

# Goleta Water District

## Infrastructure Improvement Plan 2020-2025



Amended by the Board of Directors on March 12, 2024

## **Goleta Water District**

### **2024 Board of Directors**

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## Executive Summary

The 2020-2025 Infrastructure Improvement Plan (IIP) identifies the minimum level of investment needed to accomplish the District's top two priorities: maintaining water quality and maintaining operable infrastructure. This investment is balanced against the need to fulfill the District's mission of providing a reliable supply of quality water at the most reasonable cost to the District's present and future customers. The IIP also implements goals set forth in Board-adopted planning documents, including the Water Supply Management Plan, Urban Water Management Plan, Sustainability Plan, Groundwater Management Plan, Potable Reuse Facilities Plan, and Stormwater Resource Plan.

Water quality emerged as a top priority for the District in 2018 as the Lake Cachuma watershed faced increasing impacts from drought and wildfires. Also, similar to other utilities across the country, aging infrastructure is a challenge facing the District. Major assets, such as pipes, valves, and hydrants, are reaching the end of their expected service lives and are at increasing risk of becoming inoperable. The total replacement value of all of the District's capital assets constructed and installed over the last 75 years is estimated to exceed \$900 million. These assets include approximately 270 miles of pipe; 1,550 hydrants; 17,200 meters; 5,670 valves; eight reservoirs; six pump stations; and numerous other assets. As full infrastructure replacement is financially infeasible, prudent capital planning is essential.

The 2020-2025 IIP identifies 137 projects totaling \$370 million in order of priority and recommends funding the 48 most critical projects at a cost of \$50 million. All projects are described in summary with cost estimates. Projects proposed for funding also state the need for the project, consequences of not funding the project, and a five-year cost schedule.

The introduction of the 2020-2025 IIP highlights the accomplishments of the previous 2015-2020 Infrastructure Improvement Plan and provides an overview of the District's current state of infrastructure. Section 1 of the 2020-2025 IIP provides a summary of the background information and methodology used to identify projects, estimate costs, and prioritize needs. Section 2 lists all capital projects recommended for the next five years. Recommended projects allow the District to continue to meet regulatory requirements, maintain the District's current level of service, and address critical deficiencies. Lastly, Section 3 includes descriptions for all projects considered in this 2020-2025 IIP in order of priority.

The combined projects, priorities, and related funding needs described in this 2020-2025 IIP identify the capital investment necessary to manage the District's capital assets. In the face of a dynamically changing water supply and unforeseeable events, the District's IIP ensures that funds invested in capital projects are spent wisely while also providing the District flexibility to reevaluate and reprioritize projects on an annual basis.

## 2015-2020 Infrastructure Improvement Plan Highlights

The IIP is designed to be dynamic and flexible. Despite significant challenges unanticipated at the time of its initial approval, the 2015-2020 IIP was adapted to invest in capital projects to meet customer demand, modify the distribution system, and maintain water quality during the most severe drought in the region's history. Funding included \$23.9 million for regulatory and critical need projects, as well as \$3.1 million for projects vital to sustaining the District's infrastructure. The District successfully completed many rehabilitation, improvement, and replacement projects, highlighted below:

### Groundwater Well Rehabilitations



In response to drought conditions, from 2015 to 2020, the District invested more than \$10 million to increase groundwater production capacity. By rehabilitating many of its production wells, the District increased capacity from 4 to 6 million gallons per day. This allows the District to reliably serve the basic indoor health and safety needs of the Goleta Valley using only groundwater.

### Patterson Booster Pump Station

The Patterson Booster Pump Station was originally designed to deliver groundwater to higher elevations of the District's service territory on an emergency basis. Due to the limited availability of surface water supplies during the drought, and the need to blend water supplies to meet water quality standards, the District has increasingly relied on the booster pump station to move groundwater throughout the system for sustained periods.



The 2015-2020 IIP included funding to replace two emergency backup pumps with three larger, regular duty pumps to increase capacity and reliability. The District completed design work in 2018, and in 2019 the District completed major construction to upgrade the station, as well as adding a connection for an emergency generator. This project more than doubled the pumping capacity of the facility. Increased capacity enables the District to blend groundwater with surface water to meet water quality objectives, operate continuously, and deliver diverse water supplies to higher elevations.

## Research and Technology for Addressing Water Quality Conditions at Lake Cachuma

In 2018 and 2019, water quality maintenance at the Corona Del Mar Water Treatment Plant (CDMWTP) included studies and testing to analyze surface water quality for corrosivity, disinfection byproducts, trihalomethanes (THMs), organic matter, algal toxins, and other chemical parameters.



The District also successfully constructed aeration systems at Fairview and Ellwood Reservoirs to reduce disinfection byproducts. These projects increased the District's ability to adapt to changing water quality at Lake Cachuma and allowed the District to continue to meet THM drinking water regulatory standards.

## CDMWTP Chemical Tanks Safety Platform



To meet California Occupational Safety and Health Administration (OSHA) requirements for worker safety, the 2015-2020 IIP included funding for worker access platforms at the CDMWTP's chemical storage building.

New platforms were constructed in 2017. These new platforms provide safe access for chemical storage tank inspection, routine maintenance, and roof access for District operators.

## Valve Replacement Program

From 2015 to 2020, the District replaced 70 inoperable valves, or 1% of the more than 6,500 valves operated in the distribution system. Replacing inoperable and aging valves minimizes service interruptions to the community and reduces the potential for damage during emergency shutdowns.



## Current State of the District’s Infrastructure

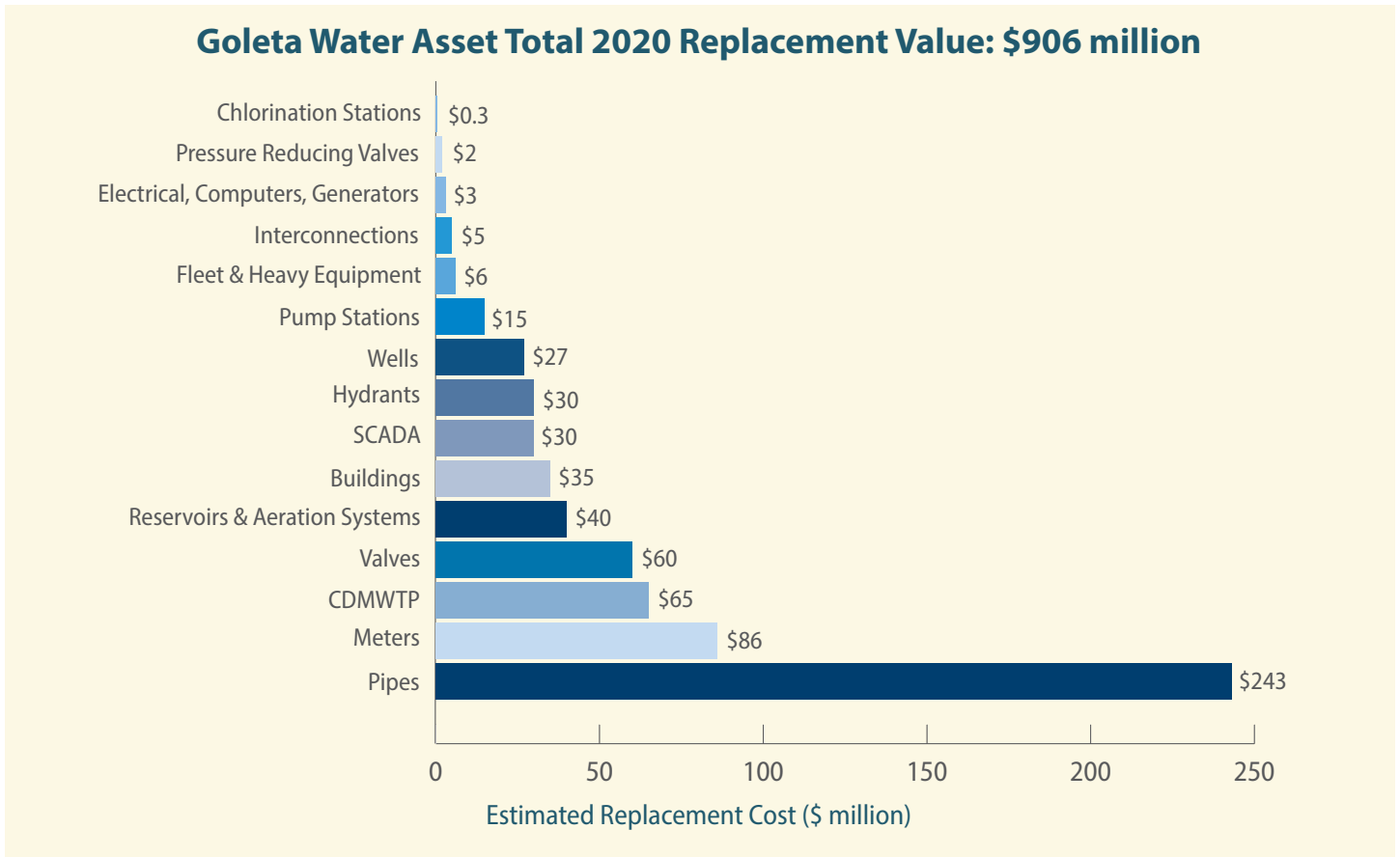
Past investment has allowed the District to draw on its diverse water portfolio. However, these assets do not have unlimited service lives. Accordingly, the District is increasingly having to devote more attention to the maintenance of aging infrastructure to ensure continued operation of the District’s complex water system. This includes 270 miles of pipelines, a 24-million-gallon-per-day water treatment plant, nine groundwater wells, six booster pump stations, and other facilities to serve a population of 87,000 across the Goleta Valley.



To ensure continued reliability of the treatment and distribution systems, and to balance rising costs associated with infrastructure nearing its end of service life, the District compiled a comprehensive inventory of all of its capital assets. The asset inventory identifies the age and estimated replacement costs of all the District’s owned facilities and equipment, which is estimated to exceed \$900 million (see Fig. 1). However, this IIP does not budget for proactive infrastructure replacement. Instead, some reactive replacement projects have been included in this 2020-2025 IIP, allowing the District to meet the minimum level of investment necessary to maintain service when assets become inoperable.



**Figure 1: District Total Asset Replacement Value by Class**



## 75 Years and Counting

In 2019, the District marked 75 years of continuous, reliable water service. When the District was established in 1944 as a legal entity representing the Goleta Valley, the United States Bureau of Reclamation constructed the Cachuma Project along the Santa Ynez River. This was followed by the completion of the Tecolote Tunnel and the backbone of the District’s current distribution system in the 1950s. By the project’s completion in 1958, the District had built 53 miles of water pipeline, nearly 20% of today’s distribution system. The District also constructed several groundwater production wells, built between 1972 and 1983 to provide treated, high-quality water to the community. While the District’s water treatment plant was upgraded in 2007, it was built in the 1970s. Much of the District’s infrastructure is aging, and some is nearly as old as the District.



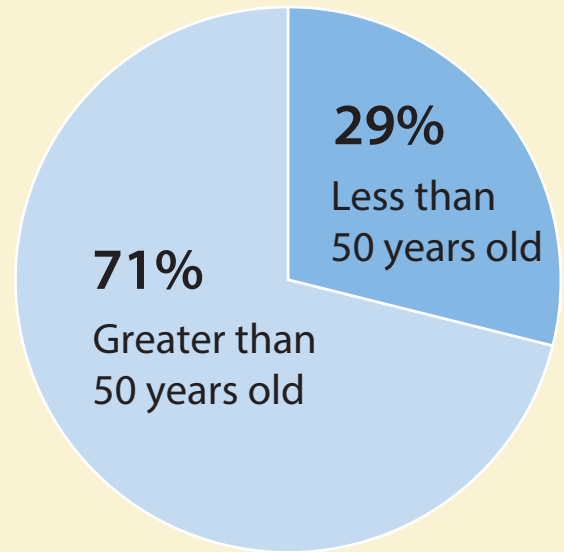
## District Infrastructure Age at a Glance

### Pipes

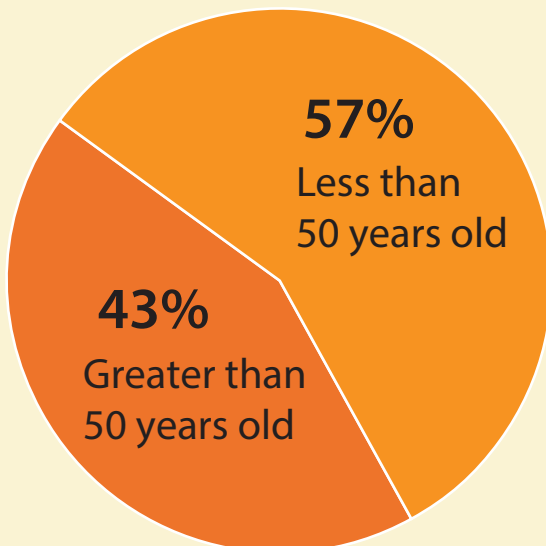
Water pipelines are the arteries of the District’s distribution system. Since 1944, the District has installed and maintained 240 miles of potable water pipelines and 30 miles of non-potable water pipelines. Potable water pipelines are reported to have an average expected useful life of 65 to 110 years. Non-potable water pipelines are expected to have a shorter lifespan due to higher chlorine residual. Due to wear, corrosion, and other factors, the risk of pipe failure increases with time. Of the District’s 240 miles of potable pipeline, 83 miles have an age that will exceed 65 years by 2025. More than 170 miles of potable pipeline are currently older than 50 years.



**240**  
*Miles of Potable Pipeline*



**6,473**  
*Valves in System*



### Valves

Valves allow distribution operators to control where water moves in the system. When operators close valves, portions of the distribution system become isolated during emergency repairs, which reduces the number of customers affected by a service outage. The District maintains approximately 6,500 valves. Although the average expected service life of a valve is 50 years, the District operates nearly 2,777 valves (43%) that are older than 50 years and at increased risk of potential inoperability.



# Section 1: Infrastructure Improvement Plan Overview

## 1.1 Introduction

The 2020-2025 IIP serves as a tool for describing, prioritizing, and scheduling the District's infrastructure upgrade and replacement needs. The IIP accounts for the needs to address changing water quality conditions, meet changing regulatory standards, and address inoperable and aging infrastructure. IIP projects are categorized and prioritized into a list of projects needed to help fulfill the District's mission of delivering a reliable supply of quality water to present and future customers at the most reasonable cost. Since the IIP is designed to be a dynamic planning tool, the prioritization of projects may shift over time to changing externalities.

This IIP also identifies funding needs for replacing inoperable infrastructure based on historical inoperability and replacement rates. Additionally, this IIP incorporates findings of the District's recently completed asset inventory to address the funding needs for assets that have or will reach end of their useful service lives within the 2020-2025 planning period.

The 2020-2025 IIP is divided into three sections: (1) Infrastructure Improvement Plan Overview; (2) Project Prioritization; and (3) Project Summaries.

## 1.2 Background

The projects included in the IIP represent the investment needed to meet regulatory requirements, maintain existing levels of service, address critical and significant deficiencies, replace aging infrastructure, enhance emergency resilience, and enhance the District's levels of service, meet sustainability goals, and improve system reliability. The list also includes projects identified in the following Board-adopted plans:

- Water Supply Management Plan
- Urban Water Management Plan
- Groundwater Management Plan
- Sustainability Plan
- Stormwater Resource Plan
- Potable Reuse Facilities Plan

The IIP evaluates projects, needs, costs, and schedules in an effort to manage resources and balance capital investment.

## 1.3 Project Evaluation Methodology to Prioritize Infrastructure Projects

To effectively prioritize infrastructure improvement and replacement projects, the District created project priorities and ranked all projects in order of criticality. A prioritization of projects was accomplished by developing seven priorities listed in order of need. Priorities may change during the 2020-2025 period, and the dynamic nature of the IIP allows for annual revisions based on changing conditions. District staff prioritized a comprehensive list of proposed projects using seven priority categories described below:

### 1. Projects required by law or regulation

These projects are subject to the requirements of federal, state, or local regulatory agencies, with noncompliance resulting in fines or other adverse actions. Projects also include resolving infrastructure conflicts in rights of way, owned by other government agencies.

### 2. Projects required to maintain the District's current level of service

The District currently provides a reactive level of service; when something breaks, the District fixes it. The District has not proactively replaced capital assets nearing or exceeding their estimated useful service lives. This approach recognizes that financial resources are not unlimited. Maintaining the District's level of service requires the replacement of inoperable equipment, such as treatment facilities, pipelines, pumps, motors, valves, hydrants, buildings, and meters. These projects are expected to lessen community disruptions, water loss, injuries, property damage, and other consequences that can arise without replacement.

### 3. Projects needed to address a critical deficiency

For the purposes of this IIP, a critical deficiency is defined as a deficiency that has the potential to significantly jeopardize the District's ability to serve its customers. These deficiencies may have been identified by District staff, regulators, or outside experts. Projects address:

- Deficiencies that may result in major infrastructure failure, deteriorated water quality, or limited water production.
- Inability to meet water supply needs and water quality regulations, should surface water or groundwater become unavailable.

### 4. Projects needed to address a significant deficiency

A significant deficiency is of elevated importance but excludes deficiencies that can significantly jeopardize the District's ability to serve its customers if not implemented. Significant deficiencies may include relocations or repairs, groundwater well facility upgrades, and improvements to CDMWTP treatment processes.

### 5. Projects that proactively address infrastructure replacement at end of useful life

These projects provide funding for the proactive replacement, upgrade, or improvement of a facility that is at the end of its useful service life. Although an asset may be at its assumed end of useful life, it may remain functional for many years; therefore, the replacement is considered proactive until the asset becomes inoperable.

