CITY OF CHINO, CA

WaterSMART Drought Response Program:
Drought Resiliency Projects for
Fiscal Year 2020

WELL 14 ON-SITE WELLHEAD TREATMENT PROJECT

PREPARED FOR:
Bureau of Reclamation
Financial Assistance Support Section
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Executive Summary

Date: October 16, 2019
Applicant: City of Chino
County: San Bernardino
State: California

Project Summary

The proposed project will help make the City of Chino, in San Bernardino County, CA more resilient to periods of drought and ensure long-term water sustainability by enabling the use of safe, clean potable water. The City of Chino has a service population of 77,507. The federal funds portion being requested through this grant is $750,000. The total project cost is estimated to be $12.1 Million. The City Match portion will be approximately $11.3 Million through a City issued bond. The City has met the required cost sharing percentage. The federal funds request amount is being applied for under this grant application provided through the WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Years (FY) 2020 Grant.

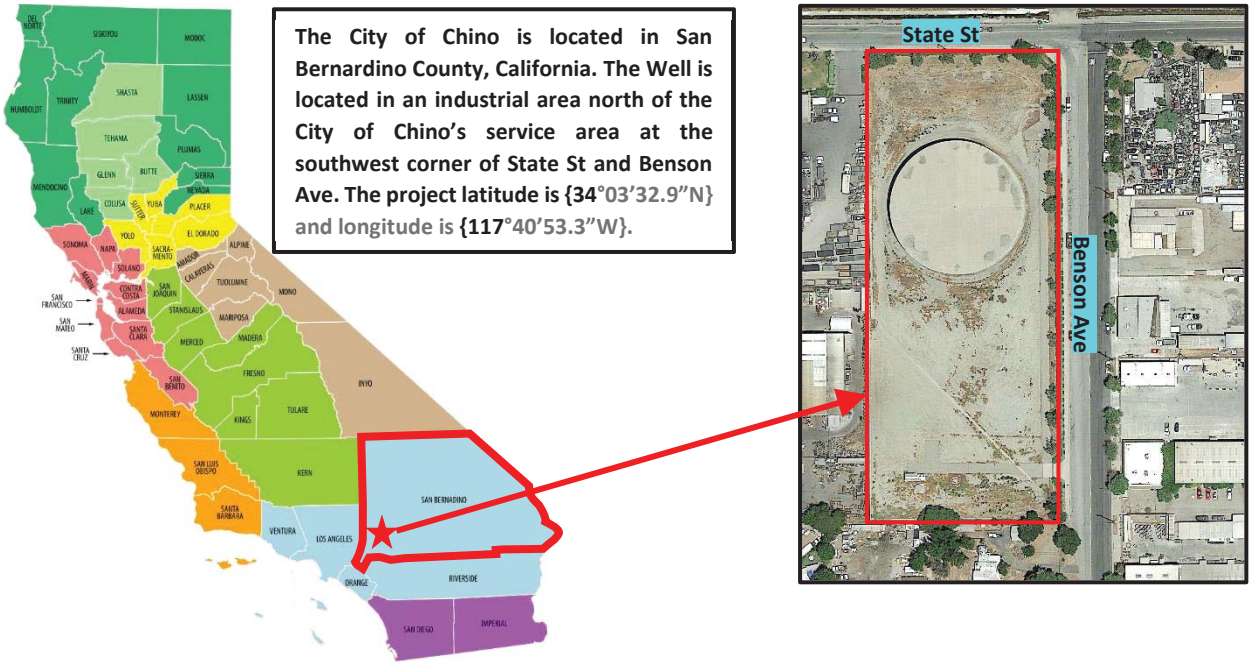
The City of Chino will construct an on-site wellhead treatment at Reservoir 5 on State Street for added treatment to existing Well 14. Well 14 has been inactive since 2008 due to high concentrations of 1,2,3 TCP above the maximum contaminant level of 5 ng/L, Percholorate above the maximum contaminant level of 6 µg/L, and 1,2-Dibromo-3-chloropropane (DBCP) above the maximum contaminant level of 0.2 µg/L. Removal of these contaminants is necessary for the well to be used for potable water supply. The proposed project includes treatment of Well 14 at Reservoir 5, which incorporates cartridge filters, GAC, IX, and chlorination equipment. The total treatment capacity at this location totals 2,297 gpm. A challenge associated with this alternative is the location of the well, falling slightly to the north of the City service area, which may require additional coordination and permitting. A connection to the City of Montclair sewer system will be required for the backwash waste discharge. However, it is located in an industrial area, which should limit neighborhood impacts. The implementation of treatment may require the relocation of existing utilities however this is a large site with ample space for proposed treatment and future expansion. And while approximately 3,800 ft of brine line may be required, this treatment facility is located at the top of the distribution system which has the ability to serve all pressure zones.

The City of Chino completed a Water Quality Feasibility Study in June 2018 for the treatment of groundwater contaminated with 1,2,3-TCP, nitrate, perchlorate, and hexavalent chromium with the specific goals to minimize treatment requirements while maintaining compliance, utilize a treatment process that accommodates current and potential future regulated contaminants, meet water quality goals with a best value technology based on operational flexibility and lifecycle costs, leverage the use of existing infrastructure and minimize community impacts, and to establish the basis for preliminary design and for obtaining funding. The project to treat Well 14 at Reservoir 5 was the top ranked project due to its size, as it is the second largest City well, and its capacity is introduced at the top of the distribution system where it can be utilized throughout all pressure zones. The proposed project will provide the City with an additional production capacity of 3,705 acre-feet of water per year. Added treatment to Well 14 will assist

the City's goal to move toward more water independence and less reliance on imported water sources while building long-term drought resilience by increasing local water supplies and purchasing less water. The City estimates that the project will take approximately 36 months to complete. The project is scheduled to begin immediately upon notification of grant funding in February 2020 and is anticipated to be completed by January 2023. The project is not located on a Federal Facility.

