

**Improving Water Efficiency
For the Town of Starkville
by Updating Water Meters**

Submitted by:
Town of Starkville
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APR 28 '22 PM 2:49

Table of Contents

TECHNICAL PROPOSAL3

EXECUTIVE SUMMARY 3

PROJECT LOCATION4

TECHNICAL PROJECT DESCRIPTION 5

EVALUATION CRITERIA 6

Evaluation Criterion A—Project Benefits (35 points)..... 6

Evaluation Criterion B—Planning Efforts Supporting the Project (30 points)..... 7

Evaluation Criterion C—Implementation and Results (20 points)..... 8

Evaluation Criterion D—Nexus to Reclamation (5 points) 8

Evaluation Criterion E—Presidential and Department of the Interior Priorities (10 points)..... 8

BUDGET PROPOSAL9

FUNDING PLAN AND LETTERS OF FUNDING COMMITMENT 9

TABLE 1. – SUMMARY OF NON-FEDERAL AND FEDERAL FUNDING SOURCES 9

TABLE 2. – TOTAL PROJECT COST TABLE 9

TABLE 3. – BUDGET..... 9

BUDGET NARRATIVE 10

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE11

REQUIRED PERMITS OR APPROVALS11

LETTERS OF SUPPORT11

OFFICIAL RESOLUTIONS.....11

CONFLICT OF INTEREST DISCLOSURE.....11

UNIFORM AUDIT REPORTING STATEMENT11

CERTIFICATION REGARDING LOBBYING.....12

UNIQUE ENTITY IDENTIFIER.....12

Technical Proposal

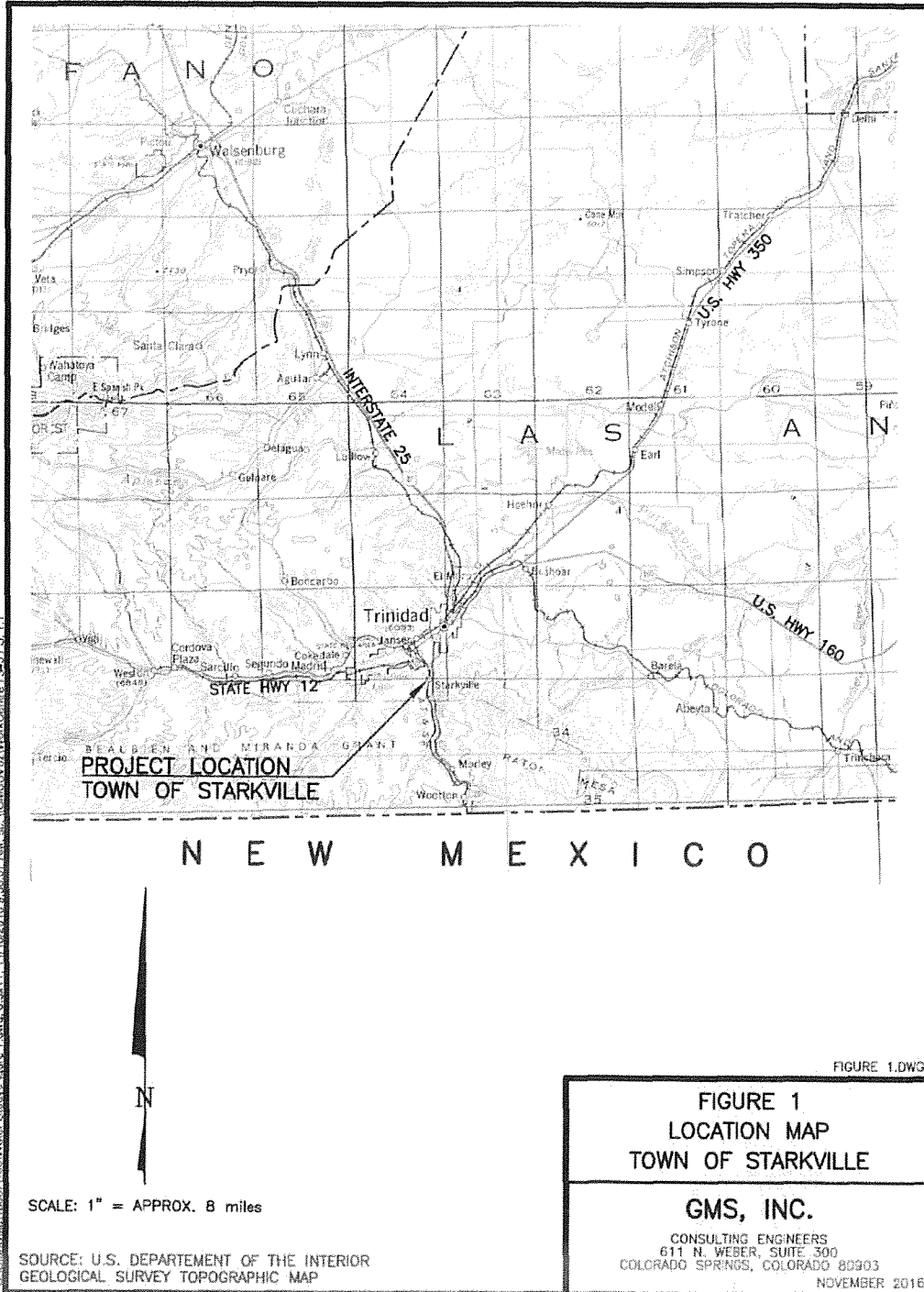
Executive Summary

April 27, 2022
Town of Starkville
Starkville, Las Animas County, Colorado
Category A Applicant

The Town of Starkville is located 3.5 miles south of the City of Trinidad in Las Animas County, Colorado. This application to the Bureau of Reclamation will be a small project that is ultimately part of a much larger water system improvement project: new radio-read meters, meter pits and software to accompany the smart meters. Replacing the existing meters with radio-based devices will result in several benefits including: improved accuracy of water usage reading, reduced man-hours, improved performance of meters, improved efficiency, reduced liability, improved sustainability and provide equitable water billing. These benefits will help to significantly reduce unaccounted-for-water loss in the system and gain efficiencies in meter reading and billing. This project will take approximately 30 days and will be completed by August 1, 2023.

Project Location

The project location is in the Town of Starkville, located in south central Colorado, Las Animas County. It is situated approximately 9 miles north of the New Mexico border on the John F. Kennedy Memorial Highway and 3.5 miles south from the City of Trinidad. The project latitude is 37.1153° N and longitude is 104.5242°W.



