

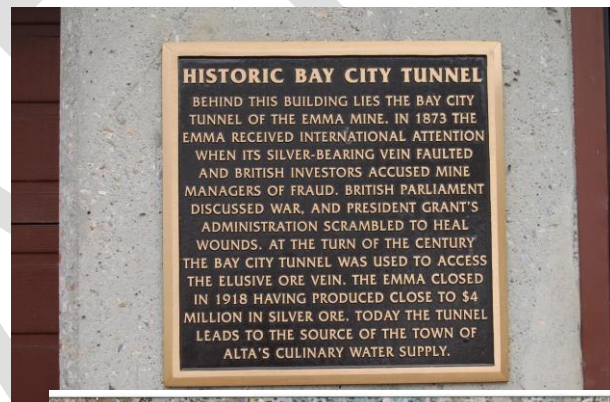
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# Town of Alta Water Distribution Infrastructure Improvements

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**Improve Water Delivery with Efficiency and Reliability by Modernizing pump, pipes, lighting, heating, meter, and natural gas conversion**

**Bureau of Reclamation WaterSMART Grants:  
Small-Scale Water Efficiency Projects (FOA BOR-DO-19-F005)**



Submitted by:  
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## Mandatory Federal Forms

### SF-424- APPLICATION FOR FEDERAL ASSISTANCE

- Refer to Appendix SF-424

### SF-424C BUDGET INFORMATION- CONSTRUCTION

- Refer to Appendix SF-424C

### SF-424D ASSURANCES- CONSTRUCTION

- Refer to Appendix SF-424D

## Technical Proposal

### EXECUTIVE SUMMARY

April X, 2019

Town of Alta is submitting this WaterSMART grant application to seek financial assistance to improve the energy efficiency and system reliability of the Town's water system as well as improving water metering with a pilot project for a new smart meter with leak detection beginning with one of the largest water users to improve water conservation efforts. The project involves installing a new energy efficient pump in the Bay City Tunnel the sole source of supply for the Town and adding efficient lighting in the tunnel access. The current electrical heating of the tunnel will be replaced with more efficient and reliable natural gas heat. Another component to increase system reliability and energy efficiency, will be upgrading the propane powered generator operated pump to a remote reservoir with a natural gas operated system.

The project will be designed during the late summer and early fall of 2019. Construction will start October 1, 2019 and be completed by November 10, 2019.

### BACKGROUND DATA

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The Town of Alta is home to an internationally recognized ski area at the top of a ten mile long, steep, narrow-walled canyon, accessed by one road plagued with avalanches during the winter months often entirely cutting Alta. The town provides water to the ski area, numerous businesses including hotels and restaurants as well as residential customers connected to the water system. The water system is also the supply to the fire hydrants and fire suppression systems. The Bay City Mine Tunnel is the sole source of supply to the Town's water system. The water system uses the mine shaft as a collection point and storage reservoir to collect percolating groundwater, the Town reservoir. The water is pumped out of this mine reservoir to a 365,000 gallon finished water storage tank. A portion of the pumped flow is routed through a water treatment system to reduce certain metal levels before the finished reservoir. The current mine pump is a submersible 35 hp pump and is capable of pumping 260 gpm. The tunnel piping is approximately 1700 feet in length. There is a distribution pump station located in the tunnel that pumps water to a 10,000 tank that serves the upper portion of the town.

The Town's water supply is provide by water rights owned by Salt Lake City under a long term agreement with the City. The water contract allows for a daily use of 265,000 gallons, plus an additional allocation for snowmaking, which is considered a non-consumptive use. The use is approved under water right 57-10013(a16844). The water is used for municipal, domestic and businesses including restaurants and hotels. Alta's water system serves 85 connections. The connections consist of 61 domestic, 21 commercial and 3 industrial. The water demand for 2018 was 7.21 ac-ft for domestic, 46.98 ac-ft for commercial and 26.2 ac-ft for industrial, for a total of 80.39 ac-ft.

The total length of distribution lines for the Alta water system is 2.1 miles. The Bay City Mine shaft holds 5 million gallons. The Town reservoir is 365,000 gallons and there is a small 10,000 gallon storage tank. In addition to the main tunnel supply pump, there are two pump stations in the distribution system.

Alta is proposing a project comprised of three components including tunnel source water projects, a water meter improvement pilot program, and a water reliability improvement project.

