Grant Application

Pala Tribe Water Management Tool to build Drought Resiliency through Infrastructure Enhancement

Submitted to:

U.S. Department of the Interior
Bureau of Reclamation
Policy and Administration
Denver, Colorado

WaterSMART
Drought Response Program: Drought Resiliency Projects for Fiscal Year 2019
Funding Opportunity Announcement No. BOR-DO-19-F003

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1.1 Executive Summary

Date:	March 25, 2019
Applicant name:	Pala Band of Mission Indians
City, County and State	Pala, County of San Diego, California 92059
Project name:	Pala Tribe Water Management Tool to build Drought Resiliency through Infrastructure Enhancement
Project length:	15 months
Estimated completion date:	December 30, 2020 (Winter 2020)
Located on a Federal Facility:	No

The Pala Band of Mission Indians (Pala Tribe) is pleased to submit this application titled "Pala Tribe Water Management Tool to build Drought Resiliency through Infrastructure Enhancement" to the United States Bureau of Reclamation (BOR) WaterSMART Drought Response Program, Drought Resiliency Projects for Fiscal Year 2019. The Pala Tribe is applying for $298,380 in federal funding assistance from the BOR. To reduce the negative effects of droughts, the Pala Tribe must increase its water monitoring efforts, improve infrastructure and propose strategies to protect water availability, public health, and safety. The main project goal is to develop a water resources management tool for decision-making for water availability and allocation to build drought resiliency. BOR funding will allow the Pala Tribe to develop a Water Resources Management Tool for decision-making purposes, install water meters to monitor water consumption in residential houses, and install equipment to monitor groundwater levels and streamflows. The resulting data will be used to accurately track water supply conditions through the water resources management tool. The proposed project fits and accomplishes objectives described in the Funding Opportunity Announcement BOR-DO-19-F003, Drought Resiliency Projects grant, under Task B: to increase the reliability of water supply through infrastructure to improve water management through measurement, modeling, and tools.

Specific objectives include:

- Upgrade their current streamflow meters in three stream locations throughout the Pala Sub-basin of the San Luis Rey Watershed to monitor streamflow volumes that can be captured and used for infiltration or storage. This will help secure additional water supply for the Pala Tribe.
- Install water level meters in the groundwater supply wells that are used to extract water for potable uses. Monitoring the groundwater levels will help water managers in the Pala Tribe identify water supply availability and prioritize water allocation during times of drought.

- Install water meters in residential houses to monitor and quantify domestic water usage. This information will be tracked in real-time and will be available online to the community.
- Develop a Web-GIS online decision support tool which incorporates real time water conditions (groundwater levels and streamflow volumes) and water consumption (residential water meters) data in an interactive and operational framework. The goal is to provide water managers with real-time data and tools that support predictive trends/forecasts aiding in decision-making for resource allocation, as well as, developing water efficiency programs and to address overconsumption of potable water.

Water resources management tools accounting for extreme events, such as droughts, are needed to assess current and future hydrological resources for the Pala Tribe. Consequently, a critical challenge to the community is planning and designing for resilience to the impact of droughts with regards to sustainable management of water resources.

1.2 Background Data

California faced a recent multi-year drought (2011-2016) that impacted groundwater availability and water supply. Seeking alternative water sources and aggressively promoting water conservation, as well as implementing sustainable approaches such as storm water capture and use in urban areas are solutions for building resilience to drought. In addition, coping with climate change under extreme events, such as droughts, is challenging and groundwater is becoming the most prevailing reserve. Regional and local future climate change scenarios impact threaten the success and longevity of planning and management actions that trigger a broad range of effects to water resources resulting in increasing runoff, pollutant loads, more frequent multi-year/seasonal droughts and pressure on existing systems in the San Diego Region.

The Pala Tribe, 33.3672° north latitude and 117.0542° west longitude, is located in the semiarid southern California, a region characterized by a highly variable Mediterranean climate. According to the latest California's Climate Change Assessment, the region is particularly vulnerable to climate change. The average temperature in the San Diego region is expected to increase in a range of 5 degrees Fahrenheit (ºF) to 10ºF by the end of the 21st century. As the climate warms, there will be an increased wildfire risk coupled with longer dry periods. Its interannual precipitation is projected to continue highly variable with wetter winters characterized by scarcer wet days but more intense precipitation leading to more frequent and severe drought periods.

Water Supply

The single source of water supply for the Pala Tribe is local groundwater withdrawn from the Pala aquifer. Groundwater is pumped out through eight currently active wells. The water distribution system is divided into two systems: north and south, separated by the San Luis Rey River (River). The community that lives north of the River depends on the

water extractions from five wells, with a maximum draw of approximately 1,800 gallons per minute (gpm). The community living south of the River depends on water extraction from three wells, with a maximum draw of approximately 650 gpm. The extracted groundwater is stored in tanks and after chlorination is gravity fed to the Pala Tribe users. The groundwater basin is replenished by rainfall events through infiltration and streamflows from the San Luis River Basin stream network.

Water Rights

The Pala Band of Mission Indians has federal water rights stemming from its status as a federally-recognized tribal government. Those rights extend to all waterways within the exterior boundaries of the Pala Reservation, as well as groundwater and underground stream rights. Further, Pala has rights under the San Luis Rey Indian Water Rights Settlement Act (Public Law 100-675) to the waters that were illegally diverted from the San Luis Rey River, and which were restored under the Act.
The Pala Tribe has all water rights on their lands. The groundwater rights allow for the diversion and use of groundwater within the Reservation. The Pala Tribe pumps groundwater to serve the domestic and municipal water demands of the Reservation. In addition, private wells are used to serve agricultural water demands.

Water Users

Main water uses in the Reservation include residential, tourism, commercial, schools, tribal offices and, agricultural irrigation (avocado and citrus groves). The groundwater basin is also the water source of private wells and no information is currently available regarding volume extractions. Approximately 1,315 individuals reside on the Reservation in 500 households, and 437 of the residents are enrolled Tribal members. The residential households are made up of single-family dwellings and mobile homes. Individuals are returning to the Reservation to build on inherited land. Between 2005 and 2011, 87 new homes were constructed. The public water system has an average water demand of 1,000 acre-feet/year, including residential and non-residential uses.

Current and projected water demand

The project is intended to serve the entire population on the Reservation. The public water system has a current water demand from uses including residential and non-residential including casino, commercial, schools, tribal offices, and health clinics as described in Table 1:

Table 1. Pala Tribe's current water demand

Customer type	Number of connections	Average Annual water demand (acre-feet per year)
Residential	500	500
Non-Residential	60	500

The water use data for the wintertime has been utilized to evaluate the water use allotments for the most restrictive stages. Wintertime water use is considered to be more representative of actual minimum domestic water use because it consists primarily of domestic uses, as exterior water use is likely to be minimal during this time of year (e.g. limited use for lawn irrigation, swimming pools, etc.). The wintertime water use was found

to be approximately 30% lower than the average annual water use. This information is an approximation based on water storage tanks levels. The Pala Tribe does not monitor domestic use; thus, no certain information is available. In addition, water used for irrigation purposes is drawdown from private wells and no information is available.

Shortfalls and reductions due to previous drought conditions

Since the formation of the Reservation/Rancheria in 1901, the Pala Band of Mission Indians has been impacted many times by droughts. During previous water shortages and droughts in 1924, 1931, 1976-1977, 1987-1992, 2012-2014, the Pala Tribe experienced declining groundwater levels in their supply wells. The water shortage conditions prompted the Pala Tribe to implement the following response actions: voluntary water use reduction, mandatory water use reduction, water allocations, additional groundwater wells, and use of alternative water sources. Currently, there is no single criterion, trigger, or definition that is used to determine if a water shortage exists or if actions towards it need to be taken by the Pala Tribe. Triggering criteria by an anticipated or actual water shortage condition is currently defined as shown in Table 2.

Table 2. Triggering criteria by water shortage condition.

Stage Level	Stage title	Water shortage condition and triggering criteria	Demand reduction goal	Program type
1	Normal	Abnormally dry, minor shortage: 0-10%	10%	Voluntary
2	Alert	Moderate shortage: 10-25%	25%	Mandatory
3	Warning	Severe drought: 25-35%	35%	Mandatory
4	Critical	Extreme drought: 35-50%	50%	Mandatory
5	Emergency	Exceptional drought: over 50%	Over 50%	Mandatory

Thus, annually, from March 15 through October 31, a water shortage under the different stages will occur if:
Stage 1: The one-year change in the static water level measured at the Oaks Well indicates a downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 7 feet.
Stage 2: The one-year change in the static water level measured at the Oaks Well indicates a downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 17 feet.
Stage 3: The one-year change in the static water level measured at the Oaks Well indicates a downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 25 feet.

Stage 4: The one-year change in the static water level measured at the Oaks Well indicates a downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 40 feet.
Stage 5: The one-year change in the static water level measured at the Oaks Well indicates a downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 45 feet

It is important to note that the Pala Tribe does not have a monitoring program in place at the Oaks Well and, monitoring is conducted manually and infrequently. Thus, installation of water depth sensors is vital to understand water availability in the Pala Tribe.

Pala Tribe Environmental Department

The Tribal Department that will be managing the project is the Pala Environmental Department (PED). They are responsible for every aspect of environmental health on the Pala reservation including water, air, and waste management programs. PED addresses water needs, water allocation and is constantly working to secure the Pala Tribe's water availability and sources. The Department considers continued existing opportunities that assist in ensuring water resources availability and appropriately usage. They perform numerous projects related to water quality monitoring, streamflow monitoring, water storage infrastructure for irrigation, among others. Most of the staff have worked at the PDE for many years, providing a well-established knowledge of equipment and logistics at the Tribe. The following summary provides a short description of the team involved in the proposed project:

- **The proposed Tribal Project Manager, Heidi Brow**. Ms. Brow has worked for the PED as their Water Resource Specialist for over 12 years. Her primary role is to protect surface and groundwater resources so that future Pala generations will be able to use and enjoy them. Ms. Brow works closely with the Pala Utilities Department to make sure that drinking water is safe to drink, meeting Federal Safe Drinking Water Act standards. It is important for the Tribe to conserve water and the PED is committed to help the community with water conservation activities.
- **The proposed Technical Advisor, Shasta Gaughen.** Dr. Gaughen has served the Pala Tribe for 13 years overseeing the operation of the entire PED. Dr. Gaughen is responsible for ensuring that Pala's environment, both natural and cultural, is protected. She keeps the Executive Committee informed, and she works with legal and environmental partners on issues of importance to Pala.
- **The proposed Tribal Geographic Information Systems (GIS) Specialist, Matthew Deveney.** Mr. Deveney has been working for the tribe for approximately one year. He is proficient in using ArcGIS and other software to produce producing maps and manages the Pala Tribe's GIS database. He will be responsible for mapping and pulling GIS datapoints of all water meters, wells, and stream gauges, and maintaining the database going forward.
- **The Pala Utilities Department.** This department is run by Steve Eagleton, a Pala tribal member who has been working for the Pala Tribe for over 25 years. He has a

crew of approximately 10 staff members, all of whom will be responsible for installing water meters and ensuring that they are operating properly.

Relationships with Reclamation. The BOR has historically been involved in water resources allocation projects in the County of San Diego as part of the Lower Colorado projects. One of the main projects is the San Diego Project consisting of the First and Second San Diego Aqueducts. In addition, the BOR has been collaborating with the City of San Diego, Public Utilities Department in the San Diego Basin Study Project located in San Diego County to study the potential utilization of local reservoirs within San Diego Basin for optimal storage of local, imported, and purified water. The Pala Tribe is located in the County of San Diego, however, does not have had a previous direct relationship with the BOR.

1.3 Project Location

The Pala Tribe is located in the northeastern portion of the San Diego County, California, at 33° 22' 2" north latitude and 117° 3' 15" west longitude, approximately 20 miles north of the City of Escondido via I-15 and State Highway 76. Figure 1 shows the reservation and the immediate vicinity. The Reservation comprises over 12,000 acres and is occupied by the Pala Band, made up of the Cupeño and Luiseño Indians. The Reservation lies within the San Luis Rey River Basin, in the semiarid lands of Southern California where high interannual variability makes it difficult to quantify water volumes for capture. Higher temperatures and more intense rain patterns are projected in the future, which could lead to more severe drought conditions and more frequent wild fires. The Pala Tribe believes that drought resiliency will help them be prepared and secure future water resources availability. The San Luis Rey River (River) intersects the Reservation just south of Highway 76. Most tribal residences are located north of Highway 76. Approximately 60% of the Tribal roads are paved. The Reservation

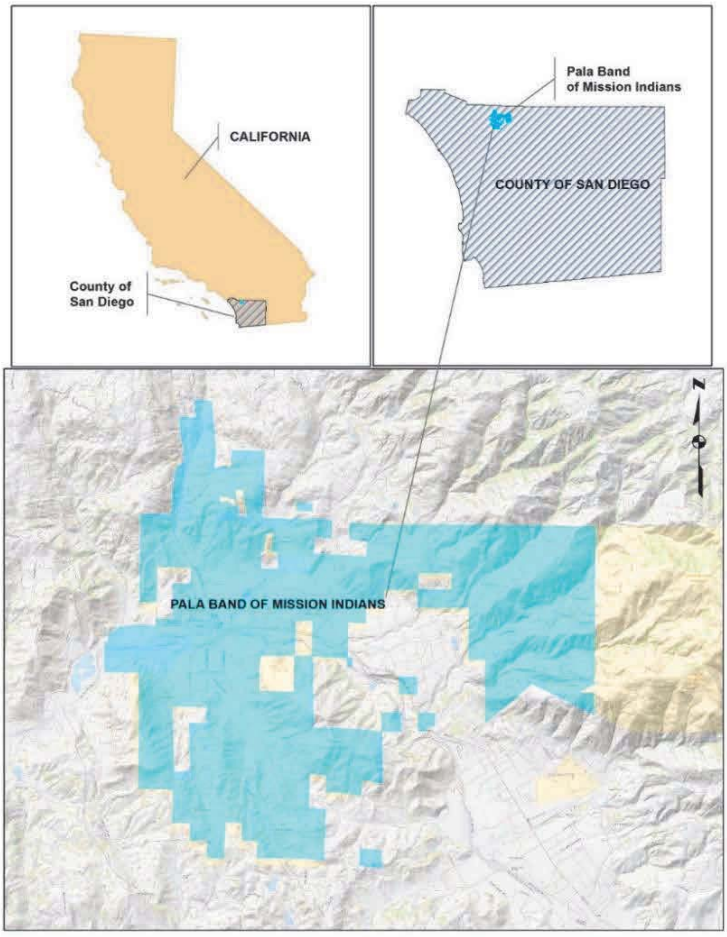


Figure 1. Location of Pala Band of Mission Indians.

ranges in elevation from approximately 1750 feet at its northern (mountainous) border to approximately 340 feet along the San Luis Rey River near the southern border. The terrain is primarily level or gently sloping land. In July, daily high temperatures average 95 ºF with overnight lows averaging 65 ºF. The Reservation receives no appreciable amount of snowfall and the average yearly precipitation is approximately 10.77 inches.

1.4 Technical Project Description and Milestones

The Pala Tribe realizes that drought conditions could have serious impacts to their community, as they have relied solely on groundwater withdrawals. Future droughts could lead to significant drawdown of their groundwater resources.

The Pala Tribe acknowledges that a better understanding of climate variability and drought intensity-duration-frequency is warranted and would likely benefit water managers in the Pala Tribe. The Pala Tribe presently lacks enough base information on water availability and water management tools to effectively prepare and mitigate the adverse effects of droughts in our water resources. In addition, the Pala Tribe does not have the necessary financial resources to address this problem and federal funding assistance becomes a necessary resource. Funding through this program will allow the Pala Tribe to establish a water resources management decision tool and enhance the water measurement infrastructure. Once the grant period ends, the Pala Utilities Department in coordination with the PED will retain and utilize the water resources management tool for a long-term period and will look for upgrades when become suitable.

Project milestones

The Pala Tribe presents the following project milestones to achieve in this project that clearly fit goals described in Task B of the WaterSMART Drought Resiliency Projects Funding Opportunity Announcement No. BOR-DO-19-F003.

Milestone 1:
Develop a Water Management Web-GIS online decision support tool that includes information on water availability using groundwater levels and water consumption data. Additionally, the decision tool will include information on drought magnitude-frequency to help the Pala Tribe to prepare for drought scenarios and evaluate options to implement strategies for addressing droughts. This milestone will be achieved through the following activities:

- Activity 1: Compile historical regional climate information as input to the drought magnitude-frequency analysis and water management decision-making tool. Climatic data will be obtained from valid sources such as Unites States Geological Survey (USGS), U.S. Drought Monitor and local weather data.
- Activity 2: Developing a validated rule-based drought magnitude-frequency analysis for the Pala Sub-Basin to develop scenarios based on drought magnitude and its associated return period intended to support drought predictability. The L-moment

approach has been selected as a valid and proven methodology to develop drought frequency estimates in semiarid regions. This approach has been previously used by the BOR for developing precipitation frequency estimates in regions of complex terrain and, by the National Oceanic and Atmospheric Administration (NOAA) to develop the Precipitation-Frequency Atlas of the United States. Drought frequency estimates are vital when designing water resources infrastructure and for drought planning.

