Technical Proposal for the

WaterSMART
Drought Response Program:
Drought Resiliency Projects for FY 2024
NOFO No: R24AS00007

Increasing Drought Resiliency in a Disadvantaged Community with a Wellhead Treatment System

Applicant:
City of Fresno, Department of Public Utilities
1626 E Street
Fresno, CA 93706

Project Manager:
Peter Maraccini, Licensed Engineer Manager
1626 E Street
Fresno, California 93706
Phone: (559) 621-1603
Email: Peter.Maraccini@fresno.gov

TABLE OF CONTENTS

END of 25-Page Technical Proposal

1. TECHNICAL PROPOSAL

1.A Executive Summary

Applicant Name: City of Fresno - Department of Public Utilities
City, County, State: Fresno, Fresno County, California
Applicant Eligibility: The City of Fresno, located in the State of California, is a local authority, which includes the Department of Public Utilities with water delivery authority.
Task: **B –** Increasing the Reliability of Water Supplies Through Groundwater Recovery
Funding: **Group II –** Up to $2,000,000 per agreement, up to a three three-year period of performance.
Applicant Category: **A**

Project Summary. The City of Fresno (City), located in Fresno County in the Central San Joaquin Valley of California, seeks to install an on-site wellhead treatment system to remove naturally occurring contaminants from existing municipal potable water supply Well 345-1. The well is currently offline but with treatment will produce **645 acre feet per year (AFY)**. Contaminants include manganese at concentrations exceeding the California State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) Secondary Maximum Contaminant Level (sMCL) of 50 micrograms per liter (µg/L); and hydrogen sulfide, which causes the water to have a foul odor and taste, rendering it unusable for potable purposes. Additionally, the DDW recently announced a proposal to lower the Notification Level (NL) for manganese to 20 µg/L (the current NL is 500 µg/L), and the manganese Response Level (RL) to 200 µg/L (the current RL is 5,000 µg/L). Manganese levels exceed the new NL and approach the RL (120 to 140 µg/L). The DDW announcement states "These levels are based on adverse neurotoxicological effects seen in laboratory animals exposed to manganese." Manganese and hydrogen sulfide removal is necessary for the well's water to be used in the drinking water system.

For over a decade, California has experienced below-average rainfall, culminating in multi-year droughts that impacted many areas of the state, including the San Joaquin Valley. From 2012 to 2016, Fresno County was under moderate to extreme drought conditions. After a brief respite, widespread drought returned to California in 2020, with the City experiencing Moderate to Exceptional Drought Conditions through January of 2023. Groundwater accounts for approximately 45% of the City's potable water supply, with imported surface water supplies accounting for approximately 54.5% (with recycled water making up the remaining 0.5%). The City's water portfolio is managed by intentional recharge to groundwater using surface water deliveries during wet years and relying more heavily on groundwater withdrawal in dry years. However, because of the most recent prolonged periods of drought, surface water supplies across California were severely depleted, resulting in the City receiving reduced surface water deliveries under its contracts with the U.S. Bureau of Reclamation (Reclamation) and the Fresno Irrigation District (FID). Further compounding the City's water supply issues, a total of 68 municipal potable water supply wells have been taken offline due to impacts from various contaminants, including 1,2,3-Trichloropropane, among others. This has resulted in both a

significant loss of available groundwater for the City's potable water supply and a reduction in the City's drinking water distribution system (system) pressure. The system's pressure must maintain a certain threshold or risk public health by inadvertently allowing contaminants to enter the system through minor cracks, leaks, and breaks.

The proposed Project will install a chemical oxidation system and a manganese dioxide filtration system at the wellhead to remove both hydrogen sulfide and manganese from groundwater produced at Well 345-1 and bolster the City's available groundwater supplies for greater drought resiliency. The Project will add **645 AFY** of water back to the City's potable water supply portfolio. Additionally, bringing Well 345-1 back online will assist in stabilizing system pressures in the City's southeast quadrant, where numerous wells have been taken offline due to widespread 1,2,3-Trichloropropane contamination, protecting Fresno residents from potential human health emergencies.

Project Start Date, Duration, and Estimated Completion Date. The proposed project will be shovel-ready by the time of grant award announcements. At the time of this application submittal, the design for the project is at 60%, with 100% completion expected by February 2024. Environmental clearance was completed at the time of well construction and NEPA/CEQA documents will be filed following finalization of the grant agreement. A final cost estimate and design specifications will be available by March 2024.

The performance period for the project is 17 months. The anticipated project start date is October 31, 2024. The preparation of Project bid documents and selection of a contractor will take five months, with procurement expected to take three months (complete by March 2025). Construction is scheduled to begin by April 1, 2025, with an estimated date of completion of August 1, 2025. Startup activities for the wellhead treatment system will take an additional six months, with project completion expected by March 1, 2026.

Federal Facility. The Project is not located on a federal facility.

Background Information. The City of Fresno (population 544,567 as of June 2022), incorporated in 1885, is in the Central San Joaquin Valley of California. Approximately 75% of the City's Census Tracts are identified as disadvantaged based on the Climate and Economic Justice Screening Tool (CEJST) and are characterized by high rates of poverty and unemployment, low median income, high levels of air and other pollution burdens, and high rates of asthma and diabetes. The City's Department of Public Utilities provides numerous services to its residents through four divisions: Wastewater Management, Solid Waste Management, Planning and Engineering, and Water. The Water Division manages and operates the City's water system, delivering drinking water to more than 142,200 residential, commercial, and industrial customer connections in 115 square miles of the City and many "county islands" within the City's Sphere of Influence. Land located within City limits does not include irrigated acres or crop production; however, surrounding, nearby rural communities are heavily agricultural, and Fresno County is ranked first in the nation for agricultural production. Agricultural water demands in Fresno County are primarily met by surface

water supplies; however, recent periods of prolonged drought (2012-2016 and 2020-2022) resulted in reduced allocations to agricultural customers.

City of Fresno Water Supply Sources.
The City relies on four sources of water for its customers: 1) groundwater from the North Kings Subbasin aquifer through a network of 202 active municipal water-supply wells (approximately 45% of portfolio); 2) surface water from the Central Valley Project (CVP) through a contract with Reclamation (approximately 17% of portfolio); 3) surface water from the Kings River through a contract with the FID (approximately 37.5%); and 4) recycled water (approximately 0.5%). The system is operating with significant challenges. In 2018, 1,2,3-Trichloropropane contamination forced the City to take 31 wells offline. Another 37 wells are also offline due to various contaminant impacts, greatly reducing access to Fresno's local groundwater supply.

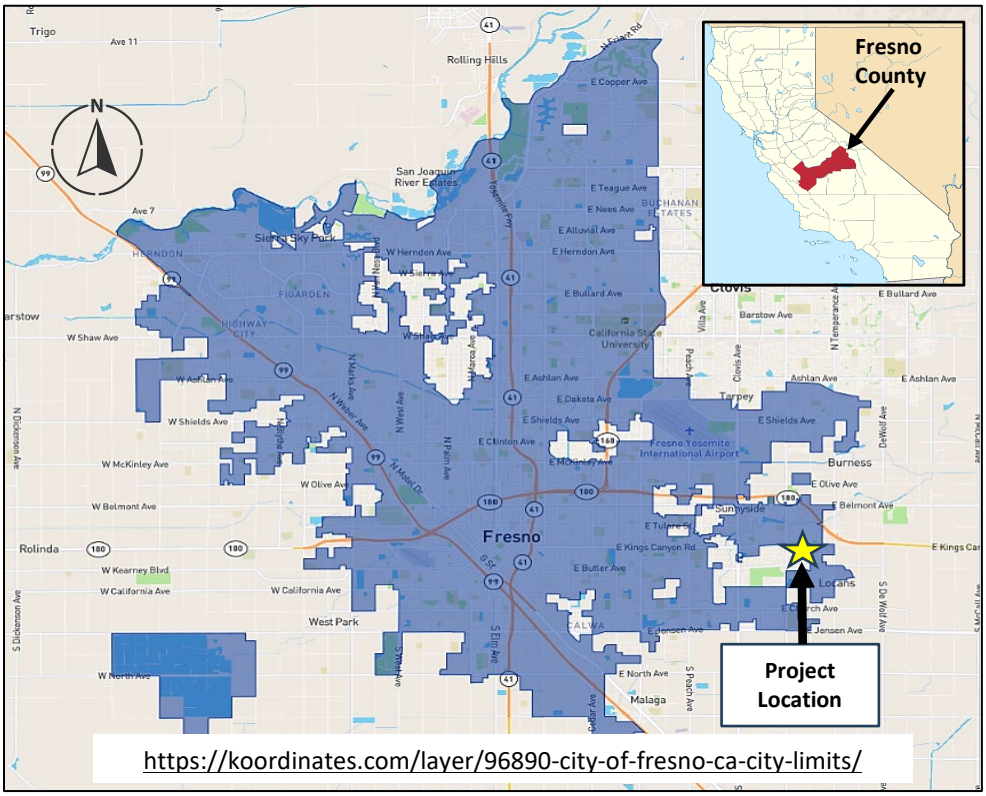
Surface water allocated to the City of Fresno is first directed to the three Surface Water Treatment Facilities for treatment and delivery to the City distribution system. As part of the City's long-term plan to recharge groundwater aquifers, any additional surface water allocations are directed either to City-owned recharge basins or Fresno Metro Flood Control District basins when not in use for stormwater collection. Additionally, to offset the use of potable water for landscape irrigation, the City operates two water reclamation facilities: the Fresno-Clovis Regional Wastewater Reclamation Facility, and the North Fresno Wastewater Reclamation Facility. Both can produce Title 22 recycled water for use within the City's service area. The City has plans to expand recycled water infrastructure and use within the City, with a goal of using 25,000 AFY of recycled water.

According to the City's Urban Water Management Plan (UWMP, 2020), the total amount of water available in the City's water portfolio in an unconstrained year is approximately 329,030 acre-feet. The projected 10-year average annual water supply for the City was calculated at 337,820 acre-feet. This includes 60,000 AF from the BOR-CVP Contract and 117,000 AF from the FID contract (for a total of 177,000 AF of surface water in an unconstrained year). However, a single-year drought can reduce allocated surface water supplies to as little as 45,852 AF (only 25% of the expected allocation), as was the case in 2015.

1B. Project Location

The proposed Project is in the County of Fresno in the City of Fresno, California, in the Central San Joaquin Valley, approximately 170 miles south of the City of Sacramento, and 220 miles north of the City of Los Angeles. Fresno is the fifth largest city in California and encompasses nearly 115 square miles. Fresno is bound on the northwest by the San Joaquin River, approximately 10 miles downstream of Friant Dam, and approximately 13 miles west of the Kings River (**Exhibit 1**). The Project address is 185 S. Burgan Avenue and is located at latitude 36° 44' 2.688" North, and longitude 119° 40' 40.386" West. A map of the Project location is included as **Exhibit 2**.

Exhibit 1: Map of the Project Location.



Within a 2.5-mile radius of Well 345-1, 11 municipal potable water supply wells have been taken offline due to contaminant impacts, and another 9 have been abandoned.

Exhibit 2: Project Site Location

1C. Technical Project Description

Background. Municipal potable water supply Well 345-1 was drilled in December 2012. After sitting idle for several years, the City brought Well 345-1 into service in May of 2020 following the completion of site improvements; however, initial water quality samples indicated concentrations of manganese above the sMCL of 50 µg/L, and above the newly proposed NL of 20 µg/L, as well as the presence of hydrogen sulfide, causing the water to have a foul odor and taste. As a result, the well was taken out of service within three days of startup and has remained inactive since to determine next steps.

A treatment alternative analysis was performed by City staff to review potential treatments that would allow the well to be put back into service. This critical well is in the City's southeast quadrant, which is characterized by numerous offline wells; putting it back into service is a City priority to both stabilize system pressures and provide sufficient water supply to residents in this area. Four potential treatment options, related schematic designs, and preliminary cost estimates were identified, with recommendations to review Granular Activated Carbon (GAC) and Manganese Dioxide treatments further, along with additional water-quality sampling.

