

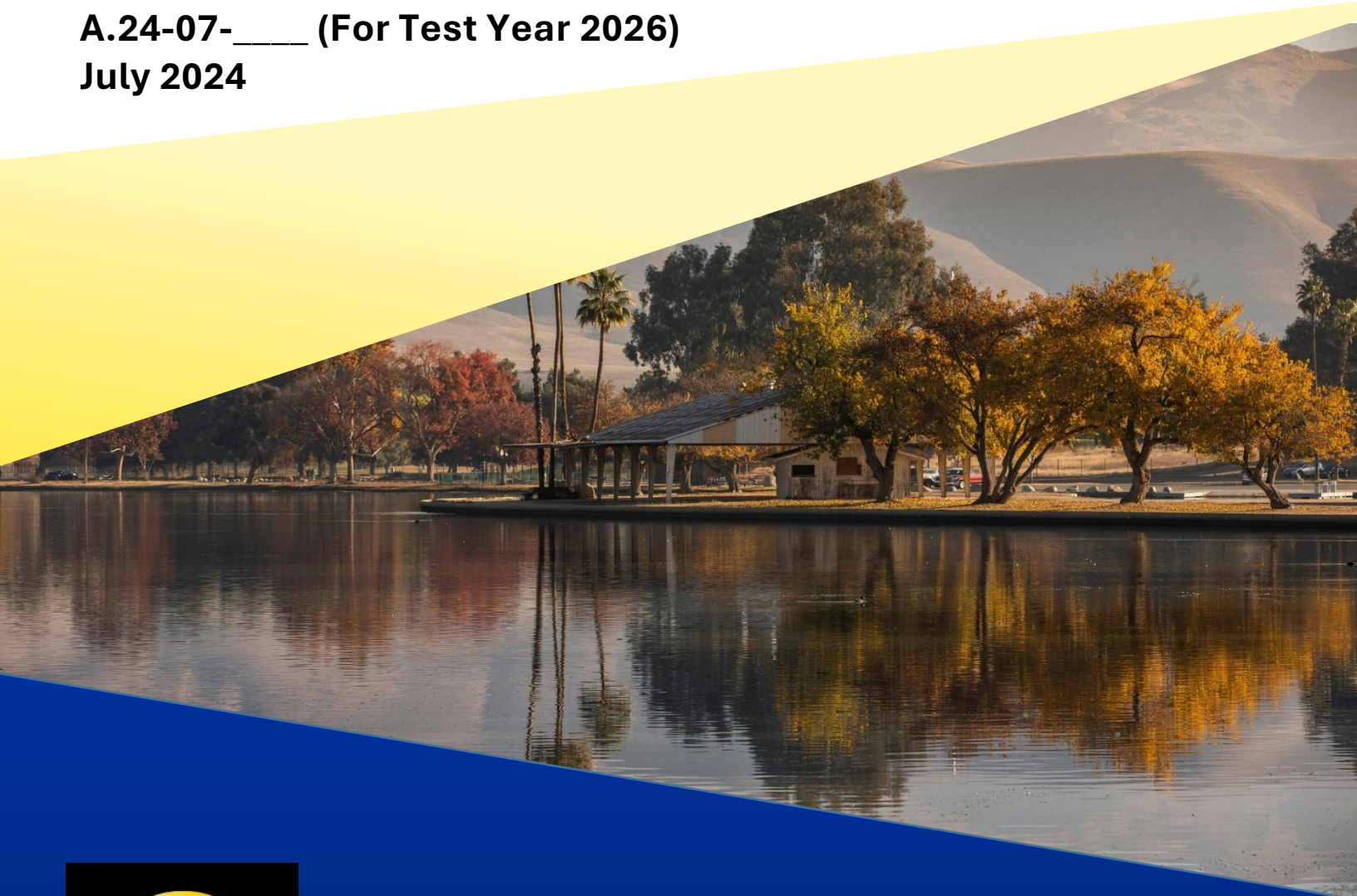
# CAPITAL PROJECT JUSTIFICATION

## *Bakersfield District*

**2024 General Rate Case**

**A.24-07-\_\_\_\_ (For Test Year 2026)**

**July 2024**



**California Water Service**

**Quality. Service. Value.**



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## Table of Contents

---

<b>Section A. Operating District Overview .....</b>	<b>8</b>
District Overview .....	9
<b>Section B. Asset Management .....</b>	<b>12</b>
<b>Section C. Distribution and Operations .....</b>	<b>14</b>
PID# 133181 BK Low Zone- Kern River Crossing.....	15
PID # 133183 Station 209 New Storage Tank .....	25
<b>Section D. Water Resources.....</b>	<b>31</b>
PID # 133838 Bakersfield Well Replacement Program.....	32
<b>Section E. Water Quality.....</b>	<b>38</b>
PID # 132697 Replace H2S vessels at BK 219 .....	39
<b>Section F. Capital Planning.....</b>	<b>43</b>
PID # 133184 Bakersfield Station 087 Rebuild .....	44
PID # 133192 Bakersfield Low Zone Property Purchase.....	50
PID # 133194 Bakersfield North Garden Property Purchase.....	55
<b>Section G. Capital Delivery .....</b>	<b>59</b>
PID # 133180 BK-304-CV001 Panel Upgrade.....	60
PID # 133198 BK NEWTP – Raw Water Pumps VFDs.....	63
<b>Section H. Operations.....</b>	<b>67</b>
PID # 133199 Land Purchase & Office Design .....	68
PID # 133577 Bakersfield Onsite Solar .....	98
PID# 134719 BK Vehicles for new complement .....	103
<b>Section I. Supply Demand Report.....</b>	<b>105</b>
<b>Section J. Background Reports.....</b>	<b>107</b>
<b>Section K. Common Plant .....</b>	<b>109</b>
<b>Section L. Forecasted Projects In Progress.....</b>	<b>112</b>
L1. Projects In Progress Over-Budget and/or Over-Schedule.....	113
PID# 103497 New Well Property North Garden #1.....	114
PID# 115863 Replace Gen-set at Station BK 116.....	115
PID# 122824 Install Backup Generator BK 212.....	117
PID# 123165 BK New Tank & Booster Facility .....	118
PID# 123190 BK 116 PB & Building Replacement.....	120
PID# 126268 BK 047-02 Pump Replacement.....	123

PID# 126877 BK 220-01: Pump & Motor Replacement.....	124
PID# 127761 Replace main canal at shafter Rd.....	125
PID# 128024 Install 8" tr flex at Marella Over X.....	126
PID# 129528 E. California 21" main protection.....	127
PID# 130571 REPLACE V206012 .....	128
PID# 131316 BK PFAS Preliminary Design .....	129
L2. Projects In Progress Over-Schedule .....	131
L3. Projects In Progress Other .....	140
<b>Section M. Under Threshold Projects .....</b>	<b>144</b>

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**Table 1. Capital Budget Summary – Bakersfield District**

<b>PID</b>	<b>Description</b>	<b>Direct Cost</b>	<b>Inserted</b>
131997	BK 2025 ACV Replacements	\$319,389	X <sup>(d)</sup>
132025	BK 2026 ACV Replacements	\$327,374	X <sup>(d)</sup>
132026	BK 2026 Control Valve Overhauls	\$438,176	X <sup>(d)</sup>
132027	BK 2027 ACV Replacements	\$335,550	X <sup>(d)</sup>
132028	BK 2027 Control Valve Overhauls	\$449,119	X <sup>(d)</sup>
132029	BK 2026 Flowmeter Replacements	\$972,844	X <sup>(d)</sup>
132132	BK 073-E Pump Replacement	\$79,518	X <sup>(d)</sup>
132262	BK 2025 VEHICLE REPLACEMENT	\$292,258	X <sup>(d)</sup>
132263	BK 2026 VEHICLE REPLACEMENT	\$506,147	X <sup>(d)</sup>
132264	BK 2027 VEHICLE REPLACEMENT	\$1,698,022	X <sup>(d)</sup>
132272	BK-125-01 Well Renewal	\$288,984	X <sup>(d)</sup>
132561	BK 2026 - Genset Replacements	\$2,307,427	X <sup>(d)</sup>
132663	BK 2025 Carbon Changeouts	\$551,686	X <sup>(d)</sup>
132664	BK 2026 Carbon Changeouts	\$579,615	X <sup>(d)</sup>
132665	BK 2027 Carbon Changeouts	\$594,091	X <sup>(d)</sup>
132838	BK 2027 Instrumentation Replacement	\$21,126	X <sup>(d)</sup>
133158	BK NEWTP Benchtop Turbidimeter	\$5,750	X <sup>(e)</sup>
133160	BK NEWTP pH Probes and Controllers	\$29,844	X <sup>(e)</sup>
133161	BK NWWTP Benchtop Turbidimeter	\$7,000	X <sup>(e)</sup>
133163	BK NWWTP pH Probes and Controllers	\$11,000	X <sup>(e)</sup>
133164	BK 2025 Service Line Replacements	\$6,988,593	X <sup>(d)</sup>
133165	BK 2026 Service Line Replacements	\$7,119,322	X <sup>(d)</sup>
133166	BK 2027 Service Line Replacements	\$7,266,066	X <sup>(d)</sup>
133168	BK 087-T8 Cathodic Protection	\$19,045	X <sup>(d)</sup>
133169	BK 100-T1 Cathodic Protection	\$14,848	X <sup>(d)</sup>
133170	BK 116-T4 Cathodic Protection	\$18,668	X <sup>(d)</sup>
133171	BK 188-T1 Cathodic Protection	\$14,776	X <sup>(d)</sup>
133172	BK 213-T2 Cathodic Protection	\$14,612	X <sup>(d)</sup>
133173	BK 216-T1 Cathodic Protection	\$36,920	X <sup>(d)</sup>
133175	BK 2026 Chemical Tank Replacements	\$34,157	X <sup>(e)</sup>
133176	BK 2027 Chemical Tank Replacements	\$35,010	X <sup>(e)</sup>
133181	BK Low Zone - Kern River Crossing	\$1,282,944	X <sup>(b)</sup>
133182	BK NEWTP MF Feed Pumps VFD	\$444,977	X <sup>(e)</sup>
133187	BK 2026 Station Resurfacing	\$443,163	X <sup>(e)</sup>
133188	BK 2027 Station Resurfacing	\$489,177	X <sup>(e)</sup>
133189	BK Low Zone Well Siting Study	\$185,653	X <sup>(e)</sup>

PID	Description	Direct Cost	Inserted
133190	BK Railroad Main Replacement Study	\$502,223	X <sup>(e)</sup>
133192	BK NG Property Purchase #2	\$545,083	X <sup>(b)</sup>
133194	BK NG Property Purchase	\$551,276	X <sup>(b)</sup>
133196	BK 216 Polymer Storage	\$198,512	X <sup>(e)</sup>
133197	BK NEWTP New Filter Modules	\$629,321	X <sup>(e)</sup>
133198	BK NEWTP Raw Water Pumps VFD	\$864,640	X <sup>(b)</sup>
133199	BK Property Purchase (Office)	\$3,500,000	X <sup>(b)</sup>
133313	BK 2026 Physical Security Upgrades	\$1,018,793	X <sup>(c)</sup>
133314	BK 2027 Physical Security Upgrades	\$831,067	X <sup>(c)</sup>
133378	BK Fire Flow/Hydrant Testing Equip	\$6,592	X <sup>(e)</sup>
133577	Bakersfield Onsite Solar	\$6,380,245	X <sup>(b)</sup>
133916	BK 2025 Control Valve Overhaul	\$374,052	X <sup>(d)</sup>
134008	BK 2026 Instrumentation Replacement	\$73,879	X <sup>(d)</sup>
134719	BK - VEHICLE FOR NEW COMPLEMENTS	\$892,013	X <sup>(b)</sup>
101MRP25	BK 2025 Main Replacement Program	\$17,652,263	X <sup>(d)</sup>
101MRP26	BK 2026 Main Replacement Program	\$18,093,570	X <sup>(d)</sup>
101MRP27	BK 2027 Main Replacement Program	\$18,545,467	X <sup>(d)</sup>
101-NON-SP	101- Bakersfield Non-specific	\$2,460,000	X <sup>(d)</sup>
101-NON-SP	101- Bakersfield Non-specific	\$2,514,900	X <sup>(d)</sup>
101-NON-SP	101- Bakersfield Non-specific	\$2,577,900	X <sup>(d)</sup>
101UNSCH	BKD Unscheduled Replacements	\$8,187,318	X <sup>(d)</sup>
101UNSCH	BKD Unscheduled Replacements	\$8,392,001	X <sup>(d)</sup>
101UNSCH	BKD Unscheduled Replacements	\$8,601,801	X <sup>(d)</sup>
BKD0900_25	Meter Replacement Program	\$558,054	X <sup>(d)</sup>
BKD0900_26	Meter Replacement Program	\$572,006	X <sup>(d)</sup>
BKD0900_27	Meter Replacement Program	\$586,306	X <sup>(d)</sup>
<b>Total</b>	<b>62</b>	<b>\$139,332,138</b>	

**Notes:**

- (a) Direct costs include escalation, but exclude construction overhead and AFUDC.
- (b) Only projects above the District threshold of \$700,000 direct cost are presented in this book with specific or programmatic justifications (see Section A for additional discussion).
- (c) Due to confidentiality concerns, details for Physical Security projects are included separately within the Confidential justification book.
- (d) Project presented in the Common Plant Issues justification book.
- (e) Projects presented in Section M. Under Threshold Projects

The following table presents a list of multi-GRC Projects. These projects are not part of the revenue requirements in this application. Cal Water will start these projects in this GRC period and add them to the revenue requirement of the GRC in which the project will be completed. Please refer to the Project Justifications or the Common Plant Book for project details, and to the capital-related ratemaking testimony (Testimony Book #1) for why justifications are being provided in this GRC.

**Table 2. Multi-GRC Projects – Bakersfield District**

PID	Description	Inserted
133180	BK 304 CV001 Panel Upgrade	X <sup>(b)</sup>
133838	BK 2024 Well Replacement Program	X <sup>(b)</sup>
133183	BK 209 New Storage Tank	X <sup>(b)</sup>
133184	BK 87 Rebuild Design and Construct	X <sup>(b)</sup>
132660	BK 176 Pressure Tank Replacement	X <sup>(d)</sup>
132697	BK 219 GAC Vessel Replacement	X <sup>(b)</sup>
132512	BK 178 Panelboard Overhauls	X <sup>(d)</sup>
132512	BK 007 Panelboard Overhauls	X <sup>(d)</sup>

**Notes:**

- (a) Direct costs include escalation, but exclude construction overhead and AFUDC.
- (b) Only projects above the District threshold of \$700,000 direct cost are presented in this book with specific or programmatic justifications (see Section A for additional discussion).
- (c) Due to confidentiality concerns, details for Physical Security projects are included separately within the Confidential justification book.
- (d) Project presented in the Common Plant Issues justification book.
- (e) Projects presented in Section M. Under Threshold Projects

The following table presents a list of projects that are in progress for which justifications are provided in sub-section L1 of this book because the projects are over-budget and/or over-schedule. Other types of projects in progress are also presented in sub-sections L2 and L3.

**Table 3. Projects In Progress – Bakersfield District**

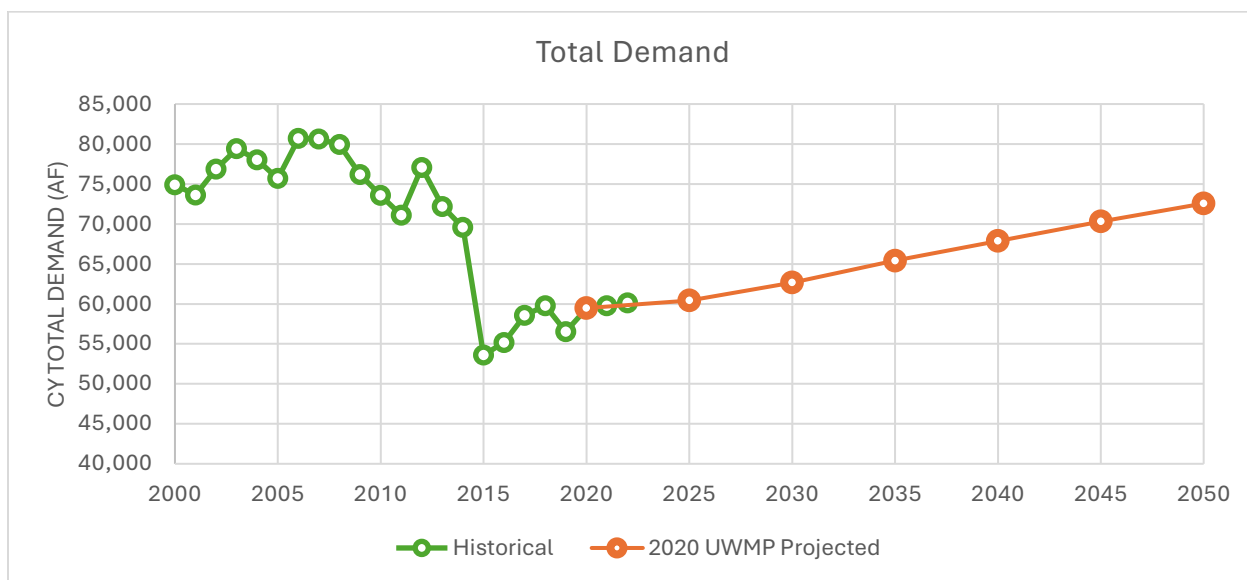
PID	Description	Project Type
00131316	BK PFAS Preliminary Design	Non-Specific
00128024	Install 8" tr flex at Marella OverX	Non-Specific
00103497	New Well Property North Garden #1	Non-Specific
00127761	Replace main canal @ shafter Rd	Non-Specific
00122824	Install Backup Generator BK 212	Non-Specific
00126877	BK 220-01: Pump & Motor Replacement	Non-Specific
00129528	E. California 21" main protection	Non-Specific
00130571	REPLACE V206012	Non-Specific
00126268	BK 047-02 Pump Replacement	Non-Specific
00123190	BK 116 PB & Building Replacement	Specific
00123165	BK New Tank & Booster Facility	Specific

**Section A.**  
**Operating District Overview**

# District Overview

## District Summary

Cal Water’s Bakersfield District (District) was formed in 1926 with the purchase of the Bakersfield water works. White Water Company. Located in the Central Valley, the Bakersfield District provides drinking water to approximately 289,300 customers through 74,345 service connections in the majority portion of the City of Bakersfield and in the entire communities of Olcese and North Garden. The District operates two water systems, the Bakersfield System and the North Garden System. Source water for both systems is provided by eight interconnections with the Kern County Water Agency, 79 active wells and two surface water treatment plants. The distribution system also includes approximately 979 miles of pipe, 29 booster stations and 50 storage tanks. The maximum day demand for both system is approximately 125 million gallons per day. Annual historical and forecasted water demands are presented in Figure 1 below based on the 2020 Urban Water Management Plan (UWMP). The District also operates the City of Bakersfield’s water system; this system will not be discussed further as it is not regulated by the PUC.



**Figure 1 – Bakersfield District Historic and Forecasted Customer Demand**

## Bakersfield District 2024 GRC Capital Improvement Summary

For the 2024 GRC, the District will focus on a mixture of companywide programmatic projects and district specific improvement needs. Programmatic projects will be those identified based on system evaluation criteria and Cal Water asset management strategies discussed more in the Common Plant Issues justification book and includes such project types as water main replacements, meter vault lid replacements, customer meter replacements, tank retrofits, and physical security upgrades. Specific justifications are those projects specific to the District that are necessary to ensure Cal Water can continue to deliver a reliable source of high-quality water to customers. As part of the 2024 GRC these specific projects will include new wells, station rebuilds, a new tank, transmission main, station rebuilds, backup generators, and well

renewals. Owing to the impending water quality regulations regarding per- and polyfluoroalkyl substances (PFAS), the District will be adding treatment to several well sites. The district will also be purchasing land and building a new operations center to improve operations and operator safety.

## Bakersfield Project Justification Book Structure

The Project Justification (PJ) book is divided into sections based on which team members is the project sponsor. Generally, these individual project justifications are projects which are not part of any ongoing companywide programs. Additionally, many projects in Bakersfield are described in the Common Plant Issues justification book.

## Programmatic Justifications

The following is a complete listing of all programmatic justifications covered in the Common Plant Issues justification book:

- Flowmeter Replacements
- Vehicle Replacements
- Control Valve Overhaul and Replacement
- Water Quality Sample Stations
- Pump and Motors
- Main Replacement
- Well Renewal
- Advanced Meter Infrastructure (AMI)
- Motor Control Centers (MCC)
- Genset Replacements
- Meter Replacements
- Customer Meter and Vault Lids
- Cathodic Protection
- Tank Retrofits
- Tank Coating
- Pressure Vessel Replacement
- Analyzers and Instrumentation
- GAC Changeout
- Physical Security

Not all programs are applicable to every district.

## Justification Presentation Format

Programmatic and specific justifications in this PJ book are presented in the following general format:

- **Introduction:** A brief introduction providing any background and/or summary of the needs for the project.
- **Deficiencies and Issues:** This section identifies the deficiencies and any supporting analysis or details supporting the need for an improvement project.
- **Alternative Analysis:** Description of approaches to address the current deficiencies, which always includes a “*Do Nothing*” alternative (i.e. maintain existing conditions).
- **Recommended Solution:** Identification and reasoning for the optimum solution to the current deficiencies.
- **Detailed Project Summary:** This section provides a more detailed project scope.

- **Attachments:** All supporting documents, figures, data, maps, reports, budgets, and cost information are presented at the end of the justification write up.

In addition, some projects reference critical reports or studies that have been located at the end of the PJ book in Section J *Background Reports* given the document size. This was intended to avoid having supporting documents that are of significant length (generally greater than 50 pages) being located in the middle of the PJ book and making it difficult for the reader to find specific justifications or read through the PJ book.

## **Bakersfield Project Justification Threshold**

Detailed written justifications have been provided for all programmatic and specific projects greater than \$700,000 direct cost in order to demonstrate the necessity of the capital investment proposed for the District in the 2024 GRC. This threshold was selected as the most appropriate dollar amount to ensure that all major capital projects in the District are presented in sufficient detail to the CPUC and customers for review. Budgeting and cost details for all projects in the District are available for review in the relevant Results of Operation Report.

## **Bakersfield Location Factor**

Location factors are a vital tool in cost engineering in order to provide a way to evaluate relative costs between two geographic locations.<sup>1</sup> Cal Water has incorporated a location factor into its standard cost estimating practices since first presented to the Commission in the 2018 GRC and as described in the Common Plant Issues justification book. The use of location factors ensures that costs developed for a particular district can more accurately reflect the economic environment of that district and thereby improve the confidence in the cost estimates Cal Water presents to the Commission and its customers. For the Bakersfield District, Cal Water has assigned a negative location factor change (i.e. markup of -5%) over baseline cost estimates developed from Cal Water's Cost Catalogue (see Common Plant Book) and vendor quotes. Cal Water believes the baseline costs developed and cost quotes are generally higher than in the Bakersfield District.

## **Service Area Terminology**

“Ratemaking areas,” “operating districts,” and other terminology used throughout this project justification book is defined here for clarity. A “ratemaking area” has a fixed definition and consists of the geographic areas that have a common revenue requirement, as historically approved by the CPUC. The terms “district” or “operating district,” however, no longer have a fixed definition, but are generally used to refer to the group of water systems whose operations are overseen by one management group.<sup>1</sup>

Bakersfield is considered both an operating district and a ratemaking area.

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<sup>1</sup> Cal Water has twenty-four (24) operating districts. See Common Plant book for additional discussion.

**Section B.**  
**Asset Management**

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**Section C.**  
**Distribution and Operations**

# District – Bakersfield

## PID# 133181

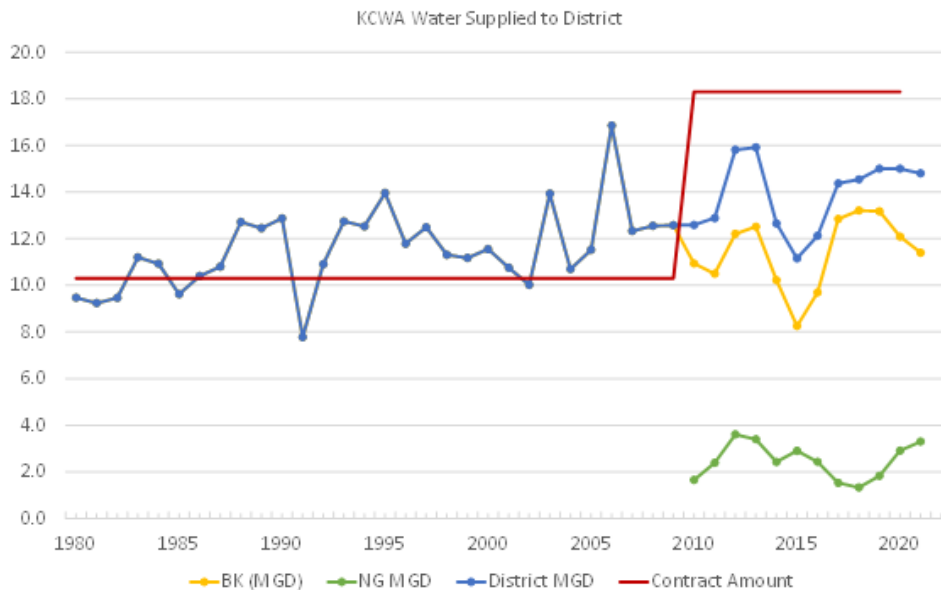
### BK Low Zone- Kern River Crossing

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#### Introduction

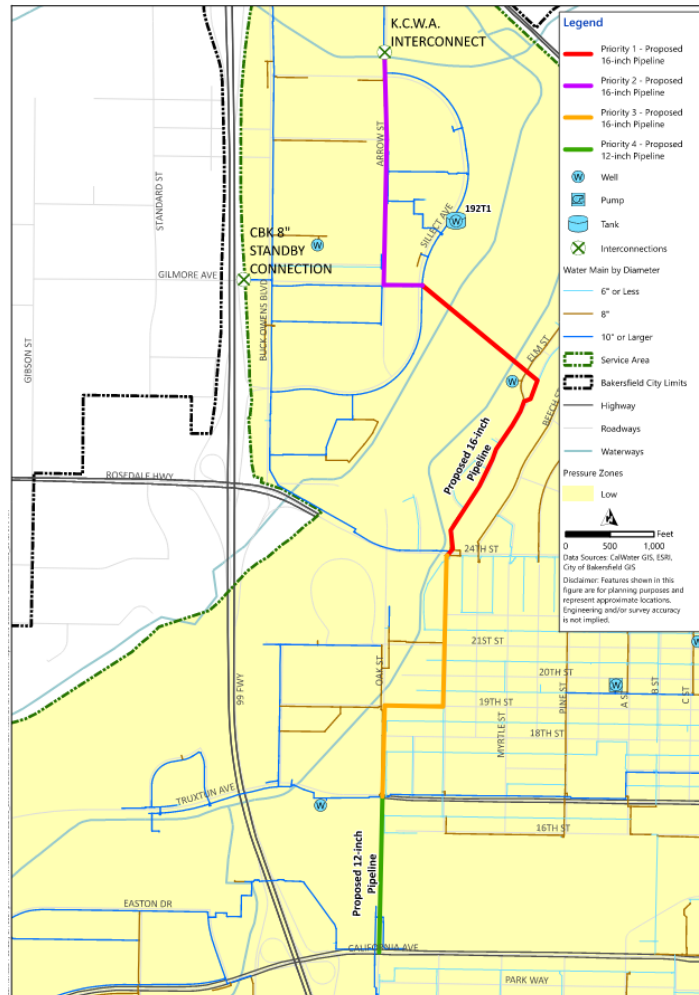
The Bakersfield District (District) owns and operates two separate water systems, the Bakersfield main system and the North Garden system. The District currently relies on a combination of groundwater, treated surface water (Northeast and Northwest Bakersfield Water Treatment Plant, NEBKTP and NWBKTP), and treated purchased water from the Kern County Water Agency (KCWA) to meet potable water demands of its customers in both systems.

The District has an existing agreement with KCWA to purchase 20,500 acre-feet (AF) of treated water annually to be shared between the Bakersfield North Garden (BKNG) and Bakersfield (BK) systems. Per the agreement, KCWA can charge the District for their full annual entitlement of water even if the District is not able to utilize the full allotment. As shown in Figure 1, the District has historically not been able to fully utilize the allotment due to infrastructure and operational constraints. Per the chart shown in Figure 6, only 16,875 AF of the 20,500 AF allotment was used in the 2022-2023 fiscal year.



**Figure 1. Used vs. Unused Allotment**

To address the unused allotment and increase utilization of KCWA water, the District proposes to increase the capacity of the existing NW1 KCWA interconnection and construct a parallel 16-inch pipeline that crosses the Kern River and extends to Truxtun Avenue, as shown in Figure 2. The New Main Kern River crossing project was identified in the District’s 2024 Water Supply and Facilities Master Plan (WSFMP) to maximize use of purchased water allotment from KCWA and improve system resiliency to drought and overall reliability. Due to the anticipated cost and associated rate impact for the full scope of this project, the District proposes to phase the project over multiple rate cases based on priority as discussed in Section 6.6.3.2 of the District’s 2024 WSFMP.



**Figure 2. KCWA NW1 Improvements**

The historic drought, which may cause a decrease in groundwater supplies and local surface water, has highlighted the need to transfer water from North Garden to the Bakersfield System’s Low Zone. Additionally, there is a northwestern portion of the Low Zone that is separated by the Kern River, with only one pipeline connecting it to the rest of the Low Zone. This limits the capability of water transmission due to two well sources and a KCWA turnout in that northwestern portion. With the current drought, lowered water levels will decrease well

pumping efficiency, which will add cost to pumping and a call for better use of purchased water and surface water supplies.

Considering the factors mentioned above, the need to maximize the use of the purchased water allotment from KCWA is a primary goal. Additionally, the need to improve system resilience to drought, system reliability, and water transmission in the Bakersfield District between and within zones are key secondary goals. Multiple options have been evaluated to resolve the connectivity between the zones, and an option to cross the Kern River was deemed the most feasible option to transfer water from the low zone area north of the river to south of the river. To achieve these goals, Cal Water is proposing to install approximately 1,300 linear feet (LF) of 16-inch (in) High Density Polyethylene (HDPE) main across the Kern River between Station 141 and North Sillect Avenue, and to use the unused allotment to bolster the supply. Alternatively, a steel carrier pipe and a steel casing pipe may be needed due to regulatory requirements. The alignment will be routed to the area isolated by the Kern River.

See Figure 3 for a conceptual layout of the project.