Background Data

Exhibit 1. Project Location Map



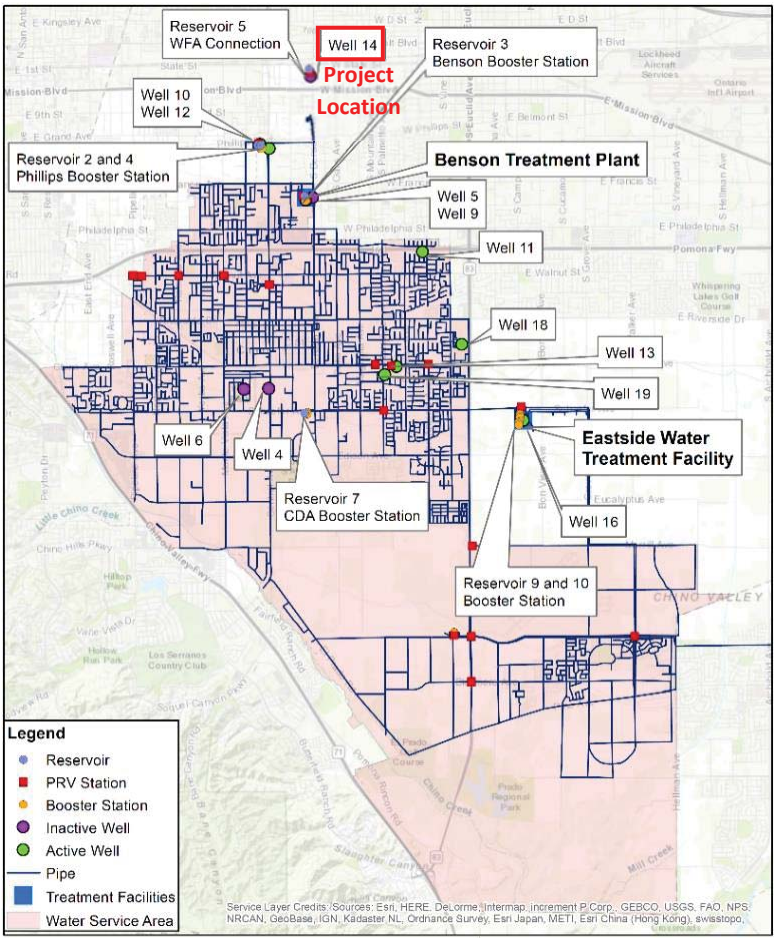
Background Data: The City of Chino incorporates 29.5 square miles in the western San Bernardino County region in Southern California. In 2017, the population was estimated by the United States Census Bureau at 89,797. According to the 2017 U.S. Census, the residents of the City of Chino identified as 50.4% white, 52.4% Hispanic or Latino, 5.8% African American, 0.5% Native American, 12.4% Asian, 0.5% Pacific Islander Pacific, and 7.8% from two or more races. City of Chino has a median household income of $75,530, with 11.7% of the population living below the federal poverty line.

The City of Chino is a community rich in tradition, culture, and diversity. Today, Chino benefits from a well-balanced landscape with established residential and commercial areas, beautiful neighborhoods, quaint hometown charm, and a diverse business foundation.

Water Sources: The City currently obtains water from the following primary water sources: 1) groundwater from the adjudicated Chino Groundwater Basin managed by the Chino Basin Watermaster; 2) imported State Water Project (SWP) water from the Metropolitan Water District

of Southern California (MWD) through the Inland Empire Utilities Agency (IEUA) and treated by the Water Facilities Authority (WFA) Agua de Lejos Water Treatment Plant; 3) desalted groundwater from the Chino Basin Desalter Authority (CDA); and 4) recycled water supplied by IEUA. Current potable and recycled water supply total approximately 21,400 acre-feet. Groundwater from the Chino Basin is produced by groundwater wells owned and operated by the City, and based off actual water records, constitutes almost half of the City's water supply. Of the 12 groundwater wells owned by the City, three have been removed from service due to perchlorate concentrations above the maximum contaminant level (MCL). The majority of the remaining nine wells receive treatment for nitrate and perchlorate.

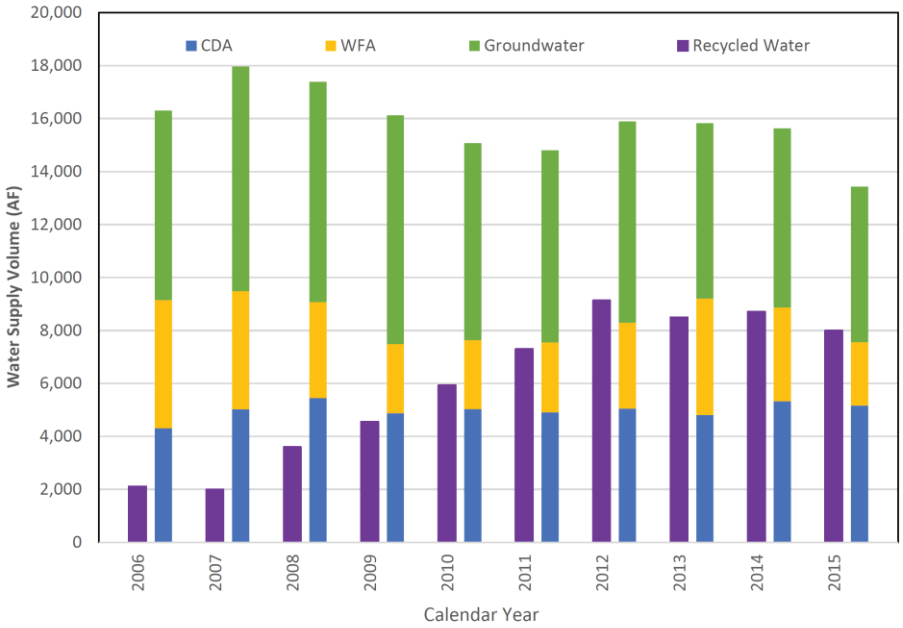
Exhibit 2. Existing Potable Water Facilities



The 1,2,3-Trichloropropane (TCP) regulation adopted by the California State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) on July 18, 2017 established an MCL at 5 nanograms per liter (ng/L), or parts per trillion (ppt). This regulation impacts the City's groundwater wells and existing treatment systems, as the existing ion exchange systems are ineffective at removing 1,2,3-TCP.

The City owns and operates 265 miles of transmission and distribution pipelines, 4 reservoirs, and 3 pump stations. Water is supplied through three main sources: local groundwater and purchased water from the Water Facilities Authority (WFA) and the Chino Basin Desalter Authority (CDA). The City also purchases recycled water from the Inland Empire Utilities Agency (IEUA) for sale and for recharge purposes.

Exhibit 3. Historical Water Supplies



Water Usage: The City's Water Utility currently serves water to an area of approximately 29.5 square miles, consisting of residential, commercial and industrial developments, as well as open space with mixed agricultural sites. The water utility provides service to over 19,200 customer accounts in the service area. The high cost of land in the Los Angeles area increased the attractiveness of the Chino Basin and other suburban areas where available land was still plentiful during times of intense land development. The 1950 population of Chino was less than 6,000, while the 1990 census population was almost 60,000. Chino's current water service area population is approximately 77,507 which is anticipated to increase to approximately 97,863 by 2040. Chino's service area population differs from its total municipal boundary population because other water purveyors service certain areas of the City (including California Department of Corrections group quarters) and the City provides water service to certain areas of unincorporated San Bernardino County. Current water demand is approximately 13,500 acre-feet which is anticipated to increase to approximately 23,400 acre-feet by 2040.

Exhibit 4. Population – Current and Projected

Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	73,683	78,463	84,596	90,730	96,863	97,863
NOTES: The City's 2025 General Plan estimates the City will be built-out by 2035. The population growth rate from 2035 through 2040 was determined by reviewing the SCAG population growth rates for adjacent and nearby Cities which are currently built-out.						

