

# **COLORADO WATER CONSERVATION BOARD**

ALERNATIVE AGRICULTURAL WATER TRANSFER METHODS COMPETITIVE GRANT PROGRAM



**GRANT APPLICATION FORM** 

Upper Roaring Fork ATM Project - Phase 1

\$186,356.00

\$30,000.00

Amount of Funds Requested

Amount of Matching Funds

Instructions: This application form must be submitted in electronic format (Microsoft Word or Original PDF). The application can be emailed or a disc can be mailed to the address at the end of the application form. The Alternative Agricultural Water Transfer Methods Competitive Grant Program, Criteria and Guidelines can be found at <a href="http://cwcb.state.co.us/LoansGrants/alternative-agricultural-water-transfer-methods-grants/Pages/main.aspx">http://cwcb.state.co.us/LoansGrants/alternative-agricultural-water-transfer-methods-grants/Pages/main.aspx</a>. The criteria and guidelines must be reviewed and followed when completing this application. You may attach additional sheets as necessary to fully answer any question, or to provide additional information that you feel would be helpful in evaluating this application. Include with your application a cover letter summarizing your request for a grant. If you have difficulty with any part of the application, contact Alex Funk of the Water Supply Planning Section (Colorado Water Conservation Board) for assistance, at (303) 866-3441 or email at <a href="http://cwcb.state.co.us">altex.funk@state.co.us</a>.

Generally, the applicant is also the prospective owner and sponsor of the proposed program/project. If this is not the case, contact Alex before completing this application.

## Part A. - Description of the Applicant(s) (Program/Project Sponsor);

1.	Applicant Name(s):	City of	Aspe	en	
	Mailing address:	130 Sout Aspen, 0		alena St. 1611	3
	Taxpayer ID#: 8	4-6000563		Email address:	margaret.medellin@cityofaspen.com
	Phone Numbers: B	usiness:	970	-429-1992	
		Home:			
		Fax:			

2. Person to contact regarding this application if different from above:

Name:	Margaret N	Medellin				
Position/Title	Utilities	Portfolio	Manager,	Utilities	Department	

3. If the Contracting Entity is different then the Applicant, please describe the Contracting Entity here.

n/a

- 4. Provide a brief description of your organization. The applicant may be a public or private entity. Given the diverse range of potential applicants, not all of the following information may be relevant. Where applicable and relevant the description should include the following:
  - a) Type of organization, official name, the year formed, and the statutes under which the entity was formed, a contact person and that person's position or title, address and phone number. For private entities, a copy of the Articles of Incorporation and By-laws should be appended to the application.

The City of Aspen, Colorado was established in 1881. Aspen is a Home Rule Municipality that operates under a council-manager governmental structure.

Contact Person:

Person: Margaret Medellin, PE Utilities Portfolio Manager City of Aspen, Utilities Department 130 South Galena Street Aspen, CO 81611 (970) 429-1992

b) For waters suppliers, information regarding the number of customers, taps, service area, and current water usage, and future growth plans, water related facilities owned or used, funding/revenue sources (existing service charges, tap fees, share assessments, etc.), the number of members or shareholders and shares of stock outstanding or a description of other means of ownership.

The incorporated area (within the municipal boundary) consists of approximately 3.83 square miles. The total service territory is approximately 8.5 square miles, and includes unincorporated areas served by Aspen.

Aspen owns and operates its own water utilities. It provides treated (i.e. potable) water to all customers in the service area and raw water for irrigation and snowmaking purposes to a small subset of customers. Aspen obtains it treated water supply primarily from the surface water sources of Maroon Creek and Castle Creek, and the City also uses three groundwater wells as a supplemental supply.

According to the 2010 Census, the full-time population within the municipal boundary of Aspen was 6,658 people, up from 5,914 full-time residents as reported in the 2000 Census. The City also has contracts to provide water service to areas outside of the municipal boundary, and after adding these full-time residents, the total number of year-round, full-time residents served was approximately 8,895 in 2000 and 10,016 in 2010.

Aspen is a resort community with a population that markedly increases during the ski season and also during the summer months. Because of this, two separate service area population forecasts were developed

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for Aspen - one for the permanent, full-time population and one for the seasonal, part-time population, see Table 1, below.

Year	Permanent Population	Seasonal Population
2015	10,632	26,791
2016	10,759	27,112
2017	10,888	27,437
2018	11,019	27,767
2019	11,151	28,100
2020	11,285	28,437
2025	11,979	30,185
2030	12,715	32,040
2035	13,496	34,009

## Table 1: City of Aspen Water Service Area Population

Aspen currently bills its customers on a monthly basis using a fourtier inclining block rate structure. This conservation-oriented rate structure has been in place since January 2006. The City's rate structure provides for 5,000 gallons per ECU per month in tier 1, an additional 10,000 gallons of water per ECU per month in tier 2, and additional 5,000 gallons per ECU per month in tier 3, and all monthly usage greater than 20,000 gallons per ECU per month is billed at the tier 4 rate. (information sourced from The City of Aspen's Municipal Water Efficiency Plan (Element Water Consulting and Water DM 2015)).

- c) For other entities, background, organizational size, staffing and budget, and funding related to water that is relevant in determining whether the applicant has the ability to accomplish the program/project for which funding is sought.
- d) A brief history of the Applicant(s).

The City of Aspen ("City" or "Aspen"), Colorado, located in Pitkin County, is a municipality established in 1881. Aspen is a Home Rule Municipality that operates under a council-manager governmental structure. Aspen is located in the upper reaches of the Roaring Fork Valley near the confluences of the mainstem of the Roaring Fork River with Hunter Creek, Castle Creek, and Maroon Creek at an elevation of approximately 7,900 feet. Aspen is located along Colorado State Highway 82 approximately 20 miles west of Independence Pass. The incorporated area (within the municipal boundary) consists of

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approximately 3.83 square miles. However, at this time, the total service territory is approximately 8.5 square miles, and includes unincorporated areas served by Aspen. The City's year-round, full-time service area population was approximately 10,506 residents as of 2014.

Aspen owns and operates its own water utilities. It provides treated (i.e. potable) water to all customers in the service area and raw water for irrigation and snowmaking purposes to a small subset of customers. Aspen obtains it treated water supply primarily from the surface water sources of Maroon Creek and Castle Creek, and the City also uses three groundwater wells as a supplemental supply. Aspen has adopted a policy to maintain streamflows in the creeks downstream of its diversion structures at flow rates at or above the Colorado Water Conservation Board's decreed instream flow rights for the protection of the fishery and the associated aquatic habitats in those streams.

