Technical Proposal:
Caney River Water Augmentation and Intake Improvements to Provide Drought Resiliency
City of Bartlesville, OK

Application for the
WaterSMART Drought Response Program: Drought Resiliency Project for Fiscal Year 2017

Bureau of Reclamation
FOA No. BOR-DO-17-F010

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city of bartlesville
CONNECTED / CREATIVE / VIBRANT

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Abbreviations

AFY	Acre-Feet per Year
BMA	Bartlesville Municipal Authority
CRWPS	Caney River Raw Water Pump Station
CWWTP	Chickasaw Wastewater Treatment Plant (City of Bartlesville)
DEQ	Department of Environmental Quality (Oklahoma)
DPR	Direct Potable Reuse
EA	Environmental Assessment
FOA	Funding Opportunity Announcement
FS	Feasibility Study
FY	Fiscal Year
IPR	Indirect Potable Reuse
MG	Million Gallons
MGD	Million Gallons per Day
O&M	Operation & Maintenance
OCWP	Oklahoma Comprehensive Water Plan
ODEQ	Oklahoma Department of Environmental Quality
OWRB	Oklahoma Water Resources Board
PAS	Planning Assistance to States
QA/QC	Quality Assurance / Quality Control
RWD	Rural Water District
RWPS	Raw Water Pump Station
SCADA	Supervisory Control and Data Acquisition
USACE (USCE)	U.S. Army Corps of Engineers (U.S. Corps of Engineers)
USBR	U.S. Bureau of Reclamation
USEPA	U.S. Environmental Protection Agency
VFD	Variable Frequency Drive(s)
WQ	Water Quality
WWTP	Wastewater Treatment Plant

Executive Summary

Applicant (Funding Group II)

City of Bartlesville
Washington County, Oklahoma
February 14, 2017

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A one paragraph project summary that specifies the work proposed, including how funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA.

Bartlesville's primary source of raw water supply is the federally owned Hulah Lake. A severe drought in 2001-02 demonstrated the vulnerability of this source to maintain water supply at an adequate level. In response, Bartlesville has completed multiple studies and began seeking new supplemental source of raw water supply. Bartlesville has a secondary raw water source from Caney River but this source also is subject to the impact of severe drought and the poor water quality makes it an unreliable source. Bartlesville is submitting this application for FY2017 WaterSMART Drought Resiliency Grant to implement specific projects to provide resiliency to the Caney River supply and improve its water quality. Specifically, this proposal is a request for funding in the amount of $750,000, which represents approximately 10% of the funding, to implement the following: (1) construct a pump station and pipeline infrastructure to divert a portion of the effluent from the City owned wastewater treatment plant to a location upstream of the existing Caney River raw water intake to stabilize and to provide a drought resilient water supply, and (2) construct a pretreatment system to improve the Caney River water quality so it could be further treated at the existing water treatment plant, thus improving the reliability of this source. This project fits within the grant *Task A- Increasing the Reliability of Water Supply through Infrastructure Improvements*. When completed this project will expand the water supply by 25 years beyond, and will provide approximately 35-70% of current water supply need.

Project Duration:

This application is submitted under Group II. The project is scheduled to be completed within 3 years following the award of this grant in compliance with the Group II funding requirements.

Project Location:

The proposed project is not located on federal land. The proposed project is within the Bartlesville city limits.

Background Data

City of Bartlesville is an incorporated municipality in Oklahoma with a 2015 census population of approximately 36,596. Bartlesville operates and maintains its own water and wastewater utilities and its water service area is shown in Figure 1. In addition to serving within its city limits, Bartlesville serves the surrounding communities of Washington County Rural Water District (RWD) #2, Washington County RWD #5, Osage County RWD #1, Town of Ochelata, Town of Ramona, City of Dewey, Strike Axe Water system and the Bar Dew water system.

The Bartlesville service area is approximately 282 square miles covering part of Washington County, Osage County and Nowata County, and serves as the major regional water supplier within the watershed basin. Over the last 10 years, the average annual water use is 6.5 million gallons per day with a peak use of 14 million gallons per day.

Bartlesville's water supply is all surface water; there are no known dependable ground water supplies within the watershed with adequate quantity or quality for potable use. The primary water supply source is Hulah Reservoir, See Figure 2. Hulah Reservoir is a federally owned lake completed in 1951 for flood control, with water supply, low flow regulation, and conservation purposes. Bartlesville has 13,819 acre-feet (12.4 million gallons per day, or MGD) of water rights at Hulah Reservoir and there are no more water supply storage rights available at this lake. Since 1958, Hulah Lake has lost approximately 54% of its water storage due to sedimentation. Previous studies conducted by the US Army Corp of Engineers projected the 2015 dependable yield to be 8.4 MGD, but will diminish to 6.4 MGD by 2035 and 4.4 MGD by 2055.

Raw water from Hulah Reservoir is pumped to Hudson Lake, which is a city-owned lake. Hudson Lake has 2,776 acre-feet of water storage and a limited watershed with no appreciable dependable yield. Thus, Hudson Lake is considered part of the Hulah/Hudson water supply system.

Bartlesville also has water rights on the Caney River, which served as the original raw water supply for Bartlesville prior to the development of the Hulah/Hudson reservoir system. In the late 1920's a low water dam was constructed on the Caney River to create a small impoundment within the river to draw the raw water from. Bartlesville continues to operate a 1940-era raw water pump station on the Caney River (see Figure 2) within this impoundment and uses the Caney River as a secondary source. However, drought conditions and low flow during summer

months severely limit the available water, which combined with poor water quality makes the Caney River unreliable and technically challenging to treat.

The current raw water supply portfolio available to Bartlesville is summarized below:

- Surface Water Sources:
    - Hulah Lake. Bartlesville has 13,819 acre-feet (12.4 MGD) of water rights. There are no more water rights available at this Federally owned reservoir. Based on extensive study completed by the U.S. Army Corps of Engineers (USCE), based on historic and projected silting and sediment deposits, the projected dependable yield from Hulah is 6.4 MGD through year 2035 and 4.4 MGD by year 2055.

    - Hudson Lake. Bartlesville has 6,000 acre-feet (5.4 MGD) of water rights which represent all the water rights available at this reservoir. Due to the size of the lake and limited watershed, there is no appreciable yield associated with the lake and is considered part of the Hulah Lake water supply system. Therefore, water right is practically non-usable.

    - Caney River. Bartlesville has 6,000 acre-feed (5.4 MGD) of water rights and operates a 1940-era pump station on the Caney River. The poor water quality and unreliable supply during drought conditions make this source non-dependable. The proposed project under this application will remedy the situation by providing resiliency to this supply and improving the water quality that will allow it to be treated to potable quality at the existing Bartlesville water plant.