The well was flushed and resampled on November 19, 2020, with results confirming elevated levels of manganese above the sMCL and NL, and continued taste and odor issues. The City contracted a consultant to prepare a *Basis of Design* report for a wellhead treatment system, which was completed in September 2022. The report recommends both sodium hypochlorite and sodium permanganate storage and injection processes to remove hydrogen sulfide and balance chlorine levels, as well as a manganese dioxide filtration system to remove elevated levels of manganese. Due to the results presented in the *Basis of Design* report, the City decided to pursue the installation of the recommended wellhead treatment system.

Goals and Objectives. A rigorous analysis of feasible treatment options was completed to develop a comprehensive solution to address water quality at Well 345-1 so that the City can achieve its goals of maximizing the use of groundwater as a local, reliable supply, and continue providing safe drinking water to its customers. As such, the City proposes to install a wellhead treatment system at potable municipal water supply well 345-1. Project objectives include: 1) removing the naturally occurring contaminants manganese and hydrogen sulfide from groundwater produced at Well 345-1; 2) increasing the City's available potable water supplies; 3) bolstering the City's resiliency to drought; and 4) increasing low water system pressures in the City's southeast quadrant.

Work to be Accomplished and Approach. The City proposes to select and contract a qualified consultant to perform all required permitting, construction, electrical, and installation activities. The wellhead treatment system will include two static mixers with associated sodium hypochlorite and sodium permanganate storage and injection processes to remove hydrogen sulfide and balance chlorine levels, and a six-vessel manganese dioxide filtration system to remove elevated levels of manganese. Prior to installation, a concrete pad will be installed to support the treatment system components. Additionally, electrical improvements for equipment and instrumentation power will be performed. The treatment system will also be equipped with instrumentation to provide an automated system that can be controlled and monitored both locally and from the

City's existing Supervisory Control and Data Acquisition (SCADA) system. Process and service piping will be installed to convey spent backwash water resulting from system operations and connected to an existing City sewer line located on Burgan Avenue. The well site is secured with a six-foot cement block wall enclosing the entire site and a six-foot wrought iron fence as the lone entry point. Access is limited to Water Division personnel with key access as well as Pacific Gas and Electric (PG&E) staff members needing access to the PG&E electrical equipment.

1D. Performance Measures

Performance measures that will be used to quantify project benefits include the following:

AFY of Additional Potable Water Supplies. Prior to being taken offline, Well 345-1 had a production rate of 400 gallons per minute (GPM). Once the wellhead treatment system is installed, the well will once again be pumped at the same rate, adding up to 645 AFY to the City's potable water supply portfolio. Following well startup, production rates will be measured to determine the actual additional AFY of water produced from Well 345-1.

Reduced Levels of Contaminants. Manganese has been detected in Well 345-1 at concentrations exceeding the DDW sMCL (50 µg/L), as well as the new proposed NL of 20 µg/L (the current NL is 500 µg/L). Research indicates that exposure to elevated levels of manganese can cause damage to the central nervous system. Additionally, hydrogen sulfide was detected (via odor), which gives the water a foul smell and taste. This secondary aesthetic issue can cause long-term problems with wells and associated piping, including staining, corrosion, and build-up of sulfur bacteria which can clog pipes and well screens, impacting productivity and further degrading water quality. Installation of the proposed wellhead treatment system will bring manganese concentrations below both the NL and sMCL and remove hydrogen sulfide through chemical oxidation with sodium permanganate, allowing for potable use. Continuous pumping and treatment will provide improved water quality for years to come. The treatment system's efficacy will be confirmed via regular water quality sampling.

Stabilized System Pressures. Fresno municipal water supply Well 345-1 is in the southeast quadrant of the City's water supply system. Within a 2.5-mile radius of the well, 11 municipal potable water supply wells have been taken offline due to contaminant impacts, and another 9 have been abandoned (see **Exhibit 3**). As a result, water system pressures in the southeast quadrant have been significantly reduced. While taking these wells offline was necessary to protect human health, it resulted in the undesired effect of lowering the City's water system pressures in the City's southeast quadrant. Substantial system pressure drops from a spike in demand such as from firefighting efforts or line breaks could potentially result in back-siphonage, causing contaminants to enter the water supply. Boil water orders would be issued and the system would need to be purged, further depleting the City's water supply. Bringing Well 345-1 back online will assist in stabilizing system pressures and reduce the likelihood of the aforementioned worst-case scenario from occurring. System water pressures will be monitored to evaluate the effectiveness of water pressure stabilization in the southeast quadrant as a result of bringing Well 345-1 back online.

Exhibit 3: Status of Municipal Potable Water Supply Wells Within 2.5 Miles of Well 345-1.

Decreased Dependence On Surface Water Deliveries. As previously noted, surface water deliveries through the City's contract with Reclamation and the FID account for approximately 54.5% of the City's water supply portfolio. In water years 2020/2021, and 2021/2022, the multiyear drought decreased surface water deliveries significantly. Fresno only received 40% of the BOR allocation, and 42% of the FID allocation in water year 2020/2021 (averaging 41%), or less than half of expected surface water deliveries. In water year 2021/2022, Fresno received only 35% of its BOR allocation and 68% of its FID allocation (averaging 57%), or slightly more than half of the expected surface water deliveries. By accessing available local groundwater supplies through wellhead treatment system installation, the City can maximize the use of local groundwater resources and reduce its reliance on much more costly and less secure (as a result of climate change) future surface water deliveries. Reducing the City's reliance on imported surface water frees up this water for other communities that do not currently have groundwater options, which benefits the entire state. The amount of water produced at Well 345-1 will be tracked to measure the potential offset of decreased surface water deliveries.

Cost Savings on Infrastructure. Contaminant impacts to groundwater can render a drinking water supply well unusable, and will be taken out of service; however, this loss in available water supply must be balanced. One approach is to drill a new water supply well in an area removed from a known contaminant source. However, a new water supply well can cost up to

$3 million, not including infrastructure needed for connection to the delivery system. By opting to utilize an existing well and installing a wellhead treatment system, the City will realize cost savings of nearly half of the cost of drilling a new well. In a City where many residents live in disadvantaged communities, using this approach is critical to minimizing water rate increases.

1E. Evaluation Criteria

Evaluation Criterion A—Project Benefits (30 points)

Sub-Criterion A1a: Adds to Available Water Supplies

Long-Term Drought Resilience. By putting Well 345-1 back into service, the proposed Project will increase the use of available local groundwater resources and help decrease the City's reliance on drought-susceptible imported surface water supplies. This will increase the City's active well capacity by 205,056,000 gallons per year (or 645 AFY) and will stabilize water system pressures, mitigating the possibility of a public health crisis and further loss of valuable water resources. Substantial system pressure drops can occur because of a spike in demand, such as for fire response. This can result in back-siphonage within the system, causing nearby contamination to enter the water supply. Stabilizing system pressure protects the City from further potable water loss that would result from the need to flush the system in the event of back siphonage contamination. The City's water supply losses from reduced surface water deliveries will be offset by enabling greater access to the City's existing, local groundwater resources, bolstering their long-term drought resilience. In alignment with the State of California's water conservation goals, the City is heavily invested in water use efficiency and conservation initiatives, expanding recycled water infrastructure and use, and a robust groundwater recharge program. Utilizing existing local groundwater resources while decreasing demand helps position the City to withstand prolonged periods of drought.

Life of Benefits Realized. The primary Project benefit is expected to last 30 years (the typical lifespan of the proposed treatment system). Typical media useful life is approximately 15 years; however, the City includes wellhead treatment operations and maintenance in its annual budget and will also include the same for Well 345-1 once operational. Over the duration of the treatment system's lifespan, the City will continuously pump and treat the water to remove manganese and hydrogen sulfide. The benefit of having safe, clean drinking water produced by the wellhead treatment system will last indefinitely.

Additional Supply and Percent of Total Water Supply. In an unconstrained year, the City estimates that approximately 138,090 AF of groundwater is available for consumption (approximately 74,000 AF sustainable yield from groundwater, and an additional 60,000+ AF banked groundwater from the City's robust recharge program). The addition of 645 AFY to this total accounts for a 0.5% increase in available groundwater for potable use. The ten-year benefit equates to an additional 6,450 AFY, including any dry years. Any projects that look to bolster local water supplies are critically important to drought resiliency.

Significance of Benefits. The City of Fresno is ranked as one of the poorest in California. Low air quality, little green space, poor health outcomes, and low levels of educational attainment create additional challenges and quality of life disparities. The City and its residents (including numerous DAC communities) will benefit from a locally available water resource that is more cost-efficient and reliable than surface water deliveries. The reliability of imported surface water supplies is projected to further decline in the face of climate change impacts. The proposed Project allows the production of potable water that is not currently available to Fresno residents. Using local water resources will also help stabilize water costs, a concern for the many DACs of Fresno. The Project will improve access to clean safe water for the many DACs within the City. Additionally, with the assistance of Reclamation Grant funds, Project costs will not be transferred to customers, who may have difficulty paying water bills.

Wells

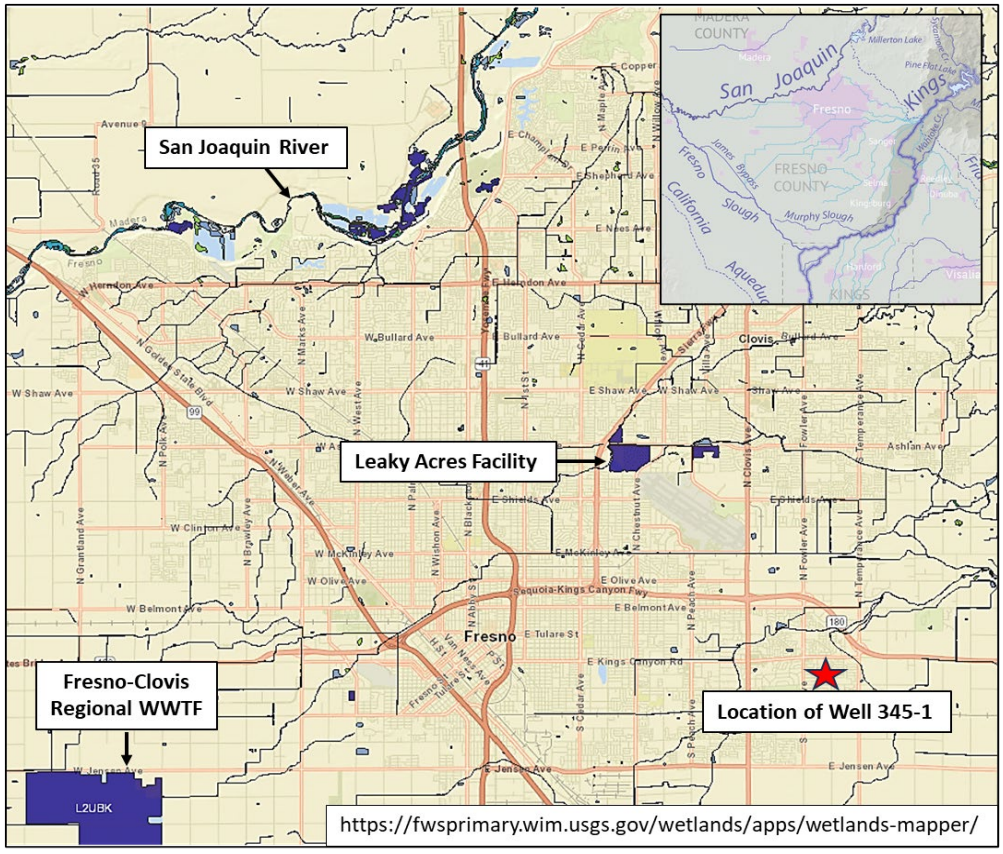
Well Details. Prior to being taken offline in May 2020, Well 345-1 had a production rate of 400 GPM. This rate was calculated during pumping tests performed following well installation in 2012 and from production data collected during its brief time online in May 2020. The City expects this rate to be the same, providing the City with approximately 210,240,000 additional gallons of potable water per year (400 GPM x 1,440 m/day x 365 days), or 645 AFY. Per requirements of the Sustainable Groundwater Management Act (SGMA) to protect groundwater resources over the long-term, the City utilizes as much allocated surface water as possible for potable use in lieu of extracted groundwater to allow for natural replenishment of groundwater as well as directing additional surface water allocations to recharge basins when available. Over the long term, the City anticipates groundwater levels to increase from natural replenishment and groundwater recharge, thus fulfilling the requirement of SGMA. However, the City needs access to those banked volumes of groundwater to successfully implement the conjunctive use strategy, which emphasizes surface water in wet periods and groundwater in dry periods. Well 345-1 will be used to supplement potable water needs year-round but will be critically important during dry years when imported surface water deliveries are reduced and the City relies more heavily on groundwater to provide potable water to its residents and businesses.

