrigated
Linear (irrigated)
Linear (irrigated)
Linear (semi-irrigated)


Irrigated Land
METRIC-ET Trends
1996, 2000, 2002, 2006, 2008, 2009 and 2010
ET_Trend
-1621
-777
-583
-580
-496
-280
-175
-140
-42
0
35
225
439
739
1671
1766
2259
2418
4286
Miles
0 5 10 20 30 40
N
Clark
-496
Fremont
-583
Jefferson
2,259
Custer
-42
Madison
-175
Butte
-777
Bonneville
-580
Blaine
439
Gooding
-1,621
Elmore
35
Lincoln
-140
Bingham
4,268
Bannock
-280
Jerome
739
Minidoka
1,671
Power
1,766
Twin Falls
225
Cassia
2,418


Irrigated ET (acre-ft/acre)
Trend = 0.01 acre-ft/acre per year
(average ET rate = 2.54 af/acre)
ET (acre-ft/acre)
2.7
2.6
2.5
2.4
2.3
2.2
1996
2000
2002
2006
2008
2009
2010

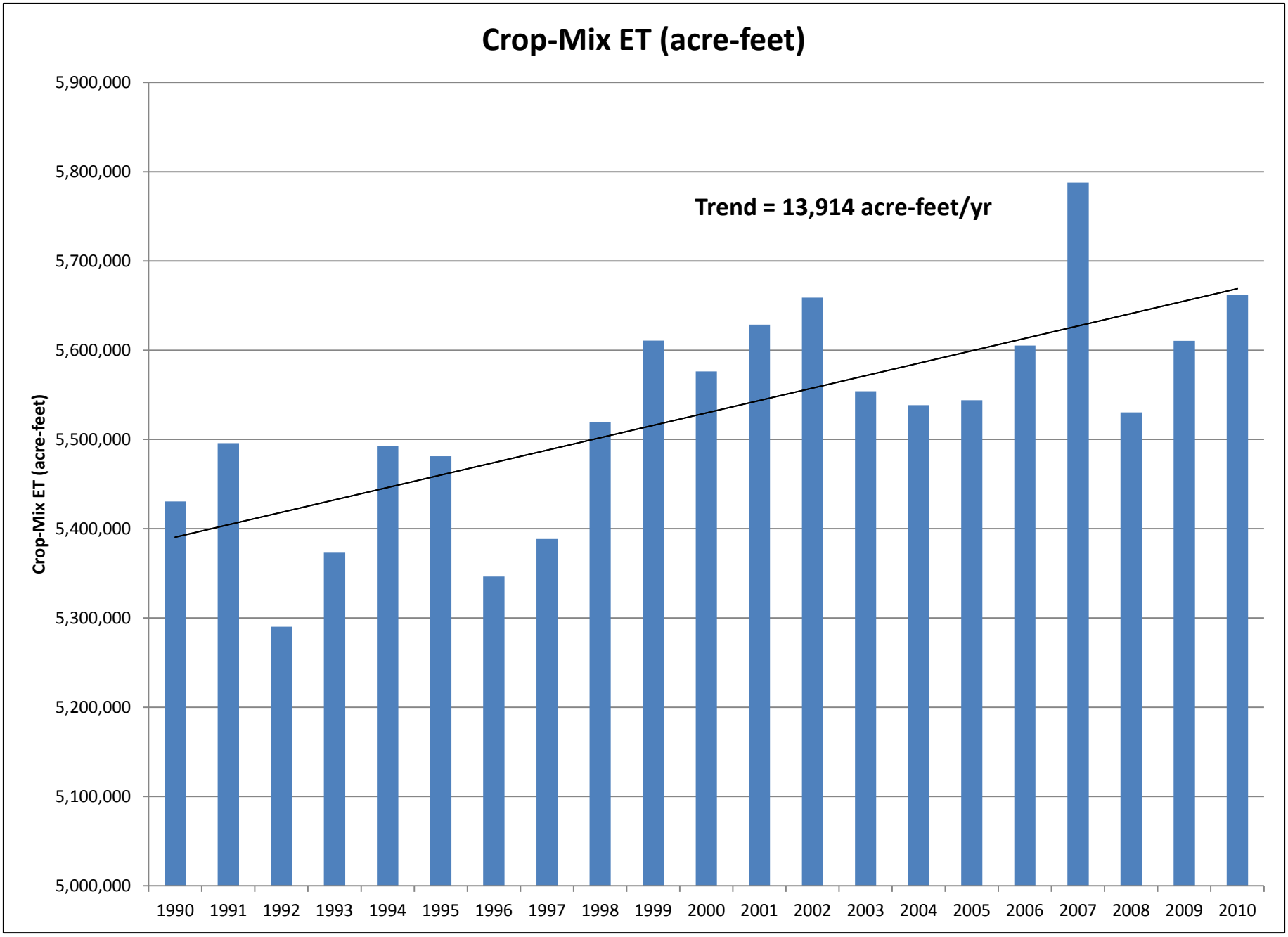

Irrigted Acreage
Irrigated Agriculture Area (acres)
2,020,000
2,000,000
1,980,000
1,960,000
1,940,000
1,920,000
1,900,000
1,880,000
1,860,000
1,840,000
1996
2000
2002
2006
2008
2009
2010
Trend = -4,595 acres/year

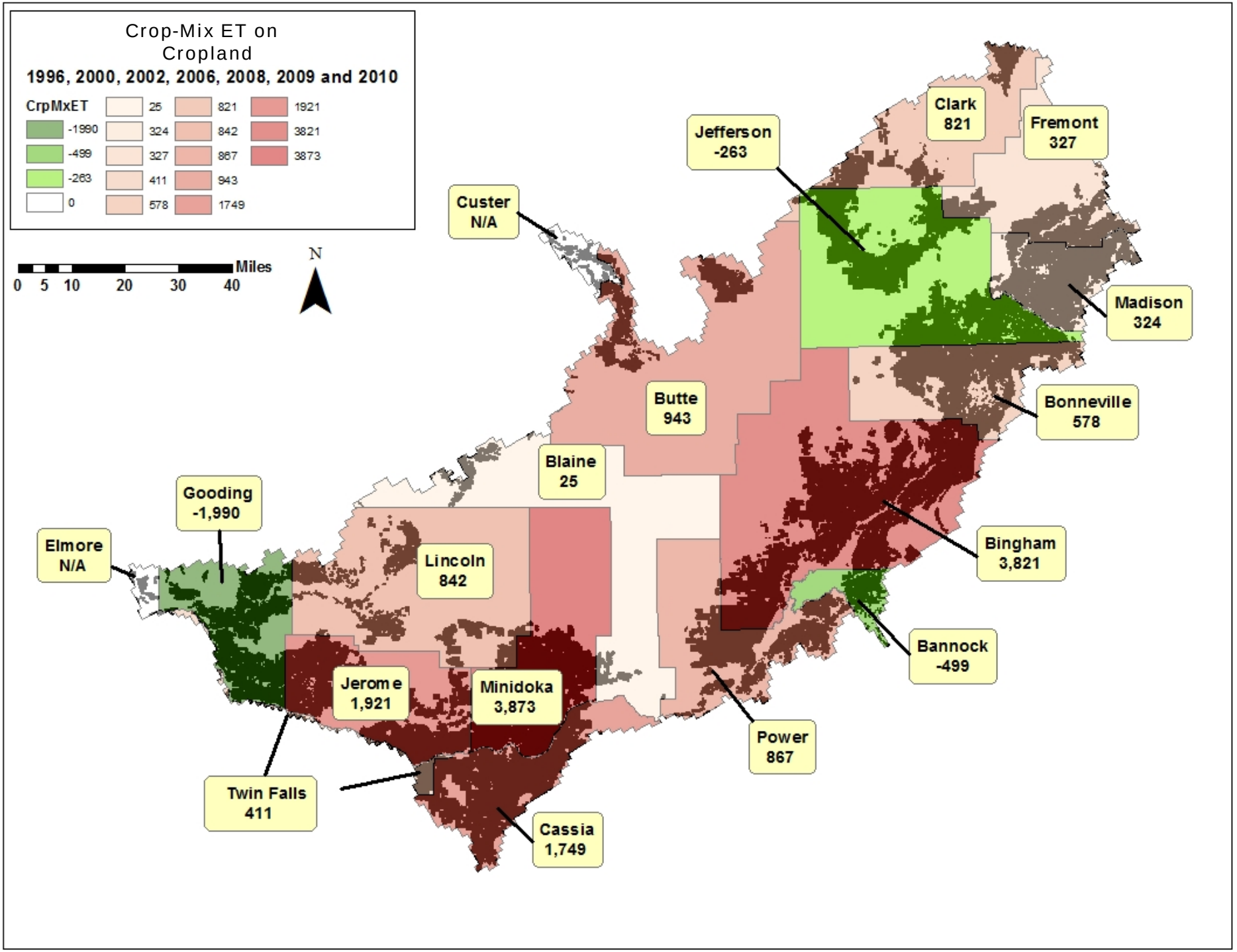
METRIC ET Summary

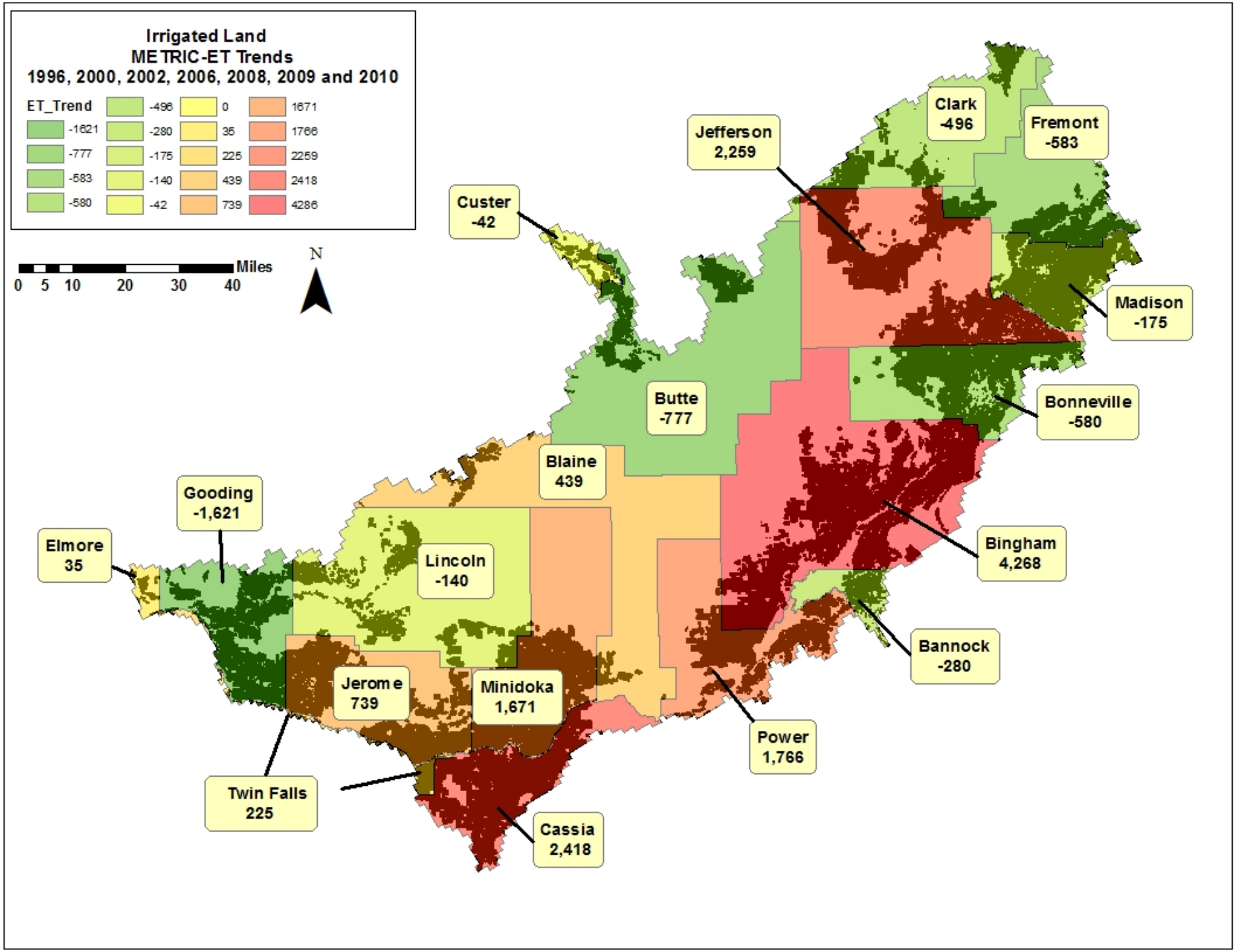
Irrigated Agriculture ET is increasing by 10,500 acre-feet/yr (+0.21%).
Irrigated Agriculture is decreasing by 4,595 acres/year (-0.24%).
Irrigated Agriculture ET per Acre is increasing by 0.01 ft/acre per year (+0.45%).

