

# FOA: BOR-DO-17-FO03

WaterSMART: Development of a Feasibility Study under  
the Title XVI Water Reclamation and Reuse Program for  
Fiscal Year 2017



City of Ada  
231 S. Townsend St.  
Ada, OK 74820

Project Manager Information:  
Cody Holcomb, City Manager  
[cody.holcomb@adaok.com](mailto:cody.holcomb@adaok.com)  
580-436-8001

JAN 9 '17 AM 7:52

## Table of Contents

Technical .....	8
Executive Summary .....	8
Study Description .....	10
Required Permits or Approvals.....	24
Letter of Project Support (not toward application page limit).....	25
Official Resolution (not toward application page limit) .....	29
Study Budget .....	30

# Technical Proposal and Evaluation Criteria

## Executive Summary

January 5, 2017

City of Ada, Oklahoma

Pontotoc County

The City of Ada, Oklahoma is located in Pontotoc County in South Central Oklahoma and is the headquarters of the Chickasaw Nation. The City of Ada utilizes Byrd's Mill Spring as its primary source of water. Byrd's Mill Spring is fed by the Arbuckle-Simpson Aquifer which also provides water for surrounding communities and several key water features within the Chickasaw National Recreation Area. Three groundwater wells are used when flow from the spring is low, with all three pumping from the Arbuckle-Simpson Aquifer. Ada receives its water supply through two parallel pipelines that stretch over 12 miles.

Projected population growth and increase in water demand for domestic, industrial, and recreational uses calls for more sustainable water practices. Recent drought required Ada's City Manager to enforce water rationing. Improvements to wastewater treatment and water supply distribution can mitigate the need for water from Byrd's Mill Spring, but the implementation of water reuse strategies would be a key step in securing the water future for the City of Ada, Oklahoma and surrounding communities.

### RESIDENTIAL POPULATION SERVED

Population Served	37,000
Projected Population (2060)	43,500

### WATER SUPPLY

#### PERMITTED/CONTRACTED WATER

Quantity	10,648 AFY
Surface Water	Byrds Mill Spring
Groundwater	Wells x3 (supplemental)

### WATER DEMAND

Current (Average)	4.78 MGD	5,376 AFY
Peak	9.12 MGD	10,213 AFY
Projected (2060)	9.97 MGD	11,200 AFY

### WATER SALES

Provides Water To	Pontotoc RWD #7, Pontotoc #6, Pontotoc #9, Pontotoc #1
Obtains Water From	None

### DROUGHT VULNERABILITIES

Unreliable supply (Byrds Mill); insufficient supply for future growth; SB 288 compliance

### POTENTIAL MITIGATION STRATEGIES

Develop secondary supply/water wells; obtain additional water rights; pursue interconnection opportunities, Atoka/Arbuckle pipelines; enhance monitoring; aquifer recharge; GW desalination; infrastructure improvements; develop drought plan; water reuse

Ada is a water provider within the  
Arbuckle-Simpson Drought Contingency Planning Area.

The City of Ada was identified as a recommended reuse candidate within the *“Assessment of the Potential for Recycled Water Development to Offset Potable Water Demands with Non-Potable Supply and Reducing Negative Water Quality Impacts in the Receiving Streams within Tribal Territory”* Phase II Reuse Study. Developed through the Choctaw and Chickasaw Regional Water Plan, Phase I evaluated potential reuse opportunities within the entire Choctaw and Chickasaw Nations, while Phase II determined the most feasible reuse opportunities within the Nations. The Choctaw and Chickasaw Nations have supported the development of the reuse studies and support the protecting and providing a sustainable water source for all Oklahomans. A WaterSMART feasibility study would provide the City of Ada with the means to continue down the path of a sustainable water supply future. This Feasibility Study would provide the City with information to develop or enhance the following policies:

- Determine most cost effective method to reuse the maximum quantity of water with the lowest cost impact and maximum benefit for long-term water availability. This would include a cost-benefit analysis that would weigh financial and supply considerations.
- Establish reuse partnerships based on the beneficial impact to City water supply due to effluent reuse.
- Evaluate existing water conservation practices and policies based on information gathered from the study, providing opportunity for improved public information and messaging for increased awareness of water resource issues.
- Provide data for City staff to use in making decisions on infrastructure development needed to implement varying levels of reuse.
- Provide data for City staff to use in making decisions to acquire additional water rights in the future. Rights may be acquired for production or to create a buffer or conservation project to protect existing rights.

The completion date of this feasibility study will be 18 months from the date of award.