City of Fresno Active Recharge Program. As a result of historical aquifer overdraft, the City began implementing a concerted groundwater recharge effort in 1971 with the construction of Leaky Acres, the City's groundwater recharge facility. Over the years this facility has expanded and currently consists of 200 acres of recharge basins. On average, Leaky Acres accounts for 9,200 AFY of recharge. Nielsen Basin, a 35-acre basin in the west-central area of the City, is also used for groundwater recharge. This basin was completed in 2018 and has averaged approximately 2,100 AFY of recharge. Other City recharge basins, including those under the purview of the Fresno Metropolitan Flood Control District (FMFCD), have added approximately 11,200 AFY of recharge. Historically, the City has diverted raw surface water from the CVP and FID deliveries, and stormwater collected by the FMFCD, to the Leaky Acres and Nielsen basins for recharge to the aquifer; however, the City also sends surface water to its three surface water treatment plants for use as potable water. The City plans to expand its groundwater recharge program by increasing the number of recharge sites and optimizing site operations to increase percolation rates.

Aquifer Impacts Forecast. The City overlies and utilizes groundwater from the Kings Subbasin groundwater aquifer system, which is part of the greater San Joaquin Groundwater Basin. This system consists of unconsolidated continental deposits of tertiary and quaternary age, with the older tertiary deposits being an important source of groundwater for the City and region.
The Kings Subbasin is rated by the California Department of Water Resources (DWR) as being in a state of critical overdraft. Like much of the Kings Subbasin, groundwater levels beneath the City were relatively shallow at 25 feet below ground surface in 1940. After World War II, the State, including the City, began growing at a rapid rate. For the period from 1959 to 1968, it was reported groundwater levels declined at a rate of 2.8 feet per year (John Carollo Engineers, 1969). Groundwater levels since 1990 have declined at a lower rate than previously and slowed further starting in 2004 when the City's Northeast Surface Water Treatment Facility (NESWTF) started operations and the City renewed focus on increasing groundwater recharge. The groundwater levels have begun to increase in certain areas of the City in the last few years thanks to the City's robust groundwater recharge program. Despite the historical over-drafting of groundwater from the Kings Subbasin, ground-level subsidence has not been noted in the City.

The closest natural surface water body to the City is the San Joaquin River, which bounds the City to the northwest. Numerous intermittent streams (predominantly human-made canals) crisscross the City (thin blue lines), and impounded water, including the Leaky Acres facility, are also present within City boundaries. A map showing the location of Well 345-1 and surface water features described within Fresno, with an inset of regional surface water features, is presented as **Exhibit 4**.

Exhibit 4: Surface Water Features in the City of Fresno.



As a member of the North Kings Groundwater Sustainability Agency (NK GSA), the City of Fresno is required to participate in the implementation of a Groundwater Sustainability Plan to ensure a sustainable yield of groundwater, without causing further overdraft. The City's groundwater supply is from an unadjudicated basin and is also considered reliable. The City is working collaboratively to bring the basin to balance while protecting the City's groundwater supply. Therefore, the City does not anticipate a negative impact to the aquifer; in fact, the project will assist in removing naturally occurring contamination that could impact larger areas of the aquifer.

Well Description and Nearby Wells. Well 345-1 has a casing depth of 825 feet below ground surface (bgs). The well casing is 12 inches in diameter and is made of stainless-steel type 304 with 0.060 full flow louver perforations between 640-685 ft bgs and 775-825 ft bgs. A sand-cement ground annular seal was installed between the surface and 610 ft bgs as the sanitary seal, with gravel pack placed behind the casing between 610-825 ft bgs. Screened intervals are present between 640 and 685 feet bgs, and between 775 to 825 feet bgs, with the pump set at 300 feet bgs. The standing water level in Well 345-1 has been recorded at 122 feet bgs.

Several other municipal potable water supply wells close to Well 345-1 (within one mile) are active and support the City's potable water needs. Details of these wells are presented in **Table 1** below:

Table 1: Details on Wells Located Near Well 345-1.

Well Number	Total Cased Depth (feet)	Casing Diameter (inches)	Capacity (GPM)
135A	400	16	450
147	620	12	500
223-3	540	16	550
327	460	14	800
345-2	465	12	400

Following the installation of all the City's potable water supply wells, aquifer tests are performed to determine each well's capacity (the amount of water that a well can produce without drawing down the water level). A total of 33 water supply wells are in the City's southeast quadrant of the water delivery system, and range in diameter from 12 to 16 inches, range in depth from 142 feet to 825 feet bgs, and range in capacity from 250 GPM to 1,400 GPM. As discussed previously, although the King's Subbasin is identified as an aquifer in a state of critical overdraft, groundwater levels throughout the City have been increasing over the past two decades thanks to the City's robust groundwater recharge program. Despite historical over-drafting of groundwater from the Kings Subbasin and ground-level subsidence in the region, subsidence has not been noted in the City.

Groundwater Monitoring Plan. Following wellhead treatment system installation, the associated service lines will be flushed, and groundwater sampled to confirm remediation effectiveness. Once put into service, Well 345-1 will follow the following groundwater monitoring plan:

- Quarterly monitoring of groundwater levels.

- Daily manganese monitoring with grab samples and weekly monitoring samples sent to a certified laboratory.
- Monthly monitoring of raw water and treated water for manganese.
- Quarterly monitoring of raw water and treated water for hydrogen sulfide odor.
- Continuous (daily) monitoring of chlorine residual via SCADA.
- Title 22 water monitoring schedule established by the California Code of Regulations State Board, Division of Drinking Water, for the remainder of the potential water constituents. . At a minimum, these additional constituents are monitored monthly; however, some constituents require weekly monitoring.

The City of Fresno responds to any contaminant found to exceed established MCLs, RLS, and NLs during regular water quality monitoring. Should contaminants be present at exceedance levels, mitigation actions will be carried out to protect the health of all customers in the City, which may include additional water quality sampling, remediation techniques, off-lining of a well, or groundwater blending to decrease contaminant concentrations.

Sub-Criterion A2: Environmental and Other Benefits

Sub Criterion A2.a: Climate Change

- **Natural Hazard Risk Reductions.** Recent research indicates that areas burned by wildfires in northern and central California have increased fivefold in the period between 1996 and 2021 as a result of climate change-driven increases in air temperatures and vegetation dryness (NOAA - Drought.gov). At 366 miles long, the San Joaquin River is the longest river in Central California, flowing from the Sierra Nevada to the Pacific Ocean through many potentially wildfire-impacted areas. Following wildfires, changes to soil conditions and loss of canopy vegetation result in more overland water flow, delivering ash, debris, and other pollutants to surface waters. As wildfires become more intense and frequent across California, the potential to negatively impact California's surface water resources, including the San Joaquin River, increases. Should there be a wildfire within the same watershed as our surface water resources, subsequent rains would wash ash and debris into the reservoirs. If the water quality (particularly turbidity) exceeds a certain threshold for treatment at the City's Surface Water Treatment Plants (SWTPs), Fresno would be forced to slow or shut down the SWTPs until the water quality improves. At those times, there would be a greater reliance on groundwater wells. By increasing access to local groundwater resources, the proposed Project protects the City from wildfire impacts on the delivery of clean, usable surface water.

- **Mitigation of Water Pollution.** Both manganese and hydrogen sulfide are naturally occurring contaminants resulting from the local geology of an aquifer. Their presence in Well 345-1 renders the water unusable for potable purposes. At high enough concentrations, manganese can cause damage to the nervous system; the very young, the very old, and those with underlying health problems are particularly susceptible to the

health impacts of consuming drinking water that contains manganese. The presence of hydrogen sulfide makes the water foul-smelling and tasting. By installing the proposed wellhead treatment system, the project will mitigate these naturally occurring contaminants, and improve the water quality produced from this area of the aquifer.

- **Reduction of Greenhouse Gas Emissions.** Delivery of surface water can be energy-intensive, depending on the distance needed to travel. According to recent research, groundwater pumping in the U.S. requires an average of 600 kilowatt hours per million gallons (kWH/MG), whereas surface water requires an average of 1,200 kWH/MG (Quantifying Energy Use in the U.S. Public Water Industry). The EPA's eGRID emission factors published in 2023 indicate that for every kWH, approximately 0.857 pounds (lbs.) of carbon dioxide (CO_2) is produced. By locally producing 210,240,000 gallons per year (savings of 600 kWH/MG when compared to surface water) the Project can reduce CO_2 emissions by over 108,000 pounds per year. See the equations below:

    - 400 GPM x 1440 minutes/day = 576,000 gallons per day (GPD)
    - 576,000 GPD/1,000,000 = 0.576 million gallons per day (MGD)
    - 1,200 kWH/MG (surface water delivery energy needs) – 600 kWH/MG (local groundwater production energy needs) = **600 kWH/MG savings**
    - 600 kWH/MG x 0.576 MGD = **345.6 kWH/per day saved**
    - 345.6 kWH/day x 365 days/year = **126,144 kWH/year saved**
    - 126,144 kWH/year x 0.857 lbs. CO_2 = **108,105.40 lbs. CO_2 reduced per year**

- **Protection of Water Supplies.** The groundwater hydraulic gradient below Fresno flows from northeast to southwest. As such, Well 345-1 is located upgradient of numerous City water potable supply wells (See **Exhibit 3**). Although manganese and hydrogen sulfide may be a local issue with Well 345-1, the potential to impact downgradient water supply wells due to the existing hydraulic gradient exists. The proposed project will remove these contaminants from the groundwater, thereby protecting downgradient wells from future impacts that originated in the location of Well 345-1.

Other Contributions to Climate Change Resiliency.
The proposed wellhead treatment system will also contribute to the City's climate change resiliency in the following ways:

- **Adaptation Planning:** Wellhead treatment systems allow for the collection of data that can provide critical insights into groundwater quality and availability. This information can assist with local climate adaptation planning, allowing communities to make decisions about resilience strategies and water resource management in real time. Data collected from Well 345-1 will assist Fresno with future climate change adaptation planning.

- **Emergency/Natural Hazard Response:** Wellhead treatment systems can provide a reliable source of clean drinking water during extreme weather events, such as drought or flooding,

which are becoming more frequent and severe as a result of climate change. Having a resilient water supply assists communities in responding to climate-related emergencies. As more intense and frequent wildfires and droughts impact the surface water resources delivered to the San Joaquin Valley, access to clean, local water resources will become more crucial.

- **Sustainable Groundwater Management:** A properly operated wellhead treatment system can be integrated into local sustainable groundwater management plans, ensuring that aquifers are not over-drafted. Sustainable groundwater management ensures a continued and reliable water supply, an essential consideration for climate resilience. As a member of the North King's GSA, Fresno will ensure that the operation of Well 345-1 aligns with the sustainable management criteria outlined in the North King's GSA Groundwater Sustainability Plan.