Crop-Mix ET

- Crop-mix information is poor (at best).
  - Gooding reported 192,000 acres in 1997 but only 9,000 in 2014.
  - There were 0 (yes, zero) acres of corn reported in the ESPA counties in 2010.
- This analysis is suspect due to the poor information.
  - Acreage inconsistencies.
  - Major assumptions that may not be applicable (ratio of total to ESPA portion of counties.
- Requested missing data from NASS in Washington D.C.
- cdl data available for later years.
  - Some issues (may be workable).
  - Differences with County Estimates.


Crop-Mix ET (acre-feet)
Trend = 13,914 acre-feet/yr
Crop-Mix ET (acre-feet)
5,900,000
5,800,000
5,700,000
5,600,000
5,500,000
5,400,000
5,300,000
5,200,000
5,100,000
5,000,000
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010


Crop-Mix ET on Cropland
1996, 2000, 2002, 2006, 2008, 2009 and 2010
CrpMxET
-1990
-499
-263
0
25
324
327
411
578
821
842
867
943
1749
1921
3821
3873
Miles
0 5 10 20 30 40
N
Custer N/A
Jefferson -263
Clark 821
Fremont 327
Madison 324
Butte 943
Bonneville 578
Blaine 25
Gooding -1,990
Elmore N/A
Lincoln 842
Bingham 3,821
Bannock -499
Jerome 1,921
Minidoka 3,873
Power 867
Twin Falls 411
Cassia 1,749


Irrigated Land
METRIC-ET Trends
1996, 2000, 2002, 2006, 2008, 2009 and 2010
ET_Trend
-1621
-777
-583
-580
-496
-280
-175
-140
-42
0
35
225
439
739
1671
1766
2259
2418
4286
Miles
0 5 10 20 30 40
N
Clark
-496
Fremont
-583
Jefferson
2,259
Custer
-42
Madison
-175
Butte
-777
Bonneville
-580
Blaine
439
Gooding
-1,621
Elmore
35
Lincoln
-140
Bingham
4,268
Bannock
-280
Jerome
739
Minidoka
1,671
Power
1,766
Twin Falls
225
Cassia
2,418

Summary

- METRIC ET is our best estimate of ET; however, there are very few years of METRIC data.
  - More METRIC is on the way.
- Crop mix is not very reliable.
- County estimates (survey data).
  - Intentionally obfuscated.
  - Not all crops reported.
  - Difficult to get ESPA-centric information.
  - Requested missing information.
- cdl GIS data.
  - Issues with speckling.
  - Issues with misidentification of high-ET crops
  - Different crop classes than County Estimates

Summary (cont'd)

- Both analyses indicate that ET on the ESPA is increasing by approximately 14,000 acre-feet/yr.
- Southern rim of ESPA (Bingham County to Jerome County) appears to be switching to higher consumptive crops (maybe warmer too).
- Gooding County appears to be switching to lower consumptive crops.
- Irrigated acreage is decreasing by approximately 4,600 acres/yr.
- These analyses stop in 2010. Crop changes since then may be more pronounced.

- More reliable estimates of ET over time may be available at a later date.

Idaho Rivers United - PO Box 633 - Boise, ID 83701 - (208) 343-7481 - idahorivers.org

Protecting and Restoring the Rivers and Fish of Idaho

February 25, 2015

Albert Barker
PO Box 2139
Boise, ID 83701

Dear Mr. Barker,

Thank you for your interest in learning about strategies and regulations that are being used to prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

Idaho Rivers United recognizes the tremendous effort the Idaho Water Resource Board has made to be pro-active to avoid water conflict and to act quickly to address water conflicts that have arisen. Prudent, forward-looking water management continues to be essential to reducing conflict for all Idaho water users. IRU supports strategies and regulations that prevent conflict and achieve a more reliable long-term water supply, a more resilient economy and a healthier environment.

These example strategies and regulations addressing domestic water use are consistent with state water policy which encourages the quantification of water supplies, water uses and water demands for all water rights within the state. They also align with state water policy encouraging water conservation practices and efficient management of water resources for the benefit of Idaho citizens.

Sincerely,

Liz Paul

Liz Paul
Boise River Campaign Coordinator

Idaho Rivers United Memo
Examples of Water Conservation and Efficiency Strategies and Regulations

1. Given that Idahoans use domestic water at the highest rate in the nation according to the USGS - 168 gallons of water per capita per day – it's reasonable to expect significant reductions could be made in urban water demand. Denver Water just announced their water use levels are now the lowest they have been since 1973 when the city had 350,000 fewer people. Denver residents now use 82 gallons per capita per day, down from 104 gallons in 2001 before Denver Water started a number of water conservation initiatives. Denver Water has now set a goal of reducing indoor domestic use to 30 gallons per capita per day.

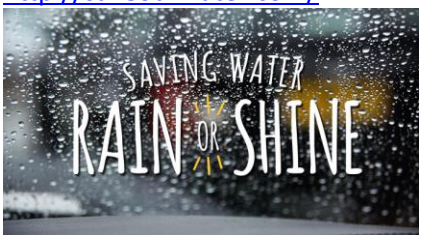
   Reducing domestic water use in Idaho will help prevent water conflict, especially in areas of the state like eastern Idaho and the Treasure Valley with groundwater management issues. Every gallon left in the aquifer helps stabilize aquifer levels.

   As stated in the Idaho State Water Plan, water conservation and efficiency should be promoted through establishment of a **public information program** and **conservation guidelines** for a range of water uses.

   The Idaho Water Resource Board, in partnership with the Department of Water Resources, should create an online resource for public information on water conservation and efficiency initially aimed at urban water users.

Here are two good examples.

California
http://saveourwater.com/



Georgia
http://www.conservewatergeorgia.net/

Conservation planning is the ordinary way to establish guidelines for a range of water uses. **Therefore the Idaho Water Resource Board, in partnership with IDWR, should require conservation plans for all systems regulated as public water systems.**

IDWR should enforce adherence to the conservation plan provisions through water right conditions and civil penalties as allowed by law. The Final Order Adopting Groundwater Management Plan signed by Idaho Director Karl Dreher Sept. 15, 2005 can serve as an example for statewide regulation. (The RP CAMP adopted by the IWRB in 2010 calls for

fully funding implementation of the RP Ground Water Management Plan and finalizing the 2007 draft Water Conservation Measures and Guidelines.)

1. In 2003, the Idaho legislature adopted Idaho Code 42-250 that finds that **water conservation practices** can advance the policy of the state. In the past 12 years, despite voluntary conservation practices, water conflict has increased and Idahoans now have the dubious honor of using more domestic water per capita than residents of any other state.

   The Idaho Water Resource Board should formulate and recommend legislation requiring a reduction in urban per capita use in Idaho by a certain date. Urban water use could be defined as water used in systems that serve more than 3,000 end users or that provide more than 3,000 acre-feet of water annually. Non-compliance would make the water provider ineligible for state water grants and loans. A 20-percent reduction would bring use down to about 140 gallons per capita per day. A larger reduction would bring Idaho more in line with its water-wise western neighbors. See the statute adopted by California, California Water Act of 2009, Chapter 3.

2. The Idaho Constitution allows conditions of reasonable water use to be prescribed by the legislature. The **definition of reasonable use** needs to be informed by contemporary technology and current social, environmental and economic circumstances.

   To ensure that optimum use is being made of Idaho water, minimum standards for acceptable water use per sector should be established by the IWRB and adopted by the legislature. A few examples pertaining to domestic water use are: a maximum reasonable per capita indoor residential water use could be established; use of non-water conserving plumbing fixtures in residential and commercial buildings could be defined as unacceptable; and lack of a comprehensive leak detection and response program by local water agencies could constitute unreasonable water use.

   Colorado has embraced water conservation best practices and provides sample ordinances. These best practices could be required by statute, but they can also be used as a basis of defining reasonable use of water.

3. Idaho Rivers United believes that improving soil health on the farm and in the cities should be one of the water efficiency strategies adopted by the state. We wouldn't be the first state to take such an action. In California, Assembly Bill 1881 (2006) required all local agencies to adopt a water efficient landscape ordinance by January 1, 2010. Denver Water and most cities along the front range of Colorado have soil amendment requirements for development in order to retain soil moisture and reduce water demand. The Denver Water rule applies to all new residential, commercial, government and industrial properties within Denver Water's service area.

4. Like Idaho, Colorado, California and other states have state water plans. The IWRB should implement the water efficiency measures in the Idaho State Water Plan and should begin a public process to revise the efficiency chapter of the plan to include more information and direction, including recommendations for legislation. Both the Colorado and California plans are good examples.
   Colorado water plan draft chapter 6
   California Water Plan – Chapter 3 Urban Water Use Efficiency

BEST PRACTICE 11: Rules for New Construction

- Programmatic and control best practice
- Utility operations - implemented by water utilities
- Customer participation – Significant; builders (who may or may not be water customers) are required to install water-efficient fixtures and appliances in new construction

Overview

Many Colorado communities with high growth rates anticipate increasing water demand that will exceed current supplies. Water conservation measures that are "built in" to new buildings can help slow the growth of new water demands. This best practice describes water efficiency specifications that water utilities can make voluntary or mandatory for new residential and non-residential development within their service areas.

This best practice presents a framework for incorporating "built-in" indoor water efficiency in all new construction. Increased interest in "green" building and green building programs like LEED[36] presents opportunities for water utilities to promote water efficiency in new construction. However, green building programs including LEED are voluntary and have largely focused on energy conservation and in some cases water efficiency was only added as an afterthought. Fortunately this situation is improving as new specifications are rolled out.

Why a Best Practice?

The concept of "smart from the start" when applied to water conservation means that new properties that join a water system are efficient at the outset. This is a best practice because it costs very little to implement and it means new customers will use significantly less water and will not require water conservation interventions for the foreseeable future. New customers benefit from reduced water bills, the water system benefits from reduced growth in demand, and scarce conservation program funds can be directed toward existing customers.

State Planning Requirements

Colorado statute requires that all covered entities (water providers that deliver more than 2,000 acre-feet per year) file a water conservation plan with the Colorado Water Conservation Board (CWCB). Entities that do not have an approved plan on file are not eligible to receive grant funding from the State. Under this statute, one of the water saving measures and programs that must be considered in a conservation plan is, "Regulatory measures designed to encourage water conservation." [CRS 37-60-126 (4) (a) (IX)].

Applicability

This best practice can be implemented by any municipality. Because this best practice targets new construction and may require changes to local building codes, enactment of this best practice may require a vote by city council or other local governing body outside of utility purview. The level of anticipated new growth is a factor to consider. Utilities anticipating

[36] Leadership in Energy and Environmental Design

Outdoor Efficiency Criteria

The WaterSense New Home specification has outdoor criteria that apply to the front yard and any other outdoor areas improved upon by the builder. Because this best practice is focused on indoor use the details of the outdoor component are not covered here, but instead can be found in Best Practice 8. The full WaterSense New Home specification can be downloaded from: www.epa.gov/watersense/docs/home_finalspec508.pdf.

Non-Residential

Specifying built-in water efficiency in the commercial, institutional, and industrial (e.g. non-residential) sector is more challenging than for the residential sector as there is nothing analogous to the WaterSense New Home specification. Since each type of non-residential customer (i.e. hotel, school, factory, office building, supermarket, etc.) has a different set of water using fixtures and appliances an over-arching specification program that covers the entire sector is unlikely to emerge.

There are specific actions that water providers can take to ensure that new non-residential buildings include indoor water efficient technologies at the outset. The following actions are best practices for the non-residential sector.

1) Require that WaterSense labeled toilets, urinals, faucets, and showerheads be installed in all new non-residential buildings.
2) WaterSense plans to start labeling commercial equipment such as pre-rinse spray valves in the near future and these new specifications should be promptly incorporated into efficiency mandates.
3) Prohibit equipment that uses single-pass cooling unless there is no other alternative.
4) Specify high-efficiency commercial equipment wherever possible. The 2008 Watersmart Guidebook - A Water-Use Efficiency Plan Review Guide for New Businesses (available for free download from the Alliance for Water Efficiency – www.a4we.org) offers excellent guidance on water efficient equipment for 19 different types of businesses.

Additional Efficiency Specifications

The following programs and specifications may be useful when developing water efficiency regulations for new construction.

IAPMO Green Building Mechanical and Plumbing Code Supplement

IAPMO (The International Association of Plumbing and Mechanical Officials) has created a code supplement specifically supporting sustainable water using fixtures.[37] The supplement details proper use of high efficiency products, grey water and conservation of hot water.