### 6. Projects that enhance District emergency resiliency

These projects consist of backup systems to existing backup systems to better maintain service levels during and after emergency events (i.e., wildfires, earthquakes, floods). To minimize service interruptions or allow District resources to be allocated to higher priority areas, these projects provide backup power, backup water supplies, emergency water distribution, and/or redundant facilities. Further, emergency resiliency may also include proactive measures to prevent or better prepare for emergencies, such as pipeline conditions assessments to diagnose pipeline vulnerabilities to earth movement, or system-wide studies that recommend small and large-scale improvements for emergency resiliency.

### 7. Projects that enhance the District's level of service, meet sustainability goals, or improve system reliability

Projects that expand the District's reliability, level of service, and/or sustainability of District operations and management are considered non-critical. These projects may include best management practices, pipeline upsizing, site and facility improvements, increased system monitoring, facility relocations, alternative and/or pilot studies, workplace system advancements, power generation and sustainability projects, and alternative water source development.

## 1.4 Cost Estimates

Comprehensive cost estimates have been prepared for all projects and are inclusive of:

- Project planning, research, and preliminary design work
- Administration and project management
- 100% design and specification development
- Construction, materials, testing, and inspection
- Commissioning and project close out

For some of the projects identified in the IIP, planning and design work may already be underway or completed. For these projects, more is known about the scope of the project, and cost estimates are more detailed and therefore include less contingency funding. For replacement projects, costs were determined based on fully loaded costs of replacement, including material, labor, procurement, design, construction management, inspection, testing, and administration costs.

## Section 2: 5-Year Capital Project Plan

This IIP identifies 137 capital projects, totaling \$370 million. Recognizing that resources are finite, projects have been prioritized and a recommendation provided for funding the most critical capital projects during the five year period.

Projects categorized as **Priority 1: Required by Regulation or Law** are recommended for capital funding based on the need to meet local, state, and federal regulations for water quality, worker safety, and resolve utility conflicts.

Projects categorized as **Priority 2: Required to Maintain Level of Service** are recommended for funding to replace infrastructure that has become inoperable. Cost estimates are based on historically observed failure rates.

From 2020 to 2025, these Priority 2 projects will replace an estimated:

- 10,000 feet of inoperable pipelines and service lines
- 100 inoperable valves
- Two obsolete SCADA systems (Distribution System and CDMWTP)
- Various inoperable electrical systems, treatment equipment, interconnection components, cathodic protection facilities, and other assets.

Projects categorized as **Priority 3: Needed to Address Critical Deficiencies** are also recommended for funding to address deficiencies for which inadequate funding could prove jeopardizing to the District's ability to serve customers if the consequence of failure is realized. Without addressing these critical deficiencies, the District faces greater risk of limited water production, a major infrastructure failure, or not meeting water quality standards.

A total of **48 projects are recommended for 2020-2025 IIP funding for a total of \$50 million**. These projects are anticipated to help the District meet regulatory requirements, maintain current level of service, and address critical deficiencies to continue to provide reliable drinking water to the community. At this level of funding, the District does not have sufficient funding to address non-critical deficiencies, proactive infrastructure replacement, emergency resilience, or non-critical projects that improve operating performance, sustainability, and reliability.

**Table 1: 5-Year Capital Project Funding by Priority**

Ref.	Project Group Description	2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
1	Required by Regulation or Law	\$550,727	\$668,485	\$678,341	\$1,205,000	\$1,780,000	\$4,882,553
2	Required to Maintain Level of Service	\$3,020,083	\$5,251,495	\$4,925,888	\$7,504,765	\$8,670,000	\$29,372,231
3	Need to Address Critical Deficiencies	\$1,224,340	\$1,782,672	\$1,973,899	\$6,981,429	\$3,732,876	\$15,695,216
	<b>Total</b>	<b>\$4,795,149</b>	<b>\$7,702,652</b>	<b>\$7,578,128</b>	<b>\$15,691,194</b>	<b>\$14,182,876</b>	<b>\$49,950,000</b>

**Table 2: 5-Year Capital Project Spending Schedule**

	Ref.	Project Name	2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL	
Priority 1	P-1	Worker Safety Electrical Upgrades	\$80,298	\$172,582	\$90,320	\$50,000	\$50,000	\$443,199	
	P-2	Hollister Recycled Water Booster Pump Station Relocation	\$0	\$0	\$0	\$0	\$0	\$0	
	P-3	Ekwill, Fowler, and Hollister Infrastructure Relocation	\$43,374	\$44,974	\$126,445	\$500,000	\$625,000	\$1,339,793	
	P-4	City, County, Caltrans Required Relocation Projects	\$126,776	\$135,176	\$153,027	\$210,000	\$220,000	\$844,979	
	P-5	CDMWTP Leach Field Modification *	\$107,031	\$0	\$0	\$0	\$0	\$107,031	
	P-6	Inoperable Small Meter Replacements	\$193,247	\$238,139	\$238,998	\$280,000	\$295,000	\$1,245,384	
	P-7	Inoperable Large AMI Meter Replacements	\$0	\$0	\$69,551	\$100,000	\$590,000	\$759,551	
	P-8	Obsolete Reservoir Hatch Replacements	\$0	\$77,614	\$0	\$65,000	\$0	\$142,614	
Priority 2	P-9	Transmission Main Protection	\$182,207	\$184,133	\$501,802	\$790,765	\$0	\$1,658,907	
	P-10	Exposed Goleta West Conduit Pipelines	\$28,796	\$53,891	\$103,524	\$45,000	\$50,000	\$281,211	
	P-11	Inoperable Chlorination and Treatment Equipment Replacements	\$61,439	\$62,587	\$35,660	\$95,000	\$900,000	\$1,154,686	
	P-12	Inoperable Pipeline and Service Line Replacements	\$512,486	\$413,780	\$359,450	\$450,000	\$470,000	\$2,205,716	
	P-13	Inoperable Cathodic Protection System Replacements	\$123,366	\$135,381	\$226,002	\$200,000	\$200,000	\$884,749	
	P-14	Inoperable Reservoir and Reservoir Component Replacements	\$62,938	\$276,190	\$15,049	\$70,000	\$300,000	\$724,177	
	P-15	Inoperable Electrical Power System Replacements	\$120,977	\$191,359	\$235,596	\$50,000	\$150,000	\$747,932	
	P-16	Inoperable Pump and Motor Replacements	\$0	\$90,941	\$399	\$85,000	\$85,000	\$261,340	
	P-17	Anita Well Filtration Treatment	\$1,691	\$0	\$101,462	\$1,184,000	\$0	\$1,287,153	
	P-18	Airport Well Backwash Tank Refurbishment	\$0	\$0	\$0	\$0	\$0	\$0	
	P-19	Well Filter Media Replacements	\$0	\$41,547	\$109	\$75,000	\$75,000	\$191,656	
	P-20	Inoperable Above Ground Well Facility Replacements	\$69,551	\$79,751	\$104,015	\$120,000	\$125,000	\$498,317	
	P-21	Inoperable Interconnect Component Replacements	\$0	\$0	\$0	\$10,000	\$10,000	\$20,000	
	P-22	Inoperable Valve Replacements	\$250,615	\$530,933	\$885,113	\$700,000	\$1,000,000	\$3,366,660	
	P-23	Inoperable Fire Hydrant Replacements	\$243,292	\$294,099	\$825,419	\$300,000	\$200,000	\$1,862,810	
	P-24	Inoperable Recycled Water Facility Replacements	\$0	\$7,552	\$19,349	\$25,000	\$25,000	\$76,901	
	P-25	Inoperable Computer and Electronic Hardware Replacements	\$27,518	\$35,512	\$57,381	\$35,000	\$35,000	\$190,410	
	P-26	Pavement Replacements	\$0	\$96,467	\$143,628	\$30,000	\$30,000	\$300,095	
	P-27	Inoperable Building Component Replacements	\$31,649	\$527,227	\$49,485	\$330,000	\$915,000	\$1,853,361	
	P-28	Required Main Upsizing	\$0	\$0	\$0	\$30,000	\$30,000	\$60,000	
	P-29	Obsolete SCADA Replacement	\$314,451	\$198,178	\$58,708	\$1,780,000	\$3,570,000	\$5,921,337	
	P-30	SCADA Antenna (Monopole) Replacements *	\$0	\$706,401	\$1,091,734	\$0	\$0	\$1,798,135	
	P-31	Corona Pump Station *	\$800,000	\$1,000,000	\$0	\$0	\$0	\$1,800,000	
	P-32	Inoperable Light Vehicle Fleet Replacement	\$0	\$53,869	\$112,003	\$1,100,000	\$500,000	\$1,765,872	
	P-33	Patterson Booster Pump Station Building Skin and Paving *	\$189,108	\$1,513	\$0	\$0	\$0	\$190,621	
	P-34	Reservoir Site Generators *	\$0	\$270,185	\$0	\$0	\$0	\$270,185	
	Priority 3	P-35	CDMWTP Additional Solids Drying Bed	\$949	\$21,695	\$781,452	\$3,730,000	\$0	\$4,534,096
		P-36	CDMWTP New Solids Drying Bed Pump Station	\$100,567	\$21,695	\$0	\$50,000	\$900,000	\$1,072,262
		P-37	CDMWTP Solids Drying Bed Pump Station	\$362	\$21,695	\$0	\$0	\$0	\$22,057
		P-38	CDMWTP Reclaimed Water Pipe Relocation	\$3,151	\$21,695	\$340,000	\$0	\$0	\$364,846
P-39		CDMWTP Backwash Basin Pump Station Modification	\$51,234	\$21,695	\$0	\$0	\$0	\$72,929	
P-40		CDMWTP Demonstration Scale GAC Contactor *	\$223,034	\$94,316	\$0	\$0	\$0	\$317,350	
P-41		Water Quality Maintenance in Distribution System: Phase 1	\$786,684	\$1,105,814	\$336,702	\$197,979	\$10,000	\$2,437,179	
P-42		CDMWTP and Wells pH Control Upgrades	\$0	\$0	\$0	\$0	\$20,000	\$20,000	
P-43		Distribution Main Tie-ins for Improved Water Quality & Flows	\$0	\$100,003	\$6,504	\$120,000	\$500,000	\$726,507	
P-44		University Well Treatment	\$0	\$0	\$334,366	\$873,450	\$1,002,876	\$2,210,692	
P-45		Airport Well Treatment Upgrade	\$2,005	\$0	\$87,319	\$0	\$0	\$89,324	
P-46		New Replacement Well	\$0	\$0	\$55,203	\$2,000,000	\$1,000,000	\$3,055,203	
P-47		CDMWTP Access Road Creekside Erosion Repair and Realignment *	\$55,663	\$353,895	\$12,184	\$0	\$0	\$421,742	
P-48		Creek Crossing Inspection and Repair Program: Exposed Pipes	\$690	\$20,169	\$20,169	\$10,000	\$300,000	\$351,028	
	<b>* Denotes project completed</b>								
	<b>Total</b>	<b>\$4,795,149</b>	<b>\$7,702,652</b>	<b>\$7,578,128</b>	<b>\$15,691,194</b>	<b>\$14,182,876</b>	<b>\$49,950,000</b>		

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## Section 3: Project Descriptions

### Priority 1: Required by Regulation or Law

Ref.	Project Name	2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
P-1	Worker Safety Electrical Upgrades	\$80,298	\$172,582	\$90,320	\$50,000	\$50,000	\$443,199
P-2	Hollister Recycled Water Booster Pump Station Relocation	\$0	\$0	\$0	\$0	\$0	\$0
P-3	Ekwill, Fowler, and Hollister Infrastructure Relocation	\$43,374	\$44,974	\$126,445	\$500,000	\$625,000	\$1,339,793
P-4	City, County, Caltrans Required Relocation Projects	\$126,776	\$135,176	\$153,027	\$210,000	\$220,000	\$844,979
P-5	CDMWTP Leach Field Modification	\$107,031	\$0	\$0	\$0	\$0	\$107,031
P-6	Inoperable Small Meter Replacements	\$193,247	\$238,139	\$238,998	\$280,000	\$295,000	\$1,245,384
P-7	Inoperable Large AMI Meter Replacements	\$0	\$0	\$69,551	\$100,000	\$590,000	\$759,551
P-8	Obsolete Reservoir Hatch Replacements	\$0	\$77,614	\$0	\$65,000	\$0	\$142,614
	<b>Total</b>	<b>\$550,727</b>	<b>\$668,485</b>	<b>\$678,341</b>	<b>\$1,205,000</b>	<b>\$1,780,000</b>	<b>\$4,882,553</b>

# Worker Safety Electrical Upgrades

Project Number: P-1

## The Project

The mitigation of arc flash and other electrical hazards, including those identified in the District’s periodic Arc Flash Study, are required to help the District meet Occupational Safety and Health Administration (OSHA) requirements and National Electrical Code (NEC) changes. Per OSHA, the District is obligated to provide safe workplace for District employees. Many electrical facilities were installed years ago and no longer meet current NEC safe electrical wiring and equipment codes. Remaining projects to be completed include panel replacements and rectifier repairs and/or replacements. Electrical upgrades were also recommended by the District’s insurance provider, the Joint Powers Insurance Association, to protect personnel from potential risk of high voltage electrical hazards, also known as arc flash.



## Need for Project

OSHA requires employers to assess the workplace for flame and electric arc-hazards, estimate the available heat energy from electrical arcs exposed to employees, and ensure proper clothing and equipment to protect against arc flash hazards (OSHA 1910.269 App E). The District’s most recent Arc Flash Study, completed in 2012, identified several electrical hazards and recommended mitigation measures.

**Consequence of Not Doing the Project:** Without upgrades, the District could be in violation of OSHA requirements.

## Capital Category

*Regulatory Compliance*

## Schedule and Costs

FY 2020-21	Upgrades	\$80,298
FY 2021-22	Upgrades	\$172,582
FY 2022-23	Upgrades	\$90,320
FY 2023-24	Upgrades	\$50,000
FY 2024-25	Upgrades	\$50,000

## Summary

*Mitigate arc flash and other electrical hazards to ensure worker safety and regulatory compliance*

**\$443,199**

# Hollister Recycled Water Booster Pump Station Relocation

Project Number: P-2

## The Project

The District is being compelled to relocate the Hollister Booster Pump Station to accommodate the City of Goleta's planned road widening. The Hollister Booster Pump Station pumps recycled water for landscape irrigation to recycled water customers west of Glen Annie Road. The pump station is located underground at Hollister Avenue and Glen Annie Road, where future road widening will take place. The District has evaluated potential relocation sites along the recycled water main and conducted long-term economic analysis on potential alternatives. This project begins the design of the booster pump relocation, anticipated to be relocated after 2025. The relocated pump station project will consider newer pump and motor technologies for cost savings.



## Need for Project

The Hollister Recycled Water Booster Pumping Station is needed to deliver recycled water at contractual flows and pressures to the western portion of the recycled water distribution system and to deliver recycled water to other customers at acceptable pressures. The recycled water system reduces demand on the potable system.

**Consequence of Not Doing the Project:** The District would be unable to deliver contractually obligated flows and pressures.

## Capital Category

*Regulatory Compliance*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22		\$0
FY 2022-23		\$0
FY 2023-24		\$0
FY 2024-25	Design	\$49,851

## Summary

*Begin relocation design of the Hollister Booster Pump Station impacted by City of Goleta road widening*

**\$49,851**

# Ekwill, Fowler, and Hollister Infrastructure Relocation

Project Number: P-3

## The Project

This project will relocate water mains, meters, service lines, valve cans, and hydrants near Old Town Goleta due to road improvements. The District is being compelled to relocate various facilities and infrastructure to accommodate the City of Goleta’s road improvement projects at Ekwill Street, Fowler Road, and Hollister Avenue. Where the District has prior rights, the cost of relocation will be reimbursed by the City of Goleta. To minimize costs, the District is planning to replace only the pipelines that must be relocated. Old pipelines within the construction area that do not require relocation will remain in place. The design of infrastructure relocation was completed in 2018 and updated in 2020, following changes to the City’s designs.



## Need for Project

The District is one of eight utilities obligated to relocate its infrastructure for the City of Goleta’s Old Town Goleta road improvements project. Although the District has the right to be within the City’s roadways and sidewalks, the District is obligated to relocate facilities in the event of conflict with the City’s infrastructure.

**Consequence of Not Doing the Project:** The District is legally obligated to relocate infrastructure due to external agency conflicts. Where the District has prior rights, relocations will be reimbursed by the project owner.

## Capital Category

*Regulatory Compliance*

## Schedule and Costs

FY 2020-21	Relocations	\$43,374
FY 2021-22	Relocations	\$44,974
FY 2022-23	Relocations	\$126,445
FY 2023-24	Relocations	\$500,000
FY 2024-25	Relocations	\$625,000

## Summary

*Relocation of water infrastructure impacted by the City of Goleta’s road improvements*

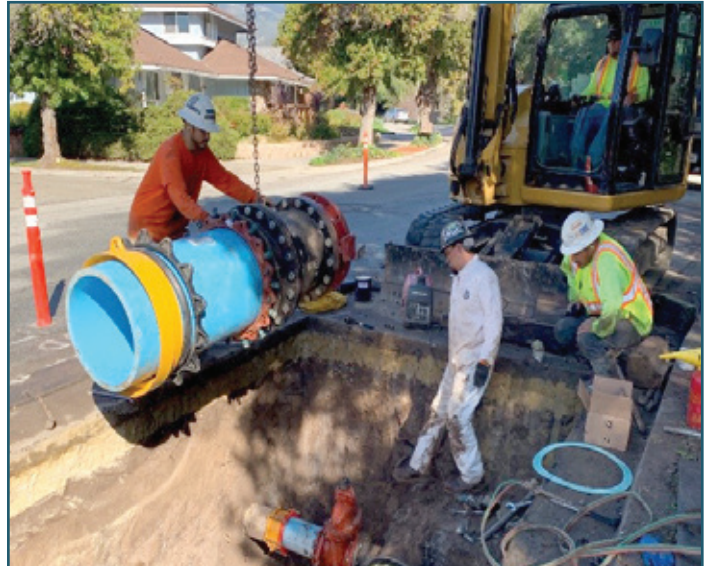
**\$1,339,793**

# City, County, Caltrans Required Relocation Projects

Project Number: P-4

## The Project

The District must relocate infrastructure to accommodate future City, County and California Department of Transportation (CalTrans) infrastructure improvement projects that are anticipated each year. The relocations will be performed at the District’s expense, except where the District holds prior rights. When the District holds prior rights, the other agency is responsible for reimbursing the District’s relocation costs. For all water facility relocation projects, the District will engage in a thorough review to establish whether it holds prior rights. The District will design and oversee construction of the required relocations. Because future projects have not yet been identified, the funding level is based on historical costs from 2015-2019.