## Study Description

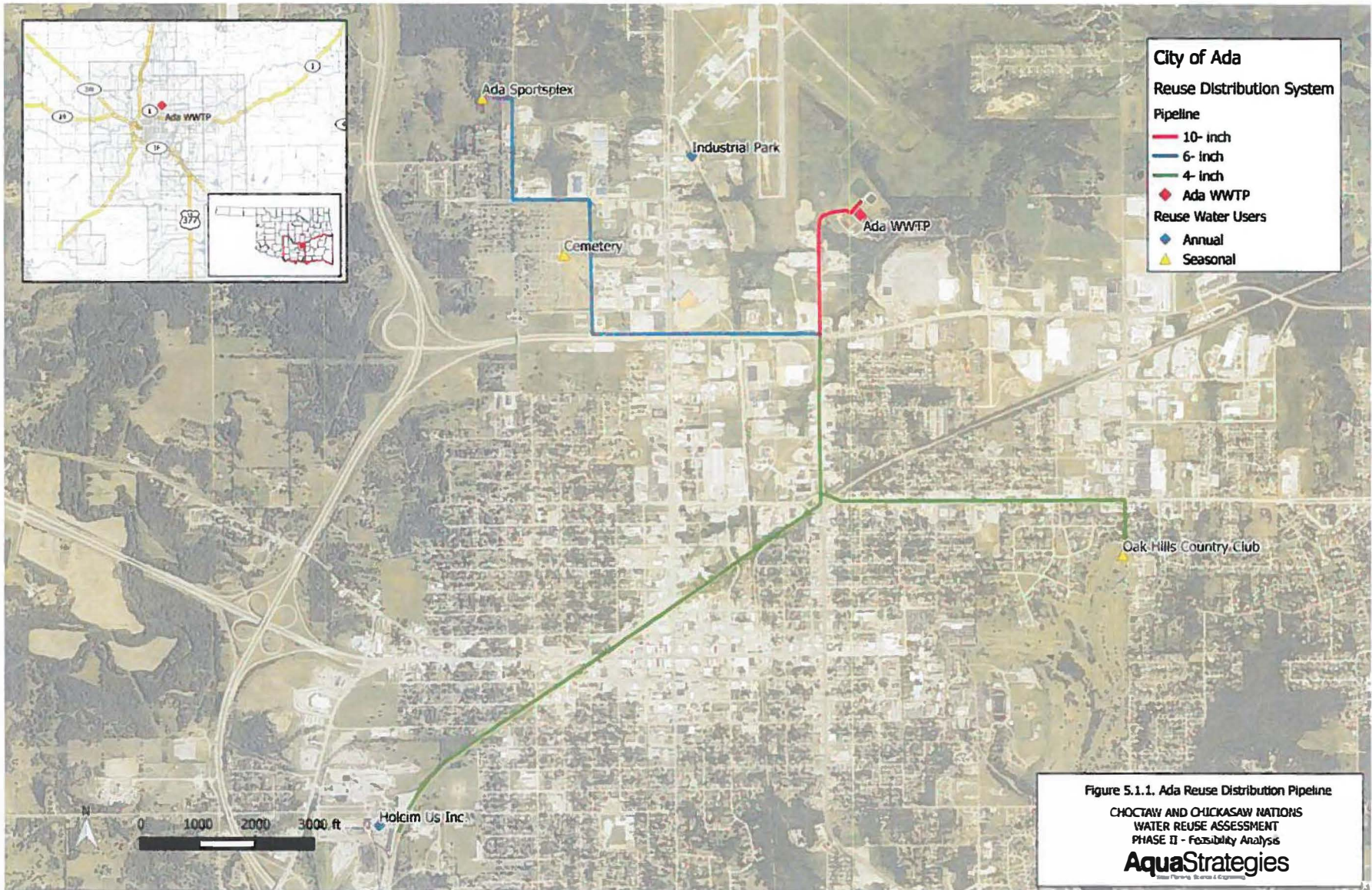
### *Introduction*

The City of Ada, Oklahoma is the county-seat of Pontotoc County, Oklahoma. Ada is home to East Central University and headquarters of the Chickasaw Nation. The public water supply and wastewater system serves a population of 37,000 city customers and areas of several rural water districts. The City of Ada operates an Advanced Wastewater Pollution Control Facility, treating 2.5 MGD of average daily flow. The treatment plant is rated for a capacity of 3.2 MGD. Byrd's Mill Spring provides 5 MGD on average for Ada's water supply, but 2060 demands project a need for nearly 10 MGD. The Arbuckle-Simpson Aquifer, which also has other demands from surrounding communities, feeds Byrd's Mill Spring which results in unreliable flows and potential water emergencies for the City of Ada.

This feasibility study will focus on water reuse alternatives and a distribution system to various potential customers in the surrounding area. The City has determined several long-term options, or a combination thereof, for water reuse:

- 1) Continue to pull water from Byrd's Mill Spring
- 2) Continue to pull water from groundwater sources
- 3) Water conservation
- 4) Enhanced recharge of Arbuckle-Simpson Aquifer
- 5) Use surface water from nearby Scissortail Lake
- 6) Purchase water from Oklahoma City Pipeline
- 7) Desalination of brackish groundwater





***Statement of Problems and Needs***

Ada needs to continue to investigate reuse as an alternative to the unreliable water supply currently utilized from Byrd's Mill Spring. A water reclamation and water reuse project in the City of Ada would mitigate the dependence on flows from Byrd's Mill Spring, and ultimately Arbuckle-Simpson Aquifer, and eliminate water emergencies during droughts.

***Watershed Perspective***

The City of Ada's primary source of water is Byrd's Mill Spring fed by the Arbuckle-Simpson Aquifer. Byrd's Mill Spring typically flows at 10 MGD, and Ada's average demand is 5 MGD. Flow from Byrd's Mill Spring is highly variable, ranging from 3 MGD to 20 MGD. During droughts, Ada's demand has reached 10 MGD which can require supplemental water from one of three wells near Byrd's Mill Spring.