The Green Building Mechanical and Plumbing Code Supplement is not a greener form of the Uniform Plumbing Code (UPC); it acts as a supplement to work with the UPC. The UPC is a recognized plumbing standard. It is a model code adopted by many communities. The green supplement basically works to reduce hindrances to conservation from conventional codes.

[37] The supplement was developed by a committee consisting of 25 conservation specialists, plumbers and contractors as well as code inspectors.

Table 4-17: Estimated water savings from EPA WaterSense New Home Specification ((EPA WaterSense Program 2009 WaterSense Single-Family New Home Specification Supporting Statement)

Indoor Feature	Standard Home Water Use	Standard Use (gal/house/day)	WaterSense Criteria	Expected Water Sense Use (gal/house/day)	Expected Water Savings (gal/house/day)
Toilet	1.6 gpf	21.0	1.28 gpf	16.8	4.2 (20%)
Bathroom faucet	2.2 gpm	29.1	1.5 gpm	27.6	1.5 (4.8%)
Shower	2.5 gpm	25.4	2.5 gpm	25.4	0 (0%)
Hot water delivery	~10 gpd waste		Assumes 20% water savings for improved design	8.0	2.0 (20%)
Dishwasher	8.6 gallons per load	2.7	5.8 gallons per load	1.8	0.9 (33%)
Clothes washer	39.6 gallons per load	39.9	22.0 gallons per load	22.0	17.9 (45%)
Total Indoor		128.1		101.6	26.5 (20.7% savings)

Consultants, 2003). The EPA calculates additional costs associated with WaterSense New Home Specifications to range from $700 to $3,000. Table 4-18 shows the breakdown of WaterSense costs.

Table 4-18: Costs associated with EPA WaterSense New Home Specification ((EPA WaterSense Program 2009 WaterSense Single-Family New Home Specification Supporting Statement)

WaterSense Criteria	Incremental Cost Estimate
Service pressure regulating valve	$0 to $150
WaterSense labeled HETs	$0 to $100
WaterSense labeled faucets and aerators	$10
Efficient hot water delivery system	$0 (core plumbing)
Hot water recirculating system	$2000
Hot water manifold	$200
Energy Star qualified dishwashers	$30
Energy Star qualified clothes washers	$270
Turf and mulching	$300
Third-party certification of home	$50 to $400

Green building occupants will likely see savings in the form of reduced utility bills. The EPA estimates that WaterSense homes save $100 per year in utility costs over typical new homes and $200 in utility costs over a typical older home. The payback period ranges from 5.6 to 30.6 years depending upon factors such as water rates and water heating methods (gas vs. electricity).

Resources and Examples

Resources

The State of Colorado Department of Local Affairs (DOLA) is a good source of codes and plans for Colorado communities. The DOLA website offers links to green building programs in the state. Links and details on the Steamboat Springs and Routt County green building program can be found at: www.dola.colorado.gov/osg/modelcodes.htm#GreenBuildingProgram

Additional information on WaterSense – including information for utilities – can be found online at the EPA website: www.epa.gov/watersense/partners/promotional.html

Information on all things LEED can be found at the US Green Building Council's website: www.usgbc.org/

Examples

Model Codes – DOLA, Steamboat Springs and Routt County

Colorado's Department of Local Affairs has various model building codes, including a green building program. The City of Steamboat Springs, Routt County and DOLA recently

water conservation measures included in the Telluride program. There are additional conservation measures required for outdoor water conservation.

Compliance is assured either by an inspection conducted by the city, careful and appropriate documentation, or by self certifying green building measures. A minimum of 10 of points must come from the conservation category. However, this category includes waste reduction and land use (site soil) in addition to water conservation.

Table 4-20: Indoor water conservation measures in Telluride's green building program

Conservation Measure	Possible points
Clothes washer is an ENERGY STAR® labeled product	2
Dual-flush toilets	3
Composting toilets	6
Bathroom faucets fitted with aerator restricting flow to 1.8 gpm	1
Kitchen faucet fitted with aerator restricting flow to 2.0 gpm	3
Installed irrigation system includes a soil moisture or rain sensor, or other irrigation efficiency device	4

Sterling Ranch – Conservation from the Developer's Perspective

Developers have a major role to play in water conservation and one example of a development design with strong water planning is Sterling Ranch. Sterling Ranch is a 3,100 acre, multi-use development located in Douglas County. Construction is slated for 2010 or 2011, but already the water conservation plan is in place. The developer, Sterling Ranch LLC, states that they are, "a firm believer that new development must be planned to meet human needs while protecting natural resources so that these needs can be met into the indefinite future," (Headwaters Corp. 2009). Water planning includes several aspects, such as a water supply plan (recycled water is a major part of the water supply plan), water treatment, water demand planning, and conservation.

The indoor water use target is 0.14 acre-foot per year per unit which is 42 gpcd. Sterling Ranch's conservation plan includes both indoor and outdoor conservation. For indoor conservation, Sterling Ranch will require high efficiency model toilets, washing machines, dishwashers, kitchen and bath faucets and showerheads. The requirements will be enforced through covenants and water budgets (Headwaters Corp. 2009). The water budget component is particularly important since each budget represents a water efficiency performance standard that must be met by each individual end user. The developer will assist the water agency with developing water budgets using yard footprints. Sterling Ranch District, a special district formed for the development, in cooperation with the water supplier will undertake a study of water rate structures.

excerpt Rathdrum Prairie Groundwater Management Plan 9/15/2005

Goal 4

Encourage water purveyors, regulatory agencies, and local & regional governments to plan for future water needs and incorporate the principles of this Plan in programs, policies, and ordinances.

3.4.1 Long-term planning for municipal and community needs should use the tools available to plan for and protect future water needs. The privileges accorded municipal water purveyors by Idaho law should be investigated for use by all local and regional bodies that qualify for that status.

3.4.2 IDWR encourages local jurisdictions to require connections to community systems when available in lieu of individual wells.

Goal 5

Encourage water conservation efforts by all users of the resource.

3.5.1 For all new water rights or changes to existing water rights held by municipal purveyors, IDWR will require conservation plans for all systems regulated as public water systems. IDWR will enforce adherence to the conservation plan provisions through water right conditions and civil penalties as allowed by law. The advisory committee specifically supports this element of the management plan.

Each plan may include the elements as listed in guidelines published by EPA ("Water Conservation Plan Guidelines", Environmental Protection Agency, 1998, http://www.epa.gov/owm/water-efficiency/webguid.html). These guidelines are primarily designed for public water supply systems. However, any water user can follow the steps described in the guidelines to evaluate the existing conditions and systems, identify and evaluate opportunities for conservations measures, and develop strategies and timetables to meet defined, measurable goals.

The advisory committee will identify elements to be considered by IDWR for inclusion based on system size. The conservation plan may include the following components:

- measurable conservation planning goals
- summary of existing system characteristics and water use conditions
  - water system profile
  - description of planned facilities
- current and future conservation opportunities
  - identification of water conservation measures
  - analysis of benefits and costs
- select water conservation measures
- implementation mechanisms, timetable, and assessment strategy

colorado waterwise

Guidebook of Best Practices

for Municipal Water Conservation in Colorado

SUMMARY

Colorado Water Conservation Board 1876 1937

Aquacraft inc
WATER ENGINEERING & MANAGEMENT

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The project team wishes to thank all the members of the Project Advisory Committee, Stakeholder Advisory Committee, and the Colorado WaterWise Board of Directors for their assistance in selecting the best practices for inclusion in this *Best Practices Guidebook* and in editing the final document.

This guidebook would not have been completed without the efforts of Peter Mayer and the staff of Aquacraft, Inc. Water Engineering and Management.

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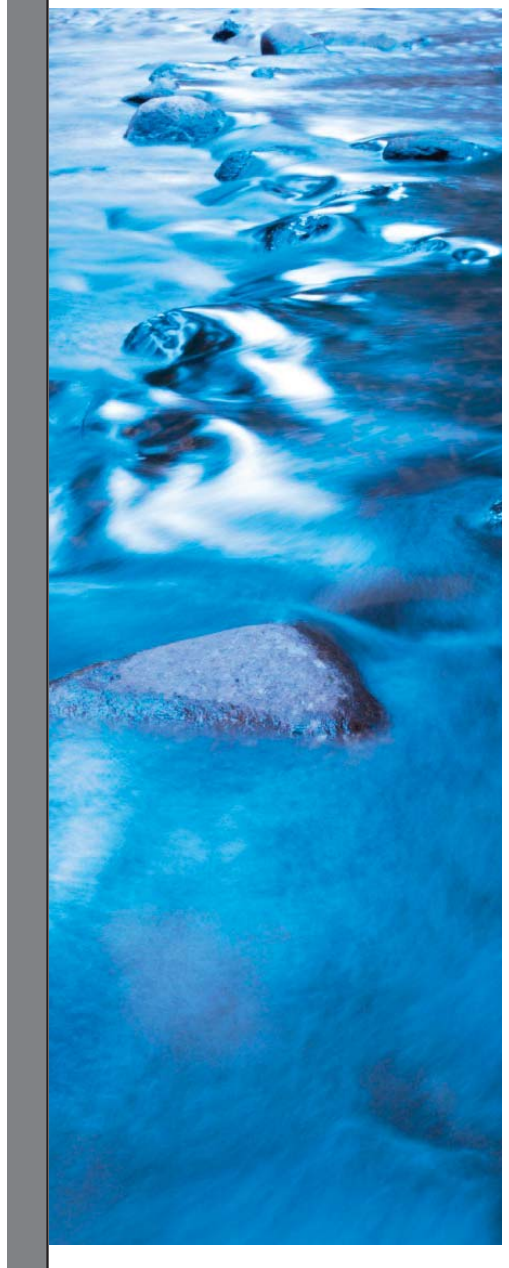
Introduction



Experience in developing and implementing water conservation programs over the past decades has resulted in a body of knowledge in Colorado and across the United States. This knowledge, combined with experience, research, and analysis, has resulted in the development of "best practices" (aka best management practices), which are water planning, management and efficiency measures and policies designed to deliver proven water savings and improved water management.

The Colorado WaterWise *Guidebook of Best Practices for Municipal Water Conservation in Colorado* (*Best Practices Guidebook* for short) is a planning tool prepared for the purpose of improving and enhancing water efficiency in Colorado. The *Best Practices Guidebook* offers a detailed description of specific water conservation measures, program elements, regulations, policies, and procedures that can be implemented by Colorado water providers to help ensure reliable and sustainable water supplies for future generations.

This summary to the *Best Practices Guidebook* offers an introduction to the best practices and is intended as a companion piece to the full *Best Practices Guidebook* which is available for free download from Colorado WaterWise at http://colorado waterwise.org/.

Colorado WaterWise envisions that the *Best Practices Guidebook* will be used by water professionals including water providers, local governments, consultants, building managers, design engineers, green industry professionals, and others throughout the state to help select the most sensible and cost effective water conservation measures and programs to implement. Utilities can use the *Best Practices Guidebook* to help select water conservation program options to include in their conservation plans to be submitted to the Colorado Water Conservation Board (CWCB). Building trade professionals may use the *Best Practices Guidebook* to determine the most sensible water efficiency practices to implement in new construction projects and existing buildings. Others may find the *Best Practices Guidebook* a useful tool to increase water efficiency in their local community.

Preparation of the *Best Practices Guidebook* was made possible through grant funding from the Colorado Water Conservation Board. The *Guidebook of Best Practices for Municipal Water Conservation in Colorado* is an essential companion to the water conservation planning resources developed by the CWCB and can be used by water providers big and small to help select appropriate, cost effective water conservation program measures.

What are Best Practices?

Best practices are water planning, management, and efficiency measures and policies designed to deliver proven water savings and improved water management. In this guidebook, prepared specifically for Colorado, the best practices are designed to assist water

providers of all sizes to develop effective water conservation programs that deliver real demand reductions among existing customers and ensure new customers join the system with efficiency already "built in."

A best practice is intended to encompass a broader range of actions and activiies than a best management practice, although at the end of the day it is only a relatively minor semantic distinction. The authors have chosen the term "best practice" rather than "best management practice" because not all of the best practices described in the guide are directly related to management of water. Some of the best practices included describe methods to improve the efficiency of water use while others describe a regulatory framework that can be used to manage the demand of new and existing customers.

These Colorado-focused water conservation best practices were developed to fit into the Colorado Water Conservation Board's guidelines for preparing a water conservation plan. Each best practice is structured similarly with a clear definition that describes the practice itself as well as implementation techniques, scope, potential water savings, water savings estimating procedures, cost effectiveness considerations, and references to assist in implementation.

What is Included in the Guidebook?