Technical Project Description

In 2017, a Preliminary Engineering Report (PER) was completed for the Town's water system components. Overall, the water system is well-operated and in relatively good condition but there are specific deficiencies that must be addressed to ensure compliance, improve water volume, improve metering accuracy and billing, provide water storage, and improve sustainability. While another overall water system improvement project will address those deficiencies, this application to the Bureau of Reclamation will only cover one portion of it – new radio-read meters, meter pits and software to accompany the smart meters.

The Town owns and operates a public drinking water system providing potable water to 58 active customers and 27 inactive taps. It purchases its treated water supply from the City of Trinidad and is classified as a consecutive water system limited to 80 ¾-inch domestic taps. The Town's water system consists of a master meter vault that is maintained by the City of Trinidad, the distribution system, and customer metering components.

Meters are required for all customers on the water system. Service is extended from the water main in the street to a meter pit typically located at or near the property line between the main and the customer. All services are ¾-inch in size with a ¾-inch meter. The Town does not have any large volume commercial customers. Some meters have backflow prevention, though most do not. Meters are manually read and readings are then manually entered into the billing software.

The PER revealed significant monthly differences between the water supplied to the Town and the collective water sold to customers. This unaccounted-for-water is primarily attributed to older water service meters underreading, unmetered fire hydrant usage and pipeline leaks and breaks within the Town's distribution system. The American Water Works Association recommends an unaccounted-for-water goal of 10% with proactive efforts taken to reach this goal. For the Town of Starkville, the unaccounted-for-water percentage for 2015 (according to the 2017 PER) averaged 34.8%. A review of the data shows water sales exceeding metered deliveries on average by 67%. This would suggest under registration by the master meter or more likely, meter reading periods between Trinidad and the Town that do not exactly coincide.