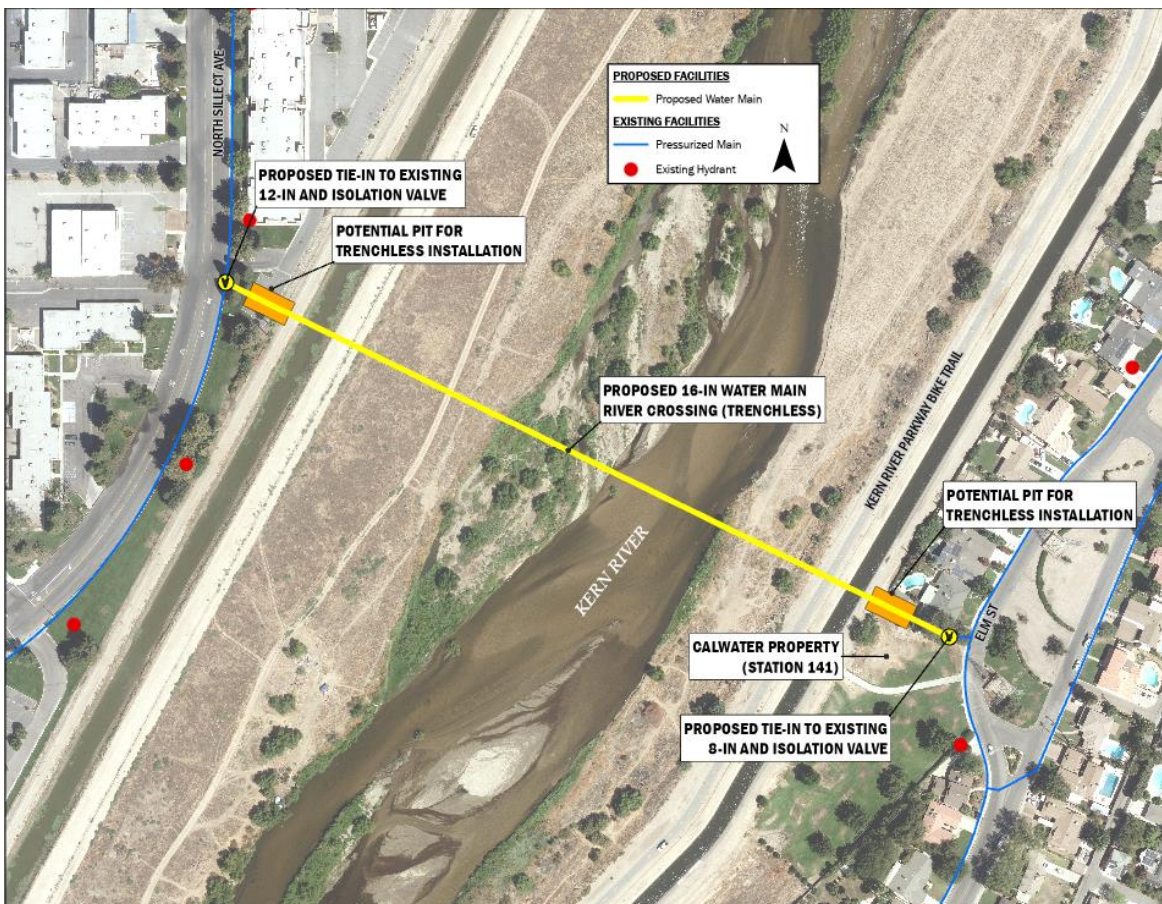


Figure 3. Project Layout

## Location and Construction Considerations

Figures 4 and 5 show the alignment of the 16-in HDPE to be constructed. The river crossing will need a trenchless construction method, such as horizontal directional drilling or jack and bore. The extents of the trenchless crossing and location of the access pits will be determined during design, and it is expected that there will be some open cut to connect to the existing mains at either end of the crossing. The profile depth will depend on the geotechnical conditions, trenchless method selected, and existing utilities in the alignment. Construction will require investigation of existing utilities to maintain State Water Resources Control Board Division of Drinking Water's required clearance.

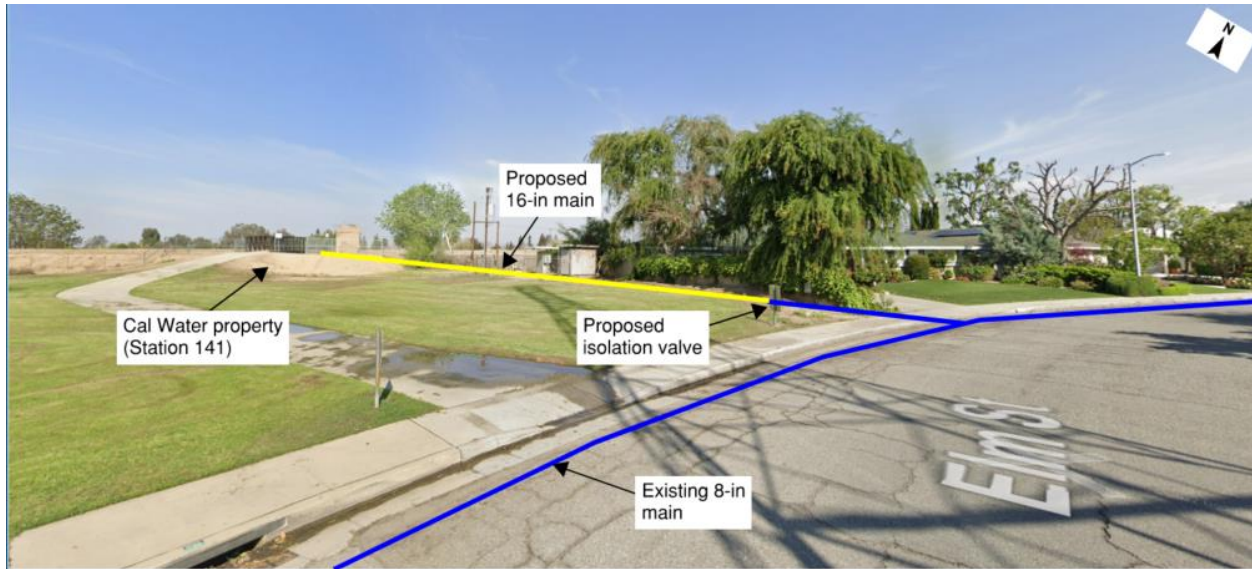
Extensive permitting efforts with U.S. Fish and Wildlife, U.S. Corps of Engineers, City of Bakersfield, Canal Authority, KCWA and State Water Resources Control Board are anticipated to cross the Kern River.

The west side of the crossing will connect to the existing 12-in main at 3200 Sillect Avenue. An access pit will be required in the driveway/parking lot for the installation.



**Figure 4. West Side of Kern River (Sillect Avenue)**

The east side of the crossing terminates at the parcel currently owned by Cal Water (Station 141) and will connect to the existing 8-in main.



**Figure 5. East Side of Kern River (Elm Street)**

## **Deficiencies and Issues**

Deficiencies identified and to be addressed are discussed in this section.

### **Deficiency – Unused Allotment**

As discussed, the Bakersfield District has historically not been able to fully utilize its purchase water allotment from KCWA due to operational and infrastructure constraints. The turnouts from the KCWA Northwest feeder have historically been operated under capacity due to grid restrictions and lack of transmission pipelines available to move the purchased water supply to different parts of the system. Conversely, the turnouts' usage from the KCWA Northeast Feeder within the Bakersfield System have been operated at capacity during high demand periods, reaching the 15 million gallon per day limit (46.9% capacity allocation) during high-demand months.

Not only is the District responsible for paying KCWA for the unused allotment, but they are also required to also utilize other supply sources (wells or treated surface water).

To utilize the unused capacity in the Northwest Feeder, the District proposed to increase the capacity from the existing NW1 connection and provide additional transmission pipelines to move the water out of the existing pocket.

### **Deficiency – Supply Deficits**

The Low zone is supplied predominantly by existing local groundwater wells and has a peak hour demand (PHD) deficit of 813 gallons per minute (gpm) (Attachment A). The PHD deficit can result in water shortages, low pressures in the distribution system, disruptions to customer service, and potential water quality concerns. To address the PHD deficit, proactive planning is required to ensure District has adequate infrastructure to meet PHD.

The Low Zone has a supply deficit in meeting demands. The KCWA's Northwest Feeder which can be used to resolve this issue, has been operated under its capacity and not fully using the 20,500 AF per year allotment from KCWA. Connecting the two systems and transferring the unused allocation reduces the overall pressure on the groundwater and surface water supplies.

### **Deficiency – System Vulnerability to Drought**

Drought is anticipated to lower the groundwater supplies and reduce available local surface water. Lowered water levels will decrease well pumping efficiency, which will increase pumping costs. This has resulted in calls for better use of purchased water and surface water supplies.

### **Alternative Analysis**

To address deficiencies identified, several alternatives were evaluated but not advanced further due to factors like costs and easement acquisition. All project alternatives are described and evaluated in the Bakersfield Capital Alternatives Feasibility Analysis completed in February 2022. The following alternatives were short-listed and analyzed:

#### **Alternative 1: Do Nothing**

The Do Nothing alternative involves a status quo option with no new mains or connections, which will mean continuing issues with water supply reliability by not fully using the 20,500-AF per year allotment from Kern County to address supply demands. This option will hamper the ability to meet Low Zone demands without incurring higher operating costs and potentially unsustainable pressures on the groundwater and surface water supplies with an ongoing drought.

#### **Alternative 2: Install New Main Across Kern River Between North Sillect Avenue and Station 141**

Alternative 2 includes constructing a new main across Kern River between North Sillect Avenue and Station 141 to transfer available water from the KCWA system to the Low Zone system.

### **Recommended Solution**

Cal Water recommends Alternative 2 to construct a 16-in main across Kern River between North Sillect Avenue and Station 141 to transport purchased water from the existing NW1 KCWA interconnection to the Low Zone system. This alternative will allow the District to use its full 20,500-AF per year allotment from KCWA to address supply deficiencies in the Low Zone system. The benefits of improving water transmission between the two zones, reducing dependency on groundwater pumping, and improving reliability to the overall system in the District outweigh its permitting efforts and the complexity of construction. The proposed project will also improve system resilience to drought by using purchased water instead of groundwater supplies and local surface water, which already have lowered levels due to the current drought. The recommended alternative will improve system reliability and improve water transmission in the Bakersfield District between and within zones.

### **Project Summary**

- Topographic Survey of proposed project area and pipeline alignment.

- Construct jacking and receiving pits on each side of the trenchless pipe alignment with temporary fencing and shoring.
- Install approximately 1,300 LF of 16-in HDPE main across Kern River from North Sillect Avenue to Station 141 using a trenchless method of construction
- Install 24-in casing (Cement Lined Mortar steel) if Jack and bore is the selected method of trenchless construction.
- Install approximately 250 LF of 16-in DIP via open-cut construction to connect the trenchless segments to the existing street mains on each end.
- Restore hardscape and add landscaping improvements on each end as needed
- Install one (2) 16-in isolation valves
- Install four (4) 16-in 45-degree restrained bends
- Install one (1) 16-in by 12-in by 12-in MJ Restrained Tee
- Install one (1) 8-in by 16-in MJ Reducer
- Install two (2) combination air-vacuum release valve assemblies at high points along alignment.
- Install cathodic monitoring stations at each end of the trenchless pipe alignment.
- Acquire easement on east end and west end of the proposed pipeline alignment.
- Complete environmental studies, investigations and construction observations.
- Preliminary design (including a cost comparison between three (3) methods of construction)
- Final design for identified trenchless method
- Conduct geotechnical Investigations to prepare a geotechnical data report and geotechnical baseline report to identify feasible trenchless method and provide a basis for bid condition for trenchless contractors.
- Construction management services during construction
- Obtain permits from U.S. Fish and Wildlife, U.S. Corps of Engineers, and State Water Resources Control Board. May need a labor board classification for underground construction.
- 250 LF of 12-foot-wide full lane paving (2-in asphalt concrete over 4-in aggregate base) from edge of gutter to centerline.
- Potholing at four (4) locations

## **Project Summary**

- Attachment A – Cost Estimate
- Attachment B -Figure 6. KCWA Allotment

## 133181 Cost Estimate

### Capital Project Cost Estimate

**Project No. :** 133181  
**Description** BK Low Zone - Kern River Crossing  
**District / Department:** Bakersfield  
**Project Start Date:** 01/02/2025  
**Project Completion Date:** 03/26/2027  
**Prepared By:** jagraham  
**Date Initiated:** 11/26/2023  
**Base Year:** 2023  
**Sub-Total:** \$1,201,027  
**Direct Cost:** \$1,282,944

**Cost Table:**

<u>Item</u>	<u>Description [units]</u>	<u>Qty</u>	<u>Unit Cost</u>	<u>Total</u>	<u>Cost Basis</u>
16" PIPE, HDPE BURIED (LF)	[EA]	1300	\$95.53	\$124,184.13	Engineers Estimate
CL&C STEEL OFFSETS ALLOWANCE (LS)	[EA]	1	\$13,939.28	\$13,939.28	Engineers Estimate
POTHOLING AND SUBSURFACE UTILITY ENGINEERING (EA)	[EA]	4	\$5,576.84	\$22,307.37	Engineers Estimate
10% CWSI	[EA]	1	\$90,152.17	\$90,152.17	Additional Factors
10% CONTINGENCY	[EA]	1	\$109,184.30	\$109,184.30	Additional Factors
DDW REQUIREMENTS (LS)	[EA]	1	\$6,969.64	\$6,969.64	Engineers Estimate
DEWATERING SYSTEMS (DAY)	[EA]	20	\$4,673.47	\$93,469.30	Engineers Estimate
DISTRICT FIELD STAFF	CW-LABOR-FIELD LABOR [HR]	122	\$88.12	\$10,750.64	Labor SKU
DUCTILE IRON PIPE, BURIED (LF)	[EA]	250	\$896.80	\$224,199.25	Engineers Estimate
EMT	CW-EMT LABOR [HR]	18	\$112.12	\$2,018.16	Labor SKU
ENG TECH	CW-Eng Tech LABOR [HR]	168	\$108.96	\$18,305.28	Labor SKU
EXCAVATE AND BACKFILL FOR BORE PIT - 40' X 20'W X 17'D (SHORED) (LF)	[EA]	40	\$2,370.66	\$94,826.55	Engineers Estimate
EXCAVATE AND BACKFILL FOR RECEIVING PIT - 20' X 20'W X 17'D (SHORED) (LF)	[EA]	20	\$2,370.66	\$47,413.28	Engineers Estimate
FIELD MGR	CW-LABOR-FIELD MGR/SUPV [HR]	97	\$115.92	\$11,244.24	Labor SKU
FLOWABLE FILL (CY)	[EA]	68.64	\$188.98	\$12,971.67	Engineers Estimate
LABOR	CW-Civil Eng LABOR [HR]	94	\$139.41	\$13,104.54	Labor SKU
SCADA TECH	CW-SCADA Tech LABOR [HR]	45	\$108.96	\$4,903.20	Labor SKU
SIMILAR PROJECTS	CW-EA Proj MGR LABOR [HR]	314	\$139.41	\$43,774.74	Labor SKU
SITE RESTORATION (LS)	[EA]	1	\$13,939.28	\$13,939.28	Engineers Estimate
SURVEYING (LS)	[EA]	1	\$1,323.12	\$1,323.12	Engineers Estimate
TRAFFIC CONTROL, ONE-LANE CLOSURE (DAY)	[EA]	30	\$3,546.44	\$106,393.07	Engineers Estimate
TREE PRESERVATION (LS)	[EA]	1	\$6,969.64	\$6,969.64	Engineers Estimate
TRENCH ASPHALT PAVEMENT REMOVAL AND REPLACEMENT (LF)	[EA]	250	\$93.25	\$23,313.28	Engineers Estimate
TRENCH FOR UTILITIES 6' DEPTH (LF)	[EA]	250	\$395.84	\$98,959.06	Engineers Estimate
VALVE ENCLOSURE AND BOLLARDS ALLOWANCE (LS)	[EA]	1	\$6,412.07	\$6,412.07	Engineers Estimate

**Sub-total =** \$1,201,027.26  
**Direct Cost =** \$1,282,944.37

Notes:

1. Sub-Total is defined as the summation of all project estimated materials, labor, and markups costs
2. Direct Cost is the escalate Sub-Total from the base year of 2023 to the project completion year assuming a 2.5% inflation rate
3. See Common Plant Book for additional details on cost estimating methodology and justification

Kern County Water Agency  
 Henry C. Garnett Water Purification Plant  
 Purveyor Report  
 Fiscal Year 2022-23

**CALIFORNIA WATER SERVICE COMPANY (Acre-Feet)**

Description	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	Jun	Requested	Contracted
													Total	Total*
1. Requested Deliveries	2,200	2,200	1,900	1,500	1,100	1,050	1,470	1,260	1,410	1,420	1,740	2,000	19,250	20,500
2. Actual Use	1,941	1,722	1,559	1,397	1,039	1,369	1,310	876	854	1,114	1,724	1,970	16,875	
3. Projected Deliveries														
Difference (Row 2 - Row 1.)	(259)	(478)	(341)	(103)	(61)	319	(160)	(384)	(556)	(306)	(16)	(30)		
Total Actual + Projected =													16,875	

**Figure 6. KCWA Allotment**

# District – Bakersfield

## PID # 133183

### Station 209 New Storage Tank

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#### Introduction

Bakersfield Station 209 includes an existing storage tank and booster pump facility utilized to support the Northeastern portion of the Bakersfield system. The station consists of an existing 500,000 gallon partially buried concrete storage tank, two interzonal booster pumps, a backup emergency generator, and associated electrical equipment. The existing storage tank gravity feeds the 1010 zone and the two booster pumps onsite draw water from the storage tank to supply the 1130 zone. The existing storage tank provides operational, firefighting, and emergency storage for the 1010 and 1130 zone and other pressure zones in the northeastern portion of the system including the 1025 and 1200 pressure zones. Portions of the system in these locations are surrounded by moderate to high-risk Fire Hazard Severity Zones established by Cal Fire, and the capacity of the existing storage tank does not provide sufficient emergency storage to support the area during emergency events such as wildfires, public safety power shutdowns, major equipment/main failures, or interruptions to supply. To address the emergency storage deficiency and increase system reliability, the District is proposing to install a new 2.25 million-gallon (MG) partially buried concrete tank at Station 209 in addition to retaining the existing one.

#### Deficiencies and Issues

A new 2.25 MG partially buried concrete storage tank at Station 209, as proposed in Figure 2, was identified for design and construction in the 2024 General Rate Case (GRC) application based on the lack of emergency storage available in the area and maintenance challenges, which are discussed in more detail in the subsections below.

#### Storage Deficiency

The District uses water supplied from storage to meet peak demands, fight fires, and provide service during emergencies. As such, the existing storage tank at Station 209 is used to provide operational, fire, and emergency storage for the 1010, 1025, 1130, and 1200 pressure zones located in northeast Bakersfield.

Operational storage is the total storage capacity used during normal system operations and ranges as a percent of Maximum Day Demand (MDD) as discussed in Section 6 of the District's 2024 Water Supply and Facilities Master Plan (WSFMP). Based on the 2024 WSFMP, the zones supported by Station 209 have a combined historical MDD of 3.4 million gallons-per-day (mgd). Using the zone-specific operational storage factors developed in the WSFMP and multiplying them by their respective historical MDD, the total operational storage required for the zones supported by Station 209 equates to approximately 0.42 million gallons (MG). Fire storage is considered the total storage volume required to support firefighting efforts at the required flowrate and duration, not including wildfires. For the zones under consideration, the required fire flow ranged from 3,500 gpm for 3 hours to 1,000 gpm for 2 hours as tabulated in Table 6.2 of the 2024 WSFMP. The total required fire storage for the area equates to 1.11 MG.

Emergency storage is considered the total storage volume required to meet system demands during emergency events, such as wildfires, power outages, interruptions to supply, and/or distribution main breaks. Emergency storage volumes are estimated to be 24 hours of Average Day Demand (ADD) for each pressure zone supported by the tank as noted in Section 6 of the 2024 WSFMP. The total historical ADD for the zones supported by Station 209 was determined to be 1,375 gpm, which equates to a total emergency storage volume of 1.98 MG.

Combining the required storage volumes calculated above, the areas supported by Station 209 have a required a total storage volume of 3.51 MG. Compared to the existing storage capacity of 1.245 MG from the existing storage tanks at Station 209 and 222, the area has been identified to have a historic storage deficit of approximately 2.26 MG. The required storage was rounded to 2.25 MG to account for variations in customer demands associated with conservation and to account for site footprint and height constraints associated with a larger tank. Installing a new larger storage tank in addition to retaining the existing tank would increase operational and emergency supply and improve the area’s storage capacity and reliability during emergency operating scenarios. The additional storage capacity would also be utilized during operational shutdowns of the existing 500,000-gallon storage tank for corrective or preventative maintenance activities.

**Table 1. Operation Storage Data**

Zone	% of Operational Storage <sup>1</sup>	ADD (gpm)	MDD (mgd) <sup>1</sup>	Operational Storage <sup>1</sup> (MG)	Fire Storage <sup>1</sup> (MG)	Emergency Storage <sup>1</sup> (MG)	Total Storage Required (MG)
1010	10.9%	979.2	2.4	0.26	0.63	1.41	2.30
1025	10.9%	69.4	0.2	0.02	0.24	0.1	0.36
1130	20.0%	201.4	0.5	0.10	0.12	0.29	0.51
1200	10.9%	125.0	0.3	0.03	0.12	0.18	0.33
	TOTAL	1375.0	3.40	0.42	1.11	1.98	3.51

<sup>1</sup> From 2024 WSFMP

### Maintenance to Existing Tank

The existing storage tank at BK 209 was built in 1987 and acquired through the purchase of the Olcese Water system. Since the tank is required to maintain operational storage for the Bakersfield system, it cannot be taken offline to perform routine inspections and required maintenance. The inability to remove the tank from service for routine inspections and maintenance increases the risk of failure and/or emergency shutdowns of the tank. As the existing storage tank continues to reach its useful life, the risk of failure also continues to increase. Furthermore, emergency repairs to the tank would likely be more costly than proactive maintenance of the tank. The addition of a new larger storage tank at Station 209 provides operational and emergency supply and flexibility, which can be utilized during routine inspections or required maintenance of the existing tank thereby also enhancing supply reliability and reducing costs to customers associated with emergency repairs.

### Alternative Analysis

To address deficiencies identified at Bakersfield Station 209, the following alternatives were analyzed:

### **Alternative 1: Do Nothing**

The Do Nothing alternative does not address current operational and emergency storage constraints. It also does not provide operational flexibility during planned maintenance or emergency storage for unplanned shutdowns of the existing 500,000-gallon storage tank at Station 209.

### **Alternative 2: Construct Smaller Tank**

A smaller tank is not prudent as it would not provide sufficient volume for operational, firefighting, or emergency storage for the subject area as outlined above. Also, Station 209 is in a fully developed residential neighborhood and the site can only accommodate two additional 2.25 MG storage tanks (one proposed herein) as shown in Figure 2 below. Installing a smaller tank at the site would eliminate the District's ability to fully utilize the existing property to provide adequate storage capacity to meet historic and future storage requirements. A smaller tank also provides less benefits related to emergency storage.

### **Recommended Solution**

Cal Water recommends retaining the existing storage tank at Bakersfield Station 209 and installing an additional 2.25-MG partially buried concrete tank, and modifying station piping, and electrical and instrumentation facilities. The installation of the new tank would improve operational and emergency supply reliability as outlined above and recommended in the District's WSFMP. Addition of storage capacity also increases operational flexibility, allowing either storage tank to be taken out of service for maintenance without disrupting supply for any service connections.

Additionally, since 2005 the District has collected approximately \$1.2M in lot fees from developments in the subject area to be contributed to the design and construction of the proposed 2.25 MG storage tank at Station 209. The developer contributed funds will be used with this project to partially offset the total cost of the project from customer rates.

### **Project Summary**

The proposed project will address the storage deficiencies identified above for the 1010, 1025, 1130, and 1200 Zones. The addition of a new tank will provide operational and emergency storage for supply reliability both during normal and emergency operations, as well as during routine inspection or required maintenance of the existing storage tank at Station 209. Construction of the new tank should not disrupt operations of the existing 500,000-gallon partially buried storage tank and is to always maintain the Station's operation.

As Station 209 was originally designed with the future 2.25 MG storage tank in mind, minimal station piping modifications are required to provide adequate construction space for the new tank. Existing booster pumps and electrical facilities shall remain, with modifications as required. Refer to Figure 2 for the proposed site layout. The site layout meets City setback requirements, assumed to be 10 feet on each side and the back.

The proposed project scope includes:

- Complete geotechnical investigation, survey, and secure all necessary permits.
- Preliminary design, design and specifications, permitting, and bidding.
- Construct a new 2.25 MG partially buried concrete tank.
- Equip the tank with cathodic protection, force balanced flex-tend connections, control valves, level instrumentation, and SCADA equipment.
- Install new onsite water main connecting the tank to the existing water main.
- Install station landscaping, fencing, or surrounding neighborhood aesthetics and crushed rock to minimize dust control.

This project is not part of the revenue requirements in this application. Cal Water will start this project in this GRC period, and add it to the revenue requirement of the GRC in which the project will be completed. This project's current budgetary cost estimate is \$2,400,000 to \$9,800,000. Cal Water will refine this cost estimate when more project details and scope are determined

### **Project Attachments**

- Attachment A - Figure 1. BK Station 209 Existing Station Schematic
- Attachment B - Figure 2. BK Station 209 Proposed Tank Site Layout

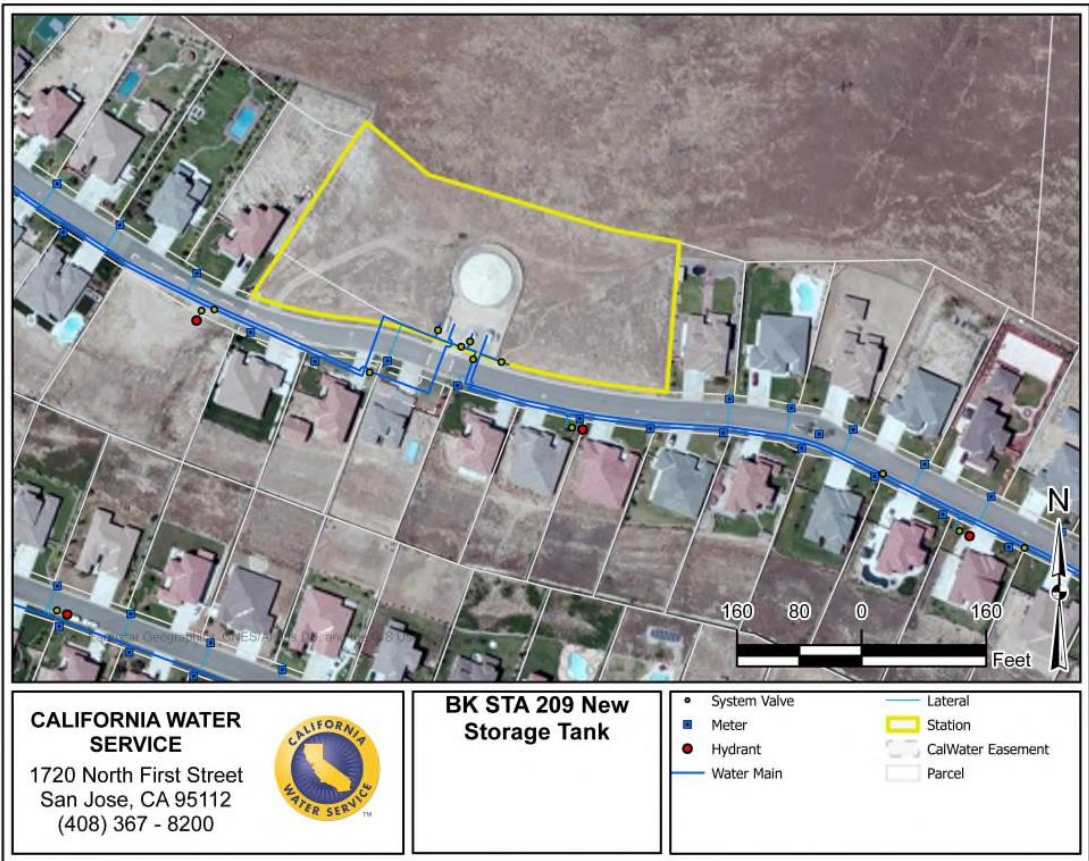


Figure 1. BK Station 209 Existing Station Schematic

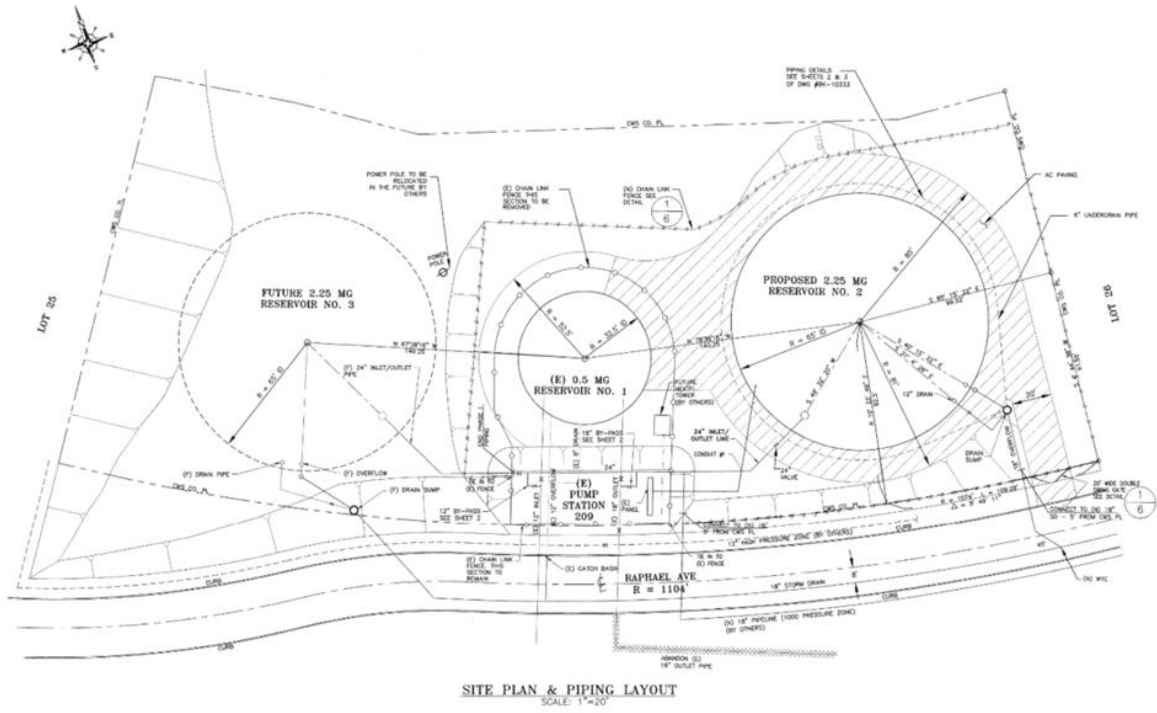


Figure 2. BK Station 209 Proposed Tank Site Layout

**Section D.**  
**Water Resources**

# **District – Bakersfield**

## **PID # 133838**

### **Bakersfield Well Replacement Program**

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#### **Introduction**

The Bakersfield district (District) owns and operates two separate water systems, the Bakersfield main system and the North Garden system. The District currently relies on a combination of groundwater, treated surface water (Northeast and Northwest Bakersfield Water Treatment Plant, NEBKTP and NWBKTP), and purchased surface water from the Kern County Water Agency (KCWA) to meet potable water demands of its customers in both systems. Groundwater is an important portion of District water supply, as it provides over half of its supply.