The *Guidebook of Best Practices for Municipal Water Conservation in Colorado* includes the following elements:

- Detailed information on 14 selected best practice options including: implementation approach and methods, likely costs, anticipated water savings, and barriers and challenges.
- Guidance on prioritizing and selecting appropriate water conservation program tools and measures for different communities and situations.
- Descriptions of appropriate utility best practices for water management including conservation-oriented rate structures and utility water loss programs.
- Descriptions of appropriate end user (customer) indoor and outdoor best practice options for urban water conservation in Colorado.
- A resource guide for anyone seeking water conservation information, assistance, and financing in Colorado.
- A literature review of urban water conservation best management practices and best practice guidance documents developed in Colorado and elsewhere.

The best practices included in the guidebook were selected and carefully reviewed by a project advisory committee and a stakeholder committee each comprised of Colorado water conservation, water management, and green industry experts from all areas and sectors in the State. The authors and the review committees worked to ensure that the descriptions, information, and data provided in this guidebook are as accurate and complete as possible.

The Colorado WaterWise *Guidebook of Best Practices for Municipal Water Conservation in Colorado* is a planning tool prepared for the purpose of improving and enhancing water efficiency in Colorado.

BEST PRACTICE #1

BEST PRACTICE #1:
Metering, conservation-oriented rates and tap fees, and customer categorization within billing system

This best practice impacts the way utilities charge new customers when they join the system, bill their existing customers for the water they use, and understand who customers are and which customers might benefit from improved water efficiency. This best practice can also include advanced metering systems that provide leak detection and real time use data for customers.

Metering

Measuring use and billing customers for what they use is fundamental to all water conservation efforts. Colorado already has a mandatory metering requirement for systems with more than 600 taps (CRS 37-97-103). Customers who pay for how much water they use, consume less water. Adoption of smart meters, that can be used to notify customers of leaks and provide real time consumption information, is also encouraged.

Rate structure

A number of conservation-oriented pricing systems have been successfully implemented across the U.S., including water budget-based rates, increasing block rates, and seasonal rates. Utilities in Colorado that have implemented conservation-oriented rate structures include: Denver Water, Durango, Boulder, Fort Collins, Colorado Springs, Glenwood Springs, Aurora, and many others.

Tap or connection fees

Tap fees can be developed based on anticipated future demand. By tying tap fess to more efficient fixtures, developers are encouraged to implement water conserving fixtures and landscapes from the very beginning. Linking tap fees to water budgets will insure that the low demands projected when tap fees are paid will actually be observed over time.

Customer categorization and information

To effectively plan, implement and evaluate conservation more precisely, categorization of customers is highly encouraged. Residential customers can be categorized as single family or multi-family. Multi-family should include the number of units served by each tap. Non-residential customers can be categorized based on North American Industry Classification System (NAICS) codes. Having this information in the utility billing and customer information system is tremendously useful. This is not a water saver by itself, but is a foundational improvement that benefits a program over the long haul, and makes planning and evaluation more effective. This is very important if water budgets are going to be used.

This best practice impacts the way utilities charge new customers when they join the system, bill their existing customers for the water they use, and understand who customers are and which customers might benefit from improved water efficiency.

Estimated savings potential

Metering: 10 – 40% reduction vs. un-metered.
Rate structure: Varies by structure and rates. Reduction range = 0 – 30%.
Tap fees: Varies by method. Efficient buildings have been shown to use 30 - 70% less water. Linking tap fees to demands will encourage conservation.
Customer categorization: None.

BEST PRACTICE #2

BEST PRACTICE #2:
Integrated resources planning, goal-setting, and demand monitoring

Integrated resources planning (IRP) is a comprehensive planning effort that incorporates water conservation programs as another option for meeting future needs. IRP encompasses least-cost analyses of demand and supply options that compares supply-side and demand-side measures on a level playing field and results in a water supply plan that keeps costs as low as possible while still meeting all essential planning objectives.

Key components of integrated resource planning are:

- equal treatment of supply-side and demand-side options,
- clear objectives,
- consideration of supply-side and demand-side reliability,
- an open process,
- integrating engineering analysis with a range of policy objectives,
- a planning horizon or future design year,
- explicit consideration of uncertainty,
- demand monitoring.

Goal setting is part of the IRP process, but is important in its own right. Establishing demand management goals or targets provides a clear vision for the community and provides incentive for developing programs to meet the goals.

Demand monitoring provides regular feedback on consumption patterns in a utility. Tracking demands over time is essential for determining if a conservation program is achieving the desired results. Without demand monitoring there is no way to determine if a conservation goal has been achieved.

Estimated savings potential

A plan by itself doesn't save water. A utility without a conservation plan doesn't save water either.

BEST PRACTICE #3:
System water loss control

BEST PRACTICE #3

Water loss control is the practice of system auditing, loss tracking, infrastructure maintenance, leak detection and leak repair for water utilities. Leak detection and repair are familiar water agency practices, but true water loss control is more pragmatic than simply finding and fixing leaks. Auditing a water distribution system for real and apparent losses and evaluating the costs of those losses is the foundation of water loss control. Cost and benefit considerations drive implementation actions in the recommended methodology, described in detail in the American Water Works Association M36 Manual (2009).

Auditing a water distribution system for real and apparent losses and evaluating the costs of those losses is the foundation of water loss control. Real losses are actual physical losses of water due to leaks or other problems with the system. Apparent losses are due to meter inaccuracy, unauthorized consumption, and data handling errors. Cost and benefit considerations drive implementation actions in the recommended methodology, described in detail in the AWWA M36 Manual.

Water loss control represents the efforts of water utilities to provide stewardship and accountability in their operations and sets a positive example for customers. Water auditing and loss control give water utilities the potential to conserve significant volumes of treated water by reducing real losses and to increase revenue by reducing apparent losses. Water loss control is a foundational, cost-effective water conservation practice that should be implemented by all providers in Colorado.

Estimated savings potential

Water savings from water loss management programs depend entirely on the ongoing level of loss. It should be the goal of all water providers to limit real and apparent losses to economically efficient levels.

BEST PRACTICE #4:
Conservation coordinator

BEST PRACTICE #4

A conservation coordinator is critical for every utility aiming to reduce water demand. A "go to" person for water conservation is essential to the successful implementation and management of water conservation programs. For large water utilities, the job of water conservation coordinator is a full time job. Small utilities may not have sufficient resources to have a dedicated conservation coordinator. Small agencies should select a staff member who has other primary assignments to be the designated conservation coordinator – the person responsible for planning and implementing water conservation efforts.

Ideally, a conservation coordinator needs to have equal footing with other resource planning divisions. A conservation coordinator who cannot sit at the table with other managers will only coordinate what is given and not be part of the supply discussion.

Successful conservation programs need leadership. The fundamental responsibilities of a water conservation coordinator or program manager are to:

- Develop (or supervise development of) the utility's water conservation plan.
- Organize and direct implementation of the conservation plan.
- Track, monitor, and evaluate water conservation programs.

Estimated savings potential

A conservation coordinator alone doesn't save water, but a coordinator (or someone filling that role) is essential to successful plan and program implementation.

BEST PRACTICE #5:
Water waste ordinance

BEST PRACTICE #5

A water waste ordinance is a local regulation that explicitly prohibits the waste of water. Waste includes things such as irrigation runoff, irrigation that occurs on a prohibited day and/or time, leaks, use of inefficient fixtures and appliances, or use of wasteful commercial or industrial processes (i.e. poorly controlled cooling towers).

Conservation through ordinance can have limitations. Enforcement is a key piece of making an ordinance effective and enforcement requires staff resources. Additionally, some entities such as special districts may lack proper jurisdiction to enact a water waste prohibition ordinance.

A water waste ordinance is an important regulatory tool for water utilities that serves several useful purposes:

- Establishes the importance of wise water stewardship in a community and establishes a utility's intent to put its water resources to maximum beneficial use.
- Establishes penalties for the blatant waste of water. Such an ordinance empowers local officials to target hands-on assistance and education as well as issue warnings and fines.
- Provides an important regulatory "stick" during a drought when agency-wide restrictions are put in place and enforcement is required to ensure water supplies are adequate.
- Without a water waste ordinance, a utility may be powerless to act against egregious and profligate waste of water.

Estimated savings potential

Savings depend upon publicity and enforcement – much like traffic laws. Having an ordinance provides a legal basis for enforcement and drought management. It also aids in peak demand management.

BEST PRACTICE #6:
Public information and education

BEST PRACTICE #6

Public information and education encompass social marketing, school education, public outreach and education, and other information efforts aimed at raising awareness and fostering a culture of conservation and behavior change. An element of public information and education is required in nearly all other best practices in this guidebook. Central components of this best practice include effectively communicating the value of water, and delivering consistent and persistent messages. This best practice also includes measures to provide customers with timely information on their water consumption and alerts if unusual usage or leakage is detected. Water conservation programs cannot hope to succeed without a public information and education component. Sometimes public information by itself comprises a utility's entire water conservation program, but for most agencies it is the mortar that holds together all other program elements. Raising awareness about conservation and water use is fundamental to getting people to take the next step and doing something practical that saves water directly.

Conservation outreach programs help establish a culture of wise water stewardship which over time results in behavior change and effective action.

Estimated savings potential

Utilities should not rely on any water savings from a public outreach campaign alone. Conservation outreach programs help establish a culture of wise water stewardship which over time results in behavior change and effective action such as replacing inefficient fixtures and appliances. Successful conservation marketing efforts increase participation levels in other utility sponsored programs, such as landscape audits or rebates.

BEST PRACTICE #7

BEST PRACTICE #7:
Landscape water budgets, information, and customer feedback

Landscape water budgets address landscape water use and encourage efficiency. Water budgets compare actual metered consumption against the legitimate outdoor water needs of the customer based on landscape area, plant materials, and weather conditions. The customer is provided information about their irrigation practices and efficiency.

Information is power. Landscape water budgets provide essential information to help customers manage their water use:

- How much water was required?
- How much water was used?
- What is the efficiency of use at this site?

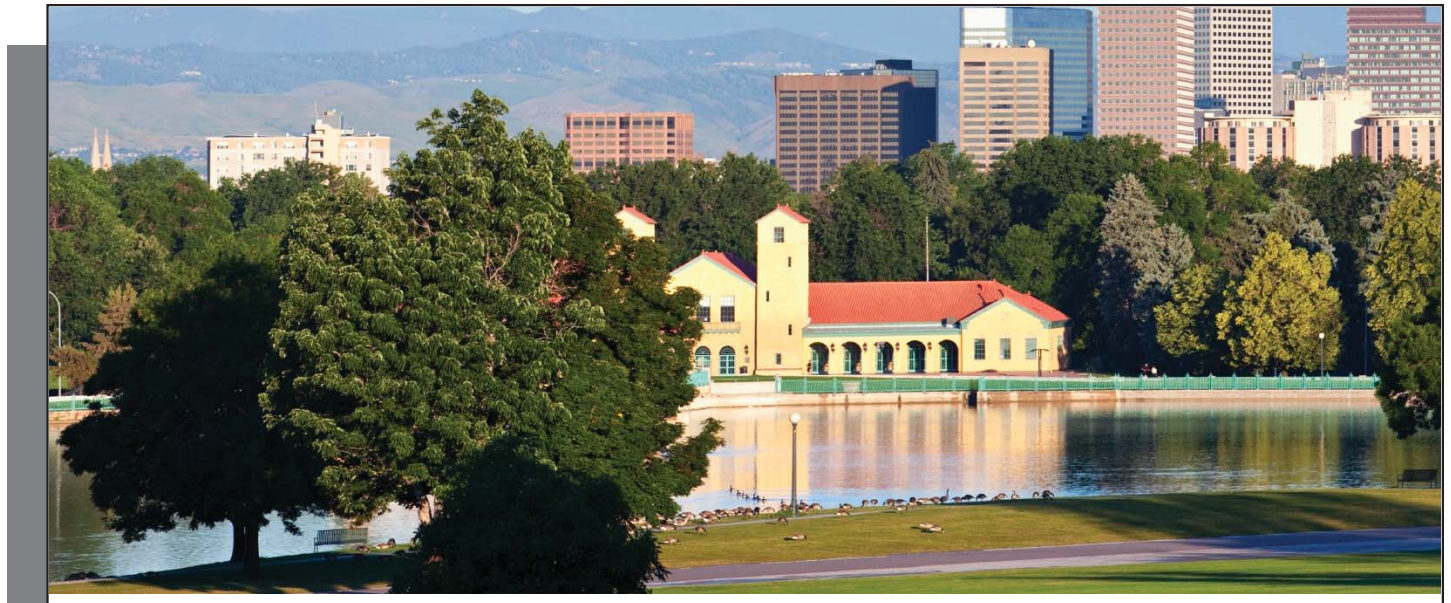
Because many landscapes, particularly turf, can accept excess irrigation without damage many irrigators are not aware of whether they are using water efficiently or grossly over-irrigating. A landscape water budget provides a reasonable target level of water use that is customized for each customer and landscape. Water budgets help water users better understand their consumption patterns and make sound decisions about how to best manage irrigation properly.