One of the most significant measures the Town of Starkville can take to control its unaccounted-for-water rate is to change old manual read water meters out for new smart devices. This will not only record water usage more accurately but will also help diagnose where leaks and breaks may be occurring.

Meter improvements consist of a combination of the following components:

- New tandem setter meter yoke
- New water pressure regulator
- New meter with radio-read head
- Meter reading equipment and software
- New meter pits

The greatest challenge facing the Town of Starkville in making meter improvements is funding. The Town adopts a formal budget for each fiscal year for its operating funds, including the General Fund, Conservation Trust Fund, Highway Users Fund, and Water Enterprise Fund. The Town assesses monthly water charges to all water connections to the system, whether active or not, all customers are metered and billed. The primary source of water utility revenue is generated from charges assessed for water sales, a facility fee and a maintenance fee. The purpose of these funds is to operate and maintain the water system, debt service, and conduct water system improvements. However, with only 58 households, limited tourism and a shrinking population, the Town is unable to complete capital improvement projects of any size without outside assistance.

Currently, the Town has captured nearly \$1.14M for the water system improvement project. With this grant proposal for water meter improvements, the Town can complete its search for the necessary funding.

This stand-alone project requires minimal engineering and design, nor does it require permits to commence work. Once funded, a solicitation for bids can be published and the work completed within 30 days. This project will not begin until after March 31, 2023 and the work will be completed by August 1, 2023.

Evaluation Criteria

Evaluation Criterion A—Project Benefits (35 points)

Benefits to Applicant's Water Delivery System

Replacing the existing meters with radio-based devices will result in a number of benefits:

- *Improved accuracy of water usage reading* – unintended error while recording water usage will be eliminated at the point of reading the meter and manually entering the data for billing purposes. New meters will transmit water usage of each customer on a defined period basis, ensuring precisely recorded consumption while identifying anomalies in the system and helping to prevent customer fraud.
- *Reduced man-hours* - the data collection from each customer will automatically rather than manually meter reading once a month at the customer's location. Additionally, the system will not require the manual entering of the data for billing purposes.
- *Improved performance of meters* – eliminating the need to open each pit to access the meters reduces potential for meter freezing in the winter months. Smart meters will alert the Town of when a meter stops counting or loses efficiency.
- *Improved efficiency* – meter data will be downloaded directly into the water billing software and billing will occur automatically, reducing time and improving accuracy. This also allows each user to be billed on their consumption thereby making an equitable billing system.
- *Reduced liability* – replacing meter pits will reduce the potential liability concerns with structural failure.

Broader Benefits

The primary broader benefit of replacing these 30-year-old deteriorating devices with smart meters is to *improve sustainability*. With smart meters, the water supplier will have the advantage of quickly identifying anomalies in the system to repair leaks and breaks, prevent fraud and replace defective meters. This in turn will reduce water waste, improving sustainability.

Evaluation Criterion B—Planning Efforts Supporting the Project (30 points)

Plan Development

The Town of Starkville requested the PER as a result of a low ISO rating on the Fire Suppression Rating Schedule (FSRS). The rating of 6, is primarily attributed to the distribution system components installed in 1982. This triggered the Board of Trustees to prioritize water system improvements and solicit the PER. Since the report was completed, by GMS, Inc., Consulting Engineers, the Town has worked steadily to acquire funding commitments to execute the entire water system improvement plan (including meters and accompanying software, and meter pits) laid out in the PER. The Environmental Clearance was approved in May 2020, releasing Community Development Block Grant funds for the project.