In 2006, the City of Bartlesville partnered with the US Corp of Engineers to perform a Planning Assistance to States (PAS) study to evaluate the current and projected water demand through 2055, the dependable yield from current water supply sources as well as several options for additional water supply to bridge the gap between the projected water demand and dependable yield. The recommendations from the PAS study, which was completed in 2007, include purchasing new water storage rights from Copan Lake as well as reallocating portions of the flood control pools within both Hulah and Copan Lake for water supply. This reallocation requires additional studies to identify and mitigate the environmental and downstream flooding impacts resulting from the flood pool modification. However, the cost to purchase the corresponding water storage rights, mitigate the environmental/downstream flooding impacts and develop the necessary infrastructure to convey the raw water to the water treatment facility has a present day cost of over $90 million dollars, which is beyond the capacity of Bartlesville's utility customers.

Bartlesville is a regional water supplier and the water demand for the region is expected to grow. Based on previous studies, the projected average water demand for the Bartlesville service area is projected to grow to 9 MGD under an average growth scenario and 10.8 MGD under an optimistic growth scenario by the year 2065, See Figure 3a. The current supply portfolio will experience a supply gap in the next 15 years and this is even without consideration of the impact from climate change including drought. The proposed project will not only fill this gap but also provide resiliency and increase reliability to the water supply system. As shown on Figure 3b, the

proposed project will increase the water supply 13 – 15 years depending on how much is utilized from this source.

Bartlesville water distribution system includes approximately 309 miles of pipeline ranging in size from 2-inch to 42-inch. There are 9 ground storage and 4 elevated storage tanks in the system with a total storage capacity of 11.25 million gallons (MG). There are five distribution system booster pump stations. The distribution system is monitored and managed by a city wide Supervisory Control and Data Acquisition (SCADA) system.