Water budgets provide utilities with a powerful tool for identifying which customers are over-irrigating and could most benefit from efficiency improvements. Water budgets can be incorporated into a utility rate structure as has been done in Castle Rock, Centennial Water and Sanitation District, and Boulder, but they are also useful in their own right outside of a rate structure as a tool for assessing water use.

Water budgets help water users better understand their consumption patterns and make sound decisions about how to best manage their property.

Estimated savings potential

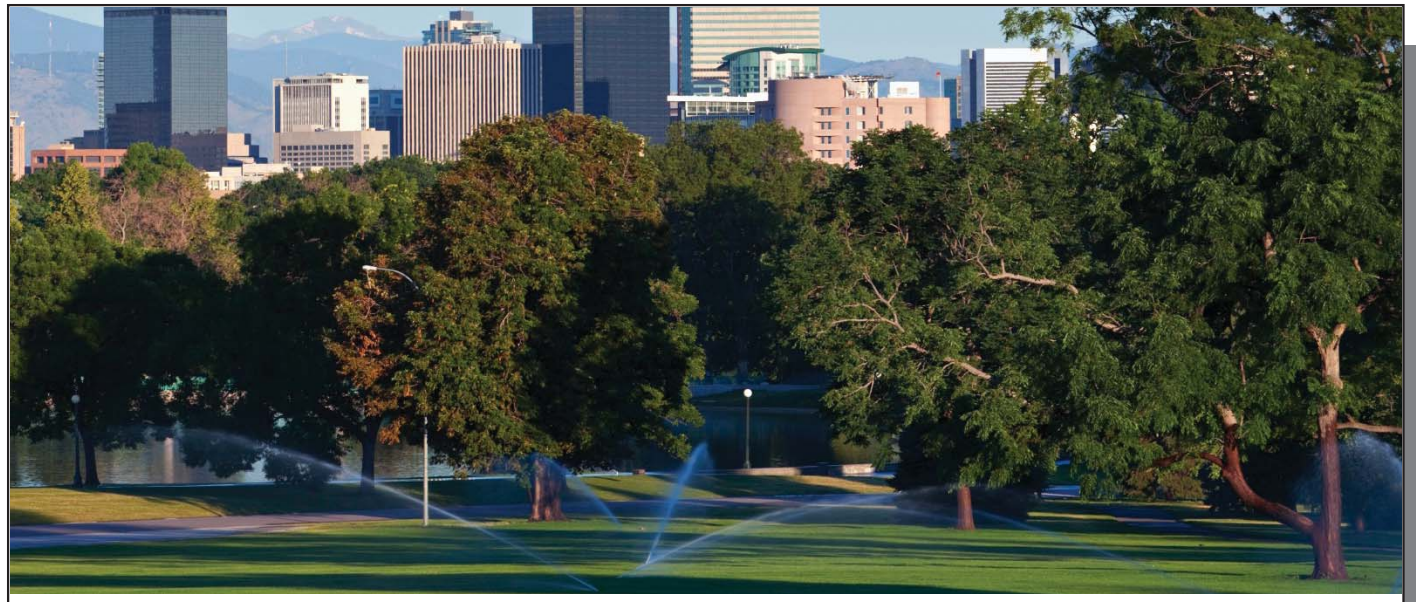
Varies. Many landscapes are already irrigated at an efficient level and for customers who use less than efficiency levels, budgets have the potential to increase consumption. Efficient irrigation practices have the capability of reducing landscape water by up to 35%. Water budgets, particularly when linked with an increasing block rate structure, can lead to significant reductions in water use. After implementing budget-based rates, Centennial Water and Sanitation District reported a 25% reduction in demand.



BEST PRACTICE #8

BEST PRACTICE #8:
Rules and regulations for landscape design and installation and certification of landscape professionals

The key concept of this best practice is creating landscapes that are "water smart from the start." Creating rules for new landscape and irrigation system design and installation is a relatively inexpensive way to affect landscape water use. Proper installation and maintenance are needed to create and maintain water-efficient irrigation. A second powerful tool is minimum training requirements and certification for landscape irrigation professionals. These requirements can function in concert as trained and certified professionals are in the best position



In Colorado, urban landscape irrigation accounts for 40 percent or more of the total annual water demand for a utility.

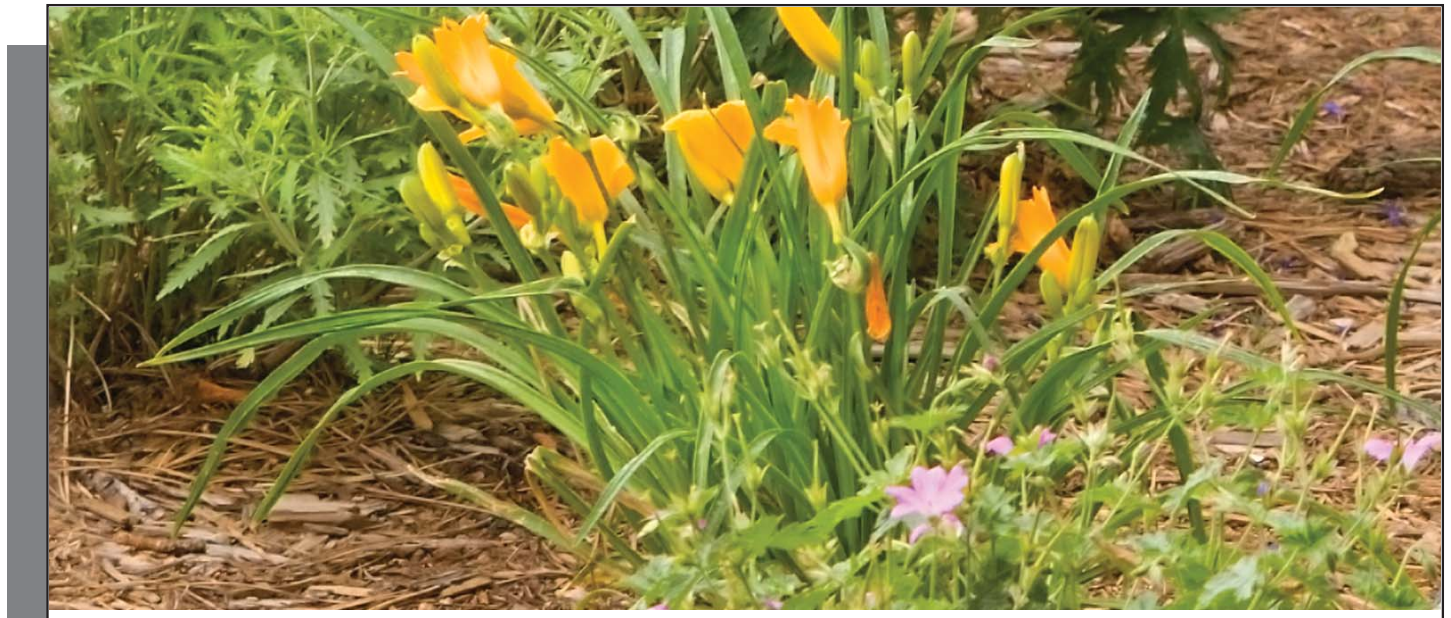
to design and install water efficient landscapes and irrigation systems that meet mandated standards.

In Colorado, urban landscape irrigation accounts for 40 percent or more of the total annual water demand for a utility. Improving the efficiency of water use on urban landscapes is perhaps the single most important urban water conservation effort than can be made in Colorado.

Colorado's population is expected to double over the next 40 years. If all new landscapes in Colorado are designed, installed and maintained with water efficiency as a priority there is tremendous potential to reduce future demands below what they might be otherwise.

Estimated savings potential

A 2002 study in Colorado Springs compared water use between a traditional landscape and two landscapes developed using the principles of Xeriscape. The study found water savings ranging from 22% - 63% after implementing the rules and regulations set forth in the 1998 Colorado Springs Landscape Code and Design Manual. Typical savings from landscape regulations range from 15 - 35%. Contractor certification has unmeasured water saving benefits.



BEST PRACTICE #9

BEST PRACTICE #9:
Water efficient design, installation, and maintenance practices for new and existing landscapes

How we design, install, and maintain our landscapes and irrigation systems can greatly impact the amount of water needed to keep the plants alive and healthy. This best practice describes key considerations for maximizing water efficiency through the proper design, installation, and maintenance of new and existing landscapes and irrigation systems. The information presented here is largely based on the work of the Green Industries of Colorado (GreenCO) published in their 2008 BMP guide.

Irrigation must be addressed with a systems approach that includes design, installation, and maintenance as well as the selection of plant materials and individual irrigation technologies. Education of those operating and maintaining systems should not be overlooked.

Landscape design, installation, and maintenance practices offer a non-regulatory approach to improving outdoor water use efficiency. Proper design and installation can ensure landscapes are capable of thriving on less water. Maintenance practices can help preserve and ensure conservation savings. This best practice is wide ranging and includes many commonly used everyday practices.

The seven basic principles of Xeriscape, developed years ago by Denver Water (and others), remain the fundamental underpinning for conservation-oriented landscapes. These principles are: planning and design, soil improvement, grouping plants with similar water demands, practical turf areas, efficient irrigation, mulching, and appropriate maintenance. In the *Handbook of Water Use and Conservation*, Amy Vickers adds one additional principal to this foundational list: selection of native and low-water-use plants.

Proper design, installation, and maintenance can ensure landscapes are capable of thriving on less water.

Estimated savings potential

Applies to new and existing landscapes. Savings potential of a landscape designed, installed, and maintained for water efficiency can be a 35% reduction in annual irrigation use or more according to GreenCO. Designing the landscape to meet a water budget target can establish a savings level. Many landscapes are already irrigated at an efficient level. Proper on-going maintenance helps preserve the water efficiency of the original design.

BEST PRACTICE #10

BEST PRACTICE #10: Irrigation efficiency evaluations

The efficiency of an irrigation system can greatly impact the amount of water that is used in the landscape. Over time, even a well designed and properly installed irrigation system becomes less efficient unless it is well maintained and operated for maximum efficiency. This best practice describes key considerations for maximizing water efficiency through the use of regular irrigation efficiency evaluations.

Landscape irrigation accounts for more than half of all potable water used in Colorado. Improving the efficiency of water use on urban landscapes is perhaps the single most important urban water conservation effort that can be made in Colorado.

Irrigation efficiency evaluations offer a non-regulatory approach to improving outdoor water use efficiency. Proper operation of the irrigation system reduces water use by ensuring that the landscape receives the appropriate amount of water when it is needed. Regular maintenance practices help to ensure the health and appearance of the landscape and to preserve and ensure conservation savings.

The Irrigation Association Certified Landscape Irrigation Auditor Training Manual (IA 2002, 2007) is the fundamental companion document to this best practice. Practices recommended by the Irrigation Association have been adapted for GreenCO BMPs and provide recommendations on the methods and practices for performing water efficiency evaluations in Colorado. These BMPs were developed with broad stakeholder support and form the foundation for the best practices described in this section.

Estimated savings potential

If recommendations are implemented, savings can range from 5 - 40%. Savings depend upon the severity of problems at each site, the level of over-irrigation prior to the evaluation, and implementation of recommendations.

BEST PRACTICE #11

BEST PRACTICE #11:
Rules for new construction

Many Colorado communities with high growth rates anticipate increasing water demand that will exceed current supplies. Water conservation measures that are "built in" to new buildings can help slow the growth of new water demands. This best practice describes water efficiency specifications that water utilities can make voluntary or mandatory for new residential and non-residential development within their service areas.

This best practice presents a framework for incorporating "built-in" indoor water efficiency in all new construction. Increased interest in "green" building and green building programs like LEED (Leadership in Energy and Environmental Design) presents opportunities for water utilities to promote water efficiency in new construction. However, green building programs including LEED are voluntary and have largely focused on energy conservation and in some cases water efficiency was only added as an afterthought. Fortunately this situation is improving as new specifications are rolled out.

The concept of "smart from the start", when applied to water conservation, means that new properties that join a water system are efficient at the outset. This is a best practice because it costs very little to implement and it means new customers will use significantly less water and will not require water conservation interventions for the foreseeable future. New customers benefit from reduced water bills, the water system benefits from reduced growth in demand, and scarce conservation program funds can be directed toward existing customers.