Sub Criterion A2.b: Environmental Benefits

Improvements to Ecological Climate Change Resiliency. The proposed project has the potential to reduce the City's reliance on surface water deliveries. This would assist in minimizing surface water withdrawals taken from the San Joaquin and Kings Rivers, thus benefitting the several endangered and threatened species that rely on them. Fresno receives surface water deliveries from the Central Valley Project through a contract with Reclamation, which utilizes water reserves from the Friant Dam on the San Joaquin River, and from the Kings River through a contract with the FID. The ongoing, persistent drought has depleted the surface water present in these two important rivers, threatening the many species that rely on their waters. Prolonged drought impacts a river's dissolved oxygen content, streamflow, water quality, available habitat, and other freshwater habitat characteristics necessary for sustaining the species that rely on them (Covich et al., 2006). Species that are endangered or threatened in the San Joaquin River and Kings Rivers ecosystems include the following (IPaC: Explore Location resources (fws.gov)):

1. Mammals
    a. San Joaquin Kit Fox, *Endangered*
    b. Fresno Kangaroo Rat, *Endangered*
    c. Fisher, *Endangered*
2. Reptiles
    a. Blunt-Nosed Leopard Lizard, *Endangered*
    b. Giant Garter Snake, *Threatened*
3. Amphibians
    a. California Red Legged Frog, *Threatened*
    b. California Tiger Salamander, *Threatened*
4. Fish
    a. Delta Smelt, *Threatened*
    b. Fall-Run Chinook Salmon, *Species of Concern*
    c. Steelhead, *Threatened*
5. Birds
    a. California Condor, *Endangered*

The proposed Project has the potential to help support the improvement of the status of the aforementioned (and other) species by reducing the diversion of San Joaquin and Kings Rivers waters, protecting 645 AFY of stream flow following project implementation (the amount of groundwater resources that will be supplied by Well 345-1).

Sub Criterion A2.c: Other Benefits

The proposed Project will also contribute to addressing water sustainability in the additional following ways:

Multiple Sector Benefits.

- **Agricultural Benefits:** The San Joaquin Valley, including outlying areas of the City of Fresno, are important agricultural production centers, historically ranking as one of the highest agricultural producers in the world. This area is a national center for producing poultry, livestock, and a wide variety of crops. Agriculture, therefore, contributes significantly to the economy of the San Joaquin Valley. Agriculture in this region depends heavily on groundwater, and ongoing drought has negatively impacted groundwater reserves because of over-pumping in dry years. Adverse events in agriculture, such as drought, directly result in multiple adverse effects on the region's economy, including employment, wages, population migration, and food prices (*Impact of Drought on the San Joaquin Valley of California*; California State University, 2015). The project will reduce pressure on groundwater, thereby supporting agriculture, and thus helping to protect the region's economy.
- **Municipal Benefits:** The City's water supply resiliency is important for numerous essential services, including the City's wastewater and surface water treatment plants, fire protection in a region with a high likelihood of wildfires, and service to Fresno's numerous healthcare and health support facilities, including senior care facilities and hospitals.

Benefits to a Larger Sustainability Initiative. The Central Valley Project Improvement Act (CVPIA) signed into legislation in 1992 focused on greater management and operation of the Central Valley Project waters to improve the fish and wildlife resource conditions in the Central Valley. Part of the approach to the CVPIA is focused on contract recipients becoming more self-sufficient by investing in water conservation and efficiency practices, water recycling, and greater use of local (surface or groundwater) waters. The City of Fresno works diligently to maintain and increase water supply self-sufficiency, including robust water conservation programs, water-use efficiency mandates, investment in recycled water infrastructure and use, and reliance on its local groundwater resources through conjunctive use. By increasing the groundwater supply portfolio by 210,240,000 gallons per year, the City will reduce the need to purchase imported water and help preserve CVP waters intended to protect, restore, and enhance Central Valley fish, other wildlife, and their habitats.

Preventing a Water-Related Crisis. Water tensions over the water diverted from the San Joaquin River have escalated over the past several years of drought. Scientists, Native American Tribes, and environmental groups have pressed to implement sharp reductions to diversions to

enhance the environmentally fragile river system. On the other side, agricultural and municipal users wish to protect their historically allocated supplies. As drought intensifies, this tension will continue with the possibility of escalating into a water-related crisis. By increasing the utilization of local groundwater resources, the proposed Project can help prevent a crisis over reductions in CVP allocations, allowing an additional 645 AFY of CVP resources to be allocated to those most in need.

Evaluation Criterion B—Planning and Preparedness (20 points)

City of Fresno – Urban Water Management Plan and Water Shortage Contingency Plan (2020). The City of Fresno Water Shortage Contingency Plan (WSCP) was prepared in conjunction with the Urban Water Management Plan (UWMP - 2020). The UWMP details the City's water management plans and projects to sustain water supplies for current and future needs within the City and its Sphere of Influence. The WSCP details how the City intends to respond to foreseeable and unforeseeable water shortages due to extended drought and/or catastrophic supply interruptions. Both the UWMP and the WSCP are updated every five years. The WSCP outlines Demand Reduction Actions the City will initiate in response to water shortages. To develop the WSCP, the City performed an in-depth, long-term water supply reliability analysis, which included considerations of variable climate conditions resulting from climate change that affects the City's water supply and demand.

Collaborative Plan Development Process. The City coordinated the preparation of these documents with its water suppliers (including Reclamation), Fresno County, the City of Clovis, nearby water agencies, and Fresno community members. All these agencies and the public were notified of the preparation of the UWMP and the related public hearing and were encouraged to participate in the development of the plan update by submitting feedback on the draft UWMP plan (which includes the WSCP). The City held a public hearing and adopted the 2020 UWMP on July 15, 2021. Before the public hearing, notices were published notifying the public of the date and time of the hearing. Once the 2020 UWMP and WSCP were adopted, a copy of the plan was submitted to DWR, the State Library, and the County of Fresno. Once the plan was adopted, a hard copy was made available for public reference at City Hall and the Water Division office. Additionally, an electronic copy was uploaded to the City of Fresno website and made available for public reference.

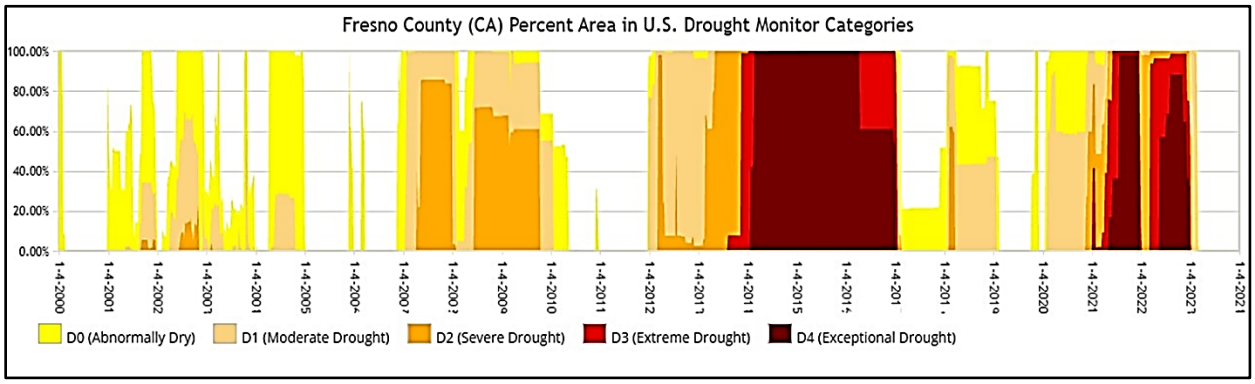
How the Project Conforms to and Meets the Goals of the UWMP/WSCP. Under Section 7 -*Water Service Reliability and Drought Risk Assessment* of the UWMP, it specifically notes that *"the City's ongoing supply management is intended to maximize local supplies and improve the groundwater basin* (page 7-3)." The proposed Project supports the City's overarching water supply management plan for drought resiliency by maximizing local groundwater resources and improving groundwater quality through the installation of a wellhead treatment system. Additionally, the UWMP notes that *"the groundwater basin has been impacted by multiple chemical contaminants that affect the City's ability to fully utilize the groundwater basin resources without some type of wellhead treatment in certain areas* (pages

6-8)." The proposed Project will allow the City to utilize its groundwater resources more fully. The proposed project addresses both key issues by using local groundwater resources (rather than unpredictable surface water deliveries) and implementing a wellhead treatment system to allow potable use of the groundwater produced at Well 345-1. The UWMP describes the current and future potential shortage conditions that could impact the City's supply: *"Key issues that may create shortage conditions include reduced surface water availability due to dry hydrologic conditions, (and) reduction in groundwater due to contamination issues…* (page 2)." Additionally, the WSCP notes that *"The water supply reliability analysis concluded that the City's supply portfolio is highly reliable and allows the City flexibility to use a majority of surface water when available in normal years and switch to a majority of groundwater in dry years when surface water supplies are reduced* (page 2)." As such, the Project supports the flexibility of water resource uses to maintain the reliability of a local water supply by tapping into the local groundwater resources. Please see **Appendix A-1** for the pertinent pages of the City of Fresno's UWMP and WSCP described above.

Evaluation Criterion C — Severity of Actual or Potential Drought or Water Scarcity Impact to be Addressed by the Project (15 points)

Project Area Drought Conditions. For over a decade, California has experienced below-average rainfall, culminating in drought conditions that impacted many areas of the state, including the San Joaquin Valley. From 2012 to 2016, Fresno County California was under moderate to exceptional drought conditions. A brief respite from the prolonged drought ended in 2020, when severe and exceptional drought conditions returned (see dark red shaded years in **Exhibit 5**).

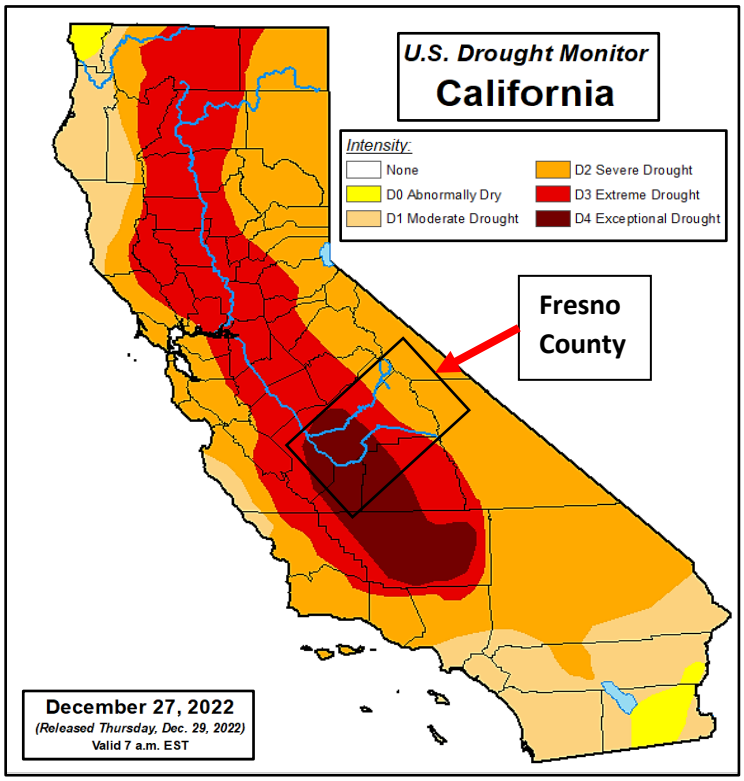
Exhibit 5: Historical Drought Conditions, Fresno County, California, 2000 to Present.



As a result of these prolonged drought events, the City received reduced and delayed surface water deliveries under its contracts with Reclamation and the FID in two sequential water years (2020/2021, and 2021/2022). As previously noted, Fresno only received 41% of expected surface water deliveries in 2020/2021 and only 57% of the expected surface water deliveries in 2021/2022. Most recently, Fresno County was under Extreme (D3) to Exceptional (D4) Drought Conditions at the end of December 2022, according to the U.S. Drought Monitor (see **Exhibit 6,** next page).