- Activity 3: Developing a Web-GIS decision support tool which incorporates real time water conditions and water consumption data in an interactive and operational framework. The goal is to examine historic, current, and predictive trends/forecasts to aid in water usage restrictions, resource allocation for monitoring improvement technologies as well as developing water efficiency programs and capture plans to address overconsumption of potable water. GIS techniques will be used to determine the most useful and comprehensive sources of live/real time water condition and water consumption data for integration in the decision-making application and determine additional sources of data to incorporate for viewing existing conditions.

Milestone 2:

Installing water measurement equipment and monitoring instrumentation devices to accurately track water supply conditions.

- Activity 1: Install monitoring equipment associated to monitor water depth in the ten supply wells used to extract water for potable uses. The data will help water managers in the Pala Tribe to track groundwater levels, identify availability, and prioritize water allocation during times of drought.
- Activity 2: Install municipal water meters at residential houses to track and quantify water usage. The data will allow water purveyors to control and implement restrictions in times of drought.
- Activity 3: Upgrade the streamflow meters installed in three creeks in the Pala Tribe to monitor streamflow. The data will be used to develop scenarios for water capture and use to promote infiltration to the Pala aquifer, aiding an aquifer sustainable use, and securing water supply in the Reservation.

Consultants

PED will manage the proposed project and will contract with Alta Environmental (Alta) to develop the Water Management Decision Tool, Drought Magnitude-Frequency estimates, install the groundwater monitoring equipment, and upgrade the streamflow monitoring equipment. Alta will provide the Pala Tribe with a highly qualified team of engineers and scientists with hands-on experience and deep knowledge of high-quality monitoring environmental data and modeling. Alta will work collaboratively with the Pala Tribe and draw on their technical experience in the region to provide monitoring and assessment support that meets deliverable due dates and provides meaningful information. Alta guarantees key personnel will be committed to performing the required tasks throughout the duration of the project. The following are descriptions of Alta's key personnel regarding the proposed project:

- **The proposed Project Manager, Michelle Hallack**, PhD, EIT. Dr. Hallack is Alta's project manager and primary liaison for the Pala Tribe. Dr. Hallack has over nine years of experience in integrated water resources engineering projects, GIS applied to water resources, as well as multidisciplinary environmental projects. She specializes in surface water analysis applications using deterministic and probabilistic approaches, drought and flood analysis, hydrological modeling, climate change impact analysis, and best management practices for capture and reuse alternatives.
- **The proposed Technical Advisor, David Renfrew,** has over 20 years of experience successfully completing water quality resource projects, including development of special studies, previously managing the San Diego Regional Copermittee's Monitoring and Reporting Program, identifying efficiencies in monitoring programs, managing dry weather Illicit Connection/Illicit Discharge (IC/ID) programs. He has served the County of San Diego in many different projects.

Table 3. Alta Environmental Team responsible for the project.

Name	Classification/ Designation	Licenses/Certifications	Role	Office of Record
David Renfrew	Vice President, Water Resources Director	Project Management Professional (PMP) (No.1703435), CPSWQ (No.0249), QSD/QSP (No.20993)	Technical Advisor/Quality Control	Oceanside, CA
Mike Cassidy	Site Assessment and Remediation Director	Registered Professional Geologist, California (No. 6281) Certified Hydrogeologist, California (No. 0580)	Technical Advisor/Quality Control	Oceanside, CA
Garth Engelhorn	Senior Project Manager	CPSWQ (No. 0953), Wetland Delineator Certification (2009)	Project Scientist	Oceanside, CA
Jacqueline McMillen	Senior Engineer	Registered Professional Civil Engineer, California (C80930), Professional Certification in Resource Management, California Resource Recovery Associate	Project Engineer	Long Beach, CA
Michelle Hallack	Project Manager	PhD. Environmental Sciences MSc. Civil Engineering (Water Resources). Engineer in Training, California (No. 163590)	Project Manager	Oceanside, CA
Jim Homet	Staff III	M.S. Environmental Engineering	Project Scientist	Long Beach, CA
Mallory Graves	GIS Associate	M.S. Geographic Information Science & Technology	GIS Associate	Long Beach, CA
Austin Kay	Specialist I	FAA Certified Remote Pilot of Small Unmanned Aircraft (No. 4071627)	Field Scientist	Oceanside, CA

1.5 Performance Measures

The performance measures to develop a Web GIS online decision support tool which incorporates real time water conditions (groundwater levels and streamflow volumes) and water consumption (residential water meters) data in an interactive and operational framework are presented in Table 4. The goal is to help water managers with real time data and tools that support predictive trends/forecasts. This will aid in decision-making for resource allocation, as well as developing water efficiency programs and to address overconsumption of potable water.

Table 4. Performance measures and targets.

	Activities	Performance measure	Target
MILESTONE 1	Activity 1: Compile historical regional climate information as input to the drought magnitude-frequency analysis and water management decision-making tool.	Precipitation data	Compile and screen monthly precipitation data for a 50-year period of record.
		Historical drought periods	Identify drought periods in the last 50 years affecting the Pala Sub-basin
		Review historical data on groundwater extractions.	Historical water levels for a 10-yr period of record in the main supply wells.
	Activity 2: Develop a validated rule-based Drought magnitude-frequency analysis for the Pala Sub-Basin.	Drought intensity-frequency estimates at annual time scale	Drought magnitude-frequency estimates for return periods 10-50 years.
	Activity 3: Develop a Web GIS decision support tool which incorporates real time water conditions and water consumption data in an interactive and operational framework.	Online decision-making tool with insightful visualizations on water usage, availability, and future scenarios.	GIS based online decision support tool available to Pala Tribe's Water and Environmental Departments.
MILESTONE 2	Activity 1: Install groundwater monitoring equipment to track water levels in the supply wells.	Monitor real-time water depth levels in ten water supply wells.	Install water depth sensors in the ten supply wells.
	Activity 2: Install municipal water meters in residential houses to quantify water usage allowing water purveyors to	Monitor in real-time water consumption in residential houses.	Install water meters in residential units in the Reservation.

	control and implement restrictions in times of drought.		
	Activity 3: Upgrade the streamflow meters in three creeks to monitor and develop scenarios for water capture and use as an alternative to promote infiltration to the Pala aquifer.	Streamflow volumes in three creeks and three scenarios for runoff capture and use.	Upgrade streamflow meters in three creeks in the Pala Tribe.

1.6 Evaluation Criteria

Evaluation criterion A: Project Benefits

The Pala Tribe will use funds to install metering systems in residential houses, wells and streams. The project is expected to benefit long term drought resilience and provide water managers in the Tribe with access to water availability data to accurately plan for drought conditions.

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

The project is expected to provide benefits on a long-term basis (at least 20 years). It will build long-term resilience to drought by developing water availability and allocation scenarios as products of the Web-GIS decision-making tool. In addition, water availability data will become accessible to the Pala Tribe through installation and upgrading water metering equipment. Currently, the Pala Tribe does not monitor water consumption in residential homes. Water depth in wells is measured manually, infrequently, and using sounds, which makes accurate measurements difficult. Streamflow volumes are tracked in only three creeks, and an equipment upgrade is necessary to evaluate volumes that could be captured for infiltration and/or storage uses.

Will the project make additional water supplies available?

The proposed project consists of developing a water management tool to build drought resilience in the Pala Tribe through the installation of real-time water metering equipment. Additional water supplies will not be effective immediately and will be proposed once the water managers obtain real-time information on their existing water sources.

Will the project improve the management of water supplies? For example, will the project increase efficiency, increase operational flexibility, or facilitate water marketing?

Yes. The project will certainly increase efficiency and operational flexibility. Currently, residential homes in the Pala Tribe do not have water meters installed. Thus, water

consumption and loses are mis-quantified. In addition, monitoring real-time streamflows and groundwater levels will increase operational flexibility at the Pala Tribe. Water managers will be able to track and access the information remotely, which will allow them to plan and implement water supply projects to ensure water delivery during periods of drought.

- **If so, how will the project increase efficiency or operational flexibility?** The project will increase both efficiency and operational flexibility. The water management tool will allow the water managers to track real-time information on their water resources that is indispensable under water allocation scenarios in times of drought. Water managers in the Pala Tribe will be able to make decisions on water allocation during periods of droughts, including water volumes to pump from their supply wells and applying water uses restrictions in the community.

- **What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated?** Approximately 4000 AC-FT/YEAR under normal conditions. This estimate was obtained from the drinking wells pumping rate.

- **How will the project increase efficiency or operational flexibility?** The proposed project will improve efficiency of water use, contribute to the sustainability of the current water supplies, and bolster the Pala Tribe against recurrent droughts. The proposed project will directly impact efficiency and operational flexibility by identifying water loses in residential units, and availability. Meters installation, monitoring water usage, and water level data combined in a Web-GIS decision-making tool will allow the water managers in the Pala Tribe to plan accordingly diminishing production of water required from aquifers. This will also allow conservation of energy by running unnecessary pump systems.

- **What percentage of the total water supply does the water better managed represent? How was this estimate calculated?** Currently the Pala Tribe does not monitor domestic water consumption. This percentage is an approximation equivalent to 25%, 1000 AC-FT/YEAR. This estimate was obtained from the drinking wells pumping rate.

- **Provide a brief qualitative description of the degree/significance of anticipated water management benefits.** Water management benefits in the Pala Tribe will be significant with the implementation of this project. The PED and the Pala Utilities Department will be able to make decisions based in accurate water availability data. They will have access to an interactive and insightful tool that will enhance their ability to establish current and future water availability scenarios.

- **Will the project make new information available to water managers? If so, what is that information and how will it improve water management?** Yes. Currently the Pala Tribe does not have information on domestic water use per residential home. In addition, groundwater level monitoring techniques and equipment are old and inaccurate. Thus, updating the measurement systems is essential to estimate onset,

duration of droughts. Streamflow measurement devices are important as the Pala Tribe is been committed to find alternatives for runoff capture and use. Thus, knowledge of the flow volumes is essential to implement sustainable alternatives, such as rain barrels or tanks to give the community a new source of water supply that can be used in times of drought. All the information that will be generated will be tracked in real time and fed to the water managers through a network tool and online dashboard that will help to detect drought triggers and water needs.

- **Will the project have benefits to fish, wildlife, or the environment? If so, please describe those benefits.** The project will benefit the environment, as water consumption by residential units is expected to be reduced once monitored. So, groundwater extractions will be reduced benefiting the aquifer with a sustainable use.

Metering/Water Measurement Projects: ***Explain why this is a necessary sub-component of another eligible Drought Resiliency Project as described in Tasks A-C.*** The proposed project identifies the problem of water loss through lack of metering, leaks or customer over-use and the inability to reaching a goal of water consumption reduction. In addition, it identifies the problem of groundwater planning thorough poor metering and the inability to reaching water use reductions through the right allocation of water volumes. The proposed metering and water measurement devices to be installed are a necessary sub-component to the water management decision tool and drought scenarios that will be used by the Pala Water Utilities Department and PED.

To what extent are the methods tested/proven? The methods and water measurement tools to be implemented under the project are proven. The proposed metering infrastructure is commercial and in use for other Tribes and different municipalities and water districts. The online decision tool will be accessible to the Pala Tribe through their own secure system. The premise of this tool is to provide water managers with real-time data in a format that will assist them in their water resources decision-making process to meet water use demands during periods of drought. The drought magnitude-frequency estimates to be included in the decision-making online tool will follow a proven methodology previously used by the BOR for developing precipitation frequency estimates in regions of complex terrain and, by the NOAA to develop the Precipitation-Frequency Atlas of the United States.

To what degree will the project improve the ability to predict the onset of drought earlier and/or with more certainty? The current project is essential to predict the onset of drought earlier. Drought magnitude-frequency estimates are useful to determine return periods of droughts and their frequency in a region. This is of help for drought preparedness and planning. These estimates can be paired with drought indexes, which are based on historical precipitation, and drought conditions can be observed through precipitation patterns in function of the historic average. This project will help to detect the onset of drought earlier as the Pala Tribe will be monitoring groundwater water levels and stream flow volumes, as well as domestic use real time demand. That data, paired with

drought indexes, can help to identify drought conditions without depending of the occurrence of seasonal rain.

To what degree will the project improve the ability to anticipate the severity and magnitude of drought? Drought conditions will be assessed though a drought frequency analysis to forecast the frequency and magnitude of droughts. The drought magnitude-frequency estimates will follow a L-moments approach, a proven methodology previously used by the BOR for developing precipitation frequency estimates in regions of complex terrain and, by the NOAA to develop the Precipitation-Frequency Atlas of the United States. This analysis will be paired with the groundwater data to assess the severity of droughts.

To what degree will the project improve the likelihood/timing of detecting mitigation action triggers? The project will certainly improve the likelihood and timing to detect mitigation action triggers, as tools based on real time data will be available to water managers.

Evaluation criterion B: Drought Planning and Preparedness

Attach a copy of the applicable drought plan, or sections of the plan, as an appendix to your application. These pages will not be included in the total page count for the application. The PED developed a Drought Contingency Plan in 2016. The Drought Contingency Plan is included in Appendix A.

Explain how the applicable plan addresses drought. The Pala Tribe's Drought Contingency Plan is a framework of forward-leaning planning for scenarios and objectives, managerial and technical actions, and potential response systems to prevent, or better respond to, a drought-related emergency or critical situation. The overall goal of the drought plan, and the contingency planning process, is to facilitate rapid emergency response in the community. This plan was intended to set up drought trigger stages in the Pala Tribe and to develop water usage and consumption scenarios. The plan is based on multiple shortage levels that trigger a set of stages aimed at reducing consumption to the level of the available supply.

- **Explain whether the drought plan was developed with input from multiple stakeholders. Was the drought plan developed through a collaborative process?** The plan was developed by a drought task force created by the Tribe in order to assist in further developing and implementing effective drought monitoring, mitigation, and response actions. The drought task force consists of representatives from the following: Pala Tribal Council, Pala Tribal Administrator, Pala Utility Department, Pala Environmental Department, Pala Housing Department, Pala School District, San Diego County Sheriff's Department, Cal Fire – San Diego Unit, Pala Tribal Liaison, California Office of Emergency Services, Indian Health Service and, San Diego County Office of Education. In addition, the current plan proposes coordination with regional partners for the purpose of effective and efficient planning and coordination of resources for drought emergency response. The regional partners for drought emergency response include: Pauma Band of Luiseno Indians, Rainbow

Municipal Water District, Pauma Municipal Water District, San Luis Rey Municipal Water District, Yuima Municipal Water District, San Luis Rey Watershed Council, San Luis Rey Indian Water Authority and, San Diego County Office of Emergency Services (OES).

- **Does the drought plan include consideration of climate change impacts to water resources or drought?** No. The Pala Tribe will update the existing Drought Plan to include climate change impacts to their water resources.

Describe how your proposed drought resiliency project is supported by and existing drought plan. The Pala Tribe developed a drought contingency plan setting up triggering criteria and stages of action framework based on drought severity and a set of response actions. The proposed project directly follows actions outlined in the adopted drought plan to mitigate the impacts of droughts. The plan proposed monitoring water supply wells as a trigger to drought stages in the Pala Tribe and tracking residential water usage to implement water consumption restrictions related to a certain drought stage.

- **Does the drought plan identify the proposed project as a potential mitigation or response action?** Yes. The plan addresses water use allocation decision-making due to water shortages conditions in the event of drought. The Web-GIS based tool will assist the Pala Tribe with more accurate decisions to trigger a certain drought stage. This will allow them to prioritize water use in the community.
- **Does the proposed project implement a goal or need identified in the drought plan?** Yes**.** The proposed project responds to a need identified in the drought plan, related to placing responsibility for managing the water resources during a water shortage emergency on the entire community. This can be accomplished by tracking domestic water consumption. Thus, installing water meters in residential units to monitor domestic water consumption linked to the decision-making online tool is an essential project to execute. The plan also includes a set of customer rates related to their consumption, however, consumption is not monitored at this time. Thus, the proposed project is a need to properly execute the drought plan.
- **Describe how the proposed project is prioritized in the referenced drought plan?** The drought's contingency plan recommendations include expanding the water monitoring network and implementing reliable devices to track water consumption and to address water shortages. Thus, installing water meters to monitor groundwater and domestic use, as well as developing an online water management decision-making tool, are part of the existing plan. It will increase certainty in the Pala Tribe's water availability present and future scenarios that are vital to build resilience to drought.

Evaluation criterion C: Severity of actual or potential drought impacts.