Estimated savings potential

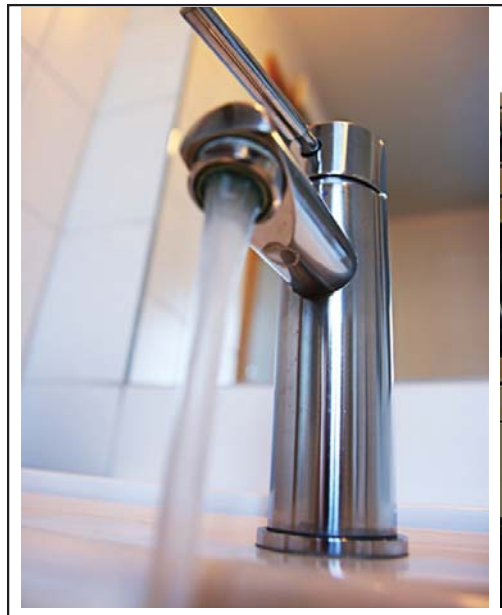
High efficiency homes are expected to use approximately 15 - 30% less indoors than standard new homes. Similar reductions are expected for multi-family properties. High efficiency non-residential (commercial, industrial and institutional) buildings are expected to use approximately 15 - 25% less indoors than standard buildings.

BEST PRACTICE #12

BEST PRACTICE #12:
High-efficiency fixture and appliance replacement for residential and non-residential sectors

The goal of this best practice is to increase the installation rate of water efficient fixtures and appliances and to remove inefficient and wasteful devices from the service area in favor of efficient products. Various means are used to spur customers into replacing products. In some programs, customers are simply given hardware that is more water efficient. Faucet and showerhead replacement programs often take this tact. Rebates and vouchers are also important tools for coaxing customers to replace devices with more water efficient models.

A "retrofit on reconnect" ordinance may be the most effective and least-cost implementation method for accelerating installation of efficient fixtures and appliances. There are a variety of ways this type of ordinance can be written and implemented, but the general concept is that when a property is sold or changes hands, the new owners or occupants must sign up for water service – i.e. reconnect to the system. As a condition of providing water service to the property, the water provider can require that designated fixtures and appliances be upgraded to meet current plumbing code and efficiency standards.



Programs relying on rebates or vouchers must carefully assess the economic trade offs in order to maximize benefits. Incentives are best targeted to customers with high demand who would be unlikely to take action in absence of an incentive. Incentive programs must also guard against customers who would purchase new fixtures or appliances regardless of the financial incentives (i.e. free riders). Water utilities should maintain lists of equipment eligible for incentive programs. These lists might include hundreds of makes and models. One way to streamline this process is to rely on the EPA's WaterSense labeled products. These products are intended to use at least 20% less water than conventional devices.

Estimated savings potential

- High-efficiency toilets (HET) using 1.28 gallons per flush (gpf) or less vs. 3.5 gpf toilet = saves approx. 8,000 - 20,000 gallons per household per year.
- HET vs. Ultra-low flush toilets (ULF) using 1.6 gpf = approx. 1,500 gallons per year.
- High-efficiency clothes washer vs. standard top loader = saves approx. 5,000 - 20,000 gallons per household per year.
- 1 gallon per minute (gpm) faucets vs. 2.2 gpm faucets saves 2,000 - 10,000 gallons per household per year.
- 2.0 gpm showerhead vs. 2.5 gpm showerhead saves approximately 0 - 5,000 gallons per household per year.

*The savings that can be achieved in the non-residential sector through the replacement of domestic fixtures and through specialized equipment (described in more detail in Best Practice 14) are substantial, but less definitively quantified because of the variability inherent in non-residential demand.

BEST PRACTICE #13

BEST PRACTICE #13:
Residential water surveys and evaluations targeted at high demand customers

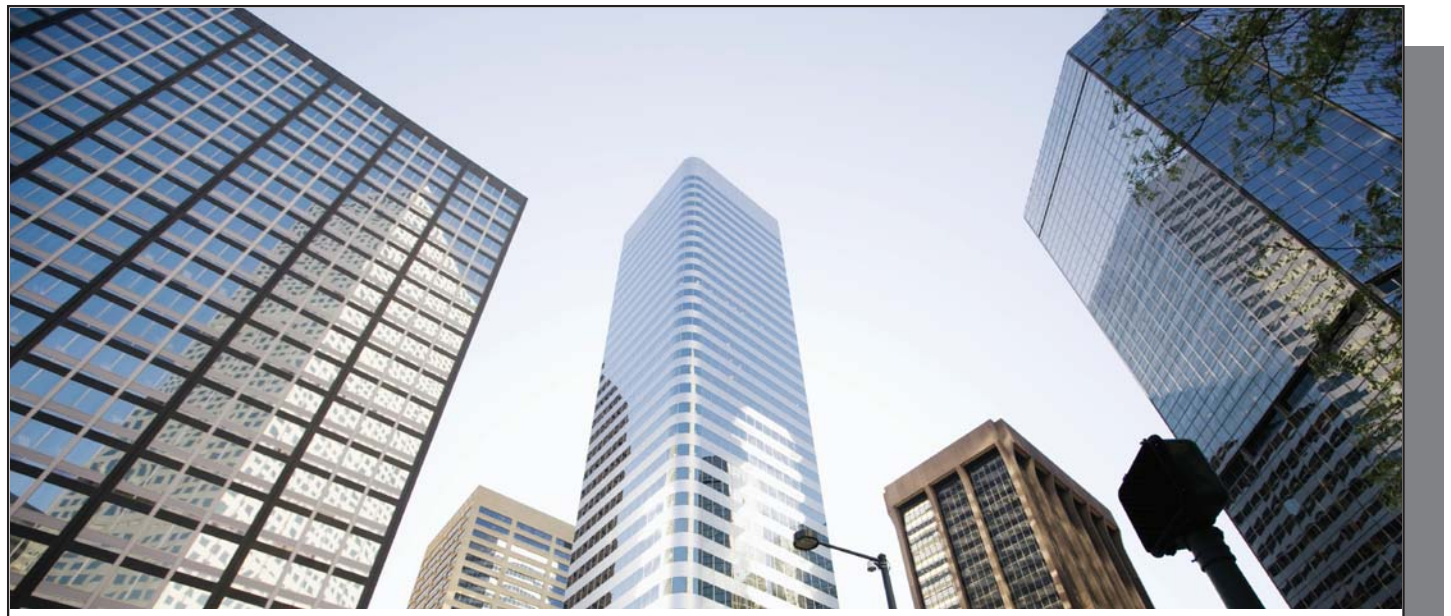
Water surveys and evaluations (frequently referred to as "audits") that identify water savings opportunities and educate customers are a fundamental component of residential water conservation programs. Although often offered to all customers, high volume customers should be targeted first to maximize water savings and minimize program expenses.

Residential water use evaluations cover both indoor and outdoor use and identify concrete methods for reducing water use in a home. Water surveys often reveal leaks and unintended water usage that some customers are simply not aware of. Water surveys are also an excellent way for water utilities to extend customer service beyond metering and billing and to help customers save water and money.

Targeting is essential because program budgets are limited and not all households can achieve measurable water savings. Once targeted, water surveys present utilities with the opportunity to work with their highest use customers to achieve meaningful demand reductions.

Estimated savings potential

Surveys by themselves don't save water, but they often spur savings. Consider impacts to wastewater flow too. Eliminating inefficient water uses should be able to reduce annual consumption by 10 – 20% after implementing the recommendations of a carefully conducted site audit.



BEST PRACTICE #14:
Specialized non-residential surveys, audits, and equipment efficiency improvements

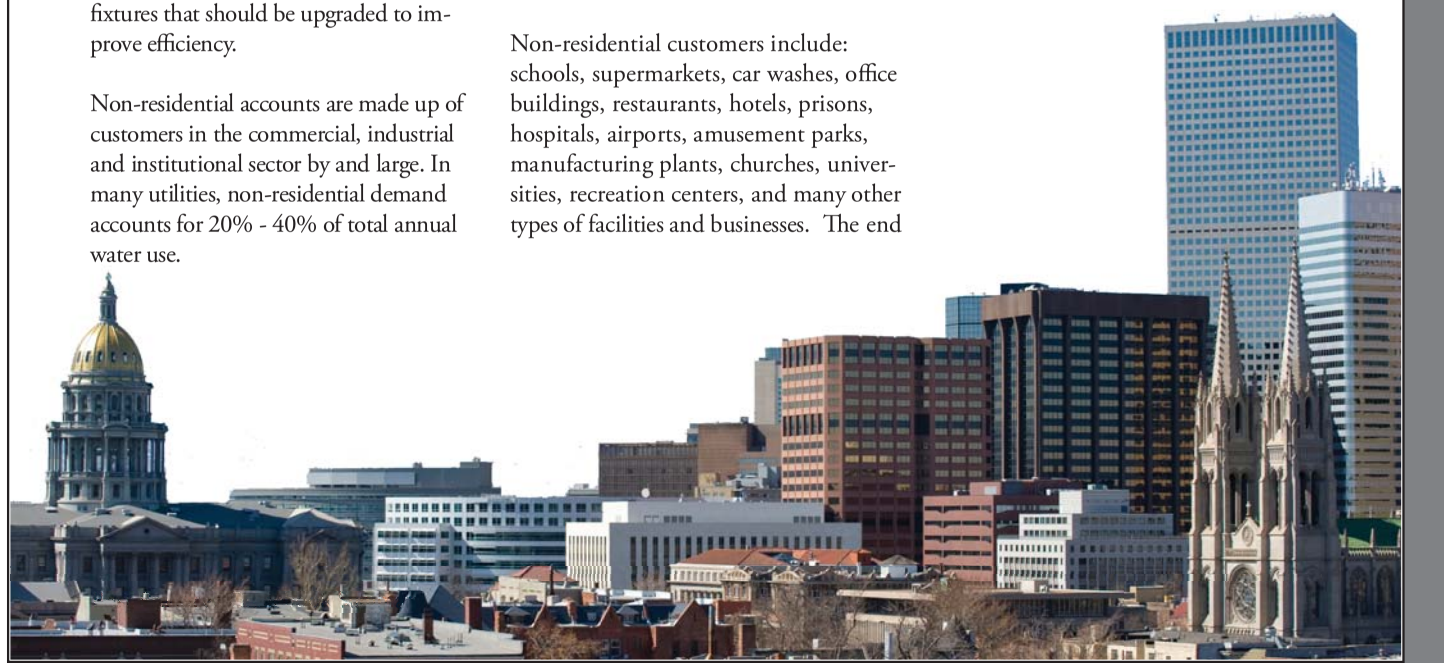
BEST PRACTICE #14

Specialized non-residential surveys and equipment efficiency improvements reduce water demands in the commercial, institutional and industrial (CII) sector. This best practice specifically excludes toilets, showers, and faucets (i.e. fixtures found in residential and non-residential accounts); however, part of the survey process involves identifying all domestic fixtures that should be upgraded to improve efficiency.

Non-residential accounts are made up of customers in the commercial, industrial and institutional sector by and large. In many utilities, non-residential demand accounts for 20% - 40% of total annual water use.

The end uses of water in non-residential accounts are more diverse and complex than for residential customers. Non-residential water users are heterogeneous, and each business or institution may have unique and differing water use patterns. Seasonal and time of day variations in water use may be more pronounced for non-residential customers.

Non-residential customers include: schools, supermarkets, car washes, office buildings, restaurants, hotels, prisons, hospitals, airports, amusement parks, manufacturing plants, churches, universities, recreation centers, and many other types of facilities and businesses. The end



In many utilities, non-residential demand accounts for 20% to 40% of total annual water use.

uses of water within the non-residential sector are as diverse as the sector itself and includes irrigation, toilets, faucets, showers, evaporative cooling, dishwashing, ice machines, swimming pool refilling and backwash, decorative fountains, water cooled equipment, autoclaves, dialysis machines, car washes, pavement washing, and the list goes on and on.

Targeting specific sectors and end uses, such as replacing water-cooled ice machines in restaurants, may result in significant water savings but utilities with limited conservation resources may find it difficult to implement a broad array of non-residential programs. Establishing useful customer categories within the utility billing database (as described in Best Practice 1) allows an agency to determine which type of non-residential customers use the most water in summer or winter and provides a sound basis for establishing a manageable and cost-effective non-residential demand management program. Sometimes implementing conservation measures at a small number of high-demand, non-residential sites can impact overall water use measurably.

Estimated savings potential

The range of savings will vary greatly and depend entirely on the measures implemented at the site. As part of the 2000 AWWA Commercial and Institutional End Uses of Water study it was estimated that many non-residential sites have the potential to conserve between 15 - 50% of their current demand (Dziegielewski et. al. 2000).

Funding for Best Practices Implementation

The Colorado Water Conservation Board administers the Water Efficiency Grant Program for water conservation planning and measure implementation.

The Guidebook of Best Practices for Municipal Water Conservation in Colorado can be used as a reference to develop more effective water conservation plans as well as prioritizing implementation of water conservation programs and measures.