## **PROJECT LOCATION**

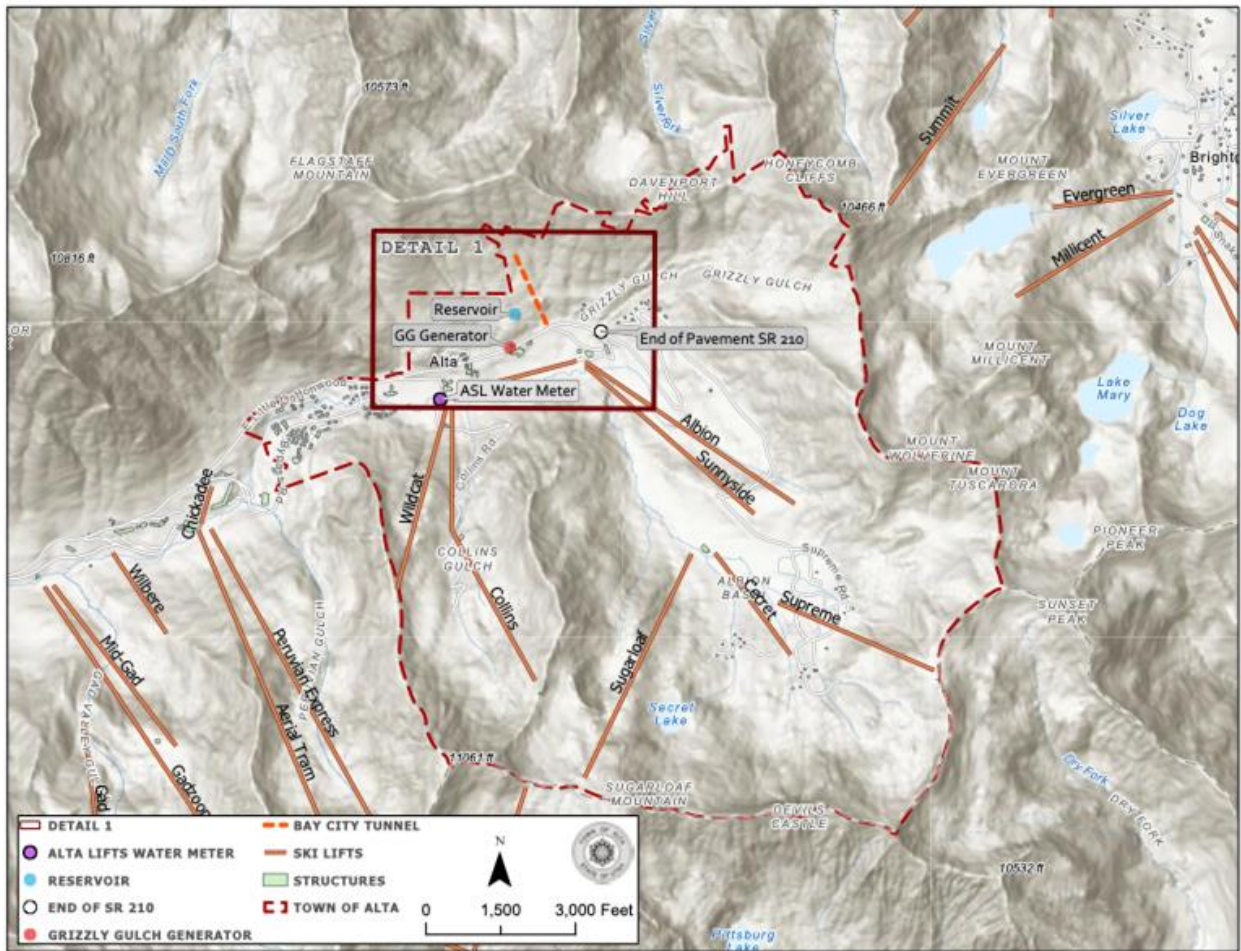


Figure 1 Overview Town of Alta

The Bay City Mine Tunnel is within Alta’s municipal boundary, 25 miles South East from Salt Lake City, Utah. The project latitude is 40° 36’ 32.55” N and longitude 111° 37’ 52.47” W.

## TECHNICAL PROJECT DESCRIPTION AND MILESTONES

### Project Description (Need)

The Town of Alta is nestled in the Wasatch Mountains, surrounded by steep ridges that surround Little Cottonwood Canyon, high above the Salt Lake Valley in Northern

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Utah.<sup>1</sup> The flip side to Alta's picturesque setting is the fact that Alta is rural, and can be isolated due to the ten mile long sole access road, susceptible to winter avalanches, which at times cut Alta off from the Salt Lake Valley below. The Town and the surrounding Uinta-Wasatch-Cache National Forest are in a protected watershed, as the snowmelt provides water not only for the Town, but up to 20% of the water for the entire Salt Lake Valley. The Town site began from the structures and abandoned mines from the 19th Century. Today, Alta is best known for its winter sports, a mecca for skiing enthusiasts. Alta's resident population is less than 400, but with visitors and seasonal employees, swells to over 4,000 skiers per day. Summer is also seeing increased visitations, when the mountains and meadows are resplendent with wildflowers from an abundant snowfall.

Alta's water system begins with snow. As the snow melts, it flows in streams, but much percolates down into the aquifer through faults, fractures, joints and pore spaces which are interconnected in a vast network of permeable zones. As spring runoff from snow melt and rain, flows across the surface of the ground, some water enters the ground through cracks in the rocks that form the mountains and ends in the Bay City Mine, an abandoned silver mine with a subterranean tunnel accessing a 350' deep shaft 1700 back from the tunnel's entry. That shaft is full of water and serves as water storage for the Town. Pumps are sunk 200' deep inside this shaft. Water is pumped up the shaft, out the 1700' distance of the tunnel, treated in the tunnel entry structure, then pumped up to the Town Reservoir. Most of the Town receives gravity fed water from the Town Reservoir. Two areas of Town are higher in elevation than the reservoir and receive water by separate pumps located in the entry structure of the tunnel.

Currently, Alta's water system infrastructure includes, in part, 2, 35 hp pumps, a 1700-foot tunnel, lit by exposed wires and incandescent bulbs. The long, underground tunnel ends in a room commonly referred to as the pump room with a 350-foot deep mine shaft in the floor. To access the tunnel distance and pump room with materials and perform maintenance, our water operators use a mine cart and rail system, built, and in operation, since the late 1800's. Due to the heavy mineralization in the water, 200 feet of pipes in the shaft, are heavily corroded and contain particulate matter, reducing efficient flow.

Being subterranean, the mine tunnel is a constant temperature of 45 degrees. The entry structure is not located underground. To protect the water from freezing in the entry structure despite outside freezing temperatures, for as long as seven (7) months, electric heaters have been used. These electric heaters have a high energy use and can be subject to frequent power interruptions creating water supply insecurity.

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<sup>1</sup> GIS Map of Alta's location, [Figure 1 above](#).

A water meter at a major water user, Alta Ski Lifts Company, is unreliable making tracking of water usage and potential leaks very difficult. Finally, some residents live at elevations higher than the water reservoir. Pumps at the entry structure of the mine, pump water to a small, remote reservoir to serve them. However, those pumps are electrically powered and electrical failure can lead to water insecurity. That remote reservoir and propane tank powered pump system can become buried under meters of snow, so are less reliable than natural gas would be.