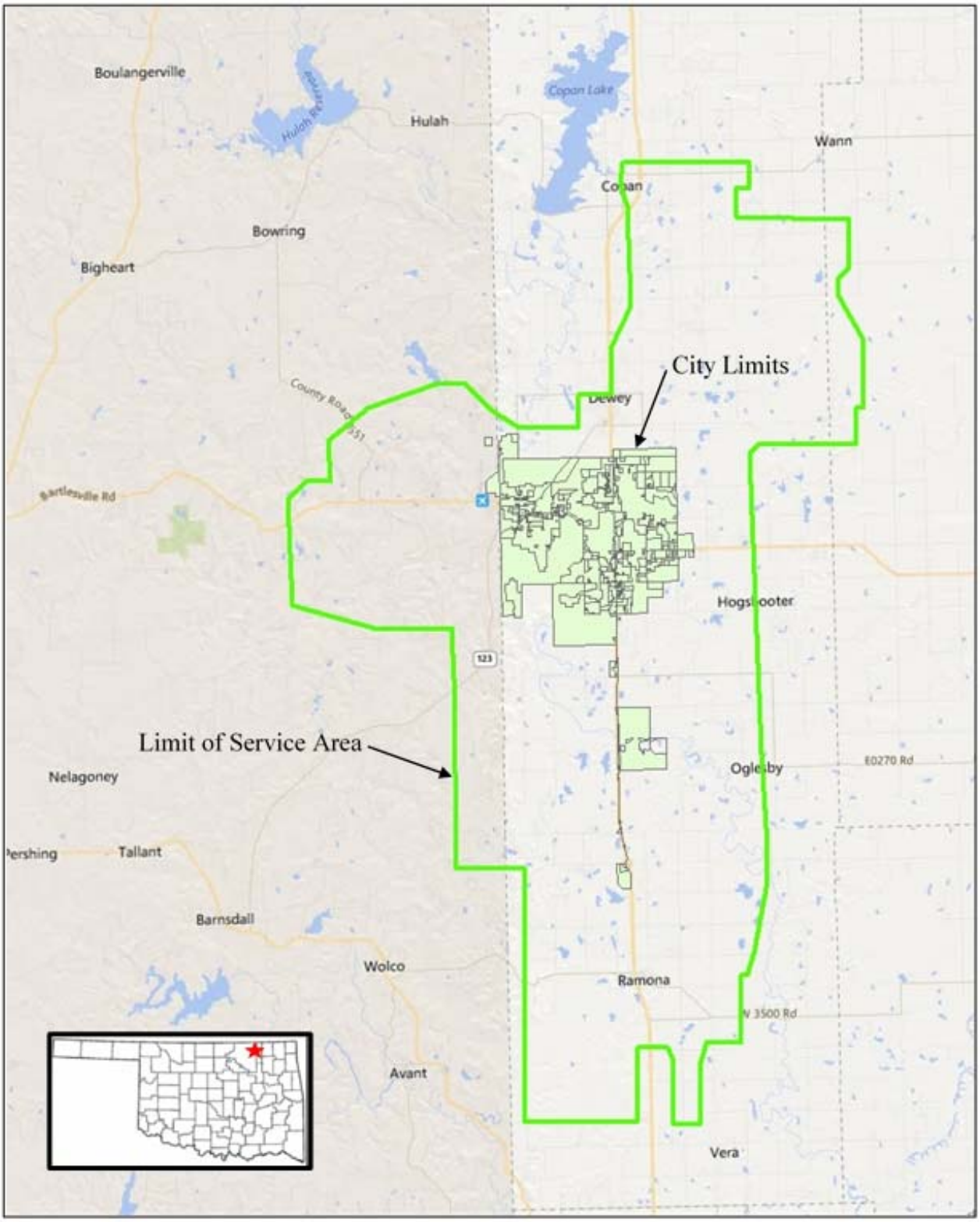


Figure 1- Bartlesville Vicinity and Water Service Area

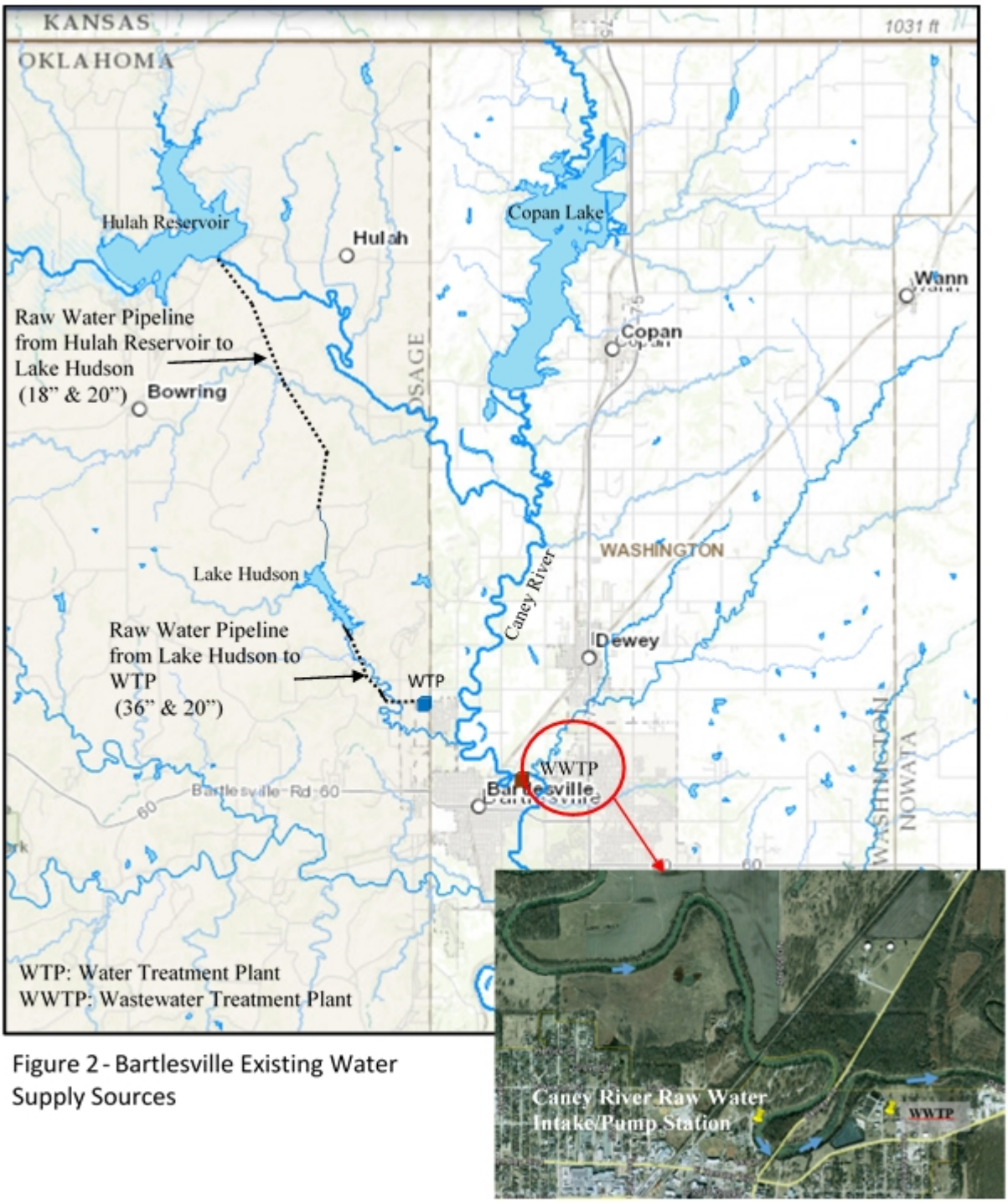


Figure 2 - Bartlesville Existing Water Supply Sources

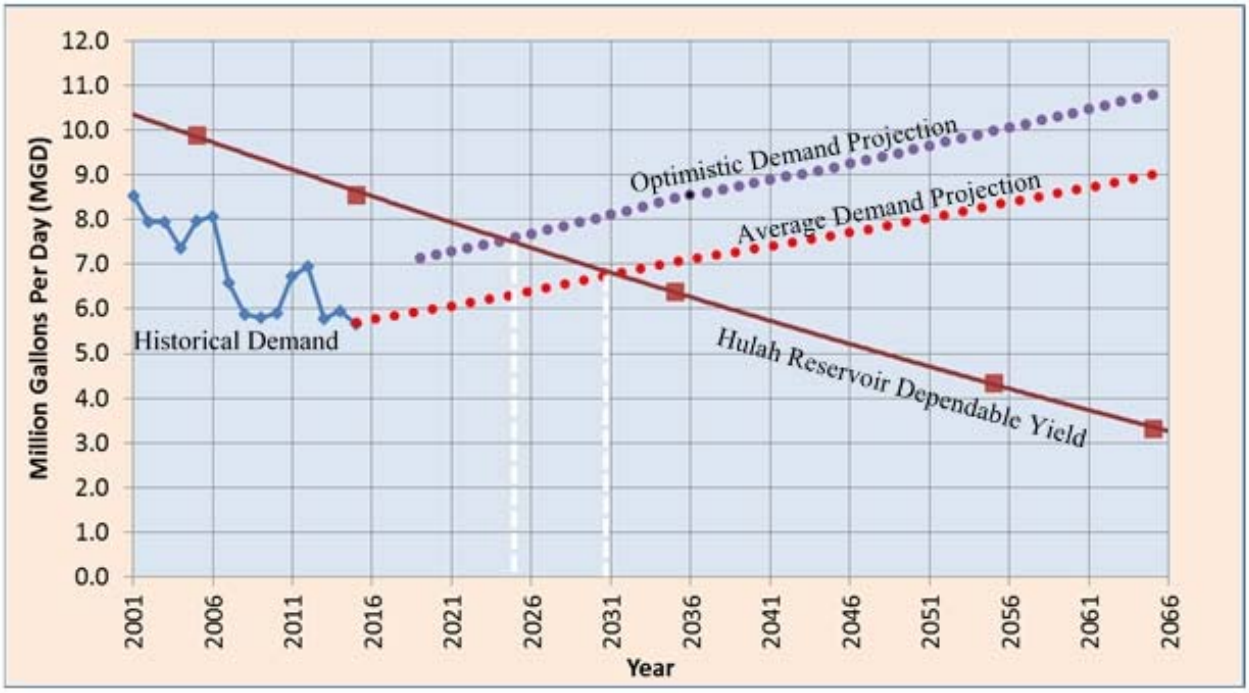


Figure 3a - Bartlesville Water Demand and Water Supply Dependable Yield (Existing Portfolio)