What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken, and how severe are those impacts? Impacts should be quantified and documented to the extent possible. Water resources experts in California have found the most recent multi-year drought (2012-2015) was not one of the longest droughts in recorded history; however, it was the most extreme one when comparing rainfall deficits. The prolonged drought caused serious impacts to agriculture, reduced surface water availability, followed by an increase of groundwater extractions.

This region will continue to face water availability challenges related to drought conditions. Groundwater systems in the Pala Tribe surrounding area could become depleted, as reports shown a decrease ranging from 10 to 25 feet in water levels and, climate change scenarios project to increase the duration, frequency and, severity of droughts.

- **Whether there are public health concerns or social concerns associated with current or potential drought conditions (e.g., water quality concerns including past or potential violations of drinking water standards, increased risk of wildfire, or past or potential shortages of drinking water supplies? Does the community have another water source available to them if their water service is interrupted?)**. The Pala Tribe solely depends on groundwater extractions, which is withdrawn and stored in large tanks and ponds. No other water source is available. The risks to public health from water shortages could be high and include issues of water quality, water quantity, sanitation, and hygiene for personal use and food preparation. In addition, losses to evapotranspiration have increased impacting water levels in ponds used for irrigation in the agriculture sector. The Reservation is in the upper San Luis Rey Basin, which was recently affected by severe wildfires that impact water quality due to postfire runoff.

- **Whether there are ongoing or potential environmental impacts (e.g., impacts to endangered, threatened or candidate species or habitat)**. No ongoing impacts to endangered or threatened species have been identified. However, potential impacts to the environment could be related to postfire storm water quality. Damages associated with wildfires can be one of the largest impacts of drought, and California faces increasing risk of damages as urban development trespasses on the urban/wildland interface. California's most devastating urban/wildland fire episodes (Oakland Hills in 1991, Southern California in 2003, Southern California in 2007) occurred during a drought or in a year immediately following a multi-year drought, when dry vegetation created conditions favorable for massive fire outbreaks.

- **Whether there are ongoing, past or potential, local, or economic losses associated with current drought conditions (e.g., business, agriculture, reduced real estate values)**. There is no record of ongoing economic losses due to drought conditions. However, drought conditions in the Pala Tribe could seriously impact jobs, mainly agriculture. Water shortages could also affect population and tourism.

- **Whether there are other drought-related impacts not identified above (e.g., tensions over water that could result in a water-related crisis or conflict)**. No other drought-related impacts have been identified.

- **Describe existing or potential drought conditions in the project area**. The area is currently catalogued by the U.S. Monitor as Abnormally Dry. The most recent winter faced a series of storms providing higher than average precipitation in the southwestern pacific area. These conditions eased drought, however, climate change forecasts little chance for total relief from drought conditions. The area is prone to high interannual rainfall variability, with scarce wet years and historic droughts indicate recurrent episodes.

- **Is the project in an area that is currently suffering from drought or which has recently suffered from drought? Please describe existing or recent drought conditions, including when and the period of time that the area has experienced drought conditions.** Even though recent precipitation has recharged aquifers, water experts say the California drought is not over. After facing multi-year drought conditions in the region, one wet winter will not be enough to replenish the surface water bodies and groundwater systems. Even the current drought monitor classifies the County of San Diego as Abnormally Dry, historic data regarding the most recent multi-year drought period (2012-2015), classifies the area under extreme drought conditions for consecutive years (Figure 2).

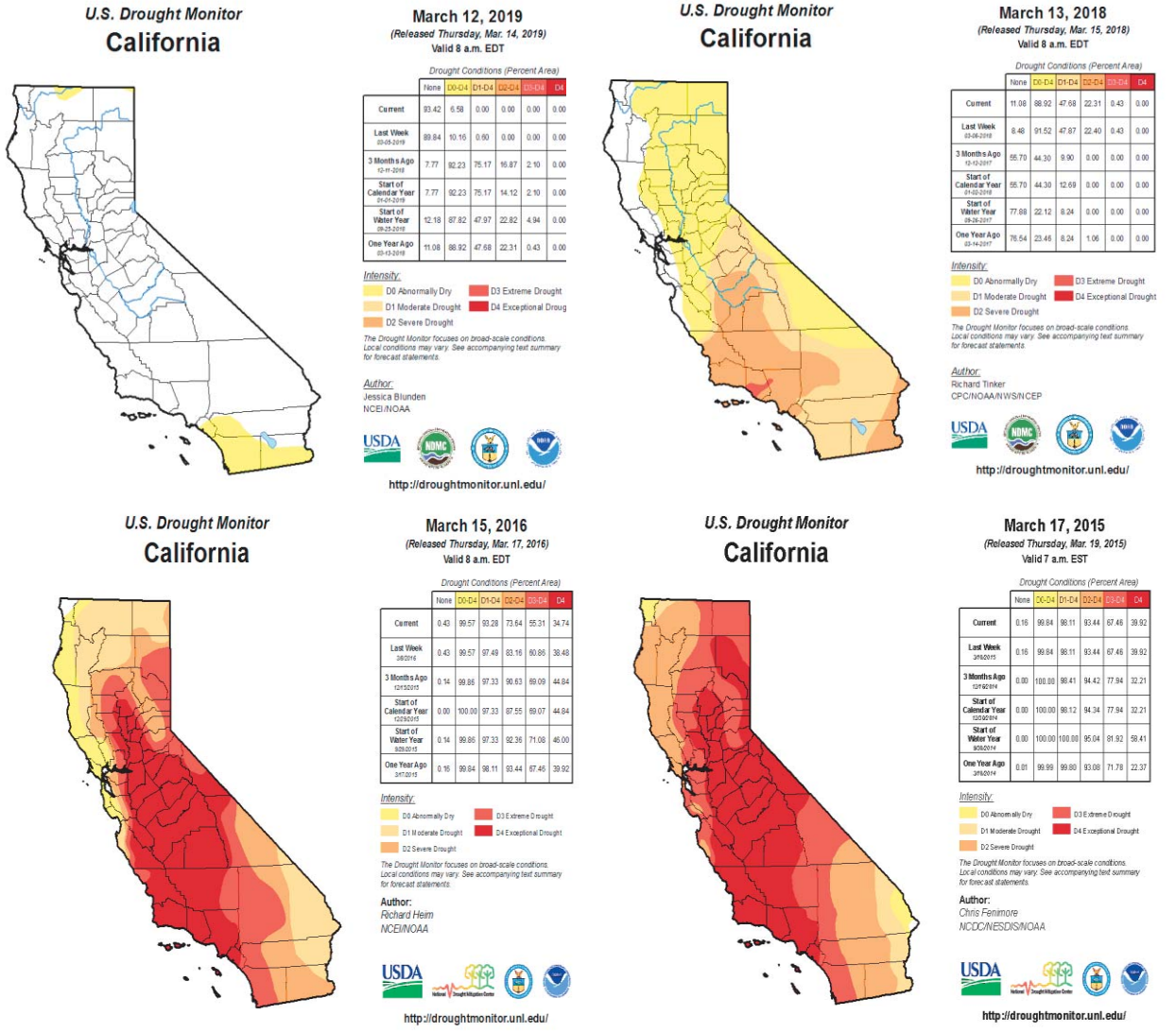


Figure 2. U.S. Monitor Maps represent drought conditions in California during the month of March for years 2019, 2018, 2016, and 2015.

- **Describe any projected increases to the severity or duration of drought in the project area resulting from climate change. Provide support for your response.** The Pala Tribe is located in the County of San Diego, a semiarid zone characterized by a highly variable Mediterranean climate. According to the latest California's Climate Change Assessment, is particularly vulnerable to climate change. The San Diego Region is expected to increase its average temperature in a range of 5ºF to 10ºF by the end of the 21st century, along with wildfire risk as climate warms coupled with longer dry periods. While its interannual precipitation is projected to continue highly variable with wetter winters characterized by scarcer wet days but more intense precipitation leading to more frequent and severe drought periods. In addition, local efforts have been adopted as The San Diego Regional Water Quality Control Board adopted Tentative Resolution No. R9-2018-0051, Addressing Threats to Beneficial Uses from Climate Change, where the main beneficial uses focus on safe water to drink, eat, swim and healthy ecosystem. Those beneficial uses are driven by two main recommended climate change goals with emphasis in effective water conservation approaches: 1) grow local water supply; 2) capture storm water without damaging downstream ecosystems.

References consulted on this section:

California's Fourth Climate Change Assessment: http://www.climateassessment.ca.gov/
Drought in California. California Department of Water Resources. https://water.ca.gov/-/media/DWR-Website/Web-Pages/What-We-Do/Drought-Mitigation/Files/Publications-And-Reports/Drought-in-California.pdf
California Water Boards: Climate Change Readiness https://www.waterboards.ca.gov/sandiego/water_issues/programs/climatechange/
United States Drought Monitor: https://droughtmonitor.unl.edu/Maps/MapArchive.aspx

Evaluation criterion D: Project implementation.

- **Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.**

  Table 5 shows the estimated project schedule for a period of 15 months. The milestones and activities are described in Section 1.5. Activities were categorized by milestone. The timeline corresponds to the start and end dates of Fiscal Year 2020 and may be adjusted based upon funding release month and actual project start date.

Table 5. Schedule of project milestones and activities.

	Activity/Year	2019			2020											
		10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
MILESTONE 1	Activity 1: Compile historical climate data.															
	Activity 2: Drought magnitude-frequency analysis.															
	Activity 3: Develop a Web-GIS decision support tool.															
MILESTONE 2	Activity 1: Install groundwater monitoring equipment.															
	Activity 2: Install municipal water meters.															
	Activity 3: Upgrade streamflow meters.															

- **Describe any permits that will be required, along with the process for obtaining such permits.** No permits will be required. The Pala Tribe Council has agreed to proceed with this application and execution of the proposed project.
- **Identify and describe any engineering or design work performed specifically in support of the proposed project.** This project does not include any construction related activities. So, no engineering or design work will be performed.
- **Describe any new policies or administrative actions required to implement the project.** No policies or administrative actions further than the Council approval are needed.
- **Describe how the environmental compliance estimate was developed. Has the compliance costs been discussed with the local Reclamation office?** Yes, the estimated environmental and regulatory compliance cost was estimated based on information provided from the local Reclamation Office. The Pala Tribe is NEPA compliant.

Evaluation criterion E: Nexus to Reclamation

- **How is the proposed project connected to a Reclamation project or activity?** The Pala Tribe is in the County of San Diego where the Bureau of Reclamation has historically been involved in water resources allocation projects as part of the Lower

Colorado projects. One of the main projects is the San Diego Project consisting of the First and Second San Diego Aqueducts. In addition, the BOR has been collaborating with the City of San Diego, Public Utilities Department in the San Diego Basin Study Project located in the San Diego County. Objectives include to study the potential utilization of local reservoirs within San Diego Basin for optimal storage of local, imported and purified water.

- **Will the project benefit any tribe(s)?** The applicant is an Indian Tribe.
- **Does the applicant receive Reclamation project water?** No.
- **Is the project on Reclamation project lands or involving Reclamation facilities?** No.
- **Is the project in the same basin as a Reclamation project or activity?** This project is not in the same basin to any known specific Reclamation project or activity with the exception of the general western state's drought assistance and the County of San Diego projects.
- **Will the proposed work contribute water to a basin where a Reclamation project is located?** No.

Evaluation criterion F: Department of the Interior priorities.

- **Restoring trust with local communities.**

  The Pala Tribe has been environmentally conscious; working towards a sustainable and long-term management of their water in working actively with other Tribes located in the San Luis River Basin. The Pala Tribe's Chairman declared the La Jolla, Pala, Pauma, Rincon and the San Pasqual Bands of Mission Indians have come together as one body to be a political advocate for the tribes – to fight for our water rights, address tribes' water needs, and help tribes develop and use their water appropriately. As all of the tribes work together to seek their fair share of water allocation, they must consider what continued opportunities are available to us as owners of this valuable resource. The most basic responsibility of tribal leaders is to provide a variety of social, governmental, administrative, educational, health and welfare services for tribal members. Over the years Native Americans have made progress in these areas, but there is much more to be done. They continue to dedicate themselves to improving the quality of life of all of the Tribe's members.

- **Modernizing our infrastructure.**

  The Pala Tribe is modernizing their water resources infrastructure. The Pala Tribe is currently participating with County of San Diego in the Sustainable Groundwater Management Act (SGMA) process and, have joined the local Groundwater Sustainability Agency (GSA) in order to further protect and use their water resources in a responsible and sustainable manner.

Section 2: Project Budget

Funding plan and letters of commitment

The funding plan proposed by the Pala Tribe is shown below:

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
Cost contributed by Pala Tribe: Salaries, labor for equipment installation, environmental compliance.	$ 300,475.00
Non-Federal Subtotal	**$ 300,475.00**
Other Federal Subtotal	**None**
REQUESTED RECLAMATION FUNDING	**$ 298,380.00**

The cost contributed by the Pala Tribe includes:

Pala Tribe staff salaries (hourly rate) for their support during the execution of all aspects of the project ($38,350.00). The cost includes salaries and wages for the installation of the residential water meters ($227,125.00). The estimate for the installation labor portion of the of water meters was obtained from costs established in a previous approved 2017 grant application (see Appendix B), with a markup of 15% The cost also includes the water meter installation boxes and tools estimated at ($30,000.00). Environmental compliance cost is also included as 50% of the advised estimate ($5,000.00). The cost contributed by the Pala Tribe is $300,475.00.

The cost contributed by the BOR includes:

Equipment, materials and supplies, contractual work and, environmental compliance cost (50%). The cost to be contributed by the BOR is $298,380.00.

No letters of commitment are required as no other funding source has been requested or included. No other project costs will be incurred prior the award.

Budget proposal

The total project cost including all required cost sharing and voluntary committed cost sharing is shown in the following table.

SOURCE	AMOUNT
Requested Reclamation funding	$ 298,380.00
Costs to be paid by the applicant	$ 300,475.00
TOTAL PROJECT COST	**$ 598,855.00**

Budget narrative

The following budget proposal include detailed information on all items of cost involved in the proposed project. Quotations of materials, labor and equipment include in this budget can be found in Appendix B: Quotations for equipment, materials and supplies included in the Budget.

BUDGET ITEM DESCRIPTION	Computation		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				
Shasta Gaughen, Director PED	$ 225.00	8	Hour	$ 1,800.00
Heidi Brow, Water Resource Specialist	$ 175.00	178	Hour	$ 31,150.00
Matthew Deveney, GIS Specialist	$ 135.00	40	Hour	$ 5,400.00
Pala Utilities Department: Installation of residential water meters	$ 454.25	500	each	$ 227,125.00
			SUBTOTAL	**$ 265,475.00**
Travel				
Trip 1: well water level sensor installation	$ 0.58	400	Mileage	$ 232.00
Trip 2: streamflow water level installation	$ 0.58	400	Mileage	$ 232.00
			SUBTOTAL	**$ 464.00**
Equipment				
Streamflow Repeater Upgrade: ALERT1/ALERT2 Repeater in a Canister with Precipitation Input	$ 24,879.48	1	each	$ 24,879
			SUBTOTAL	**$ 24,879.48**
Materials and Supplies				
Level TROLL 400, Level Sensor 200m	$ 856.61	10	each	$ 8,566.13
Rugged Twist-Lock Cable	$ 818.90	10	each	$ 8,189.00
3G Tube Pulse, Lithium Battery	$ 1,572.88	10	each	$ 15,728.81
Tube 300R/300S and Cube 300R/300S	$ 134.69	1	each	$ 134.69
Tube 300R External Antenna	$ 48.49	10	each	$ 484.88
Hanger Kit for The Tube 300R	$ 134.69	10	each	$ 1,346.88
Wireless TROLL Combo	$ 641.11	1	each	$ 641.11
Badger Meter M-35 3/4" x 7.5" NSF 61	$ 100.21	500	each	$ 50,103.75
Badger M-35 HRE 8 Encoder	$ 68.96	500	each	$ 34,480.00
ORION Cellular LTE Endpoint	$ 131.46	500	each	$ 65,727.50
Upgrade existing water level Transmitter to ALERT2	$ 2,796.11	3	each	$ 8,388.34

BUDGET ITEM DESCRIPTION	Computation		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Water meters installation boxes and tools	$ 60.00	500	each	$ 30,000.00
			SUBTOTAL	**$ 223,791.07**
Contractual				
Consultants: Alta Environmental LP				
Senior Principal	$ 225.00	12	Hour	$ 2,700.00
Project Manager Staff	$ 175.00	56	Hour	$ 9,800.00
Engineer Staff	$ 160.00	140	Hour	$ 22,400.00
Engineer Associate	$ 135.00	40	Hour	$ 5,400.00
GIS Specialist	$ 135.00	90	Hour	$ 12,150.00
Specialist III	$ 95.00	120	Hour	$ 11,400.00
Administrative	$ 80.00	2	Hour	$ 160.00
			SUBTOTAL	**$ 64,010.00**
Residential water meter Vendor				
Water meters training	$ 4,956.50	1	each	$ 4,956.50
Water meters licensing	$ 1,131.38	1	each	$ 1,131.38
Well monitoring licensing	$ 414.75	10	each	$ 4,147.50
			SUBTOTAL	$ 10,235.38
			SUBTOTAL	**$ 74,245.38**
Environmental compliance				
			SUBTOTAL	**$ 10,000.00**
			TOTAL COST	**$ 598,855**

Salaries and wages:

The PED Director will be involved in overview of the execution of the complete project. Hourly rate for the Director is $225/hour. A total of eight hours for the entire project duration (15 months) is being included as cost share from the Pala Tribe.