## Need for Project

While the District has a right for its infrastructure to be located in public rights of way, the District must relocate its infrastructure if an infrastructure conflict arises with the owner.

**Consequence of Not Doing the Project:** The District is legally obligated to relocate infrastructure due to external agency conflicts. Where the District has prior rights, relocations will be reimbursed by the project owner.

## Capital Category

*Regulatory Compliance*

## Schedule and Costs

FY 2020-21	Relocate	\$126,776
FY 2021-22	Relocate	\$135,176
FY 2022-23	Relocate	\$153,027
FY 2023-24	Relocate	\$210,000
FY 2024-25	Relocate	\$220,000

## Summary

*Required water facility relocations for City, County, and CalTrans construction projects*

**\$844,979**

# CDMWTP Leach Field Modification

Project Number: P-5

## The Project

CDMWTP’s existing leach field has been observed to periodically pond and overflow during periods of heavy rain and soil saturation. It was previously reported in two separate investigations to have reached the end of its useful service life. As part of the original design of the CDMWTP in 1975, a 2,000 gallon septic tank, leach lines, and a leach pit were installed south of CDMWTP. A newer leach field was constructed in 1988, and new water treatment technology was installed in 2004. In 2015, the District’s Sustainable Sewage Disposal Study at CDMWTP recommended total replacement of the leach field. This project, now completed, consisted of an updated assessment in 2020, construction of a concrete-lined V-ditch to re-direct stormwater attributed with causing seasonal failure of the leach field, and installation of shallow groundwater monitoring wells to facilitate regular observation of soil moisture levels.



## Need for Project

The CDMWTP sewage leach field periodically overflowed and has exceeded its expected 25 year service life. This completed project is expected to prevent future overflows and postpone the full replacement of the leach field by 10-20 years.

**Consequence of Not Doing the Project:** Overflow from the existing leach field may have potentially flooded downhill facilities and areas, risking wastewater discharge violations.

## Capital Category

Regulatory Compliance

## Schedule and Costs

FY 2020-21	Construction	\$107,031
FY 2021-22		\$0
FY 2022-23		\$0
FY 2023-24		\$0
FY 2024-25		\$0

Completed

## Summary

Constructed stormwater drainage around sewage leach field at CDMWTP to avoid potential overflow events

\$107,031

# Inoperable Small Meter Replacements

Project Number: P-6

## The Project

The District maintains approximately 16,000 water meters of sizes 1.5 inches or smaller, of which more than half are older than 15 years. New meters can more accurately measure water at both high and low flow rates, allowing the District to better account for all water use and lessen unaccounted water loss. Meters become faulty for several reasons, including age, air or precipitates (grit) entering and breaking internal meter components, or environmental conditions. This project will replace an average of 50 inoperable meters monthly.



## Need for Project

Inoperable meters interfere with customer billing and water loss reporting. Replacement with new, more reliable meters will provide more accurate data for both the customer and the District.

**Consequence of Not Doing the Project:** The District is required by California Water Code to provide metered service. Inoperable meters may inaccurately measure water use, under-reporting District consumption data, water loss calculations, and data required for customer billing.

## Capital Category

*Regulatory Compliance*

## Schedule and Costs

FY 2020-21	Replacement	\$193,247
FY 2021-22	Replacement	\$238,139
FY 2022-23	Replacement	\$238,998
FY 2023-24	Replacement	\$280,000
FY 2024-25	Replacement	\$295,000

## Summary

*Replace inoperable meters for accurate water consumption and water loss accounting*

**\$1,245,384**

# Inoperable Large AMI Meter Replacements

Project Number: P-7

## The Project

The District operates approximately 750 large water meters (2 inches or larger) to measure and maintain accurate consumption records and water loss data. Meter age and inoperability continues to climb, which can result in under-reported and unbilled water use. This project replaces large water meters when they become inoperable. Because large water meters account for a majority of the District’s water demand, the District will replace inoperable large meters with advanced metering infrastructure (AMI) technology.



## Need for Project

Large meters typically begin losing accuracy after ten years due to wear on the mechanical parts. Replacement of inoperable large meters with AMI compatible meters provides the District with greater advanced metering data coverage by volume.

**Consequence of Not Doing the Project:** The District is required by California Water Code to provide metered service. Inoperable meters may inaccurately measure water use, impacting water loss calculations and data required for customer billing.

## Capital Category

*Regulatory Compliance*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22		\$0
FY 2022-23	Replacement	\$69,551
FY 2023-24	Replacement	\$100,000
FY 2024-25	Replacement	\$590,000

## Summary

*Replace inoperable large meters with AMI meters for greater metering technology coverage by volume*

**\$759,551**



# Obsolete Reservoir Hatch Replacements

Project Number: P-8

## The Project

The District’s eight water storage reservoirs and hatch entries are reaching 40 years old. Entry hatches allow the District’s operators and contractors to safely access the reservoir interior to perform inspections and maintenance. As hatches age, the risk of injury increases due to the potential for breaks in lids, ladders, latches, and associated equipment. Newer, lighter hatch lids provide safer access for inspection and maintenance via decreased weight and lift assist mechanisms that increase facility security and protect employees by reducing injury risk. Newer hatches also offer significant sanitary seal improvements. This project will replace obsolete reservoir hatches to ensure worker safety and sanitary conditions.



## Need for Project

Although sanitary portions of these hatches have been preserved by replacing screens and other maintenance efforts to maintain access, heavy lids, malfunctioning springs, and latches are making it increasingly more difficult and unsafe for operators to open and close hatches while performing periodic maintenance activities. Further, deterioration and rusting of the hatches increases risk of contamination in the reservoir.

**Consequence of Not Doing the Project:** The District could be in violation of OSHA requirements because District workers would face a higher risk of injury lifting heavy, older hatches. Also, required sanitary conditions in the reservoir may also be compromised as older seals fail.

## Capital Category

*Regulatory Compliance*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22	Replacement	\$77,614
FY 2022-23		\$0
FY 2023-24	Replacement	\$65,000
FY 2024-25		\$0

## Summary

*Replace reservoir entry hatches to improve employee safety and improve sanitary conditions*

**\$142,614**

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## Section 3: Project Descriptions

### Priority 2: Required to Maintain Level of Service

Ref.	Project Name	2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
P-9	Transmission Main Protection	\$182,207	\$184,133	\$501,802	\$790,765	\$0	\$1,658,907
P-10	Exposed Goleta West Conduit Pipelines	\$28,796	\$53,891	\$103,524	\$45,000	\$50,000	\$281,211
P-11	Inoperable Chlorination and Treatment Equipment Replacements	\$61,439	\$62,587	\$35,660	\$95,000	\$900,000	\$1,154,686
P-12	Inoperable Pipeline and Service Line Replacements	\$512,486	\$413,780	\$359,450	\$450,000	\$470,000	\$2,205,716
P-13	Inoperable Cathodic Protection System Replacements	\$123,366	\$135,381	\$226,002	\$200,000	\$200,000	\$884,749
P-14	Inoperable Reservoir and Reservoir Component Replacements	\$62,938	\$276,190	\$15,049	\$70,000	\$300,000	\$724,177
P-15	Inoperable Electrical Power System Replacements	\$120,977	\$191,359	\$235,596	\$50,000	\$150,000	\$747,932
P-16	Inoperable Pump and Motor Replacements	\$0	\$90,941	\$399	\$85,000	\$85,000	\$261,340
P-17	Anita Well Filtration Treatment	\$1,691	\$0	\$101,462	\$1,184,000	\$0	\$1,287,153
P-18	Airport Well Backwash Tank Refurbishment	\$0	\$0	\$0	\$0	\$0	\$0
P-19	Well Filter Media Replacements	\$0	\$41,547	\$109	\$75,000	\$75,000	\$191,656
P-20	Inoperable Above Ground Well Facility Replacements	\$69,551	\$79,751	\$104,015	\$120,000	\$125,000	\$498,317
P-21	Inoperable Interconnect Component Replacements	\$0	\$0	\$0	\$10,000	\$10,000	\$20,000
P-22	Inoperable Valve Replacements	\$250,615	\$530,933	\$885,113	\$700,000	\$1,000,000	\$3,366,660
P-23	Inoperable Fire Hydrant Replacements	\$243,292	\$294,099	\$825,419	\$300,000	\$200,000	\$1,862,810
P-24	Inoperable Recycled Water Facility Replacements	\$0	\$7,552	\$19,349	\$25,000	\$25,000	\$76,901
P-25	Inoperable Computer and Electronic Hardware Replacements	\$27,518	\$35,512	\$57,381	\$35,000	\$35,000	\$190,410
P-26	Pavement Replacements	\$0	\$96,467	\$143,628	\$30,000	\$30,000	\$300,095
P-27	Inoperable Building Component Replacements	\$31,649	\$527,227	\$49,485	\$330,000	\$915,000	\$1,853,361
P-28	Required Main Upsizing	\$0	\$0	\$0	\$30,000	\$30,000	\$60,000
P-29	Obsolete SCADA Replacement	\$314,451	\$198,178	\$58,708	\$1,780,000	\$3,570,000	\$5,921,337
P-30	SCADA Antenna (Monopole) Replacements	\$0	\$706,401	\$1,091,734	\$0	\$0	\$1,798,135
P-31	Corona Pump Station	\$800,000	\$1,000,000	\$0	\$0	\$0	\$1,800,000
P-32	Inoperable Light Vehicle Fleet Replacement	\$0	\$53,869	\$112,003	\$1,100,000	\$500,000	\$1,765,872
P-33	Patterson Booster Pump Station Building Skin and Paving	\$189,108	\$1,513	\$0	\$0	\$0	\$190,621
P-34	Reservoir Site Generators	\$0	\$270,185	\$0	\$0	\$0	\$270,185
	<b>Total</b>	<b>\$3,020,083</b>	<b>\$5,251,495</b>	<b>\$4,925,888</b>	<b>\$7,504,765</b>	<b>\$8,670,000</b>	<b>\$29,372,231</b>

# Transmission Main Protection

Project Number: P-9

## The Project

Recent, shallow landslide and erosion observed along a hillside portion of the District’s 42-inch transmission main necessitate relocation or protection of a key segment to avoid a critical pipeline failure. Geotechnical assessment confirmed a high risk for future soil movement, which would jeopardize the continued delivery of water. This project implements the landslide monitoring, engineering design, and construction of a retaining structure or relocated portion of pipeline.



## Need for Project

The District’s 42-inch transmission main conveys treated surface water supply to a majority of the District’s distribution system. Because the District does not have a backup pipeline, a transmission main break may force the District to limit customer usage while temporarily relying on groundwater and interconnections with the City of Santa Barbara. Pipeline failure may also result in the sudden release of more than 1 million gallons of water, causing significant property damage downstream.

**Consequence of Not Doing the Project:** A transmission break may would require costly emergency repairs and an extended outage to District customers.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Monitoring, Design	\$182,207
FY 2021-22	Construction	\$184,133
FY 2022-23	Construction	\$501,802
FY 2023-24	Construction	\$790,765
FY 2024-25		\$0

## Summary

*Protect a portion of transmission main from geologic hazards*

**\$1,658,907**

# Exposed Goleta West Conduit Pipelines

Project Number: P-10

## The Project

This project will repair eroded cover on portions of the District’s 10 mile Goleta West Conduit, including at creek crossings, steep canyons, and other areas in need of greater protection. Through periodic inspections of the 10-mile pipeline, District personnel have identified several sections of exposed pipeline in need of more protective cover to prevent damage from debris flows and exposure to environmentally harsh conditions. Rainfall and runoff can carry large loads of debris, potentially damaging exposed pipelines. Mitigation options likely include installing several feet of soil cover with an engineered rock blanket. The project aims to provide at least 3 feet of protected cover across prioritized pipeline sections.



## Need for Project

The District serves an average of 1,000 acre-feet per year of non-potable water through 27 agricultural meters in the Goleta West Conduit system, with no backup water supply beyond the 75 gallon per minute interconnection with El Capitan. Mitigating the exposed sections of pipeline lessens the risk of a major rupture and costly emergency repairs in areas with potential property damage.

**Consequence of Not Doing the Project:** The pipeline would remain vulnerable to potential debris flows, increasing the likelihood of a major leak, service disruption to customers, and costly repairs due to the remoteness of the pipeline. Further, an uncontrolled release of water may result in downstream property damage.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Coverage	\$28,796
FY 2021-22	Coverage	\$53,891
FY 2022-23	Coverage	\$103,524
FY 2023-24	Coverage	\$45,000
FY 2024-25	Coverage	\$50,000

## Summary

*Provide protection for exposed pipelines in the Goleta West Conduit to avoid shutdowns*

**\$281,211**

# Inoperable Chlorination and Treatment Equipment Replacements

Project Number: P-11

## The Project

State regulations require continuous monitoring to ensure consistency is maintained while water is being produced, treated and distributed into the system. CDMWTP, groundwater well sites, and Goleta West Conduit all rely on functioning chlorination and treatment equipment to treat water. These facilities require periodic replacement of automated chemical feed equipment used to vary chemical dosing rates with flow rates. Examples of equipment to be replaced include chemical tubing, chemical metering pumps, valve actuators, and lab equipment. Drinking water standards require continuous monitoring of treatment equipment, and the District is required to notify the State if such treatment monitoring does not occur as a result of inoperable equipment.



## Need for Project

Water quality cannot be maintained without treatment equipment operating properly. These replacements maintain the District’s ability to meet water quality regulations.

**Consequence of Not Doing the Project:** Not replacing inoperable treatment facilities would result in violating drinking water standards and interruption of treated water production.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Replacement	\$61,439
FY 2021-22	Replacement	\$62,587
FY 2022-23	Replacement	\$35,660
FY 2023-24	Replacement	\$95,000
FY 2024-25	Replacement	\$900,000

## Summary

*Replace inoperable chlorination and treatment facilities to meet water quality standards*

**\$1,154,686**

# Inoperable Pipeline and Service Line Replacements

Project Number: P-12

## The Project

The District has historically experienced seven main breaks and thirty service line breaks annually across its 270 miles of pipeline. This rate is expected to increase as pipes age and 20% of the District’s water mains will be at least 70 years old by 2025. This project will replace pipelines and service lines as pipes break. This project does not address proactive replacement of aging pipelines.



## Need for Project

Replacing ruptured pipelines and service lines allows the District to maintain water service to District customers and minimize service disruptions. When water mains fail, they not only affect the customers served by that water main, but also surrounding customers.

**Consequence of Not Doing the Project:** Not repairing broken mains and service lines would interrupt water service to customers.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Replacement	\$512,486
FY 2021-22	Replacement	\$413,780
FY 2022-23	Replacement	\$359,450
FY 2023-24	Replacement	\$450,000
FY 2024-25	Replacement	\$470,000

## Summary

*Replace inoperable pipelines annually to minimize customer and community impacts*

**\$2,205,716**

# Inoperable Cathodic Protection System Replacements

Project Number: P-13

## The Project

Cathodic protection systems apply direct current to steel infrastructure to control corrosion. The District’s cathodic protection system connects steel pipes to a more easily corroded, sacrificial metal to mitigate corrosion of the pipeline. The system requires periodic replacement of inoperable equipment to extend and maintain the District’s steel pipes. Because electrochemical corrosion occurs naturally and from stray current from other utilities where pipes are buried, corrosion can affect long lengths of pipe, resulting in the deterioration of steel pipelines. Roughly 50 percent, or 125 miles of the District’s pipe is steel and is vulnerable to corrosion. The District’s cathodic system includes cathodic test stations, anode beds, and rectifiers.



## Need for Project

Cathodic protection can extend the life of steel infrastructure by slowing corrosion rates, decreasing the frequency of emergency main breaks resulting from corrosion leaks. Replacement of inoperable cathodic protection components is essential to minimizing the number of main breaks that the District experiences.

**Consequence of Not Doing the Project:** Not maintaining cathodic protection is likely to result in premature failure of steel pipelines from corrosion and resulting service interruptions.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

<i>FY 2020-21</i>	<i>Replacement</i>	<i>\$123,366</i>
<i>FY 2021-22</i>	<i>Replacement</i>	<i>\$135,381</i>
<i>FY 2022-23</i>	<i>Replacement</i>	<i>\$226,002</i>
<i>FY 2023-24</i>	<i>Replacement</i>	<i>\$200,000</i>
<i>FY 2024-25</i>	<i>Replacement</i>	<i>\$200,000</i>

## Summary

*Replace inoperable cathodic protection systems to protect against corrosion and extend service life*

**\$884,749**



# Inoperable Reservoir and Reservoir Component Replacements

Project Number: P-14

## The Project

The District’s eight storage reservoirs provide critical water storage for peak demand and emergencies. Storage reservoirs are integral components of the District’s facilities and provide the necessary water to meet peak demand and operational requirements. Three of the District’s reservoirs are at least 45 years old. Initial conditions assessments have indicated interior and exterior surfaces and equipment upgrades are needed to address safety deficiencies. These upgrades and refurbishments include replacing telemetry, corroded pipe brackets, ladders, railings, and safe climbing fixtures, and inlet/outlet piping. This project will replace inoperable reservoir components as they are discovered.



## Need for Project

Corrective repairs of inoperable reservoir components are needed to maintain current levels of storage to meet operational, fire flow, and emergency demand, and also to comply with Occupational Safety and Health Administration (OSHA) guidelines for worker safety.