Support for the Project

Describe to what extent the proposed project is supported by the identified plan. Address the following:

- *Is the project identified specifically in the planning effort?* Yes. The PER was completed to address the requirements of the Colorado Department of Public Health and Environment Drinking Water Project Needs Assessment. The PER recommends radio-read metering for the entire community of Starkville. It also provided enough guidance for the Town to secure funding for the water system improvements. The total cost of the complete project is \$1.14M, including the metering improvements. Grants and revolving loan funds have been secured and the first phase of the overall project will begin later this year.
- *Explain whether the proposed project implement a goal or address a need or problem identified in the existing planning effort?* The goal of this project is to reduce water loss. There are currently unaccounted-for-water losses, as described in the Technical Description. Installing smart meters, will allow the water system supplier to quickly identify where leakages are occurring and ensure reliable, accurate meter readings.
- *Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.* The Board of Trustees has been an integral part of reviewing, evaluating and moving this water system improvement project from the beginning. This is evidenced by the Town's efforts to secure the following funding for the project:
 - \$600,000 from the Community Development Block Grant (CDBG) via the Department of Local Affairs (DOLA)
 - \$180,000 from the Small Communities Grant via Colorado Department of Public Health and Environment (CDPHE)

- \$192,300 Design and Engineering Grant (D&E) from Colorado Department Public Health and Environment, Water Quality Control Division together with the Colorado Water Resources and Power Development Authority (CWR&PDA)
- \$98,820 Drinking Water Revolving Fund (DWRF) Principal Forgiveness from the CWR&PDA
- \$65,880 DWRF loan through the CWR&PDA
- These individual amounts total \$1,137,000 of funding for the whole project

The DWRF loan will be providing match for this grant and will be a separate project from the remaining larger project.

Evaluation Criterion C—Implementation and Results (20 points)

This project will be put out to bid since the Town does not have the capacity to perform the work on its own.

- The Environmental Assessment was completed in May 2020 and clearance has been provided through the Department of Local Affairs on behalf of HUD.
- No design and engineering are required for this project.
- No permits are required for this project.
- Davis-Bacon wages will be paid and all other federal guidelines for construction projects will be followed.
- It is estimated that this project will be completed within 30 days of executing the contract documents with the construction contractor. The work will begin after March 31, 2023, and will be completed by August 1, 2023.

Evaluation Criterion D—Nexus to Reclamation (5 points)

This project does not demonstrate a nexus with a Reclamation project or activity.

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

Sub-criterion – Climate Change

By replacing aged underreading water meters with smart meters, this project will help prevent, identify and repair unaccounted-for-water losses due to leaks and breakage in the distribution system. Therefore, this project strengthens water supply sustainability to increase resilience to climate change.

Sub-criterion – Disadvantaged or Underserved Communities

The Town of Starkville received *Disadvantaged Community* status through the Colorado Water Resource & Power Development Authority’s State Revolving Fund. This status is based on several factors including the Town’s Median Household Income (MHI) being equal to or less than 80% of State MHI; Median Household Value (MHV) being less than 100% of State MHV; and number of jobs lost in the County over the prior 10-year time period.

The benefits of this project include: *public safety* by ensuring there is adequate water supply to manage a fire in the vicinity; and *economic development* by ensuring a stable water supply and system for residential and commercial growth in the area.

Budget Proposal

Funding Plan and Letters of Funding Commitment

The total project budget for this meter project is \$218,615. This proposal request is for \$99,000 from the Bureau of Reclamation. The Town will provide the matching \$119,615 with a Drinking Water Revolving Fund loan through the Colorado Water Resources and Power Development Authority.

The approval letter from CWRPDA is included within this application. The CWRPDA includes both the DWRF loan and principal forgiveness which the Town received since it qualifies as a disadvantaged community. These together represent the funding through the State Revolving Fund and will be utilized as a match.

Table 1. – Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Town of Starkville, Colorado Drinking Water Revolving Fund loan *	\$118,625
Non-Federal Subtotal	\$118,625
REQUESTED RECLAMATION FUND	\$99,990

Table 2. – Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with requested Federal funding	\$99,990
Costs to be paid by the applicant	\$118,625
Value of third-party contributions	
TOTAL PROJECT COST	\$218,615

Table 3. – Budget

Please note: this project will be put out for bid so the individual costs of materials, supplies, and labor are unknown. The budget below assumes all labor costs are included in the total cost.