Many communities pull directly or indirectly from the same Arbuckle-Simpson Aquifer. Streams and springs fed by Arbuckle-Simpson Aquifer are featured within the Chickasaw National Recreation Area and the communities of Sulphur, Davis, Wynnewood, and Ardmore rely on the aquifer for water supply. Based on the Arbuckle-Simpson Aquifer hydrology study initiated in 2003, the Oklahoma Water Resources Board proposed a pumping limit of 0.2 acre-feet per acre which is one-tenth of the current 2 acre-feet per acre limit. With this reduction, Byrd's Mill Spring is protected, but groundwater reserves that Ada relies on will no longer be available. Pulling 2 acre-feet per acre provides Ada with 18 MGD while pulling 0.2 acre-feet/acre provides Ada less than 2 MGD from Aquifer. With this new pumping limit, Ada would not have enough water supply for the average 5 MGD demand. Conservation, system improvements, and additional water rights may not satisfy future water demand in the area.

***Current Water Supply System***

Two parallel pipelines, each 12 miles long, transport water from Byrd's Mill Spring which is fed by the Arbuckle-Simpson Aquifer. One pipeline was constructed in 1929 and the other in the 1970's. To supplement when flows from the spring are low, three wells within the Byrd's Mill Spring watershed are used to pump groundwater into the pipelines. The current water supply is chlorinated and fluoridated before delivery to Ada's mains.

The current average water demand for the City of Ada is 7,069 AFY with a peak water demand of 18,169 AFY. According to the 2012 Oklahoma Comprehensive Water Plan, the projected water demand in 2060 will be 8,113 AFY.

Plans for new facilities are currently underway. A fourth well to yield 2,000 gallons per minute will be installed outside of the Byrd's Mill Spring watershed, but within the Arbuckle-Simpson



Aquifer. The pipeline installed in 1929 will be replaced to mitigate a projected loss of 1 MGD from leaks. The other pipeline will remain operational with no improvements. Ada has also purchased 10,000 acres of surface and ground water rights since the original three wells were drilled.

### ***Current Wastewater Treatment System***

The City of Ada operates a public wastewater system which collects in a central WWTP for treatment. Average daily flows are near 2.5 MGD, and the treatment plant is rated for a capacity of 3.2 MGD. The plant consists of a SBR system with flow equalization. The plant operates a UV disinfection system before discharging all effluent to nearby Sandy Creek.

Several improvements have been made to the WWTP. In Phase 1, a new sewer line and controls system was added to the flow equalization basins. In Phase 2, new aerators were installed and the pump in the earthen basin was removed to allow gravity flow back. Phase 3 involved the removal of comminutors and installation of fine bar screens. Grit chambers were repaired to complete improvements to the headworks. Replacement of the UV system is ongoing for Phase 4 of improvements. An entirely new UV system will replace the old system. The effluent valve actuator will also be replaced and an electrical surge protection system will be installed. Future improvements to the headworks will be made in Phase 5 including pump station upgrades and installation of a backup power system.

### ***Water Reclamation and Reuse Opportunities, Economic Analysis, Selection of the Proposed Title XVI Project.***

Water reuse within various sectors in the City of Ada could greatly reduce the dependence on flows from Byrd's Mill Spring. While Byrd's Mill Spring and groundwater wells are options that can still be utilized, a combination of other alternatives could be used along with conservation strategies. Beneficial reuse of wastewater treatment plant (WWTP) effluent can be used for enhanced recharge of the Arbuckle-Simpson Aquifer. Surface water from Scissortail Lake could be pumped to Ada or water could be purchased from the Oklahoma City Pipeline. The final option to consider is desalination of brackish groundwater. This Feasibility Study will provide the City with the opportunity to evaluate reuse opportunities to decrease total dependence on unreliable water supply sources while strengthening the position of the city to make critical decisions related to future water rights' needs and the feasibility of potable reuse alternatives.

The customers identified for potential reuse opportunities are within the municipal, industrial, power generation, and recreation sectors. More sectors, such as domestic use



and groundwater recharge, have the potential to be served after their assessment in a future study.

A major source of water identified is the WWTP. If WWTP effluent is to be used for reuse purposes, treatment modifications are required to achieve Category 2 reuse quality, defined by the Oklahoma Department of Environmental Quality (ODEQ), which is required for any public access landscape. The Ada Sportsplex and Oak Hills Country Club Golf Course, potential reuse water customers for the City of Ada, would require Category 2 reuse water. The current wastewater treatment plant would require upgrades to the coagulation/flocculation, filtration, and disinfection processes in order to meet Category 2 quality.

The following table lists the potential reuse customers for the City of Ada. The category and type of use is listed for each potential customer as well as the annual average volume in millions of gallons.

**Potential Reuse Customers**

<b>Customer</b>	<b>Category of Use</b>	<b>Type of Use</b>	<b>Average Annual Volume (MG)</b>
Ada Sportsplex	Recreation	Seasonal Irrigation	27
Cemetery	Municipal	Seasonal Irrigation	33
Oak Hills Country Club	Recreation	Seasonal Irrigation	12
Holcim US Inc.	Industrial	Annual	33
Industrial Airpark	Industrial	Annual	n/a
Mercy Hospital Cooling Towers	Power Generation	Annual	n/a

The customers listed in above table were selected based on their potential use and proximity to the wastewater treatment plant. Major transmission lines would be needed to transport the reclaimed water from the wastewater treatment plant to reuse customers. One would serve the Ada Sportsplex and Cemetery to the west of the wastewater treatment plant. The other would branch both east and west to the south of the wastewater treatment plant, serving the Oak Hills Country Club and Holcim US Inc., a cement plant. In the future, more customers could be identified along this pipeline route or along another pipeline installation.