The winter months in 2022-2023 saw numerous atmospheric rivers delivering rain across the state of California and a well-above-average snowpack in the Sierra Nevada that have helped lift drought conditions in the San Joaquin Valley, with current conditions indicating no drought in Fresno County. However, the drought outlook for the western U.S., including California, is bleak. UCLA climate scientist Daniel Swain has noted that in California, the "increase in drought severity has been driven by several factors, including extremely low rainfall, warmer than typical historical temperatures, and unusually rapid snowmelt in mountain areas. Warming temperatures, a declining snowpack, and a narrowing rainy season are all hallmarks of climate change in the region." Additionally, a report published in November 2022 by the CA EPA Office of Environmental Health Hazard Assessment titled *"Indicators of Climate Change in California"* indicates that climate change will continue to fuel periods of extreme and prolonged drought across California. Looking at data from the last 120 years, the report found that statewide average annual temperatures, extreme heat event days, increases in year-to-year variability in precipitation, and the State's drought severity index numbers have all been following an increasing trend.

Exhibit 6: Fresno County, California, Drought Conditions: December 27, 2022.



Drought Impacts to Project Area Sectors Without the Proposed Project.

- **Public Health Concerns** – The groundwater produced by Well 345-1 is currently unsafe and aesthetically impractical for human consumption. As the frequency and intensity of drought increases, the City must find available resources to supply clean drinking water to its residents. Additionally, as previously discussed, a total of 68 City potable water

supply wells have been taken offline, largely because of various contaminant impacts. As a result, the water delivery system has seen a decrease in system pressure. Substantial system pressure drops from a spike in demand resulting from drought or fire fighting could potentially result in back-siphonage, causing contaminants to enter the water supply. Boil water orders would be issued and the system would need to be purged, further depleting the City's already diminished water resources. Bringing this critical well back online will help stabilize system pressures and reduce the likelihood of the aforementioned public health emergency from occurring.

- **Environmental Impacts** – The intense and long-lasting droughts experienced in California over the last decade have resulted in a decline in the dissolved oxygen of the San Joaquin River. This river is home to the Fall-Run Chinook salmon, a federally listed species of concern, and the steelhead, a federally listed threatened species. Additionally, the federally endangered Delta smelt relies on the waters of the San Joaquin to provide the fresh surface water needed to create a healthy estuarine ecosystem for its survival. Numerous fish kills within the river have been reported due to low dissolved oxygen resulting from lower water levels, warming of waters, and increased algal blooms following periods of drought. Additionally, the population of Delta smelt rapidly declined during the 2020-2021 drought, bringing this species to near extinction. Reducing reliance on surface water deliveries will reduce the potential for the San Joaquin River's rich ecosystem to be lost to drought.

- **Economic Losses** – The unprecedented statewide drought that occurred between 2020 and 2022 significantly impacted the agricultural sector of the San Joaquin Valley. Surface water deliveries from the CVP were reduced by nearly 43%, resulting in a 10% decrease in the acreage of irrigated crops in 2022, representing a $3.5 billion loss in revenue. Fresno County accounts for nearly 200 million acres of agriculture, contributing over $8 billion to the California economy, and supporting more than 20% of all jobs in the City of Fresno area. As previously discussed, the City of Fresno is a disadvantaged community, with a median household income of $57,211 (well below 80% of the State MHI of $84,097), and 22.9% of its residents living in poverty (US Census Bureau Quick Facts, 2021). These economic losses directly translate to the loss of jobs, impacting the many Fresno residents already living in low-income households.

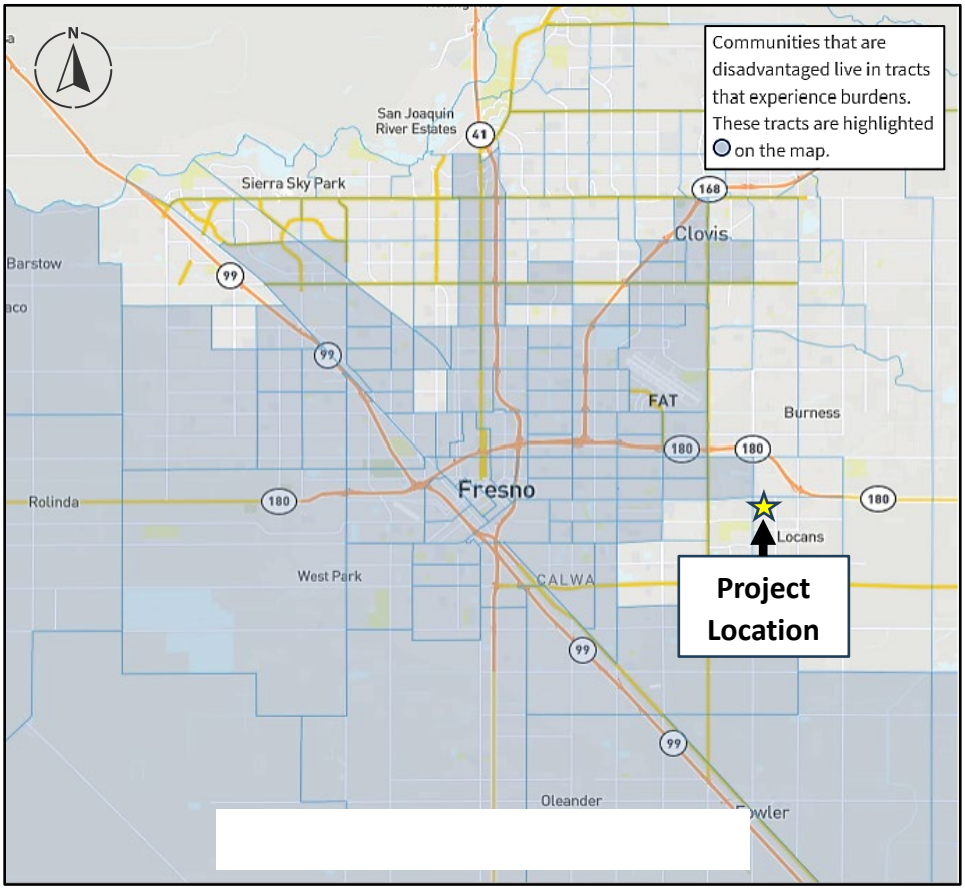
- **Water Tensions** – Water tensions over the water diverted from the San Joaquin River have escalated over the past several years of drought. Scientists, Native American Tribes, and environmental groups have pressed to implement sharp reductions to diversions to enhance the environmentally fragile river system. On the other side, agricultural and municipal users wish to protect their historically allocated supplies. As drought intensifies, this tension will continue until and unless a practical solution can be found. By relying more heavily on local water resources rather than diverted and unreliable surface water supplies, the proposed Project can help lessen some of these tensions and provide a framework for other surface water contract recipients to follow.

Evaluation Criterion D – Presidential and DOI Priorities (15 points)

Disadvantaged or Underserved Communities

This project provides much-needed benefits to disadvantaged communities located throughout the City of Fresno and will ensure that all Fresno residents will have sufficient, safe, and reliable access to potable water supplies. Most communities within the City of Fresno are rated by the Council on Environmental Quality (CEQ) as disadvantaged communities (DACs). **Exhibit 7** is a map of the City from the Climate and Economic Justice Screening Tool. This map illustrates that the majority (approximately 75%) of Fresno's Census Tracts (CTs) are DACs.

Exhibit 7: Climate and Economic Justice Screening Tool Map for the City of Fresno



Because the CEQ identifies most CTs in the City of Fresno as DACs, the City believes that Project implementation will provide underrepresented communities with approximately 75% of the Project benefits. Project benefits for these DACs include: 1) the addition of new water supplies to bolster drought resiliency; 2) improvements in water quality of the aquifer; 3) stabilization and improvement of system water pressures to protect Fresno residents from a potential human health emergency; and 4) minimizing water rate increases that would result from both Project costs and increased costs of delivered surface water.

Tribal Benefits

The three federally recognized tribes in Fresno County (Big Sandy Rancheria of California, Cold Springs Rancheria of Mono Indians of California, and Table Mountain Rancheria of California) will all benefit from the restoration of local water sources in municipal areas.

Evaluation Criterion E —Readiness to Proceed and Project Implementation (10 points).

Readiness to Proceed and Project Implementation.

The proposed Project will be shovel-ready by the time of grant award announcements (Funding Group II). Environmental clearance was completed at the time of well construction in 2012. Prior to the announcement of the grant award, the City will have the following tasks complete (using City funds):

- At the time of this application submittal, the design for the Project is at 60%, with 100% completion expected by February 2024.
- A final cost estimate and design specifications will be available by March 2024.

Each of the major tasks to be completed for the Project are described in detail below.

- **Task #1 – Grant Management:** Grant management will include executing the grant agreement, coordination and communications with Reclamation, and all administrative work, including compliance monitoring. The Grant Administrator (assisted by the Grant Administration Assistant) will submit requests for reimbursements and progress reports required under the grant agreement and will complete a final report and payment request.

- **Task #2 – Procurement:** The City will prepare and issue bid documents for the Project and select a qualified consultant to perform all construction and installation activities. The City will also procure long-lead items related to the wellhead treatment system, including the ATEC system vessels, manganese dioxide filtration equipment, and filter media.

- **Task #3 – Permits, Planning, and Environmental:** Environmental investigations were completed at the site during the original well construction/installation phase in 2012, which accounted for the inclusion of a wellhead treatment system. As such, CEQA and NEPA Notice of Exemption paperwork will be filed by the City following the finalization of the Grant Agreement. A building permit from the City will be acquired prior to the construction of a concrete pad on which the wellhead treatment system will sit. The City will also prepare a Stormwater Pollution Prevention Plan (SWPPP) prior to initiating construction activities.

- **Task #4 – Construction/Installation:** The selected contractor will mobilize and begin site preparation (including demolition and disposal, concrete work, dust control, Stormwater Pollution Prevention Plan Requirements, and staging), followed by three

months of construction work, including installation of the wellhead treatment system, all required electrical and plumbing, and installation of treatment system controls.

- **Task #5 – Well Startup Activities:** Once fully built, the City and Contractor will start up the system to inspect and ensure proper operation of all components. Once the Contractor completes any needed improvements, the City will submit an Operations Plan and Permit Amendment Application to the SWRCB Division of Drinking Water (DDW). A DDW staff member will visit to inspect and permit the new treatment system.

- **Task #6 – Monitoring and Performance Data:** Under this task, the Project Manager will monitor all performance data and input findings in progress reports to Reclamation. Performance measures are discussed in detail in section 1.D., starting on page 6.

Table 1 below shows the activities and milestones for the proposed Project:

Table 1: Project Milestones

No.	Milestones/Tasks/Activities	Planned Start Date	Planned Completion Date
Task #1: Grant Management			
1.1	Fully Executed Grant Agreement	6/31/24	10/31/24
1.2	Grant Administration/Compliance Monitoring	10/31/24	03/31/26
1.3	Submit Request for Reimbursements	1/31/25	03/31/26
1.4	Submit Progress Reports as Required	4/30/25	01/30/26
1.5	Complete Final Report and Payment Request	---	03/31/26
1.6	Records Retention (3 years after final payment is made by Reclamation)	04/01/26	04/01/29
Task #2: Procurement			
2.1	Prepare Request for Qualifications/Bid Documents	11/01/24	12/31/24
2.2	Select Contractor and Execute Agreement	01/01/25	03/31/25
2.3	Order Long-Lead Wellhead Treatment System	01/01/25	03/31/25
Task #3: Permits, Planning, and Environmental			
3.1	Obtain required permits	10/31/24	03/31/25
3.2	CEQA and NEPA Exemption Paperwork Filed	10/31/24	11/31/24
3.3	Prepare SWPPP	11/31/24	03/31/25
Task #4: Construction/Installation			
4.1	Mobilization, Site Preparation	04/01/25	04/30/25

No.	Milestones/Tasks/Activities	Planned Start Date	Planned Completion Date
4.2	Wellhead Treatment System Installation, Required Electrical Work, and Connection to City Sewer	05/01/25	08/01/25
Task #5: Well Start-Up Activities			
5.1	Testing, Commissioning, and Permitting	08/01/25	02/01/26
Task #6: Monitoring and Performance Data			
4.1	Collect and report six months of performance data (including water quality, production rates, and system pressures).	08/01/25	02/01/26

Permits and Approvals. The City will solicit approval of Project designs, plans, and specifications from the SWCRB – DDW prior to construction activities. Additionally, the City will obtain a City of Fresno Building Permit and an Air Quality Board Permit.