## Project Milestones (Outcomes)

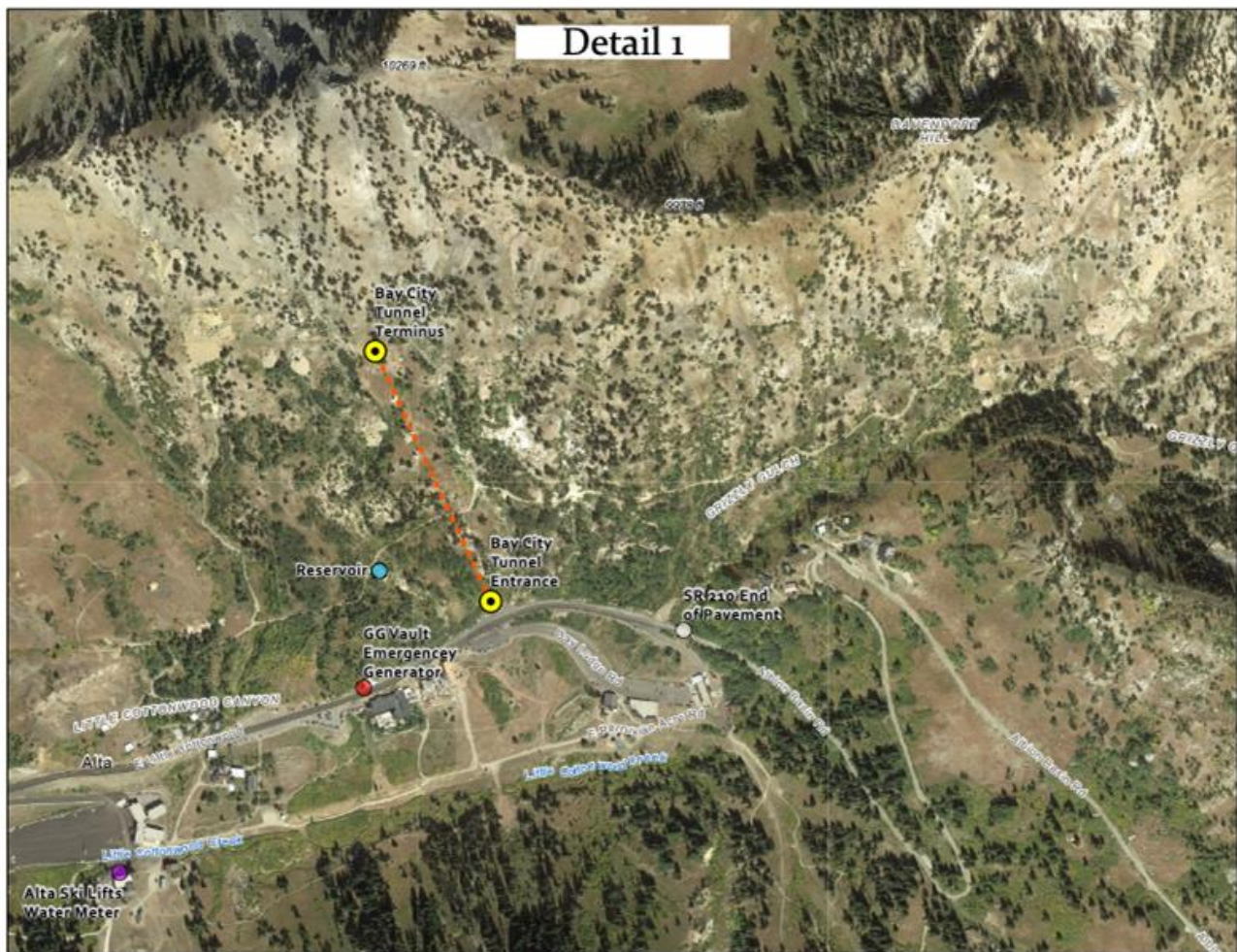


Figure 2 Detail, Town of Alta improvement locations

The Town's project consist of seven (7) components at 3 locations as described below and as depicted on Figure 2, below.

### **Tunnel Source Water Projects:**

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Five projects will to be accomplished in the Bay City Mine Tunnel: a modern energy efficient 50 hp variable frequency drive (vfd) pump, hung 200' deep in the shaft on new discharge piping, new energy efficient lighting, stabilization and upgrading of the narrow rail line, and converting the heating system to natural gas.

The new, more efficient 50 hp vfd pump will be capable of pumping water based on demand, for increased energy efficiency. Replacing 200 feet of corroded pipe will reduce pipe system head and improve overall energy use. Upgrading the railbed which supports the mining cart, will allow the new pump installation, and improve access inside the tunnel.

In addition, upgrading the lighting system in the 1700 foot tunnel with new LED lighting, will be more energy efficient, meet current code and increase safety within the mine tunnel.

With Alta's rural and remote setting, the water system, like much of the Town, is affected frequently with electrical outages. At the portal to the mine tunnel, the Town constructed an avalanche resistant concrete entry building which houses the pumps, electrical and mechanical equipment and the water treatment facility, to remove antimony from the water supply. The Town has relied on inefficient electrical heaters to prevent water in the system from freezing prior to distribution to water users. Alta plans to replace the electric heating system with a more efficient natural gas system to improve system reliability that will insure continuous water to users, even in the event of a power interruption.

**Water meter Improvement Project:**

The largest user of water is the Alta Ski Lifts Company. A portion of this use is measured by an older style meter that has had issues with inaccuracy. The Town plans to install an upgraded smart meter with leak detection to ensure water use can be accurately monitored, to detect leaks, and to collect data, providing useful information for conservation measures. This meter is a pilot project which if successful, will translate to new smart meters throughout town.

**Water Reliability Improvements:**

Some residences are at elevations above the Town reservoir. These users rely on water being pumped to smaller, remote reservoirs or vaults, and then pumped higher still, to individual users from those vaults. The Town plans to pursue a project involving Grizzly Gulch, one such residential area. Grizzly Gulch is accessed by a seasonal road, unplowed during the winter. Winter access is by foot, snow cat or snowmobile. Grizzly Gulch residents receive water from the Town's system, but during electrical outages, the pumps bringing water to the reservoir serving these homes, stops operating, leaving the homes with no water. The Town installed a propane powered generator which requires refueling to run the Grizzly Gulch pump during power outages. Alta receives



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an average of 500" of snow per year. During winter, the vault housing the generator is covered by snow. The plan is to convert and upgrade the pump generator in the vault to natural gas, a more reliable and efficient system. A natural gas line is within several feet of the Grizzly water vault.

## **EVALUATION CRITERIA**

### **Evaluation Criterion A—Project Benefits (35 points)**

Alta has only one source of water, the shaft at the end of the Bay City Mine Tunnel. As a result of the proposed infrastructure improvements, the water users in Alta will see increased water reliability. Culinary, fire fighting and snow-making water needs can be effectively handled with a modern, technologically superior 50 hp vfd pump, capable of increased flow. The new 50 hpvfd pump will increase water reliability in the water delivery system by ensuring faster refill to the 365,000 gallon reservoir, when depleted. The expected geographic benefits from the proposed project are local within the lower portion of Albion Basin in Little Cottonwood Canyon. This increased water reliability will benefit not only the resident water users, but also provide a positive benefit to recreation and tourism by making culinary water, fire fighting water and snow-making water available, even when demand exists in all three sectors.

Alta is fortunate to contract with and share water managers with Salt Lake County Service Area #3 which provides water to the adjacent Snowbird Ski and Summer Resort, part of unincorporated Salt Lake County. The close cooperation and collaboration both with Salt Lake County and Snowbird will continue with these improvements and information sharing will continue as well.

The modernizing contemplated will have positive impacts not only to Alta's residents, for both culinary and firefighting water, but to tourism and recreation with increased reliability of snowmaking water and more efficient refill of the Town reservoir.

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In addition, in the event of an electrical failure, water to all water users will continue to flow. No longer will a technician have to transport a generator to the water facility to operate the heaters, preventing the water distribution pipes from freezing. Checking the equipment and operations will be safer for the technicians and more energy efficient with improved LED lights in the system's one-third mile, sub-subterranean mine tunnel. The system will be able to operate effectively and efficiently, whether to fight fires, supply water for snow-making, for resort hotels, and local residents to cook and shower. With the improved meter, Alta will be able to share with Metropolitan Water District of Salt Lake and Sandy the quantity of water used for snow-making. The increased reliability of water flow will ensure recreation and tourism needs have adequate water resources without starving residents.

### Evaluation Criterion B—Planning Efforts Supporting the Project (35 points)

Alta's water system operators frequently update the Town with suggested capital improvements. The 2011 report, recognized "the need to meet newer fire flow standards and to help prevent long water service disruptions caused by breaks [and] freezing...."<sup>2</sup> In 2014, the Town commissioned a study to understand capital improvements<sup>3</sup> due to the need to provide fire flow as well as average day demand of water. In addition, a Drinking Water Source Protection Plan (DWSPP) was developed in 2005, and updated in 2016<sup>4</sup>. These local planning efforts emphasize the need for the proposed improvements. Each of these studies suggested the need for more efficient lighting, heating and reliability of the pumps used to distribute the water through the pipes to the water users. Supporting the need is first, the system currently consists of 2, 35 hp pumps to pump the water up from where the pumps hang, 200 feet deep in the 350 foot shaft ; the shaft serves as a water reservoir. From there, the water is pumped both uphill to residences and businesses higher in elevation than the Town reservoir, as well as pumped up to the Town Reservoir from which the bulk of the town residences and businesses are gravity fed. The project proposes to replace one pump with a 50 hp vfd pump. The new pump will conserve energy and allow the pump to have a longer useful life.. Supporting this conclusion, the literature for the more efficient 50 hp vfd pump demonstrates the pump can be operated at variable frequency drive, thereby reducing the energy required to operate. In addition, the flow through the pipes can be more effectively controlled with the variable frequency drive, making it no longer necessary to run the pumps at full capacity when full capacity is not required.