In 2017, Western Resource Advocates (WRA) and the Wilderness Workshop (WW)began discussing alternative ways for the City of Aspen to meet future water needs. Those conversations led to this project to evaluate voluntary and compensated agreements with irrigators as a possible option for meeting municipal water needs and improving streamflows.

WRA is a nonprofit conservation organization dedicated to protecting the Interior West's land, air, and water. WRA promotes river restoration and water conservation, advocates for a clean and sustainable energy future, and protects public lands for present and future generations. WRA's Healthy Rivers Program works to promote and implement smart water solutions for communities and farms and to keep streams and rivers flowing. WRA envisions a future where the West's rivers and lakes have abundant clean water to support fish and wildlife, communities and farms, and world class recreational opportunities.

WW's mission is to protect and conserve the wilderness and natural landscapes of the Roaring Fork Watershed, the White River National Forest, and adjacent public lands. WW is a non-profit organization that engages in research, education, legal advocacy and grassroots organizing to protect the ecological integrity of surrounding public lands. WW focuses on the monitoring and conservation of air and water quality, wildlife species and habitat, and natural communities. WW advocates for the ecological management of and increased protections for public lands and waters as well as adding lands of wilderness quality to the National Wilderness Preservation System. The organization's geographic scope includes defending the ecological integrity of nearly 4 million acres of public lands administered by the White River National Forest (WRNF) and the Colorado River Valley Field Office of the Bureau of Land Management (BLM) - lands that stretch from Battlement Mesa in the west to the Eisenhower Tunnel in the east.

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e) Please include any relevant Tabor issues relating to the funding request that may affect the Contracting Entity.

None.

#### Part B. - Description of the Alternative Water Transfer Program/Project -

1. Purpose of the Program/Project

Please provide a summary of the proposed program/project, including a statement of what the program/project is intended to accomplish, the need for the program/project, the problems and opportunities to be addressed, the expectations of the applicant(s), and why the program/project is important to the applicant(s). The summary must include a description of the technical, institutional (i.e., how the program/project will be organized and operated), and legal elements that will and/or have been addressed by the applicant and proposed program/project. The summary should also discuss relevant project history, if applicable, and any other relevant issues.

The City of Aspen (City), Western Resources Advocates (WRA) and Wilderness Workshop (WW) have collaborated to develop the proposed Upper Roaring Fork Alternative Transfer Method (ATM) Project - Phase 1. This project aims to develop water sharing projects to help increase the reliability of the City of Aspen's municipal water supply and increase environmental flows in the Upper Roaring Fork River basin. Colorado's Water Plan identifies ATMs as an important strategy to help offset the increasing pressures on agricultural water rights through voluntary water sharing agreements that respect property rights and offer an alternative to permanent agricultural dry-up. Designed properly, ATMs can increase an agricultural producer's profits in a given year while helping reduce demands on a water system, resulting in "win-win" agreements.

While several ATM projects have been implemented in Colorado, this would be the first ATM designed for a West Slope headwaters municipality. Considering this, the project will identify the unique challenges and opportunities presented by the area's geography, water rights and hydrology.

Through previous studies, it has been determined that the City's municipal water supplies are vulnerable and would benefit from additional firming. To illustrate this need, the City's current storage capacity is less than a day's municipal demand. When factoring in drought and climate change, projected hydrology indicates the City's water supply would be even more unreliable and in need of additional firming. Adding to these challenges, the Roaring Fork River headwaters are the source of trans-basin diversions which, at times, create significantly reduced stream flows in the Upper Roaring Fork River and some of its tributaries.

The objective of this project is to identify and evaluate opportunities for voluntary water sharing agreements with agricultural producers in the Roaring Fork Valley to increase the reliability of the City's municipal

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water supply and/or enhance stream flows in the Upper Roaring Fork River and key tributaries. The concepts could include, among other possibilities, an interruptible water supply agreement, partial year irrigation, and/or deficit irrigation.

In addition, the project will begin to investigate opportunities to increase supplies in the Roaring Fork Valley through water sharing agreements with East Slope water users that are currently diverting water out of the basin. Considering the complexity of any such water sharing agreement, the team will identify potential partners and facilitate meetings to discuss potential water sharing concepts. The team will summarize any potential water sharing opportunities to pursue in Phase 2.

Because much effort will be spent developing ATM projects, the project is divided into two phases. Phase 1 (this project), is focused on the development and recommendation of specific ATMs, whereas Phase 2 will involve the implementation of the ATMs identified in this phase.

### **Previous Studies**

To the maximum extent possible, the results of any previous studies and investigation should be utilized and incorporated into the proposed program/project. The application for funding should include a brief summary of the results of previous studies and how they will be utilized.

While the final Consultant team has not yet been determined, the selected team will be required to have experience working on ATM issues and projects in Colorado and be well versed on the various ATM efforts, studies, and investigations that have occurred to date. There are several key reports and efforts available on the CWCB's website, that will provide guidance to this project. Additional materials to be utilized, include, among others:

- Colorado Water Plan
- Colorado River Basin Implementation Plan
- Alternative Agricultural Water Transfer Methods Grant Program Summary and Status Update
- Meeting Colorado's Future Water Supply Needs Opportunities and Challenges Associated with Potential Agricultural Water Conservation Measures (CWCB and CSU, 2008)
- Aspen's Water Future: Estimating the Number and Severity of Possible Future Water Shortages (Headwaters Corporation, 2017)
- Municipal Water Efficiency Plan, City of Aspen (Element Water Consulting and WaterDM, 2015)
- Drought-Year Baseflow Monitoring on Select Reaches in the Roaring Fork Watershed (S.K. Mason Environmental, 2013)
- Roaring Fork Watershed Plan (Roaring Fork Conservancy, 2012)
- State of the Roaring Fork Watershed Report 2008 (Roaring Fork Conservancy, 2008)
- Drought-Year Baseflow Monitoring on Select Reaches in the Roaring Fork Watershed, February 13, 2013

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- 2012 Upper Roaring Fork River Aquatic Life Use Assessment
- Snapshot Assessment of the Roaring Fork Watershed A Synoptic Approach to Characterizing Low Flow Conditions on the Crystal and Roaring Fork Rivers in the Autumn of 2012. November 9, 2012
- Roaring Fork Watershed Plan 2012

2. Study Area/Service Area Description

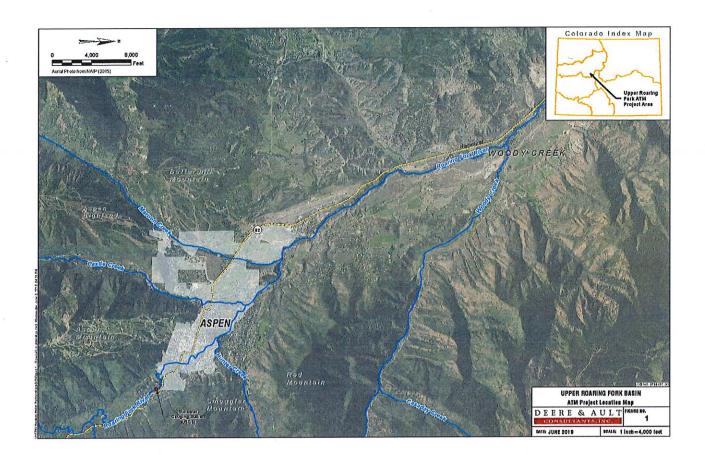
The study area/service area is generally the geographic area that is the subject of the proposed program/project (include both the source of supply and location and type of new use). The description should include the following items:

a) A narrative description of the study area/service area including: the county, the location of towns or cities, topography, and locations of major surface and ground water features.