Exhibit 5. Demands for Potable and Raw Water – Actual

Use Type *(Add additional rows as needed)*	2015 Actual		
Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	6,600
Multi-Family		Drinking Water	1,030
Commercial	Includes Institutional uses	Drinking Water	2,112
Industrial		Drinking Water	411
Landscape	Includes commercial and municipal landscape applications	Drinking Water	1,909
Agricultural irrigation		Drinking Water	65
Other	Construction	Drinking Water	29
Losses		Drinking Water	1,278
		TOTAL	13,433
NOTES: Losses were quantified utilizing the AWWA Water Audit software (see Appendix C). Volume of water expressed in terms of acre-feet. All demands shown are for potable water uses.			

Exhibit 6. Demands for Potable and Raw Water – Projected

Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*		2020	2025	2030	2035	2040-opt
Single Family		8,466	9,175	9,847	10,285	11,475
Multi-Family		1,321	1,432	1,537	1,605	1,791
Commercial	Includes Institutional uses	2,710	2,936	3,151	3,292	3,673
Industrial		528	572	614	641	715
Landscape	Includes commercial and municipal landscape applications	2,481	2,688	2,885	3,013	3,362
Agricultural irrigation		60	60	60	60	60
Other	Construction	70	70	70	70	70
Losses		1,627	1,764	1,894	1,979	2,209
TOTAL		17,262	18,696	20,058	20,945	23,355
NOTES: Total projected water demands are based on the IEUA Land Use Based Water Demand Model. The IEUA Model did not include agricultural demands and construction demands which were added to the IEUA Model demand results. Volume of water expressed in terms of acre-feet. All demands shown are for potable water uses.						

Historical drought conditions: Severe drought, population growth, and global climate change have made water management in California critically important. On January 17, 2014, California Governor Jerry Brown declared a State of Emergency for California in the face of record dryness, triggering a variety of water conservation measures and a request for California residents to voluntarily cut back on water use. In 2015, facing continuing extreme drought, Governor Brown declared another State of Emergency, and announced California's first call for statewide mandatory water restrictions. Even though former Government Jerry Brown declared the drought emergency over in 2017, things had still been exceptionally dry, according to the

National Drought Mitigation Center at the University of Nebraska. However, due to the recent rainfall and snowfall Southern California is considered to be free of drought conditions.

The City's primary source of water supply is groundwater produced from the Chino Basin. Groundwater from the Chino Basin is produced by groundwater wells owned and operated by the City, and based off actual water records, constitutes almost half of the City's water supply. Of the 12 groundwater wells owned by the City, three have already been removed from service due to perchlorate concentrations above the maximum contaminant level (MCL). The majority of the remaining nine wells receive treatment for nitrate and perchlorate. The Chino Basin is adjudicated and managed by the Watermaster to maintain groundwater levels. The City has been able to produce groundwater from the Chino Basin, even throughout periods of drought. With continued management of the Chino Basin to maintain groundwater elevations, the Chino Basin is considered to be a reliable future source of supply and may be used to offset any potential future reductions of WFA supply. That is why it is critical for the city to promptly proceed with returning Well 14 to service due to its large capacity.

Technical Project Description and Milestones

The City of Chino completed a Water Quality Feasibility Study in June 19, 2018 to develop a comprehensive solution for the range of water quality so that the city maximizes use of groundwater as local, reliable supply, and can continue to provide safe drinking water to meet the demands of its growing customer base.

The Study provided recommended improvements for 7 Wells in the City, which will occur in a phased approach. Phase 1 of the Study suggests the project construction for Well 14 and Well 11.

The recommended option for the on-site treatment of Well 14 is located at the State Street site, which is located in an industrial area north of the City service area at Benson Avenue and State Street. The City's existing Reservoir 5 is also located on-site. The proposed equipment layout at the State Street site includes cartridge filters, GAC contactors, IX, and chlorination with a total treatment capacity of 2,297 gpm (shown in Exhibit 7). Given the available space on-site and the equipment footprint requirements, no major space constraints were identified. In order to convey brine waste produced at Well 14 to the NRWS line, the construction of an approximate 3,800 ft brine line would be required. In addition, to convey the GAC backwash waste to sewer, it is assumed that the City would connect to the existing City of Montclair sewer directly adjacent to the site. The City of Montclair's wastewater is ultimately treated by IEUA.