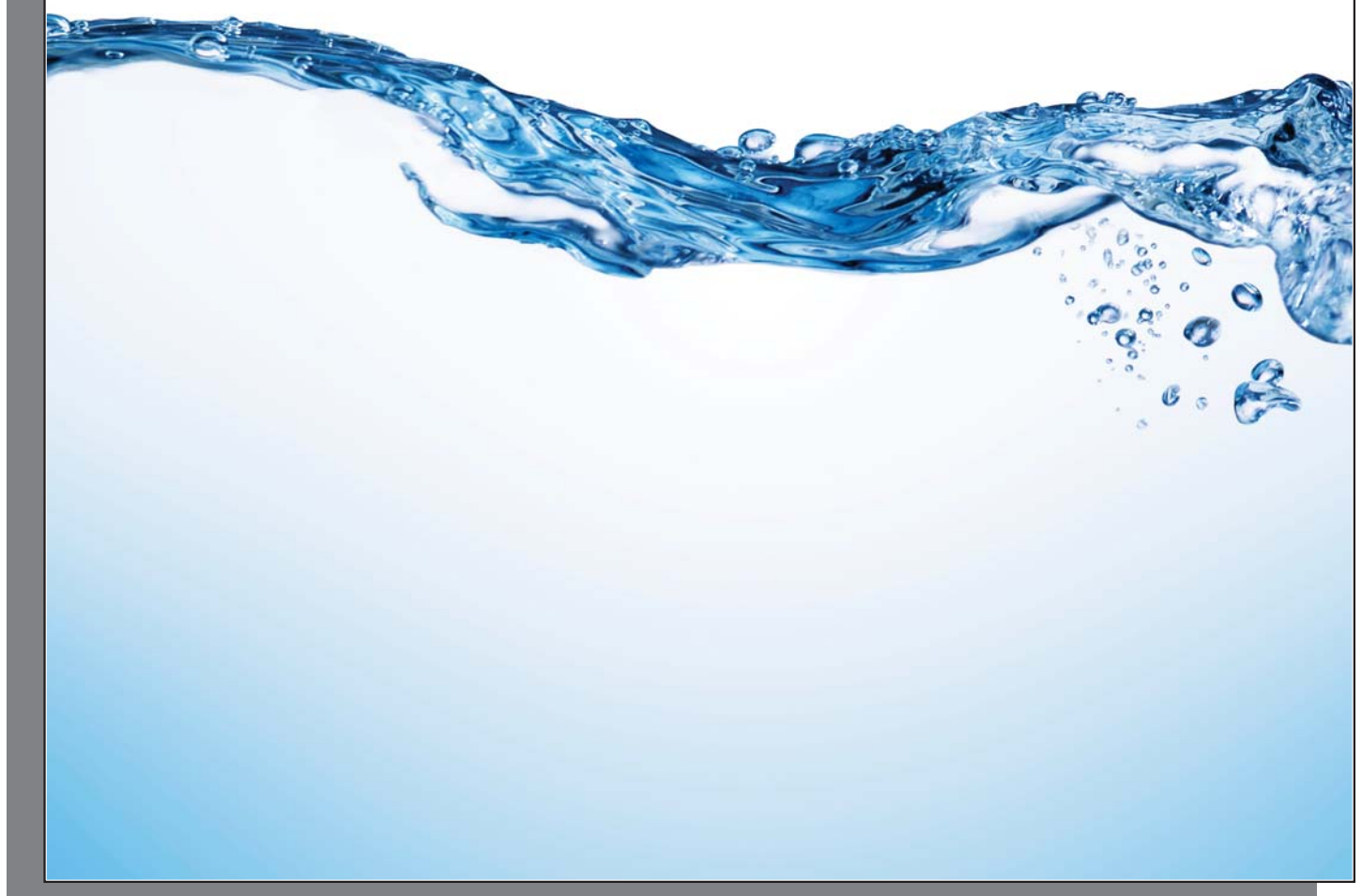
Utilities that wish to implement measures from this guidebook may be eligible to receive grant funding from the CWCB to assist with implementation. Details for the Water Efficiency Grant Program can be found at:
http://cwcb.state.co.us/Conservation/WaterEfficiencyGrantProgram

colorado waterwise

The mission of Colorado WaterWise is to promote and facilitate the efficient use of Colorado's water.

Colorado WaterWise is the voice for water conservation in Colorado. Since 2001, Colorado WaterWise has provided support to water professionals, water providers, and communities across Colorado empowering them to offer more responsive, and effective programs to their own customers, clients, and citizens.

Additional information about Colorado WaterWise can be found at www.coloradowaterwise.org.



REQUEST FOR QUALIFICATIONS
Professional Engineering Consulting Services

Palouse Ground Water Basin Water Supply Alternatives Project

University of Idaho
Moscow, Idaho

To: Qualified Consultants serving the interests of Ground Water, Water Resources Research, Water Resources Management and Public Water Works

From: Eugene P. Gussenhoven, Director Utilities and Engineering Services
Facilities, University Of Idaho

Subject: Investigation Programming, Planning Phase of Engineering Services in relation to the Palouse Ground Water Basin Water supply alternatives project, Located in the Counties of Latah, Idaho and Whitman, Washington

Date of Issue: March 6, 2015

The University of Idaho is seeking qualification statements from interested Engineering Consulting Firms, Geologists, Hydrogeologists, Hydrologic Engineers, Hydrologists, Researchers and Qualified Institutions of Higher Education to assist the Palouse Aquifer Basin Committee in the investigation, programming, and development of Water Supply and Demand Management Alternatives supporting the Palouse Ground Water Management Plan. Qualification Statements from firms/teams interested in providing related services for this effort will be received at the office of Utilities & Engineering Services, University of Idaho, Moscow, Idaho 83844-2281 until close of business at 5:00 p.m., Monday, April 6, 2015.

Any questions shall be submitted in writing 15-days prior to the submission of the consultant's statement of qualification, which arise from this request, shall be addressed to:

Eugene P. Gussenhoven, Director
Utilities and Engineering Utilities Services
University of Idaho
875 Perimeter Drive MS 2281
Moscow, Idaho 83844-2281
(208) – 885 - 6246
eugeneg@uidaho.edu

Interested consulting firms are to limit their contacts to the named individual and contact only this person in the interest of maintaining a consistency of response and fairness to all

respondents. Please make no contact with other members of the University of Idaho or PBAC, except regarding certain items as specifically directed herein.

Background Setting

The Palouse Ground Water Basin (the Basin) underlies an approximately 500 square mile area of north central Idaho and eastern Washington. The over 60,000 residents of the basin rely on ground water for their municipal supply. Water levels in the lower Grande Ronde aquifer system have been declining since measurements began in the early 1900's. In the 1960's water level concerns resulted in the creation of the Pullman-Moscow Water Resources Committee (PMWRC, Known today as the Palouse Basin Aquifer Committee, or (PBAC)), a voluntary, cooperative, inter-jurisdictional group composed of representatives from each of the major pumping entities in the basin and the two Counties. The group formed to study the aquifer systems in the basin and provide recommendations to the entities for management of the resource. In 1992, the committee, in conjunction with the Idaho Department of Water Resources and the Washington Department of Ecology, enacted a ground water management plan for the basin. The plan included voluntary pumping targets as well as a call for continued pumping and water level monitoring and research involving hydro-geologic characterization and water supply alternatives options.

Implementation of the plan has resulted in an 11% decline in basin wide pumping since 1992, and an increased awareness among basin residents of the importance of using the resource wisely. Unfortunately, although the rate of decline has lessened and individuals are using less, water levels continue to decline. The committee has identified that additional demand management and augmented supply strategies will need to be implemented to stabilize water levels and ensure a long term, quality water supply for the basin residents.

Description of the Project

In the past 50 years a number of supply augmentation and demand management alternatives have been investigated by the committee, member entities, university researchers and government agencies. These investigations have resulted in numerous reports containing the details of the investigations as well as conclusions and recommendations for follow on action (see Appendix A, Water Supply Alternatives Document List). It is currently not possible to access a single source that identifies and evaluates in a consistent manner all the potential alternatives that may be available to local decision makers. In order to move forward with selecting one or more strategies for implementation, such a source is necessary.

General: To achieve this end, the University of Idaho (UI) is requesting statements of qualifications on behalf of PBAC for compilation, synthesis and comparison of existing water supply alternatives and demand management studies that have been previously completed for the Basin, and an identification of data gaps precluding selection or ranking of preferred alternative(s). Management options include but are not limited to conservation rate design and

demand reduction, surface water supply (direct use, above ground storage, below ground storage), ground water supply (intra-basin water right transfers, inter-basin water supply), water reuse, and rainwater harvesting.

Vision: The purpose of the project is to compile information available on water supply alternatives for the Basin into a single document and provide a useful means of comparison.

Scope of Work / Intent: This project will compile existing studies and information on alternative water supplies and provide a methodology for reasonable and effective comparison of various alternatives with the goal of assisting decision makers in determining the most promising alternatives, considering life cycle cost, as well as non-economic criteria such as public acceptability, ease of implementation, environmental permitting, overall benefit, etc. The project will also identify any existing data gaps precluding comparison.

Funding: Project funding will be provided by PBAC. The University of Idaho shall provide the contracting representative and authority. The University of Idaho on behalf of the PBAC reserves the right to terminate the contract contingent upon the availability of funding.

Form of Agreement

The university intends to enter into a contract with the selected firm for the services described herein. The university typically relies on AIA standard forms of agreement modified by a supplemental agreement developed by the university use in all professional service contracts. Initial university assumptions for required services are based on budgetary assumptions to include all fees, soft costs, contingencies and miscellaneous costs. Additional services may be required beyond these initial assumptions.

Required Services

The selected consultant shall acquire, review, and assess existing documents related to water supply and demand management: The consultant shall provide the necessary engineering and hydrogeologic expertise to permit such review and assessment. The consultant shall review studies previously attained by PBAC or its member entities. The consultant shall develop appropriate economic analyses and cost estimates as required during the course of the development of the project in order to evaluate and support planning and programming decisions. The consultant may also be required to advise the owner of other cost and value analyses as required. The consultant will prepare appropriate reports for review by PBAC, member entities, and the public.

The selected consultant shall be required to meet as required with the PBAC and University project manager and other concerned stakeholders to discuss and refine issues and inputs during the planning, programming and development phases of the project.

Future services may or may not be required at PBAC and the university's discretion. If such additional services are desired of the consultant, these will be administered by the University of Idaho as determined by an amended or separate agreement.

Qualification Format

Interested parties must submit ten (10) hard copies and one (1) electronic (Adobe format) copy of a qualification containing the following minimum information:

Qualification Content

A. **Basic Qualifications**: A description of your firm, including work history on similar projects, and hydrogeological or water related engineering experience in the Palouse Basin, and on the Columbia Plateau, or other basalt-hosted municipal water supply settings.

B. **Specific Qualifications**: The names, qualifications and roles of key personnel who will be assigned to this project. List the team and team members anticipated to accomplish the work required by this request, including any anticipated sub-consultants. Describe who will perform the various tasks, the amount of their involvement, responsibilities and their qualifications. Individual resumes, awards, associations, etc., maybe included in this section.

C. **Approach to Project**: A proposed project approach.

D. **Contract Management**: The name, title, address, and telephone number of individuals with authority to negotiate and execute contracts and who may be contacted during the evaluation process.

Submittal Requirements

The qualification shall be limited to 12 pages, not including the cover letter, résumés of key individuals, or section dividers. To be considered for award of this work, sealed qualifications must be received at the UI office shown below no later than 5 p.m. on Friday, April 6, 2015. Late qualifications will not be considered. Qualifications should be mailed to:

Mr. Eugene P. Gussenhoven,
Director of Utilities and Engineering
University of Idaho
875 Perimeter Drive MS 2281
Moscow, ID 83844-2281

At the direction of PBAC, UI will issue a notice to proceed or task order for each defined work task before work under each task is authorized to begin. UI and PBAC reserves the right to not proceed with any tasks under this Request for Qualifications. UI requires that the selected party

identify a project manager for this work, who will reside locally or be available to travel to the Basin approximately once per quarter and present a progress report or oral presentation at a regular PBAC meeting. A proposed project scope task list outline below, with suggested and negotiable deliverables, will be the basis for the scope of work and then further refined with the selected consultant.

The project will be divided into the following five tasks.

Task 1 – Project Management

Project administration and management, including regular coordination with PBAC on project updates, draft report review and comments, etc.

- Facilitation of project meetings and other activities.
- Monthly email progress reports available for review at regularly scheduled PBAC meetings.
- Quarterly progress reports to PBAC.

Deliverables: Regular communication and coordination with PBAC.