The study area generally encompasses the area which supplies water to Aspen's municipal system or that provides streamflow to the stretch of the Roaring Fork River from the Stillwater USGS Gage to the confluence with Woody Creek. This area is within Pitkin County.

It is noted that trans-mountain diversions withdraw streamflow upstream of the City. Enhancements to the City's municipal and environmental flows may be realized through ATMs outside of this immediate study area if arrangements with diverters were considered.

b) An area map showing each of the items above, as well as the locations of existing facilities, proposed project facilities and boundaries of lands involved in the proposed program/project.



c) Information regarding the irrigated lands that are involved in the program/project. This must include a tabulation of total irrigated acreage, description of cropping types, crop yields, and total average annual water diversions for existing agricultural lands.

There are about 2,800 irrigated acres in the Upper Roaring Fork Valley and a few tributary basins which will be subject to the Project Team's exploration for compatibility for an ATM project.

d) Information regarding the location of the new water use(s) that will be served by transferred water including the estimated number of users/taps and/or uses served.

The new water will be used to firm existing supplies and to increase the resiliency of Aspen's water supply. New water may also be used to increase streamflow in the Roaring Fork or its tributaries to the benefit of the environment.

e) Socio-economic characteristics of the area such as population, employment and land use.

Aspen is a resort community with a population that fluctuates depending on the season. According to the 2010 census, Aspen had

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6,658 residents. In addition to these residents, there is a considerable influx of daily commuters and tourists. Aspen is the most populous municipality in Pitkin County and serves as an economic base and employment generator for the Roaring Fork Valley.

#### 3. Description of the Alternative Water Transfer Method

Please describe the type(s) of water transfers that will be examined/utilized (i.e., conceived transfer methods include, but are not limited to: 1) interruptible water supply agreements; 2) long-term agricultural land fallowing; 3) water banks; 4) reduced consumptive use through efficiency or cropping changes while maintaining historic return flows; and 5) purchase by end users with leaseback under defined conditions). In addition, please describe how the transferable consumptive use will be calculated and quantified, and how return flow patterns will be addressed/maintained.

The Project will examine opportunities for ATMs in both the upper Roaring Fork River basin and on the East Slope to help improve firm yields for the City and/or improve environmental flows in the upper Roaring Fork River and/or tributaries. Considering that part of the project is the identification of ATM opportunities, the Consultant team will be evaluating the water rights, the historical uses and operations and other factors to determine what water sharing strategies would be fit the needs of all interests. Due to this, the water transfer methods described above will be considered and evaluated to determine its fit. Once an ATM method(s) is chosen, the Consultant team will develop "Plans of Operation" for one or more ATM projects to help meet the City's municipal water needs and/or environmental flows for the Roaring Fork River and/or its tributaries with potential interested irrigators.

4. Program/Project Eligibility

Please <u>describe how</u> the proposed program/project meets each of the following eligibility requirements (please see Criteria and Guidelines for additional information regarding the alternative water transfer methods/strategies that qualify for funding). Note: If these requirements are addressed in other parts of the application you may simply reference the applicable section(s).

a) A description of how, if implemented, the proposed program/project will protect property and water rights.

Any ATM project implemented through this effort will require the use of either water court to change the use of the water rights or an administrative approval process such as the Interruptible Water Supply Agreement (i.e. 37-92-309 CRS) which will ensure that other water right holders are protected from an change of water rights.

b) Identified group(s) of agricultural users that are or may be willing to transfer a portion of their water and identified entity(s), group(s) or area(s) where the transferred water could or would be put to the

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new use and a description of the new use.

In Task 3 (Exploration of Potential ATM Water Supplies in the Upper Roaring Fork River Basin) and Task 5 (Identification of ATM Opportunities for ISFs and Municipal uses), the Consultant team will explore ATM opportunities within the upper Roaring Fork River basin that could be used to improve the City's firm water supplies and/or environmental flows. These efforts include direct outreach to the agricultural producers to determine their interest in pursuing an ATM and if so, on what terms would need to be met to enter into an agreement. Ideally, the new uses would include both municipal use for the City of Aspen and environment flows in the upper Roaring Fork River basin.

In Task 7 (Identifying Opportunities for Water Sharing with East Slope Water Users), the Project Team will identify and analyze water sharing opportunities with East Slope water users that are currently diverting from the Roaring Fork River basin. Specifically, the Consultant team will examine opportunities and constraints associated with water sharing strategies involving the Twin Lakes Tunnel and/or the Boustead Tunnel. Considering the complexity of any such water sharing agreement, the Consultant team will identify any potential partners willing to discuss a possible water-sharing ATM strategy and facilitate a meeting with each of the managers and operators of the projects as well as water users that own water rights in those projects.

c) The program/project must at a minimum conceptually describe the technical, institutional, and legal elements of the water transfer. Grant monies may be used to address one or more of these elements. If grant monies are not requested for all three elements, the grant applicant must describe how the applicant has or intends to address the elements, which are not included in the grant request, through other efforts.

While several ATM projects have been implemented in Colorado, this would be the first ATM considered by a West Slope headwaters municipality. Considering this, the project will identify the unique challenges and opportunities presented by the area's geography, water rights and hydrology. Through the implementation of this project, the Consultant team will develop a model and/or template for other similar ATM project sponsors to use. While each ATM project will have its unique attributes, including its water rights, this project will help to establish guidance for those wanting to replicate the approach. To ensure this, the applicant will provide a report detailing the financial, legal and technical considerations and lessons learned through this pilot project. The report will describe negotiations with the agricultural producers and East Slope water users. A description of the ATM method, land preservation options, development of a farm and water management program, water right court and/or administrative processes and the financial analyses, tools and agreements will be provided in the final report.