Exhibit 7. Proposed Equipment Layout Plan

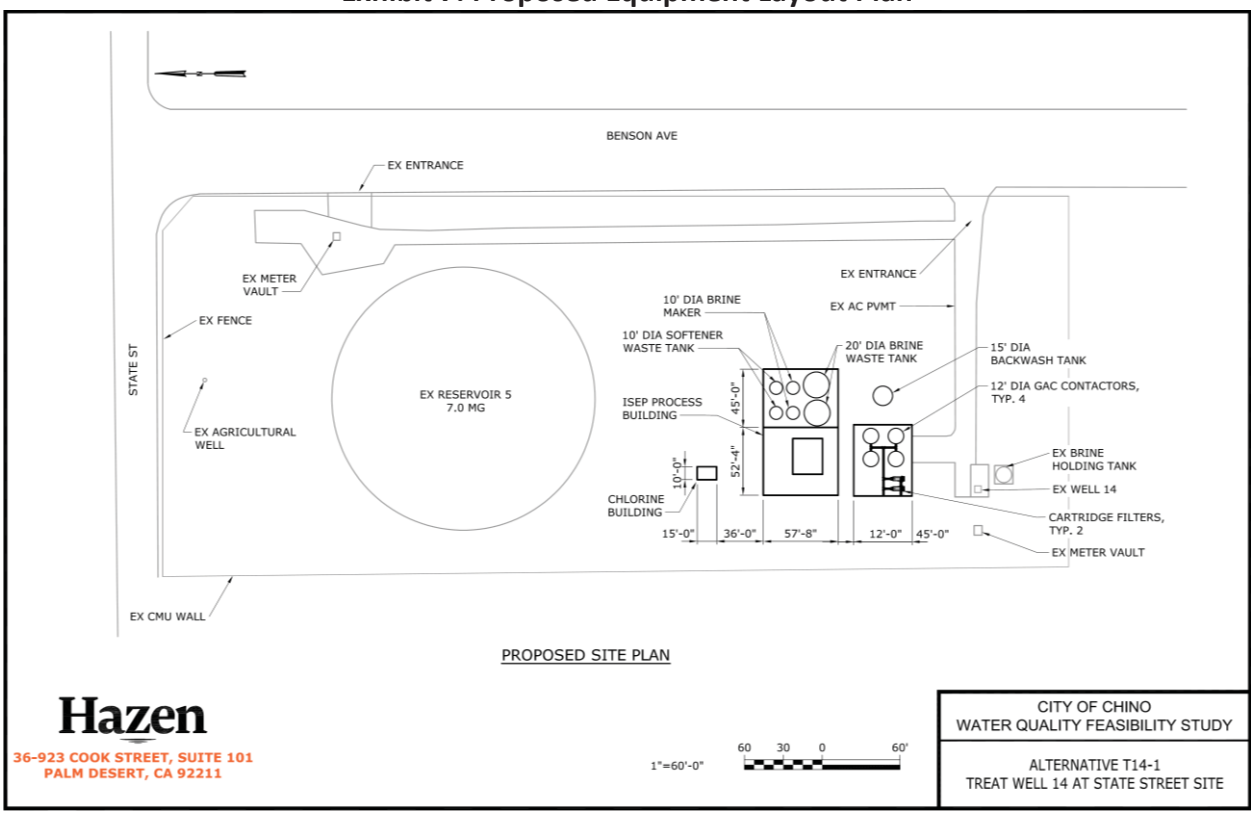


Exhibit 8. Implementation Schedule

No.	High Level Activities/Milestones	Lead	Deliverable	Start/ End Dates
Task #1: Grant Management				
1.1	Obtain City Bond to fund Well 14 On-Site Wellhead Treatment Project once Notice of Grant Award has been received	City	Issue City Bond	01-2020/ 02-2020
Task #2: Grant Management				
2.1	Grant Award and Fully Executed Grant Agreement.	BOR/City	Grant award executed.	01-2020/ 02-2020
2.2	Grant Administration (expected to commence February 1, 2020, with project closeout February 1, 2023 (36 months)	City	Successful audit.	02-2020/ 02-2023
2.3	Submit quarterly program performance reports.	City	Quarterly reports submitted by City.	02-2020/ 02-2023
2.4	Submit requests for reimbursement.	City	Requests for reimbursement submitted by City.	02-2020/ 02-2023
2.5	Submit financial reports including required Federal forms.	City	Financial reports submitted by City.	02-2020/ 02-2023
2.6	Complete final report including project evaluation and final payment request.	BOR/City	Final report submitted by City.	02-2023

2.7	Project Close-out/Final Payment anticipated from BOR (24 months from date Grant Agreement executed).	City	Final payment from BOR.	02-2023
Task #3: Design and Permitting				
3.1	Preliminary Studies (Water quality sampling, bench/pilot testing, hydraulic modeling)	City	Studies on file.	02-2020/ 03-2020
3.2	Complete Facilities Design for Proposed Project (this phase includes RFP for design, design contract execution and design phase services)	City	Facility designs on file.	04-2020/ 12-2020
3.3	Obtain construction permits.	City	Copies of all construction permits	12-2020/ 12-2020
Task #4: Construction				
4.1	Construction Bid Advertisement	City	Documentation of public request for proposals.	01-2021/ 02-2021
4.2	Construction Bid Award	City/ Contractor	Signed contract on file.	02-2021/ 03-2021
4.3	Execution of Bid Contract	City/ Contractor	Signed contract on file	03-2021/ 04-2021
4.3	Construction Management	Contractor		04-2021/ 01-2023
4.4	Mobilization	City/ Contractor		04-2021
4.5	Complete site work including clearing, grubbing, grading, fencing and paving	Contractor	Notice of completion signifying all work completed to satisfaction of City.	04-2021
4.6	Install 500 HP Lineshaft Vertical Turbine Pump, 500 LF of 12-inch column piping, miscellaneous yard piping, dual 4-in PVC C900 brine lines	Contractor	Invoices for piping	05-2021/ 01-2023
4.7	Complete treatment facility construction including installation of equipment, cartridge filters, Calgon Model 12-40, GAC backwash tank, Calgon ISEP system, waste brine storage tanks, chlorine feed building, solenoid feed pump, 1000-gallon tank, process mechanical, HVAC/plumbing, electrical, and instrumental controls	Contractor	Invoices for construction.	10-2021 / 01-2023
Task #5: Monitor Water Usage				
5.1	Develop monthly tracking reports (using Well 14-meter data) for water supply.	City	Well 14 water meter data/tracking reports.	01-2023/ ongoing

Performance Measures

The water treatment facility and wells will be designed to allow for automatic operation with remote monitoring and supervision. Telemetry will be installed to provide for integration of the treatment facility into the City's computer aided control system. The City of Chino proposed to use two performance measures to quantify the proposed project's benefits: 1) Total Groundwater Produced; and 2) Total Groundwater Served to Customers.

The City will use the production data from the Water Quality Feasibility Study (Study) as the baseline, which includes the Annual Average Production of all wells in the City from July 2015 to June 2017. Wells 3, 7, 17 are inactive, unequipped, or do not provide supply to the City and were not included in the Study. Wells 4, 6, and 14 are currently inactive due to water quality (nitrate, perchlorate, chromium-6, and 1,2,3-TCP), and treatment options were discussed in the Study for well reactivation of these water system assets. Exhibit 9 lists the well capacities and relative utilization for the time period from July 2015 to June 2017 for the existing active groundwater wells. Of the currently inactive wells, returning Well 14 to service is prioritized due to its large capacity. During project construction, the City will gather baseline data and develop a report template to submit with quarterly Program Performance Reports. The first report will include methodology for collecting data and a project status. Upon the first quarter of the added water treatment to Well 14, the Program Performance Reports will commence with data to show both Total Groundwater Produced from all Chino groundwater wells, and Total Groundwater Served to Customers. We aim to show an incremental increase in total groundwater produced and served to customers with this project.

1) **Total Groundwater Produced:** We know that the annual average production of groundwater from the wells in the City from July 2015 to June 2017 was 5,037 acre-feet. Well 14 is currently inactive so its annual average production is 0. We estimate that after the construction of the on-site wellhead treatment at Reservoir 5 for added treatment to existing Well 14 that the Well will produce approximately 3,705 acre-feet of water per year based on its capacity. For the sake of this project application, we will measure the total amount of groundwater produced by all Chino wells both before and after project construction is complete and Well 14 is in use. We will continue to gather incremental data each quarter during the reporting period to be published in our quarterly Program Performance Reports to the BOR.

2) **Total Groundwater Served to Customers:** We will utilize baseline data from 2018 to measure total amount of groundwater served to customers before project implementation and measure the total amount of groundwater served postconstruction during each quarter of the grant performance period. We will include this data with our quarterly Program Performance Reports to the BOR. Our research shows that we can increase our groundwater supply to customers.

Reporting will continue via the Department of Drinking Water (DDW), thus, information regarding the viability of the project will be continually documented throughout its useful life.

Exhibit 9. Well Utilization for Fiscal Years 2015/2016 and 2016/2017

Well	Current Status	Annual Average Production[1] (acre-ft)	Annual Average Production[1] (gpm)	Nominal Capacity[2] (gpm)	Utilization[3] (%)
Well 4	Inactive	0	0	725	0
Well 5	Inactive[4]	208	129	1,263	10
Well 6	Inactive	0	0	935	0
Well 9	Active	0	0	2,320	0
Well 10	Active	1,481	918	1,091	84
Well 11	Inactive[5]	1,973	1,223	1,827	67
Well 12	Active	534	331	588	57
Well 13	Active	731	453	1,762	26
Well 14	Inactive	0	0	2,297	0
Well 16	Active	76	47	621	8
Well 18	Active	34	21	1,378	2
Well 19	Active[6]	N/A	N/A	700	N/A
Total	**7 Active**			**14,807**	

[1] Based on production data from July 2015 to June 2017.