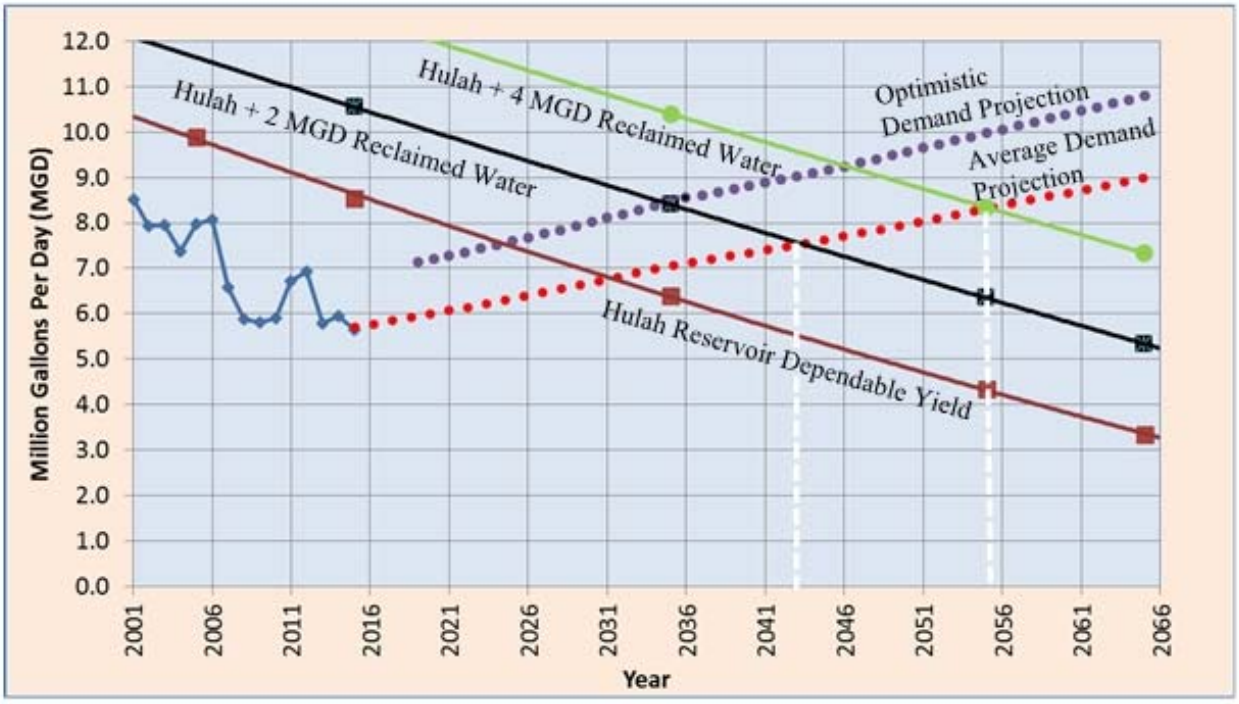


Figure 3b - Bartlesville Water Demand and Water Supply Portfolio with Reclamation and Reuse

Project Description

Figure 4a depicts the proposed project elements. Bartlesville maintains the 1940-era Caney River intake at the Caney River Raw Water Pump Station (RWPS) and a 20-inch raw water pipeline from the station to the existing water treatment plant. Figure 4b shows the pictorial view of the existing Caney River raw water pump station. This pump station has three vertical turbine pumps with a total capacity of 7.0 million gallons per day (MGD). The existing Ted D. Lockin Water Treatment Plant (WTP) was completed in 2003 and has a maximum capacity of 26 MGD. The proposed project elements include the following:

A. Construct an effluent pump station at the existing Chickasaw Wastewater Treatment Plant (CWWTP) and a minimum 18-inch conveyance pipeline from the station to a discharge location on Caney River approximately 5 miles upstream of the existing Caney River raw water intake. The 5 mile distance is intended to provide the necessary environmental buffer. The station will be sized to pump up to 4 MGD of reclaimed plant effluent.

B. Caney RWPS Rehabilitation. The existing pumps at the Caney RWPS are constant speed and do not provide the flexibility to vary the flow rate based on demand or to allow the most optimal mixing of supplies from the Caney River and the Hulah Lake supply systems. Current practice is to throttle a valve for the discharge at the RWPS, which results in wasting of electrical energy and diminished life of the pumps. This project will add new variable frequency drives (VFD) to the existing pumps, which will improve the functionality of the station and result in energy savings.

C. Caney River water quality is greatly impacted by drought and seasonal flow variations. In summer months, low water levels in the river facilitate slow water velocities that results in algal blooms/toxin production and elevated levels of total organic carbon, which are beyond the treatment capability of the existing water treatment plant. This project will add a pretreatment facility near the Caney RWPS. The pretreatment facility will include chemical metering and injection system to inject potassium permanganate for oxidation and activated carbon for mitigation of TOC and other organic compounds. Bench scale pilot study will be performed to establish the chemical dosage. The pretreatment facility will be located near the Caney RWPS on property Bartlesville already owns. The existing 20-inch pipeline from the Caney RWPS to the existing water treatment plant is approximately 3.3 miles long and will provide sufficient detention time for the chemical addition to achieve the necessary process reaction before the raw water supply reaches the water treatment plant.

Bartlesville proposes to implement these project elements through four (4) tasks as detailed below:

<u>Task 0 - Feasibility Study to Augment Caney River Supply with Drought-Resilient Reclaimed Water.</u>

Bartlesville has already started this task, which will finalize the environmental, technical and cost viabilities of reclaiming wastewater effluent as proposed by this project. Task 0 is not being included in this grant application but outlined to provide the status. Bartlesville submitted a FY2017 Application for the WaterSMART Title XVI Water Reclamation and Reuse Grant Program for Task 0, which is currently under review by the Bureau of Reclamation. While the Title XVI grant will assist funding the remaining tasks, the outcome of the Title XVI grant request will not affect the completion of the remaining tasks proposed for this project. Bartlesville is committed, with funding allocated, to complete Task 0 irrespective of the Title XVI grant application outcome.

Task 0 is scheduled to be completed by January 2018. See Figure 5 for the Project Schedule

Task 1 – Predesign Study

The predesign study will accomplish the following. Refer to Figure 4a for reference.

- Effluent Pump Station Hydraulics and Layout. This effluent pump station will be located at the existing Chickasaw Wastewater Treatment plant within the real estate already owned by the City of Bartlesville. Therefore, new real estate is not needed. Preliminary calculation indicates at 4 MGD proposed capacity, the effluent pumps will require approximately 70-feet of total head. A minimum of two pumps will be provided. The predesign study will finalize the hydraulics and pump station layout.

- Pipeline Alignment. A minimum 18-inch pipeline will extend from the new effluent pump station to the new Caney River discharge location approximately 5 river miles upstream of the existing intake. The pipeline is proposed to follow existing right-of way, however, easements will be needed for an area just north of the existing wastewater treatment plant and near the Caney River discharge. The predesign study will identify and finalize the necessary easements.

- Pretreatment Facility. Bench scale jar testing will be completed using Caney River water samples downstream of the existing wastewater discharge to establish the chemical dosage and feed system sizing. The chemical feed system will be located in a building near the Caney RWPS, which is already owned by the City of Bartlesville.

- Predesign Report. The predesign report will document the analysis and results from the predesign efforts including detailed cost estimate. The report will address all necessary permits and compliance with State and Federal requirements.

Task 1 is schedule to be completed February 2018. See Figure 5 for the Project Schedule.

Task 2 – Detailed Design

This task will accomplish the detailed design of the project elements to include the following:

- Final design report
- Preparation of Contract documents (construction plans and specifications)
- Stakeholder participation
- Regulatory approval by the Bureau of Reclamation and Oklahoma Department of Environmental Quality

Task 2 is scheduled to be completed by June 2018. See Figure 5 for the Project Schedule

Task 3 – Construction and Startup Phase

This task involves the construction of the project elements. Bartlesville will utilize competitive bidding and contract award in accordance to Oklahoma State Law to accomplish this task.