In the Bakersfield main system, the District relies on supply from 67 active groundwater wells while 40% of the active wells have reached or exceeded the expected service life. Considering the wells age and the prolonged process of a new well development for District, a significant well outage risk can threaten Cal Water’s long-term ability to supply groundwater to its customers. To mitigate this risk and to continue to provide safe and reliable service to its customers, District proposes to initiate a Well Replacement program to proactively augment groundwater supply. To improve water supply reliability, diversify water resources, address wildfire threats, and replace aged wells, as part of this project it is recommended to drill and equip a new well site for the District’s Low pressure zone (zone).

This new well will be placed on a new property in the Low zone that will be purchased as proposed in 2024 General Rate Case (GRC).

#### **Deficiencies and Issues**

The Bakersfield system Low zone, located in the Southernmost portion of the Bakersfield main system, is identified for new well construction in the 2024 GRC application based on the following deficiencies, discussed in more detail in the subsections below.

#### **Supply Deficiency**

The Low zone is supplied predominantly by existing local groundwater wells and has a peak hour demand (PHD) deficit of 813 gallons per minute (gpm) (Attachment A). The PHD deficit can result in water shortages, low pressures in the distribution system, disruptions to customer service, and potential water quality concerns. In order to address the PHD deficit, proactive planning is required to ensure District has adequate infrastructure to meet PHDs.

In addition, District groundwater levels have been declining for the last 30 years (by approximately 40 feet)<sup>1</sup>. Decline in the water table can change pump operating point and reduce production from existing well pumps. Although pumps can be replaced to address groundwater production loss, motor upsizing is sometimes required which requires energy. Also, the existing electrical equipment/utility size cannot support the increased load required to restore the original production capacity, which can further cause supply deficiencies.

## Wildfire Risk

In 2020, Cal Water evaluated the capacity and capability of all its current infrastructure and stations in the event of a wildfire and proposed a number of measures necessary to mitigate the potential risks. Based on the result of this evaluation in District, the Bakersfield system was found within CalFire’s “Very High” wildfire threat area and wildfire reliability needs<sup>2</sup>. However, the estimate Risk Score associated with this system based on wildfire threat, storage limitations, grid limitations, supply limitations, and backup power limitations is at Low level.

The Power Safety Public Shutoff (PSPS) program increases the need for backup power generation generator and electrical equipment maintenance activities. SCE and PG&E identified facilities that may be impacted by a PSPS event and provided this data to Cal Water in April 2019. District is included in this list.

## Well Replacement Needs

To make effective decisions regarding groundwater assets, Cal Water engaged Kayuga, an engineering asset management consulting firm, to develop a plan that would help map out the future of Cal Water’s groundwater assets and enable more informed decisions on how to manage these groundwater assets effectively and proactively. The results of the study were compiled into the 2021 Well Infrastructure Renewal Program (WIRP) Report<sup>3</sup>. The median expected service life of wells in the Bakersfield region is 63 years. Of the 67 active wells in the Bakersfield system, 25 wells (or 40%) have reached or exceeded their useful life. Based on the latest system master plan, approximately 94% of the wells will surpass this service life by 2050<sup>4</sup>. Since from a planning perspective, well renewal or replacement projects will span across multiple three-year GRC cycles and as it is recommended by WIRP, District should start to renew or replace wells with degraded condition to ensure groundwater capacity is not reduced.

## Water Supply Diversification & Operational Flexibility

As discussed, the Bakersfield main system and the North Garden system are supplied by groundwater, Cal Water-owned surface water treatment plants, and purchased surface water from KCWA. Purchased surface water supply is limited by the pump capacity at the KCWA treatment plant, the pipelines that supply each system, and the control valves used to regulate supply to specific areas of the systems. Additional limitations happen with water supply from KCWA when their supplies are restricted from the Department of Water Resources due to drought or other supply issues. However, KCWA has banked water for just this sort of situation and may have multiple years’ worth of supply available during short-term droughts. While KCWA supply is rather stable, there is just a single treatment plant that is subject to failures. While these failures may be rare, Cal Water has experienced complete outages of supply from KCWA in past years due to electrical equipment failure at the KCWA treatment plant. On May 29th, 2020, a power outage along with a failure of the backup generator at the KCWA treatment plant resulted in a complete outage of supply from KCWA for a period of five hours. While this was not a prolonged outage, it created several operational challenges due to the time of year of the outage and that Cal Water had no control over the timeline for the repairs. Regardless of past events, Cal Water needs to be prepared for supply outage from KCWA for a prolonged

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<sup>2</sup> California Water Service, *Wildfire Risk Assessment*, 2020

<sup>3</sup> California Water Service, *Well Infrastructure Renewal Program*, 2021

<sup>4</sup> Carollo, *Bakersfield District Water Supply and Facilities Master Plan*, 2023

period of time. Groundwater supply is one of the main methods in which Cal Water will provide backup supply to purchased water sources.

The NEBKTP supplies water to the Bakersfield main system and the NWBKTP supplies the North Garden system. Raw water from the Kern River supplies both treatment plants. Because of the common source of raw water, both plants are at risk of loss of supply at the same time. Power outages can also impact the ability to supply water from each plant. Each plant has a backup generator; however, there are capacity limits to what is available on backup power. A reasonable supply strategy for the Bakersfield main system and the North Garden system is to anticipate a complete outage of KCWA supplies or a complete outage of surface water supply during max demand periods, but not both at the same time. In order to supply the Bakersfield main system, this system needs to be able to meet maximum day demand (MDD) without either KCWA supplies or surface water supplies. The majority of supply from the KCWA and NWBKTP is used prior to the Bakersfield main system. This relative proximity of the North Garden west portion location to the KCWA and NWBKTP limits the transmission capacities to the District's distribution grid. Overall, in Bakersfield main system, Cal Water should be able to meet MDD under the following conditions:

- Bakersfield main system without KCWA supply.
- Bakersfield main system without supply from NEBKTP.

Groundwater is a major supply for the entire District. This high contribution, combined with high cost of imported water and limited treated surface water, makes groundwater a critical source for District to provide customers with a reliable supply at reasonable rates.

## **Alternative Analysis**

To address deficiencies identified for District and particularly to address supply deficiency at Low zone, the following alternatives were analyzed:

### **Alternative 1: Do Nothing**

The Do Nothing alternative does not address the unreliable water supply nor other identified problems as District wells are an important water supply source and they are reaching the end of their useful life. The Do Nothing alternative would likely result in poor service to the customers, and possibly a health risk if pressures were to drop low enough during high demand event such as wildfires.

### **Alternative 2: Rehabilitate Existing Inactive Well**

Given the more stringent current regulatory requirements compared to the past, the feasibility of rehabilitating an existing inactive well source to enhance supply reliability is questionable. The water produced by these inactive wells has already surpassed previous regulatory limits, and addressing their treatment needs can incur significant costs. Additionally, uncertainties exist regarding the longevity of a rehabilitated well and whether there is adequate space onsite to accommodate the treatment system processes.

### **Alternative 3: Expand Surface Water Treatment Capacity**

Expansion of surface water treatment is possible but limited. The unit cost of treated surface water is greater than groundwater, which negatively impacts affordability. Additionally, the transmission facilities that are used to transfer treated surface water to the Low zone are currently operating at capacity and expanding the surface water treatment capacity will require lengthy transmission pipelines that are also costly.

#### **Alternative 4: New Well Station**

Considering District wells' age and the prolonged process of a new well development for District, a significant risk threatens Cal Water's long-term ability to supply groundwater to its customers especially in zones which already have supply deficiencies. Constructing a new well in the Low zone would help provide water supply reliability, diversify water resources, address wildfire threats, and replace aged wells for District's Low zone. The new well's location will be identified and purchased based on well the siting study and property purchase projects proposed in the 2024 GRC.

#### **Recommended Solution**

Cal Water recommends the construction of a new well for the Bakersfield Low zone. This well construction is proposed to enhance water supply reliability, diversify water resources, mitigate wildfire threats, and address the well replacement needs of District.

#### **Project Summary**

The proposed project with the following scoped items will allow for a new well construction to improve water supply reliability and provide a reliable source of water for the customers.

- Perform any required site demolition and grading.
- Complete a site Geotechnical Investigation for site soils classification and bearing capacity determination to be used for structural design of the building and ancillary equipment foundations.
- Perform well site permitting. Site permitting shall include Conditional Use Permit application, CEQA Environmental compliance, Division of Drinking Water well location approval, Division of Drinking Water Permit Amendment approval, Planning/Building and Public Works approval (Local agency having jurisdiction).
- Construct new catch basin and connection to storm drain system for well flushing and maintenance activities.
- Design, drill, construct/ develop, and test (include temporary sound wall during construction) a new well and perform construction/hydrogeologic inspection. Well Design to be performed by a Licensed third party Hydrogeologist and construction inspection to be performed under the supervision of a licensed Hydrogeologist.
- Perform isolated aquifer zone testing during well drilling to identify water production capabilities and water quality characteristics of various aquifer zones to aid in well design.

- Complete water quality evaluation from the completed well to determine treatment requirements.
- Design and construct a CMU well building and associated equipment foundations.
- Design and construct site civil improvements including site grading and drainage facilities for site runoff collection/conveyance.
- Install well discharge piping and tie into existing distribution system and pump-to-waste piping to storm drainage system. Well piping shall include all valves, flowmeters, sample taps, air release assemblies, sample stations, thrust blocks, and associated appurtenances required for well operation.
- Install station landscaping to blend with the surrounding neighborhood and crushed rock site surfacing to maximize dust control. Landscape design shall be performed by a 3<sup>rd</sup> Party Landscape Architect.
- Install vertical turbine well pump and motor assembly and associated appurtenances.
- Install onsite backup power/generator (Tier 4 Emissions control) on reinforced concrete pad with ancillary housekeeping pad and protective bollards.
- Purchase pressure tank and associated appurtenances and install on proposed reinforced concrete pad for surge mitigation during pump starts and stops.
- Perform offsite improvements like driveway, sidewalk, curb and gutter, security fencing and access gates, signage, etc.
- Install SHC chemical storage tank and chemical injection equipment.
- Install site water service, meter, backflow, and manifold for site water features. Site water features include irrigation, eyewash/shower, and well pump lubrication.
- Install eyewash and shower assembly for emergency use associated with chemical exposures.
- Install associated electrical equipment/ SCADA/ panel board/ PLC/ Radio/ Antenna/ ATS/ RTU/ Air Compressor and process controls/instrumentation.
- Install an electrical utility meter, transformer, and associated foundations and protective bollards.
- Perform construction management services during site improvement construction.

This project is not part of the revenue requirements in this application. Cal Water will start this project in this GRC period, and add it to the revenue requirement of the GRC in which the project will be completed. This project's current budgetary cost estimate is \$1,500,000 to \$6,000,000. Cal Water will refine this cost estimate when more project details and scope are determined.

## **Project Attachments**

- Attachment A – Bakersfield District Water Supply-Demand Analysis Report, 2023 (See Section I. Supply Demand Report)

**Section E.**  
**Water Quality**

# **District – Bakersfield**

## **PID # 132697**

### **Replace H<sub>2</sub>S vessels at BK 219**

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#### **Introduction**

Hydrogen sulfide gas is present in the water in several wells in Bakersfield, including Station 219. Hydrogen sulfide has a pungent smell which is detectable by the nose at very low concentrations. While hydrogen sulfide is not regulated directly in drinking water in California, there are secondary standards for odor, and the presence of hydrogen sulfide puts the drinking water over this standard.

Catalytic Granular Activated Carbon (GAC) is a specially activated carbon product which is used to remove hydrogen sulfide. The process works by oxidizing sulfide in the feed water with dissolved oxygen to reduce sulfide to elemental sulfur. The GAC needs to be frequently backwashed to prevent the build up of elemental sulfur on the media. This type of treatment is installed at BK 219 in 2005. Additional GAC treatment was installed at the site in 2019 for trichloropropane (TCP) removal.

#### **Deficiencies and Issues**

The vessels at BK 219 have shown corrosion. The corrosion is particularly evident in the piping as seen in the below photos. The corrosion has resulted in frequent maintenance of the vessels to patch the pitted areas to keep the station in service.



**Photo 1: GAC Piping at BK 219**



**Photo 2: GAC Vessels at BK 219**

### **Alternative Analysis**

To address deficiencies identified at Bakersfield Station 219, the following alternatives were analyzed:

#### **Alternative 1: Do Nothing**

The Do Nothing alternative does not address the concerns with frequent maintenance on the vessels.

## **Alternative 2 : Eliminate or Bypass Treatment**

Cal Water's system permit from DDW requires treatment for this well. Cal Water could amend the permit with DDW if the treatment were no longer needed, for example if hydrogen sulfide were no longer present in the water. Removing or bypassing treatment could be considered if the well were to be moved to standby status and would only be used during emergencies. However, this would mean that the source would not be available for regular use and would not contribute to meeting peak hour and max day demand in the system.

An additional problem that would develop if the treatment were to be bypassed is that the GAC vessels for TCP would start absorbing the hydrogen sulfide. Since this media is not catalytic, the hydrogen sulfide would soon exhaust the media, taking up the capacity needed for TCP removal. This would result in very frequent change outs to keep removing TCP, which is a primary MCL.

## **Alternative 3: Replace the vessels**

Cal Water would replace the vessels with new vessels. It is possible that a new foundation would be required for the vessels.

## **Recommended Solution**

The recommended solution is to replace the vessels so the source can stay in active status and so the maintenance issues are eliminated.

## **Project Summary**

The scope of the project is:

- Design the new GAC vessels and associate piping.
- Through design, determine if the existing foundation can be reused or if it needs to be replaced.
- Procure the new GAC vessels
- Install the GAC vessels and associated piping.

This project is not part of the revenue requirements in this application. Cal Water will start this project in this GRC period, and add it to the revenue requirement of the GRC in which the project will be completed. This project's current budgetary cost estimate is \$150,000 to \$600,000. Cal Water will refine this cost estimate when more project details and scope are determined.

**Section F.**  
**Capital Planning**

# **District – Bakersfield**

## **PID # 133184**

### **Bakersfield Station 087 Rebuild**

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#### **Introduction**

Bakersfield Station 87 is an existing tank and booster facility originally built in 1954. The station has five tanks on site with a total storage volume of 4.35 million gallons. The tanks gravity feed the 660 zone (Skyline) and are the only source of operational and emergency storage for the zone. The four booster pumps onsite draw water from the tanks to transfer supply to the 780 zone (University). The pumps at this facility are critical to support the 780 zone during normal operation and are vital to move purchased water from the Kern County Water Agency to the 780 zone when the Northeast Water Treatment Plant is offline for maintenance or emergency scenarios. The existing booster pump building, electrical panelboard, booster pump piping, and associated appurtenance at Station 87 have reached the end of their useful life and are proposed for replacement based on their age, condition, and consequence of failure.

#### **Deficiencies and Issues**

Station 87 has been identified for a station rebuild to replace the aging infrastructure and obsolete electrical components that are discussed in more detail in the subsections below.

#### **Aging Infrastructure**

The existing steel booster pump building is over 65 years old and has reached the end of its useful life. The building has deteriorated over time and poses a security risk for the District. The building coating system is also deteriorating and is expected to contain lead-based paint that poses a risk to operators and the environment. With the removal of the existing building, the lead-based paint will need to be abated and properly disposed.

The booster pump piping at Station 87 is in poor condition and has been repaired using clamps many times due to leaks. The booster pump piping is proposed for replacement to ensure the station can reliably supply the 780 zone during normal and emergency operations. Replacing the booster pump piping will mitigate the potential for a sudden failure of the piping that would cause a potential interruption to customer service or water quality violation due to loss of pressure in the system.

Station 87 also has an inactive well onsite that is out of service due to water quality issues. Cal Water does not plan to return the well to service due to water quality concerns and the well needs to be properly abandoned. The well's associated electrical panel, well building, piping, and associated appurtenances also will need to be removed after the well is abandoned.

Station 87 is located within a high crime area of Bakersfield and the building's integrity is in poor condition. There is concern about the vulnerability of the station's structures and equipment to environmental factors (e.g., weather) and vandalism.

#### **Obsolete Electrical Components**

Multiple upgrades are needed to the electrical components in the existing panelboard, including the starter, motor breaker, main breaker, and a new SCADA radio system.

The existing panelboard is aging, has outdated equipment, and has reached its full capacity in terms of space. Thus, a new panelboard is needed to accommodate the proposed station upgrades and have room for the replacement of existing parts.



**Photo 1. Existing Pump Building**



**Photo 2. Inactive Well Building**



**Photo 3. Pump Building Panelboard**



**Photo 4. Existing Pump E Shelter**

## Alternative Analysis

To address deficiencies identified at Station 87, the following alternatives were analyzed:

### Alternative 1: Do Nothing

To avoid potential emergency situations, Cal Water is committed to a proactive approach in keeping all necessary assets in fair working condition and providing reliable service to customers. The do nothing alternative will not achieve this goal and is therefore nonviable and shall be eliminated.

### Alternative 2: Station Rebuild

The Station Rebuild alternative involves replacing the existing pump building, electrical panelboard and components, three existing booster pumps and motors (B, C, D), and the pump E shelter. The inactive well onsite will be abandoned.

The existing metal-frame pump building will be replaced with a CMU block building constructed in another location onsite to minimize station downtime. The improved pump building and pump shelter replacement will meet the current California Building Code and provide improved security and access for the equipment and facilities. A new panelboard, circuit breaker, conduits, and all other associated electrical components will be installed. The new electrical system will be configured with a SCADA radio system to ensure both efficient and reliable operation of the rebuilt station. The project requires extensive site work including relocation of station piping and conduits, replacement of two flowmeters, and construction of a new foundation. The abandonment of the well includes removal of the existing metal well-house building.

## Recommended Solution

Cal Water recommends Alternative 2: Station Rebuild. The replacement of the pump building, panelboard, and pumps requires extensive site work. Construction of all these components in the same project is recommended to be completed concurrently to minimize station downtime and reduce contractor costs.

Cal Water is proposing to complete the design and construction of the recommended solution for the 2024 GRC.

## Project Summary

The partial rebuild of Station 87 includes the replacement of the existing pump building, three (3) in-building booster pumps, one (1) pump in a shelter, one (1) in-shelter pump, pump motors and controls, panelboard and components, electrical service and abandon the onsite, inactive well. Customers will benefit from a more secure, reliable, and up-to-date water system. Pumping efficiency will increase, saving energy expenses.

- Perform survey, design, and secure all permits.

- Perform site geotechnical investigation for soils classification and bearing capacity determination to be used in the structural design of the pump building and pressure tank foundation.
- Remove existing structures, pumps, panelboard, piping and associated infrastructure.
- Remove old well building, abandon old well, remove well piping and electrical equipment.
- Consideration for proper disposal of lead-based paint.
- Install replacement CMU block pump building to house the replacement pumps and electrical panel/motor control center (MCC).
- Install pressure tank and associated appurtenance on concrete foundation for surge mitigation during pump starts and stops. The associated appurtenances shall include air controls, an air compressor, and differential pressure transmitter for water level monitoring.
- Install site crushed rock surfacing for vehicular access to the proposed building and internally housed equipment.
- Install three (3) vertical turbine pumps in suction cans with new motors, controls, and associated appurtenances.
- Replace existing Booster G pump shelter
- Replacement of necessary station piping and suction/discharge manifolds for the new pumps.
- Install replacement flowmeter and vault to track facility production and system demands.
- Install replacement panelboard, conduits, and components.
- Install replacement hydraulic enclosure with pressure sensing equipment for system monitoring and pump controls.
- Install replacement electrical service, including new PG&E pad mounted transformer and utility metering panel. Transformer shall require protective bollards per PG&E requirements.
- Install station communications.
  - RTU cabinet with ScadaPak in the new panelboard with a building mounted antenna.

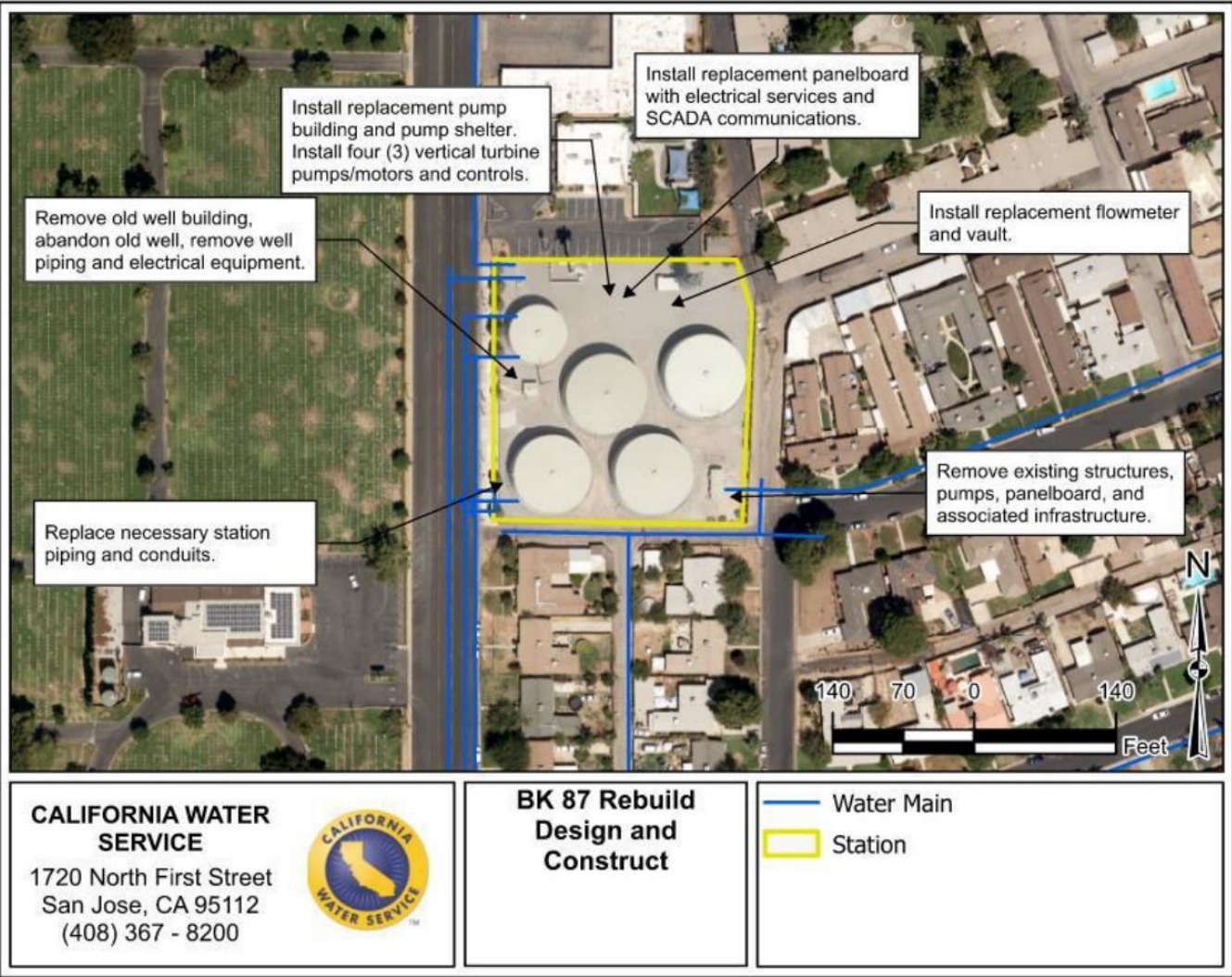
This project is not part of the revenue requirement in this application. Cal Water will start this project in this GRC period, and add it to the revenue requirement of the GRC in which the project

will be completed. This project's current budgetary cost estimate is \$920,00 to \$3,700,000. Cal Water will refine this cost estimate when more project details and scope are determined.

## **Project Attachments**

- Attachment A - Conceptual Layout

### Conceptual Layout



# **District – Bakersfield**

## **PID # 133192**

### **Bakersfield Low Zone Property Purchase**

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#### **Introduction**

The Bakersfield district (District) owns and operates two separate water systems, the Bakersfield main system and the North Garden system. District currently relies on a combination of groundwater, treated surface water (Northeast and Northwest Bakersfield Water Treatment Plant, NEBKTP and NWBKTP), and purchased surface water from the Kern County Water Agency (KCWA) to meet potable water demands of its customers in both systems. Groundwater is an important portion of District water supply, as it provides over half of its supply.

In the Bakersfield main system, District relies on supply from 67 active groundwater wells while 40% of the active wells have reached or exceeded their expected service life. Considering the wells age and the prolonged process of a new well development for District, a significant well outage risk can threaten Cal Water’s long-term ability to supply groundwater to its customers. To mitigate this risk and to continue to provide safe and reliable service to its customers, District proposes to purchase property for a new well development to proactively augment groundwater supply. To improve water supply reliability, diversify water resources, address wildfire threats, and replace aged wells, as part of this project it is recommended to purchase property for a well in the Low-pressure zone (zone) of the Bakersfield system.

This property purchase project will be based on a well sitting study project proposed for District in the 2024 General Rate Case (GRC).

#### **Deficiencies and Issues**

The Bakersfield system Low zone is identified for a new well property purchase in the 2024 GRC application based on the following deficiencies, discussed in more detail in the subsections below.

#### **Supply Deficiency**

The Low zone is supplied predominantly by existing local groundwater wells and has a peak hour demand (PHD) deficit of 813 gallons per minute (gpm) (Attachment A). The PHD deficit can result in water shortages, low pressures in the distribution system, disruptions to customer service, and potential water quality concerns. In order to address the PHD deficit, proactive planning is required to ensure District has adequate infrastructure to meet PHDs.

In addition, District groundwater levels have been declining for the last 30 years (by approximately 40 feet)<sup>1</sup>. Decline in the water table can change the pump operating point and reduce production from existing well pumps. Although pumps can be replaced to address groundwater production loss, motor upsizing is sometimes required which requires energy. Also, the existing electrical equipment/utility size cannot support the increased load required to restore the original production capacity, which can further cause supply deficiencies.

## Wildfire Risk

In 2020, Cal Water evaluated the capacity and capability of all its current infrastructure and stations in the event of a wildfire and proposed a number of measures necessary to mitigate the potential risks. Based on the result of this evaluation in District, North Garden system was found within CalFire’s “Very High” wildfire threat area and wildfire reliability needs<sup>5</sup>. However, the estimate Risk Score associated with this system based on wildfire threat, storage limitations, grid limitations, supply limitations, and backup power limitations is at Low level.

The Power Safety Public Shutoff (PSPS) program increases the need for backup power generation as well as generator and electrical equipment maintenance activities. Southern California Edison (SCE) and Pacific Gas & Electric (PG&E) identified facilities that may be impacted by a PSPS event and provided this data to Cal Water in April 2019. District is included on this list<sup>3</sup>.

## Well Replacement Needs

To make effective decisions regarding groundwater assets, Cal Water engaged Kayuga, an engineering asset management consulting firm, to develop a plan that would help map out the future of Cal Water’s groundwater assets and enable more informed decisions on how to manage these groundwater assets effectively and proactively. The results of the study were compiled into the 2021 Well Infrastructure Renewal Program (WIRP) Report<sup>6</sup>. The median expected service life of wells in the Bakersfield region is 63 years. Of the 67 active wells of the Bakersfield system, 25 wells (or 40%) have reached or exceeded their useful life. Based on the latest system master plan, approximately 94% of the wells will surpass this service life by 2050<sup>7</sup>. Since from a planning perspective, well renewal or replacement projects will span across multiple three-year GRC cycles and as it is recommended by WIRP, District should start to renew or replace wells with degraded condition to ensure groundwater pumping capacity is not reduced.

## Alternative Analysis

To address deficiencies identified at Bakersfield system, the following alternatives were analyzed:

### Alternative 1: Do Nothing

The Do Nothing alternative does not address the unreliable water supply, or other identified problems as District wells are important source of water supply, and they are reaching the end of their useful life. This alternative would likely result in poor service to the customers, and possibly a health risk if pressures were to drop low enough in high demand events such as peak hours or wildfires.

### Alternative 2: Drill Replacement Well on Existing Cal Water Property

Drilling a replacement well on an existing Cal Water property may be a viable option for large properties. Cal Water’s older well stations are located on small parcels generally less than

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<sup>5</sup> California Water Service, *Wildfire Risk Assessment, 2020*

<sup>6</sup> California Water Service, *Well Infrastructure Renewal Program, 2021*

<sup>7</sup> Carollo, *Bakersfield District Water Supply and Facilities Master Plan, 2023*

10,000 square feet. As a result, this prevents additional wells from being installed onsite as Division of Drinking Water (DDW) separation requirements from the existing well and offsite hazards are not able to be maintained. Furthermore, existing Cal Water parcels are in developed/urban areas which limit discharge capacity needed to properly construct and develop a well.

### **Alternative 3: Property Purchase for New Well**

Land acquisition for a new well in Bakersfield system would help provide water supply reliability especially at high demand events such as peak hour and wildfires and it also helps meet well replacement needs of District. A new well site should be 10,000 square feet (ksf) minimum.

### **Recommended Solution**

Cal Water recommends property purchase for a new well construction for the Bakersfield main system to enhance water supply reliability, mitigate wildfire threats, and address the replacement needs of aging wells.

Due to regulations in place by the DDW and local development standards, Cal Water will need to purchase land with the ability to control nearby source contaminants. DDW currently requires a 50-foot minimum radius control zone; however, influences from nearby septic systems or various other hazards as identified in a drinking water source assessment and protection (DWSAP) investigation may increase the necessary control zone. Furthermore, as part of constructing on undeveloped land, local ordinances may require “infill” projects to contain all onsite runoff within the property bounds. As a result, the property must allocate space onsite suitable for well development discharge and reoccurring well maintenance activities in addition to onsite storm runoff.

### **Project Summary**

The proposed project with the following scoped items will allow for a new well property purchase for Bakersfield system to improve water supply reliability and provide a reliable source of water for the customers.

- Utilize well siting study to identify locations with favorable water quality and production capacities. Potential sites should be 10ksf minimum.
- Rank parcels based on relevant criteria (lot size, zone location, proximity to other sources/tie-in location, etc.)
- Determine property owner's interest in selling parcel to Cal Water and advance conversations for potential purchase.
- Perform Site Investigations including: Site Survey (topo & boundary), DSAWP, Phase 1 (& potentially Phase 2) Environmental Assessment.
- Develop preliminary design for City and DDW Permitting.
- Purchase property and file deed with the County.