To serve those potential customers identified, a storage volume of 660,000 gallons was calculated based on one day of peak demand. Annual water reuse customers are expected to consume five days per week at a fairly constant rate. The demand for seasonal water

reuse customers is much more variable because it depends on precipitation and evaporation rates during the April – October irrigation season. The peak delivery rate, found below with storage and treatment capacity, is based on the peak rate during irrigation season when season customers require reuse water. The reuse treatment capacity, after treatment plant upgrades, would be 0.66 MGD with a peak delivery rate of 1.77 MGD.

#### **Reclaimed Water Supply**

<b>Design Basis</b>	<b>Quantity</b>
Reuse Treatment Capacity	0.66 MGD
Storage	660,000 Gallons
Peak Delivery Rate	1.77 MGD

#### ***Water Reclamation and Reuse Feasibility Study Scope of Work:***

##### **1. Evaluation of Existing System**

###### **a. Water Supply**

The evaluation will include an analysis on the City of Ada’s current water supply built on the preliminary analysis of potential water reuse opportunities in the Choctaw and Chickasaw Nations performed as part of the Phase I Water Reuse Assessment. The analysis will include information on the current supply, allotment, and water rights. A gap analysis will be developed using historical water use data and population growth to determine the current and projected water demands which will then be compared to the current allotted supply and historical drought records. Historical water quality data for the supply water source will be evaluated and projections for impairments during drought and rainy seasons will be developed. A summary of the current raw water infrastructure process, hydraulic capacity, and condition will be provided. Additionally, a summary of current capital improvement plans on water supply infrastructure and expansion of water rights, including associated costs, will be provided.

###### **b. Water Treatment**

The evaluation will include an analysis on the City of Ada’s current water treatment plant process and capabilities. A summary of the current water treatment plant processes, hydraulic capacity, and condition will be provided.

The evaluation will also include a summary of historic effluent water quality. The analysis of the current water treatment plant capabilities will be compared to the historic raw water quality and demand projections developed in the water supply analysis to determine the plant's ability to provide for future water demands at varying influent water quality. Additionally, a summary of current capital improvement plans on water treatment plant infrastructure will be provided.

**c. Wastewater Treatment**

The evaluation will include an analysis on the City of Ada's current wastewater treatment plant process and capabilities built on the preliminary analysis of treatment requirements for communities in the Choctaw and Chickasaw Nations performed as part of the Phase II Water Reuse Assessment. A summary of the current wastewater treatment plant processes, hydraulic capacity, and condition will be provided. The evaluation will also include a summary of historic effluent water quality and future effluent water quality criteria. A projection for wastewater collection will be determined based on historic demand versus collection data, water demand projections, and collection assumptions provided in literature. The analysis of the current wastewater treatment plant capabilities will be compared to the collection projections developed to determine the plant's ability to provide for future water demands and future effluent water quality criteria. Additionally, a summary of current capital improvement plans on wastewater treatment plant infrastructure will be provided.

**d. Water Reuse**

The evaluation will include an analysis on the City of Ada's current water reuse practices, if applicable. A summary of the current water reuse customers, demands, water quality requirements, and associated infrastructure will be provided. Additionally, a summary of current capital improvement plans on water reuse infrastructure will be provided.

**2. Evaluation of Water Reclamation and Reuse Opportunities**

**a. Determination of Potential Users**

The evaluation will include a summary of potential users, expected use categories as it pertains to ODEQ reuse categories, and a summary of market assessment procedures built on the preliminary analysis of potential water

reuse opportunities in the Choctaw and Chickasaw Nations performed as part of the Phase I and Phase II Water Reuse Assessment. Additionally, the six users identified as part of the Water Reuse Assessments will be contacted to discuss interest, average and peak day demands, user water quality requirements, water reuse goals on a city-wide scale and construction requirements and estimated cost from the user. It will be assumed that one meeting will be held with each of the six previously identified users within two site visits to Ada, OK and will include the City and their engineers. All communication will be summarized in meeting minutes and in the engineering report.

**b. Public Outreach**

One public open house will be held in the City of Ada, Oklahoma to discuss the benefits of water reuse within the City and field any questions, comments or concerns the public may have with future plans. The open house will include a maximum of five visual documents/displays, a meeting agenda, and a summary presentation. The invitation will be published in the local newspaper and the City's online events page. The City and up to three of their engineers will be in attendance to facilitate the open house. A summary of the discussions at the open house will be summarized in meeting minutes and as part of the engineering report. Additionally, incentives to stimulate reuse demand and public acceptance within the community based on feedback from the open house will be discussed in the engineering report.

**3. Alternatives Analysis**

**a. Summary of Objectives and Alternatives**

A summary of objectives and goals, as part of the City's vision for drought resiliency, watershed quality, and green initiatives will be outlined. A maximum of two alternatives for water reuse will be identified as the most feasible for implementation and further comparison and evaluation. The sources of water reuse or reclamation may include, but are not limited to, impaired surface/groundwater. One alternative will be water reuse through wastewater effluent to build on the preliminary analysis of potential water reuse opportunities in the Choctaw and Chickasaw Nations performed as part of the Phase I and Phase II Water Reuse Assessment. A summary of the procedures used to identify the second alternative to compare will be provided.