The Pala Tribe Project Manager (Pala PM) will be involved during the execution of all tasks. The Pala PM is the Water Resource Specialist and will collaborate providing data, supervising field work at the Pala Tribe, and overviewing the development of the Web-GIS water management tool. Hourly rate for the Project Manager is $175/hour. It is estimated an average of 3 hours a week will be dedicated to this project.

The Pala Tribe GIS specialist (Pala GIS) will be collaborating with the development of the Web-GIS water management tool facilitating GIS data. Hourly rate for the GIS specialist is $135/hour. It is estimated an average of one hour a week will be dedicated to this project.

Milestone 1

During the execution of Activity 1 (Milestone 1): Compiling historical climate data. The Pala PM will dedicate 1 hour per week per 12 weeks of duration, a total of $2,100. Activities will include providing local weather data, location of weather stations, historical water levels in wells.

During the execution of Activity 3 (Milestone 1): Developing a Web-GIS decision support tool:

- The Pala PM will dedicate a total of 26 hours distributed in ten months of duration, a total of $4,550. Activities will include supervising and providing historical data to include in the decision-making tool.
- The Pala GIS will dedicate 1 hour per week per 40 weeks of duration, a total of $5,400. Activities will include providing accurate information about the Pala Tribe layout to build the GIS dashboard.
- The PED Director will dedicate 8 hours distributed in ten months of duration, a total of $1,800. Activities include overview and feedback on the Web-GIS based water management tool.

Milestone 2

During the execution of Activity 1 (Milestone 2): Installing groundwater monitoring equipment to track water levels in the supply wells. The Pala PM will dedicate 1 hour per week per 12 weeks, a total of $2,100. Activities include field work during the period of installation and, validation measurements in-situ after equipment is installed.

During the execution of Activity 2 (Milestone 2): Installing municipal water meters. 40 weeks. The Pala PM will dedicate 2 hours per week per 40 weeks of duration, a total of $14,000. Activities will include coordinating with the Pala Utilities Department, supervising activities, meetings with the residents.

During the execution of Activity 3 (Milestone 2): Upgrading the streamflow meters. 16 weeks. The Pala PM will dedicate 3 hours per week per 16 weeks of duration, a total of $8,400. Activities will include coordinating with neighboring Tribes when upgrading the streamflow water level systems and, field work.

Travel:

Trips are dedicated to installation of groundwater and streamflow meters. Trip one for 400 miles to install groundwater monitoring equipment (3 days: Long Beach-Pala Tribe-Long Beach). Trip two for 400 miles to remove, upgrade and, install streamflow meters equipment (8 days: Oceanside-Pala Tribe-Oceanside). Each trip cost is $232.

Equipment:
Equipment include upgrading the precipitation repeater as is the repeater that transmits the stream water level to the Pala Tribe. It also includes upgrading the existing stream level meters. Total cost including sales tax is $33,267.81.

Materials and supplies:

For water meters for residential units, includes water meters, connectors, cables, for a total of $150,311 considering 500 residential units, includes sales tax. Also, includes tools and boxes to be used during installation by the Pala Tribe Public Utilities department for a total of $30,000 (cost share from the Pala Tribe). For groundwater wells, include tubes, hangers, cables, level sensors for a total of $39,470 includes sales tax.

Contractual:

The Pala Tribe has identified the work that will be accomplished by consultants and contractors. Procurement methods for all activities have not been identified at this time. The information provided by the consultant and vendors were used to build the budget. The Pala Tribe understands that if the proposed project is selected procurement methods indicated by the BOR will be followed.

The project will require contracted services with the consultant for developing the Web-GIS decision making tool, drought magnitude-frequency estimates, and installation of well water levels and upgrading the streamflow water level meters. Total amount for the 15 months of work will be $64,010.00. The following detailed budget provides information on each activity to be executed by Alta Environmental:

Task	Description	Units		Rate	Cost	Total
			ALTA ENVIRONMENTAL TOTAL COST			**$ 64,010**
1	**Well Water Depth Meters**					**$ 10,750**
	Senior III	2	hr	$ 225.00	$ 450.00	
	Project Manager	28	hr	$ 175.00	$ 4,900.00	
	Specialist Associate III	40	hr	$ 135.00	$ 5,400.00	
	Mileage to and from Site	*400*	*mi*	*$ 0.58*	*$ 232.00*	
2	**Upgrade Streamflow Meters**					**$ 16,250**
	Senior III	2	hr	$ 225.00	$ 450.00	
	Project Manager	28	hr	$ 175.00	$ 4,900.00	
	Engineer Staff II	32	hr	$ 160.00	$ 5,120.00	
	Specialist III	60	hr	$ 95.00	$ 5,700.00	
	Administrative	1	hr	$ 80.00	$ 80.00	
	Mileage to and from Site	*400*	*mi*	*$ 0.58*	*$ 232.00*	
3	**Drought Frequency-Magnitude Model**					**$ 8,840.00**
	Senior III	2	hr	$ 225.00	$ 450.00	
	Project Manager Staff II	44	hr	$ 160.00	$ 7,040.00	
	GIS Specialist	10	hr	$ 135.00	$ 1,350.00	
4	**GIS-based Online Tool and Dashboard**					**$ 28,170.00**
	Senior III	6	hr	$ 225.00	$ 1,350.00	
	Project Manager Staff II	64	hr	$ 160.00	$ 10,240.00	
	GIS Specialist	80	hr	$ 135.00	$ 10,800.00	
	Specialist III	60	hr	$ 95.00	$ 5,700.00	
	Administrative	1	hr	$ 80.00	$ 80.00	

Environmental and regulatory compliance costs:

The estimated environmental and regulatory compliance cost is $10,000. The cost was estimated based on information provided from the local Reclamation Office. It is the Pala Tribe's understanding that if the proposed project is selected, the local Reclamation office will send an environmental specialist to review and to provide the final estimate. The Pala Tribe will cost share the final estimate accordingly.

Total costs:

The total project cost is $598,855, with $300,475 being defrayed by the Pala Tribe, and $298,380 to be covered by Reclamation.

Section 3: Environmental and cultural resources compliance

The Pala Band of Mission Indians has complied with all NEPA (National Environmental Policy Act) regulations, in lieu of state regulations (CEQA), when conducting any work that is projected to be done on tribal lands. This regulation covers any work that may affect tribal lands, resources, or areas of historic significance on the reservation. Carrying out NEPA compliance helps continue the trust responsibility of the U.S. Government and protects tribal sovereignty.

- **Will the proposed project impact the surrounding environment?** No. **Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area.** No earth-disturbing work that could affect the surrounding environment will be done. The equipment to be installed will not affect the air, water or animal habitat in the project area. The residential water meters installation will be done in the urbanized area and minor earth-disturbance will be inside residential properties. **Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.** The project will not have impacts on the surrounding environment.

- **Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area?** The Pala Tribe lands are within the San Luis Rey Watershed, a watershed that serves more than just humans. It consists of a variety of unique and diverse ecosystems that act as critical habitat for several species of concern, including the orange-throated whiptail, western skink, the California pocket mouse, the arroyo toad, coastal California gnatcatcher, least bell's vireo, southwestern willow, flycatcher, and the western yellow billed cuckoo. **If so, would they be affected by any activities associated with the proposed project?** The activities proposed in this project will not affect endangered species or the watershed ecosystem.

- **Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?"** The

main water body in the watershed is the San Luis Rey River. **If so, please describe and estimate any impacts the proposed project may have.** This project will not have impacts to the San Luis Rey River.

- **When was the water delivery system constructed?** The ten supply wells were constructed during different years: 1977, 2001, 2002, 2003, 2008, 2015 and, 2018. **Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)?** No. **If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.** No modifications to the irrigation systems will occur during this project. Existing streamflow water level meters in three streams will be upgrade. Installation in supply wells will be modified with transmitters and telemetry equipment for remote monitoring of water use. Irrigation systems will not be modified.

- **Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.** Yes
- **Are there any known archeological sites in the proposed project area?** Yes
- **Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?** No. This project will help the Pala Tribe to improve water management in their community.
- **Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?** The proposed project is in Tribal lands, as the Pala Tribe is the applicant. The project will not disturb Indian sacred sites.
- **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.

Section 4: Required permits or approvals

There are no required permits or approvals for the implementation of the proposed project.

Section 5: Letters of project support

Letters of support from the Bureau of Indian Affairs (BIA), Southern California Tribal Chairmen's Association (SCTCA) and, the San Luis Rey Watershed Council included as a separate attachment.

Section 6: Official resolution

The Chairman and Council have verbally approved to proceed with this Grant Application. Because of the timing of Tribal Council meetings, the official resolution will be submitted to the BOR by March 29th, 2019.

Section 7: Unique Entity Identifier and System for Award Number

The Pala Tribe's Unique Entity Identifier and System for Award Management mandatory requirements are listed below:

- Pala Tribe Unique Entity Identifier: 177146362
- Pala Tribe System for Award Management (SAM): 4UY61

The Pala Tribe will continue to maintain an active SAM registration, with current information at all times during which it has an active application, plan under consideration by a Federal awarding agency, or an active Federal award.

Section 8: Appendices

Appendix A: Existing Drought Contingency Plan

Drought Contingency Plan

Pala Band of Mission Indians
12916 Pala Mission Road
Pala, California 92059

Prepared By
Pala Environmental Department
12916 Pala Mission Road
Pala, California 92059

North Public Water System ID Number: 0605153
South Public Water System ID Number: 0600144

September 2016

Table of contents

1. Declaration of policy, purpose, and intent

1.1. General

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the Pala Band of Mission Indians (Band) hereby adopts the following Drought Contingency Plan through an ordinance/or resolution.

This Drought Contingency Plan (Plan) is a framework of forward-leaning planning for scenarios and objectives, managerial and technical actions, and potential response systems in order to prevent, or better respond to, a drought-related emergency or critical situation. The overall goal of the Plan, and the contingency planning process, is to facilitate rapid emergency response. The intention of the Plan is to be functional, flexible, and easy to implement, and also serve as a tool for maintaining control over the events or limiting the risk of loss of control. The Plan should be periodically updated.

The primary focus is placed on best management practices to manage water use demand, while evaluating options for alternative water supply sources. Water uses regulated or prohibited under the Plan are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in this Plan.

1.2. Water use priorities

The risks to public health from water shortages could be high and include issues of water quality, water quantity, sanitation, and hygiene for personal use and food preparation. As a result of this, the Plan establishes the following priorities for use in developing demand reduction programs and allocations during a water shortage emergency. Priorities for use of available water, from highest to lowest priority, are:

1. Health and safety: residential home interior uses, sanitation, and fire fighting
2. Commercial, industrial, and governmental: maintain jobs and economic base
3. Existing landscaping: especially trees and shrubs
4. New demand: projects without permits when shortage is declared

1.3. Application

The provisions of this Plan shall apply to all customers and property utilizing water provided by the public water system.

2. Drought task force

A drought task force was created by the Tribe in order to develop this Plan and to assist in further developing and implementing effective drought monitoring, mitigation, and response actions. The drought task force consists of representatives from the following:

- Pala Tribal Council
- Pala Tribal Administrator
- Pala Utility Department
- Pala Environmental Department
- Pala Housing Department
- Pala School District
- San Diego County Sheriff's Department
- Cal Fire – San Diego Unit
- Pala Tribal Liaison, California Office of Emergency Services
- Indian Health Service
- San Diego County Office of Education
- Critical water users, e.g. health clinics, schools

3. Authorization

The designated official listed below, or his/her designee, is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The designated official or his/her designee shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan. The authorized designated official is: Pala Tribal Chair or, in his/her absence or inability to timely act, Pala Tribal Vice-Chair; and/or PUD Board Chair or, in his/her absence or inability to timely act, Pala Tribal Administrator.

4. Definitions

For the purposes of this Plan, the following definitions shall apply:

A. **Aesthetic water use:** water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

B. **Commercial and institutional water use:** water use which is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings. The term is also referred to as non-residential water use.

C. **Conservation:** those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water or increase the recycling and reuse of water so that a supply is conserved and made available for future or alternative uses.

D. **Customer:** any person, company, or organization using water supplied by the public water system.

E. **Domestic water use:** water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence. The term is also referred to as residential water use.

F. **Drought level or stage:** severity of the drought conditions indicated by the impact

and/or vulnerability triggering criteria for the water source and capacity to meet demand, and corresponding best management practices to mitigate impacts.

G. **Landscape irrigation use:** water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians.

H. **Non-essential water use:** water uses that are neither essential nor required for the protection of public, health, safety, and welfare.

I. **Non-residential water use:** the term is also referred to as commercial or institutional water use.

J. **Public water system:** a system for the provision to the public of water for human consumption through pipes or other constructed conveyances. The term is also referred to as community water system.

K. **Residential water use:** the term is also referred to as domestic water use.

5. Previous water shortage conditions

Living in the western regions of the United States, the peoples of the Band were accustomed to natural variations in climate cycles, and drought conditions have impacted the Band since before recorded history. Like other Native Americans living in this region, the Band moved seasonally between the ocean and the mountains, according to rainfall and temperature cycles. The ability to move tribal villages as necessary to be near water sources allowed our ancestors to adapt to periods of abundant rainfall and drought conditions. This cultural adaptability remains, however the physical ability to move tribal homes to new areas was removed when the Band was required to live on a reservation. This created new challenges, because the Band had to remain in one place and survive off of local water sources, regardless of whether rainfall was plentiful or limited.

Since the formation of the Reservation/Rancheria in 1901, the Band has been impacted many times by drought. During previous water shortages and droughts in 1924, 1931, 1976-1977, 1987-1992, 2012-2014, the Band experienced declining groundwater levels in their supply wells.

The water shortage conditions caused the Band to implement the following response actions:

- voluntary water use reduction
- mandatory water use reduction
- water allocations
- adding groundwater wells
- use of alternative water sources

6. Criteria for initiating and termination of drought response stages

The designated official shall monitor water supply on a periodic bases as determined by the severity of the drought, and determine when conditions warrant initiation or termination of each stage of the Plan based on the specified triggering criteria. The triggering criteria are based on

public health risks (likelihood and impacts) and an analysis of the anticipated vulnerability of the water source under drought conditions, and system capacity limits.

7. Coordination with regional partners

The public water system is in or adjacent to an area with other potential regional partners. As appropriate, this Plan will be provided to other regional partners for the purpose of effective and efficient planning and coordination of resources for drought emergency response. The regional partners for drought emergency response include:

A. Pauma Band of Luiseno Indians
B. Rainbow Municipal Water District
C. Pauma Municipal Water District
D. San Luis Rey Municipal Water District
E. Yuima Municipal Water District
F. San Luis Rey Watershed Council
G. San Luis Rey Indian Water Authority
H. San Diego County Office of Emergency Services (OES)

8. Public involvement

Opportunities for public input on the Plan were provided by the methods including:

- Holding a public meeting to accept input on the Plan
- Making the Plan available on the official tribal Website
- Providing the Plan to anyone requesting a copy
- Accepting comments on the Plan at a designated office

9. Public education and notification

Community outreach, education, and notification about the Plan will include information concerning the conditions under which each stage is to be initiated or terminated, the drought response measures to be implemented in each stage, and the specific actions required of the public.

The more severe the water shortage, the more vigorous the public information campaign will need to be. Any public communications strategy undertaken in connection with a water shortage should contain the following fundamental attributes:

- **Timely:** Information should be disseminated well in advance of voluntary or mandatory actions that are to take effect, repeated often, and updated at regular intervals.

- **Credible:** Information should strive to be clear, professional, consistent, straight forward, reasoned, and honest to build trust and community support.

- **Multi-modal:** Information should be made available to the public using a variety of methods; for example using the internet, newsletters, radio, and public meetings.

- **Open:** The public water system will actively listen to, engage, and involve its customers, solicit feedback, address identified concerns, and respond to public input in a manner

that is respectful, appreciative, welcome to creative solutions, and acknowledges each individual's sacrifice, inconvenience, and contribution to the solution.

- **Coordinated:** The public water system should collaborate with other Tribal departments and other impacted entities to ensure that the community as a whole has a synchronized and coordinated approach.

- **Action oriented:** Information should always contain positive action steps people can take to help foster a spirit of cooperation and create an overall atmosphere that encourages the people to conserve water for the public good.