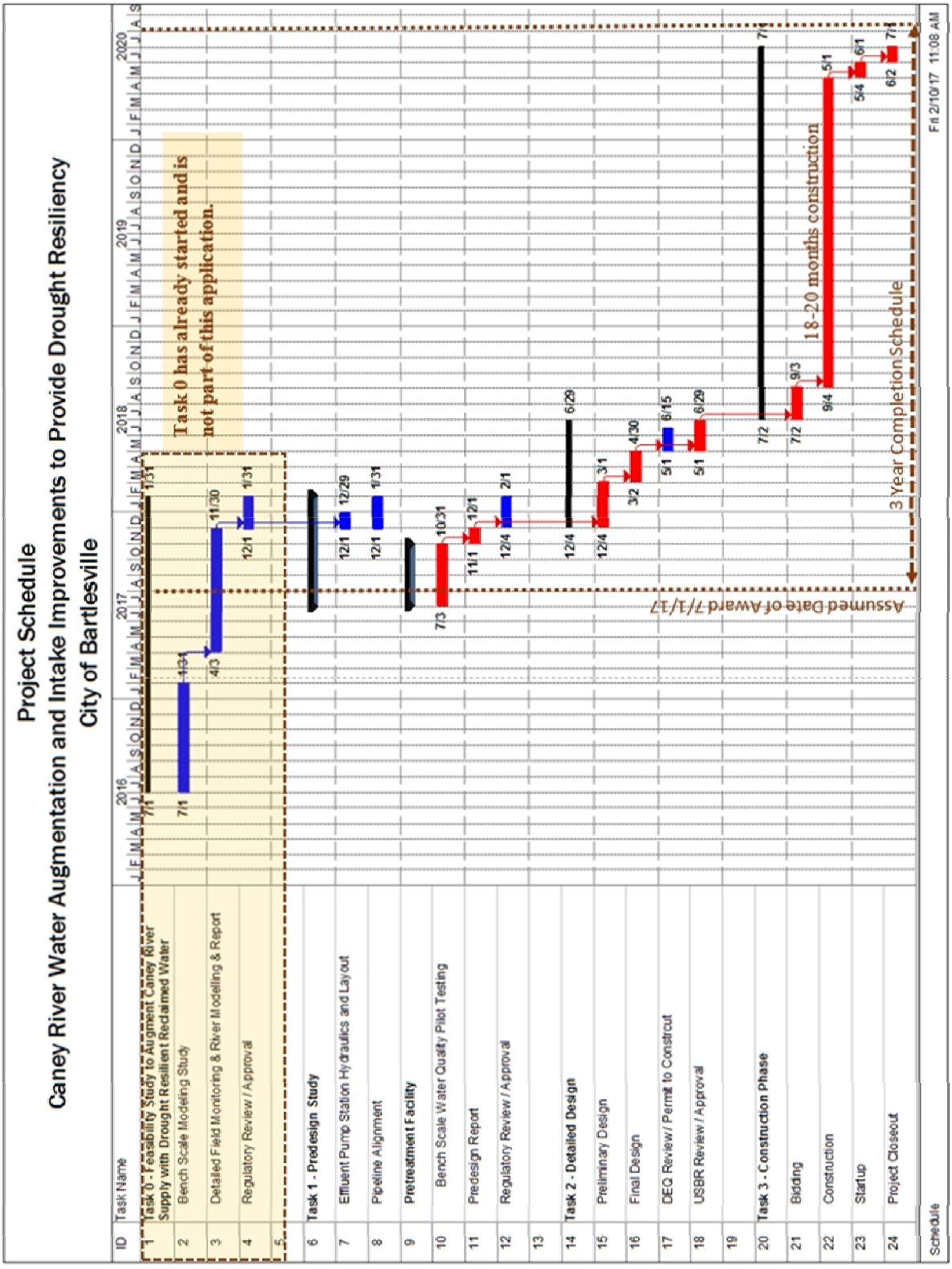
Task 3 is scheduled to be completed by May 2020. See Figure 5 for the Project Schedule.

Group II funding requires the project to be completed within 3 years from the date of award. It is anticipated that the FY2017 Drought Response Program award will be made in July 2017. As shown by the schedule in Figure 5, the proposed project will be completed within the 3-year window.

Figure 4a – Proposed Project Elements

Figure 4b – Existing Caney River Raw Water Pump Station

Figure 5 – Project Schedule



Performance Measures

The project will provide up to 4 MGD of drought resilient reclaimed water to augment the Caney River supply. The existing Chickasaw Wastewater Treatment Plant has a rated capacity of 7 MGD effluent. Projected water demand for the Bartlesville service area is estimated to be 9.0 MGD to 10.8 MGD by 2065. The 4 MGD represents approximately 37 % to 44% of the projected 2065 water demand.

Evaluation Criteria

Evaluation Criterion A—*Project Benefits (40 points)*

*Up to **40 points** may be awarded based on the expected drought resiliency benefits of the proposed project. Proposals containing a well-supported and detailed description of both quantifiable and qualitative benefits will receive the most points under this criterion. For projects that do not make additional water supplies available, please describe how the project will improve water management. For projects that make additional water supplies available AND improve water management, please respond to all questions under this criterion. Please describe how the proposed project will improve drought resiliency, including:*

Will the project make additional water supplies available?

Yes. The Caney River receives water from two US Army Corp of Engineer Lakes, Hulah and Copan. The Corp manages these lakes in accordance to Federal requirements that stipulates minimum releases for environmental considerations. During summer months or drought conditions, which still require minimum releases from these lakes, the Caney River has approximately 10 MGD of water flowing at the Caney River Raw Water Intake Structure. While the City could start consistently exercising its water right on the Caney River without diverting treated wastewater upstream for reuse, the resulting loss of flow within the river would result in larger releases from the feeder lakes.. Since Hulah is a critical water supply for the City of Bartlesville, additional environmental releases from this lake would be detrimental to the City's water supply resources. Thus, reclaiming and reusing treated wastewater will provide up to 4 MGD of water supply not currently available.

How will the project build long-term resilience to drought? How many years will the project continue to provide benefits?

The City has experienced two significant droughts within the last 15 years. In looking at the wastewater flows during these last 15 years, and especially during these droughts, the minimum plant discharge never dropped below 4.8 MGD. While the project will not solely supply all of the raw water needs for Bartlesville, it will extend Hulah Lake's resources by approximately 25 years, as depicted on Figure 3a and 3b. In addition, as the City of Bartlesville continues to grow

and increase in water consumption, wastewater generation and treatment will also grow and mirror water consumption. Thus, the project will continue to provide raw water and be a critical component of the City's water supply system indefinitely.

How will the project improve the management of water supplies?

Bartlesville currently has 6,000 acre-feet (5.4 MGD) of water rights from the Caney River. However, Bartlesville has not been able to effectively utilize this water right during drought and summer low flow conditions. The proposed project will augment the Caney River flows and provide up to 4 MGD of additional water supply. With this additional source, Bartlesville will be able to efficiently balance the raw water supply between Hulah Lake and the Caney River.

Provide a brief qualitative description of the degree/significance of anticipated water management benefits.