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<sup>2</sup> 2011, Water System Future Improvement Plan 2011-2021, Keith Hansen. [Appendix V, Prior Studies](#)

<sup>3</sup> 2014, Capital Improvements Analysis, Forsgren Associates Inc., page 6, [Appendix V](#)

<sup>4</sup> The 95-page, 2016, DWSPP report can be found in [Appendix V](#).

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The larger more efficient pump will also allow the pump to be set lower in the mine shaft which will increase the system resiliency to the impacts of climate change. During a recent dry year, water level in the mine collection shaft dropped to a low level that greatly reduced the available head on the pump, dramatically reducing the pump operating capacity.

The district manager of our water system has operational data demonstrating **XXXXXXXXXX**.- [conserves water, metering record, saving of water supply, leaks, whatever...] **will get answers from Keith**

The components of this proposal are priorities due to potential water use conflicts, because, with the present non-variable frequency drive pumps, firefighting could drain the Town Reservoir faster than it could be refilled by the pumps. A fire was experienced in Alta this winter. A quarter of a million gallons of water was used to combat that fire. In addition, when increased flow is required, the new pump will be able to effectively and efficiently manage that flow, plus be able to scale back when flow demand is reduced.

In addition, the Mine reservoir, an old mine shaft, is located 1700 feet back inside an abandoned mining tunnel. To access that shaft, the water district uses abandoned mining equipment, including a mining cart and rail system. That equipment will not support the weight of the new 50 hp pump, in places. To prevent cracks in the rails from developing into impediments to future use of the access system, it is necessary to improve sections of that rail line.

Similarly, the entire shaft, pumps, electrical, mechanical and treatment equipment, are internal to the mountain, essentially subterranean. This one-third of a mile distance requires lighting. The proposal includes upgrading the tunnel lighting with more efficient LED lights. At the entry of the tunnel, the Town built a concrete, avalanche resistant entry structure. Because the wall of that structure is in direct contact with the outside, where temperatures can be below zero degrees for extended periods of time, it is important that the building be heated to ensure the water distribution pipes do not freeze. Currently the structure is heated with electrical heat, an inefficient system. The project includes replacing that system with natural gas heating, a more reliable system, particularly when electrical power outages occur each winter.

It is essential to sharing accurate information with Metropolitan Water District of Salt Lake and Sandy (MWD) as well as Salt Lake County, that Alta have reliable readings on snowmaking and other uses from one of its largest water users, Alta Ski Lifts Company. Replacing the water meter there with a modern smart meter including leak detection, will accomplish that goal and provide the necessary collaboration with these watershed

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and water owners. This will also serve as a pilot program which if successful, would facilitate installing these meters throughout the rest of the Town.

Finally, converting to natural gas in the Grizzly vault will provide the necessary water reliability to those residents, a need that has been recognized since those homes were first provided town water in the 1970's.

### **Evaluation Criterion C—Project Implementation (10points)**

To implement this project, Alta will begin engineering and design work once Reclamation announces Alta has been awarded a grant, assumed to be June 15, 2019. Currently, our best estimate for a schedule of work is shown in Figure 3, including milestones. A likely contractor for engineering design and specifications is Aqua Engineering who has worked in our Town before and is very familiar with our unique water distribution system. In parallel with the design, Reclamation personnel from the Provo Regional office will begin environmental and cultural compliance work.

The Town will contact the relevant agencies and obtain more precise timelines for approvals and shipment of parts. Long lead time parts and materials will be ordered starting toward the end of the design phase to assure all are in place for construction start in October. Once the design and specifications are complete we will seek permits from the State and County.

No excavation or construction work will commence prior to funds being available to the Town from Reclamation, in October 2019. Construction work will commence, and is projected to take a total of 320 man-hours, over approximately 2 weeks although 4 weeks is shown on the schedule to accommodate unanticipated delays. Because the bulk of the work will take place inside the Bay City Mine, it is not expect that weather will contribute to any slippage. Scheduling the tie-in to the natural gas line can be accomplished when there is an adequate weather window.

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## Evaluation Criterion D— Nexus to Reclamation (10 points)

Little Cottonwood Canyon, home of the Town of Alta is the second most important watershed within the Salt Lake City/County watershed. The Town is located in the Central Utah Water Conservancy District. The 1992 Central Utah Project Completion Act (CUPCA) recognized how important the Little Cottonwood drainage is to the completion of the Central Utah Project. CUPCA funds were authorized to purchase lands for watershed conservation in Albion Basin of Utah. (Section 313(b)). The Albion Basin is located entirely within the boundaries of the Town of Alta. Water from Little Cottonwood Creek and the watershed surrounding it, form important source waters for the Metropolitan Water District of Salt Lake & Sandy (MWD)<sup>5</sup>. Salt Lake is part of the Bureau of Reclamation’s Upper Colorado River Basin Region.

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<sup>5</sup> A Map of the MWD facilities, including Reclamation sites, is included in [Appendix ?](#)

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Water that leaves Alta, flows downhill into the Little Cottonwood Water Treatment

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Plant, one of the purist sources in the system facilities of the MWD. The MWD includes

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two Bureau or Reclamation facilities, including the Jordanelle Reservoir, and the Deer

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Creek Dam and Reservoir. These are in turn, part of the Central Utah Project and Provo

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River Project, respectively. Alta's proposed project will ensure water entering the Little

