



# ROARING FORK WATERSHED REGIONAL EFFICIENCY PLAN



RUEDI WATER & POWER AUTHORITY



Beorn Courtney, P.E.  
[bcourtney@elementwaterinc.com](mailto:bcourtney@elementwaterinc.com)



Peter Mayer, P.E.  
[peter.mayer@waterdm.com](mailto:peter.mayer@waterdm.com)

# PROJECT OVERVIEW



## ■ Municipal Water Efficiency Planning

- Reduce future municipal demands relative to without the plans
- Part of overall watershed effort to increase stream flows

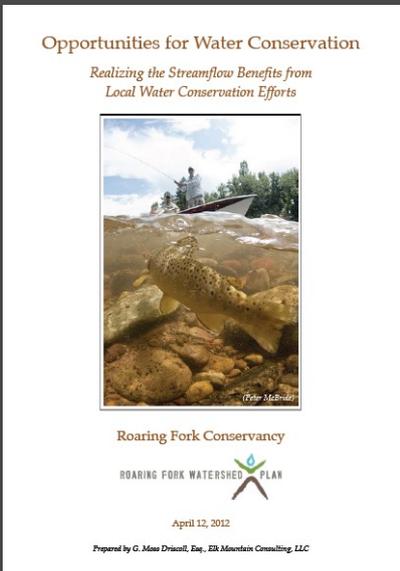
## ■ 5 Individual Plans

- Programs that can be implemented under local codes, resources, etc.
- Provide flexibility to make implementation effective

## ■ Regional Plan

- Programs that benefit from consistency and sharing resources
- Unifies efforts

# PROJECT GOAL



## Regional Water Efficiency Plan Goals:

To implement municipal water efficiency programs on a regional scale *and* to achieve higher and more effective benefits, compared to implementing the same programs individually.

# REGIONAL PLAN APPROACH



- No Guidance Document for a Regional Plan
- Things Considered:
  - Programs from the 5 Individual Plans that compliment/expand each other
  - Cost effectiveness of programs
  - *Guidebook of Best Practices for Water Conservation in Colorado*
  - University of Michigan Study
  - *Water Efficiency for Instream Flow: Making the Link in Practice* (AWE, 2011)
  - Other local/national water efficiency related efforts

# APPROACH, CONT'D



## ■ Regional Plan developed under an MOU between 5 municipal providers

- Scope of the CWCB grant
- Provides a template that can include other stakeholders and sectors

## ■ The specific programs provide a menu of alternatives

- Not all providers will be interested/capable of participating in all programs
- Additional feasibility/pilot projects will be beneficial for some programs

*This Regional Plan provides a template that can include other stakeholders and sectors to expand and extend the savings beyond the five municipal water providers who were directly involved in creating this plan.*

*All communities and stakeholders in the Roaring Fork Valley (not just those that helped create this plan) are invited and encouraged to participate in the regional water efficiency effort.*

*The specific programs included in the Regional Plan are intended to provide a menu of alternatives. Every program will not be appropriate for every participant, nor will every participant be capable of participating in all of the programs.*

# COMMON ACTIVITIES ACROSS INDIVIDUAL PLANS



**Table 1. Water Efficiency Activities Included in the Individual Plans.**

Water Efficiency Activities
<b>FOUNDATIONAL ACTIVITIES</b>
Automatic Meter Reading Installation and Operation
Enhanced Water Loss Control
Conservation-Oriented Rates
<b>TARGETED TECHNICAL ASSISTANCE AND INCENTIVES, AND NATURAL REPLACEMENT OF FIXTURES AND APPLIANCES</b>
Fixtures, Appliances, and Incentives
Outdoor Water Efficiency
Commercial, Institutional, and Industrial Water Efficiency
<b>ORDINANCES AND REGULATIONS</b>
Regulatory Measures
Water Reuse, Recycling, and Raw Water Use
Waste of Water Ordinance
Landscape development regulations for new construction
<b>EDUCATIONAL ACTIVITIES</b>
Public Information, Customer Outreach and Education



*Thank you for  
your time and  
commitment*



Beorn Courtney, P.E.  
bcourtney@elementwaterinc.com



Peter Mayer, P.E.  
peter.mayer@waterdm.com

# IDENTIFIED POTENTIAL REGIONAL PROGRAMS



- **Water Loss Control Technical Assistance**
- **Regional Water Efficiency Education and Information Campaign**
  - Coordinated Public Outreach/Communication Campaign
  - Business and HOA Water Efficiency Challenge Awards
- **Reduce Outdoor Water Use**
  - Create a RF Model Landscape Ordinance with Landscape Water Budgeting Info
  - Certification Program Targeted at Property Managers and Landscaping Professionals
  - Encourage Installation of Rain Sensor Devices on Irrigation Systems
- **Improve Water Resources Management**
  - Linking Water Savings to Environmental Benefits
  - Mechanisms to Protect Water Rights and Enhance Instream Flows
  - Improved Water Accountability for Raw Water Systems
  - Expand Regional Climate Resiliency Measures

# REGIONAL PLAN SAVINGS AND COSTS



**Table 2. Summary of Estimated Water Savings and Costs.**

Program Measure	Estimated Water Savings at 2050 (AF/yr)		Estimated Annual Cost (\$)		Estimated One-Time Cost (\$)	
	Low	High	Low	High	Low	High
Water loss control technical assistance	400	600			\$ 5,000	\$ 20,000
Regional Water Education and Information Campaign	90	120	\$ 5,000	\$ 100,000		
Business and HOA Challenge and Awards	50	75	\$ 5,000	\$ 15,000		
Model landscape ordinance	80	100			\$ 0	\$ 10,000
Certification program	80	100	\$ 5,000	\$ 15,000		
Rain sensor device program	100	150	\$ 5,000	\$ 25,000		
Link Efficiency and Environmental Benefits	50	75	\$ 25,000	\$ 75,000		
<b>Total</b>	<b>850</b>	<b>1,220</b>	<b>\$ 45,000</b>	<b>\$ 230,000</b>	<b>\$ 5,000</b>	<b>\$ 30,000</b>

# IMPLEMENTATION AND MONITORING PLAN



- Maintain an implementation workgroup with representatives of major stakeholder groups, meet regularly to provide updates
- Develop a funding plan
- Assign a Regional Plan Coordinator and divide responsibility
- Create an MOU defining objectives, roles, responsibilities
- Dedicate resources and pursue implementation of the plan

# POTENTIAL CHALLENGES TO SUCCESS



- Social norms regarding water use
- Disconnect between those who use the water and those who pay the bill
- Influencing tourists and 2<sup>nd</sup> homeowners
- Open ditch systems
- Potential for water rights to be lost
- Downstream users may take any water left in the stream from conservation
- Geomorphology makes it difficult to quantify the amount of conserved water maintained in the stream & water rights system does not protect “saved” water
- Revenue impacts from decreased demands
- Misconceptions about being a headwaters region with plentiful water supply