A valuable technique in communication is to have a prepared and concise public message for each stage of the water shortage as described in the Plan. These statements are included within the response action for each stage, and intended to help communications be consistent, stay on message, and set the tone for subsequent communications through the duration of the incident.

There are various methods to carry out communications and public outreach. The designated official will consider the following techniques and methods to notify the public:

- Announcement at public events and meetings
- Presentations and open forums at community meetings
- Publication in a newspaper of general circulation
- Press releases using other local media; e.g. television, radio, E-mail
- Direct mail to each customer; e.g. utility bill inserts
- Telephone hotline
- Public service announcements
- Signs posted in public places; e.g. posting a bulletin at the tribal offices
- Take-home fliers/posters at schools, churches, libraries, grocery stores
- Public information booths at events
- Outdoor signs
- Drought response center
- Announcements on the official tribal Website
- Notifying other tribal offices, departments, schools, and other agencies as appropriate

The designated official will notify the following individuals or agencies:

- Tribal chairperson and members of the tribal council
- Tribal water utility board
- Tribal environmental department
- Local tribal housing department entity
- Local fire chief
- Local police chief
- Critical water users, e.g. health clinics, schools
- County Office of Emergency Services (OES) director
- Indian Health Service District/Field Office
- Other Federal entities; e.g. BIA, BOR, EPA

10. Summary inventory of water supply and demand

10.1. Water supply

The public water system is currently supplied by groundwater pumped from the Pala groundwater basin. In addition to supplying the tribal public water system, this basin also provides water supply for numerous private wells. The Pala groundwater basin lies directly underneath the San Luis Rey River and the Pala community. It is replenished by rain events and surface water flows from local creeks and rivers. During drought, it is very important to conserve groundwater resources.

Pala Band's two different water distribution systems are separated by the San Luis Rey River, which flows east to west through the center of the Reservation. All residents living north of the San Luis Rey River, belong to the North Public Water System. Currently there are 5 wells supplying this system, which pump water up from the groundwater basin, and store it in large storage tanks. All water is treated with chlorine to kill any bacteria and gravity-fed down from the storage tanks to the water users. All residents living south of the San Luis Rey River, belong to the South Public Water System, which is currently supplied by 3 wells. The total pump capacity of both systems under normal groundwater level conditions is about 2,440 gallons per minute (gpm) or 10.8 acre-ft per day. Refer to Appendix C for more detailed information on water availability assessment.

Table 1: Diameter, Depth, and Perforated Intervals of Pala Band Drinking Wells

	Well ID	Year Drilled	Well Diameter (in)	Well Depth (ft)	Perforated Interval (ft)	Pump Capacity under Normal Groundwater Condition (gpm)
North System	Casino #1 Well	2001	18	300	180 - 280	89
	Casino #2 Well	2003	8	190	75 - 115; 130 - 190	230
	Vista Well	1977	12	180	76 - 117	270
	Highway Well	2002	16	260	150 - 250	500
	Oaks Well	2008	12	235	82 - 140; 150 - 225	705
South System	Riverbed Well (east)*	2015	12	290	80 – 200; 210 - 240; 250 - 280	350
	Lilac East Well	2002	12	172	70 - 171.5	117
	Lilac West Well	2002	12	220	120 - 220	180
Total Pumping Capacity						**2,440 gpm**

*This is the new Riverbed Well. The old Riverbed Well on the west side was drilled in 1980 but has been abandoned.

10.2. Water demand

The public water system has a current water demand from uses including residential and non-residential including casino, commercial, schools, tribal offices, and health clinics.

A brief description of each water use demand is provided in Table 2 below.

Table 2: Average water use demand

Customer type	Number of connections	Average Annual water demand (acre-feet per year)
Residential	500	500
Non-residential		500
Irrigation	0	0
Total all demands		1,000

In addition, actual water use data for the wintertime (November through February) has been utilized to evaluate the water use allotments for the most restrictive stages. Wintertime water use is considered to be more representative of actual minimum domestic water use because it consists primarily of domestic uses, as exterior water use is likely to be minimal during this time of year (e.g. limited use for lawn irrigation, swimming pools, etc.).

The wintertime water use was found to be approximately 30% lower than the average annual water use.

11. Determining if a water shortage is imminent

In normal or wet years when the water supply outlook is favorable, there is generally sufficient supply to meet the existing demand. However, after an unusually dry winter or period of consecutive dry years, there is an increased likelihood the water supply might not meet the demand. It is critical during this situation to undertake an analysis of whether water supplies will be deficient relative to the estimated water needs for the coming dry season. If possible, the analysis should be performed before the end of the rainy season in time to decide appropriate actions and to provide adequate notice to the public. There is a chance that late winter rains will change the water supply outlook, and therefore, the situation often remains dynamic through the end of April.

Generally, the period of May 1 to October 31 is considered the critical period for the purpose of defining the degree of water supply shortfall and for selecting the appropriate demand reduction strategy and goals. This period is often when water supply availability is the lowest and water demand is the highest, potentially creating a summer water supply shortage situation.

There may often be no single criterion, trigger, or definition that is used to determine if a water

shortage exists. The determination of a water shortfall involves consideration of all the relevant factors listed in the Plan which generally involve both the water supply and demand.

Generally, forecasting water supplies available from all potential sources (e.g. surface water and ground water sources) may involve a range of certainty due to the availability of historic information and variance in weather patterns and subsurface conditions. Using the best available information, the designated official will determine the degree of the water shortfall following a three-step process, which includes:

1. Develop a monthly forecast of water supply available from all sources.
2. Compare the water supply available to the anticipated water demand.
3. Evaluate whether the available water supply is adequate to meet the demand over the projected time period of dry weather conditions, and any anticipated water shortfall. Implement any water shortage/drought response actions as necessary.

12. Triggering criteria and stages of action

One of the key elements of the Plan is a framework of incremental or staged triggering criteria for the drought severity and corresponding response actions. Each stage is triggered by an anticipated or actual water shortage condition, and each stage has several triggering criteria. The triggering criteria described below are based on an analysis of the vulnerability of the water source under anticipated drought conditions and system capacity limits. The drought condition stage, water shortage triggering criteria, and corresponding demand reduction goals are presented in the Table below.

Table 3: Level of water shortage, triggering criteria, and demand reduction goals

Stage Level	Stage title	Water shortage condition and triggering criteria	Demand reduction goal	Program type
1	Normal	Abnormally dry, minor shortage: 0-10%	10%	Voluntary
2	Alert	Moderate shortage: 10-25%	25%	Mandatory
3	Warning	Severe drought: 25-35%	35%	Mandatory
4	Critical	Extreme drought: 35-50%	50%	Mandatory
5	Emergency	Exceptional drought: over 50%	Over 50%	Mandatory

A water shortage may trigger any stage of response actions and include best management practices for supply management and demand reduction. The designated official will determine the most appropriate stage to implement based on actual conditions at the time of the event. Successive stages of response actions will be declared only after exhausting efforts to make a prior stage successful.

In some cases it may be necessary for the designated official to immediately implement an advanced stage of the Plan. This may occur due to information that indicates likely increased severity in the drought conditions (e.g. to serve as a preemptive action) or when the health and safety of the community are at an increased risk. The response actions are designed to be flexible so that there is an appropriate response to the specific situation occurring at a particular time. The conditions that may trigger specific stages of the Plan are specified below.

12.1. Stage 1: Minor/abnormally dry conditions (Normal)

The triggering criteria and conditions for this drought level or stage include:

- Annually, beginning on March 15 through October 31.
- State Governor or local authority issues a drought declaration at Level/Stage 1.
- The one-year change in the static water level measured at the Oaks Well indicates a downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 7 feet.
- A combination of the above mentioned circumstances reduces the public water system's overall water supply or production capabilities by **10%** or more.

12.2. Stage 2: Moderate conditions (Alert)

The triggering criteria and conditions for this drought level or stage include:

- State Governor or local authority issues a drought declaration at Level/Stage 1.
- The one-year change in the static water level measured at the Oaks Well indicates a downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 17 feet.
- A combination of the above mentioned circumstances reduces the public water system's overall water supply or production capabilities by 25% or more.

12.3. Stage 3: Severe conditions (Warning)

The triggering criteria and conditions for this drought level or stage include:

- State Governor or local authority issues a drought declaration at Level/Stage 3.
- The one-year change in the static water level measured at the Oaks Well indicates a downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 25 feet.
- A combination of the above mentioned circumstances reduces the public water system's overall water supply or production capabilities by 35% or more.

12.4. Stage 4: Extreme conditions (Critical)

The triggering criteria and conditions for this drought level or stage include:

- State Governor or local authority issues a drought declaration at Level/Stage 4.
- The one-year change in the static water level measured at the Oaks Well indicates a

downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 40 feet.

- A combination of the above mentioned circumstances reduces the public water system's overall water supply or production capabilities by 50% or more.

12.5. Stage 5: Exceptional conditions (Emergency)

The triggering criteria and conditions for this drought level or stage include:

- State Governor or local authority issues a drought declaration at Level/Stage 5.
- The one-year change in the static water level measured at the Oaks Well indicates a downward trend and the change in the depth of static water level relative to the normal groundwater level as of March 15 exceeds 45 feet.
- A combination of the above mentioned circumstances reduces the public water system's overall water supply or production capabilities by over 50% or more.

13. Response actions

The Plan provides stages of response actions to manage and mitigate the impacts indicated by each triggering criteria and condition. The response actions provide for a combination of best management practices for both water supply management and reduction in water demand. The response approaches are designed to be flexible so that there is an appropriate action to the specific drought situation occurring at a particular time.

The response actions included in each stage are cumulative, meaning that if Stage 2 is implemented than all of the measures in Stage 1 and 2 shall be implemented. Likewise, if ultimately Stage 5 is implemented, all of the measures in Stages 1, 2, 3, and 4 shall be implemented as well.

The Pala Utility Department and Tribal Council are responsible for implementing each stage of response under this section.

A brief description of the response actions for each stage of the Plan are specified below.

13.1. Stage 1 response actions

13.1.1. Target and public message

Target: Achieve a **voluntary** reduction of 10% of total daily water demand.

Public message: *Due to abnormally dry conditions this winter, we are asking all customers to voluntarily cut back on water use by 10% in order to stretch the available water supply. The water users should stop using water for non-essential purposes and conserve where possible in case the dry period continues through the year. If everyone cooperates and the water supplies*

are not impacted anymore, we may avoid more stringent water restrictions. Wasting water hurts everyone.

13.1.2. Communication, coordination, and planning

Communication, coordination, and planning activities include:

A. Initiate public information outreach campaign to:
   - Prepare and distribute educational information.
   - Notify customers of the water shortage, the need to conserve water, and the importance of significant water use reductions.
   - Notify customers with large landscapes of irrigation restrictions.
   - Provide customers with practical information on ways to improve water use efficiency.
   - Implement customer meter reading program.
   - Request customers to reduce their water use by the percentage listed above.

B. Notify Federal (e.g. FEMA, BOR, BIA, IHS, EPA, etc.), State, and Local (County) entities.

C. Begin initial evaluation of potential temporary and/or long-term needs for infrastructure improvements and funding opportunities.

13.1.3. Supply management best management practices

Best management practices for supply management include:

A. Reduce flushing of water mains.

B. Initiate leak detection and repair program.

C. Develop program for water waste patrols; hire and train staff.

D. Initiate use of reclaimed water for non-potable purposes.

13.1.4. Demand reduction best management practices

Best management practices for demand reduction include:

A. Water customers are requested to voluntarily limit the irrigation of landscaped areas to two days a week. Irrigate landscapes only between the hours of 8:00 P.M. to 10:00 A.M.

B. Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes. Actions to be avoided include:
   1. Willfully or negligently wasting water;
   2. Irrigation or sprinkling systems and devices that are not properly designed, installed, maintained, and operated to prevent wastage of water;
   3. Irrigation or sprinkling of any yard, ground, premise, or vegetation unless the watering device is controlled by an automatic shut-off device, or a person is in

immediate attendance of the hose or watering device;
4. Irrigation or sprinkling of lawns for a period that exceeds 15 minutes per station at one time, or a total of 30 minutes per station during a 24 hour day, if water is applied either through a sprinkler system or through a hose with or without a sprinkler device;
5. Irrigation or sprinkling of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
6. Use of water to wash down any sidewalks, walkways, driveways, parking lots, basketball courts, or other hard-surfaced areas;
7. Use of water for dust control;
8. Use of water to wash down buildings or structures for purposes other than immediate fire protection;
9. Flushing gutters or permitting water to run or accumulate in any gutter or street;
10. Use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi-type pools;
11. Use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system;
12. Installing or replacing an air-conditioning systems (including portable systems) without a water conservation device which is properly maintained;
13. Failure to repair a controllable leak(s) or faulty water fixture(s) within a reasonable period time; and
14. Use of water from hydrants for construction purposes without a permit or any other purposes other than firefighting.

13.2. Stage 2 response actions

13.2.1. Target and public message

Target: Achieve a **mandatory** reduction of 25% of total daily water demand.

Public message: *It is necessary to impose mandatory restrictions on water use to ensure that throughout the duration of this water shortage an adequate supply of water is maintained for public health and safety purposes. Our overall goal is to reduce water use by 25%, which can be achieved if everyone cuts back their outdoor watering and other non-essential uses. We are relying on cooperation and support of all water users to abide by all restrictions and to reach this goal. Otherwise, the shortage could deteriorate into a more serious emergency that requires household water allocations to avoid depleting that available water supply.*

13.2.2. Communication, coordination, and planning

Communication, coordination, and planning activities include:

A. Increase public information outreach campaign to:
   - Notify customers of the mandatory reductions
   - Notify customers of the water shortage, the need to conserve water, and the importance of significant water use reductions
   - Generate publicity about customers demonstrating significant water savings
   - Consult with major customers to develop conservation plans

- Publicize weekly water consumption graph/data

B. Identify priorities for water supplies.

C. Begin to coordinate with Federal (e.g. FEMA, BOR, BIA, IHS, EPA, etc.), State, and Local (County) entities and in particular the County Office of Emergency Services (OES).

D. Initiate evaluation and plan for potential temporary and/or long-term needs for infrastructure improvements and funding opportunities (e.g. FEMA, BOR, BIA, IHS, EPA, USDA/RD, State, etc.).

E. Develop strategy to mitigate revenue losses.

13.2.3. Supply management best management practices

Best management practices for supply management include:

A. Discontinue flushing of water mains; for emergency purposes only.

B. Intensify leak detection and repair program.

C. Intensify program for water waste patrols.

D. Use of reclaimed water for non-potable purposes.

E. Plan for use of an alternative water source(s).

13.2.4. Demand reduction best management practices

Best management practices for demand reduction include:

A. Water customers are required to limit the irrigation of landscaped areas to two days a week. Irrigate landscapes with hose-end sprinklers or automatic irrigation systems, and only between the hours of 8:00 P.M. to 10:00 A.M.

B. Use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle is prohibited except on designated watering days between the hours of 8:00 P.M. to 10:00 A.M. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.

C. Use of water from hydrants shall be limited to firefighting related activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes may be allowed under special permit from the public water system.

D. All restaurants are prohibited from serving water to patrons except upon request of the patron.

E. Water customers are mandated to practice water conservation and to minimize or discontinue water use for non-essential purposes. Prohibitions include:
   1. Willfully or negligently wasting water;
   2. Irrigation or sprinkling systems and devices that are not properly designed, installed, maintained, and operated to prevent wastage of water;
   3. Irrigation or sprinkling of any yard, ground, premise, or vegetation unless the watering device is controlled by an automatic shut-off device, or a person is in immediate attendance of the hose or watering device;
   4. Irrigation or sprinkling of lawns for a period that exceeds 15 minutes per station at one time, or a total of 30 minutes per station during a 24 hour day, if water is applied either through a sprinkler system or through a hose with or without a sprinkler device;
   5. Irrigation or sprinkling of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
   6. Use of water to wash down any sidewalks, walkways, driveways, parking lots, basketball courts, or other hard-surfaced areas;
   7. Use of water for dust control;
   8. Use of water to wash down buildings or structures for purposes other than immediate fire protection;
   9. Flushing gutters or permitting water to run or accumulate in any gutter or street;
   10. Use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi-type pools;
   11. Use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system;
   12. Installing or replacing an air-conditioning systems (including portable systems) without a water conservation device which is properly maintained;
   13. Failure to repair a controllable leak(s) or faulty water fixture(s) within a reasonable period time; and
   14. Use of water from hydrants for construction purposes without a permit or any other purposes other than firefighting.

13.3. Stage 3 response actions

13.3.1. Target and public message

Target: Achieve a **mandatory** reduction of 35% of total daily water demand.