Engineering/Design Work Performed. The City's consultant, Michael K. Nunley (MKN) and Associates prepared a *Basis of Design* report in September 2022 that outlined the recommended treatment system, facility design, required investigations and permitting, and an opinion of probable cost for Well 345-1. The City retained MKN to prepare the final design documents which are currently 60% complete. The City expects that all design work will be 100% complete by February 2024.

Land Purchases. No land purchases are needed prior to the start of construction as the Project site is located on a City-owned parcel.

New Policies/Administrative Actions: No new policies or administrative actions are required for the Project.

Evaluation Criterion F—Nexus to Reclamation (10 points)

Nexus to Reclamation. The proposed Project will reduce the City's reliance on CVP surface water deliveries, particularly for use as potable water supply, minimizing surface water withdrawals from the San Joaquin River, and bolstering the ongoing sustainability of the CVP. Reduced reliance on CVP water will benefit other communities where groundwater resources are not available. In the 1960s, the City secured a surface water contract with the Reclamation's CVP Friant Division for an annual supply of 60,000 AFY of Class 1 water under contract number 14-06-200-8910D. The CVP utilizes water reserves from the Friant Dam on the San Joaquin River. In wet years, surface water sent to Fresno is either treated at one of its surface water treatment plants and used as potable water or is sent to the City's Leaky Acres groundwater recharge facility to recharge the Kings Subbasin aquifer. Persistent periods of drought have

depleted the surface water present in this economically and ecologically significant and critical river, threatening the region's agricultural economy and the many threatened and endangered species that rely on its waters.

Evaluation Criterion G—Stakeholder Support for Proposed Project (5 points)

Stakeholder Support. Although the City is not supplementing Project costs through cost-share contributions from stakeholders, the proposed Project has garnered the support of the following diverse individuals and agencies:

- **Congressman Jim Costa –** Congressman Costa is a champion for critical water and wastewater infrastructure projects in the San Joaquin Valley and California. He believes that investment in water infrastructure will support much-needed water conservation and resilience as the American West faces unprecedented drought in the face of climate change.
- **Fresno County Supervisor Nathan Magsig, District 5 –** Supervisor Magsig, a native of Fresno County, represents District 5, which includes portions of the City of Fresno. Supervisor Magsig is committed to solving the water issues that impact Fresno County, including supporting the creation of new water storage capabilities to bolster drought resiliency.
- **City of Fresno Fire Department –** The City of Fresno Fire Department is responsible for fire response in a 128-square-mile region. The Department also responds to incidents throughout Fresno County and the City of Clovis through mutual aid and auto-aid requests. The availability of sufficient water supplies and adequate system pressures are of utmost concern to the Department, and thus they support Project implementation.
- **North Kings Groundwater Sustainability Agency (NK GSA) –** The NK GSA is a Joint Powers Authority formed in December 2016 through the adoption of a Joint Powers Agreement by the following public agencies: Fresno Irrigation District, the County of Fresno, the City of Fresno, the City of Clovis, the City of Kerman, Biola Community Services District, Garfield Water District, and International Water District. Following adoption, these founding members approved the membership of Bakman Water Company and the Fresno Metropolitan Flood Control District through separate binding agreements. The NK GSA includes a portion of the Kings Subbasin that includes the service area of its members. The sustainability goal of the GSA for the Kings Basin is to ensure that the basin is managed to maintain current and future reliable water supply without negative results. As such, the NK GSA supports projects that will maintain the sustainability of groundwater resources and protect its water quality.

The Letters of Project Support can be found in **Appendix B-1.**

End of 25-page Technical Proposal.

2. ENVIRONMENTAL AND CULTURAL RESOURCES CONSIDERATIONS

As noted previously, the Project is categorically exempt from CEQA and NEPA, and a Notice of Exemption and Categorical Exemption will be filed, respectively. The Project is upgrading existing facilities, on previously disturbed ground, requiring only minor alterations to the land.

Impacts on the Surrounding Environment.
No long-term impacts on the surrounding environment are expected. The Project will require *temporary* mitigation measures during construction. An Air Quality Permit will be obtained, and dust control measures will be implemented. Materials removed to lay the new piping to convey spent backwash water resulting from system operations will be replaced.

Threatened or Endangered Species.
There are **no known threatened or endangered species** at the location of the Project site which is suburban in nature. The City's natural resources are located primarily along the San Joaquin River, which is approximately eight miles north of the Project site. Owing to the year-round presence of water, the river bottom and bluffs host the richest aquatic and riparian forest biota in the City. It is in this area where migratory waterfowl and federally and state-listed endangered wildlife are most likely to be encountered.

Wetlands or Surface Waters Inside the Project Boundary.
There are **no wetlands or other surface waters** located inside the Project boundaries.

Water Delivery System Construction Date.
The original Fresno water system began operations in 1876 as a non-profit organization. Initially, the water system consisted of one pumping station composed of small pumps and two storage tanks. In 1888, the first pumping station and water tower were constructed. After ownership by several different entities, the water system was acquired by the City of Fresno in 1931 and has been operated as a municipal utility since that time. Most of the current infrastructure was constructed after the 1950's and some are more than 100 years old.

Modifications of, or Effects to, an Irrigation System.
No modifications will be made to irrigation systems that affect features such as headgates, canals, or flumes.

National Register of Historic Places.
There are thirty-two sites in Fresno and the immediate surrounding area in the National Register of Historic Places, but **none at the Project site** (https://historicfresno.org/nrhp/nrhp.htm).

Archeological sites.
There are **no known archaeological sites** in the vicinity of the Project site.

Effect on Low Income or Minority Populations.
The Census Tract where the Project site is located is not classified by CEJST or the State of California as disadvantaged; however, the majority (approximately 75%) of the City's Census Tracts are identified as DACs through the CEJST mapping tool. The Project will provide benefits to all of Fresno's communities through greater drought resiliency, access to clean drinking water, improved system pressures, and water cost stabilization. There will be **no disproportionately adverse effects** on these communities. In fact, these communities will benefit from the Project. Low-income communities would bear a significant burden if water prices were to soar in the face of water shortages. The Project is part of the City's larger plan to secure the sustainability of the City's water supplies (and thus maintain affordable water prices).

Access to Indian Sacred Sites or Impact on Tribal Lands.
The Project site is **not** located on sacred sites or tribal lands. The Project site is located on City-owned property, and on previously disturbed ground.

Noxious Weeds or Invasive Species.
The Project will **not** introduce noxious weeds or invasive species. The Project site is currently gravel, with no landscaping. No landscaping will take place on the site.

3. OVERLAP OR DUPLICATION OF EFFORT STATEMENT

The City of Fresno does not anticipate or foresee any overlap between the proposed Project and any other active or anticipated proposals or projects regarding activities, costs, or commitment of key personnel.

4. CONFLICT OF INTEREST DISCLOSURE STATEMENT

The City of Fresno has not identified any actual or potential conflicts of interest as related to the requested Department of the Interior, Bureau of Reclamation request for financial assistance described in this Drought Resiliency Program application. The City has well-established internal controls that include procedures that identify, disclose, and mitigate or eliminate any identified conflicts of interest that may arise during the life of any federal or state-funded grant award.

5. UNIFORM AUDIT REPORTING STATEMENT
The City of Fresno was required to submit a Single Audit Report for the 2022 Fiscal Year under Employer Identification Number 94-6000338. The report is available through the Federal Audit Clearinghouse website.

6. FORM SF-LLL: DISCLOSURE OF LOBBYING ACTIVITY (if applicable)
Not applicable – the City of Fresno has not employed a lobbying entity in connection with this Federal action.

7. LETTERS OF PROJECT SUPPORT

Letters of Project Support from the following entities are included in **Appendix B-1**.

- California Congressman Jim Costa
- Fresno County District 5 Supervisor Nathan Magsig
- City of Fresno Fire Department
- North Kings Groundwater Sustainability Agency

8. LETTER OF PARTNERSHIP

Not applicable. The City of Fresno is applying as a **Category A Applicant** and thus does not require a partner for the proposed Project.

9. OFFICIAL RESOLUTION

The City of Fresno has prepared a DRAFT official resolution that commits the City to legal and financial obligations associated with the receipt of a financial assistance award under Reclamation's Drought Resiliency Program. The Draft Resolution will go before the City of Fresno City Council on December 7, 2023, and will be signed and available prior to the award announcement. A copy of the Draft Resolution can be found in **Appendix C-1.**

Budget and Budget Narrative for the

WaterSMART
Drought Response Program:
Drought Resiliency Projects for FY 2024
NOFO No: R24AS00007

Increasing Drought Resiliency in a Disadvantaged Community with a Wellhead Treatment System

Applicant:
City of Fresno, Department of Public Utilities
1626 E Street
Fresno, CA 93706

Project Manager:
Peter Maraccini, Licensed Engineer Manager
1626 E Street
Fresno, California 93706
Phone: (559) 621-1603
Email: Peter.Maraccini@fresno.gov

TABLE OF CONTENTS

1. PROJECT BUDGET

1A. Summary of Funding Sources

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

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. City of Fresno	$734,452
Non-Federal Subtotal	**$734,452**
REQUESTED RECLAMATION FUNDING	**$734,452**

1B. Proposed Project Budget

The City is requesting **$734,452** in Reclamation funds to complete the construction and installation of a wellhead treatment system for municipal potable water supply Well 345-1. The City is committed to providing a **50% match of $734,452** to complete the project. A line-item breakdown of expected Project costs is given below.

TABLE 2

Proposed Budget

Budget Item Description	Computation			Fresno Cost-Share (50%)	BOR Grant (50%)	TOTAL COST
	$/Unit	Unit	Quantity			
SALARIES AND WAGES						
Project Management and Engineering						
Project Manager/Licensed Engineer Manager	$76.15	hr	160	$12,184		$12,184
Engineer I/II	$56.04	hr	160	$8,966		$8,966
Licensed Professional Engineer	$79.62	hr	40	$3,185		$3,185
Assistant Director of Public Utilities	$92.73	hr	20	$1,855		$1,855
Grant Administration						
Grant Administrator	$50.99	hr	300	$15,297		$15,297
Grant Administrator Assistant	$37.11	hr	300	$11,133		$11,133
Senior Accountant	$45.34	hr	40	$1,814		$1,814
Construction Management						
Engineering Inspector I/II	$41.43	hr	240	$9,943		$9,943
Senior Engineering Inspector	$46.22	hr	80	$3,698		$3,698
Chief Engineering Inspector	$50.82	hr	40	$2,033		$2,033
Senior Management Analyst	$50.57	hr	40	$2,023		$2,023
Staff Assistant	$27.88	hr	40	$1,115		$1,115
Construction Compliance Specialist	$32.30	hr	40	$1,292		$1,292
Contract Compliance Officer	$45.02	hr	40	$1,801		$1,801
Water System Supervisor	$52.77	hr	80	$4,222		$4,222
Water Distribution/Production Technician	$32.32	hr	120	$3,878		$3,878
Water Distribution/Production Specialist	$35.54	hr	120	$4,265		$4,265
Senior Water Distribution/Production Operator	$43.49	hr	80	$3,479		$3,479
Water/Wastewater Manager	$57.20	hr	40	$2,288		$2,288
Construction Manager	$60.59	hr	40	$2,424		$2,424
Supervising Engineering Technician	$49.53	hr	80	$3,962		$3,962
Purchasing Support						
Senior Procurement Specialist	$38.52	hr	40	$1,541		$1,541
Procurement Supervisor	$45.12	hr	8	$361		$361
Purchasing Manager	$60.59	hr	4	$242		$242