**Consequence of Not Doing the Project:** Potential loss of reservoir use could result in insufficient water storage to meet operational, fire, and emergency demand. Not correcting documented safety deficiencies could result in worker injuries.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Replacement	\$62,938
FY 2021-22	Replacement	\$276,190
FY 2022-23	Replacement	\$15,049
FY 2023-24	Replacement	\$70,000
FY 2024-25	Replacement	\$300,000

## Summary

*Replace inoperable reservoir components to ensure safety and water storage reliability*

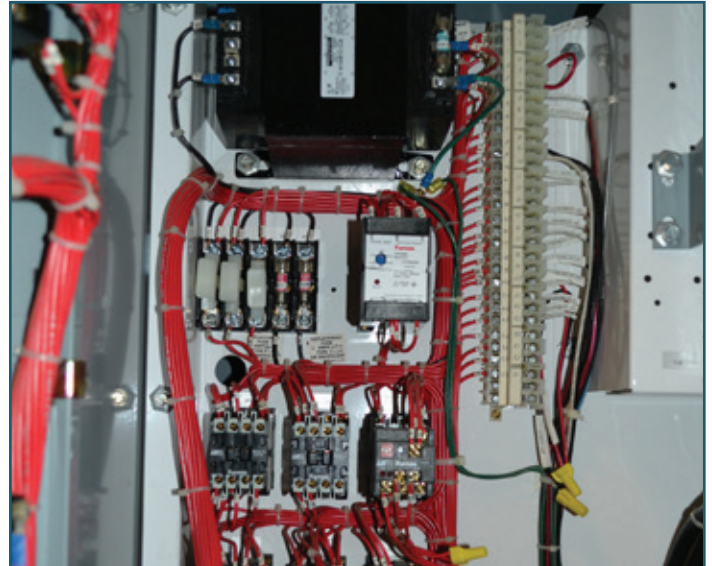
**\$724,177**

# Inoperable Electrical Power System Replacements

Project Number: P-15

## The Project

To maintain operations of treatment and distribution facilities, inoperable electrical equipment and systems need to be replaced. This project replaces inoperable electrical systems and components that no longer meet current electrical code requirements to ensure a safe work environment for employees who work on the equipment. Electrical power system replacements also provide the power necessary to operate mechanical and electrical equipment located throughout District facilities.



## Need for Project

Electrical power is critical for District operations. Replacement of malfunctioning and inoperable electrical power systems improves the safety of District employees and keeps the District in compliance with electrical code changes.

**Consequence of Not Doing the Project:** Not replacing inoperable electrical power systems would result in function loss of critical treatment and/or distribution capabilities, which could result in water treatment and distribution interruptions, water quality degradation, or safety risk.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Replacement	\$120,977
FY 2021-22	Replacement	\$191,359
FY 2022-23	Replacement	\$235,596
FY 2023-24	Replacement	\$50,000
FY 2024-25	Replacement	\$150,000

## Summary

*Replace inoperable electrical power systems for continued operations, efficiency, and safety*

**\$747,932**

# Inoperable Pump and Motor Replacements

Project Number: P-16

## The Project

Replacement of inoperable pumps and motors ensures water can continue to be moved through the treatment process and throughout the distribution system. At CDMWTP, pumps are used for chemical dosing feeds, at the flash mix, and for moving solids and water to and from the sludge handling beds. In the distribution system, the District operates six booster pump stations that lift water to higher elevations of the distribution system during groundwater operations, as well as blend water for water quality improvements when needed. Lastly, the District relies on several pumps and motors at each of its groundwater production wells to extract, treat, and distribute groundwater. This project will replace inoperable pumps and motors to maintain level of service and pumping operations.



## Need for Project

Pumps are needed to deliver water treatment chemicals, produce groundwater, and move treated water through the distribution system.

**Consequence of Not Doing the Project:** Not replacing pumps and motors when they fail will result in service interruptions to customers and potential noncompliance with drinking water standards.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22	Replacement	\$90,941
FY 2022-23	Replacement	\$399
FY 2023-24	Replacement	\$85,000
FY 2024-25	Replacement	\$85,000

## Summary

*Replace inoperable pumps and motors to maintain level of service and pumping operations*

**\$261,340**

# Anita Well Filtration Treatment

Project Number: P-17

## The Project

Adding filtration, pipework, valves, and controls at the San Ricardo Well site will remove organic constituents in treated groundwater from Anita Well. Raw groundwater from Anita Well is conveyed via pipeline to the nearby San Ricardo Well for water quality blending before being delivered to the distribution system. The addition of granular activated carbon treatment at Anita Well will remove organic constituents and allow for full production at the well site.



## Need for Project

Additional treatment is needed to maintain water quality and production capacity at Anita Well, which is needed during water shortages and for blending operations with surface water.

**Consequence of Not Doing the Project:** Anita Well will remain out of service or will be put into service at diminished capacity until water quality at the well can meet drinking water standards.

## Capital Category

*Water Quality*

## Schedule and Costs

<i>FY 2020-21</i>	<i>Design</i>	<i>\$1,691</i>
<i>FY 2021-22</i>		<i>\$0</i>
<i>FY 2022-23</i>	<i>Design &amp; Const.</i>	<i>\$101,462</i>
<i>FY 2023-24</i>	<i>Construction</i>	<i>\$1,184,000</i>
<i>FY 2024-25</i>		<i>\$0</i>

## Summary

*Design and construct treatment for Anita Well to remove organic constituents*

**\$1,287,153**

# Airport Well Backwash Tank Refurbishment

**Project Number: P-18**

## The Project

This project refurbishes Airport Well’s existing backwash tank to maintain 1.2 million gallons per day (MGD) of groundwater production capacity. The 8-foot tall, 26-foot diameter tank was constructed in 1984 and was inspected and evaluated in 2018 by tank corrosion experts. Observations included poor conditions of paint and interior lining, severe oxidation, delamination of the coating, and severe corrosion throughout. It was recommended to abrasively blast clean all exterior and interior tank surfaces, apply new three-coat epoxy paint, perform welding repairs at corroded areas, and install health and safety features to meet Occupational Safety and Health Administration requirements. This refurbishment option is more cost-effective than full tank replacement and extends the service life of the backwash tank.



## Need for Project

The backwash tank at Airport Well is deteriorating and will likely fail if not refurbished. This tank stores backwash water when the filter is backwashed three times a day, which is necessary for the filtration system to continue meeting drinking water standards for iron and manganese. Airport Well is the District’s highest producing groundwater well and produces up to 1.2 MGD out of the District’s combined 6 MGD capacity.

**Consequence of Not Doing the Project:** The District’s largest producing well will be taken out of service when the aging backwash tank fails until a new backwash tank can be installed.

## Capital Category

*Aging Infrastructure Replacement*

## Schedule and Costs

FY 2020-21	\$0
FY 2021-22	\$0
FY 2022-23	\$0
FY 2023-24	\$0
FY 2024-25	\$0

## Summary

*Refurbish Airport Well backwash tank to maintain groundwater production capacity*

**\$0**

# Well Filter Media Replacements

Project Number: P-19

## The Project

Groundwater requires filtration to remove iron and manganese, and filter media typically requires replacement every five years to maintain filter media performance. Over time, the individual granules of activated carbon or sand media contained within the filters become increasingly rounded off and plugged. This causes the media to be less effective at removing turbidity and naturally occurring organic compounds from water. This project will replace filter media at up to nine of the District’s groundwater wells.



## Need for Project

Replacing filter media is necessary on a regular basis to overcome declining filter capacity and continue meeting drinking water standards. The District relies heavily on groundwater quality to blend and mitigate variable surface water quality after wildfire or high organic loading events at Lake Cachuma.

**Consequence of Not Doing the Project:** Water quality may not meet drinking water standards, or production may be reduced due to declining treatment performance.

## Capital Category

*Water Quality*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22	Replacement	\$41,547
FY 2022-23	Replacement	\$109
FY 2023-24	Replacement	\$75,000
FY 2024-25	Replacement	\$75,000

## Summary

*Replace well filtration media to maintain water quality standards*

**\$191,656**

# Inoperable Above Ground Well Facility Replacements

Project Number: P-20

## The Project

The project will replace inoperable above ground components at the District’s nine well facilities. An evaluation performed in 2019 assessed the condition of existing equipment and identified needed replacements, including backwash and filter tanks, filter media, pumps and motors, gauges, valves, flow meters, and other appurtenances to meet the District’s current production capacity into the future and to protect past investment.



## Need for Project

To maintain existing levels of well production and treatment performance, above ground components need to be replaced when found inoperable. This project preserves the District’s past investment and ensures that the District continues to meet customer demand and water quality standards.

**Consequence of Not Doing the Project:** Groundwater production will be reduced or unavailable, including during emergencies.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Replacement	\$69,551
FY 2021-22	Replacement	\$79,751
FY 2022-23	Replacement	\$104,015
FY 2023-24	Replacement	\$120,000
FY 2024-25	Replacement	\$125,000

## Summary

*Replace inoperable above ground well facilities to maintain groundwater production capacity*

**\$498,317**

# Inoperable Interconnect Component Replacements

Project Number: P-21

## The Project

The District maintains three interconnects with the City of Santa Barbara to provide an emergency backup supply of water to the eastern portion of the distribution system when needed. This project will replace interconnect components when they fail. Various components are showing signs of malfunctioning, indicating imminent replacement. The District’s three interconnects can provide up to 2.3 million gallons per day and have been used to supplement District demand and water blending operations. Interconnects provide an essential, backup water supply during times of emergencies or planned shutdowns.



## Need for Project

Replacement of inoperable interconnection facilities is necessary to maintain access to mutual assistance to neighboring agencies in the event of an emergency, such as a transmission line break, earthquake, wildfire, or planned system outage.

**Consequence of Not Doing the Project:** Backup water supplies may not be available or sufficient when needed due to unreliable interconnection facilities.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22		\$0
FY 2022-23		\$0
FY 2023-24	Replacement	\$10,000
FY 2024-25	Replacement	\$10,000

## Summary

*Replace inoperable interconnection components to maintain access to backup water supplies*

**\$20,000**



# Inoperable Valve Replacements

Project Number: P-22

## The Project

The District maintains nearly 6,500 valves throughout its system. The valve replacement program is an ongoing effort to replace inoperable valves identified in routine inspections and shutdowns. Inoperability comes from frozen or stuck valves, broken stems, sheared operating nuts, poor closing ability, excessive leak-by, and leaking packing. On average, the District annually finds 40 inoperable valves. Replacement costs depend on construction difficulty encountered with surrounding utilities, level of road traffic, and property damage from leaked water.



## Need for Project

Valves allow distribution operators to isolate leaks to minimize property damage during emergency repairs, reduce the amount of customers impacted by shutdowns, and protect water resources. In addition, operators depend on valves while conducting planned flushing activities and system repairs to manipulate flow directions to improve water quality.

**Consequence of Not Doing the Project:** Not replacing inoperable valves may result in more customers impacted by service outages.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Replacement	\$250,615
FY 2021-22	Replacement	\$530,933
FY 2022-23	Replacement	\$885,113
FY 2023-24	Replacement	\$700,000
FY 2024-25	Replacement	\$1,000,000

## Summary

*Replace inoperable valves to limit the number of customers affected by outages*

**\$3,366,660**

# Inoperable Fire Hydrant Replacements

Project Number: P-23

## The Project

The District owns, operates, and maintains approximately 1,550 fire hydrants located throughout the distribution system. This project will replace fire hydrants as they become inoperable. On average, the District finds 15 fire hydrants annually in need of immediate replacement. Inoperable fire hydrants can have reduced flow rates or no available flow at all due to rust or other damage. The ongoing fire hydrant replacement project replaces inoperable hydrants identified by routine inspections, flushing activities, and daily operations.



## Need for Project

Hydrant replacements ensure emergency services personnel have easy access to hydrants with sufficient water pressure and flow rates to fight fires. Some fire hydrants have also been obstructed and damaged and are not easily operable by emergency personnel or operations staff during flushing operations.

**Consequence of Not Doing the Project:** Not replacing inoperable hydrants increases the risk of insufficient fire protection flows being available when needed.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Replacement	\$243,292
FY 2021-22	Replacement	\$294,099
FY 2022-23	Replacement	\$825,419
FY 2023-24	Replacement	\$300,000
FY 2024-25	Replacement	\$200,000

## Summary

*Replace inoperable or damaged hydrants to maintain access to fire flows*

**\$1,862,810**

# Inoperable Recycled Water Facility Replacements

Project Number: P-24

## The Project

This project replaces inoperable recycled water system facilities, including but not limited to pipelines, service lines, meters, valves, and cathodic protection equipment. The high corrosivity of highly chlorinated recycled water causes corrosion on recycled water steel lines and fittings. Thus, the service life of recycled water facilities is typically less than what is observed for potable facilities. The District’s recycled water system includes two booster pump stations and approximately 10 miles of pipeline. Recent expansion of recycled water for toilet flushing increases the need to routinely replace inoperable facilities to minimize recycled water service disruptions and the need to serve potable water.



## Need for Project

In partnership with the Goleta Sanitary District, the District distributes 1,000 acre-feet per year of recycled water to 29 recycled water customers for the purposes of landscape irrigation and toilet flushing. The District must replace recycled water infrastructure when inoperable to ensure consistent recycled water deliveries to customers.

**Consequence of Not Doing the Project:** Inoperable recycled water infrastructure may cause extended recycled water outages, requiring the substitution of potable water use in its place to meet the District’s current recycled water level of service.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22	Replacement	\$7,552
FY 2022-23	Replacement	\$19,349
FY 2023-24	Replacement	\$25,000
FY 2024-25	Replacement	\$25,000

## Summary

*Replace inoperable recycled water components to minimize recycled water service disruptions*

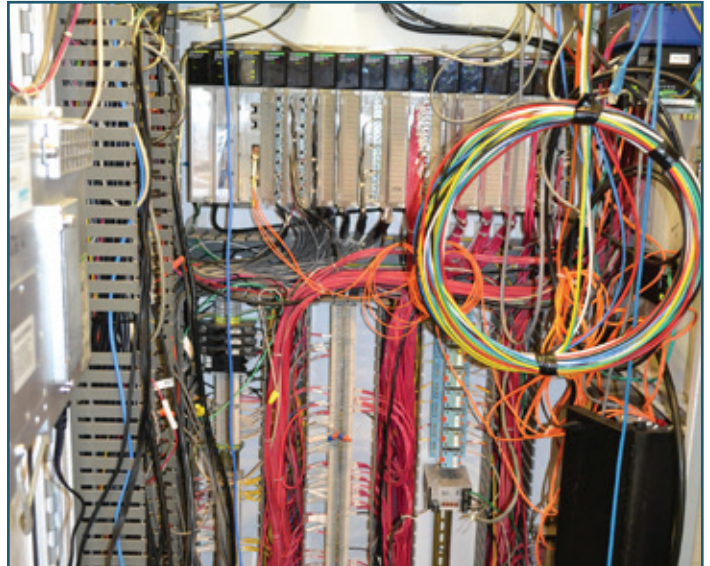
**\$76,901**

# Inoperable Computer and Electric Hardware Replacements

Project Number: P-25

## The Project

The District relies on functioning computer and electric hardware to monitor the distribution system, treatment process, system pressures, as well as operate the District’s Geographic Information System, hydraulic model, billing, accounting and customer service programs. This includes electrical hardware at its facilities and 60 desktop and laptop computers that require periodic replacement. This project will provide for the ongoing annual replacement of faulty or obsolete computer equipment (e.g., servers, routers, laptops, tablets, cables, etc.) and electric hardware (e.g., program logic centers, motor control centers). Replacements ensure that District staff have the tools necessary to maintain and operate the District’s water system as cost-effectively as possible.



## Need for Project

Computers and electric hardware allow for maintenance of accurate facility records, billing, and customer information within various computer systems, and are vital to the efficient operation of the District’s water system and customer service. Computer systems support the District in collecting revenue, operating at industry standards, and providing customer service.

**Consequence of Not Doing the Project:** Inoperable or obsolete computer and electronic hardware limits the District’s ability to meet its level of service for system-wide functions, including customer service, revenue tracking, asset record management, and ability to operate at industry standards, monitor water quality, and maintain system pressures.

## Capital Category

*System-wide Reliability and Safety*

## Schedule and Costs

FY 2020-21	Replacement	\$27,518
FY 2021-22	Replacement	\$35,512
FY 2022-23	Replacement	\$57,381
FY 2023-24	Replacement	\$35,000
FY 2024-25	Replacement	\$35,000

## Summary

*Replace inoperable computer and electric hardware systems to maintain District operations*

**\$190,410**

# Pavement Replacements

**Project Number: P-26**

## The Project

Due to normal wear and weather erosion, pavement deteriorates over time. Areas of the District’s 1.25 linear miles of paved roads leading to its treatment plant, reservoirs, pumping stations, chlorination stations, groundwater wells, and Operations Yard are deteriorating and require replacement and repairs. The main causes of pavement degradation are water infiltrating pavement cracks and heavy trucks. This pavement replacement project includes the removal of the degraded road surface base material, replacing solid base foundations, and installing new pavement or pavement repairs from hill slides. New pavement is expected to provide 30 years of service life, assuming routine maintenance and sealing of cracks and surfaces every three years, which is funded separately by the annual operating budget.



## Need for Project

Replacing failed pavement helps prevent storm runoff from eroding access roads to critical District facilities that require costly repairs, and helps prevent violations of stormwater regulations. Although the District has performed some pavement maintenance, deferred repairs have resulted in needed pavement replacements.