**b. Treatment****i. Design Criteria**

The regulations and design criteria for recycled water usage based on user categories in Oklahoma are dictated by the OAC 252:656 “Water Pollution Control Construction Standards”, OAC 252:656 “Operation and Maintenance of Water Reuse”, and the OAC 252:627 “Water Reuse”. A summary of these regulations, as well as an analysis of the City’s current compliance will be provided in the engineering report.

**ii. Proposed Treatment**

A maximum of two alternatives for water reuse or reclamation will be analyzed against water reuse requirements, end user water quality requirements and current infrastructure to determine operational changes and additional infrastructure needed to conform to the design criteria. The proposed operational changes and infrastructure will build on the preliminary analysis of potential water reuse opportunities in the Choctaw and Chickasaw Nations performed as part of the Phase II Water Reuse Assessment and analysis of current infrastructure as performed for the engineering report. Proposed treatment for each of the alternatives will be evaluated at a 20-percent design and a maximum of 10 site layout drawings will be provided for each alternative.

**iii. Land requirements and site soils/groundwater description (for construction)**

The Feasibility Study will describe the topography, soils, geologic conditions, depth to bedrock, groundwater level, floodway or floodplain considerations, and other pertinent proposed construction site information. This information will include a minimum of 6 months of data on the groundwater level.

All tasks under the existing system evaluation will be performed as a desktop analysis under the assumption that historical data is publically available or will be provided by the owner upon request. There will be no groundwater level data collection, soil borings, or other subsurface investigations performed as part of this task. One site/ground-based survey will be performed in the area of the proposed construction for additional treatment to water reuse standards. Additionally, a ground-based survey of the proposed distribution pipeline will be performed.

Oversight of the surveys will be provided by the City's engineer for a maximum of one day for each survey.

**iv. Biosolids Management**

If either of the proposed projects increase the production of biosolids and/or residuals, a description of any modifications necessary to properly treat and dispose of biosolids will be provided. All biosolids that will be land applied and/or disposed in a landfill must comply, at a minimum, with the Class B pathogen reduction requirements contained at 40 CFR, Part 503, adopted by reference at OAC 252:606.

**c. Distribution**

The two alternatives for water reuse or reclamation will be analyzed against the user interest, demand, and water quality requirements, as well as current infrastructure, desktop elevation and obstruction determinations to develop the water reuse distribution piping layout and sizing. Additionally, pump station, storage and distribution system disinfection systems will be sized and locations will be determined, as applicable. The proposed distribution system and infrastructure will build on the preliminary analysis of potential water reuse opportunities in the Choctaw and Chickasaw Nations performed as part of the Phase II Water Reuse Assessment. The proposed distribution system layout and infrastructure for each of the alternatives will be evaluated at a 20-percent design and a maximum of five system layout drawings will be provided for each alternative.

**4. Economic Analysis**

**a. Opinion of Probable Cost**

Description of other water supply alternatives considered to accomplish the objectives to be addressed by the proposed Feasibility Study, including benefits to be gained by each alternative, total project cost, life cycle cost, and corresponding cost of the project water produced expressed in dollars per million gallons (MG), and/or dollars per acre-foot. All opinions will be conducted at the appraisal level for the two alternatives.

Description of the proposed Feasibility Study including appraisal of project opinion of probable cost, annual operation, maintenance, and replacement cost estimate; and life cycle costs will be provided with sufficient detail to

permit a more in-depth evaluation of the project, including non-construction costs. Additionally, costs for development, construction, land and rights-of-way, legal services, engineering services, contingencies, refinancing, and any other factors associated with the proposed projects will be determined.

**b. 20-Year Cost Projections Comparison**

The economic analysis included in the engineering report will compare the conditions that exist in the area and provide projections of the future with, and without, the proposed alternatives. Emphasis in the analysis will be given to the contributions that the plan could make toward alleviation of economic problems and the meeting of future demand. The capital life cycle opinions of probable cost for the alternatives developed in the previous section will be compared to information regarding current and proposed rate structures, and current annual operating and maintenance (O&M) cost.

**c. Description of non-quantifiable benefits (i.e. drought tolerance, environment)**

Some Feasibility Study benefits may be difficult to quantify; for example, a drought tolerant water supply, reduced water importation, and other social or environmental benefits. These benefits will be documented and described qualitatively as completely as possible. These qualitative benefits can be considered as part of the justification for a Title XVI project in conjunction with the comparison of project costs described above.

**5. Project Selection**

**a. Capital Improvement Comparison**

The City will select that alternative that best suits their objectives with support from the economic and non-quantifiable benefits analysis provided in the economic analysis. That alternative will be further analyzed on reduction, postponement, or elimination of expanded water supplies, federal water supplies, water treatment, or wastewater treatment.

**b. Enforcement Orders**

A summary of enforcement orders and a description of how the proposed alternative eliminates any current violations will be provided. Discussion of any unresolved issues associated with implementing the proposed water reclamation

and reuse project, how and when such issues will be resolved, and how the project would be affected if such issues are not resolved.

**c. Research Needs**

- i. The proposed Feasibility Study will use proven technologies and conventional system components. No additional research will be necessary for completion of this Study.