Public message: *The Band faces a serious water shortage emergency due to prolonged drought. To conserve the available water supply for the greatest public benefit while minimizing impacts on our local economy, it has become necessary to institute a water allocation program for all residential customers. Our goal is to reduce system water demand by 35%. While water allocation amounts are adequate for normal domestic needs, significant cuts to outdoor water use may be necessary to remain within set allocations. All customers are urgently asked to make every effort to conserve water and abide by watering restrictions or face further reductions in water allotments.*

13.3.2. Communication, coordination, and planning

Communication, coordination, and planning activities include:

A. Intensify and expand public information outreach campaign to:
   - Notify customers of the water use allocations
   - Inform customers of ban on open burning
   - Expand and strengthen water conservation education, activities, and programs

B. Identify priorities for water supplies.

C. Coordinate with Federal, State, and Local (County) entities, and in particular, the County Office of Emergency Services (OES), and any mutual aid assistance.

D. Coordinate with local health directors to assess public health treats and take appropriate actions.

E. Provide regular situational reports to Federal entities and County OES.

F. Deploy temporary and/or long-term infrastructure improvements for water supply augmentation such as emergency interconnection, rehabilitation of existing water wells, construction of new water wells, re-confirm arrangements for water hauling etc.

G. Invoke ban on open burning.

H. Increase customer service training for staff.

I. Review and adopt enforcement rates and appeals board to process requests for exceptions.

13.3.3. Supply management best management practices

Best management practices for supply management include:

A. Discontinue flushing of water mains; for emergency purposes only.

B. Intensify leak detection and repair program.

C. Intensify and expand program for water waste patrols; e.g. increase staff.

D. Use of reclaimed water for non-potable purposes.

E. Use of an alternative water source(s).

13.3.4. Demand reduction best management practices

Best management practices for demand reduction include:

A. Implement Stage 3 water consumption allocations for all customers (see Table 4).

B. Water customers are required to limit the irrigation of landscaped areas to one day a week. Irrigate landscapes with hand-held hoses, hand-held buckets, drip irrigation, or permanently installed automatic sprinkler system only. The use of hose-end sprinklers is prohibited at all times. Irrigation is limited to the hours between 8 P.M. and 10:00 A.M.

C. Use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle is prohibited.

D. The watering of golf course tees is prohibited unless the golf course utilizes a water source other than that provided by the public water system.

E. The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.

13.4. Stage 4 response actions

13.4.1. Target and public message

Target: Achieve a **mandatory** reduction of 50% of total daily water demand.

Public message: *Due to continuing deterioration and scarcity of the available water supply, all customers are subject to reduced water allocations. The current water shortage has become very severe. We must all continue to conserve water to the maximum extent possible and strive to maintain water use within our established water allocation limits as long as the drought endures in order to prevent a water crisis.*

13.4.2. Communication, coordination, and planning

Communication, coordination, and planning activities include:

A. Continue to intensify public information outreach campaign to:
   - Notify customers of the water use allocations
   - Publicize daily water consumption graph/data
   - Open a centralized drought public outreach position for issues on conservation, water use allocations, etc.
   - Set-up and/or confirm emergency notification lists for high priority water users including health clinics, schools, stores and restaurants, and other large or critical users

B. Identify priorities for water supplies.

C. Coordinate with Federal, State, and Local (County) entities, and in particular, the County Office of Emergency Services (OES), and any mutual aid assistance.

D. Coordinate with local health directors to assess public health treats and take appropriate actions.

E. Provide regular situational reports to Federal entities and County OES.

F. Continue use of water supply augmentation measures such as emergency interconnection, use of existing water wells, use of new water wells, water hauling etc.

G. Continue ban on open burning.

H. Plan with local partners for potential movement of vulnerable populations out of areas with limited or no water supply.

13.4.3. Supply management best management practices

Best management practices for supply management include:

A. Discontinue flushing of water mains; for emergency purposes only.

B. Intensify leak detection and repair program.

C. Intensify program for water waste patrols and consider expansion to 24/7 with additional staff if necessary.

D. Use of reclaimed water for non-potable purposes.

E. Use of an alternative water source(s).

13.4.4. Demand reduction best management practices

Best management practices for demand reduction include:

A. Implement Stage 4 water consumption allocations for all customers (see Table 4).

B. Irrigation of landscaped areas is prohibited.

C. Use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle is prohibited.

D. The watering of golf course tees is prohibited.

E. No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved, and time limits for approval of such applications are hereby suspended for such time as the drought response stage.

13.5. Stage 5 response actions

13.5.1. Target and public message

Target: Achieve a **mandatory** reduction of over 50% of total daily water demand.

Public message: *The Band is confronted with a critical water shortage emergency of unprecedented proportions. At this time, there exists barely enough drinking water for the most essential human health, sanitation, and safety needs. As a result, all outdoor water use is prohibited. We understand the hardship this extraordinary condition poses to every customer, and we appreciate the sacrifices people are making to ensure that water system does not run dry. Everyone is urgently requested to do whatever necessary to maintain water use within or below their allotted amount.*

13.5.2. Communication, coordination, and planning

Communication, coordination, and planning activities include:

A. Continue to intensify public information outreach campaign to:
   - Notify customers of the water use allocations
   - Notify customers of public water points; e.g. for bottled water or portable water storage tanks
   - Notify vulnerable populations of potential movement/relocations

B. Identify priorities for water supplies.

C. Coordinate with Federal, State, and Local (County) entities, and in particular, the County Office of Emergency Services (OES), and any mutual aid assistance.

D. Coordinate with local health directors to monitor and assess public health treats and take appropriate actions.

E. Provide regular situational reports to Federal entities and County OES.

F. Continue use of water supply augmentation measures such as emergency interconnection, use of existing water wells, use of new water wells, water hauling etc.

G. Continue ban on open burning.

H. Plan with local partners for monitoring and potential movement of vulnerable populations out of areas with limited or no water supply.

13.5.3. Supply management best management practices

Best management practices for supply management include:

A. Discontinue flushing of water mains; for emergency purposes only.

B. Intensify leak detection and repair program.

C. Intensify program for water waste patrols.

D. Use of reclaimed water for non-potable purposes.

E. Use of an alternative water source(s).

13.5.4. Demand reduction best management practices

Best management practices for demand reduction include:

A. Implement Stage 5 water consumption allocations for all customers (see Table 4).

B. Water use reduced to health and safety needs only. All other uses are prohibited.

14. Water use allocations

14.1. General

In the event that water shortage conditions threaten public health, safety, and welfare, the designated official is authorized to allocate water according to the following water allocation plan in Table 4 below.

Table 4: Stage water use allocations

Customer/connection type	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Residential	Normal	75% of average	65% of average	50 gpcd	25 gpcd
Commercial/institutional	Normal	90% of average	85% of average	65% of average	50% of average
Landscape irrigation	Normal	90% of average	50% of average	0% of average	0% of average

Note: “gpcd” refers to gallons per capita per day.

The residential water use allocations are based on water use priorities for health and safety and were calculated based on minimum domestic uses including drinking, cooking, personal washing, sanitation, and washing clothes. In addition, these water uses have been compared to actual data, in particular during the wintertime period. Table 5 below provides a more detailed presentation of the basis for the residential water uses and requirements for Stage 4, 5, and rationing water allocations.

Table 5: Stage 4, 5, and rationing residential water use allocations requirements

Residential water uses	Stage 4 requirements (gpcd)	Stage 5 requirements (gpcd)	Rationing requirements (gpcd)
Drinking	2.5	2.5	2.5
Cooking	5.0	2.5	2.0
Personal washing	15.0	12.5	7.5
Sanitation	5.0	2.5	1.5
Washing clothes	2.5	2.5	1.5
Cleaning home	5.0	2.5	0
Growing food/garden	15.0	0	0
Total	50	25	15

Note: “gpcd” refers to gallons per capita per day.

Residential customers may have some livestock, and will be entitled to an allocation to meet the needs of the animals. Residential customers with livestock should follow water conservation practices including repairing leaks, dripping faucets, practice of filling water tubs and tanks, and cleaning floors and equipment. Table 6 below provides a list of daily water needs of some common animals.

Table 6: Water needs for farm animals

Type of animal	Daily water requirements (gallons per day)
Horse	12
Cow	20-45
Beef animal	8-12
Swine/pig	3-5
Sheep/goats	2-4
Poultry/fowl (per 100)	8-15

14.2. Residential customer single-family

The allocation to residential water customers residing in a single-family dwelling shall be based on the persons per household at the level given in Table 4. A "household" means the residential premises served by the customer's water service line and/or water meter. Persons per household include only those persons currently physically residing at the premises and expected to reside there for the entire billing period. It shall be assumed that a particular customer's household is comprised of two (2) persons unless the customer notifies the designated official of a greater number of persons per household.

It shall be the customer's responsibility to go to the office of the designated official to complete and sign the necessary form claiming more than two (2) persons per household. New customers may claim more persons per household at the time of applying for water service on the form prescribed by the designated official. When the number of persons per household increases so as to place the customer in a different allocation category, the customer may notify the designated official and the change will be implemented in the next practicable billing period. If the number of persons in a household is reduced, the customer shall notify the designated official in writing within two (2) days. In prescribing the method for claiming more than two (2) persons per household, the designated official shall adopt methods to insure the accuracy of the claim. Any person who knowingly, recklessly, or with negligence falsely reports the number of persons in a household or fails to timely notify the designated official of a reduction in the number of person in a household shall be fined not less than **$50**.

Residential water customers shall pay the following surcharges:

- For the first 1,000 gallons over allocation: **$100**
- For the second 1,000 gallons over allocation: **$150**.
- For the third 1,000 gallons over allocation: **$200**.
- For each additional 1,000 gallons over allocation: **$250**.

Surcharges shall be cumulative.

14.3. Residential customer master-metered multi-family

The allocation to a customer billed from a master meter which jointly measures water to multiple permanent residential dwelling units (e.g. apartments, mobile homes) shall be allocated based on 2 persons in each dwelling unit per month. It shall be assumed that such a customer's meter serves two dwelling units unless the customer notifies the designated official of a greater number on a form prescribed by the designated official. It shall be the customer's responsibility to go to the office of the designated official to complete and sign the form claiming more than 2 dwellings. A dwelling unit may be claimed under this provision whether it is occupied or not. New customers may claim more dwelling units at the time of applying for water service on the form prescribed by the designated official. If the number of dwelling units served by a master meter is reduced, the customer shall notify the designated official in writing within two (2) days. In prescribing the method for claiming more than 2 dwelling units, the designated official shall adopt methods to insure the accuracy of the claim. Any person who knowingly, recklessly, or with negligence falsely reports the number of dwelling units served by a master meter or fails to timely notify the designated official of a reduction in the number of person in a household shall be fined not less than **$50**.

Customers billed from a master meter under this provision shall pay the following monthly surcharges:

- For 1,000 gallons over allocation up through 1,000 gallons for each dwelling unit: **$100**.
- Thereafter, for each additional 1,000 gallons over allocation up through a second 1,000 gallons for each dwelling unit: **$150**.
- Thereafter, for each additional 1,000 gallons over allocation up through a third 1,000 gallons for each dwelling unit: **$200**.
- Thereafter for each additional 1,000 gallons over allocation: **$250**.

Surcharges shall be cumulative.

14.4. Commercial customers

A monthly water allocation shall be established by the designated official, or his/her designee, for each non-residential commercial customer. The non-residential customer's allocation shall be based on Table 4, and the customer's usage for corresponding month's billing period for the previous 12 months. If the customer's billing history is shorter than 12 months, the monthly average for the period for which there is a record shall be used for any monthly period for which no history exists.

The designated official shall give his/her best effort to see that notice of each non-residential customer's allocation is mailed to such customer. If, however, a customer does not receive such notice, it shall be the customer's responsibility to contact the designated official to determine the allocation. Upon request of the customer or at the initiative of the designated official, the allocation may be reduced or increased if, (1) the designated period does not accurately reflect the customer's normal water usage, (2) one non-residential customer agrees to transfer part of its allocation to another non-residential customer, or (3) other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation to the designated official.

Non-residential commercial customers shall pay the following surcharges:

Customers whose allocation is 10,000 gallons or less per month:

- For the first 1,000 gallons over allocation: **$100** per thousand gallons
- For the second 1,000 gallons over allocation: **$150** per thousand gallons
- For the third 1,000 gallons over allocation: **$200** per thousand gallons
- For each additional 1,000 gallons over allocation: **$250** per thousand gallons

Customers whose allocation is 10,000 gallons or more per month:

- For the first 1,000 gallons over allocation: **$150** per thousand gallons
- For the second 1,000 gallons over allocation: **$200** per thousand gallons
- For the third 1,000 gallons over allocation: **$250** per thousand gallons
- For each additional 1,000 gallons over allocation: **$300** per thousand gallons

The surcharges shall be cumulative.

15. Enforcement

This Plan is designed to place the responsibility for managing the water resources during a water shortage emergency on the entire community. Care has been taken in the design of the Plan not to penalize any customer who has undertaken good-faith and diligent measures to conserve water. However, for the protection of the water resources and ability to provide sufficient water for public health and safety priorities, enforcement and penalties are required for those customers who knowingly or intentionally use water in a manner contrary to the Plan.

Enforcement provisions include the following:

A. No person shall knowingly or intentionally allow the use of water from the public water system for any purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by the designated official in accordance with provisions of this Plan.

B. Any person who violates this Plan shall be fined:
    1. For the first incident - **$50**, however, the fee shall be deferred for customers who attend a course in water conservation. The deferral shall be conditioned upon the customer's successful completion of a water conservation course provided by the authorized designated official and the customer not having an additional incident of water wastage within a one-year period. The deferred fee shall be collected if a second incident of water wastage occurs within a one-year period.

    2. For the second incident, the fee shall be not less than **$100**. Each day that one or more of the provisions in this Plan is violated shall constitute a separate offense.

    3. If a person is convicted of a third incident or more distinct violations of this Plan within a one-year period, the designated official shall, upon due notice to the customer, be authorized to:
        i. Require the customer to repair any defects in the water system of such customer within 14 days of notice;

ii. Installation by the designated official of flow restrictors or termination of water service for exterior use;

iii. Termination of all water service to a customer unless in the opinion of the designated official such termination would result in an unreasonable risk to the health and safety of the persons;

iv. Services discontinued under such circumstances shall be restored only upon payment of a re-connection charge, hereby established at $50, and any other costs incurred by the public water system in discontinuing service. In addition, suitable assurance must be given to the designated official that the same action shall not be repeated while the Plan is in effect.

v. Compliance with this plan may also be sought through injunctive relief in the Pala tribal council/ tribal court.

C. Any person, including a person classified as a water customer of the public water system, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.

D. Any employee of the public water system, police officer, or other designated official, may issue a citation to a person he/she reasonably believes to be in violation of this Plan. Service of the citation shall be complete upon delivery of the citation to the alleged violator, to an agent or employee of a violator, or to a person over 14 years of age who is a member of the violator's immediate family or is a resident of the violator's residence.

E. If there single-family residential customers without a meter who are billed for water use based on a monthly flat rate, as such penalties cannot be assessed for excessive water use based on a metered volume of water, enforcement of violations of the Plan will be made based on other factors including visual observations of irrigation practices, water used for washing vehicles, dust control, and other acts of negligently wasting water.

16. Variances

The designated official may in writing grant temporary variance for existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the person requesting such variance and if one or more of the following conditions

are met:

- Compliance with this Plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which the Plan is in effect, and
- Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Plan shall file a petition for variance with the public water system within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the designated official and shall include the following:

A. Name and address of the petitioner(s).
B. Purpose of water use.
C. Specific provision(s) of the Plan from which the petitioner is requesting relief.
D. Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Plan.
E. Description of the relief requested.
F. Period of time for which the variance is sought.
G. Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
H. Other pertinent information.

Variances granted by the public water system shall be subject to the following conditions, unless waived or modified by the designated official:

- Variances granted shall include a timetable for compliance.
- Variances granted shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

No variance shall be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance.

17. Revenue and expenditure analysis

17.1. Potential revenue impacts

The public water system's revenues from water use charges are derived from customers and uses including residential and non-residential (including casino, commercial, schools, tribal offices, health clinics). Water service to the customers is billed and is based on metered rate. Therefore, as customer water use decreases based on the mandatory restrictions and water allocations, the revenue would decrease.

In the future, all customers will be metered and billed based on a metered usage rate. As the transition occurs, the public water system may become potentially more vulnerable to revenue impacts during periods when water use is reduced.

17.2. Potential expenditure impacts

During a water shortage and activation of this Plan, the expenditures for water-related services

may be impacted. Expenditures may increase based on numerous factors including:

- Increased water conservation program costs to implement, monitor, and enforce new or more intensive activities.
- Increased staffing costs for operation and maintenance of facilities to ensure efficient operation of available facilities
- Increased costs for acquisition of alternative water supplies and associated facilities including interconnection use agreements, purchase of additional water, water hauling services, etc.
- Increased costs for groundwater pumping if more energy is required because of increased pumping lifts associated with decreasing groundwater levels.