BUDGET ITEM DESCRIPTION	\$/UNIT	QUANTITY	TOTAL COST
Materials & Supplies			
New meter pit w/ meter and regulator in existing setter	\$3,200	22	\$70,400
New meter pit w/ meter and spool piece in existing setter	\$3,000	27	\$81,000
New meter pit assembly in new location	\$3,500	5	\$17,500
New meter and spool piece in existing setter	\$1,200	1	\$1,200
Meter reading software & training	\$25,000	1	\$20,000
Subtotal			\$190,100
15% Contingency			\$28,515
TOTAL ESTIMATED PROJECT COSTS			\$218,615

Budget Narrative

This project will be put out to bid since the Town does not have the capacity to perform the work on its own.

- A 15% contingency is included in the budget proposal due to the increasing costs of goods and services at this time.
- The Environmental Assessment was completed in May 2020 and clearance has been provided through the Department of Local Affairs.
- No design and engineering are required for this project.
- No permits are required for this project.
- Davis-Bacon wages will be paid and all other federal guidelines for construction projects will be followed.
- It is estimated that this project will be completed within 30 days of executing the contract documents with the construction contractor. The work will begin after March 31, 2023 and will be completed by August 1, 2023.

Following are details pertinent to the bid and the actual work:

- Remove existing meter pit, meter and pressure regulating valve, provide salvage to the Owner, furnish and install new meter pit assembly in same location complete with meter pit, frost proof lid and cover with 1 $\frac{3}{4}$ " predrilled hole, radio read 5/8" x 3/4" meter with MIU, pressure regulating valve including unclassified excavation, Class "C" bedding, crushed rock, backfill, compaction, surface restoration and all incidental materials of construction, complete in place.
- Remove existing meter pit, meter and pressure regulating valve, provide salvage to the Owner, furnish and install new meter pit assembly in same location complete with meter pit, frost proof lid and cover with 1 $\frac{3}{4}$ " predrilled hole, radio read 5/8" x 3/4" meter with MIU, spool piece to replace pressure regulating valve including unclassified excavation, Class "C" bedding, crushed rock, backfill, compaction, surface restoration and all incidental materials of construction, complete in place.
- Remove top of existing meter pit, meter and setter, provide salvage to the Owner, furnish and install new meter pit assembly in different location complete with meter pit, frost proof lid and cover with 1 $\frac{3}{4}$ " predrilled hole, radio read meter with MIU, tandem meter setter with dual cartridge check valve, pressure regulating valve, Type "K" copper service lines extending 2' outside the meter pit including connections to existing service line with necessary compression couplings, unclassified excavation, Class "C" bedding, crushed rock, backfill, compaction, surface restoration, filling existing meter pit with sand and all incidental materials of construction, complete in place.
- Remove existing meter and pressure regulating valve, provide salvage to the Owner, furnish and install new meter and spool piece in existing meter pit complete with cover with 1 $\frac{3}{4}$ " predrilled hole, radio read 5/8" x 3/4" meter with MIU, spool piece to replace pressure regulating valve including unclassified excavation, Class "C" bedding, crushed rock, backfill, compaction, surface restoration and all incidental materials of construction, complete in place.

- Furnish and install 4-inch dual check valve assemblies in existing meter vault complete with dual check valve, required flange x plain end spool pieces of appropriate size ductile iron piping, couplings, reinstall flow meter and all incidental materials of construction, complete in place.

Environmental and Cultural Resources Compliance

The project of new meter installation and new meter pit construction will be fully within existing disturbed areas which would most likely classify the project as a Categorical Exclusion (CE) to NEPA. As there will be no new ground disturbance related to this project specifically. The larger project required an Environmental Assessment due to the larger construction area containing undisturbed soils. The larger project received environmental clearance via DOLA and the Community Development Block Grant. The Release of Funds from DOLA indicating the environmental clearance is included with this application. If awarded this grant for this sub project, the Town recognizes that Reclamation will complete its own environmental review process and determine the required compliance with NEPA.