**d. Conclusions and Recommendations**

- i. The Feasibility Report will include a recommendation for a specific course of action to be undertaken. The conclusions and recommendations will also include any additional findings, identify any special studies to be developed, and any other recommendations that must be considered in development of the project.

**6. Environmental Considerations**

**a. Supply Water Quality**

- i. Discussion whether, and to what extent, the project will have potentially significant environmental effects, or will involve unique or undefined environmental risks.

**b. Public Health and Safety**

- i. Discussion whether, and to what extent, the proposed project will have potentially significant impacts on endangered or threatened species, public health or safety, natural resources, regulated waters of the United States, or cultural resources.

**c. Endangered Species**

- i. Any other information available to the study lead that would assist with assessing the measures that may be necessary to comply with NEPA, and other applicable Federal, state or local environmental laws such as the Endangered Species Act or the Clean Water Act.

**d. Environmental Compliance**

- i. Description of the status of required Federal, state, tribal, and/or local environmental compliance measures for the proposed project, including copies of any documents that have been prepared, or results of any relevant studies.



**e. Historic Building or Lands**

- i. Description of the potential effects the project may have on historic properties. Discussion must include potential mitigation measures, the potential for adaptive reuse of facilities, an analysis of historic preservation costs, and the potential for heritage education, if necessary.

**7. Legal and Institutional Requirements****a. Water Rights**

- i. Analysis of any water rights issues potentially resulting from implementation of the proposed water reclamation and reuse project. All proposed projects must comply with state water law.
- ii. Discussion of legal and institutional requirements (e.g., contractual water supply obligations, Indian trust responsibilities, water rights settlements, regional water quality control board requirements), state, and/or local requirements with the potential to affect implementation of the project.
- iii. Title XVI projects using Reclamation project water must address contractual requirements as described in RM Policy, Reuse of Project Water (WTR P09).

**b. Permitting**

- i. Discussion of permitting procedures required for the implementation of water reclamation projects in the study area, and any measures that the non-Federal project sponsor can implement that could speed the permitting process.

**c. Multi-Jurisdictional Communication/Meetings**

- i. Identification of all the water and wastewater agencies that have jurisdiction in the potential service area or over the sources of reclaimed water.
- ii. Discussion of the need for multi-jurisdictional or interagency agreements, any coordination undertaken, and any planned coordination activities.
- iii. A minimum of two meetings will be held with any agency with a jurisdiction, including but not limited to ODEQ, OWRB, Chickasaw Nation, City of Ada, Pontotoc County, and the City and up to three

representatives from the City's engineer. A meeting agenda, presentation, and meeting minutes will be provided by the City's engineer.

#### **8. Final Report**

Each task outlined above will be submitted in draft form as an individual technical memorandum for comment and compiled for a final report.

#### **9. Project Management**

In addition to internal project management, the project management task includes communication with all previously noted parties including regulators, jurisdictional agencies, and the Bureau as needed throughout the project lifecycle, as well as bi-weekly team conference calls to discuss project progress. Project management tasks will also include a monthly progress summary to accompany monthly invoicing. All deliverables will be undergo the proper quality control and quality assurance procedures through the project manager or senior technical staff.

#### ***Description of Alternatives.***

The City has determined seven long-term options that can be used independently, or as a combination for water reuse:

- 1) Continue to pull water from Byrd's Mill Spring
- 2) Continue to pull water from groundwater sources
- 3) Water conservation
- 4) Enhanced recharge of Arbuckle-Simpson Aquifer
- 5) Use surface water from nearby Scissortail Lake
- 6) Purchase water from Oklahoma City Pipeline
- 7) Desalination of brackish groundwater

#### ***Financial Capability of Sponsor.***

The City of Ada has the financial capacity to provide matching funds for this project, in addition to funds provided by partners of this project pursuit.

*Proposed schedule for project implementation:*

PROJECT SCHEDULE Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Project Kickoff												
Evaluation of Existing Supply												
Evaluation of Water Reclamation and Reuse Opportunities												
Alternatives Analysis												
Economic Analysis												
Project Selection												
Environmental Considerations												
Legal and Institutional Requirements												
Financial Capability												
Final Report												
Project Management												

**Research Needs.**

This study will include established and proven technologies and conventional system components. No further research will be necessary to complete this study.

**Required Permits or Approvals**

Permits will be defined through the course of the Feasibility Study, and as previously mentioned.

# Letters of Project Support





**STATE OF OKLAHOMA  
WATER RESOURCES BOARD**

[www.owrb.ok.gov](http://www.owrb.ok.gov)

January 3, 2017

Mr. Cody Holcomb  
City Manager  
City of Ada  
231 S. Townsend Street  
Ada, OK 74820

RE: Letter of Support – Bureau of Reclamation Title XVI Funding Request

Dear Mr. Holcomb:

On behalf of the Oklahoma Water Resources Board, I am writing to support the City of Ada's application for US Bureau of Reclamation WaterSMART funding to proactively seek opportunities to secure its water supply future through conservation and reuse opportunities.

I understand the feasibility study proposal to be submitted to the Bureau of Reclamation for Title XVI Water Reclamation and Reuse Program funding not only supports the Oklahoma Comprehensive Water Plan priority recommendations, but also the State's Water for 2060 initiative focused on strategies to prevent future water supply shortages through increased conservation measures, use of marginal quality water supplies, and public water supply source regionalization.