Hulah Reservoir is designated as the Nutrient Limited Watershed (NLW). Use of the reclaimed water proposed in this project will help to reduce withdrawal from the Hulah/Hudson water supply which should generally result in higher water level and increased retained volume in the lakes which should foster natural biological activities. The proposed plan for the effluent discharge from the wastewater treatment plant will be split, one discharge pumped upstream of the Caney River Raw Water Intake/low water dam, while the other discharge will remain in its current location downstream of the raw water intake/low water dam. Since the quality of the reclaimed water will be at least the same but potentially better, the flow split will result in a reduced wasteload being discharged into the Caney River in one location, thus improving the overall water quality within the stream. The Caney River is not an effluent dominated stream since the total wastewater discharge represents approximately 1/3 of the flow in the river during summer time/low flow conditions. Discharging reclaimed water upstream of the existing low water dam will enhance the backwater area behind the low water dam and will improve the water quality in the Caney River downstream of the low water dam by providing improved dissolved oxygen in the stream that will promote heathier fish, flora and fauna.

Under the prosed project, up to 4 MGD reclaimed water will be discharged upstream of the low water dam. This will increase the flow in the river segment, support riparian vegetation, and higher flow velocities that will also improve the natural reaeration and increase dissolved oxygen in the river.

The Caney River segment does not contain any federally listed threatened or endangered species pursuant to the Federal Endangered Species Act. This river segment is not designated as an Outstanding Resource Water (ORW), High Quality Water (HQW), or Sensitive Water Supply (SWS). However, this stream segment is an ecological and/or recreational significant designated system. The proposed reclaimed water discharge will increase the flow and improve the backwater storage. Additionally, reduced withdrawal from Hulah Reservoir (due to reclaimed water use) will allow additional volume of water stored in the lake for release during the early springs for spawning of minnow and fish in the downstream river segments.

Evaluation Criterion B—*Drought Planning and Preparedness (20 points)*

*Up to **20 points** may be awarded for a proposal based on the extent that the proposed drought resiliency project(s) is supported by an existing drought plan. Such drought plans do not require Reclamation approval and may include plans prepared by someone other than the applicant (e.g., an existing state, county, municipal, or other plan is acceptable):*

The proposed drought resiliency project is fully supported by Bartlesville's ***2002 Drought Contingency Plan*** (See Appendix A). This plan was adopted by the City of Bartlesville in response to the severe drought of 2001-02 that demonstrated the vulnerability of Bartlesville's existing water supply to impacts from uncontrollable factors: drought, sedimentation, water quality and other environmental variables. Ordinance No. 3398 was passed by the City Council in 2012 and sets higher water rates during water shortage whenever an emergency is declared. A copy is included in Appendix A. In 2013, Bartlesville completed an Advanced Metering Infrastructure (AMI) upgrade for all of Bartlesville's 16,188 meters. The implementation of the AMI resulted in a drop of average water consumption from approximately 6.3 MGD to 5.8 MGD.

Since the adoption of the 2002 Drought Contingency Plan, the City began seeking new and alternative sources of raw water to secure its long-term water supply portfolio. Multiple studies have been completed on this task focusing on water impoundments, with the most comprehensive being the U.S. Army Corps of Engineers Planning Assistance to States (PAS) study. The recommendations from the PAS study include purchasing new water storage rights from Copan Lake as well as reallocating portions of the flood control pools within both Hulah and Copan Lake for water supply. This reallocation requires additional studies to identify and mitigate the environmental and downstream flooding impacts resulting from the flood pool modification. However, the cost to purchase the corresponding water storage rights, mitigate the environmental/downstream flooding impacts and develop the necessary infrastructure to convey the raw water to the water treatment facility has a present day cost of over $90 million.

The proposed project has the potential to achieve drought resiliency at less than 10% of the cost of other water supply options considered and offer better management of the existing water resources.

Evaluation Criterion C—*Severity of Actual or Potential Drought Impacts to be Addressed by the Project (20 points)*

*Up to **20 points** may be awarded based upon the severity of actual or potential drought impacts to be addressed by the project. Proposals that address more urgent needs and more severe drought impacts will receive higher priority consideration on this criterion than proposals that address less significant needs and impacts.*

In addition to serving within its city limits with approximately 16,180 meter connections, Bartlesville water system serves the surrounding communities of Washington County Rural Water District (RWD) #2, Washington County RWD #5, Osage County RWD #1, Town of Ochelata, Town of Ramona, City of Dewey, Strike Axe Water system and the Bar Dew water

system. Bartlesville is located in Basin 76 of the Middle Arkansas Watershed Planning region as published by the 2012 Oklahoma Comprehensive Water Plan (2012 OCWP). This watershed region primarily relies on surface water supplies and there are no dependable ground water sources available for Bartlesville. The 2012 OCWP identified water supply gap in this basin by 2020 and beyond even without considering the potential impacts from global warming and climate change. Bartlesville is the major water supplier in this watershed. Therefore, any impact from drought to Bartlesville water supply will impact the entire region.

Bartlesville primarily relies on Hulah Lake for its water supply. Over the last 15 years, Bartlesville has experienced two significant droughts. In 2001-02, Hulah Lake was down over 80% from the normal pool elevation, resulting in less than 18% of the conservation pool being available for water supply. In 2001-2012, Hulah Lake was down over 60% from the normal pool elevation, resulting in less than 39% of the conservation pool being available for water supply. Currently, Oklahoma and SE Kansas are experiencing the early stages of another drought. The Oklahoma Climatological Survey's current drought monitor has classified Bartlesville and the watershed feeding Hulah Lake as "Abnormally Dry to Moderate Drought" condition[1].

Evaluation Criterion D— *Project Implementation (10 points)*

*Up to **10 points** may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement. Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.*

The proposed project will be completed within 3 years of the award of the grant. The project schedule shown on Figure 5 shows the key tasks and the mile stone dates. Some key points are noted below:

- Bartlesville already started Task 0 which is not part of the proposed project under this drought resiliency application.
- Task 1. The bench scale testing sub tasks is planned to start during the summer of 2017 to utilize the summer water quality information from Caney River.
- Task 3. The pipeline and the pump station construction will take 18-20 months. A 30-day project startup and a 30-day project closeout period is included in the schedule.

Evaluation Criterion E— *Nexus to Reclamation (10 points)*

*Up to **10 points** may be awarded based on the extent that the proposal demonstrates a nexus between the proposed project and a Reclamation project or activity. Describe the nexus between the proposed project and a Reclamation project or activity.*

Bartlesville is within the Cherokee Nation and also serves parts of Osage County which are within the Osage Nation. The headquarters of the Delaware Tribe of Indians is in Bartlesville,

[1] http://climate.ok.gov/index.php/climate/map/u.s._drought_monitor_oklahoma/drought_wildfire

and the Cherokee Nation has a business office in Bartlesville. Bartlesville provides water supply to these tribes and their business entities including the casinos.