It is also recognized that Reclamation will also consider if the project will cause effects to historic properties. As part of the larger project, a Section 106 review was conducted by the State Historic Preservation Officer (SHPO) with a conclusion that “no historic properties affected [36 CF 800.4(d)(1)] under Section 106 for the above undertaking.” This letter is included with this application. As with the NEPA review, the Town recognizes that Reclamation may require another Section 106 review.

Required Permits or Approvals

No permits or approvals are required for this project.

Letters of Support

Please see attached.

Official Resolutions

The official resolution will be submitted under separate cover within 30 days.

Conflict of Interest Disclosure

Per the Financial Assistance Interior Regulation (FAIR), 2 CFR §1402.112, the Town does not have any known conflicts of interest. If during the award process a conflict arises, the Town will inform Reclamation.

Uniform Audit Reporting Statement

The Town recognizes that any organizations expending \$750,000 in U.S. Federal award funds within one year will require a Single Audit report. After the project is complete, the Town will determine if a Single Project Audit is required and will complete if necessary.

Certification Regarding Lobbying

This request for funding is less than \$99,000 in Federal funding. No Certification Regarding Lobbying is required.

Unique Entity Identifier

Starkville UEI: SXHPZFN7E7U6

135 N. Animas Street
P O Box 880
Trinidad, CO 81082



(719) 846-9843
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www.trinidad.co.gov

April 27, 2022

U.S. Bureau of Reclamation
Water Resources and Planning Office
Mail Code: 86-6300
PO Box 25007
Denver, Co 80225

Dear Ms. Robin Graber:

This letter is written on behalf of the Town of Starkville for the WaterSMART Small-Scale Water Efficiency Project Grant. The Town of Starkville has been making great efforts in improving its water system. The City of Trinidad provides water to the Town of Starkville and we fully support every effort for the water system to be water wise. The town is making every effort to improve its water system; however, due to the limited resources available, the town needs assistance to make important upgrades. One of the major upgrades will be to replace the water meters with radio read meters, which will have several efficiency benefits. First, the radio meters will ensure the accuracy of the water loss in the system since the water meter reads are performed manually, which is time consuming and is subject to human error. Another significant benefit of converting to radio read meters with software will be to cut down on the cost of reading and billing, which greatly impacts a small community like the Town of Starkville. The upgrade of the Town's meters will make the water system more efficient.

We thank you for considering this project for funding through the WaterSMART Small-Scale Water Efficiency Project Grant. We believe that the Town of Starkville will utilize the funds well and the project will benefit all residents of Starkville by lowering operational costs and enabling the community to be water wise.

Best Regards,

A handwritten signature in black ink that reads 'Marc A. Vigil'. The signature is written in a cursive, flowing style.

Marc Vigil
Water Utility Director



COLORADO WATER RESOURCES & POWER DEVELOPMENT AUTHORITY

Logan Tower Bldg - Suite 620, 1580 Logan Street, Denver, Colorado 80203-1942
303/830-1550 · Fax 303/832-8205 · info@cwprda.com

September 3, 2021 (Transmitted via email)

Christopher 'Crick' Carlisle, Mayor
Town of Starkville
P.O. Box 875
Trinidad, CO 81081

Re: Drinking Water Revolving Fund ("DWRF") Loan Approval

Dear Mayor Carlisle:

On August 25, 2021, the Board of Directors of the Colorado Water Resources and Power Development Authority approved the Town of Starkville (the "Town") for a loan in the amount of up to \$344,780, which was comprised of a \$137,880 DWRF Disadvantaged Communities program direct loan and \$206,820 in principal forgiveness. Because the Town received a Small Communities Grant ("SCG") award after the loan approval, the approved loan package was adjusted. The Town's adjusted loan amount is for a total of \$164,700, comprised of a \$65,880 DWRF Disadvantaged Communities Program direct loan and \$98,820 in principal forgiveness. The loan is for a term of up to 30 years at an interest rate of 0.5%. In addition, the loan was approved with the following conditions:

- The Town increasing user rates, if necessary, sufficiently to meet the Authority's rate covenant prior to loan execution.
- The Town must create a separate enterprise water fund (if it is not formally created already), and this fund shall be properly accounted for in the Town's Financial Statements prior to loan execution.
- The Town must have a formal/written Intergovernmental Agreement ("IGA") in place with the City of Trinidad for the purchase and delivery of treated water prior to loan execution. The IGA should be for a similar duration and term as the loan agreement.