**Consequence of Not Doing the Project:** Not replacing failed pavement increases the risk of access interruptions to District facilities, adversely impacting the District’s level of service and ability to maintain and operate various sites.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22	Construction	\$96,467
FY 2022-23	Construction	\$143,628
FY 2023-24	Construction	\$30,000
FY 2024-25	Construction	\$30,000

## Summary

*Replace and repair failed pavement to maintain critical access to District facilities*

**\$300,095**

# Inoperable Building Component Replacements

Project Number: P-27

## The Project

The District owns 28 buildings that provide workspace for employees and protect equipment from environmental exposure and vandalism. Buildings throughout the system include the treatment plant, nine well sites, two chlorination stations, reservoir facilities, and buildings at the District Administrative Office. Of the District’s 28 buildings, seven were built before 1970 and will be greater than 50 years old by 2025. This project will replace inoperable or deficient building components, including roofs, doors, windows, heating and air conditioning units, drainage, and other inoperable components.



## Need for Project

Replacement of inoperable building components protects District equipment and workers. Further, certain building components in need of replacement are required to comply with building codes and Occupational Safety and Health Administration regulations.

**Consequence of Not Doing the Project:** Neglecting building component repairs and replacements can result in costly future repairs, create health and safety risks for workers, damage equipment, and reduce worker productivity and current levels of service.

## Capital Category

*System-wide Reliability and Safety*

## Schedule and Costs

FY 2020-21	Replacement	\$31,649
FY 2021-22	Replacement	\$527,227
FY 2022-23	Replacement	\$49,485
FY 2023-24	Replacement	\$330,000
FY 2024-25	Replacement	\$915,000

## Summary

*Replace inoperable building components for worker and equipment protection*

**\$1,853,361**

# Required Main Upsizing

Project Number: P-28

## The Project

Upsizing of water mains beyond the standard 8-inch pipe diameter is an ongoing, annual program specific to developer projects as outlined in Chapter 5.24 in the District Code. To accommodate water service demand and improve fire protection, developers may be required to upsize pipelines along the frontage of projects and even beyond the project limits to connect to the existing distribution system. If improvements are required beyond what is needed for the developer’s project, the District will fund the difference for the upsized pipeline construction. The District is responsible for the cost difference between the standard pipeline size and the required upsized pipeline. Project costs are based on historical costs for main upsizing.



## Need for Project

This project ensures adequate flows and pressures when new demand is being added to the system.

**Consequence of Not Doing the Project:** If pipelines are not upsized in conjunction with demand, flows may be insufficient for fire protection and flow velocities may exceed the design standard, resulting in scour and premature wear of pipeline interiors.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22		\$0
FY 2022-23		\$0
FY 2023-24	Upsizing	\$30,000
FY 2024-25	Upsizing	\$30,000

## Summary

*Upsize distribution pipelines during development projects to provide adequate flows*

**\$60,000**

# Obsolete SCADA Replacement

Project Number: P-29

## The Project

This project upgrades the Supervisory Control and Data Acquisition (SCADA) system, a complex network of electronic monitoring and control equipment located at all of the District’s facilities. SCADA equipment includes the human interface with all of the District’s systems and includes visualization, alarms, operational set points, and recording of historical data for pumps, valves, reservoirs, and treatment equipment. The existing SCADA system is obsolete, with some portions being more than 25 years old, and many replacement components must be purchased as after-market parts since they are no longer supported by their manufacturers. These parts are very expensive and may come from overseas. Furthermore, the existing SCADA does not have the capacity to accommodate automated operation of the water quality treatment projects identified for 2020-2025.



## Need for Project

A functioning SCADA system is essential to the District’s automated operation and continued regulatory compliance. The existing SCADA system is functionally obsolete and requires that components no longer supported by manufacturers be replaced with used parts purchased online, including from overseas suppliers.

**Consequence of Not Doing the Project:** Water quality standards and production may not be met without functioning and supported SCADA equipment, putting at risk the District’s level of service and regulatory compliance. Loss of automation would require a conversion to manual operation, which would require a significantly larger Operations staff to manually operate the District’s facilities around the clock.

## Capital Category

*System-wide Reliability and Safety*

## Schedule and Costs

FY 2020-21	Design	\$314,451
FY 2021-22	Design	\$198,178
FY 2022-23	Replacement	\$58,708
FY 2023-24	Replacement	\$1,780,000
FY 2024-25	Replacement	\$3,570,000

## Summary

*Replace SCADA system to maintain the District’s automated operations and regulatory compliance*

**\$5,921,337**



# SCADA Antenna (Monopole) Replacements

Project Number: P-30

## The Project

The District implemented the recommendations from a 2020 radio path study to construct new towers, modify existing antennas, trim trees, and upgrade all radio systems to eliminate a growing number of radio failures that were interrupting automated operations and monitoring of remote facilities. At the Operations Yard, an artificial palm tree antenna was chosen to minimize visual impacts to neighbors.



## Need for Project

Install radio towers, modify existing antennas, and upgrade all radios to improve SCADA communication system reliability.

**Consequence of Not Doing the Project:** Limited radio communication throughout the District impairs radio communication between operators in an emergency and affects important data transmittals on water quality, flows, and pressure from remote areas of the distribution system, which can result in service interruptions at remote facilities due to loss of control.

## Capital Category

*System-wide Reliability and Safety*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22	Construction	\$706,401
FY 2022-23	Construction	\$1,091,734
FY 2023-24		\$0
FY 2024-25		\$0

## Summary

*Install 150-foot antenna monopole at CDMWTP for improved, system-wide radio communications*

**\$1,798,135**

# Corona Pump Station

Project Number: P-31

## The Project

A permanent pump station was installed at Corona Reservoir to replace an existing temporary pump station. The pumps provide emergency backup capability to feed the Ellwood Zone, move water in the distribution system to improve water quality, and increased chlorine contact time on the plant’s treated water to further improve water quality, and provide more reliable pumping for domestic water supply at CDMWTP. The electric system also provides energy to the reservoir aeration system.



## Need for Project

Corona Pump Station supports improved water quality and reduces disinfectant byproduct levels in the distribution system. Also, the station can provide water to the Ellwood Zone in the event of a break in the 42-inch transmission main.

**Consequence of Not Doing the Project:** Not installing the booster pump station may result in a service interruption to the Ellwood Zone during an unexpected transmission main break and/or when there is less than 10 feet of water in Corona Reservoir.

## Capital Category

*System-wide Reliability and Safety*

## Schedule and Costs

FY 2020-21	Construction	\$800,000
FY 2021-22	Construction	\$1,000,000
FY 2022-23		\$0
FY 2023-24		\$0
FY 2024-25		\$0

## Summary

*Install a pump station at Corona Reservoir for water quality blending and emergency use*

**\$1,800,000**

# Inoperable Light Vehicle Fleet Replacement

Project Number: P-32

## The Project

This project replaces inoperable District fleet vehicles that are showing signs of deterioration and for which the costs to repair exceed the costs to replace. Vehicle replacements are prioritized based on condition, intended use, frequency of maintenance issues, and accumulated expenses. Currently, the District has 13 fleet vehicles that will be 20 years old by 2025. Continued use of aging vehicles increases maintenance costs and reduces reliability of service to customers when vehicles break down. Additionally, replacing meter-reading trucks with electric or hybrid vehicles provides an economic benefit by cutting fuel costs and emissions, lowering the District’s carbon footprint and meeting sustainability goals.



## Need for Project

District personnel rely on functioning vehicles to read meters, repair service lines and mains, collect water quality samples, operate wells, and maintain pump stations and reservoirs.

**Consequence of Not Doing the Project:** Not replacing aging and inoperable vehicles in the District’s fleet limits operational capacity to respond to emergencies, perform daily regulatory requirements, among other routine operations.

## Capital Category

*Aging Infrastructure Replacement*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22	Replacement	\$53,869
FY 2022-23	Replacement	\$112,003
FY 2023-24	Replacement	\$1,100,000
FY 2024-25	Replacement	\$500,000

## Summary

*Replace inoperable light fleet vehicles for uninterrupted daily operations and worker safety*

**\$1,765,872**

# Patterson Booster Pump Station Building Skin and Paving

Project Number: P-33

## The Project

The District’s Patterson Booster Pump Station was converted from emergency backup to a regular duty facility in 2019 by installing new electrical service and controls; replacing two emergency backup pumps with three larger, regular duty pumps; and installing new pipework, valves, and other appurtenances. This project, now completed, continued improvements which included patching and painting of the building skin, adding insulation, and repaving the deteriorated access road. New pavement will now improve drainage and prevent erosion.



## Need for Project

Completed building skin repairs and insulation will protect equipment and maintain sanitary conditions by keeping animals out. The repaved the access road, fixed slumping pavement, and improved drainage will provide continued access to the site and minimize mud entering an underground vault.

**Consequence of Not Having Done the Project:** Not replacing the building skin or pavement or addressing erosion may have resulted in a pump station outage if leaks had damaged equipment, or vehicles could not access the station.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Construction	\$189,108
FY 2021-22	Construction	\$1,513
FY 2022-23		\$0
FY 2023-24		\$0
FY 2024-25		\$0

## Summary

**Constructed remaining improvements at Patterson Booster Pump Station**

**\$190,621**

# Reservoir Site Generators

Project Number: P-34

## The Project

In the event of a power outage, the installation of solar-battery generators at seven reservoir sites have enabled continuous SCADA and water storage level monitoring. These improve backup power over the previously existing uninterruptible power supply (UPS) small battery systems that ran out of power after a short duration, causing remote monitoring of the reservoirs to be lost, which could have resulted in reservoir fill valves breaking and tanks spilling. Operators also may have lost the ability to monitor reservoir levels and remotely make critical changes in the distribution system. This project included the design and installation of backup generators to run equipment automatically in the event power is lost.



## Need for Project

To maintain control of critical reservoir sites during power outages, emergency backup generators allow continuous remote monitoring of tank levels and control of fill valves.

**Consequence of Not Doing the Project:** During power outages, reservoirs may fill or drain without immediate operator knowledge and could result in service interruption to an entire pressure zone.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22	Construction	\$270,185
FY 2022-23		\$0
FY 2023-24		\$0
FY 2024-25		\$0

## Summary

*Installed emergency solar-battery backup power systems at seven reservoirs for continuous operations during power outages*

**\$270,185**

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## Section 3: Project Descriptions

### Priority 3: Needed to Address Critical Deficiencies

Ref.	Project Name	2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
P-35	CCDMWTP Additional Solids Drying Bed	\$949	\$21,695	\$781,452	\$3,730,000	\$0	\$4,534,096
P-36	CDMWTP New Solids Drying Bed Pump Station	\$100,567	\$21,695	\$0	\$50,000	\$900,000	\$1,072,262
P-37	CDMWTP Solids Drying Bed Pump Station	\$362	\$21,695	\$0	\$0	\$0	\$22,057
P-38	CDMWTP Reclaimed Water Pipe Relocation	\$3,151	\$21,695	\$340,000	\$0	\$0	\$364,846
P-39	CDMWTP Backwash Basin Pump Station Modification	\$51,234	\$21,695	\$0	\$0	\$0	\$72,929
P-40	CDMWTP Demonstration Scale GAC Contactor	\$223,034	\$94,316	\$0	\$0	\$0	\$317,350
P-41	Water Quality Maintenance in Distribution System: Phase 1	\$786,684	\$1,105,814	\$336,702	\$197,979	\$10,000	\$2,437,179
P-42	CDMWTP and Wells pH Control Upgrades	\$0	\$0	\$0	\$0	\$20,000	\$20,000
P-43	Distribution Main Tie-ins for Improved Water Quality & Flows	\$0	\$100,003	\$6,504	\$120,000	\$500,000	\$726,507
P-44	University Well Treatment	\$0	\$0	\$334,366	\$873,450	\$1,002,876	\$2,210,692
P-45	Airport Well Treatment Upgrade	\$2,005	\$0	\$87,319	\$0	\$0	\$89,324
P-46	New Replacement Well	\$0	\$0	\$55,203	\$2,000,000	\$1,000,000	\$3,055,203
P-47	CDMWTP Access Road Creekside Erosion Repair and Realignment	\$55,663	\$353,895	\$12,184	\$0	\$0	\$421,742
P-48	Creek Crossing Inspection and Repair Program: Exposed Pipes	\$690	\$20,169	\$20,169	\$10,000	\$300,000	\$351,028
	<b>Total</b>	<b>\$1,224,340</b>	<b>\$1,782,672</b>	<b>\$1,973,899</b>	<b>\$6,981,429</b>	<b>\$3,732,876</b>	<b>\$15,695,216</b>

# CDMWTP Additional Solids Drying Bed

Project Number: P-35

## The Project

Construction of a third solids drying bed at CDMWTP will improve treatment operations, increase the efficiency of the solids handling process, and allow greater flexibility to operations when other beds are out of service. The third solids drying bed at CDMWTP is currently rough graded but not completed. A 2013 process design study report identified a number of design options. The District chose the most advanced, cost-effective option that increased drying capacity to meet peak treatment flows and production. Construction of this project will include excavation, sub-drain pipeline system, an impermeable bed liner, sand filter, and collection pipes.



## Need for Project

A third solids drying bed is needed to handle increased solids levels resulting from increased organic material in Lake Cachuma water. Solids drying beds are required because CDMWTP is a zero-liquid-discharge plant, which requires treated water have a turbidity less than 2 nephelometric turbidity units (NTU). This is accomplished by drying solids and reclaiming of the water in the solids drying beds.

**Consequence of Not Doing the Project:** Without an additional bed, the District’s water treatment plant cannot adequately or reliably treat water to regulatory water quality standards during times of high water demand. The District could become noncompliant with its treatment permit.

## Capital Category

*Treatment Plant Reliability*

## Schedule and Costs

FY 2020-21	Design	\$949
FY 2021-22	Design	\$21,695
FY 2022-23	Construction	\$781,452
FY 2023-24	Construction	\$3,730,000
FY 2024-25		\$0

## Summary

*Construct an additional solids drying bed at CDMWTP to meet water quality requirements*

**\$4,534,096**



# CDMWTP New Solids Drying Bed Pump Station

Project Number: P-36

## The Project

The CDMWTP's Solids Drying Bed (SBD) pump station returns water that has been separated from treatment-generated solids back to the head of the plant for re-treatment. The existing pump station needs to be replaced and upsized to continue meeting the CDMWTP's zero-liquid discharge permit. The pumps will also be updated with variable frequency drives (VFDs) to regulate flows and increase energy efficiency, as well as remote control valves, flow and turbidity meters, and check valves. The design for the pump's replacement and upsizing was completed in 2022.



## Need for Project

An upgraded pump station is needed to handle increased solids associated with increased organic material at Lake Cachuma, in compliance with the District's zero-liquid-discharge permits.

**Consequence of Not Doing the Project:** Without an upsized pump station, the District will be unable to reliably return process water back to CDMWTP during peak demand and organic events and may violate the plant's the zero-liquid-discharge requirements of its operating permit.

## Capital Category

*Treatment Plant Reliability*

## Schedule and Costs

FY 2020-21	Design	\$100,567
FY 2021-22	Design	\$21,695
FY 2022-23		\$0
FY 2023-24	Construction	\$50,000
FY 2024-25	Construction	\$900,000

## Summary

*Replace CDMWTP's solids drying bed pump station for operational flexibility and permit compliance*

**\$1,072,262**

# CDMWTP Solids Drying Bed Pump Station

Project Number: P-37

## The Project

A new solids overflow basin will be constructed at Solids Drying Bed #4 at CDMWTP to receive overflow water when high solids volumes need to be processed. Lake Cachuma can experience long-term elevated turbidity levels, during which solids overflow can occur, delaying the drying process and eventual removal of solids. The District currently lacks sufficient drying capacity for these type of events. The drying bed will serve as an all-purpose solids, backwash water, and storm water storage area. The new overflow basin will be used, but will not have a pump and sub-drain system. Due to higher than anticipated costs, this project has been postponed until the 2025-2030 IIP.



## Need for Project

While short-term spikes in turbidity levels in the backwash water can be handled, long term elevated levels cannot. These events require a regulatory waiver, allowing temporary non-compliance with turbidity standards. The proposed improvements will supply the solids, backwash water, and storm water storage necessary to eliminate the need to obtain these waivers while meeting existing permits.

**Consequence of Not Doing the Project:** The District may have to resort to costly disposal of wet solids of the overflow basin is not constructed to accommodate increased solids loading. Alternatively, the District may not be able to maintain compliance with the zero-liquid-discharge requirements of its operating permit.

## Capital Category

*Treatment Plant Reliability*

## Schedule and Costs

FY 2020-21	Design	\$362
FY 2021-22	Design	\$21,695
FY 2022-23		\$0
FY 2023-24		\$0
FY 2024-25		\$0

## Summary

*Construct a solids overflow basin to increase solids handling capacity and better meet permit standards*

**\$22,057**

# CDMWTP Reclaimed Water Pipe Relocation

Project Number: P-38

## The Project

To maintain CDMWTP as a permitted zero-liquid discharge facility, this project will relocate CDMWTP's reclaimed water pipe. The reclaimed water pipe conveys clarified backwash water into the treatment train at Flash Mix 1. Relocating the pipe to introduce clarified return water to the 54-inch raw water pipeline located at the beginning of the treatment train will allow water quality standards of clarified water to be better met during times of elevated demand, such as summer months or wildfire periods.



## Need for Project

The District is obligated to meet its permit standards for turbidity and the quantity of returned reclaimed water. This limitation can be overcome by relocating the point at which the reclaimed water pipe connects to the treatment process.

**Consequence of Not Doing the Project:** If reclaimed water quality exceeds permit standards, the District will violate its CDMWTP operating permit and will be required to mitigate the exceedance, which could result in a potential temporary shutdown.