Task 2 – Compilation, Synthesis and Comparison

Compile, review, and synthesize all known and available previous studies and reports related to water supply alternatives and demand management in the Basin. Obtain electronic copies of all studies and reports from PBAC or member entity sources. The review will include available cost estimates (capital and O&M), projected annual water savings or supply amount, and non-economic data/factors if available such as public acceptability, ease of implementation, environmental permitting on an alternative by alternative basis. Present in tabular format known alternatives. Construct, justify, and provide a methodology for comparison. Review cost estimating approach of various studies and recommend adjustments as needed to make alternatives reasonably comparable in present day dollars.

Deliverables: Fifteen (15) DVD (Adobe .pdf and native file formats accessible to standard Microsoft Office 2000 products) copy containing a Draft and Final Technical Memorandum and compiled data. The Draft Memorandum will be made available for review and comment and any comments received will be contained in and responded to in an appendix to the Final Memorandum.

Task 3 – Data Gap Identification

Evaluate reliability and quality of existing information, areas of uncertainty, and identify key areas in which data gaps exist. It is expected that tasks 2 and 3 will be done concurrently, though the timing of Task 3 will likely lag Task 2 somewhat to better inform data gap areas.

Deliverables: Fifteen (15) DVD (.pdf and Office 2000 compatible) copies of Draft and Final Memorandum summarizing existing data, evaluating data quality and applicability to utilization

in follow-on studies, identification of additional data required for better refinement of alternatives, including ability to effectively compare and contrast water supply alternatives options. A Draft Memorandum will be made available for review and comment and any comments received will be contained in and responded to in the Final Memorandum.

Task 4 – Conclusions and Recommendations

Develop conclusions and recommendations on available water supply alternatives and provide recommendations for necessary follow-on studies, including draft scopes of work for any PBAC selected planning level studies. Identify state and federal options for capital financing (e.g. grants, loans, cost shares, etc.). Provide an evaluation and projection relative to impacts on water rates for each alternative and a relative value of operating and capital investment costs. Included will be a draft report presentation for PBAC members prior to a 30 day review and comment period.

Deliverables: Fifteen (15) hard and twenty five (25) DVD (Adobe .pdf format) copies of Draft and Final Reports summarizing work completed in previous tasks and detailing overall conclusions and recommended planning level scope details (including degree of necessity and optimal staging strategy) for follow-on studies necessary to develop the most promising basin water supply alternatives. Draft Reports will be made available for review and comment and any comments received will be contained in and responded to in the Final Report.

Special Conditions

A. **General Terms**

This request for qualifications does not commit UI or PBAC to enter into an agreement, to pay any costs incurred in the preparation of the qualification or subsequent negotiations, or to contract for the project. All information furnished in this request for qualifications was gathered from sources deemed to be reliable. No representation or warranty is intended as to the accuracy or completeness of the information contained herein and UI and/or PBAC reserves the right to alter or cancel this request for qualifications.

B. **Reservation of Rights**

The issuance of this request for qualifications does not constitute an agreement by the University of Idaho that any services agreement will actually be entered into by University of Idaho. The University of Idaho expressly reserves the right to:

- Waive any immaterial defect or informality in any qualification or procedure.
- Reject any or all qualifications.
- Reissue the request for qualifications
- Invite additional respondents to the request for qualifications.

- Complete the services contemplated by this request for qualifications by any other means.

- Request additional information and data from any or all respondents.

- Extend the date for submission of qualifications.

- Supplement, amend, or otherwise modify the request for qualifications and cancel this request with or without the substitution of another request for qualifications.

C. **Negotiation Rights**

The acceptance of a qualification and invitation to negotiate an agreement does not commit UI to accept any or all of the terms of the qualification. Final terms of any agreement will be agreed upon during negotiations. Negotiations may be terminated for failure to reach mutually acceptable terms.

D. **Right to Disqualify**

UI reserves the right to disqualify any respondent who fails to provide information or data requested herein or who provides inaccurate or misleading information or data. Further, UI reserves the right to disqualify any respondent on the basis of any real or apparent conflict of interest. By responding to this request for qualifications, the respondent agrees that any finding by UI of any fact in dispute related to this request for qualifications or the responses thereto shall be final and conclusive except as provided herein.

E. **Preparation Costs**

Each respondent will be responsible for all costs incurred in preparing a response to this request for qualifications. All materials and documents submitted by the respondents in response to this request for qualifications will become the property of UI and will not be returned. As such, they constitute public records which may be delivered to a person making an appropriate request for public records. The selected respondent will be responsible for all costs incurred by it during negotiations.

F. **Affirmative Action Requirements**

Respondent, by submission of a response, agrees to not discriminate against any worker, employee, subcontractor, or any member of the public because of race, creed, color, religion, sex, age, marital status, national origin, sensory or physical handicap, or otherwise commit an unfair employment practice and further agrees to comply with all Federal or State equal employment opportunity requirements.

Qualification Evaluation and Selection

Selection of the respondent / consultant shall be based on the following evaluation criteria:

1. Capability to perform the work including party's history, areas of expertise, and commitment to provide necessary resources to perform and complete the project within the expected project time frame (200 pts);

2. Relevant project experience including similar work performed by the respondent and clients for which similar work has been performed during the past five years (include name and phone number for appropriate contact persons) (100 pts);

3. Qualifications of project team including experience of key personnel to be assigned to the project and subcontractors, if any, team organization, roles of key personnel, and location of assigned personnel (250 pts);

4. Project approach including how the respondent proposes to execute each task required to complete the scope of the work, unique aspects of the proposed approach, and alternative approaches that PBAC may want to consider (350 pts);

5. Completeness of qualification (100 pts).

An evaluation committee of select PBAC members, will review and evaluate each qualification based on consideration of those factors set forth above. The evaluation committee may make a selection based solely on the ranked Statements of Qualification or it may decide to short list two or three firms and hold interviews.

Interview Information

The determination on whether to have interviews as part of the selection process will lie solely with the evaluation committee.

Selection and Award

The selection committee will attempt to make a recommendation to the PBAC no later than Thursday, April 23, 2015. The University of Idaho will attempt to select a firm/team no later than Friday, May 8, 2015. Upon selection of consultant firm/team, the university will issue a letter of intent to negotiate and schedule a pre-qualification conference. However, final award shall be contingent upon the successful negotiation and approval of a contract. The contents of a submitted qualification may be incorporated in a legal contract or agreement and proposers should be aware that methods and procedures proposed could be folded into contractual obligations.

Only one firm will be selected for the award of the Palouse Ground Water Basin Water Supply Alternatives Project.

RFQ Proposed Timeline Dates:

Issue Requests for Qualifications: Friday, March 6, 2015.

Qualifications Due: before close of business at 5:00 p.m., Friday, 6 April, 2015.

Tentatively Oral Interviews (if needed): week of April 23, 2015.

Announce Selection: Friday, April 28, 2015.

Anticipated Performance Period: In general, PBAC desires are based on having completed, Deliverables in place May 15, 2017. This date may be adjusted based upon the advice and recommendations of the selected consultant.

Additional services and related performance periods may be awarded by the university at the discretion of the university.

Additional Information

The University of Idaho and the Palouse Basin Aquifer Committee (PBAC) reserve the right to reject any and/or all proposing consultant firms interviewed. The PBAC may also negotiate separately with any source in any manner necessary to serve its best interests.

The university and PBAC reserves the right to investigate and confirm the proposer's financial responsibility. This may include review of financial statements, bank references, and interviews with past clients, employees, consultants and creditors. Unfavorable responses to these investigations may be grounds for rejection.

Protests

Solicitation Questions:

If any respondent is in doubt as to the true meaning of any part of this Request for Qualifications, or detects discrepancies or omissions, such respondent may submit to the university a written request for an interpretation thereof.

If any respondent feels that a particular solicitation provision, condition, or specification limits competition, such respondent may submit to the university a written request for change, including reasons for the request and the proposed change.

Any interpretation of this request for qualifications or approval of changes will be made only by addendum duly issued. A copy of each addendum will be mailed, faxed, or delivered to each invitee receiving an invitation to respond and becomes part thereof. Receipt of each numbered addendum shall be acknowledged by the respondent in the response to the request for qualifications. Respondents will receive their copy of this RFQ from WEB://

www.dfm.uidaho.edu. The university will not be responsible for any other explanation or interpretation of the invitation to respondents.

Prospective respondents may submit a request for change of a particular solicitation provisions and specifications and conditions to Eugene P. Gussenhoven **NO LATER THAN 5:00 p.m.,** Friday, March 20, 2015. Such requests for change shall include the reasons for the requests and any proposed changes to the solicitation provisions.

Selection Protests:

Any respondent who claims to have been adversely affected or aggrieved by the selection of competing respondents to interview, or by the final selection of a candidate to recommend to the University of Idaho Executive Leadership for award, shall have five calendar days after notification of those firms who will be considered further for this award to submit a written protest of the selection to the Assistant Vice Present, Facilities, University of Idaho, Moscow, Idaho 83844-2281. This written notification is **TO BE RECEIVED BY 5:00 p.m., 14 May 2015 within the identified five calendar working-day period**.

Document List for PBAC Water Supply Alternatives project

Documents contained in Framework Project Database:

- 1958 EBASCO Services
  Supplemental Water Supply for Moscow, Idaho: Interim Report Phase 1 Preliminary Reconnaissance and Consultation

- 1968 Jones, R.W., S.H. Ross, and R.E. Williams
  Feasibility of Artificial Recharge of a Small Ground Water Basin by Utilizing Seasonal Runoff from Intermittent Streams

- 1969 Williams, R.E., D.D. Eier, and A.T. Wallace
  Feasibility of Re-Use of Treated Wastewater for Irrigation, Fertilization and Ground-Water Recharge in Idaho

- 1970 Stevens, Thompson & Runyan, Inc.
  Water Supply Study

- 1973 Stevens, Thompson & Runyan, Inc
  The Feasibility of Union Flat Creek Pumped Storage

- 1973 Siath, J.
  Water Supply Study for the City of Moscow

- 1981 Nadler, M.
  Feasibility Study: Reclaimed Wastewater for Ground Water Recharge at Moscow, Idaho

- 1984 Ten Eyck, G., and C. Warnick
  Catalog of Water Reports Pertinent to the Municipal Water Supply of Pullman, Washington and Moscow, Idaho – A Summary

- 1986 Machlis, G.E.
  The Conservation of Water in Moscow, Idaho: A Survey of Public Opinion

- 1989 US Army Corps of Engineers
  Reconnaissance Report Palouse River Basin Idaho and Washington

- 2006 Golder Associates
  Palouse Watershed (WRIA 34) Multi-Purpose Storage Assessment, Final Report

- 2014 Palouse Basin Aquifer Committee
  Framework Project Bibliography

Documents on Moscow list otherwise in PBAC possession

- 2011 TerraGraphics/SPF Engineers
  Surface Water Reservoir Feasibility Study - Phase I

- 2012 HDR
  Comprehensive Water System Plan

- 2013 TerraGraphics/SPF Engineers
  Surface Water Reservoir Feasibility Study - Phase II

DOCUMENTS ON MOSCOW LIST NOT IN PBAC POSSESSION (NEED E-COPIES)

- 2001 DEQ
  City of Moscow Source Water Assessment Final Report

- 2004 EES
  City of Moscow Water Conservation Plan

- 2011 Keller Associates

Comprehensive Sewer System Plan

- 2011 JUB Engineers
  Wastewater Treatment Evaluation Temperature Report

- Unknown Date Unknown Author
  Reuse Study for the City of Moscow - Kimball Engineering

- 2015 City of Moscow (?)
  Water Conservation Plan

Documents on Pullman list otherwise in PBAC possession

- 2008 HDR Engineering, Inc., May 2008
  City of Pullman Water System Plan, Volume I and II

DOCUMENTS ON PULLMAN LIST NOT IN PBAC POSSESSION (NEED E-COPIES)

- 1993 Parametrix
  Wastewater Treatment Plant Effluent Reuse: Irrigation at Pullman High School, Military Hill Park and Proposed Golf Course

- 1998 Parametrix/Kimball Engineering/Esvelt Environmental Engineering, 1998
  General Sewer Plan – Chapter 7

- 2000 Parametrix, Inc.
  Washington State University Water Reclamation Project Pre-Design Study

- 2002 Parametrix, Inc.
  Washington State University Water Reclamation Project Design Development Document

- 2007, WestWater Research, LLC
  Water Right Summary, Proof of Beneficial Use, and Impairment Analysis for Application No. WHIT-07-04

- 2010 HDR/Taylor Engineering,
  General Sewer Plan Update – Chapter 7

- 2014 (in progress) Anchor QEA
  City of Pullman Water System Plan Update

- 2014 (in progress) J-U-B Engineers, Inc.
  WSU/Pullman Water Reuse System, Design Update

NO DOCUMENT LIST / E-COPIES RECEIVED FROM UI

NO DOCUMENT LIST / E-COPIES RECEIVED FROM WSU