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d) If grant monies are proposed for use for legal assistance, then the use of those funds shall be oriented toward advancing the knowledge of alternative agricultural water transfer methods and techniques; not for preparation of a specific water court case. The total requested funds for legal assistance shall not exceed 40 percent of the total grant request. In addition, grant monies proposed for use for legal assistance must be used to collaboratively address issues and concerns related to agricultural water transfer. Funds shall not be used to solely advance the cause of the project proponents.

Grant funds will not be used for the preparation of a specific water court case. The grant funds for legal services will only be applied to advising on the legal aspects of any water sharing concept or project.

e) A minimum of a 10 percent cash match of total project cost (past expenditures and "in kind" can not be counted toward the 10 percent match).

The City and WRA will provide at least 10% of the project costs. WRA is pursuing a grant that would provide additional cash matching funds. The matching resources will likely be above the 10% minimum threshold. In addition, the City has already spent over \$12,000 towards the development of the project in the past three months. Inkind contributions from the City, Western Resource Advocates and Wilderness Workshop are also estimated to be \$47,000 plus the City's in-kind contributions of \$50,000.

#### 5. Program/Project Evaluation Criteria

The following grant evaluation criteria will be used by the CWCB to evaluate and make recommendations to fund, partially fund or not fund a grant application. The criteria are aimed at advancing alternative transfer methods from the literature and studies to actual on the ground projects/programs that provide reliable water supply and sustain key elements of the agricultural area from which the water is transferred. The applicant should fully address and explain in detail in the application how, and the extent to which, the proposed project/program meets each of the criteria. However, it should be noted that the project does not have to meet all of the criteria to be eligible to receive funding and the criteria below are not listed in any order of important or priority.

The proposed project/program builds upon the work of former alternative water transfer methods efforts and addresses key areas that have been identified. For more detailed information on this work, please refer to the draft report: *Alternative Agricultural Water Transfer Methods Grant Program Summary and Status Update*, November 2012.

The report summarizes the past ATM funded projects and provides a list of findings and recommendations based on this work. Many of the studies that have been funded by the CWCB through the ATM program have identified several barriers to successful implementation. This project seeks to directly address all four major barriers to successful implementation of ATMs:

- 1. Potentially high transaction costs associated with water rights transfers.
- 2. Water rights administration uncertainties and water rights accounting questions.

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3. Certainty of long-term supply and desire for water providers to have permanence of long-term supply.

4. Infrastructure needs and water quality issues.

The proposed project addresses one or more key recommendation(s) in the report: *Alternative Agricultural Water Transfer Methods Grant Program Summary and Status Update*, November 2012.

The Alternative Agricultural Water Transfer Methods Grant Program Summary and Status Update (Update) specifically recommends:

Continue to support demonstration/pilot projects to determine the feasibility of new concepts or techniques as needed. This project is focused on identifying actual ATM projects that can be implemented to help meet the City's municipal water needs and to improve the environmental flows in the upper Roaring Fork River and/or its tributaries. For those ATM projects that are identified, the Consultant team will develop "Operational Plans" that will serve as the roadmap for implementing them in Phase 2 of this effort.

Identify that ATMs on the West Slope could be used for both municipal uses, instream flow and compact compliance purposes. Since this project is the first ATM designed for a West Slope headwaters municipality with the purpose of increasing firm water supplies and improving instream flows, this project will hopefully advance the understanding of ATMs on the West Slope. The Project Team hopes this project will identify the unique challenges and opportunities presented by the area's geography, water rights and hydrology.

a. Preference will be given to projects that provide additional matching resources in the form of cash, past expenditures and in-kind contributions that are in addition to the required 10% cash match.

The City and WRA will provide at least 10% of the project costs. WRA is pursuing a grant that would provide additional cash matching funds. The matching resources will likely be above the 10% minimum threshold. In addition, the City has already spent over \$12,000 towards the development of the project in the past three months. In-kind contributions from the City, Western Resource Advocates and Wilderness Workshop are also estimated to be \$47,000 plus the City's in-kind contributions of \$50,000.

b. The proposed project/program has the ability/potential to produce a reliable water supply that can be administered by the State of Colorado, Division of Water Resources.

While the City has not presupposed which legal mechanism will be utilized in changing any water rights for use by the City and/or environmental flows, (e.g. water court, interruptible water supply statute, HB 1248--CWCB's pilot program, HB1128), it will be able to be administered by the Division of Water Resources. Once an ATM strategy has been identified by the Consultant team, the appropriate Division Engineer's Office(s) will be consulted.

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c. The proposed project/program produces information that is transferable and transparent to other users and other areas of the state (i.e., would provide an example "template" or roadmap to others wishing to explore alternate transfer methods).

All of the information produced from this project would be transferable and transparent to other users and other areas of the state. The intent of this project is to demonstrate the feasibility of protecting agricultural lands while increasing municipal firm water supplies and improving environmental flows. With agricultural, environmental and municipal uses all being considered, we believe there are synergies that can be realize and resources that can be tapped due to the project's multi-objectives.

d. The proposed project/program addresses key water needs identified in SWSI 2010 or as identified in a basin's needs assessment.

SWSI 2010 Key Findings and Recommendations identified significant pressures on irrigated agriculture in the State and forecast that as much as 700,000 acres of irrigated land could be dried up if the status quo continues. Chapter 6.4 of the draft Colorado Water Plan stated a goal of achieving water sharing of 50,000 acre feet annually. This project seeks to implement an ATM project that will contribute to meeting these goals.

Throughout the Colorado Water Plan, there are policy recommendations geared towards the promotion of conservation easements coupled with ATMs to allow for certainty and permanent preservation of agricultural lands. In Section 6.5.2., Agricultural Viability Actions and Strategies, Program to facilitate agricultural opportunities (Page 6-143), the IBCC recommends "that the State needs to provide additional education and assistance to farmers and ranchers to help realize more transactions that allow for ATMs, and to enable new Colorado farmers to successfully enter the agricultural industry.

In addition, this project seeks to meet most, if not all the following overarching goals set forth in the Colorado Basin Implementation Plan:

- Ecosystem Health Protect and Restore Streams, Rivers, Lakes and Riparian Areas
- Agriculture Sustain, Protect and Promote Agriculture
- Safe Drinking Water Secure and Protect drinking water for today and tomorrow
- Conservation Encourage a High Level of Basin-wide Conservation across all uses
- Land Use Develop Water Conscious Land Use Strategies
- Basin Administration Ensure Reliable and Predictable Basin Administration

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e. The proposed project/program advances the preservation of high value agricultural lands. Value can be viewed as: the value of crops produced, the value the agriculture provides to the local community, and the value the agricultural area provides for open space and wildlife habitat.