## Capital Category

*Treatment Plant Reliability*

## Schedule and Costs

FY 2020-21	Design	\$3,151
FY 2021-22	Design	\$21,695
FY 2022-23	Construction	\$340,000
FY 2023-24		\$0
FY 2024-25		\$0

## Summary

*Relocate CDMWTP's reclaim water pipe for increased capacity to meet water quality standards at peak demand*

**\$364,846**

# CDMWTP Backwash Basin Pump Station Modification

Project Number: P-39

## The Project

The backwash basin at CDMWTP acts as a settling basin to control the turbidity of water that will be returned back to the treatment plant. The backwash basin pump conveys water from the backwash basin to the head of the treatment plant. An engineering evaluation recommended a second pump be added for reliability and to minimize facility downtime in the event of primary pump failure. The design completed in 2022 included pumps equipped with a variable frequency drive (VFD) to control the flow and will be monitored by a new flow meter on the discharge pipe. By adding pumping capacity, the District will increase overall flexibility when faced with peak flow events. Due to higher than anticipated costs, this project has been postponed until the 2025-2030 IIP.



## Need for Project

The CDMWTP backwash basin pump station requires modifications to maintain treatment flexibility and permit compliance. The District’s CDMWTP is a zero-liquid-discharge plant requires the return of clarified water back to the treatment plant for water recovery. The District lacks an alternative pump to return water from the backwash basin.

**Consequence of Not Doing the Project:** The District could violate its treatment permit if the primary pump facility is offline for an extended period, rendering a potential temporary plant shutdown.

## Capital Category

*Treatment Plant Reliability*

## Schedule and Costs

FY 2020-21	Design	\$51,234
FY 2021-22	Design	\$21,695
FY 2022-23		\$0
FY 2023-24		\$0
FY 2024-25		\$0

## Summary

*Modify the backwash basin pump to continue meeting zero-liquid-discharge permit requirements*

**\$72,929**

# CDMWTP Demonstration Scale GAC Contactor

Project Number: P-40

## The Project

Trihalomethanes (THMs) are regulated disinfection byproducts (DBPs) whose levels have increased in recent years due to water quality changes at Lake Cachuma. A technology screening identified GAC contactors as the most cost-effective means of reducing organics and THMs. This approach removes DBP precursors via adsorption to GAC filter media, potentially allowing the District to use existing infrastructure. Water will be blended with treated surface water and delivered to the distribution system. This project included successful demonstration scale testing of GAC filter media as an adsorber and full scale implementation of regular replacement of GAC filter media as needed to control THM levels.



## Need for Project

Changing water quality conditions at Lake Cachuma have created treatment challenges at CDMWTP. The increased replacement frequency of GAC in filters has allowed the District to better control DBPs without substantial capital investments or interruptions to existing treatment processes.

**Consequence of Not Doing the Project:** The District risked violating DBP drinking water quality standards..

## Capital Category

Water Quality

## Schedule and Costs

FY 2020-21	Testing	\$ 223,034
FY 2021-22	Testing	\$94,316
FY 2022-23		\$0
FY 2023-24		\$0
FY 2024-25		\$0

## Summary

Test and install granular activated carbon (GAC) for trihalomethanes (THM) reduction

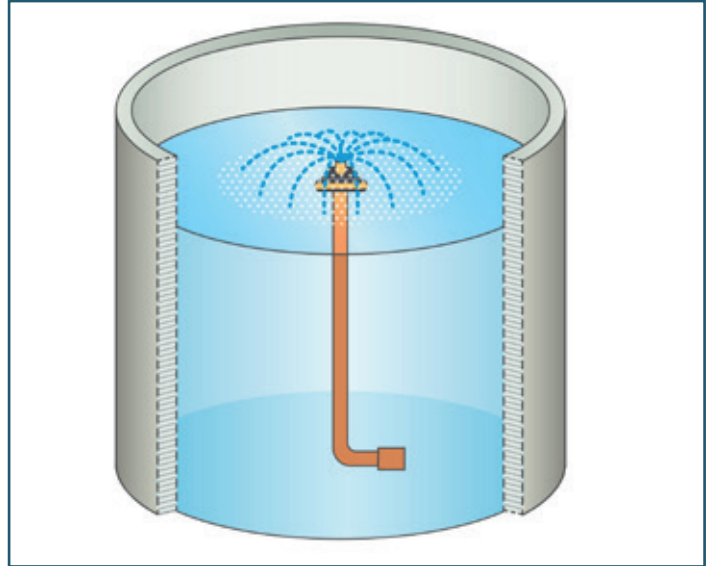
\$317,350

# Water Quality Maintenance in Distribution System: Phase 1

Project Number: P-41

## The Project

Phase 1 includes the construction of floating spray aeration treatment systems for Corona Reservoir to reduce trihalomethane (THM) concentrations. Hydraulic and water quality modeling has shown that adding these treatment systems can provide system-wide and/or localized water quality improvements. Design for the Corona Reservoir aeration system was completed in 2019 and updated in 2020. Construction at Corona Reservoir will include air handling and blower units and floating spray aerators for inside the reservoir. Water quality improvements are also needed in the distribution pipeline between the CDMWTP clear well and Corona Reservoir to maintain minimum pressures while reservoir water levels fluctuate throughout the day. It is anticipated that a reservoir weir box or replacement pipeline will be needed.



## Need for Project

Additional aeration in the distribution system will help the District continue to meet THM drinking water standards. This project will enhance water quality throughout the system and help maintain sanitary conditions.

**Consequence of Not Doing the Project:** The District would have to rely on increased levels of groundwater production to meet THM drinking water standards and risks non-compliance with drinking water standards.

## Capital Category

Water Quality

## Schedule and Costs

FY 2020-21	Design & Const.	\$786,684
FY 2021-22	Construction	\$1,105,814
FY 2022-23	Construction	\$336,702
FY 2023-24	Construction	\$197,979
FY 2024-25	Construction	\$10,000

## Summary

*Installs disinfectant byproduct treatment in the distribution system to maintain water quality compliance*

**\$2,437,179**

# CDMWTP and Wells pH Control Upgrades

Project Number: P-42

## The Project

This project will analyze the need for upgrading CDMWTP and groundwater wells pH control for improved water quality. Jar testing by the District has demonstrated pH control treatment at CDMWTP can provide an estimated 10-15% reduction in total organic carbon levels in treated water by enhancing existing coagulation and sedimentation processes. If needed, this treatment will help the District respond to elevated organic levels in Lake Cachuma, and continue meeting drinking water standards for disinfection byproducts (DBPs). pH control can also help ensure the District’s water is also in the ideal range for corrosion control, which would help the District remain in compliance with increasing drinking water standards for lead and copper. The need for this project will be determined following the results of GAC testing at CDMWTP and performance testing of Corona Reservoir aeration.



## Need for Project

In the event that pH control upgrades are needed, design and construction can proceed to promptly address changing water quality conditions.

**Consequence of Not Doing the Project:** Potential design and construction of future pH control upgrades may be delayed if the analysis is not completed in advance.

## Capital Category

*Water Quality*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22		\$0
FY 2022-23		\$0
FY 2023-24		\$0
FY 2024-25	Analysis	\$20,000

## Summary

*Evaluate the need for pH control at CDMWTP and wells to reduce THM precursors and control downstream corrosion*

**\$20,000**

# Distribution Main Tie-ins for Improved Water Quality and Flows

Project Number: P-43

## The Project

This project eliminates pipe “dead ends” by creating a looped pipe network and adds capacity to improve water quality and flows in key areas of the distribution system. This project will include the design for a pump station upgrade or pipeline to improve water delivery to the Reduced Ellwood pressure zone in the event of a failure of the Ellwood Transmission Main and will obviate the need for a second Ellwood Reservoir. It will also provide a backup means of delivering water in case the 42-inch Transmission Main experiences a planned or unplanned outage.



## Need for Project

Distribution tie-ins connect neighboring dead-ends and improve water quality by reducing stagnant water. Tie-ins also improve fire protection service by eliminating flow restrictions. By creating a more looped, connected network of pipelines, the District’s ability to operate the system becomes more flexible and increases reliability of service to customers.

**Consequence of Not Doing the Project:** Pipeline dead-ends require increased waterline flushing to maintain water quality in the dead-end pipes, while also resulting in periodic customer interruptions for main repairs and maintenance.

## Capital Category

*Water Quality*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22	Design & Const.	\$100,003
FY 2022-23	Design & Const.	\$6,504
FY 2023-24	Construction	\$120,000
FY 2024-25	Construction	\$500,000

## Summary

*Loop water main dead ends to create a connected pipeline network for water quality and flow benefits*

**\$726,507**



# University Well Treatment

Project Number: P-44

## The Project

To treat increasing levels of iron and manganese at University Well, this project will install additional filtration treatment including chemical storage and delivery, a backwash tank, backwash reclaim, and associated plumbing and controls. University Well is the only one of the District’s nine wells currently without filtration treatment capability. University Well is also located in an area where its water supply is especially beneficial for blending with surface water for water quality improvements. Without filtration, elevated iron and manganese levels can result in reddish coloration in the water. This project will procure and construct filtration treatment, based on a design completed in 2018.



## Need for Project

Iron and manganese levels have increased at University Well and no longer meet secondary maximum contaminant levels (MCLs).

**Consequence of Not Doing the Project:** Without filtration treatment, the District cannot access additional groundwater for water quality improvements and emergency backup to surface water supplies.

## Capital Category

*Water Quality*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22		\$0
FY 2022-23	Design & Const.	\$334,366
FY 2023-24	Construction	\$873,450
FY 2024-25		\$1,002,876

## Summary

*Install iron and manganese treatment at University Well to meet secondary MCLs and maintain groundwater production capacity*

**\$2,210,692**

# Airport Well Treatment Upgrade

Project Number: P-45

## The Project

While the District is currently in compliance with all primary drinking water standards, low levels of 1,4-dioxane and perfluoroalkyl substances (PFAS) have been detected at Airport Well. The District has been coordinating with the Regional Water Quality Control Board, which is overseeing a 1,4-dioxane groundwater remediation project at an industrial site approximately 2,000 feet way from the Airport Well and a remedial investigation of PFAS at the nearby airport. This project will test, design, and construct additional treatment at Airport Well capable of removing 1,4-dioxane and PFAS. Due to significantly higher costs than anticipated, this project has been postponed, and Airport Well has been placed into inactive status.



## Need for Project

Airport Well is the District’s largest producing well, and additional advanced treatment capable of removing 1,4-dioxane and PFAS may be needed in the future to protect public health and meet current and potential future drinking water standards.

**Consequence of Not Doing the Project:** The District would likely take Airport Well out of service if chemical levels continue to increase, which may require new wells to offset the lost water supply due to declining water quality.

## Capital Category

Water Quality

## Schedule and Costs

FY 2020-21	Design	\$2,005
FY 2021-22		\$0
FY 2022-23	Design	\$87,319
FY 2023-24		\$0
FY 2024-25		\$0

Postponed

## Summary

Maintain water quality at Airport Well by installing advanced treatment for removal of 1,4-dioxane and PFAS if levels increase

\$89,324

# New Replacement Well

Project Number: P-46

## The Project

The District drilled and constructed the new Hope Well in the Operations Yard. Its location was selected based on favorable hydrogeological conditions, existing treatment facilities nearby, and less risk of groundwater contamination given the lack of industrial development nearby. The well can produce more than 1,000 gallons per minute or roughly 1,420 acre-feet per year, which is more than twice the production originally anticipated. This project also includes an expansion of treatment facilities, new pump and motor, and pipeline to nearby treatment facilities. It is anticipated that roughly \$1M in project costs will occur in FY 2025-26, which will need to be addressed in the IIP 2025-2030.



## Need for Project

A new replacement well is needed to offset declining production at existing wells, increase injection capacity, and begin to replace a well field whose oldest wells are nearly 50 years old. Groundwater provides a backup to surface water supplies during emergencies, periods of drought, and planned shutdowns of CDMWTP and transmission main.

**Consequence of Not Doing the Project:** The District may not have enough groundwater production capacity to meet health and safety needs during a water shortage or unplanned emergency.

## Capital Category

*Groundwater Supply Reliability*

## Schedule and Costs

FY 2020-21		\$0
FY 2021-22		\$0
FY 2022-23	Design & Const.	\$55,203
FY 2023-24	Design & Const.	\$2,000,000
FY 2024-25	Design & Const.	\$1,000,000

## Summary

*Construct a new replacement groundwater well to offset declining groundwater capacity due to well aging*

**\$3,055,203**

# CDMWTP Access Road Creekside Erosion Repair and Realignment

Project Number: P-47

## The Project

The CDMWTP access road was being undercut by creek erosion, which restricted vehicle travel to one lane. This project included realigning a portion of the access road away from the erosion and installation of a sheetpile wall to prevent damage to the realigned portion of the road. This project ensures continued safe access to the plant by District staff, contractors, and vendors, including chemical delivery trucks. The District monitors creek erosion at all of its creekside access roads and had screened several cost-effective alternatives for creek bank stabilization at this location. The sheetpile wall emerged as the lowest cost option with the least environmental impacts and lease impacts to the adjacent orchard. The project included easement acquisition, design, and construction of the sheetpile wall and road realignment.



## Need for Project

Maintaining CDMWTP road access for plant workers and chemical deliveries is essential to uninterrupted water treatment. Road repairs and realignment also maintain access for emergency personnel to the plant during wildfires and other emergency situations.

**Consequence of Not Doing the Project:** A collapse of the road (already narrowed to one lane) could have prevented chemical deliveries to the water treatment plant, requiring treatment to be suspended. The road may have eventually collapsed under the weight of heavy delivery trucks, including chemical trucks, potentially causing a chemical spill into the creek.

## Capital Category

*Treatment Plant Reliability*

## Schedule and Costs

FY 2020-21	Construction	\$55,663
FY 2021-22	Construction	\$353,895
FY 2022-23	Construction	\$12,184
FY 2023-24		\$0
FY 2024-25		\$0

## Summary

*Address creek undercutting of CDMWTP access road with sheet pile and road realignment*

**\$421,742**

# Creek Crossing Inspection and Repair Program: Exposed Pipes

Project Number: P-48

## The Project

Multiple buried and above ground water pipelines are exposed in creek crossings and are in need of greater protection or repair to limit the risk of a pipeline break. Seasonal rainfall and runoff can carry large amounts of boulders and debris through creeks, potentially damaging exposed pipes. These pipeline crossings require periodic inspection to determine the extent of recent erosion. Recent staff inspections have identified needed protection, valve and blow-off replacements, grading, tree trimming and the lowering of water pipelines needed to mitigate erosion.



## Need for Project

Protecting exposed pipelines at creek crossings is necessary to minimize service interruptions to District customers. Exposed pipe mitigation and protection will help prevent water line rupture during emergency events such as landslides, debris flows, and flash floods.

**Consequence of Not Doing the Project:** Exposed pipes are vulnerable to breaks caused by debris flow during in high flow events, which would result in possible water service outages throughout the distribution system. Exposed pipeline breaks can also result in contamination of the water supply, requiring system-wide disinfection and public health boil water notices.

## Capital Category

*Distribution System Reliability*

## Schedule and Costs

FY 2020-21	Construction	\$690
FY 2021-22	Construction	\$20,169
FY 2022-23	Permitting	\$20,169
FY 2023-24	Permitting	\$10,000
FY 2024-25	Construction	\$300,000

## Summary

*Inspect and repair exposed creek crossing pipes*

**\$351,028**

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## Section 3: Project Descriptions

### Priority 4: Needed to Address Significant Deficiencies

Ref.	Project Name	TOTAL
P-49	CDMWTP Access Road Pavement and Hillside Slump Mitigation	\$500,000
P-50	Operations Worker Health and Safety Shower	\$390,000
P-51	Transmission Main Relocation: Phase 2	\$2,900,000
P-52	San Antonio Well Above Ground Facilities Upgrades	\$1,550,000
P-53	Anita Well Above Ground Facilities Upgrades	\$25,000
P-54	El Camino Well Above Ground Facilities Upgrades	\$450,000
P-55	Cathedral Oaks Transmission Main Extension	\$4,900,000
P-56	CDMWTP Water Quality Maintenance	\$40,000,000
	<b>Total</b>	<b>\$50,715,000</b>

# CDMWTP Access Road Pavement and Hillside Slump Mitigation

Project Number: P-49

## The Project

The CDMWTP access road serves as the only paved road to the plant for chemical deliveries, staff, contractors, and emergency personnel. The existing pavement will be replaced and repaired to prevent future interruptions to plant access. The access road is 1.25 miles long and has sustained wear associated with daily truck travel, weather, and minor erosion along some edges. Recent assessments indicate some cracking and approximately 2,000 square feet of road that must be excavated and rebuilt. This project involves stabilization of eroding hillsides, removal of the entire degraded road surface base material, grinding it up, and replacing it to form a solid new base foundation that will be paved over. This pavement upgrade is expected to provide 30 years of service life, assuming routine maintenance and sealing of cracks and surfaces is performed every 3 years.



## Need for Project

CDMWTP access road improvements minimize the potential for a pavement failure and interrupted access on the only paved road to CDMWTP for staff, contractors, chemical delivery trucks, and emergency crews.

**Consequence of Not Doing the Project:** Neglected pavement may result in increased repair costs in the future and worsening erosion. Neglected pavement also increases the risk of a road closure for emergency repairs, interrupting chemical deliveries and access to the treatment plant.

## Capital Category

*Treatment Plant Reliability*

Summary

*Repair and repave CDMWTP Access Road to maintain access for uninterrupted operations*

\$500,000



# Operations Worker Health and Safety Shower

**Project Number: P-50**

## The Project

An Operations Department locker room outfitted with worker shower facilities will improve worker safety and hygiene. Operations staff routinely perform physically intensive work and are exposed to dust, soil, recycled water, chemicals, and wide ranging temperatures and varying weather conditions. This project will install new shower facilities to provide a space for operators to clean up after exposure to recycled water and other substances, improving health and sanitary conditions for District employees. The shower and locker facilities will be constructed between the Operations Department offices and warehouse.



## Need for Project

Although the District maintains OSHA-required emergency showers and eye wash facilities for acute chemical exposures, the District currently lacks a worker safety shower facility to mitigate daily exposures to recycled water and other substances such as dirt, silica, and chlorine.

**Consequence of Not Doing the Project:** District operators will continue to rely on restrooms at District Headquarters to change clothes and wash themselves, limiting worker sanitary conditions.