## **Project Attachments**

- Attachment A – Cost Estimate
- Attachment B – Bakersfield District Water Supply-Demand Analysis Report, 2023 (See Section I. Supply Demand Report)

**133192 Cost Estimate**

**Capital Project Cost Estimate**

**Project No. :** 133192  
**Description** BK NG Property Purchase #2  
**District / Department:** Bakersfield  
**Project Start Date:** 01/01/2025  
**Project Completion Date:** 12/31/2025  
**Prepared By:** jagraham  
**Date Initiated:** 11/26/2023  
**Base Year:** 2023  
**Sub-Total:** \$518,817  
**Direct Cost:** \$545,083

**Cost Table:**

<b>Item</b>	<b>Description [units]</b>	<b>Qty</b>	<b>Unit Cost</b>	<b>Total</b>	<b>Cost Basis</b>
10% CONTINGENCY	[EA]	1	\$47,165.21	\$47,165.21	Additional Factors
CEQA CONSULTANT	Initial Study - Typical [LS]	1	\$36,209.00	\$36,209.00	Cost Catalog No. E.1-1
CITY OF BAKERSFIELD PLANNING DEPARTMENT APPROVAL [LS]	[EA]	1	\$2,500.00	\$2,500.00	Engineers Estimate
CITY PERMIT FEE	CUP Permit [LS]	1	\$19,663.00	\$19,663.00	Cost Catalog No. F.1-1
DDW COORDINATION AND DSWAP [LS]	[EA]	1	\$30,000.00	\$30,000.00	Engineers Estimate
ENG TECH	CW-Eng Tech LABOR [HR]	32	\$108.96	\$3,486.72	Labor SKU
ENVIRONMENTAL PM	CW-EA Proj MGR LABOR [HR]	96	\$139.41	\$13,383.36	Labor SKU
LAND ACQUISITION [LS]	[EA]	1	\$260,339.00	\$260,339.00	Engineers Estimate
PHASE 1 ASSESSMENT [LS]	[EA]	1	\$10,000.00	\$10,000.00	Engineers Estimate
REAL ESTATE OR BROKER FEE (5% OF LAND ACQUISITION FEE) [LS]	[EA]	1	\$13,017.00	\$13,017.00	Engineers Estimate
SIMILAR PROJECTS	CW-EA Proj MGR LABOR [HR]	420	\$139.41	\$58,552.20	Labor SKU
SITE SURVEY	TopographyW/LegalDescriptn[ LS]	1	\$21,156.00	\$21,156.00	Cost Catalog No. E.6-11
WATER QUALITY PM	CW-EA Proj MGR LABOR [HR]	24	\$139.41	\$3,345.84	Labor SKU

**Sub-total =** \$518,817.33  
**Direct Cost =** \$545,082.68

**Notes:**

1. Sub-Total is defined as the summation of all project estimated materials, labor, and markups costs
2. Direct Cost is the escalate Sub-Total from the base year of 2023 to the project completion year assuming a 2.5% inflation rate
3. See Common Plant Book for additional details on cost estimating methodology and justification

# **District – Bakersfield**

## **PID # 133194**

### **Bakersfield North Garden Property Purchase**

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#### **Introduction**

The Bakersfield district (District) owns and operates two separate water systems, the Bakersfield main system and the North Garden system. The North Garden system currently relies on a combination of groundwater, treated surface water (Northwest Bakersfield Water Treatment Plant, NWBKTP), and purchased surface water from Kern County Water Agency (KCWA)<sup>8</sup> to meet potable water demands of its customers. The West portion of the North Garden system is limited to supply from two active wells (BKNG-W-214-01 & BKNG-W-219-01) and is connected to the main North Garden system with a single 12-inch diameter pipeline along Snow Road. Each of the wells is equipped with H<sub>2</sub>S and TCP wellhead treatment, which requires routine maintenance and media replacement to effectively meet water quality regulations. During equipment maintenance activities, the wells are removed from service reducing the supply availability for the area.

The North Garden West (NGW) system is also experiencing Max Day Demand (MDD) and Peak Hour Demand (PHD) deficits. Although the District plans to address the PHD deficit utilizing a pumped storage facility proposed in the 2021 General Rate Case (GRC) under PID 123165, the MDD deficit can only be resolved by introducing additional sources of supply to the area. Because a new well development is a prolonged process, and the majority of the North Garden system is in developed areas, finding a proper property for a new well could be challenging for District. To improve water supply reliability and address current system deficits, it is recommended to purchase a new property in the Northwest portion of Bakersfield North Garden (BKNG) system to establish a new well.

This well property purchase project will be based on a well siting study project proposed for BKNG in 2024 GRC.

#### **Deficiencies and Issues**

The North Garden system located in the Northwest portion of Bakersfield and is assessed in two sections, North Garden West and North Garden East. NGW is identified for a new well property purchase in the 2024 GRC application based on the following deficiencies, discussed in more detail in the subsections below.

#### **Water Supply Reliability**

Based on the 2023 supply and demand analysis, the Northwest portion of BKNG has PHD deficiency of 3,457 gallons per minute (gpm) and MDD deficit of 2,191 gpm, which can escalate under high demand events (Attachment B). The PHD and MDD deficit can result in water shortages, low pressures, large pressure fluctuations in the distribution system, disruptions to customer service, and potential water quality concerns. In order to address the PHD/MDD

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<sup>8</sup> California Water Service Company, *Water Supply and Facilities Master Plan Bakersfield District*, 2008

deficit, proactive planning is required to ensure District has adequate infrastructure and supply sources to meet customer demands.

## **Alternative Analysis**

To address deficiencies identified in the North Garden system on the West portion, the following alternatives were analyzed:

### **Alternative 1: Do Nothing**

The Do Nothing alternative does not address the unreliable MDD and PHD water supply especially at high demand events. This alternative would likely result in poor service to the customers, and possibly a health risk if pressures were to drop low enough in high demand events.

### **Alternative 2: Drill Replacement Well on Existing Cal Water Property**

Drilling a replacement well on existing Cal Water property may be a viable option for large properties, Cal Water's older well stations are located on small parcels generally less than 10,000 square feet. As a result, this prevents additional wells from being installed onsite as Division of Drinking Water (DDW) separation requirements from the existing well and offsite hazards are not able to be maintained. Furthermore, existing Cal Water parcels are in developed/urban areas which limit discharge capacity needed to properly construct and develop a well.

### **Alternative 3: Develop New Emergency Interconnection**

Constructing a new water main to allow a water transfer from the NWBKTP could be one of the alternatives. However, the new main would be very costly, which negatively impacts affordability.

### **Alternative 4: Property Purchase for New Well**

Land acquisition for a new well in the North Garden system would help provide water supply reliability especially at high demand events.

## **Recommended Solution**

Cal Water recommends property purchase for a new well in the northwestern portion of the BKNG system to enhance water supply reliability.

Due to regulations in place by the DDW and local development standards, Cal Water will need to purchase land with the ability to control nearby source contaminants. DDW currently requires a 50-foot minimum radius control zone; however, influences from nearby septic systems or various other hazards as identified in a drinking water source assessment and protection (DWSAP) investigation, which may increase the necessary control zone. Furthermore, as part of constructing on undeveloped land, local ordinances may require "infill" projects to contain all onsite runoff within the property bounds. As a result, the property must allocate space onsite suitable for well development discharge and reoccurring well maintenance activities in addition to onsite storm runoff.

## **Project Summary**

The proposed project with the following scoped items will allow for a new well property purchase to improve water supply reliability and provide a reliable source of water for the customers.

- Utilize well siting Study to identify locations with favorable water quality and production capacities.
- Rank parcels based on relevant criteria (lot size, zone location, proximity to other sources/tie-in location, etc.)
- Determine property owner's interest in selling parcel to Cal Water and advance conversations for potential purchase.
- Perform Site Investigations including: Site Survey (topo & boundary), DSAWP, Phase 1 (& potentially Phase 2) Environmental Assessment.
- Develop preliminary design for City and DDW Permitting.
- Purchase property.

## **Project Attachments**

- Attachment A – Cost Estimate
- Attachment B – Bakersfield District Water Supply-Demand Analysis Report, 2023 (See Section I. Supply Demand Report)

## 133194 Cost Estimate

### Capital Project Cost Estimate

**Project No. :** 133194  
**Description** BK NG Property Purchase  
**District / Department:** Bakersfield  
**Project Start Date:** 01/02/2025  
**Project Completion Date:** 10/31/2027  
**Prepared By:** jagraham  
**Date Initiated:** 11/26/2023  
**Base Year:** 2023  
**Sub-Total:** \$518,817  
**Direct Cost:** \$558,004

#### Cost Table:

Item	Description [units]	Qty	Unit Cost	Total	Cost Basis
10% CONTINGENCY	[EA]	1	\$47,165.21	\$47,165.21	Additional Factors
CEQA CONSULTANT	Initial Study - Typical [LS]	1	\$36,209.00	\$36,209.00	Cost Catalog No. E.1-1
CITY OF BAKERSFIELD PLANNING DEPARTMENT APPROVAL [LS]	[EA]	1	\$2,500.00	\$2,500.00	Engineers Estimate
CITY PERMIT FEE	CUP Permit [LS]	1	\$19,663.00	\$19,663.00	Cost Catalog No. F.1-1
DDW COORDINATION AND DSWAP [LS]	[EA]	1	\$30,000.00	\$30,000.00	Engineers Estimate
ENG TECH	CW-Eng Tech LABOR [HR]	32	\$108.96	\$3,486.72	Labor SKU
LAND ACQUISITION [LS]	[EA]	1	\$260,339.00	\$260,339.00	Engineers Estimate
PHASE 1 ASSESSMENT [LS]	[EA]	1	\$10,000.00	\$10,000.00	Engineers Estimate
REAL ESTATE OR BROKER FEE (5% OF LAND ACQUISITION FEE) [LS]	[EA]	1	\$13,017.00	\$13,017.00	Engineers Estimate
SIMILAR PROJECTS	CW-EA Proj MGR LABOR [HR]	420	\$139.41	\$58,552.20	Labor SKU
SITE SURVEY	TopographyW/LegalDescriptn[ LS]	1	\$21,156.00	\$21,156.00	Cost Catalog No. E.6-11
WATER QUALITY PM	CW-WQ Proj MGR LABOR [HR]	24	\$139.41	\$3,345.84	Labor SKU
WQ PROJ MGR	CW-WQ Proj MGR LABOR [HR]	96	\$139.41	\$13,383.36	Labor SKU

**Sub-total =** \$518,817.33  
**Direct Cost =** \$558,003.97

#### Notes:

1. Sub-Total is defined as the summation of all project estimated materials, labor, and markups costs
2. Direct Cost is the escalate Sub-Total from the base year of 2023 to the project completion year assuming a 2.5% inflation rate
3. See Common Plant Book for additional details on cost estimating methodology and justification

**Section G.**  
**Capital Delivery**

# District – Bakersfield

## PID # 133180

### BK-304-CV001 Panel Upgrade

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#### Introduction

The Bakersfield District serves a population of more than 280,000. Portions of the District are served by purchased water from Kern County Water Agency through interconnections owned and operated by the District. Interconnection K12 (BK-304-CV001), located near 732 Jeffrey Street, is the main source of supply for nearby customers in the 660 pressure zone. The K12 interconnection consists of pressure monitoring equipment, a hydraulic control valve, and flow meter (as shown in Figure 1) that are monitored and controlled by the District’s supervisory control and data acquisition (SCADA) system. The site includes an aging 240/120-V, 1-phase Pacific Gas & Electric (PG&E) electric service, power panel, and programmable logic controller (PLC) panel. The electric service, power panel, and SCADA panel are mounted together in the right-of-way (ROW) along the road as shown in Photo 1. The panels need to be replaced due to their condition, age, and consequence of failure.



**Figure 1. SCADA Screen Showing Pressure Instruments, Valves and Flow Meters<sup>9</sup>**

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<sup>9</sup> See *Confidential Capital Project Justification Book*. Material identified as confidential are consistent with Category 4d in the *Memo on Claims for Confidential Designation in Cal Water’s 2024 General Rate Case*.



**Photo 1. Existing Panels**

## **Justification**

This project will include replacing and relocating the existing PG&E electrical service, power panel, and PLC at the interconnection location to ensure reliable supply to nearby customers during normal and emergency operations. A new 240/120-volt (V), 1-phase, 3-wire PG&E electric service will be installed in the ROW near the existing interconnection vaults and existing panels. Coordination with PG&E will be needed for the shutdown and removal of the existing electric service to occur after the new station improvements, including the installation of new electric service. The power distribution panel will be fed from a main circuit breaker. The main circuit breaker will be fed from the new PG&E electric service. A new PLC panel meeting current District SCADA standards will be provided. The electric service entrance panel, power distribution panel, and PLC panel will be in a low-profile (60 inches high) freestanding electrical enclosure that will be mounted on a concrete pad in the ROW. A 12-foot (ft)-high antenna mast will be provided for the SCADA antenna that will allow the station to be monitored wirelessly by the District's SCADA system. Removable traffic bollards will be provided around the equipment within the ROW to protect the equipment from vehicle damage.

The project benefits customers by minimizing the risk of an unplanned failure of the equipment monitoring and controlling the interconnection. This project allows for an orderly transition from the existing panels to the new panels, which decreases the duration of the outage significantly over needing to implement the improvements due to an unplanned failure. This improves the availability and reliability of the equipment used in helping secure a reliable water supply for the community near the interconnection.

The sole alternative to this project is the Do Nothing alternative. That alternative risks the aging equipment at the station suffering an unplanned failure, which would disrupt the water supply to the nearby community, and the benefits described above will not be realized.

## **Project Summary**

The cost estimate for this project will include:

- Providing one (1) new PG&E electric service that will be sized to provide at least 50-Amp (A), 240/120-V, 1-phase, 3-wire.
- Providing one (1) National Electrical Manufacturers Association (NEMA) 3R, freestanding, low-profile (60 inches high) electrical panel. The panel will include a service entrance section for the PG&E cable termination and meter provisions (per Electric Utilities Service Entrance Requirements Committee [EUSERC] and PG&E requirements). The electrical panel will also have two (2) additional 30-inch by 24-inch sections for the power distribution panel and the PLC panel. The electrical panel will include:
  - One (1) new load center.
  - One (1) new PLC panel per current District standards in the new electrical panel and will include the relocated flow meter head.
- Constructing one (1) 8-ft by 3-ft by 12-inch-deep concrete pad for the new electrical panel.
- Providing one (1) 12-ft-high, 4-inch-square aluminum pole and 5-ft by 30-inch-diameter concrete pole base for the radio antenna.
- Providing one (1) hydraulic enclosure with two (2) pressure transducers per District standard mounted on a framing channel rack.
- Providing four (4) removable traffic bollards between the road and the new fence around the electrical panel
- Design and permitting.
- Providing a power systems study for arc flash report and labeling.

This project is not part of the revenue requirements in this application. Cal Water will start this project in this GRC period, and add it to the revenue requirement of the GRC in which the project will be completed. This project's current budgetary cost estimate is \$350,000 to \$1,400,000. Cal Water will refine this cost estimate when more project details and scope are determined.

# **District – Bakersfield**

## **PID # 133198**

### **BK NEWTP – Raw Water Pumps VFDs**

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#### **Introduction**

Cal Water owns and operates the Northeast Bakersfield Water Treatment Plant (NEWTP) that was constructed in 2001. The NEWTP treats Kern River water obtained through a long-term supply agreement with the City and has a current production capacity of 20-million gallons-per-day (MGD), with a planned ultimate capacity of 60 MGD using two future increments of 20 MGD. NEWTP primarily serves the water to higher pressure zones in the Northeast area of the Bakersfield system and conveys the water down to the Central area as needed. This facility runs nearly continuously and is a crucial part of the water distribution system to meet the demands of the Northeast zones, serving as Bakersfield District’s largest source of water supply. NEWTP is a critical water supply for the Northeast zones of the Bakersfield District and reliability improvements to minimize downtime are necessary.

#### **Deficiencies and Issues**

The NEWTP raw water pump VFDs have been identified for replacement in the 2024 General Rate Case (GRC) application based on water quality and supply deficiency issues.

With over 20 years of operation for NEWTP, parts of the original equipment have reached or exceeded their useful life, such as the variable/adjustable frequency drives (VFDs) on the raw water pumps. The existing VFDs have been in operation for about 21 years and will become obsolete without replacement. There are three (3) raw water pumps for the NEWTP, each with a rating of 800 horsepower (HP). Two (2) of the pumps are equipped with VFDs and one (1) is equipped with a constant speed motor. Maintenance and repairs for the pumps and VFDs have been performed as required; however, the two (2) VFDs require replacement as they approach the end of their useful life. Equipping the third pump with a VFD by replacing the existing constant speed drive would provide additional supply reliability, facilitating less system downtime for maintenance. This project proposes to replace the two (2) existing aged VFDs, and the one (1) existing constant speed drive, with three (3) new active front-end VFDs of similar size.

Continued use of the VFDs results in excess energy consumption for the attached pumps and decreased efficiency in terms of plant operation. Aged VFDs may be prone to damage and affect the amount and quality of the water treated at the NEWTP, thus presenting risks to public health from failure and reducing supply reliability. To reduce these risks, replacing the existing aged VFDs with new VFDs will improve operational efficiency and result in lower energy costs. Furthermore, if both existing VFDs are taken out of service due to planned or unexpected maintenance, then the existing third pump that is at a constant speed cannot be used to meet the intended operational range of flows. Having all three of the existing raw water pumps on VFDs would provide operational flexibility to choose which two pumps to run at a time. In similar fashion, adding a VFD to the third pump would improve operational efficiency and supply reliability by further limiting downtime.

## Alternative Analysis

To address the deficiencies identified for the existing VFDs on two (2) raw water pumps, and for the third raw water pump with an existing constant speed drive, at the NEWTP, the following alternatives were investigated:

### Alternative 1: Do Nothing.

The Do Nothing alternative does not address the risks associated with the existing VFDs, which have reached the end of their useful life. As these VFDs continue to be used, the efficiency decreases and may result in excessive energy consumption as well as increased risk of failure. Additionally, the VFDs would become obsolete with further use, which would affect plant operations and supply reliability for the customers served by NEWTP. As a result of these water supply reliability issues, the Do Nothing alternative was deemed imprudent and not considered further.

### Alternative 2: Replace Existing Aged VFDs, and Constant Speed Drive, with New VFDs.

This alternative consists of replacing the existing VFDs with new VFDs that would require less maintenance two existing (2) raw water pumps. This alternative also includes replacing the existing constant speed drive with a new VFD to address reliability deficiencies associated with the raw water pumps. The replacement would address failure concerns regarding the existing VFDs and optimize operations at NEWTP. Energy costs would be lowered as the new VFDs would decrease energy consumption with improved efficiency. As a result of these advantages, the replacement ensures supply reliability to the customers served by the NEWTP and supports maximal operation at the plant.

## Recommended Solution

Replacing the existing VFDs and constant speed drive with new VFDs for the existing raw water pumps at NEWTP is recommended to reduce energy waste and associated costs to customers as well as enhance supply reliability.

## Project Summary

The proposed project is to replace the two (2) existing aged VFDs, and the one (1) existing constant speed drive, with three (3) new active front-end VFDs of similar size. Replacing the existing VFDs and constant speed drive would also be more economical to maintain, minimizing maintenance expense costs in addition to ensuring supply reliability for the customers served by NEWTP.

The proposed project scope is expected to include:

- Purchase three (3) new 800 HP VFDs for the existing raw water pumps. The new VFDs shall have active front-end technology to ensure compliance with utility harmonic mitigation requirements.
- Remove the two (2) existing VFDs, and the one (1) existing constant speed drive, for the raw water pumps.
- Install the three (3) new VFDs as replacements for the existing raw water pump drives.

- Install new VFD panels on new housekeeping pad.

Equip new VFDs with separate air conditioning unit(AC) and new circuit breaker.

- Equip existing RTU panel with additional IO cards.
- Modify PLC programming, and SCADA to monitor and control the new VFDs.

## **Project Attachments**

- Attachment A – Cost Estimate

## 133198 Cost Estimate

### Capital Project Cost Estimate

**Project No. :** 133198  
**Description** BK NEWTP Raw Water Pumps VFD  
**District / Department:** Bakersfield  
**Project Start Date:** 01/02/2026  
**Project Completion Date:** 12/23/2027  
**Prepared By:** jagraham  
**Date Initiated:** 11/26/2023  
**Base Year:** 2023  
**Sub-Total:** \$1,720,943  
**Direct Cost:** \$864,640

#### Cost Table:

Item	Description [units]	Qty	Unit Cost	Total	Cost Basis
10% CONTINGENCY FACTOR	[EA]	1	\$160,580.86	\$160,580.86	Additional Factors
BUILDING PERMIT [LS]	Building Permit [LS]	1	\$9,808.00	\$9,808.00	Cost Catalog No. F.1-2
ELECT ENG	CW-Elect Eng LABOR [HR]	90	\$139.41	\$12,546.90	Labor SKU
EMT	CW-EMT LABOR [HR]	32	\$112.12	\$3,587.84	Labor SKU
ENG TECH	CW-Eng Tech LABOR [HR]	76	\$108.96	\$8,280.96	Labor SKU
EQUIPMENT [EA]	Equipment [EA]	1	\$16,946.00	\$16,946.00	Cost Catalog No. A.14-1
FIELD LBR	CW-LABOR-FIELD LABOR [HR]	18	\$88.12	\$1,586.16	Labor SKU
FIELD MGR	CW-LABOR-FIELD MGR/SUPV [HR]	33	\$115.92	\$3,825.36	Labor SKU
HYDRAULIC ENCLOSURE [EA]	Hydraulic Enclosure [EA]	1	\$11,909.00	\$11,909.00	Cost Catalog No. D.7-1
LABOR	CW-Civil Eng LABOR [HR]	12	\$139.41	\$1,672.92	Labor SKU
RTU [LS]	RTU [LS]	1	\$12,382.00	\$12,382.00	Cost Catalog No. B.4-6
SCADA TECH	CW-SCADA Tech LABOR [HR]	18	\$108.96	\$1,961.28	Labor SKU
SIMILAR PROJECTS	CW-EA Proj MGR LABOR [HR]	42	\$139.41	\$5,855.22	Labor SKU
VFD 800HP (LS)	[EA]	3	\$490,000.00	\$1,470,000.00	Engineers Estimate

**Sub-total =** \$1,720,942.50  
**Direct Cost =** \$864,640.05

#### Notes:

1. Sub-Total is defined as the summation of all project estimated materials, labor, and markups costs
2. Direct Cost is the escalate Sub-Total from the base year of 2023 to the project completion year assuming a 2.5% inflation rate
3. See Common Plant Book for additional details on cost estimating methodology and justification

**Section H.**  
**Operations**

# **District – Bakerfield**

## **PID # 133199**

### **Land Purchase & Office Design**

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#### **Introduction**

The Bakersfield District office facilities and field yard are undersized and no longer support efficient and safe operations.

The district originally occupied the 3.4 acres site in 1993. During this thirty-year period the number of employees, fleet vehicles, and storage requirements have increased to support the steady annual growth in the number of connections. The district expanded its site to 4.5 acres, through land lease and purchase, however, the site remains significantly undersized to support its operational activities. The lack of operational space to support the activities of 113 District employees and 30 Engineering and CSS staff coupled with the prevalence of criminal activity in this neighborhood are impacting day-to-day operations and employee safety.

#### **Deficiencies and Issues**

With a steady growth in the number of connections and staff complement, the need for additional space for office functions, fleet and employee parking, material, and emergency equipment storage, continues to increase. Initially the district leased property to the South of the office to support materials storage and parking. In 2019, the district leased another property, this time to the North for more office and warehouse space and parking. The district continues to lease the South property for parking and now owns the North property.

Continued district growth and increasing crime are impacting day-to-day operations. Key deficiencies and issues are discussed in more detail in the subsections below.

#### **Safety**

On-going challenges with parking put employees, fleet vehicles, and company assets at risk. A single entry/exit vehicle gate, a congested parking lot, mixing of employee and fleet vehicle parking creates an unsafe environment for all employees. Adding the layer of pedestrians traveling between buildings or to their vehicle increases the obstacles our drivers face, before they get on the road.

Increasing crime in this area of Bakersfield impacts company vehicles and assets, but more importantly the district's employees. Personnel are now onsite 24 hours per day to monitor system operations, this creates a security concern as they work alone between 4:00 p.m. and 7:00 a.m. on weekdays and all day on weekends. Live security monitoring and perimeter security measures are in place, however, there have still been incidents of employees and security personnel interrupting trespassers tampering with fleet vehicles or witnessing items being thrown over the fences. Employees need to feel safe when accessing the site and to protect fleet vehicles and materials needed to respond to emergency calls.

Employee and site safety are impacted by the homeless population surrounding the "H" Street facility. Particularly along the San Joaquin Valley Railroad tracks that run adjacent to the

property where recurring encampments are established along Cal Water facility's fence line. Makeshift shelters connected to the fence, the use of fire pits, unsanitary conditions, and drug use create recurring unsafe conditions. Theft of employee property from their vehicles and damage to Cal Water trucks from theft of catalytic converters, tools, and search of vehicle interiors has been more frequent. Trash and drug paraphernalia is routinely thrown over the fence onto Cal Water property.

Every 3 months the Bakersfield Police Department with the San Joaquin Rail management conduct a targeted sweep of encampments in this area as they also impact the railroad tracks. During these sweeps, Police routinely make arrests for persons under the influence of narcotics and alcohol. Also, several wanted fugitives have been captured since they are known to hide among the homeless population. Once individuals have been cleared from the area, bulldozers and other measures are deployed to clean up the area that stretches along this entire fence line of the Cal water property. The Code enforcement team from the Police department and SJ Rail are planning on future monthly abatement efforts instead of the quarterly ones due to the increase and severity of the homeless encampments affecting not only the rail property, but now the Cal Water facility on "H" Street.

### **Parking and Electric Vehicle Transition**

Cal Water is developing its plan to electrify its fleet per the California mandate. California Executive Order (N-79-20) calls for the elimination of NEW internal combustion passenger vehicles by 2035. Recommendations by consultant Mercury Associates, Inc., include the replacement of light duty vehicles with battery electric vehicles (BEV) by 2035. This would affect 96 of the current 114 vehicles in the Bakersfield district. The installation of charging stations to support the fleet BEV transition will reduce the current number of parking spaces, further impacting an already congested parking lot.

### **Storage of Emergency Equipment**

Storage of emergency equipment has increased in response to more incidents requiring fast response times. Equipment such as Water on Wheels (WOW) trailers, portable boosters, portable generators, require additional space beyond typical day-to-day equipment, with the ability to access quickly and charge as necessary.

### **Consolidation of Service Teams**

Employees on the District office site are currently housed in four buildings on the 4.5 acres site. Walking between buildings requires employees to pass through an active parking lot often crossing the only access/egress gate.

There are operational benefits placing teams together in the same space. Adding an engineering team office in the Bakersfield office has benefitted the Bakersfield District and the Kern River Valley, Visalia, and Selma Districts. The proximity of the Bakersfield engineering team provides these districts with rapid engineering response, including field visits on short notice when needed. Prior to the establishment of the engineering office in Bakersfield, travel times to the various districts could be as much as four hours and involve overnight stays, just to do fieldwork. Now the travel & response time can be no more than 2 hours. In addition, by working with the same engineers over and over, this has built cohesiveness and familiarity between engineering and the water system operations teams in the San Joaquin Valley districts.

When the regional customer centers (RCC) were created, the Central Valley RCC (CV RCC) could not be placed in the Bakersfield district office due to lack of office space and parking area. Currently, this team is about 10 miles from the district office. There is ongoing communication between the CV RCC and frequent face to face interaction with district staff. The ability to consolidate these groups would improve efficiency, eliminating travel time between sites thereby benefitting district customers

## **Alternative Analysis**

To address deficiencies identified at the Bakersfield District Office, the following alternatives were analyzed:

### **Alternative 1: Do Nothing**

The do-nothing alternative is not an option due to safety concerns and operational space requirements.

### **Alternative 2: Relocate Portion of District Operations**

Relocating a portion of District operations would not address the safety and crime issues at the current location. Relocating to two separate locations would negate the efficiency benefits of a consolidated operation. With centralized materials storage and embedded support teams, a single site supports improved interaction and communication, facilitating efficient and reliable service to district customers.

### **Alternative 3: Relocate District Operations to an Existing Facility**

Lease or purchase of an existing facility sufficient to accommodate the relocation of district operations to support office, storage, and parking for the next 25 years. Real Estate Market Surveys over the past year have not provided any suitable properties within the district.

### **Alternative 4: Relocate District Operations Build to Suit**

Purchase land, design, and construct an operations site to support safe and functional office space, materials storage, parking, and emergency equipment storage for the next 25 years.

## **Recommended Solution**

Cal Water recommends the purchase of property and design of a new district office that will support the growing district operational activities for the next 25 years.

The initial cost for the recommended alternative 4 is estimated at \$3,500,000 for land purchase.

Based on current space programming with a 20% allowance included for future growth, an initial schematic site was developed to help target the minimum amount of land needed to account for future needs. The attached schematic drawing shows a 24,000 SF building, 11,000 SF warehouse, separated employee and fleet vehicle parking, mobile equipment parking, directional traffic flow in the yard, enlarged parking aisles.

Construction will be submitted in the next GRC cycle once the design, based on the selected site, is completed and a more specific budget established. Based on current defined parameters, construction costs are estimated between \$17.8 and \$23 million.

## **Project Summary**

The current facilities can no longer support the district and its expected continued growth. The site is too congested creating safety issues for those on-site and increasing local crime activity is putting employees and company assets at risk.