Although irrigated agriculture occupies a small percentage of the upper Roaring Fork River basin's total land area, it provides important functions including local agricultural production and economy, wildlife habitat, open space, and stream corridor protection. While most of the agricultural production is either grass or alfalfa to provide feed for cattle and horses within the area, there has been an increase in acreage of potatoes grown to supply a local distillery.

f. The proposed project/program addresses water quality, or provides other environmental benefits to rivers, streams and wetlands.

An important goal of this project is to use ATMs to improve environmental flows in the upper Roaring Fork River and/or its tributaries. Ideally, the projects would increase the City's firm water supplies and benefit the river and streams.

g. The proposed project/program increases our understanding of and quantifies program/project costs. This could include institutional, legal, technical, costs and third-party impacts.

Yes, this project will provide valuable information on program/project costs including the institutional, legal and technical costs as well as third party impacts. As further described in the Statement of Work, there will be an economic analysis as part of the farm and water plan to determine the options for compensation to the farmer and/or continued farming with less water during the years the municipal water provider uses the water.

h. The proposed project/program does not adversely affect access to other sources of water (not subject to/participating in the program) where owners of these water rights may wish to pursue traditional transfer of their rights to other users.

This ATM project will utilize existing processes including but not limited to water court, the State Engineer's Office Substitute Water Supply Plans, Interruptible Water Supply Statute (C.R.S. 37-92-309). All of these incorporate protections to other water right holders to ensure no injury.

i. The proposed project/program provides a perpetual water supply for the new and/or alternate use and preserves agricultural production and/or helps sustain the area's economy from which the transfer is occurring.

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Considering that this project seeks to use ATMs to provide water for municipal use (and environmental use), a permanent supply is desirable (albeit interruptible). If an ATM were perpetual, we would be looking at conservation easements or other deed restrictions to ensure the perpetual protection of the agricultural lands.

j. The quantity of water produced by the proposed project/program. Preference will be given to programs that can address larger water supply needs.

The amount of water produced by the proposed ATM project is unknown at this time. There are about 2,800 irrigated acres in the Upper Roaring Fork Valley and a few tributary basins which will be subject to the Project Team's exploration for compatibility for an ATM project. Considering this, if a third or quarter of the irrigated lands were in such a program, the yields could be in excess of 1,000 acre-feet.

An ATM involving East Slope water users has the potential to produce additional supplies although the amounts are to be determined.

k. Applicants are encouraged to develop projects demonstrating participation and/or support from a diverse set of stakeholders and interests.

The City, Western Resources Advocates and the Wilderness Workshop are working cooperatively on this multi-objective ATM project. These project partners represent a diverse set of stakeholders and interests. In addition, the Project Team presented the project to the Colorado Basin Roundtable at their May 2019 meeting and will continue to seek input and support from this group.

#### 6. Statement of Work

Provide the proposed statement of work. On the following page there is an example format for the statement of work. You can use the example format or your own format, provided that comparable information is included. The statement of work should outline by task how the proposed program/project will be accomplished. It is important that the statement of work detail the specific steps, activities/procedures that will be followed to accomplish each individual task and the overall program/project and the specific products/deliverables that will be accomplished. The statement of work must include but not be limited to: task description, key personnel, budget, schedule and deliverables and the final report/project documentation upon completion of the water activity.

The statement of work will form the basis for the contract between the Applicant and the State of Colorado. In short, the Applicant is agreeing to undertake the work for the compensation outlined in the statement of work and budget, and in return, the State of Colorado is receiving the deliverables/products specified. Please note that costs incurred prior to execution of a contract or purchase order are not subject to reimbursement.

Please provide a detailed statement of work using the following template. Additional sections or modifications may be included as necessary. Please define all acronyms. If a grant is awarded an independent statement of work document will be required with correct page numbers.

## Statement of Work

WATER ACTIVITY NAME - Upper Roaring Fork Alternative Method Transfer (ATM) Project - Phase 1

GRANT RECIPIENT - City of Aspen

FUNDING SOURCE - The Alternative Agricultural Water Transfer Methods Competitive Grant Program

## INTRODUCTION AND BACKGROUND

The City of Aspen (City), Western Resources Advocates and the Wilderness Workshop (the Project Team) have collaborated to develop the proposed Upper Roaring Fork Alternative Transfer Method (ATM) Project—Phase 1. This project aims to develop water sharing projects to help increase the reliability of the City of Aspen's municipal water supply and increase environmental flows in the Upper Roaring Fork River basin. Colorado's Water Plan identifies ATMs as an important strategy to help offset the increasing pressures on agricultural water rights through voluntary water sharing agreements that respect property rights and offer an alternative to permanent agricultural dry-up. Designed properly, ATMs can increase an agricultural producer's profits in a given year while helping reduce or maintain demands on a water system, resulting in "win-win" agreements.

While several ATM projects have been implemented in Colorado, this would be the first ATM considered by a West Slope headwaters municipality. Considering this, the project will identify the unique challenges and opportunities presented by the area's geography, water rights and hydrology.

Through previous studies, it has been determined that the City's municipal water supplies are vulnerable and would benefit from additional firming. To illustrate this need, the City's current storage capacity is less than a day's municipal demand. When factoring in drought and climate change, projected hydrology indicates the City's water supply would be even more vulnerable and in need of additional firming. In addition to these vulnerabilities, the Roaring Fork River headwaters are the source of trans-basin diversions which, at times, contributes to significantly reduced stream flows in the Upper Roaring Fork River and some of its tributaries.

The objective of this project is to identify and evaluate opportunities for voluntary water sharing agreements with agricultural producers in the Roaring Fork Valley to increase the reliability of the City's municipal water supply and/or enhance stream flows in the Upper Roaring Fork River and key tributaries. The concepts could include, among other possibilities, an interruptible water supply agreement, partial year irrigation, and/or deficit irrigation.

In addition, the project will begin to investigate opportunities to increase supplies in the Roaring Fork Valley through water sharing agreements with East Slope water users that are currently diverting water out of the basin. Considering the complexity of any such water sharing agreement, the team will identify potential partners and facilitate meetings to discuss potential water sharing concepts. The team will summarize any potential water sharing opportunities to pursue in a subsequent Phase 2 of the project.

Because of the complexity of developing ATM projects, the project is divided into two phases. Phase 1 (this project), is focused on the development and recommendation of specific ATMs, whereas Phase 2 will involve the implementation of the ATMs identified in this phase. Phase 2 will occur after the completion of this project and this grant application does not include any Phase 2 work.

https://cityofaspen-my.sharepoint.com/personal/margaret\_medellin\_cityofaspen\_com/Documents/ATM/RFP/Roaring Fk ATM

#### **OBJECTIVES**

The project's primary objectives are:

- 1) Identify potential interested irrigators
- Develop conceptual "Plans of Operation" for one or more ATM projects to help meet the City's municipal water needs and/or environmental flows for the Roaring Fork River and/or its tributaries with potential interested irrigators.
- 3) Identify opportunities for water sharing with East Slope water users.
- 4) Provide recommendations for one or more ATM projects to be implemented in Phase 2.