[2] Capacity per 2017 Sanitary Survey of City of Chino, or if not available therein, per the City of Chino Water System Master Plan Update 2004.

[3] Utilization = Annual Average Production / Nominal Capacity

[4] Currently inactive, City in process of rehab.

[5] Inactive due to TCP.

[6] Not enough production data available to determine utilization as this is a new well, equipped in 2017.

Evaluation Criteria

Evaluation Criterion A – Project Benefits. Corresponding to the task areas, there are projects that will make additional water supplies available, improve water management, and/or benefit fish, wildlife, or the environment. Please describe how the proposed project will improve drought resiliency and answer all applicable questions:

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

The project will decrease the City's dependence on drought-stricken imported water supplies and continue to work on maximizing the use of local groundwater resources by returning to service the second largest City well to the City's network of wells. With a capacity of 2,297 gpm (3,705 acre-ft), Well 14 will increase the water supply in the Chino Basin and will also help maintain the hydraulic gradient and its capacity is introduced at the top of the distribution system where it can be utilized throughout all pressure zones.

The Chino Basin is considered to be a reliable future source of supply and may be used to offset any potential future reductions of Water Facilities Authority (WFA) supply. The project will continue to provide benefits for at least 20 years, and we expect that the added treatment for Well 14 will provide benefits for upwards of 35 years or more. California's conservation plans for the State Water Project (SWP) are predicated on the assumption that individual regions become more self-sufficient by investing heavily in water conservation, water-use efficiency, water

recycling, and use of a region's surface or underground storage waters. The City of Chino is working diligently to maintain and increase its self-sufficiency in water supply. By increasing our groundwater supply portfolio from 75% to 100%, the City will reduce the need to purchase imported water and help preserve SWP and IEUA/WFA supplies and ensure the capability to efficiently respond to a drought or other water emergency.

Will the project make additional water supplies available? If so, what is the estimated quantity of additional supply the project will provide and how was this estimate calculated? What percentage of the total water supply does the additional water supply represent? How was this estimate calculated? Provide a brief qualitative description of the degree/significance of the benefits associated with the additional water supplies.

Well 14 will produce approximately 3,705 acre-feet of water per year based on its capacity which will be added to the existing 5,037 acre-feet of water per year being produced on average by the wells in the City. Well 14 will represent approximately 42% of the total groundwater produced and approximately 21% of the total water supply. The City's current total water supply (demand) is approximately 17,262 acre-feet per year based on the year 2020 projected water use from the City's 2015 Urban Water Management Plan Update which is met through locally pumped groundwater and purchased imported water.

Chino residents will benefit from a local, high-quality water source that is cost-efficient. The significance of this is extremely important to note as we move toward our goal of less dependence on imported water. The instability of our imported water supply (and that of all Southern California) is at an all-time high, and the need for local, high-quality water for potable use is paramount. This project will produce potable, high-quality water that is currently not available to our residents. The locally sourced water will provide a less costly source than that of our imported, desalter, or recycled water, drawing the overall cost of our water supply down, which translates to more sustainable water rates for customers.

Will the project improve the management of water supplies? For example, will the project increase efficiency, increase operational flexibility, or facilitate water marketing (e.g., improve the ability to deliver water during drought or access other sources of supply)? If so, how will the project increase efficiency or operational flexibility? What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated? How will the project increase efficiency or operational flexibility? What percentage of the total water supply does the water better managed represent? How was this estimate calculated? Provide a brief qualitative description of the degree/significance of anticipated water management benefits. Will the project make new information available to water managers? If so, what is that information and how will it improve water management?

The proposed project will increase water management efficiency by allowing the City to maintain control of its water sources. Well 14 will produce an estimated 3,705 acre-feet of water per year, based on its capacity. Supply shortages have forced SWP to make steep cuts to regional water supplies for the last decade. The proposed project will allow the City of Chino to further cut back

on imported water and use the local water during drought years, and 'bank' reserve groundwater from this source during wet years, when the imported water supply is consistent.

The proposed project will increase water management efficiency by allowing the City to gain more control of its water sources. Well 14 once treated and active will represent approximately 42% of the total groundwater supply and approximately 21% of the total water supply, based on the well's capacity. A few of the benefits from treating Well 14 and bringing it back to service includes increased groundwater storage, increased groundwater quality for Chino residents, conjunctive use opportunities, and less dependence on imported water supplies.

Will the project have benefits to fish, wildlife, or the environment? If so, please describe those benefits.

Yes, the project will provide benefits to the California Bay Delta. In 2008, the Fish and Wildlife Service issued a biological opinion which determined that the continued operation of the Central Valley Project (CVP) and State Water Project (a Reclamation facility) was likely to jeopardize the continued existence of the Delta Smelt, a small fish that lives in the Bay Delta (source of SWP water) and adversely modify its critical habitat. Delta Smelt, among other endangered species, are adversely affected by federal and state exportation of fresh water from the Delta (CVP/SWP). Delta water salinity levels continue to increase, without sufficient freshwater replenishment, thus recent population samples, in an area which typically yielded 50 to 100 smelt fish, now present only six fish, with increased water salinity cited as a major contributing factor. Reduced reliance on imported water from the SWP will contribute to preserving the Delta Smelt habitat and help protect other species.

WELLS. ***What is the estimated capacity of the new well(s), and how was the estimate calculated? How much water do you plan to extract through the well(s)? Will the well be used as a primary supply or supplemental supply when there is a lack of surface supplies? Please provide information documenting that proposed well(s) will not adversely impact the aquifer it/they are pumping from (overdraft or land subsidence). At a minimum, this should include aquifer description, information on existing or planned aquifer recharge facilities, a map of the well location and other nearby surface water supplies, and physical descriptions of the proposed well(s) (depth, diameter, casing description, etc.). If available, information should be provided on nearby wells (sizes, capacities, yields, etc.), aquifer test results, and if the area is currently experiencing aquifer overdraft or land subsidence. Please describe the groundwater monitoring plan that will be undertaken and the associated monitoring triggers for mitigation actions. Describe how the mitigation actions will respond to or help avoid any significant adverse impacts to third parties that occur due to groundwater pumping***.

The proposed project will increase water management efficiency by allowing the City to maintain control of its water sources. Well 14 will produce an estimated 3,705 acre-feet of water per year, based on its capacity. Supply shortages have forced SWP to make steep cuts to regional water supplies for the last decade. The proposed project will allow the City of Chino to further cut back on imported water and use the local water during drought years, and 'bank' reserve groundwater from this source during wet years, when the imported water supply is consistent. The Well will be used as a primary supply of water, Well 14 is the second largest City well with a capacity of

2,297 gpm (3,705 acre-ft). Well 14 was drilled in 1988 and has a depth of 1,220-ft and a pump capacity of 2,297 gpm. Well 14 will increase the water supply in the Chino Basin and will also help maintain the hydraulic gradient and its capacity is introduced at the top of the distribution system where it can be utilized throughout all pressure zones.