- Create a safer environment for district employees, visitors and company assets
- Create a more collaborative environment for departments and employees to improve communication and better serve customers
- Develop an energy efficient property sufficiently sized to support district growth
- Parking - separation of employees and fleet parking, update parking layout to facilitate backing in or pull-through parking for larger vehicles to help reduce on-property accidents. Directional traffic flow with separate entry/exit points to reduce congestion and potential accidents
- Enable increased emergency response equipment storage onsite to support faster response times to maintain and/or restore services faster to our customers

## **Project Attachments**

- Attachment A – Cost Estimate
- Attachment B – Site Overview Map
- Attachment C – BKPD Crime Statistics Half Mile Radius
- Attachment D – Architectural and Engineering Proposal
- Attachment E – Schematic Conceptual Layout with 20% growth factor
- Attachment F – Real Estate Market Survey December 2023

## 133199 Cost Estimate

### Capital Project Cost Estimate

**Project No. :** 133199  
**Description** BK Property Purchase (Office)  
**District / Department:** Bakersfield  
**Project Start Date:** 01/01/2025  
**Project Completion Date:** 12/31/2027  
**Prepared By:** jagraham  
**Date Initiated:** 11/26/2023  
**Base Year:** 2023  
**Sub-Total:** \$3,500,000  
**Direct Cost:** \$3,500,000

**Cost Table:**

<u>Item</u>	<u>Description [units]</u>	<u>Qty</u>	<u>Unit Cost</u>	<u>Total</u>	<u>Cost Basis</u>
PURCHASE NEW PROPERTY	[EA]	1	\$3,500,000.00	\$3,500,000.00	Additional Factors

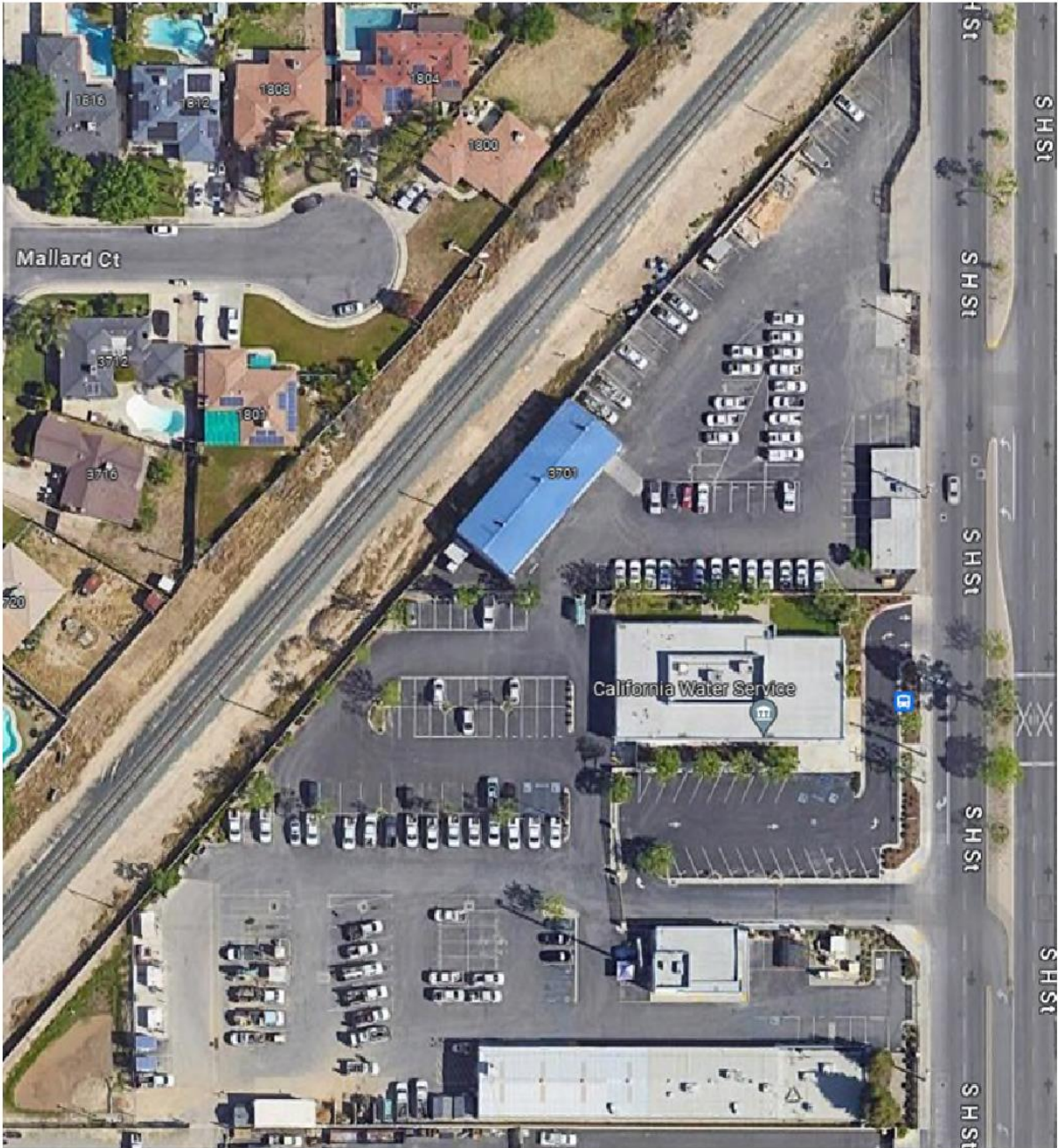
**Sub-total =** \$3,500,000.00  
**Direct Cost =** \$3,500,000.00

Notes:

1. Sub-Total is defined as the summation of all project estimated materials, labor, and markups costs
2. Direct Cost is the escalate Sub-Total from the base year of 2023 to the project completion year assuming a 2.5% inflation rate
3. See Common Plant Book for additional details on cost estimating methodology and justification

# Attachment B - Site Overview Map

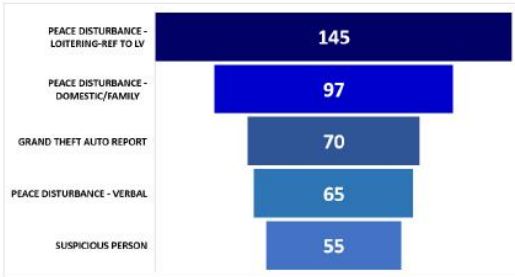
3701 and 3725 S. H Street, Bakersfield



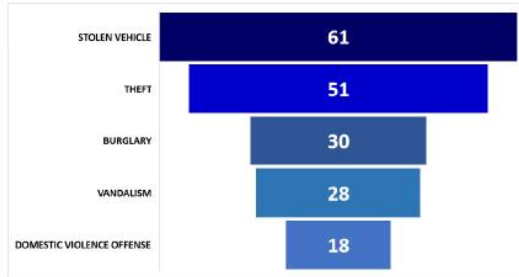


**AREA STATISTICS**  
3725 S H St  
June 20 – December 20, 2023

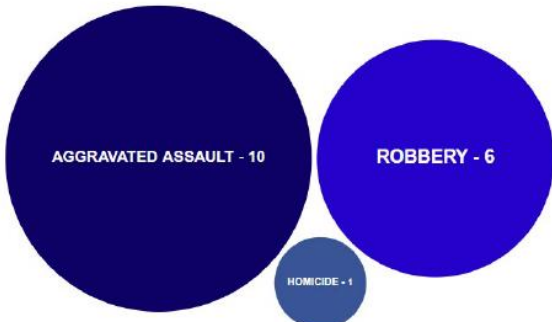
**TOP 5 CALLS FOR SERVICE**



**TOP 5 OFFENSES**



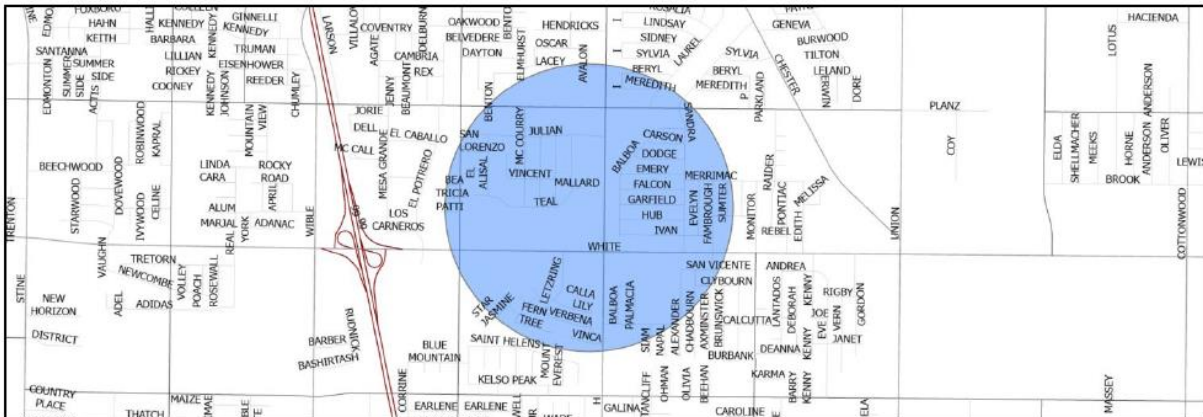
**VIOLENT CRIME TOTAL**



**PROPERTY CRIME TOTAL**



**AREA MAP**





Skarphol/Frank  
Associates

ARCHITECTURE. PLANNING. INTERIORS.  
Paul Skarphol, Architect • Gregory Frank, Architect

Attachment D  
PID: 133199

January 4, 2024

Jennifer Olsen  
CALIFORNIA WATER SERVICE  
3725 S. H Street  
Bakersfield, CA 93304

Subject: Proposal for Architectural Services  
CALIFORNIA WATER SERVICE – New District Office and Support / Maintenance Yard  
To be determined  
Bakersfield, CA

Dear Jennifer,

Thank you for the opportunity to offer this proposal for Architectural and Engineering Services. I have provided below a general description of the project scope and our proposed fees.

#### PROJECT DESCRIPTION

The project generally consists of programming and schematic design for a new District Office and Support / Maintenance Yard for CALIFORNIA WATER SERVICE in Bakersfield, CA. The final location of the project has yet to be determined. The 6.4 acre site will include the development of a ±24,000sf Office Building and a ±11,250sf Warehouse building. Approximately 925lf of offsite improvements are required. These offsite improvements will include, curb, gutter, sidewalk, drive approaches and deceleration/turn lanes. An onsite retention basin will be required and will be also used for dumping vacuum truck loads. The parking lot will include parking for staff, visitors and fleet vehicles. The design of the building and yard spaces will be based on the preliminary program provided to Skarphol/Frank Associates. All areas being developed will be designed to meet all current code requirements as well as handicap accessible requirements as pursuant to ADA, Title24 and local statutes.

#### DESCRIPTION OF SERVICES

**Pre-Design Phase:** Prior to beginning the initial design, Skarphol/Frank Associates will need to physically measure the site (as needed) to obtain an “As-Built” of the property. This will provide us the base information needed to begin the next phase.

**Programming Phase:** During this phase we will work with you and the tenant to help develop a program for the project. By the end of the phase we will have defined specific space and personnel requirements.

**Schematic Design Phase:** This phase will provide a general design concept for the tenant improvement. During this time we will meet as needed to complete the overall design idea. At the end of this phase you can expect to have the following:

- Site Plan showing the building location, vehicular parking and any outdoor spaces.
- Schematic Floor Plans
- Building Elevation / Massing Studies

(continued on next page)

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skarpholfrank.com

925 17th Street, Bakersfield, CA 93301

661.334.2741

Skarphol/Frank Associates will provide a tailored rendering package to convey the project design idea for professional presentation for meetings, e-conferences as well as website presentations. Renderings will be based on the plans and finishes completed at the time of the Architectural Rendering Services. The latest techniques will be used to provide a high-resolution presentation of the project to depict the final project at the completion of construction.

Four high resolution images (11x17) will be provided in the rendering package. Digital copies of all images will be provided to you for your use at no additional cost. Additional images and video walk throughs are available upon request. If they are requested, Skarphol/Frank Associates will prepare a revised fee proposal for your review and approval.

Any model updates requested after the start of 3D modeling will be considered an extra service, Skarphol/Frank Associates will bill this on a time and material basis per the attached Fee/Reimbursable Schedule.

**Precise Development Plan (PD) Submittal:** Upon your approval of the Schematic Design Phase we will prepare the necessary documents to submit plans to the County of Kern Planning and Natural Resources Department for their review and approval. Any agency fees have been excluded from this proposal. When those fees are determined by the agencies reviewing, we will forward those to you for payment.

**Design Development Phase:** Upon your approval of the Schematic Design Phase, we will continue to develop the plans in a more detailed manner. We will work closely with you to identify specific equipment locations and requirements. Close coordination will be made with the mechanical, plumbing and electrical systems to ensure proper integration into the final design.

**Construction Document Phase:** Beginning with the approval of the design development phase, we will prepare construction documents for the project. The drawings prepared by Skarphol/Frank Associates will be detailed plans for construction, including: site plans, floor plans, reflected ceiling plans, power and signal plans, building sections, roof plans, exterior elevations, interior elevations, finish plans and required details. Engineered drawings will be included in the construction documents.

Following your approval of the construction document phase, Skarphol/Frank Associates will submit the plans to the County of Kern Building Inspection Division review and approval. Any agency fees have been excluded from this proposal. When those fees are determined by the agencies reviewing, we will forward those to you for payment.

**Bidding Phase:** Upon the County of Kern Building Inspection Division’s approval of the building permit, Skarphol/Frank Associates will prepare a bid package and work with the selected General Contractor to help formalize a construction budget. Skarphol/Frank Associates will assist CALIFORNIA WATER SERVICE during bidding by fielding and replying to all contractor requested clarifications and questions regarding the construction document drawings.

**Construction Administration Phase:** During construction, Skarphol/Frank Associates will provide site observations, attend construction meetings and answer any contractor requested clarifications and questions regarding the construction document drawings.

**FEE PROPOSAL**

We propose estimated fees based on the following categories:

<b><u>Schematic Design</u></b>	
Architectural:	\$52,000.00
<b>Total Schematic Design Fees:</b>	<b>\$52,000.00</b>
<b><u>PD Plan Submittal &amp; Design Development</u></b>	
Architectural:	\$52,000.00
Geotechnical Engineering:	\$13,000.00
Civil Engineering	
Topo Survey:	\$39,000.00
<b>Total Design Development Fees:</b>	<b>\$65,000.00</b>

(continued on next page)

**Construction Documents**

Architectural:	\$312,000.00
Civil Engineering	\$78,000.00
Structural Engineering:	\$104,000.00
Plumbing & Mechanical Engineering:	\$78,000.00
Electrical Engineering:	\$52,000.00
Landscape Architecture:	\$52,000.00
Fire Sprinkler Design:	\$26,000.00
Interior Design:	\$26,000.00
<b>Total Construction Document Fees:</b>	<b>\$728,000.00</b>

**Construction Administration**

Architectural:	\$104,000.00
Civil Engineering	\$13,000.00
Structural Engineering:	\$26,000.00
Plumbing & Mechanical Engineering:	\$19,500.00
Electrical Engineering:	\$13,000.00
Landscape Architecture:	\$13,000.00
CalGreen Commissioning:	\$65,000.00
Fire Sprinkler Design:	\$6,500.00
Interior Design:	\$6,500.00
<b>Total Construction Administration Fees:</b>	<b>\$266,500.00</b>

**Total Estimated Design Fees: \$1,111,500.00**

Any revisions to the scope of work outlined above or changes requested after the start of construction documents will be considered extra services. If this occurs, Skarphol/Frank Associates will prepare a revised fee proposal for your review and approval.

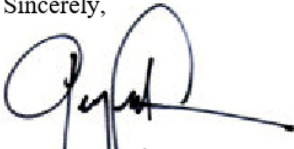
Reimbursable expenses, such as printing, delivery, etc., are not included in this fee proposal, and will be billed per the attached Fee/Reimbursable Expenses Schedule. Billings for services rendered will occur bi-monthly based on a percentage of completion.

**CONTRACT EXECUTION**

Termination of this contract, by either party, must be provided in writing. Fees for work completed prior to the contract termination will be submitted for payment.

We appreciate the opportunity to make this proposal and look forward to working with you on this project. Your signature below will authorize us to proceed with the work described within this proposal. Please contact me if you have any questions or comments regarding our services.

Sincerely,



Gregory Frank  
Architect C-31980, CASp-595  
NCARB, LEED AP

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Date

Cc: Fee/Reimbursable Expenses Schedule



Skarphol/Frank  
Associates

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Paul Skarphol, Architect • Gregory Frank, Architect

FEE REIMBURSABLE EXPENSES SCHEDULE  
Effective September 27<sup>th</sup>, 2021

FEE:

Principal Architect:	\$195.00 per hour
Project Architect / Architect – CASp:	\$180.00 per hour
Senior Project Manager / Client Relations:	\$155.00 per hour
Senior Graphic Manager:	\$150.00 per hour
Senior Project Manager:	\$140.00 per hour
Project Manager:	\$130.00 per hour
Assistant Project Manager:	\$125.00 per hour
Assistant Graphic Technician:	\$125.00 per hour
Senior CADD Technician:	\$115.00 per hour
CADD Technician:	\$105.00 per hour
Administrative Support Services:	\$45.00 per hour

REIMBURSABLE EXPENSES:

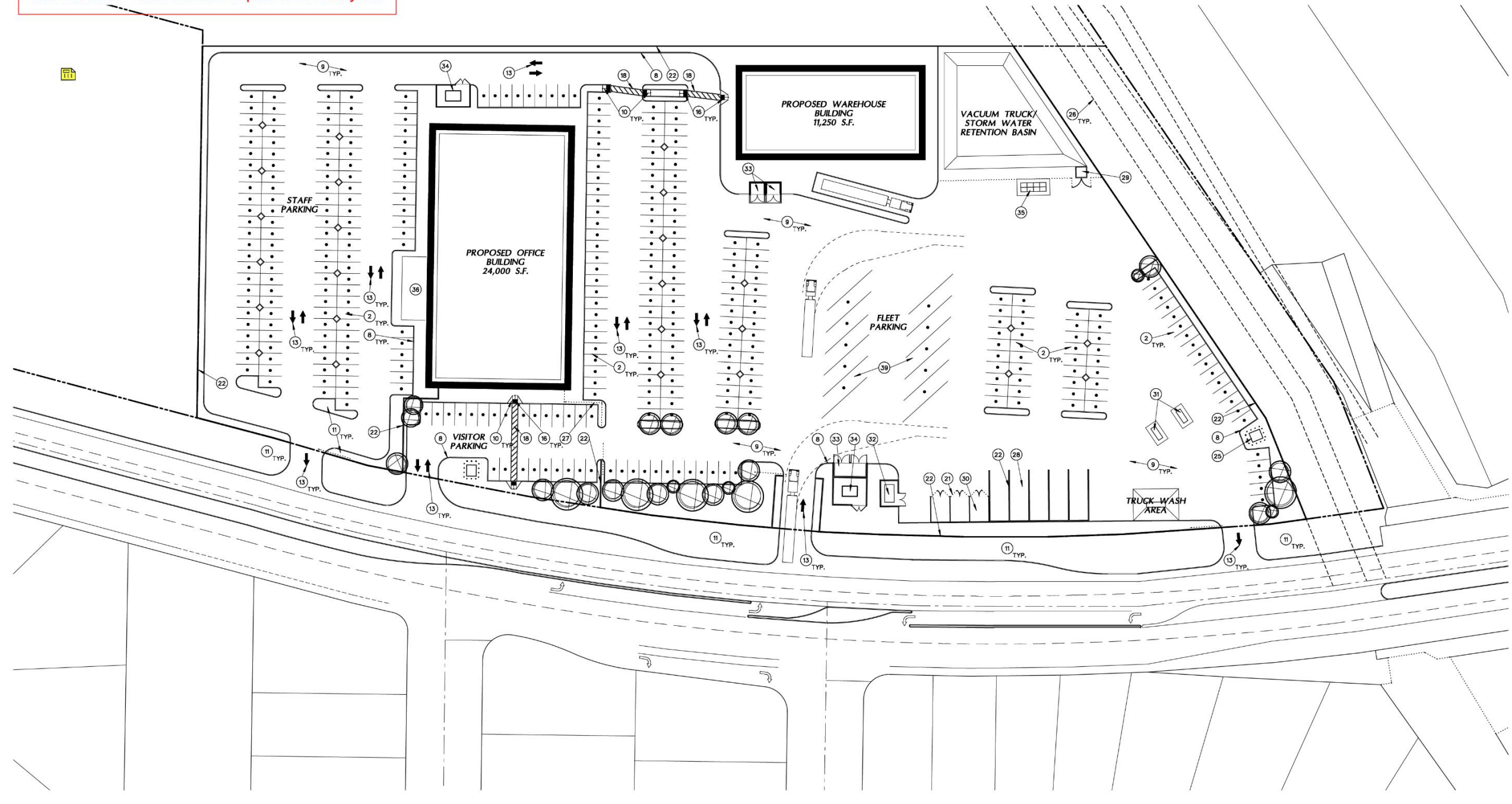
Consulting Engineers	1.15 x Direct Cost
Renderings, Models, and Photographs	1.15 x Direct Cost
Application / Permit Fees	1.15 x Direct Cost
Printing	1.15 x Direct Cost
Travel Expenses	1.15 x Direct Cost
Postage and Overnight Courier	1.15 x Direct Cost
Local Delivery and Courier Services	1.15 x Direct Cost
Mileage (Beyond City Limits)	\$0.58 Per Mile

Statements are due and payable upon receipt. Any amounts unpaid after 30 days will accrue  
Interest from the date of the statement at a rate of 1 1/2% per month  
(18% per annum) or the maximum allowable rate.



**Skarphol / Frank Associates**  
 ARCHITECTURE • PLANNING • INTERIORS  
 Paul Skarphol, Architect • Gregory Frank, Architect  
 925 17th Street  
 Bakersfield, CA 93301  
 (661) 334-2741  
 skarpholfrank.com

These drawings, related specifications, plans, designs and arrangements represented hereby are and shall remain the property of the Architect and no part thereof shall be copied, duplicated or others used in connection with any work or project other than the specific project which they have been prepared and developed without the written consent of the Architect. Visual contact with these drawings or specifications shall constitute conclusive acceptance of these restrictions.



**SITE PLAN**  
SCHEME 'F'

40'

**SITE KEY NOTES**

- 1 8'-0" WIDE x 16'-0" DEEP ACCESSIBLE PARKING STALL - PER CITY, ADA & TITLE24 STANDARDS
- 2 9'-0" WIDE x 16'-0" DEEP PARKING STALL PER CITY STANDARDS
- 3 8'-0" WIDE VAN ACCESSIBLE AISLE - PER CITY, ADA & TITLE24 STANDARDS
- 4 5'-0" WIDE ACCESSIBLE AISLE - PER CITY, ADA & TITLE24 STANDARDS
- 5 CONCRETE WALK WITH MEDIUM BROOM FINISH - SCORING SHOWN ON PLAN
- 6 CONCRETE BLOCK TRASH ENCLOSURE PER CITY STANDARDS
- 7 POLE MOUNTED ACCESSIBLE PARKING WARNING SIGN PER DETAIL X/A-10X - TYPICAL AT EACH DRIVE BREAK
- 8 6" HIGH CONCRETE CURB
- 9 MIN. 2" TYPE B2 A.C. PAVING OVER 3" CLASS II AGGREGATE BASE PER CITY STANDARDS
- 10 ACCESSIBLE CURB RAMP - SI OFF NOT TO EXCEED 1:12 WITH A CROSS SLOPE NOT TO EXCEED 2% - PROVIDE A 48"x48" MINIMUM LANDING AT TOP AND BOTTOM OF RAMP - PER ADA & TITLE24 STANDARDS.
- 11 LANDSCAPE AREA - SEE LANDSCAPE PLANS
- 12 NEW DRIVE BREAK - PER CITY STANDARDS
- 13 DIRECTION OF TRAFFIC - PAINTED - TYPICAL
- 14 CONCRETE PARKING BUMPER
- 15 12" WIDE CONCRETE MOW STRIP
- 16 SHADED AREA REPRESENTS LOCATION OF TRUNCATED DOMES - SEE DETAIL B/A-9.4 FOR ADDITIONAL INFORMATION
- 17 DASHED LINE DENOTES PATH OF TRAVEL FROM A PUBLIC RIGHT OF WAY
- 18 ACCESSIBLE CROSSING - 48" MINIMUM WIDTH w/ CROSS SLOPE NOT TO EXCEED 2% - PAINT 4" WIDE STRIPES AT 36" O.C. AT 45°
- 19 5'-0" WIDE CONCRETE SIDEWALK, CURB AND GUTTER
- 20 PROPERTY LINE
- 21 6'-0" HIGH CHAIN LINK FENCE AND 7'-0" WIDE GATE
- 22 NEW 6'-0" HIGH BLOCK WALL
- 23 APPROXIMATE LOCATION OF FIRE HYDRANT
- 24 HIGH EFFICIENCY POLE MOUNTED LUMINAIRE - SEE ELECTRICAL PLANS FOR ADDITIONAL INFORMATION
- 25 PAD MOUNTED TRANSFORMER ON A CONCRETE PAD PER PG&E STANDARDS
- 26 EASEMENT LINE
- 27 NEW WROUGHT IRON FENCE
- 28 CONCRETE STORAGE BINS WITH FIBER COVERING
- 29 DUMP AREA FOR VACUUM TRUCK SPOILS
- 30 MRP STORAGE AREA
- 31 ABOVE GROUND FUEL TANKS WITH CONCRETE PAD
- 32 DEBRIS BIN ON CONCRETE PAD IN O&M ENCLOSURE
- 33 TRASH/RECYCLING
- 34 GENERATOR
- 35 CHEMICAL STORAGE
- 36 COVERED PATIO
- 37 12'-0" WIDE x 46'-0" DEEP PARKING STALL

**PARKING ANALYSIS**

VISITOR PARKING	24 SPACES
STAFF PARKING	136 SPACES
FLEET PARKING	196 SPACES
STANDARD PARKING:	186 SPACES
OVERSIZED PARKING:	10 SPACES
<b>TOTAL:</b>	<b>356 SPACES</b>



**MASTER SITE PLANNING**

MOHAWK STREET  
BAKERSFIELD, CALIFORNIA

DATE	ISSUED FOR
12-13-2023	CLIENT REVIEW

REVISION	DESCRIPTION

JOB	6381
DR	JV
TW	PS

# MARKET OPTIONS SURVEY

PREPARED FOR:  
JENNIFER OLSEN



**BAKERSFIELD, CA**

Available Sites  
9-20 Acres

December 13, 2023

Prepared By:

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# TABLE OF CONTENTS

**PAGE**

**3**

**MARKET OPTIONS SUMMARY**

**4**

**MARKET OPTIONS MAP**

**5-18**

**BROCHURES**

1. *Hageman Road & Valor Drive*
2. *Mohawk Street & Krebs Road*
3. *Rosedale Hwy & Renfro Road*
4. *1670-1700 Golden State Avenue*
5. *Hwy 99 & Taft Hwy*
6. *Hwy 99 & Houghton Road*

# MARKET OPTIONS

## SUMMARY

MAP #	LOCATION	SITE (AC)	ZONING	PRICE	COMMENTS
1	Hageman Road & Valor Drive	5.86 8.24 5.2	M-2 City of Bakersfield	TBD	<ul style="list-style-type: none"> <li>Under development</li> <li>Not formally on market</li> </ul>
2	Mohawk Street & Krebs Road (NWC)	To Suit	M-2 City of Bakersfield	TBD	<ul style="list-style-type: none"> <li>Raw land</li> <li>Not formally on market</li> </ul>
3	Rosedale Hwy & Renfro Road (NWC)	15.36	C-2 PD County of Kern	\$8,600,000 \$12.85psf	<ul style="list-style-type: none"> <li>Raw land</li> </ul>
4	1670-1700 Golden State Avenue	9.36	M-2 City of Bakersfield	\$7,339,000 \$18.00psf	<ul style="list-style-type: none"> <li>Raw land</li> </ul>
5	Hwy 99 & Taft Hwy (NWQ)	16.72	C-2 City of Bakersfield	\$4,100,000 \$5.63psf	<ul style="list-style-type: none"> <li>Raw land</li> <li>At grade frontage on Hwy 99</li> </ul>
6	Hwy 99 & Houghton Road (SEC)	17.0	C-2 PD County of Kern	\$4,900,000 \$6.62psf	<ul style="list-style-type: none"> <li>Raw land</li> <li>At grade frontage on Hwy 99</li> <li>Canal fronts Houghton Road</li> <li>Adjacent to Cal Water Service District Boundary</li> </ul>

# MARKET OPTIONS

## MAP

### PROPERTIES

1. Hageman Road & Valor Drive
2. Mohawk Street & Krebs Road
3. Rosedale Hwy & Renfro Road
4. 1670-1700 Golden State Ave.
5. Hwy 99 & Taft Hwy
6. Hwy 99 & Houghton Road

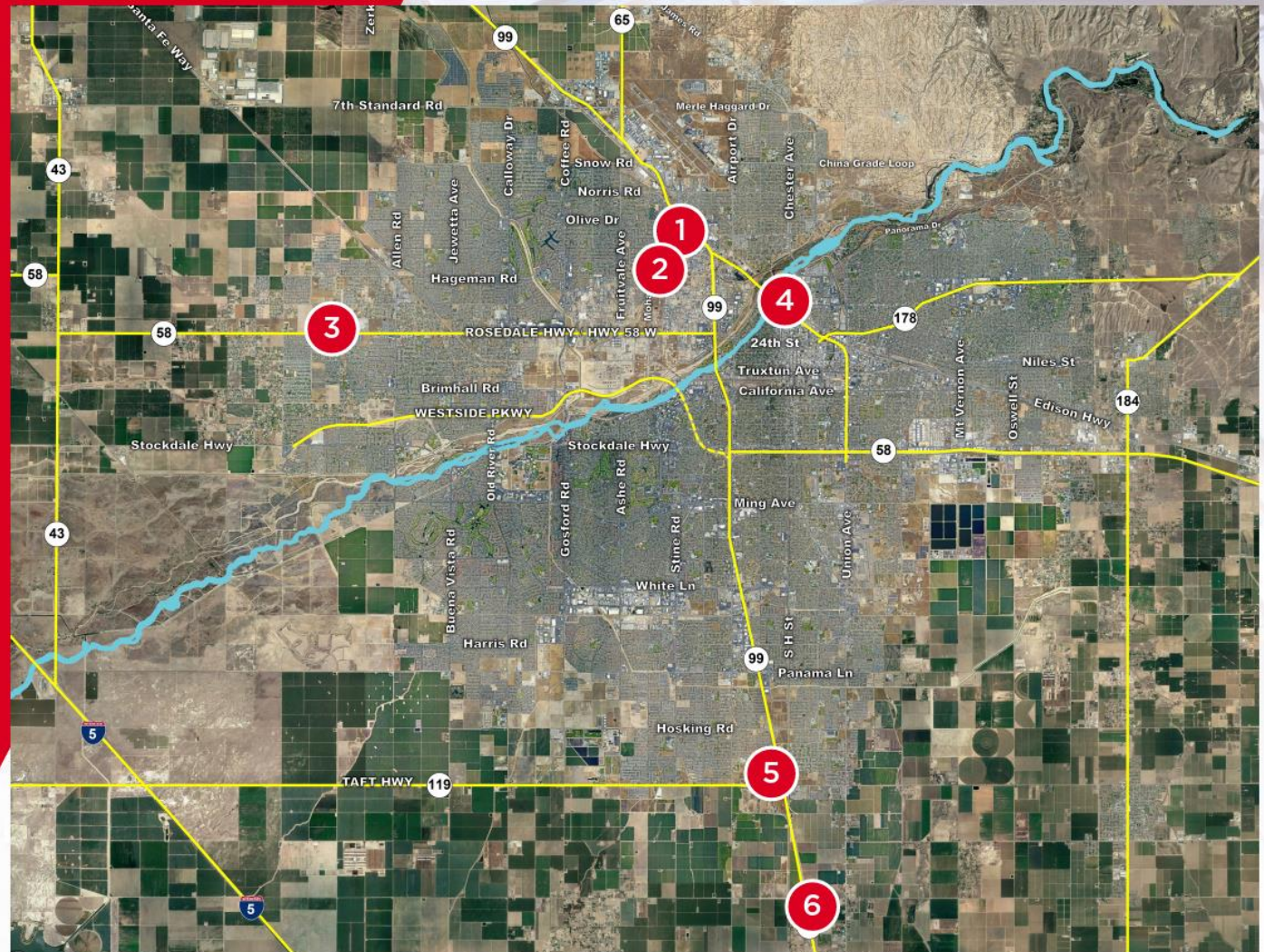


Table with 3 columns: NO., DESCRIPTION, DATE. The table is mostly empty with only a few entries.