### TASKS

#### Task 1: Summarize Municipal Projected Firm Yield Demands

Review existing data and reports related to municipal water needs in time, location, amount, and hydrologic year type. Consultant team will review and summarize the City water intake structures and locations, municipal water demand data and projections, and available streamflow data at critical intake locations. Consultant team will characterize projected firm yield deficits to inform ATM project demands. This task will be informed by previous work by the City and its consultants and may include analysis of proposed infrastructure and facilities.

Deliverable: A memorandum describing the municipal projected firm yield demands will be developed.

**Task 2: Summarize Environmental Flow Needs for the Upper Roaring Fork River and Key Tributaries** Review existing data and reports related to environmental flow needs and flow shortages in time, location, amount, and hydrologic year type. Consultant team will obtain and compile data from a variety of sources to identify environmental flow needs. These sources include non-consumptive needs databases or reports, such as SWSI or Basin Implementation Plans; as well as any instream/environmental flow quantification data. This information will be used to summarize the streamflow required to meet the legal thresholds required for instream flow use. This initial review will also include an analysis of streamflow data to identify the nature and extent of flow shortages in the project area that might impact the health of the natural environment. For streams where data is not available, streamflow estimates may be derived using modeling techniques, water official and water user interviews, or other means. This information provides the basis for determining the need for environmental flows, including location, amount and timing.

Deliverable: A memorandum describing the environmental flow needs will be developed.

## **Task 3: Exploration of Potential ATM Water Supplies in the Upper Roaring Fork River Basin** Explore agricultural water rights diverting at or upstream of critical locations of the upper Roaring Fork River and key tributaries to determine ATM opportunities. Characterizations of the water rights will be made including location, diversion rate, adjudicated priorities, summarization of diversion records, and a preliminary analysis of yield performance of the water right under various hydrologic conditions. A description of the historical agricultural use of these water rights will also be included. At a minimum, this will include a description of the historical crops and livestock operations, estimated acreages/head count and crop yields, and irrigation methods. Previous work characterizing water rights in the study area may be incorporated in this task.

Deliverable: A memorandum describing the results of this task will be included.

### Task 4: Develop and Implement Outreach Strategies to Potential Agricultural Partners

Consultant team will meet with and educate agricultural water users about the voluntary nature and economic, water rights, and environmental benefits of potential ATM projects, as well as the types of water transactions that may be available, and the processes for approval. Example of existing ATM projects and specific ways in which irrigators are benefiting from agreements and payments will be shared.

Deliverable: Consultant team will document input from outreach participants regarding their possible participation in an ATM, as well as concerns and potential barriers to participation in ATM projects.

## Task 5: Identification of ATM Opportunities for ISFs and Municipal Uses

Based on the tasks above, the team will identify and evaluate potential ATM projects in the Roaring Fork River basin that will provide water for environmental flows and/or municipal use. The following subtasks will be evaluated for potential ATM projects the emerge with irrigator partners.

## **Yield Analysis**

Consultant team will provide a preliminary estimate of environmental benefits and municipal firm yield that each of the identified potential ATM projects may provide. The yield analysis will consider what kind of ATM is proposed; such as an interruptible water supply agreement (i.e. 3 out of 10 years), partial year irrigation, and/or deficit irrigation.

#### **Due Diligence**

Preliminary due diligence on water rights identified with interested irrigators will be conducted to determine their feasibility for potential ATM projects. The analysis may include review of decrees, ditch company bylaws, deeds, encumbrances, and relevant agreements, and will identify and fatal flaws or challenges such as shared ownership, shepherding, shared infrastructure, augmentation requirements, or potential injury to other water rights. The data reviewed will be from publicly available records.

#### **Economic Analysis of ATM Concepts**

To provide an accurate understanding of the economic considerations of the potential agricultural partners in an ATM strategy, the economic baseline conditions of the agricultural operation(s) will be established to calculate an estimate of baseline net farm income under full water and, potentially, limited water conditions. These

https://cityofaspen-my.sharepoint.com/personal/margaret\_medellin\_cityofaspen\_com/Documents/ATM/RFP/Roaring Fk ATM

baseline conditions can then be compared to operations under an ATM to help determine the water's value to the operator and provide a rational starting point for negotiating the ATM price. To further inform the team, identified water rights will be compared to recent sales of water rights in the vicinity to help determine current value. Also included in this task will be an analysis and recommendation for a method of price adjustment for the ATM.

### Identifying Required Water Court and/or Administrative Processes for Specific ATM Strategies

The legal analysis will identify the appropriate transaction mechanism based on statutory limitations and water user preference. The legal analysis will describe the approval process that will be necessary for implementation of a potential ATM project.

### **Evaluate Potential ATM Projects**

Based on the analysis described above, the Consultant team will develop evaluation criteria to identify the advantages and disadvantages for each of the ATM concepts, including competing or complimentary interests between instream flows and municipal uses.

Deliverable: Consultant team will provide a written summary of the analysis of the potential ATM project.

## Task 6: Develop Conceptual Plans of Operation for ATMs

Consultant team will develop conceptual plans of operation for selected ATM projects (to be determined in consultation with the Project Team). These plans will describe the baseline conditions, recommend a water sharing strategy (e.g. interruptible water supply agreement, partial season irrigation, etc.) and outline key terms that the water sharing agreement should include such as timing, amounts of water and legal mechanisms necessary to implement the transfer of water.

Deliverable: Consultant team will provide plans of operation for all viable ATM projects.

## Task 7: Identifying Opportunities for Water Sharing with East Slope Water Users

This task will identify and analyze water sharing opportunities with East Slope water users that are currently diverting from the Roaring Fork River basin. Specifically, the consultant team will examine opportunities and constraints associated with water sharing strategies involving the Twin Lakes Tunnel and/or the Boustead Tunnel. Considering the complexity of any such water sharing agreement, the consultant team will identify any potential partners willing to discuss a possible water-sharing ATM strategy and facilitate a meeting managers and operators of the projects as well as water users that own water rights in those projects.

Deliverable: Consultant team will summarize any potential water sharing opportunities to pursue in Phase 2.

## Task 8: Public Outreach and Communication

To ensure that the community is kept apprised of the project, the Consultant team will provide updates and/or presentations to City Council, Colorado River Basin Roundtable and other community groups and interested stakeholders as requested by the Project Team.