TABLE 2, Continued						
Proposed Budget						
Budget Item Description	**Computation**			**Fresno Cost-Share (50%)**	**BOR Grant (50%)**	**TOTAL COST**
	$/Unit	**Unit**	**Quantity**			
Legal Support						
Senior Legal Secretary	$34.35	hr	8	$275		$275
Senior Deputy Attorney	$92.22	hr	16	$1,476		$1,476
Salaries and Wages Subtotal				**$104,750**	**$0**	**$104,750**
FRINGE BENEFITS						
Project Manager	$24.31	hr	160	$3,890		$3,890
Engineer I/II	$19.61	hr	160	$3,138		$3,138
Licensed Professional Engineer	$27.87	hr	40	$1,115		$1,115
Assistant Director of Public Utilities	$32.46	hr	20	$649		$649
Grant Administrator	$20.24	hr	300	$6,072		$6,072
Grant Administrator Assistant	$18.13	hr	300	$5,439		$5,439
Senior Accountant	$15.87	hr	40	$635		$635
Engineering Inspector I/II	$14.50	hr	240	$3,480		$3,480
Senior Engineering Inspector	$16.18	hr	80	$1,294		$1,294
Chief Engineering Inspector	$17.79	hr	40	$712		$712
Senior Management Analyst	$17.70	hr	40	$708		$708
Staff Assistant	$9.76	hr	40	$390		$390
Construction Compliance Specialist	$11.30	hr	40	$452		$452
Contract Compliance Officer	$15.76	hr	40	$630		$630
Water System Supervisor	$18.47	hr	80	$1,478		$1,478
Water Distribution/Production Technician	$11.31	hr	120	$1,357		$1,357
Water Distribution/Production Specialist	$12.44	hr	120	$1,493		$1,493
Senior Water Distribution/Production Operator	$15.22	hr	80	$1,218		$1,218
Water/Wastewater Manager	$22.43	hr	40	$897		$897
Construction Manager	$21.21	hr	40	$848		$848
Supervising Engineering Technician	$20.74	hr	80	$1,659		$1,659
Senior Procurement Specialist	$13.48	hr	40	$539		$539
Procurement Supervisor	$15.79	hr	8	$126		$126
Purchasing Manager	$21.21	hr	4	$85		$85
Senior Legal Secretary	$12.02	hr	8	$96		$96
Senior Deputy Attorney	$32.28	hr	16	$516		$516
Fringe Benefits Subtotal				**$38,917**	**$0**	**$38,917**
Contractual/Design						
Bidding and Construction Support Services	$29,900	LS	1	**$29,900**	**$0**	**$29,900**
Other Direct Costs/Permitting-Environmental-						
Prepare & Implement Storm Water Pollution	$ 10,000	LS	1	$0	$10,000	$10,000
State DDW Review and Approval	$200	hr	14	$0	$2,800	$2,800
Air Quality Board Permit (no cost)	$0	LS	1	$0	$0	$0
Building Permit	$8,000	LS	1	$0	$8,000	$8,000
Environmental-CEQA/NEPA Exemption Paperwork	$1,000	LS	1	$0	$1,000	$1,000
Other/Permitting-Environmental Subtotal				**$0**	**$21,800**	**$21,800**

TABLE 2, Continued						
Proposed Budget						
	Computation			**Fresno Cost-Share (50%)**	**BOR Grant (50%)**	**TOTAL COST**
Budget Item Description	**$/Unit**	**Unit**	**Quantity**			
Construction						
1. Mobilization, Bonds and Insurance	$30,000	LS	1		$30,000	$30,000
2. Mediator	$50,000	LS	1		$50,000	$50,000
3. Misc. Facilities & Operations	$10,000	LS	1		$10,000	$10,000
4. Dust Control	$5,000	LS	1		$5,000	$5,000
5. Supplemental Work Allowance	$10,000	LS	1		$10,000	$10,000
6. Demolition & Disposal	$5,000	LS	1		$5,000	$5,000
7. Site Grading	$7,000	LS	1		$7,000	$7,000
8. Site Concrete	$38,000	LS	1		$38,000	$38,000
9. Furnishing Manganese Dioxide Filtration Equipment and Filter Media	$476,000	LS	1	$427,348	$48,652	$476,000
10. Site Piping, Meters, and Valves	$104,000	LS	1		$104,000	$104,000
11. Painting and Coating	$22,000	LS	1		$22,000	$22,000
12. Online Analyzer Equipment	$39,000	LS	1		$39,000	$39,000
13. Chemical Storage and Injection Equipment	$41,000	LS	1		$41,000	$41,000
14. 345-1 Electrical	$50,000	LS	1		$50,000	$50,000
15. 345-1 Instrumentation & Controls	$25,000	LS	1		$25,000	$25,000
16. Project Contingency (20%)	$912,000	%	20%		$182,400	$182,400
17. Bid & Construction Phase Contingency (5%)	$912,000	%	5%		$45,600	$45,600
Subtotal Construction				**$427,348**	**$712,652**	**$1,140,000**
Total Direct Costs				**$600,915**	**$734,452**	**$1,335,367**
Indirect--10% De Minimus (on Total Direct Costs)	$1,335,367	%	10%	$133,537	$0	$133,537
TOTAL PROJECT COSTS				**$734,452**	**$734,452**	**$1,468,904**
Percentage Contribution by Funding Source				**50.0%**	**50.0%**	**100%**

1C. Budget Narrative:

Administrative and Legal: A total of **$2,363** is expected for administrative and legal costs to cover salaries, wages, and fringe for two City of Fresno legal staff: a Senior Legal Secretary and a Senior Deputy Attorney. The Senior Legal Secretary will assist in any required legal document preparation and filing; the Senior Deputy Attorney will provide legal advice, interpretation, and guidance for contracts and other required documents.

Land, Structures, Right-of-Ways, Appraisals, etc.: Not applicable.

Relocation Expenses and Payments: Not applicable.

Architectural and Engineering Fees: Not applicable.

Other Architectural and Engineering Fees: Not applicable.

Project Inspection Fees: A total of **$21,160** is anticipated for Project inspection fees and includes salaries, wages, and fringe for three City of Fresno key staff: Engineering Inspector I/II, Senior Engineering Inspector, and Chief Engineering Inspector. Staff will perform the following duties during the Project construction:

- Engineering Inspector I/II: Act as the primary onsite inspector on behalf of the City of Fresno for all construction activities
- Senior engineering Inspector: Supervises the Engineering Technician I/II and provides guidance on contract compliance as necessary.
- Chief Engineering Inspector: Supervises the Engineering Technician I/II and Senior Engineering Technician, and ensures compliance of the applicable codes, policies, standards, and practices.

Site Work: Site Work costs are expected to be **$12,000 and** include Dust Control and Site Grading activities.

Demolition and Removal: Demolition and Removal (disposal) costs are anticipated at **$5,000.**

Construction: Total construction costs of **$1,045,044** are anticipated for key staff salaries and wages, staff fringe benefits, bidding and construction support services (contractual), and construction activities and components. A breakout of all costs is detailed below:

1. **Key Staff Salaries and Wages:** Total salaries and wages of **$87,326** are anticipated for the proposed project and include key staff and fringe benefits associated with project completion, as well as grant management time. Staff required for this project are discussed below.
   a. Project Management and Engineering
   - **Project Manager/Licensed Engineer Manager:** The Project Manager is responsible for overall Project operations and management, including contractor procurement (developing the Request For Qualifications, reviewing proposals, and selecting the contractor), coordinating and participating in monthly meetings with the contractor, managing the design, environmental, and construction process, reviewing design documents, specifications, and plans, and oversight of securing permits. The Project Manager serves as the primary contact with Reclamation and will be responsible for the project's budget and schedule. They also will supervise the Engineering Technician I/II, Senior Engineering Technician, and Chief Engineering Technician.
   - **Engineer I/II:** An Engineer I/II will be responsible for the development and review of engineering design documents, plans, and specifications.
   - **Licensed Professional Engineer:** The Licensed Professional Engineer will take part in the development and review of project engineering design documents, plans, and specifications, and supervise the work of the Engineer I/II.
   - **Assistant Director of Public Utilities**: The Director will oversee all project operations and provide guidance to reach project goals.

b. Grant Management

- **Grant Administrator/Business Manager:** The Grant Administrator will be responsible for managing the financial reports, interim performance reports, a final performance report, payments, and invoicing associated with the grant project, as well as providing any required monthly monitoring data.
- **Grant Administrator Assistant:** The Grant Administrator Assistant will provide ongoing Project support to the Grant Administrator, including preparation and submittal of required reports, preparation of contractor payments, submission of payment requests to Reclamation, and other tasks as deemed necessary.
- **Senior Accountant:** The Senior Accountant will track financial records, accounts payable, accounts receivable, and monitor the Project budget.

c. Construction Management

- **Construction Manager:** Supervises the Engineering Technician I/II, Senior Engineering Technician, and Chief Engineering Technician roles on the Construction Management team.
- **Supervising Engineering Technician:** Assist in the planning, designing, and developing engineering plans and specifications, as well as modifications as needed over the course of the project.
- **Senior Management Analyst:** Part of the construction management team in charge of contract compliance, communications with the contractor, payments to the contractor, and tracking of bonding and insurance.
- **Staff Assistant:** Assists the Senior Management Analyst with contract compliance, communications with the contractor, payments to the contractor, and tracking of bonding and insurance.
- **Construction Compliance Specialist:** Part of the Construction Management team in charge of contract compliance, communications with the contractor, payments to the contractor, and tracking of bonding and insurance.
- **Contract Compliance Officer:** Part of the Construction Management team in charge of contract compliance, communications with the contractor, payments to the contractor, and tracking of bonding and insurance.
- **Water System Supervisor:** Supervises the work of the Water Distribution Technician, Specialist, and Senior Operator.
- **Water Distribution/Production Technician:** Will be onsite during and following construction activities to observe the final connection into the system, help connect chemical lines and piping as needed, review the startup of the system, and run the system once the project is complete.
- **Water Distribution/Production Specialist:** Will be onsite during and following construction activities to observe the final connection into the system, help connect chemical lines and piping as needed, review the startup of the system, and run the system once the project is complete.
- **Senior Water Distribution/Production Manager:** Will be onsite during and following construction activities to observe the final connection into the system,

help connect chemical lines and piping as needed, review the startup of the system, and run the system once the project is complete.

- **Water/Wastewater Manager:** The Manager will supervise the Production Technician, Production Specialist, and Production Manager.

d. Purchasing Support

- **Senior Procurement Specialist:** Will assist with the Project procurement process, including the bidding of consultant contracts and purchasing of equipment and supplies.
- **Procurement Supervisor:** Will assist with the Project procurement process, including the bidding of consultant contracts and purchasing of equipment and supplies.
- **Purchasing Manager:** Will assist with the Project procurement process, including the bidding of consultant contracts and purchasing of equipment and supplies.

2. **Contractual:** Total contractual costs are estimated at approximately **$29,900** for support from the City's selected engineering design team for finalizing bidding documents and assistance with oversight of construction activities.

3. **Fringe Benefits:** Fringe benefits for the staff identified above are estimated at approximately **$32,818.** Fringe includes costs for vacation, sick leave, employee retirement contributions, health and life insurance, disability and liability insurance, worker's compensation insurance, and costs for benefits administration.

4. **Construction Activities and Components:** Total Construction costs for the wellhead treatment system installation are anticipated at **$895,000.** A qualified contractor will be selected using the City's established procurement processes, which fully align with federal procurement requirements. A *Basis of Design Report* was completed by the City's Consultant, MKN Associates, and included wellhead treatment system and facility design criteria recommendations, as well as an opinion of probable costs to help develop the anticipated construction budget. Construction activities will include mobilization, dust control, demolition and disposal, site grading, painting and coating, and installation of construction components. These components include the following: 1) a concrete pad foundation for the wellhead treatment system components; 2) six ATEC brand manganese dioxide filtration system vessels; 3) six ATEC brand filtration system vessel filters; 4) site piping, meters, and valves; 5) online analyzer equipment; 6) manganese dioxide filtration equipment; 7) chemical storage and injection equipment; 8) pump station electrical wiring; and 9) pump station instrumentation and controls. Costs also include mediator and supplemental work allowance.