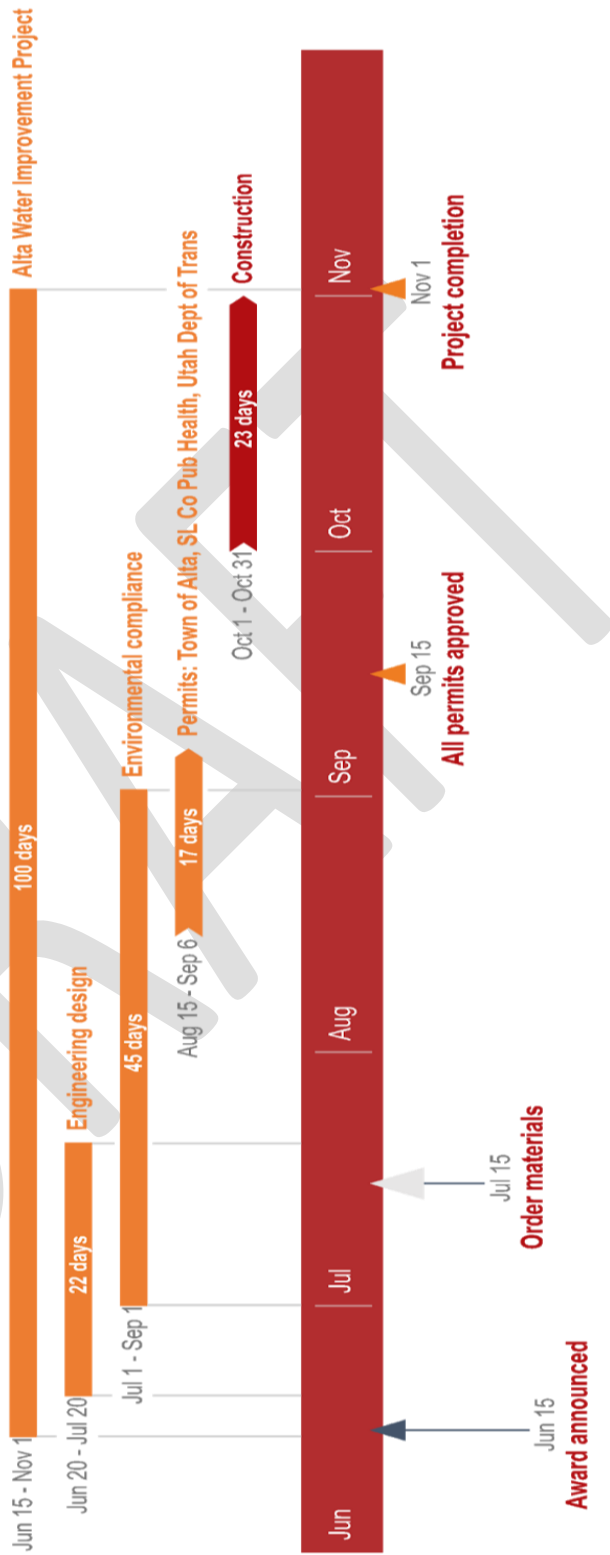
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Cottonwood Treatment Plant, in the same Salt Lake Basin, continues as an anti-

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# Figure 3. Project Schedule



degradation segment.

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According to a 2018 Environmental Assessment prepared by the United States Forest Service, for projects within the Town of Alta, by Alta Ski Lifts, Company, “Water quality in Little Cottonwood Creek is monitored closely by the Utah Department of Water Quality (DWQ) and Salt Lake City because the creek is a significant water source for Salt Lake City, supports native aquatic species, and is important for recreation. Little Cottonwood Creek above the National Forest boundary is classified as an antidegradation segment (High Quality Water - Category 1). This classification indicates that existing water quality is higher than state standards, and that the state is required by regulation to maintain this condition. Numeric water quality standards for all beneficial uses assigned to Little Cottonwood Creek are found in Section R317-2, Utah Administrative Code, Standards of Quality of Waters of the State (State of Utah 2016). Little Cottonwood Creek and its tributaries in Little Cottonwood Canyon are assigned the following beneficial uses: secondary contact recreation, cold water aquatic life, and drinking water prior to treatment for culinary use.” ( p. 43, USFS EA of ASL MDP improvement projects within the Town of Alta, [https://www.fs.usda.gov/nfs/11558/www/nepa/103726\\_FSPLT3\\_4286628.pdf](https://www.fs.usda.gov/nfs/11558/www/nepa/103726_FSPLT3_4286628.pdf))

With growth, both anticipated and being experienced in the Salt Lake Valley, as well as possible water shortages due to climate variability and change, to meet water supply challenges, it is important for Alta to improve its infrastructure to reduce as much as possible heightened competition for finite water supplies ensuring use of water in the most efficient manor.

The Colorado River Basin study is also related as it evaluated the general area because some of the Colorado’s water is used in Salt Lake. Generally, Alta is located within the watershed that is the Wasatch Front. Alta, located at 8600’, is elevated above the MWD facilities, near the basin floor, approximately 4500’.

#### Evaluation Criterion E— Department of the Interior Priorities (10 points)

While Teddy Roosevelt established a legacy beyond anything possible today, Alta continues its stewardship of utilizing science to manage the land and water resources within the town’s municipal boundary. Ordinances prohibit outdoor watering, save for re-vegetation following disturbance due to construction activities. Municipal water users are limited to culinary uses, including seasonal, snow-making, for the resort. The Town's proposed water distribution infrastructure improvements closely support Department of Interior priorities in several ways. The Town of Alta is partnering with a private business in town, Alta Ski Lifts Company (ASL), a public/private partnership, to improve the water distribution infrastructure. One of the components of the proposal involves installing a modern water meter to serve ASL, a major user of water. This meter will allow the Town to better understand the water uses and needs of ASL, monitor for possible leaks, and in turn, will allow ASL to better control and conserve water for snow-making as well in its mountainside day lodges and restaurants. This

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meter will also be used as a pilot project. If the use of the meter is successful, the town will begin installation of smart, leak detecting meters throughout town. Also, installing a modern, variable frequency drive to a new, greater horsepower pump, will allow greater efficiency and coverage for the resort's snowmaking to occur simultaneously with other demands, such as domestic use and fire fighting.

In addition, Alta works closely with several local non-profits, including Friends of Alta (FOA), an I.R.S. section 501(c)(3) land and conservation trust, on the shared goal of balancing stewardship and sustainable use of public lands to help minimize overuse, but working towards a sustainable water supply. Modernizing Alta's water distribution infrastructure demonstrates to FOA the town accepts public responsibility in prioritizing using water, a natural resource in a sustainable manner; efficiently pumping water to the community of Alta, while preventing excess removal from the aquifer. This in turn demonstrates Alta is maintaining its commitment to the MWD to use only surplus water.

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## Project Budget

### FUNDING PLAN AND LETTERS OF COMMITMENT

The Town of Alta maintains a reserve in its Water Capital Account. As of April 2019, that fund has an available balance for capital outlay of \$79,000.00. Those funds are not earmarked for other projects, but the necessary portion thereof would be so restricted, should the Town be awarded the funds in this grant opportunity as indicated in the April 11, 2019 Resolution. (See [Appendix R](#)). It is not anticipated that any project costs will be incurred prior to award.