Environmental and Cultural Resources Compliance

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

Construction of the pump station and pipeline will require excavation and ground disturbance typical of normal construction activities. The contract documents will have specific requirements to maintain stormwater pollution prevention plan, mitigation of noise, dust and impacts to the environment. As part of the pre-design and preliminary design efforts, detailed field environmental reconnaissance survey will be performed to identify and mitigate any such issues.

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?

The Caney River segment does not contain any federally listed threatened or endangered species pursuant to the Federal Endangered Species Act.

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

The proposed discharge is to the Caney River which is considered waters of the state. The proposed project tasks will address and secure approvals from (1) Oklahoma Department of Environmental Quality, (2) Army Corps of Engineers, (3) Bureau of Reclamation, (3) U.S. Fish and Wildlife, and other agencies as needed.

When was the water delivery system constructed?

The Hulah water supply system was constructed in the early 1950s. The Ted D. Lockin Water Treatment Plant was constructed in 2003. The Caney River intake and pump stations date back to the 1940-era.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system?

No.

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

No known sites in the project area.

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

No. The proposed project will equally benefit the entire water service area.

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

No.

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.

Drought Plan

A copy of the of the 2002 Drought Contingency Plan adopted by the City of Bartlesville is included in Appendix A.

Ordinance No 3398 was passed by the City Council in 2012 and this sets special higher rates for water usage during an emergency whenever a water shortage is declared. A copy is included in Appendix A.

In 2013, Bartlesville completed automatic meter reading that resulted in a drop in average water consumption from approximately 6.3 MGD to 5.8 MGD.

Required Permits or Approvals

The construction plans for the pipeline, pump station and the pretreatment facility will require "permit to construct" from the Oklahoma Department of Environmental Quality and will be obtained. Approval will also be obtained from the Bureau throughout the project in accordance with the funding guidelines.

Letters of Project Support

The City of Bartlesville has received letters in support of the proposed Drought Resiliency Project from the Bartlesville Regional Chamber of Commerce, the Bartlesville Development Authority, the Bartlesville Fire Department, the City of Dewey, Washington County Rural Water Districts #2 and #5, and Osage County Rural Water District #1. They are in the attached Appendix B.

Official Resolution

A resolution supporting this application and the proposed Drought Resiliency Project will be taken to the Bartlesville City Council for their consideration and approval on February 21, 2017. The draft resolution is attached in Appendix C.

Project Budget

Funding Plan and Letters of Commitment

The non-Reclamation share of costs for this project will be provided solely by the City of Bartlesville. The City of Bartlesville would be the recipient of funding provided from this grant. The City of Bartlesville has already appropriated funding through the fiscal year 2016-2017 budget.

Date funds available to applicant: Applicant (City of Bartlesville) already has appropriated funding for this project through the FY 2016-2017 budget for Task 0. Future funding for Tasks 1, Task 2 and Task 3 will be allocated by City of Bartlesville.

Time constraints on availability of funds: None.

Other contingencies with funding commitment: None. There is no other Federal funding requested for this project.

Table 1 summarizes all funding sources needed for this project. In-kind contributions are denoted with an asterisk (*).

Table 1- Summary of Non-Federal and Federal Funding Sources:

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. City of Bartlesville (cash)	$6,375,500.00
2. City of Bartlesville (in-kind)*	$26,597.28*
Non-Federal Subtotal	$
Other Federal Entities	$0
Other Federal Subtotal	$0
REQUESTED RECLAMATION FUNDING	$750,000.00

Total Project Funding	$7,152,097.28

The following Table 2 summarizes the percentage share of the funding sources.

Table 2- Funding Source Percentage Share Summary

Funding Sources	% of Total Cost	Funding Amount
Applicant Funding (City of Bartlesville)	89.51%	$6,402,097.28
Federal Funding (USBR)	10.49%	$750,000.00
Other Federal Funding	0%	$0.00
Total Study Funding	100%	$7,152,097.28

Budget Proposal

The proposed budget includes salaries for two City of Bartlesville staff whose services will be needed throughout the duration of this project. Terry Lauritsen, P.E., CFM, Director of Water Utilities, will be the Project Manager and Nancy Warring, CFM, Grants Administrator, will administer the grant. The services provided by City staff will be in-kind contributions and will include the following:

- Administration of this grant.
- Semi-annual filing of Form SF-425.
- Project performance reporting- semi-annual basis.
- Submission of final performance report.
- Gathering data pertaining to water usage, plant historical operation and maintenance data, record drawings and available information for use in this project.
- Review of submittal and deliverables.

all facets of the water and wastewater systems. The construction of the proposed project elements will be awarded through competitive bidding process in accordance with Oklahoma State Statute and Bureau of Reclamation guidelines.

7. Other Expenses
   No other costs are proposed.

8. Indirect Costs
   No indirect costs are proposed.

9. Total Costs
   The total project cost is $7,152,097.28. The Federal share is approximately 10% of that amount or $750,000.00. The non-Federal share is approximately 90% or $6,402,097.28. These costs are summarized in Table 1 and Table 2.

Appendices

Appendix A – Bartlesville 2002 Drought Contingency Plan & Ordinance 3398
Appendix B – Letters of Support
Appendix C – Official Resolution

bartlesville development authority
CONNECTED / CREATIVE / VIBRANT

201 SW Keeler Ave
Bartlesville, OK 74003

T 918 337 8086
F 918 337 0216

February 10, 2017

Katharine Dahm
Bureau of Reclamation
Water Resources and Planning
P.O. Box 25007
Denver, Colorado 80225

Dear Ms. Dahm:

On behalf of the Bartlesville Development Authority, I am pleased to support the City of Bartlesville's application to fund a Drought Resiliency Project for water reuse.

The BDA facilitates the recruitment, retention and expansion of primary industry jobs, and new destination retail businesses for the Bartlesville Area. We support programs that protect and enhance economic development, and a reliable long term water supply is vital to our economic future.

Bartlesville does not have enough water from current sources to meet future demand or to handle a drought of record. We must diversify our water supply portfolio. New laws in Oklahoma allow Bartlesville to examine water reuse as a viable option for long-term water supply. The BDA supports the city's efforts to perform such studies and requests your consideration of their application.

Sincerely,

David Wood, President & CEO
Bartlesville Development Authority

bartlesville
chamber of commerce
CONNECTED / CREATIVE / VIBRANT

201 SW Keeler
Bartlesville, OK 74003

T 918-336-8708
F 918-337-0216
E Reception@Bartlesville.com

February 10, 2017

Katharine Dahm
Bureau of Reclamation
Water Resources and Planning
P.O. Box 25007
Denver, Colorado 80225

Dear Ms. Dahm:

The Bartlesville Regional Chamber of Commerce would like to offer our support for the City of Bartlesville's application to the Bureau of Reclamation for funding of a Drought Resiliency project for water reuse.