Deliverable: For any outreach requested by the Project Team, Consulting Team will document meetings,

https://cityofaspen-my.sharepoint.com/personal/margaret\_medellin\_cityofaspen\_com/Documents/ATM/RFP/Roaring Fk ATM

attendees, and key discussion points.

#### **Task 9: Project Management**

This task involves the management of the project, including conducting team meetings, calls and grant management responsibilities including submitting regular progress reports and invoicing. This task also includes directing subcontractor efforts to complete the deliverables of the project.

Deliverable: Regular progress reports and invoicing including providing the City materials ready for submission to the CWCB to invoice for grant reimbursement.

#### **Task 10—Final Report**

Consultant team will produce a final report to the CWCB describing the project's findings and recommendations.

Final Deliverable: A final report describing the ATM project will be provided to the CWCB in digital format.

#### **REPORTING AND FINAL DELIVERABLE**

Reporting: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the statement of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

## BUDGET

Provide a detailed budget by task including number of hours and rates for labor and unit costs for other direct costs (i.e. mileage, \$/unit of material for construction, etc.). A detailed and perfectly balanced budget that shows all costs is required for the State's contracting and purchase order processes. Sample budget tables are provided below. Please note that these budget tables are examples and will need to be adapted to fit each individual application. Tasks should correspond to the tasks described above.

Project Personnel:	ATM Project Manager		Engineering	Economist	Legal	ISF Project Manager		Agronomist	Outreach & Comm Specialist	Admin.	Total Labor Costs
Hourly Rate:		\$160	\$150	\$190	\$250		\$115	\$125	\$100	\$75	
	\$ 1,5	1,500.00 \$	3,000.00	\$ 1,520.00		\$	1				\$6,020.00
Task 2: Summarize Environmental Flow Needs for the Upper Roaring Fork River and Key Tributaries	\$ 1,5	1,500.00 \$	1	۔ ج		\$ 5,000.00	00				\$6,500.00
Task 3: Investigations of Potential ATM Water Supplies in the Upper Roaring Fork River Basin	\$ 4,0	4,000.00 \$	6,000.00	\$ 4,560.00		64	   .				\$14,560.00
	\$ 2,4	2,400.00 \$	3,600.00	\$ 10,640.00		\$ 2,000.00	00		\$ 2,500.00		\$21,140.00
Aunicipal uses	\$ 5,5	5,500.00 \$	6,000.00	•	\$ 1,500.00	\$ 4,000.00	\$ 00	2,500.00			\$19,500.00
_	\$ 8,0	8,000.00 \$	8,400.00	\$ 12,160.00	\$ 2,000.00	\$ 2,000.00	\$ 00	1,500.00			\$34,060.00
Task 7: Identifying Opportunities for Water Sharing with East Slope Water Users	\$ 10,5	10,500.00 \$	3,600.00	\$ 1,520.00	\$ 5,000.00	\$ 2,000.00	00				\$22,620.00
communication	\$ 4,0	4,000.00 \$	6,000.00	\$ 1,520.00		\$ 1,020.00	00		\$ 2,500.00		\$15,040.00
Task 9: Project Management	\$ 7,5	7,500.00 \$	1,800.00	•		<del>s</del>				\$ 3,000.00	\$12,300.00
Task 10: Final Report	\$ 5,5	5,500.00 \$	3,600.00	\$ 4,560.00	\$ 1,000.00	\$ 1,460.00	\$ 00	500.00	\$ 1,000.00		\$17,620.00
Total Hours:	3	315.00	280.00	192.00	38.00	152.00	00	36.00	60.00	40.00	
Total Labor Costs:	64	\$50,400	\$42,000	\$36,480	\$9,500	\$17,480	480	\$4,500	\$6,000	\$3,000	S169,360.00
				2			8				Total Direct Costs
Direct Costs:											
Mileage	S	6,500	\$ 3,500	\$ 1,500	\$ 1,000	\$	3,500 \$	1,500			\$17,500.00
Lodging	\$	1,600	\$ 1,000	\$ 600	\$ 500	s	1,000 \$	400			\$5,100.00
Misc. Expenses	S	1,000	\$ 500	\$ 200		S	100 \$	100			\$1,900.00
Copies (including final report)	s	100									\$100.00
Total Direct Costs:	S	9,200	\$ 5,000	\$ 2,300	\$ 1,500	\$	4,600 \$	2,000			\$24,600.00
10% Administration											\$19,396.00
						y .					
		+					_		Total ]	Total Project Costs:	\$213,356.00
		1							Cash	Cash Match Amount	\$30,000.00
							_		CWCB ATM Grant Request:	rant Request:	S183,356.00

### SCHEDULE

Provide a project schedule including key milestones for each task and the completion dates or time period from the Notice to Proceed (NTP). This dating method allows flexibility in the event of potential delays from the procurement process. Sample schedules are provided below. Please note that these schedules are examples and will need to be adapted to fit each individual application.

Task	Start Date	Finish Date
Task 1: Identify Municipal Projected Firm Yield	NTP	NTP + 6 mos
Demands		
Task 2: Identify Environmental Flow Needs for the	NTP	NTP + 6 mos
Upper Roaring Fork River and Key Tributaries	NII .	
Task 3: Investigations of Potential ATM Water	NTP	NTP + 6 mos
Supplies in the Upper Roaring Fork River Basin	N11	
Task 4: Develop and implement outreach strategies to	NTP	NTP + 10 mos
potential agricultural partners	IN II	
Task 5: Identification of ATM opportunities for ISFs	NTP + 6 mos	NTP + 12 mos
and Municipal uses	NTT + O IIIOS	N11 + 12 IIOS
Task 6: Develop Conceptual Plans of Operation for	NTP + 12 mos	NTP + 20 mos
ATMs	NTF + 12 1105	NTF + 20 mos
Task 7: Identifying Opportunities for Water Sharing	NTP	NTP + 22 mos
with East Slope Water Users	IN I I	NTF + 22 mos
Task 8: Public outreach and communication	NTP	NTP + 26 mos
Task 9: Project Management	NTP	NTP + 26 mos
Task 10—Final Report	NTP + 16 mos	NTP + 26 mos

#### PAYMENT

Payment will be made based on actual expenditures and invoicing by the applicant. Invoices from any other entity (i.e. subcontractors) cannot be processed by the State. The request for payment must include a description of the work accomplished by major task, and estimate of the percent completion for individual tasks and the entire water activity in relation to the percentage of budget spent, identification of any major issues and proposed or implemented corrective actions. The last 5 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed. All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to the public and help promote the development of alternative agricultural transfer methods.

Additional Information – If you would like to add any additional pertinent information please feel free to do so here.