Table 1 - Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal Reclamation funding	\$67,385.01

<b>Costs to be paid by applicant, Town of Alta Water Capital Account</b>	\$66,385.01
<b>Value of third-party contributions</b>	\$1,000.00
<b>TOTAL PROJECT COSTS</b>	\$134,770.02

**BUDGET PROPOSAL JOHN, NOTE CHRIS CAWLEY IS NOTED AS PROJECT MANAGER, NOT YOU?**

Table 2 - Town of Alta Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
<b>Salaries and Wages</b>	(Including fringe benefits)			
Project Manager, Chris Cawley	\$55	20	hour	\$1,100.00
Construction Supervisor, Keith Hansen	\$55	50	hour	\$2,750.00
Construction Foreman, Steve McIntosh	\$55	50	hour	\$2,750.00
Town of Alta Laborer	\$30	50	hour	\$1500
Town of Alta Laborer	\$30	50	hour	\$1500
Town of Alta Laborer	\$30	50	hour	\$1500
Town of Alta Laborer	\$30	50	hour	\$1500



<b>Equipment</b>				
Nickerson Company	\$26,759	1	50 hp Pump installer- quote attached	\$26,759
<b>Total Power &amp; Controls</b>	\$10,000	1	LED lighting	\$10,000
<b>Total Power &amp; Controls</b>	\$9825	1	Variable frequency drive for 50 hp pump	\$9825
<b>Supplies and Materials</b>				
Miscellaneous pipe, wire, conduit supplies	\$2,000			\$2,000
<b>Contractual/Construction</b>				
Aqua Engineering	\$10,000	1	Engineering plans and specifications	\$10,000
Town of Alta	\$1,000		mine bed repair, fish plates and ties- mostly labor costs	\$1,000
Dominion Energy/Newman Construction	\$30,000	1	Bay City Tunnel gas conversion and Highway excavation	\$30,000
Waterford Systems	\$4,000	1	Siemens 4" mag water meter	\$4,000.00
Town of Alta	see above <sup>1</sup>		pipe, wire, conduit	
SKM	\$2,000	1	programming new equipment into existing SKADA system	\$2,000
Dominion Energy/Newman Construction	\$8,000	1	gas line excavation and conversion for Grizzly vault	\$8,000
<b>Other</b>				
Permitting	\$500		State and County	\$500
Environmental & Cultural Compliance costs		1	Add 5 % to subtotal costs	\$5,834.20
<b>TOTAL DIRECT COSTS</b>				<b>\$116,684.00</b>
<b>Indirect Costs</b>			<i>de minimus, + 10%</i>	\$12,251.82
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$134,770.02</b>

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## BUDGET NARRATIVE

### Salaries and Wages

The Project Manager is a Town employee, whose salary compensation, as allocated to this project is approximately 20 hours including obtaining and communicating regarding permits and approvals and communicating with Reclamation staff. The construction Supervisor and Foreman are employed by Salt Lake County Service Area #3 with whom the Town has a contract to service the Town's water system. All labor is charged at the rates for the individual worker, as indicated, regardless of the task performed. It is anticipated the Supervisor and Foreman will each spend 30 hours related to the pump replacement, repair of mine rails, and installing miscellaneous pipe, wire and conduit in the mine tunnel. It is estimated they will work 20 hours each, to reprogram the SCADA and pump control, and supervise the work of sub-contractors, Nickerson, Total Power & Control, Dominion Energy and Newman Construction inside the Bay City Tunnel and, meter installation at Alta Ski Lifts Company's Buckhorn building, and at the Grizzly Gulch remote water vault. Dominion is Alta's local gas utility, which will work with Newman to excavate under Highway U-210 to bring the natural gas to the Bay City Tunnel, and both will work together to also connect the underground gas line from the dirt/gravel "Summer Road," to the Grizzly Gulch vault's pump generator.

The quoted labor rates represent the actual labor rates for the identified personnel.

### Fringe Benefits

Included in the salaries and wages are fringe benefits to full time employees including medical insurance.

### Travel

No travel related expenses are included in this budget proposal.

### Equipment

The budget identifies purchase of a 50 hp vfd pump, valued at more than \$5,000. The pump is listed in the quote from Nickerson Company, attached to this application. (Budget Appendix, Nickerson) In addition, the variable frequency drive to lower power demand on the new 50 hp vfd pump, is valued higher than \$5,000. That is listed in the quote from Total Power & Control. (Budget Appendix, Total)

A 50 hp vfd pump is needed to provide reliable water distribution at the rates capable to serving the culinary needs of the Town, the snow making needs of the Alta Ski Lifts Company resort, and the fire fighting needs for the community through United Fire Authority,. The new pump will be more energy efficient, and when combined with the new variable frequency drive, the power demand to operate the pump will be reduced.

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The pump will not have to operate at full capacity, but can be run at rates that are compatible with the water distribution needs of the water system.

LED lighting in the Bay City Tunnel will be more energy efficient, requiring lower voltage to operate, and provide a safer working environment where frequently water is on walls and ceilings and standing on the floors, of the tunnel itself. It will also be easier to detect any leaks from equipment with more efficient lighting.

### Materials and Supplies

All identified materials and supplies will be used in construction and were estimated by the length of the Bay City Tunnel, the depth of the shaft, and rail line in the tunnel, plus based on past experience by the Construction Supervisor who is a certified water operator, who has been working the system for over 20 years.

### Contractual

The proposed project involves 7 components. All but two will occur in the Bay City Tunnel. Because the work occurs in a confined area, some of the work may overlap such that breaking out where one component starts and ends is difficult. Selection of contractors is based on prior experience with these contractors and their ability to work in the unique situation of Alta's mine and tunnel. Note the Nickerson Company quote includes labor and equipment. ([Budget Appendix, Nickerson](#)).

### Third-Party In-Kind Contributions

The Alta Ski Lift Company will contribute \$1,000.00 towards the cost of the new smart meter with leak detection.

### Environmental and Cultural Compliance Costs

The Town has spoken with staff at Provo Regional Office of Reclamation regarding environmental and cultural compliance costs. In addition, Provo office personnel visited the site mid-April 2019, when they saw Alta's unique water system. It is anticipated compliance activities will be accomplished by Reclamation to evaluate NEPA, ESA, NHPA and CWA regulations.

### Other Expenses

No other expenses are anticipated or budgeted.

### Indirect Costs

Not having previously been approved for an indirect cost rate, Alta has included the 10% *de minimus* rate of modified total costs, as part of the project budget.

## Environmental and Cultural Resource Compliance

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•Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

Because the contemplated work of the proposed components take place almost exclusively in a subterranean space, in an established mine shaft, impact on the surrounding environment is minimal, not involving dust, nor animal habitat. No impacts to water quality and quantity are anticipated during the removal of the old pump and replacement with an upgraded pump, because a spare pump will be used during the transition. No animals are known to live in the mine tunnel, and the surrounding area does not consist of any animal habitat.

Seven (7) residences receive water, pumped up to them with electrically powered pumps. The current back-up, propane fueled generator in the Grizzly Gulch water vault will be converted to natural gas. This involves digging into the dirt/gravel roadway where the gas pipeline exists. Dust and animal habitat disturbance will be mitigated by applying water to the dirt prior to digging and covering any excavation in the evenings when work is suspended. It is anticipated this work will take one week of active work, further reducing the disturbance to the environment.

•Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

No federally listed wildlife or plant species are known to occur in Alta. (See p. 59, 66, 73-82, USFS 2018, Environmental Assessment (EA) Alta Ski Lifts, Company application for Master Development Plan in the Town of Alta.