The Chamber represents the business and non-profit community in the Bartlesville, Oklahoma area. We have a membership of 750 in four communities in northeast Oklahoma. The availability of water is vital to the continued growth of the businesses and industries in our region. We have partnered with the City of Bartlesville on water issues in the past and have held a seat on the Bartlesville Water Resources Committee since it was formed in 2001.

Good water supply is essential to the welfare and growth of Bartlesville, and projects like this study present a wonderful opportunity to examine innovative solutions to our water supply issues.

Sincerely,

Sherri Wilt

Sherri Wilt, President
Bartlesville Regional Chamber of Commerce

February 10, 2017

Katharine Dahm
Bureau of Reclamation
Water Resources and Planning
P.O. Box 25007
Denver, Colorado 80225

Dear Ms. Dahm:

On behalf of the City of Dewey, I am pleased to support the City of Bartlesville's application to fund a Drought Resiliency project for water reuse.

The City of Dewey, which has a population of approximately 3,500 persons, is located north of Bartlesville and purchases all of our potable water from the City of Bartlesville. The availability of water is critical to the welfare and continued growth of our City. We support programs that diversify and ensure a reliable long term water supply.

The City of Dewey supports Bartlesville's project for water reuse to secure long term water supply for our community and requests your consideration of their application.

Sincerely,

Kevin Trease
Dewey City Manager

Bartlesville Fire Department

Protecting Community Life, Health, Property and the Environment

By Delivering Quality Life and Fire Safety Services.

February 13, 2017

Katharine Dahm
Bureau of Reclamation
Water Resources and Planning
P.O. Box 25007
Denver, Colorado 80225

Dear Ms. Dahm:

I am pleased to support the City of Bartlesville's application to the Bureau of Reclamation for funding of a Drought Resiliency project for water reuse. Water supply is an important subject to the Bartlesville Fire Department. We must provide the public with an effective level of fire protection, which means we need a system that is reliable and delivers adequate amounts of water to meet fire flow requirements.

The water system also has a direct impact on fire insurance rates in Bartlesville. The Insurance Services Office classifies communities based on their ability to provide fire protection. It is based on many factors, and the community's water supply accounts for nearly half of their evaluation.

Unfortunately, Bartlesville does not have enough water to meet future demands. Therefore, the Bartlesville Fire Department supports any efforts to study and consider new options.

Sincerely,

John Banks

Fire Chief, Bartlesville Fire Department

RURAL WATER DISTRICT NO. 5 WASHINGTON COUNTY, OK

P.O. Box 420 Ochelata, OK 74051 Phone: 918-535-2302 800-448-3264 FAX: 918-535-2981

February 10, 2017

Katharine Dahm
Bureau of Reclamation
Water Resources and Planning
P.O. Box 25007
Denver, Colorado 80225

Dear Ms. Dahm:

On behalf of the Washington County Rural Water District #5, I am pleased to support the City of Bartlesville's application to fund a Drought Resiliency project for water reuse.

Washington County Rural Water District #5, which serves a population of approximately 1,000 persons, purchases our potable water from the City of Bartlesville. The availability of water is critical to the welfare and continued growth of our water district. We support programs that diversify and ensure a reliable long term water supply.

Washington County Rural Water District #5 supports Bartlesville's study to pursue innovative solutions such as water reuse to secure long term water supply for our water district and requests your consideration of their application.

Sincerely,

David Anderson, Manager
Washington County Rural Water District #5

OSAGE CO. RURAL WATER DISTRICT NO. 1

P. O. Box 420 Ochelata, OK 74051 Phone: 918-535-2302 800-448-3264 FAX: 918-535-2981

February 10, 2017

Katharine Dahm
Bureau of Reclamation
Water Resources and Planning
P.O. Box 25007
Denver, Colorado 80225

Dear Ms. Dahm:

On behalf of the Osage Rural Water District #1, I am pleased to support the City of Bartlesville's application to fund a Drought Resiliency project for water reuse.

The Osage County Rural Water District #1, which serves a population of approximately 1,100 persons, purchases our potable water from the City of Bartlesville. The availability of water is critical to the welfare and continued growth of our water district. We support programs that diversify and ensure a reliable long term water supply.

The Osage County Rural Water District #1 supports Bartlesville's study to pursue innovative solutions such as water reuse to secure long term water supply for our water district and requests your consideration of their application.

Sincerely,

David Anderson, Manager
Osage County Rural Water District #1

RURAL WATER DISTRICT NO. 2 WASHINGTON COUNTY, OK

P.O. Box 420 Ochelata, OK 74051 Phone: 918-535-2302 800-448-3264 FAX: 918-535-2981

February 10, 2017

Katharine Dahm
Bureau of Reclamation
Water Resources and Planning
P.O. Box 25007
Denver, Colorado 80225

Dear Ms. Dahm:

On behalf of the Washington County Rural Water District #2, I am pleased to support the City of Bartlesville's application to fund a Drought Resiliency project for water reuse.

The Washington County Rural Water District #2, which serves a population of approximately 3,000 persons, purchases our potable water from the City of Bartlesville. The availability of water is critical to the welfare and continued growth of our water district. We support programs that diversify and ensure a reliable long term water supply.

The Washington County Rural Water District #2 supports Bartlesville's study to pursue innovative solutions such as water reuse to secure long term water supply for our water district and requests your consideration of their application.

Sincerely,

David Anderson, Manager
Washington County Rural Water District #2

RESOLUTION NO. _____

A RESOLUTION SUPPORTING THE SUBMISSION OF AN APPLICATION TO THE U.S. BUREAU OF RECLAMATION FOR THE WATERSMART DROUGHT RESPONSE PROGRAM: DROUGHT RESILIENCY PROJECTS FOR FISCAL YEAR 2017.

WHEREAS, the City of Bartlesville desires to conserve and use water more efficiently, provide flexibility during water shortages, and diversify the water supply by improving conveyance and treatments systems to enable water reclamation and reuse;

WHEREAS, the City of Bartlesville desires to submit an application for funding to the U.S. Department of the Interior, Bureau of Reclamation's WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2017;

WHEREAS, the City of Bartlesville is capable of providing the amount of funding and in-kind contributions as required by the WaterSMART Program and specified in the funding plan of the application;

WHEREAS, the City of Bartlesville, through the City Manager, has the legal authority to enter into an agreement with the Bureau of Reclamation; and

WHEREAS, the City of Bartlesville will work with the Bureau of Reclamation to meet all established deadlines for entering into a grant or cooperative agreement.

NOW THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF BARTLESVILLE, OKLAHOMA:

That the City Council of the City of Bartlesville has reviewed and is in support of the City of Bartlesville 's application to the WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2017.

PASSED BY THE CITY COUNCIL AND APPROVED BY THE MAYOR OF THE CITY OF BARTLESVILLE, OKLAHOMA, THIS 21ST DAY OF FEBRUARY, 2017.

_____

Mayor Dale Copeland