**15.36 ACRES COMMERCIAL**  
**ROSEDALE HWY & RENFRO RD**  
**INTERSECTION**

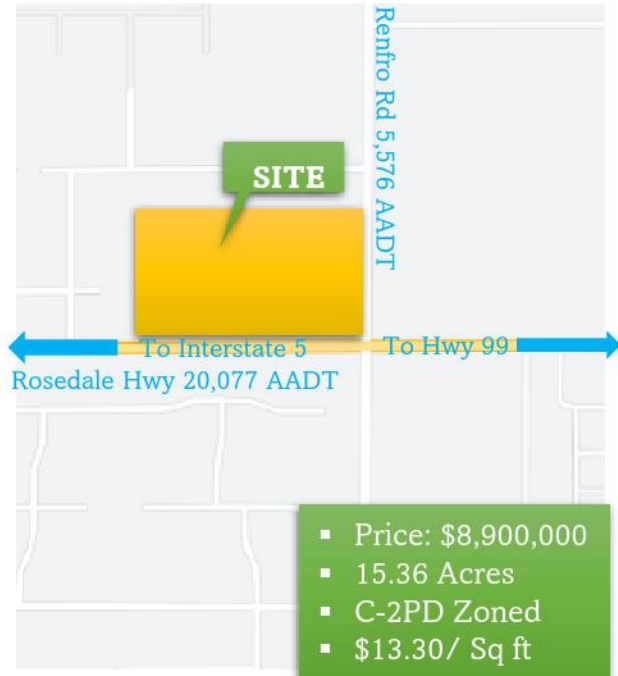


**PROPERTY DETAILS**

- Asking Price: \$8,600,000 **\*\*NEW PRICE**
  - 15.27 Acres, C-2PD Zoned,
  - \$12.93/ Sq ft
  - Applied \$200K Additional reduction for a single buyer

**Individual Property Details**

- APN: 463-130-14-00-4
  - 7.28 Acres
  - Asking Price: \$3,900,000 (\$12.30/ Sq ft)
- APN: 463-130-24-00-3
  - 7.99 Acres (Corner Lot)
  - Asking Price: \$4,900,000 (\$14.08/ Sq ft)



841 Mohawk St, #270  
 Bakersfield, CA 93309  
 DRE #02213635



**Abdul Jobah, CCIM**  
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 BRE: #01463742  
 erbiz2005@gmail.com

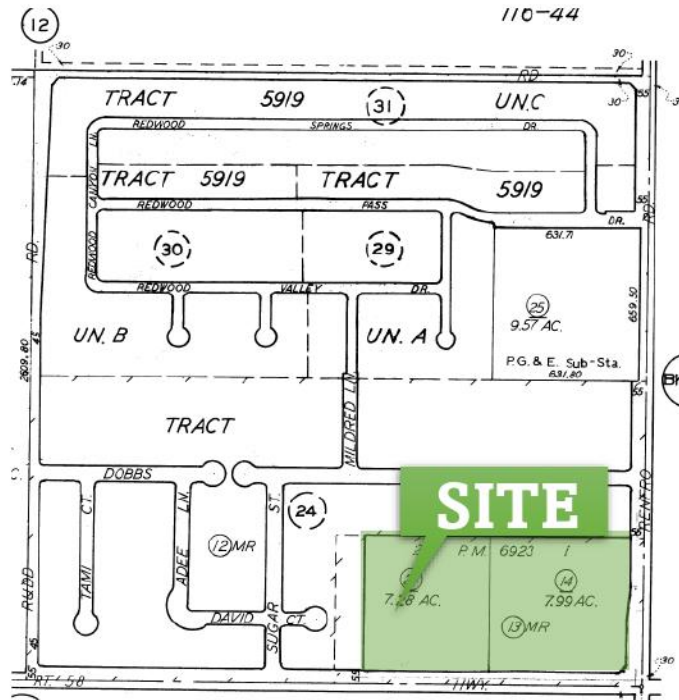


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**15.36 ACRES COMMERCIAL**  
**ROSEDALE HWY & RENFRO RD**  
**INTERSECTION**



- Ideal location for Gas Station/ C-Store, Fast Food, Shopping Mall
- High traffic count at Rosedale Hwy (20,077 AADT) and Renfro Rd(5,576 AADT)
- Excellent buildable location at one of Bakersfield's High trafficked intersections, surrounded by one of the most dynamic tenants mixes in Bakersfield.
- Rosedale Highway is one of the primary arterials Connecting NW Bakersfield to Central and NE Bakersfield
- Regional location with easy access to Highway 99 via eastbound Rosedale Highway, Interstate 5 via westbound Rosedale Highway, and the Westside Parkway via southbound Renfro Road.



841 Mohawk St, #270  
 Bakersfield, CA 93309  
 DRE #02213635



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FOR SALE

**CENTRAL BUSINESS DISTRICT DEVELOPMENT  
1670 & 1700 GOLDEN STATE AVENUE (Hwy 204)**

Bakersfield, CA 93301

1 Acre - 9.36 Acres - All or Part - Zoned M-2

Price - \$18.00/SF - \$35.00/SF

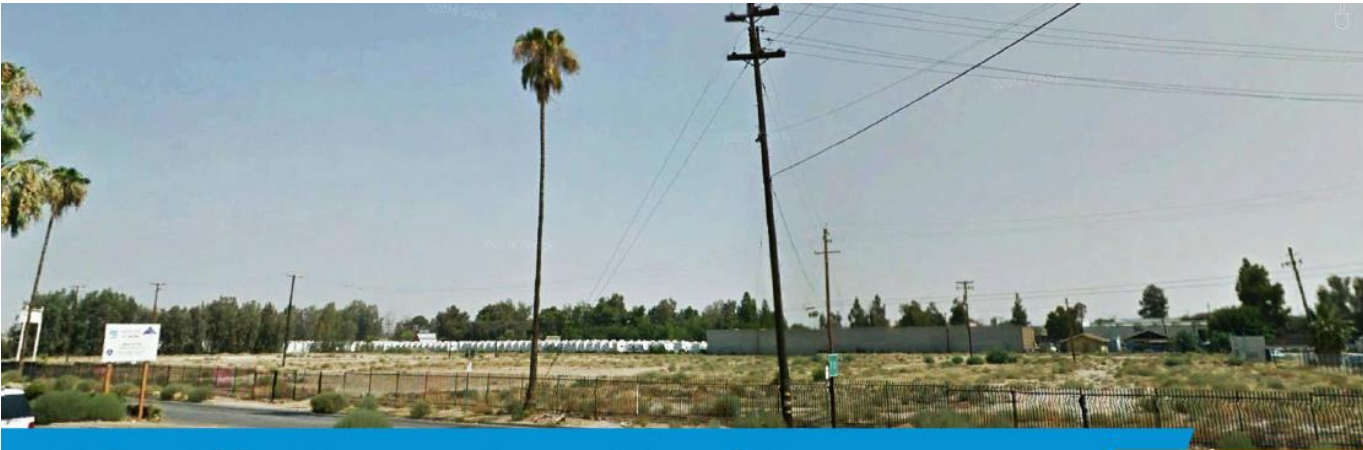
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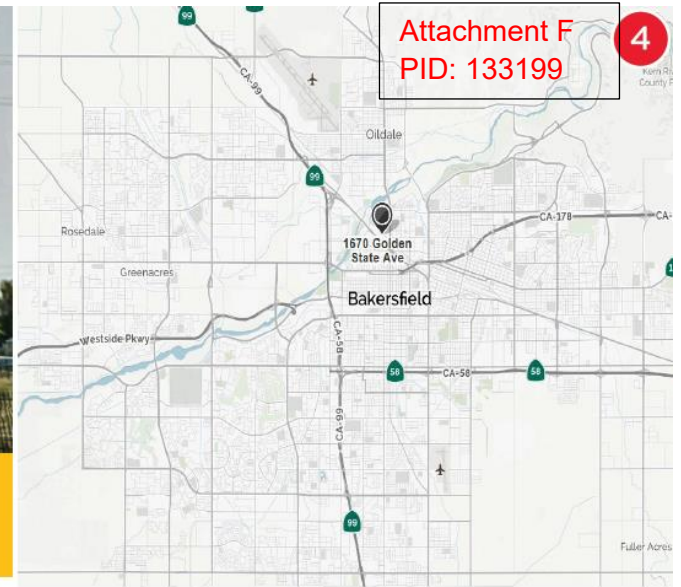






**1670 & 1700 Golden State Avenue (Hwy 204)**  
Bakersfield, CA 93301

**FOR SALE**



**Attachment F**  
**PID: 133199**

**4**

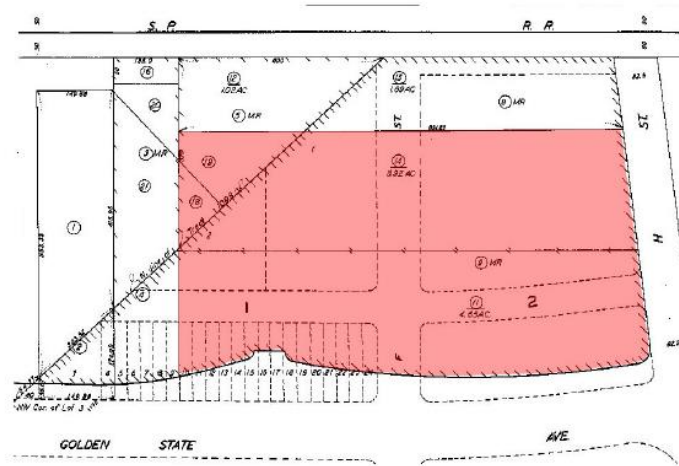
## Property Description

The vacant land at 1670 & 1700 Golden State Avenue is located just north of 30th Street and east of Chester Avenue in the Central Business District. The 9.36 acres parcel is located in a redevelopment zone and is the largest parcel available in the Central Business District.

## Property Highlights

- > Multiple parcels: 1 Acre - 9.3 Acres Available
- > All structures removed, site is ready for development
- > Redevelopment zone
- > Zone M-2 (Medium Industrial)
- > Phase II assessment completed - No further action needed
- > Largest parcel available in the Central Business District
- > Traffic - over 50,000 cars per day
- > Within two miles of Three Regional Hospitals

## APN Map



## Price

**\$18.00/SF - \$35.00/SF**

## Contact Us

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Highway 119 - 15,600 AADT

Highway 99 - 61,000 AADT

For Sale | +/- 16.72 Acres  
C-2 Zoned  
Land Available

NWQ Taft Hwy & Hwy 99 | Bakersfield CA

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# Property Information

The *subject property* is located at the Northwest quadrant of Taft Highway (Hwy 119) and Highway 99.

## Sales Price:

\$4,100,000

## Highlights:

- Located at major interchange
- High Traffic Volume: Taft Hwy & Hwy 99 - 76,600 AADT
- Excellent for hospitality, retail, or food
- Zoned C-2 (City of Bakersfield)

## Availability:



### Available for Sale

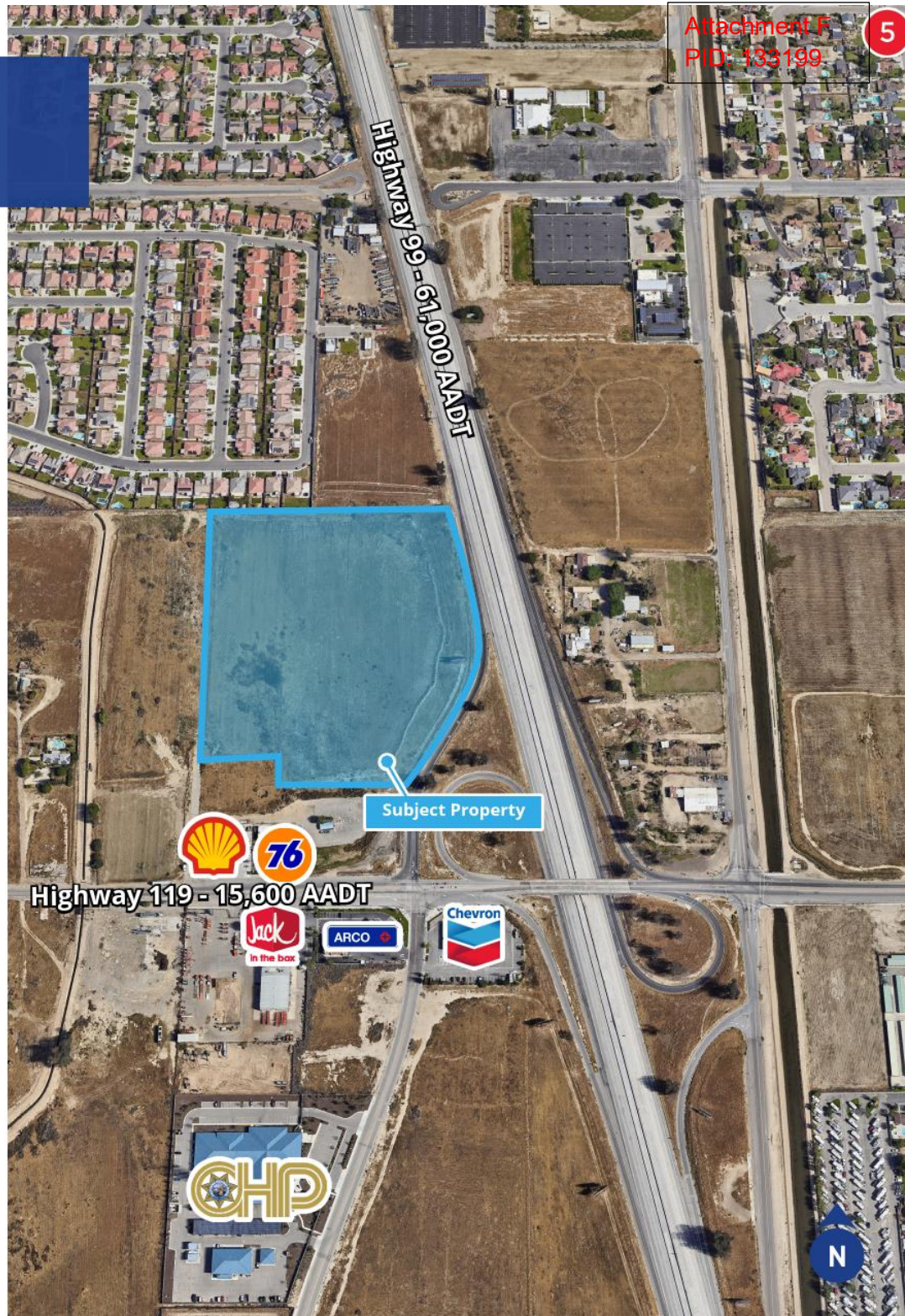
APN 514-060-08: ± 10.26 Acres  
APN 514-060-09: ± 6.45 Acres

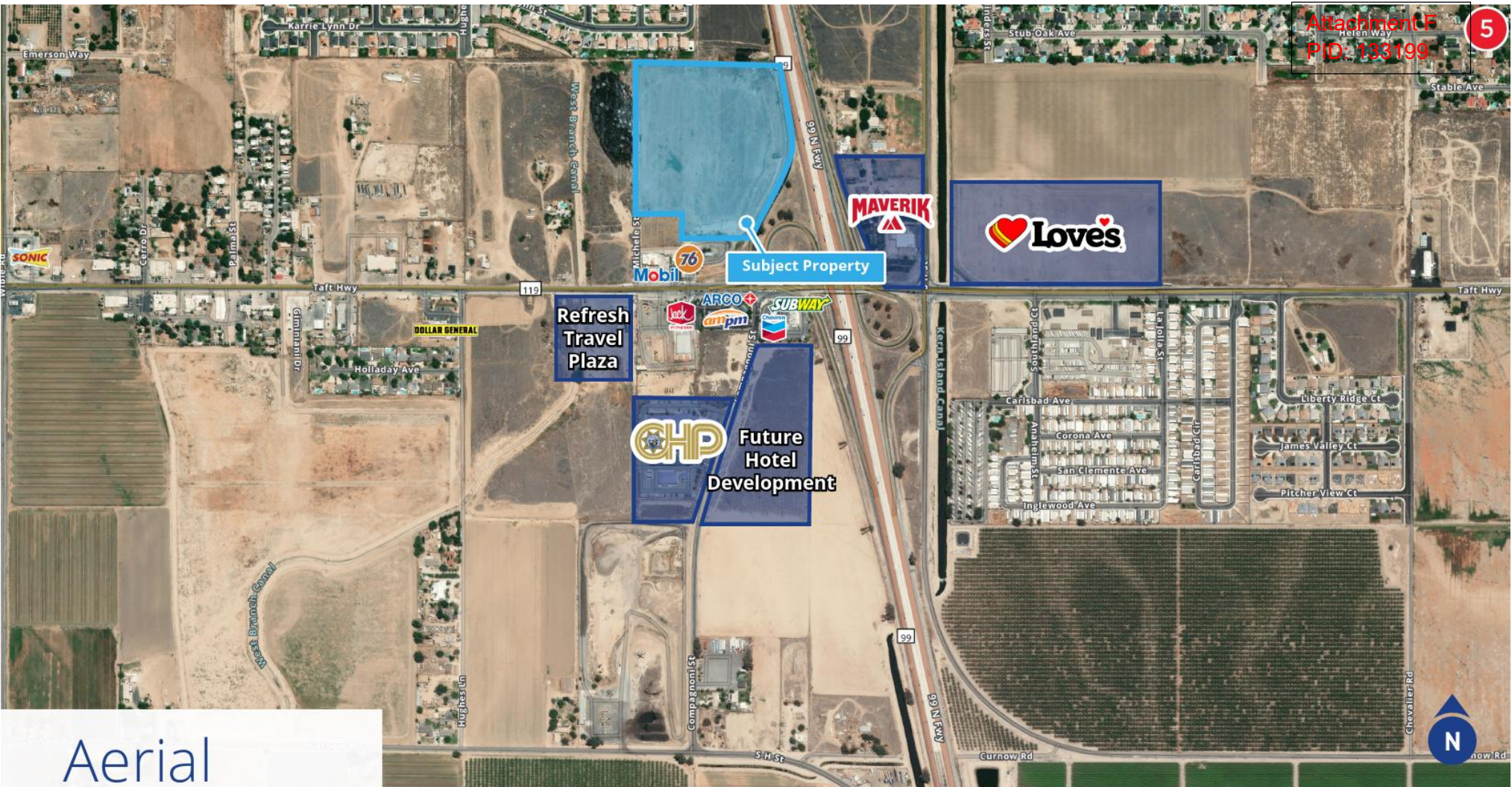


### Zoning

C-2 zoning  
(City of Bakersfield)

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# Aerial

## Demographics



### Population

1 Mile: 8,099  
3 Mile: 75,793  
5 Mile: 153,154



### Daytime Population

1 Mile: 5,794  
3 Mile: 58,808  
5 Mile: 130,177



### Businesses

1 Mile: 147  
3 Mile: 1,208  
5 Mile: 3,619



### Median Age

1 Mile: 30.9  
3 Mile: 29.5  
5 Mile: 29.8



### Households

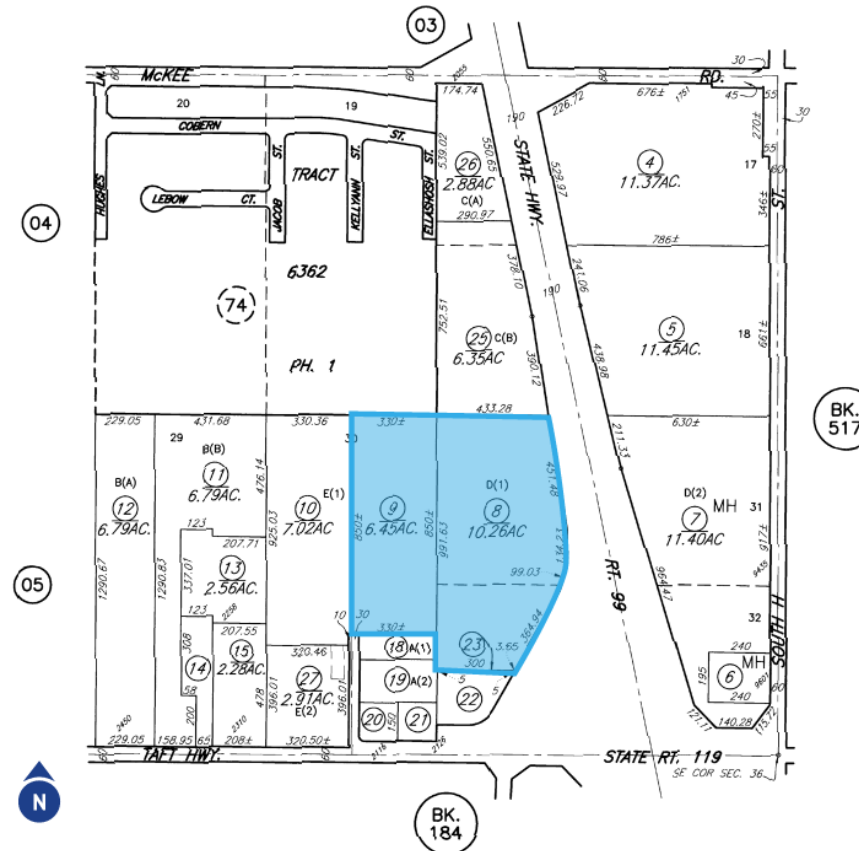
1 Mile: 2,283  
3 Mile: 19,869  
5 Mile: 43,232



### Average HH Income

1 Mile: \$84,110  
3 Mile: \$88,487  
5 Mile: \$81,143

# APN Map



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Sumit Gupta  
5103964339

CB Empire

## Houghton Road - SEC Houghton Road & Highway 99

17 Acres of Commercial Land Offered at \$4,900,000 USD in Bakersfield, CA 93307



### EXECUTIVE SUMMARY

Prime 17-acre lot on Hwy 99 in Bakersfield, strategically located at the Houghton Rd exit in the Highway Commercial zone. According to Kern County, the zoning permits a diverse range of businesses, making it an ideal spot for truck stops, hotels, restaurants, auto sales dealerships, vehicle repair facilities, fueling stations, commercial vehicle storage yards, contractor yards/equipment sales and rental, as well as

parking/storage. This level property, situated on the southeast side of Highway 99 at the Houghton Rd exit, offers one of the best visible sites on Hwy 99. With the potential for a massive billboard, your business could be prominently displayed to approximately 80,000 vehicles daily. Don't miss out on this unparalleled opportunity to elevate your brand visibility and thrive in a prime location

## PROPERTY FACTS

Price	\$4,900,000	Property Subtype	Commercial
Sale Type	Investment	Proposed Use	Commercial
No. Lots	1	Total Lot Size	17.00 AC
Property Type	Land	Cross Streets	Highway 99

## 1 LOT AVAILABLE

## Lot

Price	\$4,900,000	Lot Size	17.00 AC
Price Per AC	\$288,235		
Prime 17-acre lot on Hwy 99 in Bakersfield			

## TRANSPORTATION

 AIRPORT

Meadows Field Airport 24 min drive 15.2 mi

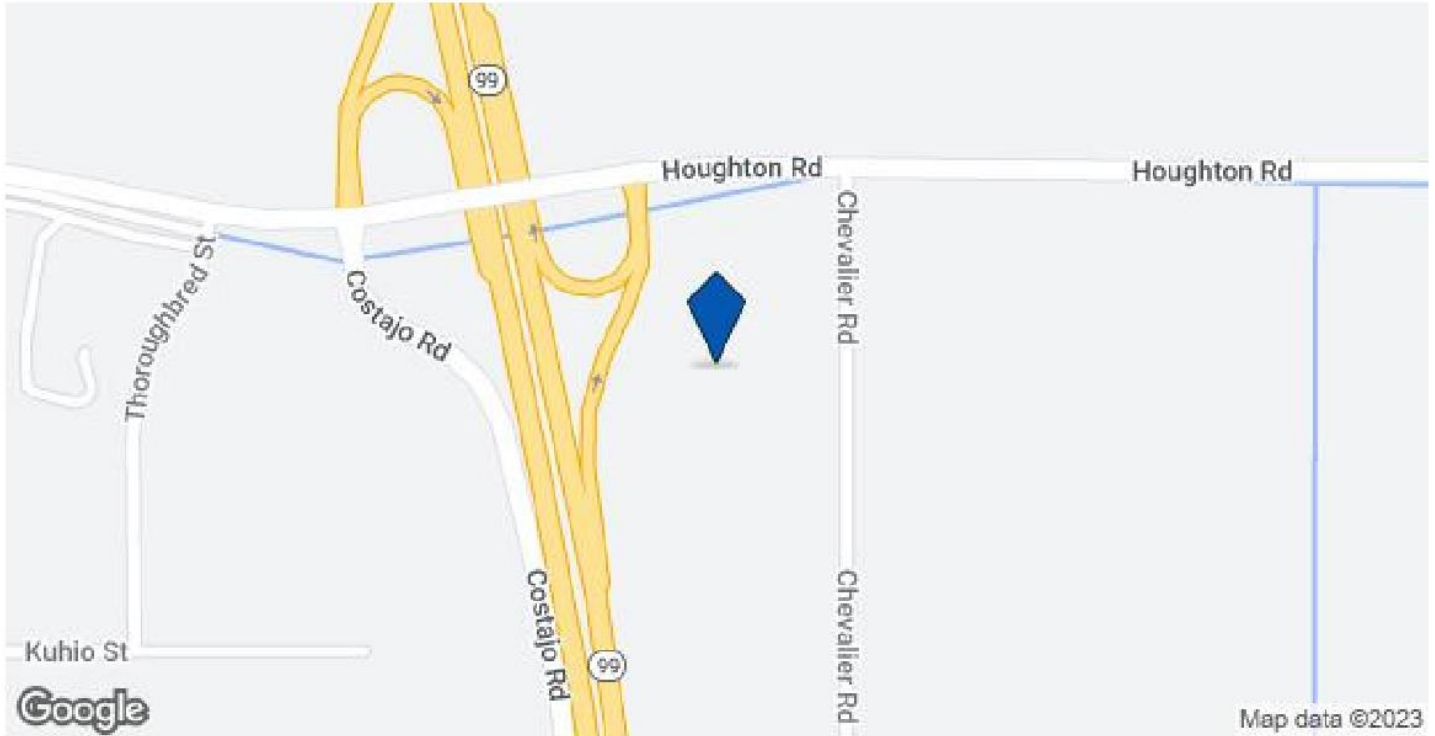
## PROPERTY TAXES

Parcel Number	185-381-01-00-9	Improvements Assessment	\$0
Land Assessment	\$4,131,000	Total Assessment	\$4,131,000

## ZONING

Zoning Code C2-PD

MAP OF HOUGHTON ROAD BAKERSFIELD, CA 93307



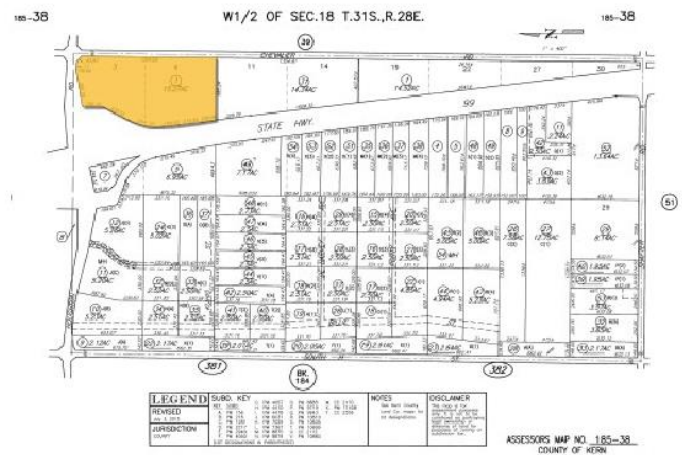
ADDITIONAL PHOTOS



Aerial

**Property Highlights**  
 • 15.27 Acres  
 • Zone HC-Heavy Commercial, County of Kern  
 • Canal can be covered for parking  
 • Utilities nearby

**SITE**



Plat Map

Listing ID: 30209344

Date Created: 11/30/2023

Last Updated: 12/1/2023

Address: Houghton Road, Bakersfield, CA

# District – Bakersfield

## PID # 133577

### Bakersfield Onsite Solar

---

#### Introduction

Cal Water (Group) proposes the development, interconnection, and maintenance of a one (1) to three (3) mega-watt (MW) Cal Water-owned onsite solar energy generation facility at the Bakersfield Northeast Treatment Plant to be constructed by 2026. Cal Water has engaged an expert consultancy, Edison Energy, to identify this project as one of two sites that present a viable opportunity to pursue onsite solar generation within the company's operations.

#### Deficiencies and Issues

According to The Intergovernmental Panel on Climate Change (IPCC) *Climate Change 2023 Synthesis Report Summary for Policymakers*:

Human-caused climate change is already affecting many weather and climate extremes in every region across the globe. This has led to widespread adverse impacts and related losses and damages to nature and people (high confidence). Vulnerable communities who have historically contributed the least to current climate change are disproportionately affected (high confidence) (p.5). 10

To address anthropogenic climate change, California has set a target to reach carbon neutrality by 2045 through Executive Order (EO) B-55-18 and signaled the importance of corporate climate action through recent passage of Senate Bill (SB) 253, Climate Corporate Data Accountability Act and SB 261, The Climate-Related Financial Risk Act. While Cal Water is not currently subject to SB 253 due to the bill's revenue threshold, Cal Water reports a greenhouse gas emissions inventory publicly and has leveraged guidance from the Taskforce on Climate-related Financial Disclosures (TCFD) in its annual Environmental, Social, and Governance (ESG) Report to proactively report on its climate risks and opportunities.

Additionally, as demonstrated by the Securities and Exchange Commission Proposed Rule (The Enhancement and Standardization of Climate-Related Disclosures for Investors), climate mitigation and adaptation remain top-of-mind for the public and investors. Should Cal Water not take steps now to implement projects that reduce greenhouse gas emissions, shareholder funding for the water infrastructure improvements to provide quality water and wastewater services could be impacted in the future. The proposed onsite solar project responds proactively to both policy pressures in California and stakeholder interest in climate mitigation efforts driven by global recognition of the need to address climate change, including the 2015 Paris Agreement to limit warming to well-below two degrees Celsius above pre-industrial levels.

Climate change increases the risks associated with rising temperatures, drought, and extreme weather events that may affect the reliability of Cal Water's systems and the availability of its water supply. The energy Cal Water consumes to provide water and wastewater services to its

---

<sup>10</sup> [IPCC\\_AR6\\_SYR\\_SPM.pdf](#)

customers contributes, in part, to climate change. Cal Water recognizes the importance of doing its part to reduce greenhouse gas emissions; the company works to reduce the carbon footprint of its operations by lowering energy demand through customer conservation measures and by increasing system efficiency and transitioning to carbon-free energy sources in its operations. In addition to these measures, this onsite solar project has been identified as a means of reducing Cal Water's operational footprint by an estimated 746 to 2,239 metric tons of carbon dioxide equivalent based on current electricity consumption patterns and emission factors, which represents approximately five to sixteen percent of Cal Water's Scope 2 greenhouse gas emissions.

While this project would contribute to climate mitigation, it would also support Cal Water's existing climate adaptation efforts by providing energy resilience to power outages through a distributed energy resource. This further supports Cal Water's ability to provide reliable, resilient service to its customers. Finally, by providing a mechanism for Cal Water to generate its own electricity rather than purchasing it from electric utility providers, this investment would generate long-term cost savings that would directly benefit customers.

## **Alternatives Analysis**

Upon extensive analysis of Cal Water's facilities based on renewable energy policies, economics, available incentives, energy demand, load profile, land availability, and roof availability and condition, the Bakersfield Northeast Treatment Plant has been identified as the project with the greatest onsite solar potential followed by the Customer Support Services Headquarters in San Jose.

The following alternatives to the proposed project were also analyzed:

### **Alternative 1: Do Nothing**

The Do Nothing alternative involves continuing to rely on grid-supplied energy. With grid-supplied energy, Cal Water would have reduced ability to realize greenhouse gas emissions reductions, long-term cost savings, climate resilience, or continued funding from shareholders to improve water infrastructure. For these reasons, the Do Nothing alternative was not considered further.