Exhibit 10. Location of Well 14

Evaluation Criterion B – Drought Planning and Preparedness.

Attach a copy of the applicable drought plan, or sections of the plan, as an appendix to your application. These pages will not be included in the total page count for the application.

Please see Appendix A for a copy of the City's 2015 Urban Water Management Plan Update, Appendix B for a copy of the City's Water Conservation ordinance, and Appendix C for the Water Quality Feasibility Study completed in 2018 for all wells in the City of Chino.

Explain how the applicable plan addresses drought. Proposals that reference plans clearly intended to prepare for, and address drought will receive more points under this criterion. Explain whether the drought plan was developed with input from multiple stakeholders. Was the drought plan developed through a collaborative process? Does the drought plan include consideration of climate change impacts to water resources or drought?

The City's Water Conservation ordinance declared that because of the water conditions prevailing in the State of California, the statewide drought and the declared policy of the state, it is necessary and appropriate for the city to adopt and implement a water conservation program to reduce the quantity of water used by persons in the city. Furthermore, the general welfare requires the reasonable and efficient use of the city's water resources, the waste or unreasonable use of water to be prevented, and the implementation of water conservation measures that will reduce water consumption within the city's service area. The City's ordinance and 2015 Urban Water Management Plan Update was developed through a collaborative process and with input from multiple stakeholders. The 2015 Urban Water Management Plan Update in several sections addresses climate change and the future potential impacts on water supplies.

Describe how your proposed drought resiliency project is supported by and existing drought plan. Does the drought plan identify the proposed project as a potential mitigation or response action? Does the proposed project implement a goal or need identified in the drought plan? Describe how the proposed project is prioritized in the referenced drought plan?

The proposed drought resiliency project to construct a treatment facility for Well 14 to produce clean potable water for city residents and businesses is supported by the UWMP as well as the City ordinance for Water Conservation and is included in the Water Quality Feasibility Study as a highly prioritized project based on its large capacity. The proposed project will address the City's goal to further cut back on imported water and use the local water during drought years, and 'bank' reserve groundwater from this source during wet years, when the imported water supply is consistent.

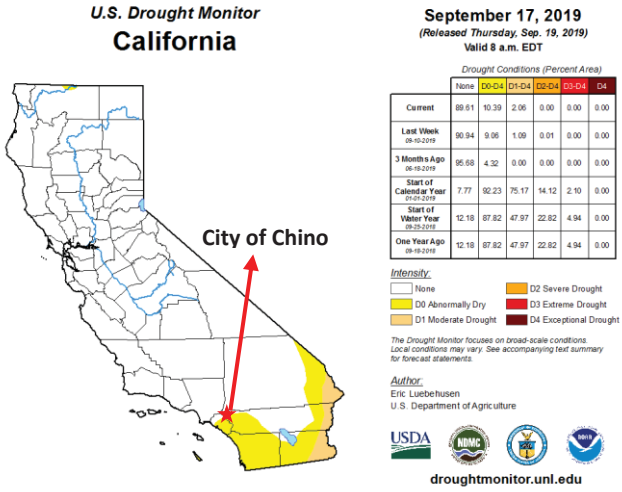
Evaluation Criterion C – Severity of Actual or Potential Drought Impacts to be addressed by the Project.

What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken (e.g., impacts to agriculture, environment, hydropower, recreation and tourism, forestry), and how severe are those impacts? Impacts should be quantified and documented to the extent possible.

In 2014, Governor Brown declared a drought state of emergency for California triggering a variety of water conservation measures and a request for California residents to voluntarily cut back on water use (Orange County Register, 1/18/14).

On mid-March 2019, California emerged from drought conditions for the first week since December 11, 2011, breaking its 376-week streak. Reservoirs continue to slowly replenish in areas of the state still experiencing abnormal dryness (D0) and no further changes were made here. However, areas of abnormal dryness and drought continued to decline in other western states, due to recent above-average precipitation and excellent snowpack conditions at higher elevations.

The State's water conservation plans for the SWP and its Bay Delta source are predicated on the assumption that individual regions in California become more self-sufficient by investing heavily in water conservation, water-use efficiency, water recycling, and conjunctive use of a region's surface or underground storage. Climate change will also impact the Colorado River Basin, Southern California's single largest source of water outside the Central Valley. Scientists estimate a



decrease of 6%-50% in annual river flow due to changes in precipitation cycles and snowpack.

Given the strong possibility of recurring drought conditions in the years ahead, it is critical for the City of Chino to treat the water from Well 14 and bring it back to service as an added water supply to the City and further cut back on imported water. The inactive status of Well 14 impacts the availability for the City to be able to provide water to its residents since it is a loss of water production, the City has to buy water instead of being able to use its own resources also creating a financial impact to residents due to the water price increase of imported water during droughts. If Well 14 would have remained active it would be producing water not acceptable to drinking water standards. Well 14 has the ability to help maintain the hydraulic gradient and its capacity is introduced at the top of the distribution system where it can be utilized throughout all pressure zones.

Evaluation Criterion D – Project Implementation.

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

The proposed project is capable of proceeding into a financial assistance agreement with the Bureau of Reclamation. The total project cost is estimated at $12,104,000, with $750,000 in Federal Funds provided through the WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Years (FY) 2020 grant, if awarded, and the City match portion of $11,354,000 being allocated from a City Bond. The City of Chino plans on issuing a City Bond for the Well 14 On-Site Wellhead Treatment Project once Notice of Grant Award has been received. Please see section **Technical Project Description and Milestones** for the estimated projects schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Describe any permits that will be required, along with the process for obtaining such permits.

Permits required for the construction of the Well 14 Treatment Facility include the following:

- CEQA. The California Environmental Act (CEQA) mandates every California state and local project to identify and disclose environmental impacts associated with proposed projects. Exemptions do exist under CEQA, this project possibly encompasses some of these exemptions including developing new treatment facilities that minorly alter land. However, there is a possibility that other aspects such as brine line construction may fall under the CEQA process. If any sections fall under CEQA, this will require an Initial Study (IS) which will result in a negative declaration, mitigated negative declaration (MND), or a notice of preparation for an Environmental Impact Report (EIR) and a notice of determination.
- State Permits.
  - ✓ SWRCB NPDES General Construction Permit. The State Water Resources Control Board (SWRCB) requires a National Pollutant Discharge Elimination System (NPDES) general construction permit due to construction activity and land disturbances part of a “common plan of development” as well as for more than

one acre of disturbances. Items require to obtain a permit include a notice of intent form, risk assessment, post-construction calculations, a site map, storm water pollutant prevention plan, certification statement, and a fee.