[https://www.fs.usda.gov/nfs/11558/www/nepa/103726\\_FSPLT3\\_4286628.pdf](https://www.fs.usda.gov/nfs/11558/www/nepa/103726_FSPLT3_4286628.pdf)

•Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.

No, the project areas do not involved either wetlands nor surface water areas. USFS EA 2018 for ASL Master Development Plan Improvement Projects, *“Water quality in Little Cottonwood Creek is monitored closely by the DWQ and Salt Lake City because the creek is a significant water source for Salt Lake City, supports native aquatic species, and is important for recreation. Little Cottonwood Creek above the National Forest boundary is classified as an antidegradation segment (High Quality Water - Category 1). This classification indicates that existing water quality is higher than state standards, and that the state is required by regulation to maintain this condition. Numeric water quality standards for all beneficial uses assigned to Little Cottonwood Creek are found in Section R317-2, Utah Administrative Code, Standards of Quality of Waters of the State (State of Utah 2016). Little Cottonwood Creek and its tributaries*

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*in Little Cottonwood Canyon are assigned the following beneficial uses: secondary contact recreation, cold water aquatic life, and drinking water prior to treatment for culinary use.* “ (USFS Response to ASL MDP application within the Town of Alta, p. 43, [https://www.fs.usda.gov/nfs/11558/www/nepa/103726\\_FSPLT3\\_4286628.pdf](https://www.fs.usda.gov/nfs/11558/www/nepa/103726_FSPLT3_4286628.pdf))

•When was the water delivery system constructed?

Alta’s water delivery system was constructed in the 1970’s, with a major renovation project in 1995<sup>6</sup>.

•Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

No; Alta’s water system does not involve irrigation, nor does not have headgates, canals or flumes.

•Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

The Bay City Mine and Tunnel is eligible for inclusion in the National Register of Historic Places as it was constructed in the late 1880’s. Provo Regional Office of the Bureau of Reclamation personnel have consulted with the Town Alta and came to the site in April 2019.

•Are there any known archeological sites in the proposed project area?

The Bay City Mine and Tunnel is known to be an archeological site where miners did mine drawings with carbide lanterns.

•Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

No, the proposed project components will not have either a disproportionate or adverse impact on low income or minority populations.

•Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

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<sup>6</sup> 2016 DWSPP, p. 2-6, [Appendix V](#)

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No, access to and ceremonial use of Indian sacred sites are not affected, nor will there be impacts to tribal lands.

•Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

No, nothing in the proposed project will contribute to introducing nor continuing the existence or spread of noxious weeds or non-native invasive species known to occur in the area. No vegetation or re-vegetation is involved; the mine is subterranean where there are no flora, the Grizzly Gulch natural gas line is buried beneath a dirt/gravel road where there are not plants and no fill material will be brought to the site following excavation.

### **National Historic Preservation Act**

The Bay City Mine and Tunnel have been modified and modernized repeatedly over the years, including adding the concrete entry building in 1995. The Grizzly Gulch vault was substantially modified in the 1990's as well when a dead rodent was discovered floating in the water. The Town has spoken with Dave Snyder and Scott Blake at the Provo office of the Bureau of Reclamation and they have saw the Alta system in April 2019.

In addition, the Town has for many years received funds from the United States Forest Service and is in regular contact with the Salt Lake Ranger District which ensures Alta's activities are consistent with federal environmental and cultural compliance concerns.

### **Endangered species Act**

No, see the comprehensive listing of flora and fauna, threatened and endangered in the 2018 National Forest Service response to the Alta Ski Lifts, Company Master Development Plan.

[https://www.fs.usda.gov/nfs/11558/www/nepa/103726\\_FSPLT3\\_4286628.pdf](https://www.fs.usda.gov/nfs/11558/www/nepa/103726_FSPLT3_4286628.pdf)

No component of this project will likely jeopardize the continued existence of any endangered or threatened species, nor destroy nor adversely modify any designated critical habitat due to the fact the projects occur within an established roadway, within a subterranean mine tunnel, or are on the exterior of existing buildings where there are no flora nor fauna nor habitats for same.

## **Required permits and approvals**

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The Town requires building permits for any construction within the municipal boundary. This permit will be submitted to the planning department once engineering and design materials are available, in early summer 2019. Thereafter, the building department, hydrologist, and building official will review the plans and issue their comments and suggestions. Once approved by these individuals, the permit may issue. This process can take 1 month following submission of completed materials.

In addition because the water in Little Cottonwood Canyon is owned by Salt Lake City, which has a contract with Alta for surplus water, Alta will seek approval from the Salt Lake City Department of Public Utilities for the project components. Said approval involves advise and consent, rather than formal permitting. Approval must also be obtained from the State of Utah Department of Drinking Water. That approval will likely take 2 weeks. Approval will be obtained prior to any construction, which will be pursued in early summer 2019 through 2020.

And, finally, because the conversion to natural gas for the Bay City Tunnel involves excavation under state highway U-210, State approval will be sought as well from the Utah Department of Transportation. This approval will be sought in conjunction and concurrently with, approval from Salt Lake County.

## Official Resolutions

April 11, 2019, the Alta Town Council (legislative body) approved a resolution authorizing the Mayor of Alta to sign the necessary Federal forms to apply for this grant and to commit the town to the funds should it be awarded this grant. This resolution, attached in **Appendix "R,"** demonstrates the Town governing body supports applying for this funding opportunity grant. Further it establishes the Town has funds willing and able to be applied, as specified in the funding plan. Finally, the resolution demonstrates the Town's commitment to work with Reclamation to meet established deadlines for entering into a grant and any cooperative agreement.

### TOWN OF ALTA RESOLUTION NO. 2019-R-X

A RESOLUTION AUTHORIZING THE SUBMITTAL OF A BUREAU OF RECLAMATION (BOR) GRANT APPLICATION IN RESPONSE TO ANNOUNCEMENT NO. FOA BOR-DO-19-F005 AND AUTHORIZING THE MAYOR TO COMMIT TO SUBSEQUENT APPROPRIATION OF REQUIRED MATCHING FUNDS FOR THE TOWN OF ALTA WATER DISTRICT FOR A WaterSMART: SMALL-SCALE WATER EFFICIENCY PROJECT

WHEREAS, the Alta Town Council has authorized preparation of planning and engineering reports to evaluate Alta's water needs;

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WHEREAS, the Alta Town Council has reviewed the proposals from engineering consultants about the weaknesses and inefficiencies in its water distribution system from 2011 and 2014;

WHEREAS, the Town Council acknowledges the need to implement infrastructure improvements and efficiencies from the referenced engineering and design reports;

WHEREAS the Alta Town Council believes the Town to be qualified, and is willing and able to carry out all activities described in the BOR grant application;

WHEREAS in this action the Alta Town Council declares its funding commitment to the funds identified as specified in the funding plan of the WaterSMART: Small-Scale Water Efficiency Project as described in the application;

WHEREAS in this action the Alta Town Council has declared its intent to execute the WaterSMART: Small-Scale Water Efficiency Program described in the application;

WHEREAS in this action the Alta Town Council will, upon an award and acceptance of the grant, agree to the terms of the grant;

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL AS FOLLOWS:

**Section 1.** The Alta Town Council supports and requests the funds and assistance from the Bureau of Reclamation WaterSMART: Small-Scale Water Efficiency Program and will comply with the rules for the program, and

**Section 2.** Alta's Town Council has reviewed the application to be submitted to the Bureau of Reclamation WaterSMART: Small-Scale Water Efficiency Program, and commits to providing the funding and/or in-kind contributions specified in the funding plan, and

**Section 3.** **Alta's Mayor** is authorized to act on behalf off the Alta Town Council to submit and sign an application to the Bureau of Reclamation WaterSMART: Small-Scale Water Efficiency Program, sign related documents, work with the BOR to meet established deadlines for entering into a grant or cooperative agreement, and

**Section 4.** Alta's Mayor is authorized to sign related documents, and to work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement,

APPROVED by the Town Council on the 11th day of April, 2019.