See Attached Letter of Support from Bart Miller, Western Resource Advocates



June 7, 2019

Alex Funk, Agricultural Water Resources Specialist Colorado Water Conservation Board 1313 Sherman Street, Room 718 Denver, CO 80203

Re: Upper Roaring Fork Alternative Method Transfer (ATM) Project - Phase 1

Dear Alex,

Western Resource Advocates is pleased to support the City of Aspen's grant application for the Upper Roaring Fork Alternative Transfer Method (ATM) Project - Phase 1. In 2017 Western Resource Advocates began discussing alternative ways for the City of Aspen to meet future water needs. Those conversations led to this project to evaluate voluntary and compensated agreements with irrigators as a possible option for meeting municipal water needs and improving streamflows. Western Resource Advocates, along with the Wilderness Workshop, are involved in this project and will work closely with the City as Project Partners as it progresses. In addition, Western Resource Advocates has applied for a grant to provide half of the project cash mash.

Western Resource Advocates is a nonprofit conservation organization dedicated to protecting the Interior West's land, air, and water. We promote river restoration and water conservation, advocate for a clean and sustainable energy future, and protect public lands for present and future generations. Our Healthy Rivers Program works to promote and implement smart water solutions for communities and farms and to keep our streams and rivers flowing. We envision a future where the West's rivers and lakes have abundant clean water to support fish and wildlife, communities and farms, and world class recreational opportunities.

We are excited about the Upper Roaring Fork ATM Project's potential to develop water sharing projects to help increase the reliability of the City of Aspen's municipal water supply and increase environmental flows in the Upper Roaring Fork River basin. Additionally, Colorado's Water Plan identifies ATMs as an important strategy to help offset the increasing pressures on agricultural water rights through voluntary water sharing agreements that respect property rights and offer an alternative to permanent agricultural dry-up.

We hope the CWCB will support this important project and approve the City's application for an Alternative Agricultural Water Transfers grant.

Sincerely,

Bart P. Mille

Bart Miller Healthy Rivers Program Director

Arizona P.O. Box 30497 Phoenix, AZ 85046 Colorado - Boulder 2260 Baseline Road Suite 200 Boulder, CO 80302

Colorado - Denver 1536 Wynkoop Street Suite 210 Denver, CO 80202 Nevada 550 W. Musser Street Suite G Carson City, NV 89703 New Mexico 409 E. Palace Avenue Unit 2 Santa Fe, NM 87501 Utah 307 West 200 South Suite 2000 Salt Lake City, UT 84101 The above statements are true to the best of my knowledge:

Signature of Applicant:

m. Medell

Print Applicant's Name: Margaret Medellin

Project Title: Upper Roaring Fork ATM Project - Phase 1

### **Return this application to:**

Mr. Alex Funk Colorado Water Conservation Board Water Supply Planning Section 1313 Sherman St., Room 721 Denver, CO 80203 alex.funk@state.co.us

# Alternative Agricultural Water Transfer Methods – Competitive Grant Program Water Activity Summary Sheet July 17-18, 2019 Agenda Item 13

Applicant & Grantee:	City of Aspen
Water Activity Name:	Upper Roaring Fork ATM Project – Phase I
Water Activity Purpose:	Begin evaluation of developing water-sharing projects to help increase the reliability of the City of Aspen's municipal water supply, increase environmental flows, and promote agricultural viability.
Drainage Basin:	Colorado
Water Source:	Roaring Fork River
Amount Requested:	\$186,356
Matching Funds:	\$30,000 total cash match (provided by the applicant and other project
	partners)

# Staff Recommendation

Staff recommends approval of up to \$186,356 from the Alternative Agricultural Water Transfer Methods Program to help fund the "Upper Roaring Fork ATM Project – Phase I."

**Water Activity Summary:** The City of Aspen (City), Western Resources Advocates (WRA) and Wilderness Workshop (WW) have collaborated to develop the proposed Upper Roaring Fork Alternative Transfer Method (ATM) Project - Phase 1. This project aims to develop water-sharing projects to help increase the reliability of the City of Aspen's municipal water supply and increase environmental flows in the Upper Roaring Fork River basin. Colorado's Water Plan identifies ATMs as an essential strategy to help offset the increasing pressures on agricultural water rights through voluntary water sharing agreements that respect property rights and offer an alternative to permanent agricultural dry-up. Appropriately designed, ATMs can increase an agricultural producer's profits in a given year while helping reduce demands on a water system, resulting in "win-win" agreements.

While several ATM projects have been implemented in Colorado, this would be the first ATM designed for a West Slope headwaters municipality. As such, the project will identify the unique challenges and opportunities presented by the area's geography, water rights, and hydrology. Project partners will share these results in a format that can be used by other Western Slope water users to provide a better understanding of how ATMs can work on the Western Slope to address issues such as climate change, drought, and maintaining agricultural viability.

Through previous studies, it has been determined that the City's municipal water supplies are vulnerable and would benefit from additional firming. To illustrate this need, the City of Aspen's current storage capacity is less than a day's municipal demand. When factoring in drought and climate change, projected hydrology indicates the City's water supply would be even more unreliable and in need of additional firming. Adding to these challenges, the Roaring Fork River headwaters are

the source of trans-basin diversions which, at times, create significantly reduced stream flows in the Upper Roaring Fork River and some of its tributaries.

The objective of this project is to identify and evaluate opportunities for voluntary water sharing agreements with agricultural producers in the Roaring Fork Valley to increase the reliability of the City's municipal water supply, as well as, potentially enhancing stream flows in the Upper Roaring Fork River and principal tributaries. The concepts could include, among other possibilities, an interruptible water supply agreement, partial year irrigation, or deficit irrigation.

The project will also begin to investigate opportunities to increase supplies in the Roaring Fork Valley through water-sharing agreements with East Slope water users that are currently diverting water out of the basin. Considering the complexity of any such water-sharing agreement, the team will identify potential partners and facilitate meetings to discuss possible water sharing concepts. The team will summarize any potential water sharing opportunities to pursue in Phase 2.

Because much effort will be spent developing ATM projects, the project is divided into two phases. Phase 1 (this project), is focused on the development and recommendation of specific ATMs, whereas Phase 2 will involve the implementation of the ATMs identified in this phase.

**Discussion:** Staff supports the City of Aspen's effort based on the following considerations: the selected project team's successful track record of developing and implement alternative transfer method projects and collaborative approach; the potential for this project to serve as model for other Western Slope water users interested in exploring the feasibility of ATMs to address water supply shortages; to meet the Colorado River Basin Implementation Plan's goal of managing water to sustain an optimal agricultural economy; and when successful this effort will further Colorado's Water Plan's Measurable Objectives and Critical Goals and Actions with regard to ATMs.

Issues/Additional Needs: No issues or additional needs have been identified.

CWCB Project Manager: Alexander Funk