### **Alternative 2: Offsite Renewable Energy Procurement**

Rather than developing an onsite solar project, Cal Water also investigated the potential for purchasing offsite renewable energy to address climate mitigation and stakeholder expectations. Cal Water found that market conditions for purchasing offsite renewable energy, in the form of unbundled renewable energy credits (RECs) and virtual Power Purchase Agreements (vPPAs), would be cost-additive and present financial risks to the company and its ratepayers. In addition, Cal Water researched community solar and found that it is not currently eligible for any of these types of programs. As such, this alternative was not considered further.

## **Recommended Solution**

Cal Water recommends the Bakersfield Northeast Treatment Plant onsite solar project as the Recommended Solution. The upfront investment for the final alternative has been estimated at \$6.38 million, which is presented in more detail in the Attached Budget Estimate. This

recommended solution would achieve the objectives of increasing energy resilience as a climate adaptation measure, contributing to climate mitigation efforts, and providing customers with long-term cost savings.

## **Project Summary**

- Install a Cal Water-owned one (1) to three (3) MW ground-mount onsite solar photovoltaic energy generation facility at the Bakersfield Northeast Treatment Plant with an interconnection to improve energy resilience and reduce long-term energy costs for customers.

## **Project Attachments**

- Attachment A – Cost Estimate
- Attachment B–Aerial Site Overview

## 133577 Cost Estimate

### Capital Project Cost Estimate

**Project No.** 00133577  
**Description** Bakersfield Onsite Solar  
**District/Department** Bakerfield  
**Project Start Date:** 1/1/2025  
**Project Completion Date:** 12/31/2026  
**Prepared by:** hhaskell  
**Date Initiated** 12/21/2023  
**Base Year** 2023  
**Sub-Total** \$ 7,656,294  
**Direct Cost** \$ 8,144,443

**Cost Table:**

Item	Description	Qty	Unit Cost	Total	Cost Basis
Onsite solar	LS	1	\$ 6,380,245.00	\$ 6,380,245.00	Estimate
Contingency-20%	LS	1	\$ 1,276,049.00	\$ 1,276,049.00	Additional Factors

Sub-total = \$ 7,656,294.00  
Direct Cost = \$ 8,144,442.56

**Notes:**

1. Sub - Total is defined as the summation of all project estimated materials, labor, and markups costs
2. Direct Cost is the escalate Sub-Total from the base year of 2020 to the project completion year assuming a 2/5% inflation rate
3. See Common Plant Book for additional details on cost estimating

Attachment B  
PID: 133577



**District – Bakerfield**  
**PID# 134719**  
**BK Vehicles for new complement**

---

**Introduction**

Cal Water is proposing seven new positions in Bakersfield who will require vehicles to execute their job function

**Project Summary**

Cal Water has identified the need for additional staff in Bakersfield to execute a variety of job functions. Cal Water has included justifications for these positions in Attachment A of its Testimony Book #1. The complement request for Bakersfield results in the need to procure seven vehicles so that the new staff can execute their job function.

**Project Attachments**

- Attachment A – Cost Estimate

## 134719 Cost Estimate

### Capital Project Cost Estimate

**Project No. :** 134719  
**Description** BK - VEHICLE FOR NEW COMPLEMENTS  
**District / Department:** Bakersfield  
**Project Start Date:** 01/01/2026  
**Project Completion Date:** 12/31/2027  
**Prepared By:** cchan  
**Date Initiated:** 05/02/2024  
**Base Year:** 2024  
**Sub-Total:** \$892,013  
**Direct Cost:** \$972,597

**Cost Table:**

<b>Item</b>	<b>Description [units]</b>	<b>Qty</b>	<b>Unit Cost</b>	<b>Total</b>	<b>Cost Basis</b>
CONTINGENCY	[EA]	1	\$81,092.10	\$81,092.10	Contingency Estimate
FLUSHING/VALVE TRUCK	Vehicle - 1.75 Ton C&C Gas [EA]	1	\$55,405.00	\$55,405.00	Cost Catalog No. C.21-5
FLUSING/VALVE TRUCK UPFIT	Vehicle - Valve Upfit [EA]	1	\$82,308.00	\$82,308.00	Cost Catalog No. C.21-20
HALF TON TRUCK	Vehicle - 0.5 Ton Pickup BEV [EA]	6	\$61,969.00	\$371,814.00	Cost Catalog No. C.21-1
HALF TON TRUCK - BASIC UPFIT	Vehicle - Basic Upfit [EA]	6	\$12,294.00	\$73,764.00	Cost Catalog No. C.21-17
LEAK TRUCK	Vehicle - 2.5 Ton C&C Diesel [EA]	1	\$85,630.00	\$85,630.00	Cost Catalog No. C.21-9
LEAK TRUCK UPFIT	Vehicle - Leak Truck Upfit [EA]	1	\$142,000.00	\$142,000.00	Cost Catalog No. C.21-21

**Sub-total =** \$892,013.10  
**Direct Cost =** \$972,596.55

Notes:

1. Sub-Total is defined as the summation of all project estimated materials, labor, and markups costs
2. Direct Cost is the escalate Sub-Total from the base year of 2023 to the project completion year assuming a 2.5% inflation rate
3. See Common Plant Book for additional details on cost estimating methodology and justification

**Section I.**  
**Supply Demand Report**



**Section J.**  
**Background Reports**

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**Section K.**  
**Common Plant**

The following table presents a list of Common Plant projects for this district. Please refer to the Common Plant Overview\_2024 document for further details, including project justifications .

**Table 1 - List of Common Plant Projects – Bakersfield District**

PID	Description	Direct Cost	Inserted
131997	BK 2025 ACV Replacements	\$319,389	X <sup>(d)</sup>
132025	BK 2026 ACV Replacements	\$327,374	X <sup>(d)</sup>
132026	BK 2026 Control Valve Overhauls	\$438,176	X <sup>(d)</sup>
132027	BK 2027 ACV Replacements	\$335,550	X <sup>(d)</sup>
132028	BK 2027 Control Valve Overhauls	\$449,119	X <sup>(d)</sup>
132029	BK 2026 Flowmeter Replacements	\$972,844	X <sup>(d)</sup>
132132	BK 073-E Pump Replacement	\$79,518	X <sup>(d)</sup>
132262	BK 2025 VEHICLE REPLACEMENT PROGRAM	\$292,258	X <sup>(d)</sup>
132263	BK 2026 VEHICLE REPLACEMENT PROGRAM	\$506,147	X <sup>(d)</sup>
132264	BK 2027 VEHICLE REPLACEMENT PROGRAM	\$1,698,022	X <sup>(d)</sup>
132272	BK-125-01 Well Renewal	\$288,984	X <sup>(d)</sup>
132561	BK 2026 - Genset Replacements	\$2,307,427	X <sup>(d)</sup>
132663	BK 2025 Carbon Changeouts	\$551,686	X <sup>(d)</sup>
132664	BK 2026 Carbon Changeouts	\$579,615	X <sup>(d)</sup>
132665	BK 2027 Carbon Changeouts	\$594,091	X <sup>(d)</sup>
132838	BK 2027 Instrumentation Replc.	\$21,126	X <sup>(d)</sup>
133164	BK 2025 Service Line Replacements	\$6,988,593	X <sup>(d)</sup>
133165	BK 2026 Service Line Replacements	\$7,119,322	X <sup>(d)</sup>
133166	BK 2027 Service Line Replacements	\$7,266,066	X <sup>(d)</sup>
133168	BK 087-T8 Cathodic Protection	\$19,045	X <sup>(d)</sup>
133169	BK 100-T1 Cathodic Protection	\$14,848	X <sup>(d)</sup>
133170	BK 116-T4 Cathodic Protection	\$18,668	X <sup>(d)</sup>
133171	BK 188-T1 Cathodic Protection	\$14,776	X <sup>(d)</sup>
133172	BK 213-T2 Cathodic Protection	\$14,612	X <sup>(d)</sup>
133173	BK 216-T1 Cathodic Protection	\$36,920	X <sup>(d)</sup>
133313	BK 2026 Physical Security Upgrades	\$1,018,793	X <sup>(c)</sup>
133314	BK 2027 Physical Security Upgrades	\$831,067	X <sup>(c)</sup>
133916	BK 2025 Control Valve Overhaul	\$374,052	X <sup>(d)</sup>
134008	BK 2026 Instrumentaion Replc.	\$73,879	X <sup>(d)</sup>
101MRP25	BK 2025 Main Replacement Program	\$17,652,263	X <sup>(d)</sup>
101MRP26	BK 2026 Main Replacement Program	\$18,093,570	X <sup>(d)</sup>
101MRP27	BK 2027 Main Replacement Program	\$18,545,467	X <sup>(d)</sup>
101-NON-SP	101- Bakersfield Non-specific	\$2,460,000	X <sup>(d)</sup>

PID	Description	Direct Cost	Inserted
101-NON-SP	101- Bakersfield Non-specific	\$2,514,900	X <sup>(d)</sup>
101-NON-SP	101- Bakersfield Non-specific	\$2,577,900	X <sup>(d)</sup>
101UNSCH	BKD Unscheduled Replacements	\$8,187,318	X <sup>(d)</sup>
101UNSCH	BKD Unscheduled Replacements	\$8,392,001	X <sup>(d)</sup>
101UNSCH	BKD Unscheduled Replacements	\$8,601,801	X <sup>(d)</sup>
BKD0900_25	Meter Replacement Program	\$558,054	X <sup>(d)</sup>
BKD0900_26	Meter Replacement Program	\$572,006	X <sup>(d)</sup>
BKD0900_27	Meter Replacement Program	\$586,306	X <sup>(d)</sup>

**Notes:**

- (a) Direct costs include escalation, but exclude construction overhead and AFUDC.
- (b) Only projects above the District threshold of \$700,000 direct cost are presented in this book with specific or programmatic justifications (see Section A for additional discussion).
- (c) Due to confidentiality concerns, details for Physical Security projects are included separately within the Confidential justification book.
- (d) Project presented in the Common Plant Issues justification book.
- (e) Projects presented in Section M. Under Threshold Projects

The following table presents a list of multi-GRC Projects. These projects are not part of the revenue requirements in this application. Cal Water will start these projects in this GRC period and add them to the revenue requirement of the GRC in which the project will be completed. Please refer to the Project Justifications or the Common Plant Book for project details, and to the capital-related ratemaking testimony (Testimony Book #1) for why justifications are being provided in this GRC.

**Table 2. Multi-GRC Projects – Bakersfield District**

PID	Description	Inserted
132660	BK 176 Pressure Tank Replacement	X <sup>(d)</sup>
132512	BK 178 Panelboard Overhauls	X <sup>(d)</sup>
132512	BK 007 Panelboard Overhauls	X <sup>(d)</sup>

**Notes:**

- (a) Direct costs include escalation, but exclude construction overhead and AFUDC.
- (b) Only projects above the District threshold of \$700,000 direct cost are presented in this book with specific or programmatic justifications (see Section A for additional discussion).
- (c) Due to confidentiality concerns, details for Physical Security projects are included separately within the Confidential justification book.
- (d) Project presented in the Common Plant Issues justification book.
- (e) Projects presented in Section M. Under Threshold Projects

**Section L.**  
**Forecasted Projects In Progress**

**L1. Projects In Progress  
Over-Budget and/or Over-Schedule**

**District – Bakersfield**  
**PID# 103497**  
**New Well Property North Garden #1**  
**Non-Specific In Progress Project**

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**Project Justification and Information**

**1. Project Justification:**

The intent of this project is to obtain land in the northwest portion of Bakersfield’s North Garden system for a new source of supply. The northwest portion of the North Garden system regularly experiences low pressure episodes during periods of high demand. The project originally sought land for a new well only. After further analysis it was determined a new storage tank and booster station would also benefit the customers in this area to reduce the occurrences of low pressure. The land requirements for these facilities were considered in the selection of land to pursue. Due to the nature of property acquisitions, it is difficult to accurately project close dates in a similar capacity of construction projects due to the level of unknowns.

**2. Detailed Project Scope & Costs:**

Project scope included well siting study to determine favorable land area(s). Facilitate property acquisition and due diligence including Phase 1 environmental survey, DSWAP, topographic/ALTA survey, and any permitting or recording fees in addition to the purchase price of the land (based on appraised market value at time of purchase).

Both the project's cost and schedule exceeded the original estimates due to the challenges in finding suitable land and willing sellers. The northwest portion of the North Garden system is almost fully developed, with very few open parcels of land. Various owners were contacted many times to see if they would be willing to sell. The only owner who expressed any interest was a church. The church was approached numerous times and discussions would ensue, only to be followed by them not responding for many months at a time. These delays increased the time it took to make meaningful progress on acquisition of a parcel. After years of effort, the property purchases closed escrow and was recorded on June 3, 2024.

**3. Customer Benefits**

Customers will benefit from future infrastructure improvements constructed on the undeveloped parcel secured through the non-specific property acquisition process. The property may accommodate a future storage tank and booster station and a new municipal drinking water well following project approval from lead agencies (City of Bakersfield, Division of Drinking Water, etc.). Customer benefits from the future construction on the parcel include an increase in the reliability of the water system and much better system pressure during high demand periods.

**District – Bakersfield**  
**PID# 115863**  
**Replace Gen-set at Station BK 116**  
**In Progress Specific Project**

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**Project Justification and Update**

**1. Explain why the costs for this project will exceed the approved GRC budget (If Applicable):**

- The primary reason for project budget exceedance is due to escalation of material, equipment, and labor costs. Project estimate was created in 2017 and since then, contractor costs have escalated which led to higher costs to complete project.
- Construction costs for this installation are also higher due to the long routing of underground conduits from the new generator all the way to the existing meter panel at the building. Aside from long trenching needed, there is a lot of old existing piping in the area to avoid where our contractor is required to use hand digging to prevent the existing underground piping from damage and affecting the operation of the station.
- Construction cost was estimated to be \$147,000 while the project competitive bids came in at \$303,650.00.
- Similarly, Generator cost was estimated \$115,500 but the actual cost of this equipment was \$143,850.00.
- Engineering labor hours exceeded the estimate as changes in design needed to be made due to permitting and constructability challenges with the project.

**2. Summarize the main issues cause delay in completion of this project (If Applicable):**

The permit application and approval took a year to complete.

Supply Chain issues impacted delivery of the generator and ATS panel.

**For all In Progress Projects, Answer the Following Questions:**

**1. Explain major changes in the schedule of the project and why the project was not completed in the original year that was planned or approved:**

Due to the changes to the City permit application and approval processes, the project was delayed. Also, due to pandemic the supply chain has become an issue especially for the delivery of our generator.

**2. Explain why the new schedule for the project is needed:**

This project is already complete and in service.

**3. What other alternatives did Cal Water consider for this in progress project?**

This project is already complete and in service.

**4. What happens if Cal Water cancels this project now?**

This project is already complete and in service

**District – Bakersfield**  
**PID# 122824**  
**Install Backup Generator BK 212**  
**Non-Specific In Progress Project**

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**Project Justification and Information**

**1. Project Justification:**

This project is part of Cal Water’s response to the imminent threat of wildfire. This project will eliminate the spread of wildfire to the structures within a wildfire area, increase water supply reliability for firefighting and District customers, and loss of water pressure.

In response to several wildfire events which threatened Cal Water systems and other water systems in California, in 2020 Cal Water completed a study to determine system improvements needed to reduce vulnerability to wildfire and allow for proper emergency response. This evaluation was also motivated in anticipation of the American Water Infrastructure Act (AWIA), which requires that water utilities evaluate the risks to their systems across a wide range of categories, including wildfire threats. Given the urgency of the situation and the threat to our customers’ lives and property, Cal Water began implementation of these improvements as non-specific projects to expedite the construction of these projects.

**2. Detailed Project Scope & Costs:**

Install 250 kW standby Tier 4 compliant diesel engine-generator on its foundation, 400

Ampere automatic transfer switch and associated electrical and control system components for automatic operation during utility Public Safety Power Shutdown (PSPS) and planned power failure.

**3. Customer Benefits**

Completion of this project will ensure that a reliable source of high-quality water is available to customers and adequate fire protection is consistently available throughout Cal Water’s service area going forward. Cancellation or deferral is not a viable option because any power failure at the site can be catastrophic to the station operation and can result in putting customers on low pressure or out of water.

**District – Bakersfield**  
**PID# 123165**  
**BK New Tank & Booster Facility**  
**In Progress Specific Project**

---

**Project Justification and Update**

- 1. Explain why the costs for this project will exceed the approved GRC budget (If Applicable):**

The primary reason for project budget exceedance is due to the delay in acquiring land for the project and subsequent inflation in costs. The land was just recently acquired in June 2024, the project will now proceed.

- 2. Summarize the main issues cause delay in completion of this project (If Applicable):**

The primary cause for the project delay is a result of difficulties acquiring property. The project is scoped for a new storage tank in a specific region of the North Garden Water System (western island section) limiting the number of available parcels that may be pursued. Additionally, of the parcels that are undeveloped and located in the right region, CWS must find a willing seller. CWS has since identified a property and is scheduled to close escrow in June 2024. See project 103497.

**For all In Progress Projects, Answer the Following Questions:**

- 1. Explain major changes in the schedule of the project and why the project was not completed in the original year that was planned or approved:**

Due to the difficulty securing property suitable for tank construction, the project will not be completed in the original planning year. This is a result of negotiations with the current property owner taking longer than anticipated due to organizational structure, multiple party interests, and City of Bakersfield parcel map approval.

- 2. Explain why the new schedule for the project is needed:**

The new schedule is needed to account for a tentative construction start date of 3/1/2026.

- 3. What happens if Cal Water cancels this project now?**

Existing CWS customers in the North Garden System experience frequent pressure fluctuations and low pressures during peak hour demand. If the project does not proceed with design and construction, customers will not benefit from necessary infrastructure improvements required to bring the system into operational compliance with G103a. This negatively impacts customers' access to a reliable water connection as well as hindering the ability of first responders to mitigate the effects of fires when

necessary. Proceeding with the project following the close of escrow offers the best long-term benefit to customers access to potable water.

**District – Bakersfield**  
**PID# 123190**  
**BK 116 PB & Building Replacement**  
**In Progress Specific Project**

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**Project Justification and Update**

Station 116 is an existing tank and booster facility acquired in the 1950s with the acquisition of the Crest Water Company. The site has four (4) existing tanks and five (5) booster pumps that supply water to the 780, 880, and 930 pressure zones. The existing electrical panelboard that controls the onsite booster pumps is over 50 years old and is due for replacement. Most of the electrical equipment within the panelboard is obsolete and spare parts are not readily available. Replacing the electrical equipment now with a planned project mitigates the risks of sudden failure, resulting in emergency repair/replacement and extended station downtime. If an electrical equipment failure occurs during a higher demand period, the district would be required to mobilize temporary booster pumping equipment to the site to operate the system while addressing the failed electrical equipment. The existing electrical panelboard also has limited space available for replacement and/or new equipment. Additionally, the existing pump house building that houses three (3) of the five (5) has deteriorated and poses security risks for the assets inside. The building's paint is also flaking resulting in potential health and environmental risks associated with the lead-based paint. The existing electrical panelboard, pump house building, and adjacent single-pump (Pump G) shelter have been identified for replacement based on age, risk of failure, and current condition.

**1. Explain why the costs for this project will exceed the approved GRC budget (If Applicable):**

The primary reason for the anticipated project budget exceedance is due to the anticipated increased cost of the electrical panelboard for this site. Cal Water has seen a recent spike in the cost of electrical equipment during the past several years and based on the current 60% design, the panel is expected to cost approximately \$300,000 compared to the original budget of \$68,506.38.

Also, due to this station's importance for maintaining system operations, the district has identified that the station and existing panelboard will need to remain in-service during the construction of the panelboard replacement project. This requires significant construction phasing and for the proposed panelboard to be installed outside of the existing pump building. Installing the panelboard outdoors triggers additional scope including using an outdoor rated panelboard with a shade awning. The cost to install a shade awning over the outdoor panelboard was not included in the original project budget. Additionally, the original budget was prepared assuming the PG&E service would be upgraded and replaced with the BK 116 Generator Replacement project from the 2018 GRC (WO#115863). During the final design updates for the generator replacement project and after the panelboard replacement project was submitted to the CPUC, the PG&E upgrades were removed from the generator replacement project

scope. To accommodate the panelboard replacement; the site's PG&E service, transformer, and PG&E metering cabinet will need to be replaced. This triggers additional Electrical installation costs to install the transformer and metering panel as well as additional PG&E permitting costs not included in the original project estimate.

**2. Summarize the main issues cause delay in completion of this project (If Applicable):**

The Public Advocates Office initially contested the need for the full project scope and recommended only approving costs for the building replacement. Given that most of the electrical control equipment added to the site since the original station installation (RTU/SCADA Panel, flow monitor, pressure switches, conduits etc) is mounted on the existing building wall, the project team identified replacing the building without replacing the electrical equipment would result in additional project costs not acknowledged by the Public Advocates Office and increase the station downtime required to complete construction. Cal Water determined that the cost to relocate the existing wall-mounted electrical equipment and the associated impact of system operation highlighted the need to replace the outdated electrical equipment.

Additionally, the delay in the CPUC's decision on the 2021 Rate Case put Cal Water at risk of proceeding with the Public Advocates Office's uncontested project scope before official project approval. Since the Alternative Decision was approved in March 2024, Cal Water has advanced the electrical design to 60% complete and has initiated the panelboard procurement and PG&E permitting. Given the Public Advocates Office's contest of the project and the CPUC's delayed decision, Cal Water conservatively did not proceed with major equipment procurement or permitting to minimize risk of committing to project costs not approved by the CPUC.

## For all In Progress Projects, Answer the Following Questions:

**1. Explain major changes in the schedule of the project and why the project was not completed in the original year that was planned or approved:**

The Public Advocates Office's initial recommendation to deny the panelboard replacement scope put Cal Water at risk of proceeding with design and committing to significant project costs before receiving the CPUC's formal decision. The main change in the project schedule is the approval date from the CPUC.

**2. Explain why the new schedule for the project is needed:**

The new schedule is needed to account for a tentative construction start date of 3/28/2025.

**3. What other alternatives did Cal Water consider for this in progress project?**

- Alternative A: Cal Water considered deferring the project to a future rate case. Given the criticality of the BK 116 facility and consequences of failure of the electrical equipment, this alternative was determined to be not feasible.
- Alternative B (Do Nothing): Repair/replace electrical components as needed based on failure. This option does not enhance system reliability and promotes reactive replacement after failure compared to programmatic replacement. The sudden failure of the existing electrical equipment would lead to interruptions in customer service and trigger emergency repairs and/or replacements. Given the age of the existing equipment, many of the components are obsolete and finding replacements in an emergency scenario will be difficult.

**4. What happens if Cal Water cancels this project now?**

If the project is cancelled, Cal Water would be required to rely on the aged and outdated electrical equipment to control the onsite booster pumps. In the event of equipment failure, Cal Water would be required to react in an emergency fashion to repair and/or replace the electrical equipment to maintain supply capacity for the zones supported by this facility. Due to the station's importance in providing supply to the BK 930 zone, temporary pumping equipment would need to be deployed to the site and operated until the repairs and/or replacements can be made. The original equipment is obsolete and replacement parts are difficult to find. Attempting to replace these components on a reactionary basis would result in significant downtime for the facility and risk interruptions in service to customers.

**District – Bakersfield**  
**PID# 126268**  
**BK 047-02 Pump Replacement**  
**Non-Specific In Progress Project**

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**Project Justification and Information**

**1. Project Justification:**

The pump experienced unexpected equipment failure and became non-operable. The project's scope was to replace the pump and motor to bring assets back into reliable operation. Critical assets could not wait for the following rate cycle to be replaced.

**2. Detailed Project Scope & Costs:**

Replace pumping equipment to bring assets back into reliable operation.

- New 75 hp motor: \$6,716.57
- New pump: \$13,544.79
- New pump column: \$15,029.73
- Labor to remove pump and provide report: \$7,807.11
- Labor to brush, bail, and assess well casing: \$43,776.99
- Labor to install, start-up and testing of new equipment: \$12,929.00
- Environmental Remediation: \$118,183.33
- Retirements: \$38,984.61

**3. Customer Benefits**

The Bakersfield district relies heavily on groundwater resources for water supply and BK 047-02 is a critical well asset that provides water supply to the distribution system. The BK district customers directly benefit from this project by providing a safe and reliable water supply to the district.

**District – Bakersfield**  
**PID# 126877**  
**BK 220-01: Pump & Motor Replacement**  
**Non-Specific In Progress Project**

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**Project Justification and Information**

**1. Project Justification:**

The pump experienced a mechanical failure which rendered the pump inoperable. Replace pump and motor to bring assets back into reliable operation. Critical assets could not wait for the following rate cycle to be replaced.

**2. Detailed Project Scope & Costs:**

Replace pumping equipment to bring assets back into reliable operation.

- New 200 hp motor: \$22,278.69
- New pump: \$23,252.03
- New pump column: \$92,513.08
- Labor to brush, airlift, and assess well casing: \$72,273.07
- Labor to install, start-up and testing of new equipment: \$35,546.88
- Retirement of pumping equipment: \$43,387.72

**3. Customer Benefits**

The Bakersfield district relies heavily on groundwater resources for water supply and BK 220-01 is a critical well asset that provides water supply to the distribution system. The BK district customers directly benefit from this project by providing a safe and reliable water supply to the district.

**District – Bakersfield**  
**PID# 127761**  
**Replace main canal at shafter Rd**  
**Non-Specific In Progress Project**

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**Project Justification and Information**

**1. Project Justification:**

This project originated from an emergency call. This main serves as a one-way feed to Shafter General Elementary School. The 14” HDPE had multiple leaks on the line causing outages for the elementary school unfortunately the main was installed under a canal. Multiple leaks and canal damage the district decided to relocate 90’ of 14” HDPE pipe.

**2. Detailed Project Scope & Costs:**

The scope is to relocate the water main in General Shafter Rd, so it is no longer under the canal. This involves the installation of 105’ of 24” casing and approximately 120’ of 14” CLC pipe on General Shafter Rd through Jack and Bore method.

**3. Customer Benefits**

Customers will benefit from a reliable water supply without leak interruptions due to failing 14” HDPE pipe. There will be fewer interruptions of service to the school.

**District – Bakersfield**  
**PID# 128024**  
**Install 8" tr flex at Marella Over X**  
**Non-Specific In Progress Project**

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**Project Justification and Information**

**1. Project Justification:**

This project was part of the Bakersfield City's Centennial Corridor Project (New Freeway Project) Connecting Hwy 99 to Hwy 58. The existing water main needed to be removed to allow for bridge work. Blow offs were placed at either end. Originally, Cal Water planned not to re-install our water main through the Marella Bridge and leave blowoffs on the east and west ends of Marella St. However, this raised concerns about leaving the distribution system with dead ends and not a reliable looped system. Cal Water's decision to connect the ends provides an additional supply through a looped system and increases reliability with improved fire flows.

**2. Detailed Project Scope & Costs:**

The scope was to install 360' of 8" TR Flex pipe through 18" steel casing in Marella Bridge Overcrossing. This project connects two dead ends, resulting in a looped system and ensured reliable source of water supply to our customers. The connection points at the ends of casings will be with EBAA Flex-tend fittings. The decision to use TR Flex pipe was due to the curvature of the bridge. Standard pipes would have created stress on pipe joints causing increased risk for breaks or failures.

**3. Customer Benefits**

Customers' benefits include having a looped system distribution system with no dead ends and with increases in reliable fire flows for the area.

**District – Bakersfield**  
**PID# 129528**  
**E. California 21" main protection**  
**Non-Specific In Progress Project**

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**1. Project Justification:**

Due to the street rehabilitation project on E. California Avenue by the City of Bakersfield Public Works Department. The City of Bakersfield planned a full reconstruction from Union Ave east to Washington Ave on E. California Ave. To complete the full reconstruction, they needed to excavate the roadway 12" to 18". Through main line potholing, Cal Water discovered that the 21" water line was very shallow in an area approximately 600' long.

**2. Detailed Project Scope & Costs:**

The scope was to expose the 21" main and pour slurry over it to protect it from heavy paving equipment. Cal Water decided to pour slurry around the 21" main in its shallowest locations (600'). because the City of Bakersfield was not able to otherwise protect the main during construction of the roadway.

**3. Customer Benefits**

The customer benefits are a reliable water source that feeds the northeast portion of town by protecting the main in place while City of Bakerfield performed their road improvements. The customers also benefited from the roadway improvements completed by the City of Bakersfield.

## **District – Bakersfield**

**PID# 130571**

**REPLACE V206012**

### **Non-Specific In Progress Project**

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#### **Project Justification and Information**

**1. Project Justification:**

There were no indications that the engine would need to be replaced prior to the diagnosis. The vehicle started running rough with a check engine light. Vehicle was then diagnosed with 4 cylinders having low compression. The vehicle was 16 years old and had approximately 95,000 miles.

**2. Detailed Project Scope & Costs:**

Replace Ford F-350 Diesel truck, including upfitting.

**3. Customer Benefits**

This truck is an integral part of Bakersfield operations which requires it to only be used for maintenance but to also respond to emergencies. The truck tows the vacuum trailer which is also a vital part of maintenance and emergency call outs providing rapid service to our customers.

**District – Bakersfield**  
**PID# 131316**  
**BK PFAS Preliminary Design**  
**Non-Specific In Progress Project**

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**Project Justification and Information**

**1. Project Justification:**

The U.S. Environmental Protection Agency’s (EPA) adopted of a new National Primary Drinking Water Regulation for certain per- and polyfluoroalkyl substances (PFAS) (new PFAS regulation) on April 10, 2024. Cal Water identified 24 wells in the Bakersfield District that have detections of PFAS compounds. Of these wells, 21 have been identified to have treatment installed.

With the formal adoption of the new PFAS regulation by EPA, Cal Water recognized that EPA’s nationwide enforcement would cause a significant increase in demand for PFAS treatment equipment and media. Given that the quality of water delivered to our customers is a top priority, and that EPA’s adoption came late in the 2021 GRC cycle, Cal Water implemented preliminary engineering of PFAS treatment to minimize lead time impacts for the Company’s planned compliance and to assure continuous delivery of high quality, fully compliant water to our customers.

The preliminary engineering will develop project documentation to a point where the work to design and construct the needed treatment systems can be competitively bid by design-build contractors.

**2. Detailed Project Scope & Costs:**

The Forecasted Total Cost listed above of \$816,773.58 is the anticipated cost for the preliminary engineering for the wells slated for treatment in the Bakersfield District.

The scope of the preliminary engineering design is to evaluate site specific footprint constraints, determine site specific treatment requirements, size and select site specific treatment equipment, and develop preliminary site layouts, so that equipment can be bid and ordered, and so that the design and construction of the installation and required site improvements can be bid by design-build contractors.

The scope of the preliminary design PFAS treatment project will include the following scope:

- Site Surveying
  - Used to evaluate available site footprint for PFAS treatment
  - Includes analysis of site setback requirements
  - Includes survey of select neighboring properties that may require property purchase for additional site footprint

- Treatment Selection Verification
  - Consultant review of background water quality for confirmation of treatment selection between GAC (Granular Activated Carbon) and IX (Ion Exchange)
  - Consultant review of sizing and number of treatment systems for optimum PFAS removal and acceptable media change out frequency
- CWS Engineering Labor
  - Identify site constraints that may affect treatment selection
  - Locate and orient anticipated treatment on site to confirm treatment feasibility

The goal of the PFAS Treatment Preliminary Design projects is to identify the number and type (GAC or IX) of treatment vessels Cal Water will need to procure and eventually install to become compliant with the upcoming PFAS regulation.