## Capital Category

*Regulatory Compliance*

## Summary

*Construct an Operations shower facility for improved worker safety and hygiene*

**\$390,000**

# Transmission Main Relocation: Phase 2

Project Number: P-51

## The Project

Portions of the District’s most critical pipeline were constructed in an area prone to landslides. Recent, shallow land sliding and ground movement has been observed along a segment of this 42-inch transmission main. Relocating a portion of the pipeline is necessary to avoid a critical failure. The pipeline segment at risk is located north of Van Horne Reservoir and near Los Carneros Creek, downhill from CDMWTP. Geotechnical engineering inspection confirmed elevated risk of future localized creep and further land sliding, putting the District’s vital transmission main at risk of rupture. Recommended relocation areas include a more stable rock formation to the east to avoid sloping terrain and landscape risks, or to a flatter area (west) with more stable, alluvial soils and better access. This phase of the project will construct a relocated section of the transmission main.



## Need for Project

The District’s most critical pipeline is at elevated risk of failure due to earth movement, and it does not have a backup pipeline. The current backup operation would rely on the smaller Ellwood transmission, groundwater well production, and City of Santa Barbara interconnections, which may be insufficient in meeting customer demand. Relocation is needed to minimize service interruptions to a majority of District customers served by the 42-inch transmission main.

**Consequence of Not Doing the Project:** A transmission break could result in an extended water outage to customers, as well as costly emergency repairs and possible property damage downstream.

## Capital Category

*Distribution System Reliability*

## Summary

*Relocate compromised segment of transmission main located within geologic hazard area*

**\$2,900,000**

## San Antonio Well Above Ground Facilities Upgrades

Project Number: P-52

### The Project

San Antonio Well is one of the District's highest production groundwater wells. San Antonio Well was drilled in 1973, produces approximately 730 gallons per minute, and supplies approximately 16% of the District's groundwater. To maintain facility capacity and operability, recommended above ground improvements include replacing the deteriorating backwash tank to maintain treatment capacity; upgrading the filtration system (vessel, piping, valves, electrical); upsizing the chemical storage tank to hold a 21-day chemical supply to increase emergency resilience and reduce frequency of chemical deliveries; and upgrading the eyewash flow switch with an alarm to meet worker safety requirements.



### Need for Project

The District's Groundwater Management Plan recognizes the need for maintaining the ability to extract water from the Basin during times of drought, and to mitigate variable water quality conditions. These upgrades will help sustain reliable operation and maximum treatment capacity of San Antonio Well.

**Consequence of Not Doing the Project:** Current backwash tank, chemical storage, and filtration capacity will continue to limit San Antonio Well's production and treatment capacity.

### Capital Category

*Treatment Plant Reliability*

### Summary

*Install recommended above ground facilities at San Antonio Well to improve the well's operation*

**\$1,550,000**

# Anita Well Above Ground Facilities Upgrades

Project Number: P-53

## The Project

Drilled in 1985, the Anita Well produces approximately 600 gallons per minute, or up to 13% of the District’s groundwater. Water produced at Anita Well is piped to San Ricardo Well, where it is blended, filtered, and delivered into the distribution system. The well was rehabilitated in 2015 with both downhole and above ground electrical upgrades. Recommended improvements to complete rehabilitation efforts include evaluating the existing chemical feed system, upsizing the chemical storage tank to reduce the frequency of chemical deliveries, installing a P-trap on sanitary sewer to bring the site up to plumbing code standards, and upgrading the eyewash flow switch to meet worker safety needs.



## Need for Project

Minor improvements at the Anita Well will enhance worker safety and reduce the frequency of chemical deliveries to the site.

**Consequence of Not Doing the Project:** Anita Well’s production and treatment capacity may continue to be limited. More frequent chemical deliveries may also result in more truck traffic and increases the risk of a worker safety incidents or spills.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Install recommended above ground facilities at Anita Well to complete rehabilitation efforts*

**\$25,000**

# El Camino Well Above Ground Facilities Upgrades

Project Number: P-54

## The Project

El Camino Well produces approximately 370 gallons per minute and supplies up to 8% of the District’s groundwater. Recommended above ground improvements include replacing the existing backwash tank with a level indicator for better efficiency, shorter start-up times, and longer runs; routing well-to-waste water into a new backwash tank; and upsizing the chemical feed system for extended chemical storage.



## Need for Project

The existing El Camino Well backwash tank is deteriorating and does not meet standard volume specifications. A larger chemical storage tank reduces the frequency of chemical deliveries, which can be compromised during emergencies.

**Consequence of Not Doing the Project:** Lack of chemical storage lessens operational capacity and the well’s reliability if chemical deliveries are interrupted. Backwash tank inoperability could require an extended outage until repairs are made, limiting available water supply.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Install recommended above ground facilities at El Camino Well to improve operational capacity*

**\$450,000**

# Cathedral Oaks Transmission Main Extension

Project Number: P-55

## The Project

Installing approximately 8,500 feet of 20 inch pipeline on Cathedral Oaks Road between Glen Annie and Camino Laguna Vista will provide emergency backup capacity, should the Ellwood transmission main or 42-inch transmission main rupture or be taken out of service for a planned outage. Thousands of people could experience a water service interruption in the event this section of the transmission main were unavailable. The new pipeline will loop the two transmission mains to provide a redundant connection between the two pressure zones. This will allow water to feed to either zone during emergencies or planned shutdowns for repairs or maintenance.



## Need for Project

A new pipeline provides emergency backup water and operational flexibility if either of the two main transmission pipelines from CDMWTP become unavailable. These two major pipelines are at elevated risk of rupture due to earth movement, corrosive soil, and high water pressure. Erosion and hill creep has already been observed at a section of the 42-inch transmission main above Van Horne Reservoir.

**Consequence of Not Doing the Project:** A failure of either the 42 inch transmission main or Ellwood transmission may result in interrupted service to thousands of District customers. Operators would be dependent on backup supplies delivered via groundwater wells, Edison Booster Pump Station, and/or interconnections with the City of Santa Barbara.

## Capital Category

*Distribution System Reliability*

Summary

*Construct a Cathedral Oaks bypass as a backup to the Ellwood and 42-inch Transmission Mains*

\$4,900,000

# Water Quality Maintenance at CDMWTP

Project Number: P-56

## The Project

Wildfire, algal blooms, and vegetation decay have resulted in changing water quality conditions at Lake Cachuma. Elevated organic content has necessitated treatment upgrades at CDMWTP. Engineering analysis examined a range of long term treatment alternatives for CDMWTP and recommended post-filter granular activated carbon (GAC) contactors as the most cost-effective measure to reduce organics. GAC contactors are expected to remove organics and reduce the formation of disinfect byproducts. This project includes design and construction of a full scale GAC treatment unit at CDMWTP, including testing and commissioning. Design and construction will be phased based on current Lake Cachuma water quality conditions, with phases proceeding as necessary to meet drinking water standards.



## Need for Project

Variable levels of organic material at Lake Cachuma have increased the need for flexible treatment to maintain compliance with drinking water standards.

**Consequence of Not Doing the Project:** Current treatment capabilities may be insufficient for treating changing water quality conditions at Lake Cachuma over the long term. This has the potential to increase disinfection byproduct precursors above the drinking water standard and would require the District to notify customers.

## Capital Category

*Water Quality*

## Summary

*Design and construct GAC contactors to treat changing water quality at Lake Cachuma*

**\$40,000,000**

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## Section 3: Project Descriptions

### Priority 5: Needed to Proactively Address Infrastructure Replacement

Ref.	Project Name	TOTAL
P57	Proactive Chlorination and Treatment Equipment Replacements	\$460,000
P58	Proactive Pipeline and Service Line Replacements	\$1,800,000
P59	Proactive Reservoir Component Replacements	\$2,000,000
P60	Proactive Electrical Power System Replacements	\$1,240,000
P61	Proactive Above Ground Well Facility Replacements	\$620,000
P62	Proactive Interconnect Replacements	\$160,000
P63	Proactive Valve Replacements	\$24,100,000
P64	Proactive Fire Hydrant Replacements	\$8,000,000
P65	Proactive Computer and Electronic Hardware Replacements	\$300,000
P66	Proactive Cathodic Protection System Replacements	\$1,120,000
P67	Proactive Meter Replacements	\$12,500,000
P68	Proactive Heavy Equipment Replacements	\$1,000,000
P69	Proactive Building Components Replacements	\$1,850,000
P70	Proactive Fleet Replacements	\$900,000
P71	CDMWTP Deteriorating Chlorine Storage Tanks Replacement	\$4,000,000
P72	CDMWTP Filter Trough Improvements	\$500,000
P73	Goleta West Conduit Ellwood Chlorination Station Replacement	\$140,000
P74	CDMWTP Corroded Filter Pipe Replacement	\$2,100,000
	<b>Total</b>	<b>\$62,790,000</b>

# Proactive Chlorination and Treatment Equipment Replacements

Project Number: P-57

## The Project

CDMWTP, groundwater well facilities, and Goleta West Conduit all rely on functioning chlorination and treatment equipment. Equipment requiring potential replacement includes chemical tubing, chemical metering pumps, valve actuators, and lab equipment. Maintaining equipment is important because drinking water standards require continuous chlorination for disinfection and to notify the State when such treatment does not occur. This project includes the replacement of equipment anticipated to reach end of its service life during or prior to the 2020-2025 period. However, only inoperable equipment or components at risk of imminent failure will be replaced.



## Need for Project

State regulations require continuous chlorination and treatment to ensure that water quality standards are met throughout the system. Replacement of inoperable equipment is necessary to ensure minimal service interruptions to customers.

**Consequence of Not Doing the Project:** Potential service interruptions may result from equipment not performing, reducing treatment facility reliability at the District’s CDMWTP, wells, and Goleta West Conduit.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Proactively replace inoperable chlorination and treatment equipment to maintain water quality*

**\$460,000**

# Proactive Pipeline and Service Line Replacements

Project Number: P-58

## The Project

A majority of the District’s 270 miles of pipelines and service lines were installed before 1970, making many of them at least 50 years old. Fifty-two percent of the District’s pipelines were installed between 1955 and 1965. These pipelines will reach the end of their expected useful service life (EOL) at approximately the same time. To avoid high costs to future customers, this project consists of proactive replacement of pipelines showing early signs of deterioration or critical segments that are at or beyond their EOL. In addition to age, pipeline service life can be affected by soil corrosivity, adjacent utility construction, original installation quality, and cathodic protection. The District regularly collects data on these parameters to help prioritize potential replacements. Pipelines will be inspected for their conditions prior to being replaced to avoid premature replacement.



## Need for Project

The District’s distribution system is critical to delivering water to customers. Proactive pipeline replacement can reduce the burden and timing of replacement costs on future District customers, and mitigate unplanned service disruptions and damage associated with pipeline breaks.

**Consequence of Not Doing the Project:** The District may experience high infrastructure repair costs over a short period of time, and large leaks can result in damage and service interruptions to customers.

## Capital Category

*Aging Infrastructure Replacement*

Summary

*Proactively replace pipelines and service lines showing deterioration or nearing EOL*

\$1,800,000

# Proactive Reservoir Component Replacements

Project Number: P-59

## The Project

Storage reservoirs are integral to District operations and meeting normal peak demand, emergency demand, and fire flow. Three of the District’s reservoirs are at least 45 years old and have components that have exceeded their expected service life. Proactive replacement of reservoir facilities at end of life or that are deteriorating ensure employee safety and minimize unplanned reservoir outages. Engineering inspections of reservoirs determined that replacement costs range from \$700,000 (CDMWTP wash water tank) to \$35 million for a full facility replacement (Garrett Van Horne Reservoir). This project replaces reservoir facility components as they age but does not include sufficient funding for the complete replacement of larger reservoirs. Reservoir components will be inspected for current conditions prior to avoid premature replacement.



## Need for Project

Reservoir storage facilities are critical to providing uninterrupted water service to customers, emergency supplies, and fire flows. As reservoir components age, they are at increased risk of failure. Proactive replacement reduces the burden and timing of replacement costs on future District customers and mitigates unplanned service disruptions.

**Consequence of Not Doing the Project:** The District may experience higher infrastructure repair costs and greater costs over a short time for future customers.

## Capital Category

*Aging Infrastructure Replacement*

Summary

*Proactively replace reservoir components to reduce service interruptions to customers*

**\$2,000,000**

# Proactive Electrical Power System Replacements

Project Number: P-60

## The Project

Proactive replacement of electrical equipment at the end of its expected service life (EOL) enhances worker safety and supports the operations of both treatment and distribution facilities. Maintaining and replacing electrical equipment helps the District meet current electrical code requirements, ensures a safe work environment for employees who work on the equipment, and provides the power necessary to operate a range of mechanical and electrical equipment at District facilities. Electrical equipment life span is estimated to be ten to twenty years, depending on environmental conditions. For example, chemical applications and high humidity can significantly reduce the life expectancy of the equipment. Electrical systems will be inspected and tested for their conditions prior to being replaced to avoid premature replacement.



## Need for Project

Replacing electrical equipment helps the District meet the National Fire Protection Association (NFPA) 2009 NFPA 70E Standard for Electrical Safety in the Workplace and provides for safe working conditions for District staff and contractors. Aging electrical power systems have an increased likelihood of failure. Proactive replacement can reduce the burden and timing of replacement costs on future District customers and mitigate unplanned service disruptions and damage.

**Consequence of Not Doing the Project:** Failed electrical equipment can result in service interruptions and higher repair costs due to the necessity of replacing failed electrical equipment quickly, as well as higher risk of worker injury.

## Capital Category

*System-wide Reliability and Safety*

Summary

*Proactively replace electrical equipment for safety and to prevent potential service interruptions*

\$1,240,000

# Proactive Above Ground Well Facility Replacements

Project Number: P-61

## The Project

The District’s well field is comprised of \$25 million in above ground groundwater production facilities, including backwash tanks, degasification tanks, reaction vessels, filters, valves, gauges, chemical feeds, meters, seals, and analyzers. These facilities treat groundwater to meet regulatory requirements and monitor well performance. This project funds the proactive replacement of above ground well facilities showing early signs of deterioration or at the end of expected service life (EOL). Well facilities will be inspected for their condition to avoid premature replacement.



## Need for Project

Reliable treatment and control of the District’s above ground well facilities is essential during emergencies, periods of drought, and for water quality blending operations. Proactive replacement minimizes supply interruptions to groundwater production and groundwater blending operations.

**Consequence of Not Doing the Project:** If equipment fails, the District may experience interruptions to groundwater production. Additionally, as many components are specialized and have long lead times, the District may experience higher repair costs.

## Capital Category

*Groundwater Supply Reliability*

Summary

*Proactively replace above ground well facilities to maintain production*

\$620,000

# Proactive Interconnect Replacements

**Project Number: P-62**

## The Project

The District operates four interconnect valves at three locations in the distribution system that connect the District to the City of Santa Barbara’s water system. The District’s three interconnects can provide up to 2.3 million gallons per day and have been used to supplement District supplies for water blending operations, and are essential during times of emergencies or planned shutdowns. The total cost to replace the District’s three interconnections is approximately \$300,000. This project proactively replaces approximately 10% of the total replacement value per year, or an average of \$32,000 annually. Interconnect components will be inspected for their conditions to avoid premature replacement.



## Need for Project

Replacement of components in the interconnect facilities is necessary to maintain backup water supplies. The interconnects allow for the provision of mutual assistance with neighboring water agencies in the event of an emergency, such as a transmission line break, earthquake, wildfire, or planned system outage.

**Consequence of Not Doing the Project:** Backup water supplies through interconnections with the City of Santa Barbara may not be available during an emergency.

## Capital Category

*Aging Infrastructure Replacement*

## Summary

*Proactively replace interconnect components to maintain backup water supplies for emergencies*

**\$160,000**

# Proactive Valve Replacements

Project Number: P-63

## The Project

More than half of the District’s 6,500 valves will be older than their expected service life of 50 years by 2025. This project proactively replaces aging valves prioritized by those with observable signs of deterioration and by the number of potential customers that would be affected by a valve failure. Replacing valves at or past the end of expected service life will reduce the number of customers affected by planned and unplanned service outages and help minimize property damage from main breaks.



## Need for Project

Valves allow distribution operators to isolate leaks, minimizing property damage during emergency repairs, and reducing the amount of customers impacted by shutdowns. Additionally, operators depend on valves to conduct planned flushing activities, manipulate flow directions to improve water quality, and complete repairs to the distribution system.

**Consequence of Not Doing the Project:** More customers may experience outages during a main break if valves are found inoperable and are not replaced. Additionally, the District may experience higher repair costs.

## Capital Category

*Aging Infrastructure Replacement*

## Summary

*Proactively replace valves showing deterioration and near end of service life to minimize water service interruptions*

**\$24,100,000**



# Proactive Fire Hydrant Replacements

**Project Number: P-64**

## The Project

More than 1,000 of the District’s roughly 1,500 hydrants are at increased risk of inoperability due to age and will need to eventually be replaced. Deteriorating hydrants can have reduced flow rates and rusted caps. This hydrant replacement project replaces hydrants showing early signs of deterioration identified during routine inspections, flushing activities, and daily operations, or hydrants at end of expected service life (EOL). The District maintains data on year of installation and operational function and can also prioritize hydrant replacements near critical customers, such as hospitals and schools. This project is expected to replace up to 200 hydrants per year.



## Need for Project

Hydrants are deteriorating with age and damaged and some are not easily operated by emergency personnel or operations staff during flushing operations.

**Consequence of Not Doing the Project:** Not replacing aging hydrants increases the risk that the hydrants may not be operable when needed.