- ✓ SWRCB NPDES Stormwater Permit. The City falls within the San Bernardino County MS4 Phase 1 NPDES permit. Jurisdiction for Chino does not require San Bernardino oversight. The City will continue to adhere to the requirements of the permit.
- ✓ SWRCB Water Supply Permit – DDW (amendment)
- ✓ SWRCB California Regional Water Quality Control Board, Colorado Basin Region
- ✓ SWRCB Memorandum 97-005
- ✓ CalOSHA. Trenching and Excavation Permit.

- o Regional Permits. The City is located within San Bernardino County, which necessitates the same MS4 Phase 1 permit. The location of Well 14, falls slightly to the north of the City service area, which may require additional coordination and permitting. A connection to the City of Montclair sewer system will be required for the backwash waste discharge. The following permits could be applicable:
  - ✓ Planning Permit: Administrative Approval or Site Approval or Special Conditional Use Permit
  - ✓ Building Permit
  - ✓ Industrial Waste Discharge to Sewers
  - ✓ Grading Permit
  - ✓ Geotechnical Report
  - ✓ Plumbing – for work on existing building/structure
  - ✓ Water Quality Management Plan/Post Construction Management Plan
- o Inland Empire Utilities Agency Brine Line Permits. There are two permits for the non-reclaimable waste system (NRWS) – direct and indirect discharges. Direct discharge permits allow waste to be directly connected to the NRWS whereas indirect discharge permits allow hauling of waste. The proposed treatment location for the City could tie into the NRWS as well as the Inland Empire Brine Line (IEBN). Permits terms are typically renewed for the NRWS every five years and every two years for the IEBL.
- o Chino Valley Fire District.
  - ✓ Chino Valley Fire District Plan Review Application
  - ✓ Chino Valley Fire District Permit

Identify and describe any engineering or design work performed specifically in support of the proposed project.

Engineering and design work are currently in the planning stages and so far, the City has identified the need to maximizing the use of local groundwater resources and that the City promptly proceed with the installation of treatment to develop additional capacity. Well 14 is highly prioritized as it is the second largest City well and its capacity is introduced at the top of the distribution system where it can be utilized throughout all pressure zones. The City of Chino hired Hazen and Sawyer to prepare a Water Quality Feasibility Study for the treatment of contaminated groundwater which included a review of City water quality, water quality concerns and emerging contaminants, compliance and treatment alternatives, equipment requirements, preliminary sizing and layouts, environmental requirements and permitting, cost estimates, an alternatives

evaluation, recommendations, and an implementation schedule. The City will begin the process of preparing an RFP to select design firms based on their qualifications and experience of similar projects to prepare the final design of Well 14 based on the recommendations outlined in the Water Quality Feasibility Study.

Describe any new policies or administrative actions required to implement the project.
The City of Chino has no new policies or does not require any administrative actions to implement the project.

Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office? The environmental compliance estimate of $468,500 is based on 5% of the total probable construction cost which is based on prior projects of similar scope.

Evaluation Criterion E—Nexus to Reclamation

How is the proposed project connected to a Reclamation project or activity?
Chino receives approximately 38% of its water from the imported State Water Project (SWP) water from the Metropolitan Water District of Southern California (MWD) through the Inland Empire Utilities Agency (IEUA) and treated by the Water Facilities Authority (WFA) Agua de Lejos Water Treatment Plant. The City's goal is to continue to reduce its dependence on these sources with successful water conservation methods and use of its own water sources.

Will the project benefit any tribe(s)?
The proposed project will not benefit tribes directly but freeing up water from the SWP by utilizing local supplies through the treated water from Well 14 it will indirectly allow reclamation facilities to better meet their responsibilities to tribes.

Does the applicant receive Reclamation project water?
Yes, the City receives a portion of its water from WFA, which is supplied from the original water sources of the Colorado River Aqueduct and the State Water Project (SWP).

Is the project on Reclamation project lands or involving Reclamation facilities?
The project is not on reclamation projects lands and does not involve reclamation facilities, but it will directly benefit reclamation facilities due to a decreased dependence on reclamation water and increase use of the City's own water sources.

Is the project in the same basin as a Reclamation project or activity? No

Will the proposed work contribute water to a basin where a Reclamation project is located?
Yes, the proposed project will decrease the City's dependence on reclamation water and increase use of the City's own water sources. Therefore, the City will be using less water from these reclamation project basins.

Evaluation Criterion F—Department of Interior Priorities

- Creating a conservation stewardship legacy second only to Teddy Roosevelt
  a. Utilizing science to identify best practices to manage land and water resources and adapt to changes in the environment.

The proposed project implements a low-impact and cost-effective design to use local groundwater near the source and treat contaminated water- recognized as a best management practice by local, regional, state and federal water authorities.

- Modernizing our infrastructure
  a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure.

Using a combination of local and Federal funds the project will replace/modernize insufficient, undersized, and poor performing systems which produced contaminated water to systems which will provide potable and clean water.

Project Budget

The City is capable of executing a financial assistance agreement with the Bureau of Reclamation for this project. The non-Federal share of project costs will be obtained through a city issued bond.

The project breakdown summary is as follows: The federal funds portion being requested through this grant is $750,000. The total project cost is estimated to be $12.1 Million. The City Match portion will be approximately $11.3 Million through a City issued bond. The City has met the required cost sharing percentage. The federal funds request amount is being applied for under this grant application provided through the WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Years (FY) 2020 Grant.

Exhibit 11. Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	$750,000
Costs to be paid by the applicant	$ 11,354,000
Value of third-party contributions	$ 0
TOTAL PROJECT COST	**$ 12,104,000**

Exhibit 12. Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
City Bond Issued by the City of Chino	$11,354,000
Non-Federal Subtotal	**$11,354,000**
Other Federal Entities	
Bureau of Reclamation - WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Years (FY) 2020 grant	$750,000
Other Federal Subtotal	**$750,000**
TOTAL PROJECT COST	**$ 12,104,000**

Exhibit 13. Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Conveyance				
500 HP Lineshaft Vertical Turbine Pump, 500 LF of 12-inch Column Piping	$405,600	1	EA	$405,600
Misc. Yard Piping (included below as part of Treatment Site Civil)	-	1	LS	-
Brine Disposal				
Dual 4" PVC C900 brine lines (Dual Lines installed in same trench)	$114	3,900	LF	$444,600
Sitework				
Clearing, Grubbing, Grading, Fencing, Paving (Included below as part of Treatment Site Civil)	-	1	LF	-