Thank you for your commitment to the wise use of our water resources. Please do not hesitate to contact me, or Mr. Owen Mills of my staff at (405) 530-8800, if we may be of further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Julie Cunningham".

Julie Cunningham  
Interim Executive Director



SCOTT A. THOMPSON  
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN  
Governor

January 3, 2017

Mr. Cody Holcomb, P.E.  
City Manager  
City of Ada  
231 South Townsend Street  
Ada, Oklahoma 74820

Re: Letter of Support – Bureau of Reclamation Title XVI Funding Request

Dear Mr. Holcomb,

The Oklahoma Department of Environmental Quality (“DEQ”) supports the City of Ada’s (“City”) efforts to study water reclamation and reuse to tackle water supply challenges in your community. Oklahoma’s Water for 2060 Act established a statewide goal of consuming no more fresh water in 2060 than was consumed in 2010, and the City’s labors towards greater water supply sustainability, drought resiliency, and conservation are a good step in support of that goal.

Furthermore, DEQ approves of the City’s work to build upon existing studies, such as the Oklahoma Comprehensive Water Plan, the Arbuckle-Simpson Drought Contingency Plan, and the Choctaw and Chickasaw Nations Water Reuse Assessments. The City has been a participant in these studies, and no doubt will continue to do so.

In closing, DEQ supports the City of Ada’s application to the Bureau of Reclamation for a WaterSMART: Development of Feasibility Studies grant.

Please let me know if you have any questions or concerns, and we look forward to continuing working with you.

Respectfully,

A handwritten signature in blue ink, appearing to read "G. Carr", is written over a light blue circular stamp.

Gregory W. Carr, P.E.  
Chief Engineer  
Water Quality Division  
Oklahoma Department of Environmental Quality





1100 East 14<sup>th</sup> Street, PMB J-4 | Ada, OK 74820 | 580.559.5151

January 4, 2017

Mr. Cody Holcomb  
City Manager  
City of Ada  
231 S. Townsend Street  
Ada, OK 74820

RE: Letter of Support – Bureau of Reclamation Title XVI Funding Request

Dear Mr. Holcomb,

On behalf of the Oka' Institute, we support the City of Ada's efforts to incorporate the reuse of wastewater into its future water supply plans through an application for the US Bureau of Reclamation WaterSMART program funding.

The feasibility study proposal to be submitted to the Bureau of Reclamation for Title XVI Water Reclamation and Reuse Program funding supports the Oklahoma Comprehensive Water Plan priority recommendations, the State of Oklahoma's Water for 2060 initiative, and the strategic goals of The Oka' Institute.

We have reviewed the feasibility study proposal to be submitted to the Bureau of Reclamation for Title XVI Water Reclamation and Reuse Program funding and endorse this proposal through this letter of strong support.

Thank you for your commitment to sustainable use of our water resources. If I can be of further assistance, please let me know.

Sincerely,

Susan Paddack  
Executive Director  
E: [spaddack@ecok.edu](mailto:spaddack@ecok.edu)  
O: 580.559.5152  
C: 580.279.3937

---

"To create practical water solutions both locally and globally driven by research and data that result in long-term sustainable ecological management and economic development" – Vision Statement, The Oka' Institute

## Official Resolution

**Official resolution will be provided to the Ada City Council the second Council meeting in January 2017. The approved Official Resolution will be provided to BOR within 30 days of submittal of this application.**



## Study Budget

All non-federal funding will be provided directly by the City of Ada, Oklahoma. No funding requests have been made, or will be received from, other Federal partners. Reclamation is the only source of Federal funding.

There are no pending funding requests.

The City's contribution to the cost-share requirement will be monetary. The source of these funds will be from the City's Operating Budget under the "Engineering" line item. There are adequate funds available.

**Table 1.—Summary of Non-Federal and Federal Funding Sources**

Funding Sources	Funding Amount
<b>Non-Federal Entities</b>	
City of Ada, OK (cash)	\$ 136,193
<b>Non-Federal Subtotal</b>	<b>\$ 136,193</b>
<b>Other Federal Entities</b>	
1. N/A	\$ -
<b>Other Federal Subtotal</b>	<b>\$ -</b>
<b>Requested Reclamation Funding</b>	<b>\$ 136,193</b>
<b>Total Study Funding</b>	<b>\$ 272,386</b>

**Budget Proposal**

**Table 2.—Study Budget**

Budget Item Description	Computation		Quantity Type (hours/days)	Total Cost
	\$/Unit	Quantity		
[REDACTED]				
[REDACTED]	\$ -			\$ -
[REDACTED]				
[REDACTED]	\$ -			\$ -
[REDACTED]				
[REDACTED]	\$ -			\$ -
[REDACTED]				
[REDACTED]	\$ -			\$ -
[REDACTED]				
[REDACTED]	\$ -			\$ -
[REDACTED]				
[REDACTED]	\$ [REDACTED]	[REDACTED]	[REDACTED]	\$ [REDACTED]
[REDACTED]	\$ [REDACTED]	[REDACTED]	[REDACTED]	\$ [REDACTED]
Other				
N/A	\$ -			\$ -
<b>Total Direct Costs</b>				<b>\$ 272,386</b>
<b>Indirect Costs</b>				<b>\$ -</b>
<b>Total Project Costs</b>				<b>\$ 272,386</b>

## ***Budget Narrative***

### ***Salaries and Wages***

It is not anticipated that any specific funds associated with the salary and wages of the City of Ada program manager will be dedicated to this project. Therefore, for the purpose of project budgeting, these items are estimated to be \$0.