Equipment: Not applicable.

Miscellaneous - Permitting, Environmental, and Plans: Permitting and environmental costs of **$21,800** are anticipated for the project and are described below.

- **Prepare and Implement a Storm Water Pollution Prevention Plan (SWPPP):** An SWPPP will be prepared by the City prior to initiation of construction activities. The selected contractor will be responsible for the implementation of all control measures outlined in the SWPPP, with City oversight.
- **State DDW Review and Approval:** The California Water Boards – Division of Drinking Water (DDW) must review and approve the feasibility studies conducted by the City's consultant prior to construction activities. Costs provided in the budget proposal are based on a DDW rate of $200/hour and an estimate of 14 hours of time spent on site.
- **Air Quality Board Permit (no cost):** There is no cost associated with an Air Quality Board Permit, however, it is required to provide information for recordkeeping purposes.
- **Building Permit:** A building permit will be requested from the City prior to construction activities. The permit will be prepared and submitted by the Project Manager.
- **Environmental and Regulatory Compliance Costs:** The project is categorically exempt from CEQA and NEPA, and a Notice of Exemption and Categorical Exemption will be filed at a cost of $1,000. The cost for filing paperwork is an estimate from previous projects of similar size and scope.

Contingencies: A total of **$361,537** is anticipated for contingencies. This includes a 20% construction contingency, a 5% bid and construction phase contingency, and a 10% de minimus on total direct costs.

Local Match: To meet the required 50% local match, the City will provide **$734,452** that includes in-kind staff time (salaries plus fringe benefits) and furnishing the manganese dioxide filtration equipment and filter media.

APPENDIX B

Letters of Project Support

1. **Congressman Jim Costa**
2. **Fresno County District 5 Supervisor Nathan Magsig**
3. **City of Fresno Fire Department**
4. **North Kings Groundwater Sustainability Agency**

County of Fresno

BOARD OF SUPERVISORS
SUPERVISOR NATHAN MAGSIG – DISTRICT FIVE

October 16, 2023

Ms. Sheri Looper
Reclamation Drought Coordinator
Bureau of Reclamation
Mail Code : MP-400
2800 Cottage Way
Sacramento, CA 95825

Re: Support for the City of Fresno's Application: Bureau of Reclamation Drought Resiliency Program

Dear Ms. Looper,

I am writing to express my support for the Increasing Drought Resiliency in a Disadvantaged Community with a Wellhead Treatment System project proposed by the City of Fresno. The proposed project will install a wellhead treatment system to remove the naturally occurring groundwater contaminants manganese and hydrogen sulfide, which currently prevent the use of municipal public water supply Well 345-1. Wellhead treatment will provide additional groundwater resources to bolster the City's drought resiliency.

As a resident of Fresno County and an active community member, I am very aware of the potential the diverse city holds, as well as the many issues the disadvantaged community faces. Recent years of prolonged drought have created a critical need for water resource maintenance measures. Prolonged drought conditions have severely limited accessibility to surface water deliveries, resulting in delays and reductions in supply. The reliability of groundwater systems has since become even more imperative. Efficient water storage, delivery, and access to locally available water sources are key to the City's health. I believe this project is an important step in improving the City of Fresno's drought resiliency and ensuring their ability to care for the citizens' needs, health, and wellness.

Thank you for your time and consideration of this critical project and associated grant application.

Sincerely,

Nathan Magsig, Supervisor
County of Fresno, District 5

JIM COSTA
21ST DISTRICT, CALIFORNIA
WEB PAGE: www.costa.house.gov

FRESNO OFFICE:
2440 TULARE STREET, SUITE 420
FRESNO, CA 93721
PHONE: (559) 495-1620
FAX: (559) 495-1027

WASHINGTON OFFICE:
2081 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
PHONE: (202) 225-3341
FAX: (202) 225-9308

CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515

COMMITTEE ON AGRICULTURE
RANKING MEMBER-SUBCOMMITTEE
ON LIVESTOCK, DAIRY, AND
POULTRY

COMMITTEE ON FOREIGN AFFAIRS
SUBCOMMITTEE ON EUROPE

October 19, 2023

Ms. Sheri Looper
Reclamation Drought Coordinator
Bureau of Reclamation
Mail Code: MP-400
2800 Cottage Way
Sacramento, CA 95825

Re: Increasing Drought Resiliency in a Disadvantaged Community with a Wellhead Treatment System - City of Fresno

Dear Ms. Looper,

I am writing to express my support for the City of Fresno's grant application, which seeks funding to bolster the city's drought resiliency. The proposed project's primary objective is to reactivate municipal public water supply well 345-1 by implementing a wellhead treatment system designed to eliminate manganese and hydrogen sulfide present in the groundwater. This initiative represents a crucial step towards reducing the need for emergency measures during droughts, ensuring that the City can efficiently manage its water resources, even in the face of climate change.

Over my tenure as a representative, safeguarding water resources for the San Joaquin Valley has remained a top priority. Serving as a member of the House Natural Resources Committee's Water, Oceans, and Wildlife Subcommittee, I fully comprehend the significance of water-related issues within the 21st District. In recent decades, our state has experienced its most arid period on record over the past millennium, placing substantial strain on surface water resources and heightening the necessity for improved groundwater management in our cities. Failing to take proactive measures places our communities' well-being and our economy at risk. I am steadfast in my commitment to advancing drought resiliency efforts in the San Joaquin Valley and beyond, and I firmly believe that the City of Fresno's project directly aligns with the goals I've set for my District.

As the representative of California's 21st Congressional District and a lifelong resident of the Central Valley, I am pleased to offer my support for the City of Fresno's Drought Resiliency Grants Program Application. It is my hope that this proposal receives full and fair consideration. If you would like further input from me regarding this matter, please do not hesitate to contact me at my Fresno District Office at (559) 495-1620.

Sincerely,

JIM COSTA
Member of Congress

BILLY P. ALCORN, FIRE CHIEF

Office of the Fire Chief • (559) 621-4002 • FAX (559) 498-4261
Fresno Fire Department • 911 H Street • Fresno, CA 93721-3082

October 24, 2023

Ms. Sheri Looper
Reclamation Drought Coordinator
Bureau of Reclamation
Mail Code: MP-400
2800 Cottage Way
Sacramento, CA 95825

RE: SUPPORT FOR THE CITY OF FRESNO'S **INCREASING DROUGHT RESILIENCY IN A DISADVANTAGED COMMUNITY WITH A WELLHEAD TREATMENT SYSTEM** PROJECT

Dear Ms. Looper:

The Fresno Fire Department is pleased to support the City of Fresno (City) in its request for grant funds to install a wellhead treatment system at municipal public water supply well 345-1. The proposed project will remove naturally occurring manganese and hydrogen sulfide concentrations in the groundwater supply that is currently preventing the City from utilizing the well as a potable water resource. Upon project completion, well 345-1 will supply the City with an additional 645 acre-feet per year of water for potable consumption.

As we work to ensure the health and safety of our community, sustainable water supplies are a very real concern to the Fresno Fire Department. Our 21 stations provide committed service to a 128-square mile region, responding to incidents throughout Fresno County. During times of drought, fire risk levels rise and dry fuels present unique challenges in managing and extinguishing fires. Depleted water supplies present a real danger to the community during fire response. Additionally, we understand the City's water supply delivery system has experienced decreased pressures as a result of numerous water supply wells being taken offline due to contaminant impacts. Adequate water system pressures are critical to the Fresno Fire Department's ability to respond to and mitigate fire events. Additionally, lowered system pressures can result in contamination of the water supply, creating a human health emergency and leading to greater water loss due to necessary system flushing. Installing a wellhead treatment system at Well 345-1 will strengthen the City's drought resiliency, guarantee clean water resources for our residents, improve water delivery system pressures, and help mitigate potential city-wide human health emergencies.

The Fresno Fire Department supports the City of Fresno's application for grant funding without reservation. Thank you for your consideration of this critical project.

Sincerely,

Billy Alcorn
Fresno Fire Chief

NORTH KINGS GROUNDWATER SUSTAINABILITY AGENCY

October 27, 2023

Internet
www.NorthKingsGSA.org

Mail
North Kings GSA
c/o Fresno Irrigation District
2907 S. Maple Ave.
Fresno, CA 93725

Phone
559-233-7161

Ms. Sheri Looper
Reclamation Drought Coordinator
Bureau of Reclamation
Mail Code: MP-400
2800 Cottage Way
Sacramento, CA 95825

Dear Ms. Looper:

RE: **North Kings Groundwater Sustainability Agency's Letter of Support for City of Fresno's BOR WaterSmart: Drought Resiliency Grants Program Application**

On behalf of the North Kings Groundwater Sustainability Agency (NKGSA), I am writing in support of the City of Fresno's BOR WaterSMART: Drought Resiliency Grants Program application for the *Increasing Drought Resiliency in a Disadvantaged Community with a Wellhead Treatment System* project. Located within the Kings Subbasin, the City of Fresno falls under NKGSA's jurisdiction and is a location of priority to our efforts in maintaining water resource balance and sustainability.

NKGSA understands that the City of Fresno is applying for grant funds to install a wellhead treatment system for municipal potable water supply Well 345-1, which is currently offline due to naturally occurring contaminants manganese and hydrogen sulfide. Of Fresno's 270 groundwater wells, 68 are currently offline, many due to contaminant impacts. Bringing Well 345-1 back online with a wellhead treatment system will add approximately 645 acre-feet per year to the city's groundwater supply, which currently accounts for 45% of all Fresno's water resources.

Over the past two decades, California has experienced the driest conditions recorded in the last 1,000 years, with researchers labeling the era an "emergency megadrought." These conditions have severely impacted the cities in our subbasin, including Fresno. After three consecutive record-dry years in 2020-2022, the City faced delayed and reduced surface water deliveries from the United States Bureau of Reclamation (USBR) - Central Valley Project (CVP) Friant Division, and from the Fresno Irrigation District

About NKGSA: The North Kings Groundwater Sustainability Agency is a Joint Powers Authority formed in December 2016. Composed of local public agencies and others engaged through binding agreements, the NKGSA is the governing body of a portion of the Kings Subbasin (DWR Bulleting 118, 5-22.08) in compliance with the Sustainable Groundwater Management Act of 2014. NKGSA members are Bakman Water Company, Biola Community Services District, City of Clovis, City of Fresno, City of Kerman, County of Fresno, Fresno Irrigation District, Fresno Metropolitan Flood Control District, Garfield Water District, and International Water District.

(FID) for their Kings River water supply, forcing a greater reliance on groundwater resources.

In an effort to build drought resiliency, the City currently implements several water conservation efforts, utilizes recycled water with plans for further expansion, and operates multiple groundwater recharge facilities. However, these conservation efforts still don't fully protect City water users from the negative effects of an extreme drought. To guarantee water to the public, water supply wells must be operational in the event of reduced surface water allocations. The proposed project will provide funding for a critical improvement that would treat impacted groundwater in the Kings Subbasin and bring a potable water supply well back into use, supplying an additional estimated 645 AFY of potable water to this disadvantaged City.

The NKGSA understands the importance of sustainably managing groundwater resources within its boundary and the Kings Subbasin. The NKGSA believes the City's proposed project is an important step to both effectively manage and treat naturally occurring contaminants located beneath the City and will build upon the City's groundwater sustainability efforts in the face of drought and loss of surface water supplies. The NKGSA offers its support of this proposal without reservation.

We encourage the BOR to fund their application. Thank you for considering this project and all its benefits. Please do not hesitate to reach out should you have any questions. I can be reached at 559-233-7161, x. 7109 or by email at kchauhan@fresnoirrigation.com.

Sincerely,

Kassy D. Chauhan,
Executive Officer