We look forward to working with you and your attorneys towards a successful loan closing. Please call me at (303) 830-1550, extension 1023 or email me at kcarpenter@cwprda.com with any questions.

Sincerely,

Kevin Carpenter
Financial Analyst

Attachments: SCG Award memo

CC: Lisa Mayers, (via email)
Erick Worker, Mark Henderson WQCD, (via email)



MEMORANDUM

To: Ian Loffert, Kevin Carpenter, CWRPDA
Cc: Erick Worker, Mark Henderson, CDPHE
 Mayor Crick Carlisle, Rose Holman, Town of Starkville
From: Desi Santerre, DOLA
Date: August 31, 2021
Re: Town of Starkville (the “Town”) DWRF Loan Application

On August 25, 2021, the Town’s application for a \$344,700 loan was approved as a \$137,880 DWRF loan and \$206,820 in principal forgiveness. Today, CDPHE notified DOLA that the Town will be awarded an \$180,000 Small Communities Grant for this project. According to SRF program policy regarding principal forgiveness calculations, the loan request, principal forgiveness, and rate calculations must be adjusted.


After removing the grant from the Town’s original loan request, the adjusted loan request is \$164,700. DOLA has used this new amount to calculate the principal forgiveness. Based on the DWRF IUP Attachment II scoring table, the Town qualifies for 60% principal forgiveness, which is the same tier as the original loan request. With principal forgiveness of \$98,820 and a DWRF loan amount of \$65,880, additional annual revenue of \$4,238, or \$6.54 per tap per month, will bring the coverage ratio to 110%.


Please adjust the Town’s loan documents as follows:

	Original Project Budget	Adjusted Project Budget
DWRF Loan:	\$137,880	\$65,880
DWRF Principal Forgiveness:	\$206,820	\$98,820
2021 Design & Engineering Grant:	\$192,300	\$192,300
2021 Small Communities Grant:	\$0	\$180,000
2018 CDBG:	\$600,000	\$600,000
Total:	\$1,137,000	\$1,137,000
Rate Increase:	\$10.93	\$6.54

Please let me know if I can provide any additional information.





 OFFICE of ARCHAEOLOGY and HISTORIC PRESERVATION

OCT 01 2018

Dannah M. Koeniger, P.E.
GMS, Inc. Consulting Engineers
611 North Weber, Suite 300
Colorado Springs, Colorado 80903

Re: Town of Starkville Water System Improvements (HC #74996)

Dear Ms. Koeniger:

Thank you for your correspondence dated September 19, 2018 and received on September 24, 2018 by our office regarding the consultation of the above-mentioned project under Section 106 of the National Historic Preservation Act (Section 106).

After review of the provided information, we do not object to the proposed Area of Potential Effects (APE) for the proposed project.

Our office has reviewed the scope of work and assessment of effects, we concur with the recommended finding of *no historic properties affected* [36 CFR 800.4(d)(1)] under Section 106 for the above undertaking.

Should unidentified archaeological resources be discovered in the course of the project, work must be interrupted until the resources have been evaluated in terms of the National Register eligibility criteria (36 CFR 60.4) in consultation with our office pursuant to 36 CFR 800.13. Also, should the consulted-upon scope of the work change please contact our office for continued consultation under 36 CFR 800.

We request being involved in the consultation process with other parties, which as stipulated in 36 CFR 800.3 are required to be notified of the undertaking. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings. Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Jason O'Brien, Section 106 Compliance Manager, at (303) 866-2673 or Jason.obrien@state.co.us.

Sincerely,


Steve Turner, AIA
State Historic Preservation Officer

RECEIVED

OCT 04 2018

GMS, INC.

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION
303-866-3392 * Fax 303-866-2711 * E-mail: oaahp@state.co.us * Internet: www.historycolorado.org

- 1 -

COLORADO HISTORICAL SOCIETY