### ***Fringe Benefits***

Fringe Benefits of the City of Ada program manager are expected to be minimal. Therefore, for the purpose of project budgeting, these items are estimated to be \$0.

### ***Travel***

No travel is anticipated.

### ***Equipment***

No equipment is anticipated.

### ***Materials and Supplies***

No materials or supplies are anticipated.

### ***Contractual***

The City of Ada, Oklahoma will be contracting with Burns & McDonnell to perform the tasks outline in Table 3 below. Their water resources, engineering, and sustainable planning expertise will drive the Feasibility Study effort. Contractual fees are indicated in Table 3 below. Specifically, Burns & McDonnell will be responsible for the following identified tasks led by key individuals:

- Project Management – Kerrie Greenfelder
- Lead Treatment Process – Michaela Rempkowski
- Lead Distribution System – Chandler Wilson
- Lead Financial Analysis – David Naumann
- Assistant Treatment Process – Mariah Schroeder
- Assistant Project Management – Andrew Slotterback
- Quality Control: Treatment Process – Adam Bogusch
- Quality Control: Distribution System – Michael Lehrburger
- Quality Control: Financial Analysis – Kerrie Greenfelder

Information provided in Table 3 reflects the general project budget associated with the development of the Feasibility Study as referenced in this application. Expenses are associated with travel and printing. The general scope of work for the proposed feasibility study includes the following tasks:

- Evaluation of Existing System
- Evaluation of Water Reclamation and Reuse Opportunities
- Alternatives Analysis
- Economic Analysis
- Project Selection
- Environmental Considerations
- Legal and Institutional Requirements
- Financial Capability
- Engineering report
- Project Management

Work completed as part of the Choctaw and Chickasaw Nation Water Reuse Assessment Phases created a firm foundation for the work proposed as part of this application. As a result of the previously completed regional feasibility studies, it was determined that additional work should be performed in order to further the knowledge base of the City of Ada in terms of beneficial reuse. A copy of the previously completed reports can be made available to Reclamation if requested.



*Total Costs***Table 4.—Total Cost and Funding by Source**

Funding Sources	% of Total Study Cost	Total Cost by Source
Recipient Funding	50%	\$ 136,193
Reclamation Funding	50%	\$ 136,193
Other Federal Funding	0%	\$ -
<b>Totals</b>	<b>100%</b>	<b>\$ 272,386</b>



## BUDGET INFORMATION - Non-Construction Programs

## SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. <b>WaterSMART: Development of Feasibility Studies under the Title XVI Water Reclamation and Reuse Program (FY) 2017</b>	15.504	\$ 136,193.00	\$ 136,193.00	\$	\$	\$ 272,386.00
2.						
3.						
4.						
5. <b>Totals</b>		\$ 136,193.00	\$ 136,193.00	\$	\$	\$ 272,386.00

**SECTION B - BUDGET CATEGORIES**

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
	WaterSMART: Development of Feasibility Studies under the Title XVI Water Reclamation and Reuse Program (FY) 2017				
a. Personnel	\$	\$	\$	\$	\$
b. Fringe Benefits					
c. Travel					
d. Equipment					
e. Supplies					
f. Contractual	272,386.00				272,386.00
g. Construction					
h. Other					
<b>i. Total Direct Charges (sum of 6a-6h)</b>	<b>272,386.00</b>				<b>\$ 272,386.00</b>
j. Indirect Charges					\$
<b>k. TOTALS (sum of 6i and 6j)</b>	<b>\$ 272,386.00</b>	\$	\$	\$	<b>\$ 272,386.00</b>
<b>7. Program Income</b>	\$	\$	\$	\$	\$

Authorized for Local Reproduction

Standard Form 424A (Rev. 7-87)  
Prescribed by OMB (Circular A-102) Page 1A

SECTION C - NON-FEDERAL RESOURCES					
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS	
8. WaterSMART: Development of Feasibility Studies under the Title XVI Water Reclamation and Reuse Program (FY) 2017	\$ 136,193.00	\$	\$	\$ 136,193.00	
9.					
10.					
11.					
12. TOTAL (sum of lines 8-11)	\$ 136,193.00	\$	\$	\$ 136,193.00	
SECTION D - FORECASTED CASH NEEDS					
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 136,193.00	\$ 35,235.00	\$ 49,293.00	\$ 28,072.00	\$ 23,593.00
14. Non-Federal	\$ 136,193.00	\$ 35,235.00	\$ 49,293.00	\$ 28,072.00	\$ 23,593.00
15. TOTAL (sum of lines 13 and 14)	\$ 272,386.00	\$ 70,470.00	\$ 98,586.00	\$ 56,144.00	\$ 47,186.00
SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT					
(a) Grant Program	FUTURE FUNDING PERIODS (YEARS)				
	(b) First	(c) Second	(d) Third	(e) Fourth	
16. WaterSMART: Development of Feasibility Studies under the Title XVI Water Reclamation and Reuse Program (FY) 2017	\$	\$	\$	\$	
17.					
18.					
19.					
20. TOTAL (sum of lines 16 - 19)	\$	\$	\$	\$	
SECTION F - OTHER BUDGET INFORMATION					
21. Direct Charges:		22. Indirect Charges:			
23. Remarks:					