### **3. Customer Benefits**

By moving forward with this project at this time and working to implement treatment ahead of the compliance deadline, Cal Water's customers will continue to receive water that is fully compliant with all primary and secondary maximum contaminant levels enforced by the State of California's Division of Drinking Water.

## **L2. Projects In Progress Over-Schedule**

## Introduction

It is typical that projects may experience schedule delays due to a variety of reasons. While each project may be delayed for a specific reason, some typical reasons for schedule delay include:

- 1. Local agency permitting issues** – Many projects that Cal Water completes require permits from local agencies such as cities or counties. These permits include Conditional Use Permits, Encroachment Permits, Building Permits, Construction Permits, Electrical, and Mechanical Permits. Discretionary permits also require that the local agency complete a review of the project under the California Environmental Quality Act (CEQA). Cal Water includes time in its project schedules to complete local permitting, however sometimes these processes take longer than anticipated due to staffing challenges at the local agencies, neighbor objections, concerns about site aesthetics or more complicated issues at the project sites such as endangered species, geotechnical conditions or cultural issues. In some cases, obtaining these permits can take more than one year and requires coordination between different agencies.
- 2. State Agency Permitting Issues** – Many Cal Water projects require permitting from the State Water Resources Control Board Division of Drinking Water. Some Cal Water projects require permitting from other state agencies such as the Department of Fish and Wildlife. When these permits are known ahead of time, Cal Water includes a reasonable time for their completion in the project schedule, but the schedule may increase for a variety of reasons including the use of new technologies, site environmental issues or a backlog at the permitting agencies.
- 3. Federal Agency Permitting/Licensing Issues** - Occasionally, Cal Water projects require permitting from a federal agency. These permits are complicated and, based on the agency's workload, permit time can vary significantly.
- 4. Other Utilities Delay** – Cal Water needs to get electrical service from other utilities such as Pacific Gas and Electric (PG&E) and Southern California Edison. Cal Water also must obtain service from local wastewater and storm water utilities. Each utility has its own design, procurement and constructions scheduling processes impacted by their staff availability and competing priorities. Cal Water is largely at the mercy of the timelines of these other utilities.
- 5. Material Availability** – Many of Cal Water's projects require specialized materials. If there is higher demand for these materials than production or if there are any supply chain issues, it results in longer wait times to get the materials. Because the market is highly specialized, and compliance with regulations and standards requires time and capital investment, it is difficult for new material suppliers to get into production. Cal Water tries to mitigate this effect by identifying and vetting new suppliers to keep the pool as large as possible, but there are often key areas where there are no additional suppliers available or where all suppliers are experiencing similar delays.
- 6. Contractor/Consultant Availability** - Many of Cal Water's projects require specialized contractors, such as well drilling, pipe installation or industrial electrical contractors. If there is higher demand for these contractors, it results in contractors either starting

projects later or requiring premium payments to put Cal Water's projects first in line. Because these contractors require specialized equipment and knowledge, it is difficult for new contractors to enter the market. Cal Water tries to mitigate this effect by identifying and vetting new contractors to keep the pool as large as possible, but there are some areas where there are only a few contractors who meet Cal Water's minimum qualification requirements. Similarly, Cal Water hires consultants to complete specialized design and inspection work or to complete work that is more than its baseline level of work. If these consultants do not have availability, it can delay starting or completing design or inspection work.

- 7. Unexpected Engineering/Technical Issues** – In some cases, preliminary design reveals a more complex approach/scope to the project. Accordingly, more detailed assessment and design will be required to move to the next phase(s) of the project. These issues are not easy to predict and can cause delays in the project's completion.
- 8. Unexpected Construction Issues** – A variety of issues can come up during construction which delay the project completion schedule. Some examples are unexpected weather, identification of underground site conditions, neighbor issues resulting in projects being stopped, and contractor issues that result in termination.
- 9. Project re-prioritization** – Cal Water had other, unforeseen issues that required more urgent attention. These could include things like system emergencies, changes in regulation, or local government actions such as road reconstruction. Often this requires shifting resources or funds to more urgent projects resulting in schedule delays on planned projects.
- 10. Land Acquisition** - Search for appropriate land, negotiation with neighbors, and obtaining required permits for land use change is complicated, with uncertain timeline for completion. While, Cal Water works diligently to ensure resolving land acquisition issues promptly, sometime long delays happen out of our Control.

In addition to the reasons listed above which occur in any three-year period, Cal Water experienced unique reasons for delay between the time when the 2021 GRC was prepared and the submittal of the 2024 GRC. These reasons included:

- 1. Covid 19 impacts on Supply Chain** - While the COVID 19 Pandemic began in 2020, there were ongoing effects on the availability of materials and contractor labor throughout the period leading up to the 2024 GRC. Cal Water did its best to adjust to this reality by beginning early procurement of materials and creating master contracts with some key contractors, but many projects still experienced delays as this program ramped up.
- 2. Covid 19 impacts on Cal Water Staff** - As it did for workers around the world in a variety of industries, the COVID 19 Pandemic also affected Cal Water's internal staff. Cal Water experienced higher-than-average turnover in areas which affect the ability to build capital projects. Higher than average turnover means that staff are learning the skills necessary to do the job and may miss opportunities to keep the projects on schedule. Every time a project is transitioned from one lead staff to another, work slows as the new team member gets "up to speed" on the details of the project. Cal Water has, through many years, tried to reduce this impact through better training programs

for new staff and through better project documentation to reduce the transition time, but there is still impact.

- 3. Covid 19 impacts on Permitting Process** - The COVID Pandemic also affected the local agencies which permit projects. Many projects experienced permitting delays due to staffing shortages at local agencies.
- 4. Delayed Decision on 2021 GRC** - A delayed decision from the Public Utilities Commission on the 2021 GRC. Cal Water prepares its capital budgets which include labor hours from internal staff and external resources. In the absence of a CPUC decision, it was difficult to ensure resources were available to work on projects proposed, but not yet approved. As a result, Cal Water had to apply its limited resources differently than anticipated and focus on only some of the more critical proposed projects.

The “in progress” projects in the following table(s) experienced a significant schedule delay as compared with what was presented in the 2021 GRC.

The CPUC includes an earnings test as part of the process for setting future rates. This ensures that, if there are significant schedule delays that result in projects not being completed per the plan presented in the rate case, the customers do not see these rate increases on their bills.

Project ID	Project Description	Project Delay Statement
00115540	BK 216 MFS3 Pump & Motor Replace	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> <li>• Water supply challenges, small window of opportunity to perform work</li> </ul>
00116631	Structural Improvements - NE WTP	<ul style="list-style-type: none"> <li>• Work on hold until associated coating project is approved.</li> </ul>
00124358	BK 2022 GAC Media Replacement	<ul style="list-style-type: none"> <li>• Will be changed when media is exhausted</li> </ul>
00118532	BK Activated Carbon Renewal	<ul style="list-style-type: none"> <li>• Will be changed when media is exhausted</li> </ul>
00114875	BK 140-1W: Pump & Motor Replace	<ul style="list-style-type: none"> <li>• Water supply challenges, small window of opportunity to perform work</li> </ul>
00115307	BK 005-05 Pump & Motor Replace	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> <li>• Water supply challenges, small window of opportunity to perform work</li> </ul>
00124262	BK 047-02 Well Liner Installation	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> <li>• Water quality issues found during construction (mercury)</li> </ul>
00124295	BK 134-01 - Replace Pump & Motor	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> <li>• Unexpected Construction Challenges</li> <li>• Water quality issues found during construction (mercury)</li> </ul>
00124291	BK 040-02 - Replace Pump & Motor	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> <li>• Unexpected Construction Challenges</li> <li>• Water quality issues found during construction (mercury)</li> </ul>
00123194	BK 23 Building Replacement	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> <li>• The project was delayed to allow Cal Water to re-evaluate the scope and cost-benefits given escalation of construction costs and to take time to competitively bid.</li> </ul>
00123899	BK 212 Panelboard Replacement	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> <li>• Project Re-prioritization</li> <li>• Land Acquisition</li> <li>• Covid-19 Impacts on Cal Water Staff</li> <li>• Delayed Decision on 2021 GRC</li> </ul>
00124745	BKD 147 Storage Tank Replacement	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> <li>• Covid-19 Impacts on Cal Water Staff</li> <li>• Concurrent site improvements project delayed due to budget shortfall requiring additional funds from 3rd Party project contributor. Tank replace scope placed on hold until site improvements budget shortfall addressed to ensure project site had required assets installed (pumps,</li> </ul>

Project ID	Project Description	Project Delay Statement
		<p>piping, panelboard) to allow tank to be put in service after construction.</p>
00123936	BK 116-PT1 Pressure Vessel Replace	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> <li>• Bids received for proposed 13,500-gallon pressure tank significantly over project budget. Project team evaluating options to reduce size of vessel to accommodate better budget conformance.</li> </ul>
00123626	BK 188-T1 - Seismic Retrofit	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> </ul>
00123628	BK 188-T2 - Seismic Retrofit	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> </ul>
00123471	BK 100-E Replace Pump & Motor	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> </ul>
00123371	BK 116-T3 - Tank Retrofits	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> </ul>
00123201	BK 82 Piping Replacement	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> </ul>
00123142	BK 116-T1 - Seismic Retrofit	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> </ul>
00123132	BK 116-T1 - Tank Retrofits	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> </ul>
00116386	Replace membrane feed pumps - NWTP	<ul style="list-style-type: none"> <li>• Unexpected Engineering/ Technical Issues</li> </ul>
00115440	BK 216 MFS1 Pump & Motor Replace	<ul style="list-style-type: none"> <li>• Unexpected Construction Challenges</li> <li>• Project Re-prioritization</li> <li>• Water supply challenges, small window of opportunity to perform work</li> </ul>
00124286	BK 2023 Chemical Pump Replace	<ul style="list-style-type: none"> <li>• This project is ongoing for the entire year. Pumps are picked up as needed as older pumps reach their life span or fail.</li> </ul>
00124173	BK 209 Panel Shade Awning	<ul style="list-style-type: none"> <li>• This project has been submitted to be closed. Justification has been seen for the project coming under budget.</li> </ul>
00115417	BK 216 D Pump & Motor Replace	<ul style="list-style-type: none"> <li>• Project Re-prioritization</li> <li>• Water supply challenges, small window of opportunity to perform work</li> </ul>
00123654	BK 162-A Replace Pump & Motor	<ul style="list-style-type: none"> <li>• Project Re-prioritization</li> <li>• November 2024 In-Service</li> </ul>
00123437	BK 091-C Replace Pump & Motor	<ul style="list-style-type: none"> <li>• Project Re-prioritization</li> <li>• November 2024 In-Service</li> </ul>
00123430	BK 087-E Replace Pump & Motor	<ul style="list-style-type: none"> <li>• Project Re-prioritization</li> <li>• November 2024 In-Service</li> </ul>
00124979	BK 2022 Analyzer Replacements	<ul style="list-style-type: none"> <li>• Project Re-prioritization</li> </ul>
00124302	BK 079-01 Well Renewal	<ul style="list-style-type: none"> <li>• Project Re-prioritization</li> </ul>
00124280	BKD 2022 chemical pump replacements	<ul style="list-style-type: none"> <li>• Project Re-prioritization</li> </ul>
00116211	Acid feed system - NW WTP	<ul style="list-style-type: none"> <li>• Project Re-prioritization</li> </ul>

Project ID	Project Description	Project Delay Statement
00115770	2021 Pumping Tools and Equipment	• Project Re-prioritization
00115761	2020 Pumping Tools and Equipment	• Project Re-prioritization
00115730	2020 Field/Truck Equipment	• Project Re-prioritization
00115705	Construction/Hydrant Meter RP	• Project Re-prioritization
00115097	Replace 5 CL2 Tanks 2021	• Project Re-prioritization
00115096	Replace 5 CL2 Tanks 2020	• Project Re-prioritization
00114987	Replace 14 CL2 Pumps 2021	• Project Re-prioritization
00114986	Replace 14 CL2 Pumps 2020	• Project Re-prioritization
00114600	Replace poly pipe services	• Project Re-prioritization
00114599	Replace poly pipe services	• Project Re-prioritization
00099154	Replace chemical feed pumps	• Project Re-prioritization
00117207	BK 2019 Physical Security Upgrades	• Project Re-prioritization
00123974	BK 2022 Customer Meter Vault Lids	• Project Re-prioritization
00123625	BK 073-T5 Tank Retrofits	• Project Re-prioritization
00123475	BK 195-01 Replace Pump & Motor	• Project Re-prioritization
00123473	BK 144-01 Replace Pump & Motor	• Project Re-prioritization
00118062	BK 225 Arsenic Treatment	• Project is completed and closed.
00116231	Replace potassium permang - NEWTP	• Other Utilities Delay • Unexpected Engineering/ Technical Issues
00115561	BK-081 Panelboard Replacement	• Other Utilities Delay • Material Availability • Unexpected Construction Challenges • Covid-19 Impacts on Cal Water Staff
00116237	Replace 4 bulk chem tanks - NE WTP	• Other Utilities Delay • Material Availability • Unexpected Construction Challenges
00123510	BK Tank Exterior Ladder Lifelines	• Material Availability • Unexpected Engineering/ Technical Issues • Unexpected Construction Challenges
00123642	BK 176-A VFD Install	• Material Availability • Unexpected Engineering/ Technical Issues • Covid-19 Impacts on Cal Water Staff
00124412	BK 2022 Flat to Meter	• Material Availability • Unexpected Construction Challenges • Covid-19 Impacts on Supply Chain
00115626	YEAR 2021: 2,100 F/M CONVERSIONS	• Material Availability • Unexpected Construction Challenges • Covid-19 Impacts on Supply Chain

Project ID	Project Description	Project Delay Statement
00117208	BK 2020 Physical Security Upgrades	<ul style="list-style-type: none"> <li>• Material Availability</li> <li>• Unexpected Construction Challenges</li> <li>• Covid-19 Impacts on Supply Chain</li> </ul>
00125421	BK 2022 Physical Security Upgrades	<ul style="list-style-type: none"> <li>• Material Availability</li> <li>• Unexpected Construction Challenges</li> </ul>
00115978	2021 Field/Truck Equipment	<ul style="list-style-type: none"> <li>• Material Availability</li> <li>• Project Re-prioritization</li> </ul>
00116152	Install New Gen-set at Bk 202	<ul style="list-style-type: none"> <li>• Material Availability</li> <li>• Covid-19 Impacts on Supply Chain</li> <li>• Covid-19 Impacts on Cal Water Staff</li> </ul>
00123130	BK 2022 CP Upgrades	<ul style="list-style-type: none"> <li>• Material Availability</li> <li>• Covid-19 Impacts on Cal Water Staff</li> </ul>
00123850	BK 156 Generator Replacement	<ul style="list-style-type: none"> <li>• Local Agency Permitting Issues</li> <li>• Material Availability</li> <li>• Air Control Board changed the regulations to Tier -4 Generator</li> </ul>
00123721	BK 148 Generator Replacement	<ul style="list-style-type: none"> <li>• Local Agency Permitting Issues</li> <li>• Material Availability</li> <li>• Air Control Board changed the regulations to Tier -4 Generator</li> </ul>
00123684	BK Sta 146-04 Wildfire Generator	<ul style="list-style-type: none"> <li>• Local Agency Permitting Issues</li> <li>• Material Availability</li> <li>• Air Control Board changed the regulations to Tier -4 Generator</li> </ul>
00116497	Bakersfield Reliability Study	<ul style="list-style-type: none"> <li>• Given available in-house staff and consultant availability, some projects had schedule delays as those projects in Districts with greater water supply needs were prioritized.</li> </ul>
00116584	Bakersfield WSFMP	<ul style="list-style-type: none"> <li>• Given available in-house staff and consultant availability, some projects had schedule delays as those projects in Districts with greater water supply needs were prioritized.</li> </ul>
00123658	BK 162-B - Replace Pump & Motor	<ul style="list-style-type: none"> <li>• Equipment failed; short term repair was implemented until long-term solution is completed</li> </ul>
00123183	BK 186 Corner Tank BFV Controls	<ul style="list-style-type: none"> <li>• Delayed Decision on 2021 GRC</li> </ul>
00123925	BK 2022 Flowmeter Replacement	<ul style="list-style-type: none"> <li>• Covid-19 Impacts on Supply Chain</li> <li>• Covid-19 Impacts on Cal Water Staff</li> <li>• covid causing delay in work and budgetary constraints</li> </ul>

<b>Project ID</b>	<b>Project Description</b>	<b>Project Delay Statement</b>
00116483	BK 2021 Flowmeter Replacements	<ul style="list-style-type: none"> <li>• Covid-19 Impacts on Supply Chain</li> <li>• Covid-19 Impacts on Cal Water Staff</li> </ul>
00123863	BK 2022 CARB VEHICLE REPLACEMENT	<ul style="list-style-type: none"> <li>• Covid-19 Impacts on Supply Chain</li> </ul>
00123159	BK 2022 Vehicle Replacement Program	<ul style="list-style-type: none"> <li>• Covid-19 Impacts on Supply Chain</li> </ul>
00118093	2019- VEH. FOR PROPOSED COMPLEMENT	<ul style="list-style-type: none"> <li>• Covid-19 Impacts on Supply Chain</li> </ul>
00114159	BK-100 Station Re-Build	<ul style="list-style-type: none"> <li>• Covid-19 Impacts on Cal Water Staff</li> <li>• The project was delayed to allow Cal Water to re-evaluate the scope and cost-benefits given escalation of construction costs and to take time to competitively bid.</li> </ul>
00124729	BK 045-T1 - Tank Roof Replacement	<ul style="list-style-type: none"> <li>• Covid-19 Impacts on Cal Water Staff</li> <li>• Staffing and operation constraints.</li> </ul>
00125251	BK 49-03 GAC Treatment	<ul style="list-style-type: none"> <li>• Covid-19 Impacts on Cal Water Staff</li> <li>• Delayed decision in 2021 GRC</li> </ul>
00110150	BK Customer Center Upgrades	<ul style="list-style-type: none"> <li>• Contractor/ Consultant Availability</li> </ul>

**L3. Projects In Progress  
Other**

PID	Description	Short Explanation
123662	BK 176-T2 - Seismic Retrofit	<p>Refer to programmatic &amp; project justification documents from 2021 GRC. Seismic retrofits remove rigid connections between the tank and the ground. During an earthquake, tanks and ground move differentially, resulting in pipe ruptures and tank damage. Please refer to:</p> <p><a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>  <a href="#">Microsoft Word - BKD RO2021-July Final v2 (ca.gov)</a></p>
123961	BK 2023 Flowmeter Replacements	<p>Refer to programmatic &amp; project justification documents from 2021 GRC. A flowmeter is an instrument used to monitor, measure and record the flow of water or chemicals. Production flowmeters specifically monitor water flow through well pumps booster pumps and treatment processes. Accurate flow measurements are important to understand water production, determine production costs and pump efficiency. There are various types of flowmeters in use such as paddle-wheel insertion type magnetic type and propeller type. Each has pros and cons based on application and budget. Flowmeters are tested and calibrated annually and are repaired when they cannot hold their calibration. When repairs are not cost effective then they must be replaced. Flow meters are also replaced when they become obsolete and do not meet functional requirements such as providing an accurate signal to SCADA for real-time monitoring and tracking. Data provided by flowmeters is beneficial in the daily operations for troubleshooting of the distribution system leak detection fire flows etc. Please refer to:</p> <p><a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>  <a href="#">Microsoft Word - BKD RO2021-July Final v2 (ca.gov)</a></p>
123962	BK 2024 Flowmeter Replacements	<p>Refer to programmatic &amp; project justification documents from 2021 GRC. A flowmeter is an instrument used to monitor, measure and record the flow of water or chemicals. Production flowmeters specifically monitor water flow through well pumps booster pumps and treatment processes. Accurate flow measurements are important to understand water production, determine production costs and pump efficiency. There are various types of flowmeters in use such as paddle-wheel insertion type magnetic type and propeller type. Each has pros and cons based on application and budget. Flowmeters are tested and calibrated annually and are repaired when they cannot hold their calibration. When repairs are not cost effective then they must be replaced. Flow meters are also replaced when they become obsolete and do not meet functional requirements such as providing an accurate signal to SCADA for real-time monitoring and tracking. Data provided by flowmeters is beneficial in the daily operations for troubleshooting of the distribution system leak detection fire flows etc. Please refer to:</p> <p><a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>  <a href="#">Microsoft Word - BKD RO2021-July Final v2 (ca.gov)</a></p>

PID	Description	Short Explanation
101MRP24	BK 2024 Main Replacement Program	See mains justification report. The main replacement program aims to renew the infrastructure increase service and reduce risk by replacing pipelines that are considered high risk and / or in poor condition. Please refer to the mains justification report in the 2021 GRC. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a> <a href="#">Microsoft Word - BKD RO2021-July Final v2 (ca.gov)</a>
123255	BK 213-T3 - Tank Retrofits	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123345	BK 096-T2 - Tank Retrofits	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123347	BK 096-T3 - Tank Retrofits	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123352	BK 096-T4 - Tank Retrofits	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123376	BK 087-T5 - Tank Retrofits	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123409	BK 003-04 Replace Pump & Motor	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123440	BK 097-B Replace Pump & Motor	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123454	BK 100-T3 - Tank Retrofits	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123456	BK 100-T1 - Tank Retrofits	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123459	BK 073-T3 - Tank Retrofits	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123462	BK 097-C Replace Pump & Motor	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123643	BK 212-D Replace Pump & Motor	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>
123645	BK 116-F Replace Pump & Motor	Refer to programmatic justification document. Please refer to: <a href="#">Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</a>

PID	Description	Short Explanation
123655	BK 148-T1 - Tank Retrofit	Refer to programmatic justification document. Please refer to: <a href="http://Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)"><u>Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</u></a>
123675	BK 100-T4 - Tank Retrofit	Refer to programmatic justification document. Please refer to: <a href="http://Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)"><u>Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</u></a>
123676	BK 176-T2 - Tank Retrofit	Refer to programmatic justification document. Please refer to: <a href="http://Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)"><u>Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</u></a>
124297	BK 042-02 - Replace Pump & Motor	Refer to programmatic justification document. Please refer to: <a href="http://Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)"><u>Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</u></a>
124306	BK 042-02 Well Renewal	Refer to programmatic justification document Please refer to: <a href="http://Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)"><u>Exh. CW-27 Common Plant PJ Book.pdf (ca.gov)</u></a>

**Section M.**  
**Under Threshold Projects**

PID	Description	Detail
133158	BK NEWTP Benchtop Turbidimeter	The benchtop turbidimeter used at the Bakersfield Northeast Water Treatment Plant (NEWTP) is obsolete and spare parts for repairs are no longer readily available. A benchtop turbidimeter is used as key water quality indicator at the NEWTP to measure the turbidity of water from various stages of the treatment process.
133160	BK NEWTP pH Probes and Controllers	The NEWTP's pH monitoring system is over 5 years old making it obsolete, and spare parts for repairs are no longer readily available. Due to previous ad hoc replacement of the system components, the NEWTP also has a mixture of probes and controllers from various manufacturers that need to be standardized to effectively manage, troubleshoot, and repair the system in a timely fashion. PH monitoring is a fundamental aspect of water treatment based on its considerable influence on the effectiveness of various water treatment processes, such as coagulation and disinfection. Most treatment chemicals react most effectively at specific pH ranges and monitoring and adjusting the water's pH helps ensure the treatment chemicals perform optimally and efficiently. PH is also a key component in the NEWTP's industrial waste discharge program as waste streams must fall within a specified pH range to be discharged to the wastewater collection system. As the waste discharge stream is automated, pH monitoring and control is required. The Bakersfield District proposes to replace the pH monitoring system to ensure system reliability for regulatory disinfection compliance and treatment process optimization
133161	BK NWWTP Benchtop Turbidimeter	The benchtop turbidimeter used at the Bakersfield Northwest Water Treatment Plant (NWWTP) is obsolete and spare parts for repairs are no longer readily available. Turbidity is a key indicator of water quality and represents the cloudiness caused by the presence of suspended particles. Monitoring turbidity is crucial in the water treatment process as elevated levels can indicate the presence of contaminants or suspended solids that could pose health risks to consumers. The Bakersfield District proposes to replace the benchtop turbidimeter to continue to conduct routine water quality assessments and ensure regulatory compliance.

PID	Description	Detail
133163	BK NWWTP pH Probes and Controllers	<p>The NWWTP's pH monitoring system is over 5 years old making it obsolete, and spare parts for repairs are no longer readily available. Due to previous ad hoc replacement of the system components, the NWWTP also has a mixture of probes and controllers from various manufacturers that need to be standardized to effectively manage, troubleshoot, and repair the system in a timely fashion. PH monitoring is a fundamental aspect of water treatment based on its considerable influence on the effectiveness of various water treatment processes, such as coagulation and disinfection. Most treatment chemicals react most effectively at specific pH ranges and monitoring and adjusting the water's pH helps ensure the treatment chemicals perform optimally and efficiently. PH is also a key component in the NWWTP's industrial waste discharge program as waste streams must fall within a specified pH range to be discharged to the wastewater collection system. As the waste discharge stream is automated, pH monitoring and control is required. The Bakersfield District proposes to replace the pH monitoring system to ensure system reliability for regulatory disinfection compliance and treatment process optimization</p>
133175	BK 2026 Chemical Tank Replacements	Chemical tank is at the end of its lifespan and needs replacement.
133176	BK 2027 Chemical Tank Replacements	Chemical tank is at the end of its lifespan and needs replacement.
133182	BK NEWTP MF Feed Pumps VFD	<p>Two MF pumps operate as duty (lead-lag) and the third as standby. This can be achieved with either the two VFDs being duty or one VFD and one RVSS pump being duty. However, if one of the VFD pumps is removed from service for an extended period (usually for maintenance or repair) then the remaining VFD pump and soft start pump will be the duty pumps. In this condition, the soft start pump will only be able to run after the VFD pump is at full speed and demand is still increasing. Over time, the VFD pump will have more wear than the other two. Replacing the RVSS for the third pump with a VFD will allow the District to operate any of the three pumps in lead regardless of which two or three pumps are available. The run time hours of the existing RVSS is very low and adding the third VFD will allow the District to balance the runtimes between the three pumps. Balancing the run times will lead to improved scheduling of routine maintenance and less downtime for unplanned maintenance. This project will benefit customers by making it easier for the District to regularly maintain the pumps which should minimize the risk of failures and</p>

PID	Description	Detail
		extend their useful life. The sole alternative to this project is the Do Nothing alternative. Under that alternative, the benefits described above will not be realized.
133187	BK 2026 Station Resurfacing	The Bakersfield District must upgrade the stations to replace the current dirt lots with crushed rock surfaces. This will improve the appearance and safety of the site, decrease maintenance needed at the site, control dust and water runoff, and make the sites more neighborhood friendly.
133188	BK 2027 Station Resurfacing	The Bakersfield District must upgrade the stations to replace the current dirt lots with crushed rock surfaces. This will improve the appearance and safety of the site, decrease maintenance needed at the site, control dust and water runoff, and make the sites more neighborhood friendly.
133189	BK Low Zone Well Siting Study	Choosing to not conduct this well siting study would force Cal Water to stop or delay (until such time that a study is conducted) the construction of new well(s) in the Low Zone. This would prolong and exacerbate the Low Zone's PHD deficit. Relying on a new well siting study would allow Cal Water to use better groundwater quality data in an effort to avoid any future contamination. In 2020, Cal Water developed the Well Infrastructure Renewal Program (WIRP) report to proactively manage its groundwater assets. The WIRP found that from siting to construction, developing a well could take anywhere from 3-10 years. Eleven (11) wells have an estimated remaining useful life within the typical well development time frame, these wells represent a significant portion (15%) of the District's water supply. Given that conducting a well siting is the first successive step in developing a well, delays in this step will only increase the already lengthy well development process.
133190	BK Railroad Main Replacement Study	Considering the industry standard that after 50-years most pipelines have significant physical depreciation, the Railroad main should be inspected to assess its remaining useful life. This is also an apt time to investigate alternative transmission line alignments to accommodate any changes to the railroad's permitting and operations requirements which may make any in-place replacement cost-ineffective.

PID	Description	Detail
133196	BK 216 Polymer Storage	<p>There is currently only one (1) 250-gallon polymer storage tank and one (1) polymer feed pump at the Northeast Bakersfield Water Treatment Plant (NEWTP). The polymer used at the NEWTP, Clarifloc A-6340, is an emulsion polymer that requires high intensity mixing to activate. The current polymer storage tank does not include a mixer which greatly reduces the efficiency of the polymer. A new polymer storage tank with a built-in mixer would improve the efficiency of the polymer make-up system, thereby lowering energy and product costs. Furthermore, two (2) polymer feed pumps would provide reliability by allowing the sludge processing system to remain in full operation when maintenance on the existing pump is performed. Cal Water proposed purchasing and installing one (1) new 250-gallon polymer mixing tank and two (2) new polymer feed pumps to replace the existing polymer storage tank and single polymer feed pump. The replacement would address failure risks from decreased efficiency of the existing polymer storage tank. Maintenance concerns would also be minimized, as the additional feed pumps and mixer would improve the efficiency of the polymer make-up system and provide system reliability when pump maintenance and repair are required. This would optimize polymer usage during operation and maintenance as well as allow full operation of the sludge processing system during maintenance. As such, the implementation of the new polymer mixing tank would maximize operational efficiency, reduce maintenance risks, and provide further reliability benefits</p>
133197	BK NEWTP New Filter Modules	<p>The filter modules for the racks to be replaced at the NEWTP have reached the end of their useful life. Each time a membrane filter is cleaned to restore performance, an incremental increase in differential pressure results in the filter at the cleaned condition. Replacement of a membrane filter is recommended when the difference between the fouled differential pressure and the cleaned differential pressure is insignificant. Continued use of the filters results in excessive energy to operate and can damage the integrity of the membrane filter itself. Damage to the membrane filter can affect the quality of the treated water at NEWTP, thereby posing potential risks to public health. To minimize this, replacing the existing aging filters will allow for a more effective filtration process, lower energy consumption, and reduced risks of downtime related to membrane integrity issues. Replacing the existing filter modules with 144 new filter modules is recommended to limit the waste of energy as well as to enhance supply reliability.</p>

PID	Description	Detail
133378	BK Fire Flow/Hydrant Testing Equip	<p>The Bakersfield District currently conducts fire flow testing using the hand-held pitot method. This method is prone to inaccurate results due to the pitot tube having to be held in the hand while flow is being discharged from the hydrant which causes fluctuations in the reading. Also, the hydrant coefficient must be assumed based on its shape, which can cause an error in the calculations. The handheld pitot method results in the flow being discharged directly to the area around the hydrant which can cause property damage and is a safety concern. The Bakersfield District is in need of two (2) Hose Monster™ fire flow testing bundles to conduct safe and accurate fire flow tests. The Hose Monster™ system maintains a constant flow and allows for accurate measurement. Also, the Hose Monster™ assembly can be placed in an adjacent gutter where it directs flow along the flowline of the gutter.</p>



## **California Water Service Company**

Bakersfield District Project Justification Book

2024 General Rate Case

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