With assumed increases in certain expenditures, overall water expenditures may increase during the various stages of the Plan. These increases in expenditures, coupled with reductions in revenue for metered rate customers, could potentially impact the public water system's budget and financial status.

17.3. Proposed measures to overcome revenue and expenditure impacts

Measures that may be implemented to overcome revenue and expenditure impacts include:

- Water rate increases; and
- Development and use of reserve funds.

18. Mechanism for determining actual water use reductions

The system's water production from is continuously monitored by the Band.

During Stage 1 or Stage 2, daily water production figures will be reported to the designated official. The designated official will then compare the weekly production to the target weekly production and verify that the reduction goal is being achieved. Weekly reports would then be forwarded to the Drought Task Force. If the reduction goals are not met, the designated official will notify the Drought Task Force and consider potential corrective actions; e.g. implementation of additional water use restrictions.

During Stage 3 or Stage 4, the procedure would remain the same, with the addition of a daily report being provided to the Drought Task Force and other required Tribal entities.

During Stage 5, the procedure would remain the same, with the addition of an hourly or on-demand report being provided to the Drought Task Force and other required Tribal entities.

APPENDIX:

Resolution forming a Drought Task Force

Resolution adopting a Drought Contingency Plan

Water Availability Assessment of Pala Band's Water Supply

Pala Band of Mission Indians

RESOLUTION FOR FORMING A DROUGHT TASK FORCE

Resolution No. [_____]
Date [_____]

WHEREAS, the Pala Band of Mission Indians is a federally recognized Band governing itself according to a Constitution and By-laws; and

WHEREAS, the Pala Band of Mission Indians is experiencing drought conditions along with other areas of the State of California; and

WHEREAS, the Pala Band of Mission Indians recognizes that the amount of water available to the public water systems and its water customers is limited and subject to depletion during periods of extended drought; and

WHEREAS, the Pala Band of Mission Indians desires to develop a Drought Contingency Plan in partnership with other federal and local agencies; and

WHEREAS, a critical part of managing and mitigating the impacts of a drought are initial contingency planning and to have competent staff identified that are assigned to work on this important issue; and

THEREFORE BE IT RESOLVED, that the Pala Band of Mission Indians desires to create the Drought Task Force, a subcommittee of the [_____] [name of tribal entity] [Tribal Water Board], that will be comprised of staff from [_____] [name of tribal office or official] [Tribal administrator] [Tribal water/utility department] [Tribal environmental department] [Local tribal housing department entity] [Local fire chief] [Local police chief] [Critical water users, e.g. health clinics, schools], and staff deemed necessary to carry out the duties to develop a Drought Contingency Plan; and

BE IT FURTHER RESOLVED, that the Drought Task Force will report to the [_____] [name of tribal entity] [Tribal Water Board], and the will keep the Tribal Council informed of the current drought conditions; and

BE IT FURTHER RESOLVED, that Drought Contingency Plan developed and recommended by the Drought Task Force will be presented to the Tribal Council for review and approval.

CERTIFICATION

This is to certify that the above resolution was duly adopted at a Tribal Council meeting of the Pala Band of Mission Indians on [_____] [date], and will be ratified at the next General Council Meeting. The Resolution was adopted by a vote of: [_____] [names of Tribal Council members]

RESOLUTION FOR ADOPTION OF A DROUGHT CONTINGENCY PLAN

Resolution No. [_____]
Date [_____]

WHEREAS, the Pala Band of Mission Indians is a federally recognized Band governing itself according to a Constitution and By-laws; and

WHEREAS, the Pala Band of Mission Indians is experiencing drought conditions along with other areas of the State of California; and

WHEREAS, the Pala Band of Mission Indians recognizes that the amount of water available to the public water systems and its water customers is limited and subject to depletion during periods of extended drought; and

WHEREAS, the Drought Task Force has developed a Drought Contingency Plan; and

WHEREAS, as authorized under the Constitution and By-laws, and in the best interests of the Tribal members and all water system customers, the Pala Band of Mission Indians deems it expedient and necessary to establish certain rules and policies for the orderly and efficient management of limited water supplies during drought emergencies;

THEREFORE BE IT RESOLVED, that the Drought Contingency Plan attached hereto as Exhibit "A" and made part hereof for all purposes be, and the same is hereby, adopted as the official policy of the Pala Band of Mission Indians; and

BE IT FURTHER RESOLVED, that [_____] [indicate title of designated official] [tribal administrator] [tribal public works director] [tribal utility authority director] is hereby directed to implement, administer, and enforce the Drought Contingency Plan; and

BE IT FURTHER RESOLVED, that the Drought Task Force consisting of its current membership, and other staff deemed necessary to carry out the duties detailed in the Drought Contingency Plan, shall remain in effect to assist and support the implementation of the Drought Contingency Plan; and

BE IT FURTHER RESOLVED, that the Drought Task Force will report to the [_____] [name of tribal entity] [Tribal Water Board], and the [_____] [indicate title of designated official] will keep the Tribal Council informed of the current drought conditions.

CERTIFICATION

This is to certify that the above resolution was duly adopted at a Tribal Council meeting of the [_____] [name of Tribe/Band] on [_____] [date], and will be ratified at the next General Council Meeting. The Resolution was adopted by a vote of: [_____] [names of Tribal Council members]

Appendix B: Quotations for equipment, materials and supplies included in the Budget.

Quote – Q-33643

In-Situ, Inc.
221 E. Lincoln Avenue
Fort Collins, CO 80524
U.S.A.

Tel: (800) 446-7488
Fax: (970) 498-1598
Email: sales@in-situ.com
Web: www.in-situ.com

Issued By: Tony Walker
Date: March 21, 2019
Quote Valid for 30 days

Sales Manager	Customer ID	Payment Terms	Shipping Method	INCO Terms	Final Destination
Tony Walker	016367	NET 30 DAYS			United States California

Quote To:

Alta Environmental
1155 Sportfisher Dr
Suite 202
Oceanside, California 92054
United States

Attn:

Jim Homet
jim.homet@altaenviron.com
(562) 495-5777 x138

Ship To:

Alta Environmental
1155 Sportfisher Dr
Suite 202
Oceanside, California 92054
United States

Comments:

Equipment

Line	Product Description	Part Number	Unit of Sale	Qty.	Unit Price	Total Price
1.	Level TROLL 400, Level Sensor Range - 200m, 658 ft (300 Psia)	0099260	Each	10	$795.00	$7,950.00
2.	Rugged Twist-Lock Cable, Non-Vented, TPU, SM Spool, Twist-Lock, None	0052000-05-02-08-00	200 ft	10	$760.00	$7,600.00
3.	3G Tube Pulse, Lithium Battery, Non-Vented, Twist Lock, HydroVu Complete, Standard Data (1MB), No SMS, Advanced Setup	0084570-02-01-00-00-01	Each	10	$1,465.00	$14,597.50
4.	Tube 300R/300S and Cube 300R/300S Computer Setup Cable USB	0063540	Each	1	$125.00	$125.00
5.	Tube 300R External Antenna With 1.5m Cable	0062240	Each	10	$45.00	$450.00
6.	Hanger Kit for The Tube 300R	0060240	Each	10	$125.00	$1,250.00
7.	Wireless TROLL Com for iOS, Android, and PC (Twist Lock/Cable Connect Version)	0031240	Each	1	$595.00	$595.00
					Subtotal:	**$32,567.50**

Quote Total

For further information regarding the Warranty or Terms and Conditions, please refer to our website at http://in-situ.com/terms-conditions/

All quoted product & service prices are in U.S. Dollars unless specifically noted otherwise.

Sales Tax: $0.00

Shipping:

Total Amount (Excludes Optional Items): USD $32,567.50

In-Situ, Inc.
221 E. Lincoln Avenue
Fort Collins, CO 80524
U.S.A.

Tel: (800) 446-7488
Fax: (970) 498-1598
Email: sales@in-situ.com
Web: www.in-situ.com

Quote – Q-33643

Issued By: Tony Walker
Date: March 21, 2019
Quote Valid for 30 days

HydroVu Detail (Prices already included in Equipment Quote)

Start Date: 06-01-2019			Term: 12 Months			
Line	Product Description	Part Number	Unit of Sale	Qty.	Unit Price	Customer Total Price
8.	HydroVu Complete Data Services Plan, includes Cloud access and viewing, 1MB/month cellular data, SIM card	0050100	12 Month	10	$35.00	$4,147.50
9.	Standard Data User Package (1MB/Month)		12 Month	10	$0.00	$0.00
					Subtotal:	$4,147.50

HydroVu Terms & Conditions

TERMS & CONDITIONS
The terms of this contract, reflected above, are effective until terminated by either party. This contract will auto-renew at each renewal term, unless a) the customer notifies In-Situ Inc. at least 15 days before the end of the initial term or the renewal term, or b) the customer declines auto-renewal and it is reflected on the contract. In the event this contract is terminated early, an amount equa to 50% of the remaining contract amount will be charged.

OVERAGES
In the event you go over your allotted amount of data, an overage fee will be applied. The overage fee will be $10.00 per megabyte over your allotted data amount.

SUSPENSION
In-Situ will not suspend services for customers. In order to stop service a customer will need to request their service be terminated.

AMENDMENTS

In the event this contract is amended for any reason a new contract will need to be signed.
By signing this contract the undersigned is agreeing to the terms set forth above, as well as the Hydrovu Terms of Use and the In-Situ, Inc. Terms & Conditions (located at www.in-situ.com/legal/terms-conditions/). The undersigned represents that he/she has the authority to execute this contract/agreement on behalf of the business identified.

PAYMENT TERMS
In-Situ is pleased to extend terms of net 30 days to customers who have established a credit account with us. If you wish to open a new account, credit applications are available upon request. A bank reference and four trade references are required.
Payments are due in 30 days from the date of the invoice. All past due invoices and uncollected funds shall be charged interest at a rate of 1.5% per month. The customer agrees to pay all collection costs, including attorneys' fees, and penalty charges if collection services on the account become necessary. Letter of credit and wire transfer fees will be added to the invoice at a rate of $350 and $30 respectively.

DISCLAIMER
DUE TO CONTINUING PRODUCT DEVELOPMENT, IN-SITU RESERVES THE RIGHT TO ALTER SPECIFICATIONS WITHOUT PRIOR NOTICE. IN-SITU ALSO RESERVES THE RIGHT TO ALTER TERMS PRIOR TO ACCEPTANCE OF THE ORDER.

NATIONAL METER & AUTOMATION

QUOTE

3 Faraday, Suite A
Irvine, California 92618
Phone: 949-445-7171
Fax: 949-595-0958

QUOTE NUMBER: 032119RS-Alta
DATE: Thursday, March 21, 2019
QUOTED BY: Rob Sears
REQUESTED BY: Michelle Hallack
PHONE: 760330-1629
EMAIL: michelle.hallack@altaenviron.com

BILL TO:
Alta Environment
1155 Sportfisher Dr. Suite 202
Camp Pendleton, Ca 92054

SHIP TO:

SALESPERSON	PAYMENT TERMS	SHIPPING METHOD	SHIPPING TERMS	Subject to Review After:
Rob Sears	Net 30 Days	TBD	FOB Factory	Wednesday, June 19, 2019

QTY	PRODUCT DESCRIPTION	UNIT PRICE	AMOUNT
	Budgetary Quote- BEACON ORION Cellular		
1 Time	Badger Meter Beacon Engagement Fee- Covers Initial Licensing of Beacon AMA Software and Includes the set-up and activation of utility customer's Beacon AMA Portfolio	$ 4,600.00	$ 4,600.00
	Subscription Based @ $ .89 Per Celluar Endpoint Per Month Sold as Service Units and can be Purchased in Bulk by Months and/or Years in Advance Ex- 500 x $.89= $445/Mo		
	Includes: Badger Meter "Eye on Water"- Customer Portal		
500	Badger Meter M-35 3/4" x 7.5" NSF 61 Brz, Brz Bottom	$ 93.00	$ 46,500.00
500	Badger M-35 HRE 8 Encoder w/TwistTight Connector	$ 64.00	$ 32,000.00
	Option- Cable Shield-Meter Side	$ 5.00	
500	ORION Cellular LTE Endpoint w/TwistTight Connector	$ 122.00	$ 61,000.00
	Option- Cable Shield-Endpoint Side	$ 1.00	
	Training- Beacon AMA Intro	$ 600.00	$ 600.00
	Training- Data Exchange	$ 450.00	$ 450.00
	Taxes NOT included.		
	Freight included on orders of $25,000 or more.		

	SUBTOTAL	$ 145,150.00
Sales Tax: To be quoted at time of order	**SALES TAX**	-
Est. Lead Time: 4-6 weeks ARO	**FREIGHT**	Add
	Grand Total	145,150.00

THANK YOU FOR YOUR BUSINESS!!

Standard Terms & Conditions www.nationalmeter.com/legal

157 W. 5th Street, 2nd Floor, San Bernardino CA. 92415-0450 | Phone: 909.387.5940 Fax: 909.387.5968

SAN BERNARDINO COUNTY

Special Districts Department
Water and Sanitation Division

Jeffrey O. Rigney
Director

Steve Samaras
Acting Deputy Director

COUNTY SERVICE AREA
42 (ORO GRANDE)
METER REPLACEMENT PROJECT
FUNDING OPPORTUNITY: BOR-DO-17-F011

Replacing 20-year old inaccurate analog mechanical Sensus SR1 meters (physical read) with new digital electronic Badger Meters with cellular and cloud reporting (AMI).

Greg Bacon, Senior Project Manager
157 W. 5th Street, 2nd Floor
San Bernardino, CA. 92415-0450
Email: gbacon@sdd.sbcounty.gov
Tel: 909.387-6076
Cell: 909.844-0095

- Badger E-35 (¾") with digital encoder meter - $207.00/Unit, 98 units needed, of which the majority will be Residential Units.
- Badger E-55 (1") with digital encoder meter - $239.00/Unit, 7 units needed.
- Innov8 VNr Cellular Unit with Register and external antenna - $366.00/Unit, 105 units needed. The VNr also includes a 10 year cellular Verizon Data Plan.

Other purchases include the purchase of 105 meter boxes at an estimated price of $50 each, for a total of $5,250. As well as various miscellaneous parts that include, but is not limited to, Meter Spuds (Tail Stock), valves, and reducers/bushings, for an estimated total of $4,820.

Contractual/Construction:

The project will require contracted services for the installation of 105 meters. A two-man crew, paid at State prevailing wage rates, with all tools necessary and one work truck will cost $395/unit, for a total of $41,475. The estimated time frame to complete this project is 2-4 weeks.

The department has current purchase order agreements with on-call vendors that were solicited through a competitive bidding process. The most qualified and cost-effective vendors were selected. The current rates are effective for three years.

Environmental and Regulatory Compliance Costs:

An estimated $3,600 is included to cover the cost of the environment, regulatory and Reclamation costs. The expenses will cover two notice of exemptions at a cost of $50 each. The environmental compliance activities will be done in-house at estimated cost of $500. $2,000 are budgeted for Reclamation activities, with a $1,000 reserve for other regulatory activities that may arise. We do not expect the expenses to exceed $3,600 as this project entails replacing current outdate meters with no additional disturbance to the habitat. The estimated total is approximately 2.4% of the total budget.

Other Expenses-Contingency:

We are including a 5% contingency to our budget for a total of $6,477 that will help us cover any unexpected cost or additional unanticipated needed materials.

Indirect Costs:

Our indirect rate cost of 10%, a total of $13,307 will cover all the overhead and administrative costs.

Total Costs:

The total project cost is $149,973, of which, we are requesting a grant for $74,986.50. The district will use its reserve funds to pay for the remaining 50%, $74,986.50.

March 22, 2019

Ms. Michelle Hallack, Ph.D.
ALTA Environmental
1155 Sportfisher Drive, Suite 202
Oceanside, CA 92504

Phone: 760-237-2705
Cell: 760-330-1629
Email: Michelle.Hallack.altaenviron.com

Quotation #1903Q511 /For: The Pala Tribe

Dear Michelle:

Thank you for giving HydroLynx the opportunity to quote on your requirement. This is an estimate need more information to do a complete quotation. Please let me know if you have any questions, or if I can assist you in any way.