By:

MAYOR HARRIS SONDAK

ATTEST:



Unique Entity Identifier and System for Award Management

Your search for Town of Alta\* returned the following results...

Entity	<b>ALTA, TOWN OF</b>	Status: <b>Active</b>
DUNS: <b>144159642</b>	CAGE Code: <b>5QU99</b>	<a href="#">View Details</a>
Has Active Exclusion?: <b>No</b>	DoDAAC:	
Expiration Date: <b>09/04/2019</b>	Debt Subject to Offset?: <b>No</b>	
Purpose of Registration: <b>Federal Assistance Awards Only</b>		

Entity	<b>ALTA, TOWN OF</b>	Status: <b>Active</b>
DUNS: <b>610942380</b>	CAGE Code: <b>5QRD5</b>	<a href="#">View Details</a>
Has Active Exclusion?: <b>No</b>	DoDAAC:	
Expiration Date: <b>12/24/2019</b>	Debt Subject to Offset?: <b>No</b>	
Purpose of Registration: <b>Federal Assistance Awards Only</b>		

Entity	<b>Town of Alta</b>	Status: <b>Active</b>
DUNS: <b>081826364</b>	CAGE Code: <b>4UMC5</b>	<a href="#">View Details</a>
Has Active Exclusion?: <b>No</b>	DoDAAC:	
Expiration Date: <b>11/19/2019</b>	Debt Subject to Offset?: <b>No</b>	
Purpose of Registration: <b>Federal Assistance Awards Only</b>		

Alta's DUNS number is: 081826364, effective through November 19, 2019

## Letters of Support

### Appendix "S"

UFA, Jay Torgersen, Chief  
Metropolitan Water District of Salt Lake & Sandy, Mike DeVries, General Manager  
Salt Lake City Department of Public Utilities - Laura Briefer, Director  
Sandy City- Mayor, Kurt Bradburn  
Salt Lake County Health Department, Dr. Royal DeLegge Director,  
Environmental Health

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Jordan Valley Water Conservancy District- Richard Bay General Manager  
Central Utah Water Conservancy District - Gene Shawcroft, General manager

**INTERNAL NOTES ON APPLIATION**

**Delivery- received by April 24, 2019, 4 PM Mountain**

The applications may be submitted electronically through Grants.gov(www.grants.gov) or a hard copy may be submitted to either one of the following addresses. Under no circumstances will applications received through any other method (such as email or fax) be considered eligible for award.

By mail or USPS overnight services:

Bureau of Reclamation  
Financial Assistance Support Section  
Attn: Mr. Matthew Reichert  
P.O. Box 25007, MS 84-27814  
Denver, CO 80225

All other express delivery:

Bureau of Reclamation mail services  
Attn: Mr. Matthew Reichert Denver  
Federal Center Bldg. 67, Rm.  
152 6th Avenue and Kipling Street  
Denver, CO 80225

By courier services:

Bureau of Reclamation  
Attn: Mr. Matthew Reichert  
Denver Federal Center Bldg. 56, Rm.  
1000 6th Avenue and Kipling Street  
Denver, CO 80225

Please follow these instructions to submit your application by mail, express delivery, or courier services.

- Applicants should submit one copy of all application documents for hard copy submissions. Only use a binder clip for documents submitted. Do not staple or otherwise bind application documents.
- Hard copy applications may be submitted by mail, express delivery, or courier services to the addresses identified in this FOA.
- Materials arriving separately will not be included in the application package and may result in the application being rejected or not funded. This does not apply to letters of support, funding commitment letters, or official resolutions.
- Faxed and emailed copies of application documents will not be accepted.
- Do not include a cover letter or company literature/brochure with the application. All pertinent information must be included in the application package.D.4.2.2.

Applications Submitted electronically [p, 25]

**ASAP payments-** ability to receive... with a number [p. 27]

General notes on applying

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#### Program Information and Objectives:

WaterSMART: Reclamation desire to support stakeholder efforts to **stretch scarce water supplies** and avoid conflicts over water.

supports Department of the Interior's priorities, including creating a legacy of conservation stewardship, **sustainably developing** our energy and natural resources, **modernizing our infrastructure** through public-private partnerships, striking a regulatory balance, and **restoring trust with local communities** by improving relationships and communication with states, tribes, **local governments, communities, landowners and water users.**

Through Small-Scale Water Efficiency Projects, Reclamation provides assistance to states, tribes, irrigation districts, **water districts, and other entities with water or power delivery authority** [leverage their money and resources by cost sharing with Reclamation on small-scale on-the-ground projects that seek to *conserve, better manage, or otherwise make more efficient use of water supplies.*] to undertake small-scale **water efficiency projects** that have been **prioritized** through **planning efforts** led by the **applicant.** These projects conserve and *use water more efficiently*; mitigate conflict risk in areas at a high risk of future water conflict; and *accomplish other benefits that contribute to water supply reliability* in the western United States. These projects are generally in the **final design stage, environmental and cultural resources compliance has been initiated** or already completed, and the **non-Federal funding, necessary permits, and other required approvals have been secured.**

Reclamation provides funding for projects that **improve use of technology to increase water reliability** consistent with section 4 of the October 19, 2018 Presidential Memorandum on Promoting the Reliable Supply and Delivery of Water in the West.

Proposed projects that are supported by an existing water management and conservation plan, System Optimization Review, or other planning effort led by the applicant are **prioritized.** This prioritization will help ensure that projects funded under this FOA are well thought out, have public support, and have been identified as the best way to address water management concerns.

#### **Application:**

NOTE: **Technical proposal** and evaluation criteria (limited to 15 pages)

exec summary, background data, project location, technical project description and evaluation criteria.

The font shall be at least 12 points in size and easily readable. Page size shall be 8½ by 11 inches, including charts, maps, and drawings. Margins should be standard 1 inch margins. Oversized pages will not be accepted.

[put charts, maps in the appendix, not the 15 pages]

Project budget, environmental and cultural compliance, required permits, letters of program support and official resolutions are NOT included as part of the 15 pages....