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Treatment				
Concrete Pad (45ft x 55ft x 1ft)	$23	2,475	CF	$56,925
Horizontal Cartridge Filters (1,100 gpm capacity each)	$21,000	2	EA	$42,000
Calgon Model 12-40	$443,000	2	EA	$886,000
GAC Backwash Tank (15 ft diameter x 20 ft depth)	$108,600	1	EA	$108,600
Concrete Pad (60ft x 90ft x 1ft)	$23	5,400	CF	$124,200
Calgon ISEP System (3-inch ported valves)	$2,032,000	1	EA	$2,032,000
Waste Brine Storage Tank (20ft dia. X 20ft dep.)	$127,500	2	EA	$255,000
Pre-Fab Steel Structure (ISEP)	$75	3,300	SF	$247,500
Shade Canopy (Waste Tanks)	$50	2,750	SF	$137,500
Concrete Pad (15ft x 10ft x 1ft)	$23	150	CF	$3,450
Chlorine Feed Building	$22,500	1	EA	$22,500
Solenoid Chemical Feed Pump (2.5 HP)	$920	2	EA	$1,840
1000 Gallon Tank	$4,500	1	EA	$4,500
Treatment Other Indirect Factors:				
Equipment Installation Cost (Included Above)	0%			-
Process Mechanical (piping, valves, appurtenances, etc.; allow for interprocess connections for Treatment)	15%			$588,302
Site Civil (As percent of total cost. Including yard piping, site preparation and improvements)	15%			$588,302
Structural (None Provided)	0%			-
HVAC/Plumbing (None Provided)	0%			-
Electrical (As percent of total cost)	15%			$588,302
Instrumentation and Controls (As percent of total cost)	5%			$196,101
Conveyance, Disposal, Sitework, and Treatment Subtotal:				**$6,733,223**
General Conditions (Div01)	10%			$673,322
Subtotal:				**$7,406,545**
Escalation at 3.5% annually	5%			$392,226
Subtotal:				**$7,798,771**
Contractor Overhead	8%			$623,902
Subtotal:				**$8,422,673**
Contractor Profit	8%			$673,814
Subtotal:				**$9,096,487**
Bond and Insurance	3%			$272,895
Subtotal:				**$9,369,381**
Design Contingency	0%			-
TOTAL PROBABLE CONSTRUCTION COST:				**$9,370,000**

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
PROJECT COSTS:				
Non-Reclaimable Wastewater System Capacity Unit (NRWSCU) Acquisition Fee	$500,000	25	NRWSCU	$104,300
Initial Wastewater Discharge Permit Application Fee	$6,059	1	EA	$6,059
Engineering	8%			$749,600
Environmental	5%			$468,500
Permitting	1%			$93,700
Construction Management	10%			$937,000
Legal	2%			$187,400
Administration	2%			$187,400
TOTAL PROBABLE PROJECT COST:				**$12,104,000**
ESTIMATED HIGH PROJECT COST BASED UPON AACE CLASSIFICATION			50%	**$18,156,000**
ESTIMATED LOW PROJECT COST BASED UPON AACE CLASSIFICATION			-30%	**$8,472,800**

Budget Narrative. The probable costs for this project are based on previous experience, current available information from trusted sources, vendor quotes, project location, and project-specific conditions. The Cost Estimate Classification System guidelines publishes by the Association for the Advancement of Cost Engineering International (AACEI) was used to define the level of accuracy of these estimates. Costs are considered Class 4 for study or feasibility use with a 1-15% level of project definition. The cost accuracy range is normally considered minus 30% to plus 50% to account for unknowns given this level of design. For Reference, the Engineering News-Record Construction Cost Index (ENR CCI) index was 10,889 at the time this report was prepared. Actual projects costs will depend on factors such as actual labor and material costs, competitive market conditions, actual site conditions, final project scope, and other variables. Project cost factors have been included in the cost estimate based on the level of project definition and as a provision for unforeseeable, additional costs within the reasonable bounds of a similar project scope. These factors include indirect factors, construction factors, and project factors. Indirect factors include equipment installation, process mechanical piping, site work, structural work, HVAC/Plumbing, electrical, and instrumentation and control. Construction factors include general conditions, escalation, contractor overhead and profit, bond/insurance, and scope contingency. Full project cost factors include engineering design, environmental, permitting, construction management, legal, and administration.

Additional cost factors were considered, as follows:

- Long distance conveyance piping was not included in the indirect multipliers.
- Brine line acquisition and permitting cost were not included in the indirect, construction, or project multipliers.
- Cost estimates are for the project location in San Bernardino County, California to be consistent with current market prices in the area.
- The cost estimates were based on August 2019 dollars.

- A Market Adjustment Factor normally would be applied to compensate for fluctuations in material and labor prices driven by the national and global market. Since the market is currently generally stable, this factor was not included in the cost estimates.
- Property acquisition costs were not included in the indirect, construction, or project multipliers.
- The indirect multipliers did not include conveyance line items.
- The assumed project contingency percentage was minus 30% to plus 50% to account for unknowns given this level of design. This was not included in the point estimate but shown graphically.

Environmental and Cultural Resources Compliance

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

The proposed project will construct a new treatment facility which includes cartridge filters, GAC contactors, IX, and chlorination as well as construction of approximately 3,800 ft of brine line in order to convey brine waste produced at Well 14 to the non-reclaimable waste system (NRWS) line. The City is required to implement all avoidance and mitigation measures in compliance with the City of Chino and the City of Montclair. The on-site treatment of Well 14 is located at the State Street site, which is located in an industrial area north of the City service area borderline with the City of Montclair at the southwest corner of Benson Avenue and State Street. In order to minimize noise impacts to the surrounding businesses, the drilling contractor will be required to implement some noise suppression measures. All construction and testing activities will need to comply with the noise ordinance of the City of Chino. The project is also expected to implement measures for dust control during the construction.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

There are no know species listed as a Federal threatened or endangered species in the project area. The site is already developed and is not a designated critical habitat.

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

There are no wetland or other surface waters inside the project boundaries.

When was the water delivery system constructed?

Well 14 was drilled in 1988 and a depth of 1,220-ft and a pump capacity of 2,297 gpm.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The proposed project will not result in any modification of or effects to, individual features of an irrigation system such as headgates, canals, or flumes.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

There are no buildings, structures, or features in the proposed project area that are listed or eligible for listing on the National Register of Historic Places.

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

There are no known archeological sites in the proposed project area.

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

No, the proposed project will have a positive effect on all residents of the City of Chino and its surrounding areas including low income and minority populations. The project will produce a new source of safe drinking water locally, decrease dependence on water imported from the State Water Project (SWP), replace lost groundwater production, and lower cost of water for residents since less water will need to be purchased from other sources.

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

No, the project will not have any impacts on sacred sites or tribal lands.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

The proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

Required Permits or Approvals

Permits required for the construction of the Well 14 Treatment Facility include the following:

- CEQA. The California Environmental Act (CEQA) mandates every California state and local project to identify and disclose environmental impacts associated with proposed projects. Exemptions do exist under CEQA, this project possibly encompasses some of these exemptions including developing new treatment facilities that minorly alter land. However, there is a possibility that other aspects such as brine line construction may fall under the CEQA process. If any sections fall under CEQA, this will require an Initial Study (IS) which will result in a negative declaration, mitigated negative declaration (MND), or

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- Chino Valley Fire District.
  - ✓ Chino Valley Fire District Plan Review Application
  - ✓ Chino Valley Fire District Permit

Letters of Support