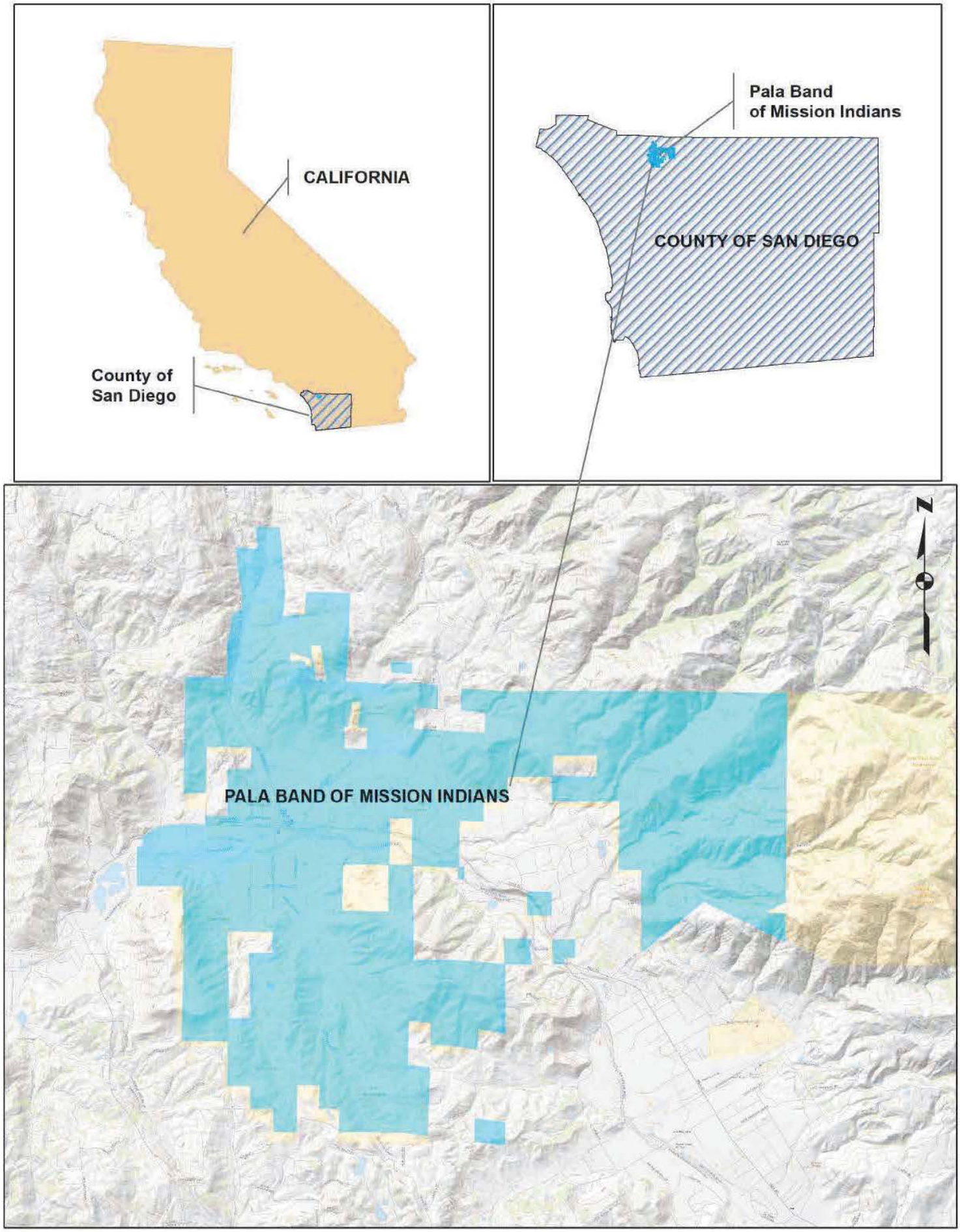
Model #	*Description*	*Qty*	*Unit*	*Total*
	Base Station ALERT2 Receiver/Decoder is not needed all Data is collected by San Diego County			
	ALERT1/ALERT2 Repeater in a Canister with Precipitation Input			
	Receives ALERT1/ALERT2, Repeats ALERT2			
	3 radios, 2 Antennas, 1 Preamp, 1 Splitter, 2 Crystal Filter, Solar powered			
5052RP-3-54/TU	Alert2 Repeater in Round canister with 3 Antenna Connectors, 1 Precipitation Input, 1 SDI-12 Input	1	14,100.00	14,100.00
	Use customer 50386 PCB/ with 50386 PCOS, ALERT1 modem PCB, Ritron ALERT1 radio (Frequency: Advise)			
	ALERT2 encoder PCB with GPS antenna, bracket, cable and lightning protection, 5052 ALERT2 TS400 PCB, Ritron ALERT2 RX radio included in above unit **(Frequency: Advise),**			
RTR-LS	Ritron ALERT1 RX radio ***(Frequency: Advise)***	1	700.00	700.00
RTR-MX	Maxon ALERT2 TX radio **(*Frequency: Advise*)**	1	500.00	500.00
CRG58-NM/BNC3	Transmit antenna pigtail cable, 5050LA to 5052RP, 3 feet	1	100.00	100.00
CRG58-NM/NM3	Receiver antenna pigtail cable, 5050LA to TGA-150-12, 3 feet	1	100.00	100.00
TGA2-150-12	Receiver preamplifier panel for TGA150-12 and TELPS-1502	1	1200.00	1,200.00
TGA150-12	12Vdc Antenna Preamplifier, with power cable to 5052RP-3	1	1100.00	1,100.00
TELPS-1502	Receiver antenna Splitter, 2 ports	1	200.00	200.00
CRG58-NM/NM1	Receiver antenna pigtail cable, TGA-150-12 to TWX-150, 1 foot	2	50.00	100.00
TWX-150	Receiver crystal filter for ALERT2 radio (***Frequency: Advise***)	1	2195.00	2,195.00
TWX-150	Receiver crystal filter for ALERT1 radio **(*Frequency: Advise)***	1	2195.00	2,195.00
CRG58-NM/BNC3	Receiver antenna pigtail cable, TWX-150 to 5052RP, 3 feet	2	100.00	200.00
	Customer to supply Receive Antenna, Antenna Cable, Lightning protection, solar panel, and battery			
	Repeater must have a 50 Watt Solar Panel or larger			
	Recommend 100 AmpHr battery			
	Sub-Total			**$22,690.00**
	Freight			**400.00**
	Total, Rain Gauge ALERT2 Repeater			**$23,090.00**
	For Trujillo Creek, Llilac Bridge, Pala Creek			
	Upgrade existing 50386 Transmitter to ALERT2			
50386A2-UP	Upgrade existing 50386 DCU to ALERT2	3	2,195.00	6,585.00
	ALERT2 Encoder PCB, GPS Antenna/receiver with lightning protection, ALERT2 ScadaLynx Toolbox and Application Program Version 2			
	Use existing Maxon Radio and Battery			
	All sites must have a 22-amp hour battery and 600mA solar panel			
Labor	Add ALERT2 to existing 50386 transmitters and test units	3	300.00	900.00
	Sub-Total			**7,485.00**
	Estimated Freight			300.00
	TOTAL			**$7,785.00**

Model #	*Description*	*Qty*	*Unit*	*Total*
	For: Ague Tibia River			
5390A2/SDI//TS	ALERT2 Packaged Pressure Transducer Station with SDI-12 Sensor And Rain Gauge Top Section 5090SO 10 foot Standpipe with grounding tab 5090AM Antenna Mast 5050A 3dB Omni Antenna 5090C-RG8 Antenna Cables & connectors, for LA **CRG8-BNC/NM7' AND NM/PLM13'** 5090LR Lifting Rope 5090LB 1" Conduit Elbow Box 50386/A2-90 Transmitter with data logging, ALERT 2 Encoder PCB GPS antenna, bracket, cable and lightning protection RTR-MX-V Maxon Synthesized Radio Transceiver, **(*Frequency: Advise)*** 5031-22 Gel Cell Battery, 22 AH, 12 Vdc 5054TS Rain Gauge Top Section with 5050P-MS 5050LL-PTS-SDI-12 Water Level Sensor, 40' vented cable **(Range: Advise)**	1	10,090.00	10,090.00
5090-SD	Slide-In Access Door, 5 feet from bottom of standpipe	1	750.00	750.00
5050LA	Lightning Protection	1	110.00	110.00
5033-0.6B	600mA Solar Panel with regulator and mtg. bracket	1	425.00	425.00
	Sub-total ALERT2 SDI Pressure Transducer/ Rain Gauge Station			**$11,375.00**
	Estimated Freight			**200.00**
	TOTAL			**$11,575.00**
	Grand TOTAL, less sales tax			**$42,450.00**

Terms Net 30 days
Shipping FOB West Sacramento
Delivery 60-90 days ARO
******QUOTATION IS VALID UNTIL JULY 31, 2019*****

Sincerely,

Kimberly A. Blair
President


CALIFORNIA
County of
San Diego
Pala Band
of Mission Indians
COUNTY OF SAN DIEGO
N
PALA BAND OF MISSION INDIANS

United States Department of the Interior

Bureau Of Indian Affairs
Southern California Agency
1451 Research Park Drive, Suite 100
Riverside, California 92507-2154
Phone (951) 276-6624
Telefax (951) 276-6641

IN REPLY REFER TO:
Water Resources

Date: MAR 27 2019

US Bureau of Reclamation
Denver Federal Center
Building 67, Room 152
6th Ave & Kipling Street
Denver, CO 80225

To Whom It May Concern:

This letter is in support of the Pala Band of Mission Indians (PBMI) Drought Resiliency Project Proposal Pala Tribe Water Management Tool to build Drought Resiliency through Infrastructure Enhancement for Fiscal Year 19. Drought resiliency is a primary concern of Tribes throughout Southern California, and the BIA works closely with Tribes to help them plan and prepare for water shortages and scarcity due to drought. With this grant, PBMI will be able to develop strategies for drought resilience based on precise monitoring that will provide critical data.

This project is designed to help the PBMI start to monitor both their ongoing groundwater levels within the Pala Valley, as well as track residential water usage. The PBMI currently does not charge for residential water, making water conservation outreach difficult to the community. Additionally, this grant will provide a real-time decision making tool for drought mitigation efforts for both the Tribal Council and other departments. It will also provide the means for the local residents to monitor how much water they use (especially compared to their neighbors and/or 'normal usage' for a family of four), helping them to better understand how they can assist the PBMI drought preparedness efforts.

We strongly encourage you to fund this project, and give it our full support.

Sincerely,

Javin Moore
Superintendent

Southern California
TRIBAL CHAIRMEN'S
Assoc., Inc.

March 25, 2019

US Bureau of Reclamation
Denver Federal Center
Building 67, Room 152
6th Ave & Kipling Street
Denver, CO 80225

To Whom It May Concern:

This letter is in support of the Pala Band of Mission Indians' Drought Resiliency Project Proposal Pala Tribe Water Management Tool to build Drought Resiliency through Infrastructure Enhancement for FY2019. Drought resiliency is a primary concern of Tribes throughout Southern California, including the member tribes of the Southern California Tribal Chairmen's Association (SCTCA). This project will provide data critical to Pala, but also develop a process that can be emulated by other tribes in the region. With this grant, Pala will be able to develop strategies for drought resilience based on precise monitoring and data. These strategies can then be shared with other tribes.

This project is designed to help the Pala Tribe start to monitor both their ongoing groundwater levels within the Pala Valley, as well as track residential water usage. The Tribe currently does not charge for residential water, making water conservation outreach difficult to the community. Additionally, this grant will provide a real-time decision making tool for drought mitigation efforts for both the Tribal Council and other departments. It will also provide the means for the local residents to monitor how much water they use (especially compared to their neighbors and/or 'normal usage' for a family of four), helping them to better understand how they can assist the Pala Tribe's drought preparedness efforts. These are efforts and strategies that would benefit our SCTCA member tribes, and we hope they can learn from Pala's successes.

We strongly encourage you to fund this project, and give it our full support.

Sincerely,

Denis Turner, Executive Director

P.O. Box 1470 • Valley Center • CA 92082
(760) 742-8600 • FAX (760) 742-8611 • www.sctca.net

San Luis Rey Watershed Council
25060 Hancock Avenue, suite 103-407
Murrieta, CA 92562
www.SLRWC.org

March 18, 2019

US Bureau of Reclamation
Denver Federal Center
6th Ave & Kipling Street
Denver, CO 80225

Re: BOR Funding Opportunity BOR-DO-19-F003 / **PROJECT: Pala Tribe Water Management Tool to build Drought Resiliency through Infrastructure Enhancement**

Dear BOR Representatives,

The San Luis Rey Watershed Council (SLRWC) is very excited to learn about the Pala Band of Mission Indian's innovative project, as we feel it is both timely and perfectly situated to have a positive impact on our local efforts to conserve water and mitigate impacts of droughts and climate change.

The San Luis Rey Watershed is a beautiful, wild watershed located in northern San Diego County, covering roughly 360,000 acres (562 square miles). This makes it the largest watershed completely within San Diego County. It spans from Hot Springs Mountain (at 6,535 feet, the highest peak in San Diego County) to the east, all the way to the lovely Oceanside beaches to the west. In between these two points, the San Luis Rey River flows 55 miles before emptying into the Pacific Ocean. This river migrates between surface water flow and sub-surface water flow, depending on where it is within our watershed.

The specific purpose of our 501(c)3 Council is to preserve, protect and enhance the natural, cultural, and economic resources of the San Luis Rey Watershed in the County of San Diego. Towards that end we strive to help:

- Promote sustainable water resource management within the watershed.
- Promote sustainable stewardship of the watershed.
- Promote sustainable agriculture within the watershed.
- Develop/implement a watershed-wide water quality and quantity monitoring network.
- Foster information sharing between stakeholders.

We believe the Pala Band can play a significant role in helping us achieve our purpose by helping to promote drought preparedness through water quantity monitoring to implement water conservation strategies among community members in our watershed. The topic of water availability is one of the Council's main issues of importance.

The SLRWC also feels that this project will help with the implementation of California's new Sustainable Groundwater Management Act (SGMA) regulations that have already begun work in our watershed. As this watershed moves toward developing a Groundwater Sustainability Plan (GSP) to manage our groundwater is a fair and sustainable manner between all partners, we will need drought mitigation monitoring projects like this one to help stakeholders decide the best management practices for their properties.

We applaud this project's attempt to address drought resilience through a watershed approach and we agree that monitoring both groundwater levels and residential water usage plays an important role in building more resilient and sustainable communities. Additionally, the increased monitoring of streamflow around the Pala area will help improve flood monitoring for the entire watershed. We look forward to working with Pala on this project.

Sincerely,

George D. Wilkins

George Wilkins

President, San Luis Rey Watershed Council

PALA BAND OF
MISSION INDIANS

PMB 50, 35008 Pala Temecula Road
Pala, CA 92059
Phone 760-891-3500 | Fax 760-742-1411

E.C. Resolution Number 19-07

Authorization for the submission of a Grant Application to the Bureau of Reclamation for FY 2019 WaterSMART Drought Response Program: Drought Resiliency Project

WHEREAS, a Regular meeting of the Executive Committee, duly noticed and called at 8:02 **a.m.** on the 27th day of **March, 2019** for the purpose of transacting such business as might be brought before the Executive Committee, and

WHEREAS, the Pala Band of Mission Indians is a federally recognized Indian Tribe (the "Pala Band") with the inherent sovereignty to make its own laws and be governed by them; and

WHEREAS, the Pala Band is governed by a Tribal Constitution approved by the Commissioner of Indian Affairs which establishes an Executive Committee composed of officials elected by the membership; and

WHEREAS, the Executive Committee, under the Pala Band's Constitution, has the authority to make policy and business decisions concerning the general welfare of all tribal members; and

WHEREAS, the Pala Band is concerned about drought planning, water conservation, climate impacts; and

WHEREAS, the Executive Committee wishes to develop a drought-planning decision-making tool to help the tribe better track groundwater resources and implement water conservation practices; and

WHEREAS, the Pala Environmental Department is applying for $598,855 in funding from the BOR's FY 2019 WaterSMART Drought Response Program (requested funding: $298,380)(in kind staff time $300,475); and

WHEREAS, the Executive Committee approves the in-kind staff time in the amount of $300,475.00, and

WHEREAS, Robert H. Smith, Chairman, is the designated official with the legal authority to enter into an agreement; and

WHEREAS, the Executive Committee, governing body, authorizes the Tribal Chairman to approve the final application to be submitted; and

WHEREAS, the Pala Band/Pala Environmental Department will work with the Reclamation to meet established deadlines for entering into a grant or cooperative agreement; and

NOW THEREFORE BE IT RESOLVED the Pala Band of Mission Indians authorizes application for this grant.

BE IT FURTHER RESOLVED that the Pala Band of Mission Indians grants the Tribal Chairman, named below, the authority to sign contracts, enter into agreements, and sign all documents associated with United States Bureau of Reclamation programs.

-Office of the Secretary-

CERTIFICATION

We, the undersigned members of the Executive Committee, certify that the above resolution was adopted by a vote of the **Executive Committee**, with 5 in favor and 0 in opposition and 0 abstaining, at a duly called meeting of the Executive Committee, at which a quorum was present, on this **27th** day of **March, 2019**.

Robert H. Smith, Chairman

Anthony J. Ravago, Sr., Vice-Chairman

Theresa J. Nieto, Treasurer

Theressa Villa, Secretary

Dion Perez, Committee

Shelia L. Smith-Lopez, Committee

-Office of the Secretary-