## Capital Category

*Aging Infrastructure Replacement*

**Summary**

*Proactively replace hydrants to ensure operability*

**\$8,000,000**

# Proactive Computer and Electric Hardware Replacements

Project Number: P-65

## The Project

The District relies on computers and electric hardware to monitor the distribution system and treatment processes and to administer the District’s Geographic Information System, hydraulic model, billing, accounting, and customer service programs. This project will replace computer and electric hardware at end of expected service life. Computer and electrical hardware includes electrical panels, servers, routers, computers, motor control centers, switchboards, and breakers. Replacement recommendations will be solicited from information technology and electrical engineering professional after components are inspected for their conditions.



## Need for Project

Computers and electric hardware allow the District to collect revenue, meet regulatory requirements, and provide customer service. Computer and electric hardware are instrumental to keeping accurate facility records, billing, and customer information, and efficiently operating the District’s water system and customer service activities.

**Consequence of Not Doing the Project:** Old computer and electronic hardware limits the ability of the District to provide reliable customer service, and track revenue, monitor water quality, system pressures, and other operating parameters.

## Capital Category

*System-wide Reliability and Safety*

Summary

*Proactively replace computer and electric hardware systems to maintain reliability*

\$300,000

# Proactive Cathodic Protection System Replacements

Project Number: P-66

## The Project

Proactive replacement of cathodic protection infrastructure at the end of its useful life can help prolong the life of the District’s 120 miles of steel pipeline. The District maintains an estimated \$1.6 million in cathodic protection equipment to protect steel pipes against corrosion. Cathodic protection infrastructure includes sacrificial metal anode beds that are preferentially corroded instead of the District’s pipelines, rectifiers that provide the electrical current, and test stations for monitoring system performance. Replacement projects have been identified in a prioritized list prepared from assessments performed in the last 20 years. Cathodic protection systems will be inspected for their conditions to avoid premature replacement.



## Need for Project

Cathodic protection can prolong the service life of steel infrastructure by slowing corrosion, thereby reducing the incidence of main breaks.

**Consequence of Not Doing the Project:** If aging cathodic protection infrastructure is not properly maintained, steel pipelines will experience accelerated corrosion and will likely fail sooner, resulting in main breaks and higher costs associated with repairs and property damage.

## Capital Category

*Aging Infrastructure Replacement*

## Summary

*Proactively replace cathodic protection systems to reduce corrosion and prevent pipeline failure*

**\$1,120,000**

# Proactive Meter Replacements

Project Number: P-67

## The Project

This project consists of replacing nearly 10,000 meters in the District service area that are at or will be past the end of their expected 20-year service life. Older meters can stop working for several reasons, including age, environmental conditions, or air or precipitates entering and causing internal meter components to malfunction. Older meters lose accuracy and tend to under-report water use. This project will replace approximately 2,000 meters per year, prioritized by age and current condition to avoid premature replacement.



## Need for Project

The accurate measurement of water use is needed for full revenue collection and to detect water loss.

**Consequence of Not Doing the Project:** As meters age, reduced accuracy in water measurements will result in loss of revenue and a reduced ability to detect leaks.

## Capital Category

*Aging Infrastructure Replacement*

## Summary

*Proactively replace aging meters to ensure accurate billing data and leak detection*

**\$12,500,000**

# Proactive Heavy Equipment Replacements

**Project Number: P-68**

## The Project

The California Air Resource Board (CARB) regulates off road diesel equipment, including backhoes and other heavy equipment that operate in California, including those owned and operated by the District. CARB requires this type of equipment to be replaced and/or upgraded to meet emissions standards. At a minimum, the District has three tier zero backhoes that need replacement to meet CARB regulations by 2023. The District’s oldest backhoe is 20 years old, exceeding its estimated service life of 5,000 hours or one hour per week for 20 years. This project proactively funds replacement several pieces of heavy equipment at end of its expected service life (EOL).



## Need for Project

Large construction equipment is used on a daily basis to maintain the District’s aging infrastructure system and respond to emergencies. Meeting regulatory requirements for equipment is critical to ensure day-to-day operations are not interrupted.

**Consequence of Not Doing the Project:** The District’s aging heavy equipment becomes unavailable during repairs and maintenance, limiting the District’s level of service.

## Capital Category

*System-wide Reliability and Safety*

**Summary**

*Proactively replace heavy equipment at end of service life to meet CARB regulations*

**\$1,000,000**

# Proactive Building Components Replacements

Project Number: P-69

## The Project

The District owns and maintains over 60,000 square feet of building area, including 17 of 28 buildings (41,000 square feet) were built before 1985. Older buildings include eight wells sites, several chlorination buildings, and several buildings at the District Administrative Office. These District facilities need refurbishment to help ensure a safe and comfortable work environment, and to increase overall facility reliability. This project includes replacement of building components at end of expected service life, including roofs, doors, windows, HVAC systems, seismic bracing, drainage, security, and other components that ensure the safety of employees and protection of vital equipment.



## Need for Project

Replacement of buildings and building components will help protect equipment and ensure a safe and comfortable work environment for District workers.

**Consequence of Not Doing the Project:** Deferring building repairs and replacements increases the risk of damage to equipment and injury to workers and visitors.

## Capital Category

*System-wide Reliability and Safety*

## Summary

*Proactively replace building components past estimated service life for safety and reliability*

**\$1,850,000**

# Proactive Fleet Replacements

**Project Number: P-70**

## The Project

The District has 13 fleet vehicles expected to exceed estimated service life in the next 5 years, as well as several aging dump and service trucks. This project proactively replaces District fleet vehicles, prioritized by those with over 150,000 miles or are older than 10 years. Once these criteria are met, vehicle replacements are prioritized based on condition, intended use, frequency of maintenance issues, and accumulated expenses. Continued use of aging, problematic vehicles increases maintenance costs and reduces reliability of service to customers. Additionally, replacing meter reading trucks with electric or hybrid vehicles provides an economic benefit by reducing ongoing fuel costs and emissions. These replacements lower the District’s carbon footprint and help to meet established sustainability goals.



## Need for Project

District staff use vehicles to perform essential daily tasks related to meter reading, pipe repairs, water quality sampling, well operations, and pump station and reservoir maintenance. Inoperable vehicles adversely impact the level of the District’s service and the quality of customer experience, in addition to increasing operational costs through increasing expensive vehicle repairs.

**Consequence of Not Doing the Project:** Fewer vehicles in the District’s fleet limits operational capacity to respond to emergencies, perform daily regulatory requirements, among other routine operations.

## Capital Category

*System-wide Reliability and Safety*

Summary

*Proactively replace fleet vehicles for continuous operations*

\$900,000

# CDMWTP Deteriorating Chlorine Storage Tanks Replacement

Project Number: P-71

## The Project

Sodium hypochlorite tanks, installed as part of the 2006 Phase 2 CDMWTP Upgrade Project, are showing early signs of deterioration and are in need of replacement. Both tanks will reach the end of their expected service life (EOL) and are experiencing deterioration of the inner, protective lining due to corrosion. This project will replace these sodium hypochlorite tanks, which requires disassembly of the existing chemical tank platforms, disconnecting and reconnecting associated chemical pipelines, and temporary removal of the chemical building walls and/or roof.



## Need for Project

Safe water treatment chemical storage is critical to the ongoing production of potable water at CDMWTP. Deterioration of the tanks' inner lining increases the risk of a leak or spill, which increases risks to worker safety and the potential to interrupt water treatment.

**Consequence of Not Doing the Project:** Chlorine will continue to corrode the tank lining and may corrode the tank itself, resulting in a possible chemical spill, worker safety hazards, and treatment interruption at the plant.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Replace two chlorine storage tanks at CDMWTP that are near their expected service life*

**\$4,000,000**

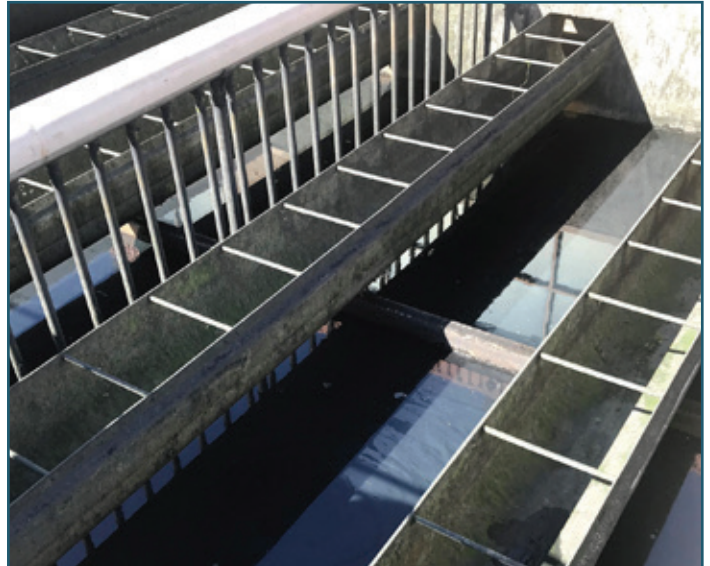


# CDMWTP Filter Trough Improvements

Project Number: P-72

## The Project

Filter troughs at CDMWTP are showing signs of deterioration due to constant exposure to water, sunlight, and treatment chemicals over 40 years and have been chipping during the periodic cleaning process. The troughs disperse water evenly over the top of filter media in each of six filters. During filter backwash, the troughs evenly remove water. Filter troughs are in near constant use, and the chipping problem will continue and worsen until troughs are replaced. This project will replace old fiberglass filter troughs with new stainless steel troughs.



## Need for Project

The District's original filter troughs installed in 1974 are exposed to harsh environmental conditions that shorten service life, necessitating replacement with durable, stainless steel troughs. Proactive replacement will stop chips and deteriorated parts from entering the filter and will improve overall filter operations.

**Consequence of Not Doing the Project:** The filter troughs will continue to deteriorate until inoperability causes filter malfunction, which would limit or interrupt treatment at CDMWTP.

## Capital Category

*Treatment Plant Reliability*

Summary

*Replace the deteriorating filter troughs at CDMWTP for improved treatment reliability*

**\$500,000**

# Goleta West Conduit Ellwood Chlorination Station Replacement

Project Number: P-73

## The Project

This project will replace the existing Ellwood Chlorination Station hypochlorite generator with an improved, modern unit for chlorinating raw Lake Cachuma water for Goleta West Conduit customers. The current generator unit was installed in 2000 and requires increased cleaning and maintenance to remain operational, and replacement parts are becoming difficult to procure due to the existing unit no longer being manufactured. A new generator will incorporate advancements in on-site hypochlorite generation and safety, which are commonly used at facilities where chlorine deliveries are impractical. Replacement will also maintain adequate chlorine feed rates for the Goleta West Conduit and decrease maintenance costs.



## Need for Project

On-site chlorine generator systems are critical to the water treatment disinfection process for the Goleta West Conduit. The existing chlorine generator unit at the Ellwood Chlorination Station is producing chlorine of declining strength, requiring higher dosage rate.

**Consequence of Not Doing the Project:** Faulty chlorine generator equipment increases risk of non-compliance with water quality standards and may interrupt service to agricultural customers on the Goleta West Conduit.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Replace Ellwood Chlorination Station's onsite chlorine generator to maintain chlorine feed rates*

**\$140,000**

# CDMWTP Corroded Filter Pipe Replacement

Project Number: P-74

## The Project

Proactive replacement of the corroding 36-inch filter influent pipelines at CDMWTP will minimize the interruption of critical water treatment processes. These pipelines are showing early signs of deterioration from corrosion. Although the District does not consistently rely on all six filters, an unplanned outage of any single filter during peak summer demand or wildfire emergencies could decrease CDMWTP’s treatment capacity. It would also restrict flexibility during changing operations. Proactive replacement allows the District to perform this work under controlled conditions, which is needed due to the pipe’s underground location at CDMWTP. This project includes design and construction of replacement pipelines and fittings.



## Need for Project

Filter infrastructure at CDMWTP is vital to the surface water treatment process. By proactively replacing the corroded 36-inch pipe feeding each of the six filters, the District can maintain maximum treatment capacity to meet peak summer demand and fire protection flows. It will also help avoid a pipeline failure that could result in flooding and damage to pumping and electrical equipment, causing further outages and repairs.

**Consequence of Not Doing the Project:** The District’s total surface water treatment capacity will decrease by up to 6 million gallons per day per filter out of service and could result in a water quality violation.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Replace the corroding filter influent pipe at CDMWTP to prevent treatment interruptions*

**\$2,100,000**

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## Section 3: Project Descriptions

### Priority 6: Enhance Emergency Resilience

Ref.	Project Name	TOTAL
P-75	Edison Emergency Pump Station Improvements	\$1,390,000
P-76	Backup Facilities Emergency Power	\$2,150,000
P-77	Garrett Van Horne Emergency Pump Station Improvement	\$580,000
P-78	Critical Transmission Main Conditions Assessment	\$2,250,000
P-79	Seismic Vulnerability Assessment and Upgrades	\$970,000
P-80	City of Santa Barbara Interconnect	\$1,500,000
P-81	Goleta West Conduit 10-Mile Conditions Assessment	\$1,750,000
P-82	Recycled Water Main 10-Mile Conditions Assessment	\$1,750,000
P-83	San Marcos Well Emergency Water Distribution Center	\$420,000
P-84	Creek Crossing Inspection and Repair Program: Buried Pipes	\$175,000
P-85	Potable Water Backup for Recycled Water System	\$3,800,000
	<b>Total</b>	<b>\$16,735,000</b>

# Edison Emergency Pump Station Improvements

Project Number: P-75

## The Project

Edison Emergency Pump Station improvements will allow the District to reliably provide water to the Reduced Ellwood Zone over sustained periods when surface water is not available. During water shortages, the pump station is positioned to move groundwater produced in the Central Groundwater Basin up to higher elevations in the Ellwood Zone. The District has completed an engineering design to install two larger pumps with backup generator power to function in case of a power outage. This project includes the purchase and installation of two new, larger replacement pumps, variable frequency drives (VFDs), piping, electrical, controls, and hook-up for emergency backup generator power.



## Need for Project

Upgrades to Edison Emergency Pump Station will help ensure sufficient capacity to meet demand in the Reduced Ellwood Zone if surface water became unavailable. The existing pump station is limited in its pumping capacity and was not designed for continuous use.

**Consequence of Not Doing the Project:** The 2,000 people served by the Reduced Ellwood Zone and several schools may experience service interruptions if groundwater cannot be delivered to the zone or if there is a break on the pipeline between CDMWTP and the Ellwood Zone.

## Capital Category

*Distribution System Reliability*

Summary

*Upgrade the Edison Pump Station to operate continuously during well operations or emergencies*

\$1,390,000

# Backup Facilities Emergency Power

Project Number: P-76

## The Project

Adding emergency backup power generators at Patterson Booster Pump Station, Airport Well, University Well, San Antonio Well, El Camino Well, Anita Well, and San Ricardo Well will help ensure the District can provide groundwater to keep customers in service during an emergency. Patterson Booster Pump Station delivers groundwater to customers at higher elevations and pumps water to reservoir storage for use during groundwater-only operations or emergencies. The District relies on groundwater wells when surface water deliveries are interrupted and during water quality blending operations. This project will include design and construction of generators and diesel or propane fueling infrastructure.



## Need for Project

With power outages becoming more frequent, the District’s need for emergency backup power is growing. The District currently relies on portable rental generators to supplement its single, owned generator to provide backup power. During an emergency, rental generators may not be available on short notice.

**Consequence of Not Doing the Project:** The District will remain dependent on rental generators and vendors to equip the District during an emergency. The ability to serve groundwater to keep customers in water may be interrupted when surface water supplies are unavailable.

## Capital Category

*Distribution System Reliability*

Summary

*Install emergency backup power generation at backup facilities*

\$2,150,000

# Garrett Van Horne Emergency Pump Station Improvement

Project Number: P-77

## The Project

This project will upgrade the Garrett Van Horne (GVH) Pump Station to double its capacity and provide a backup to Patterson Booster Pump Station during emergencies or planned maintenance outages. GVH Pump Station delivers water from GVH Reservoir to customers and storage reservoirs at higher elevations. Upgrades will include adding a second pump to double the station’s pumping capacity, with the second pump acting as a backup to the first pump. Upgrades will increase energy efficiency, control, and reliability of the facility.



## Need for Project

GVH Pump Station cannot currently serve as a reliable backup to Patterson Booster Pump Station. The station currently relies on a single pump, with limited pumping capacity. A second pump will provide the necessary reliability for continuous operations, should the Patterson Booster Pump Station be out of service.

**Consequence of Not Doing the Project:** GVH Pump Station will be unable to serve as a backup to Patterson Booster Pump Station during emergencies or planned maintenance outages.

## Capital Category

*System-wide Reliability and Safety*

## Summary

*Upgrade the GVH Pump Station to deliver water continuously during well operations or emergencies*

**\$580,000**



# Critical Transmission Main Conditions Assessment

Project Number: P-78

## The Project

A pipeline conditions assessment will identify needed repairs on the District’s critical transmission main and mitigate potential failure. The transmission main was constructed nearly 50 years ago and conveys water to most of the District’s customers. Conditions assessments are a cost-effective tool to identify repairs that can extend pipe service life without total replacement. Robot-collected video inspection of the transmission main section nearest CDMWTP revealed the pipeline to be in good condition. Additional video is needed for the remaining transmission main, and inspection with magnetic arrays is needed to provide information about what cannot be observed via video, including potential corrosion of the steel pipe cylinder and the metal reinforcing bars in the concrete pipe wrapping.



## Need for Project

The District’s transmission main is critical for delivering water to a majority of District customers. Conditions assessments are proactive measures that are key to extending service life and maintaining the existing transmission mains.

**Consequence of Not Doing the Project:** Waiting for transmission mains to fail may result in an uncontrolled release of up to one million gallons of water, which could cause substantial erosion, reduced fire flow protection, and higher repair and damage costs. Such a failure may also result in an extended outage and reliance on groundwater wells and interconnects with the City of Santa Barbara until repairs can be completed.

## Capital Category

*Distribution System Reliability*

Summary

*Inspect 14 miles of transmission mains to assess the need for repair or replacement*

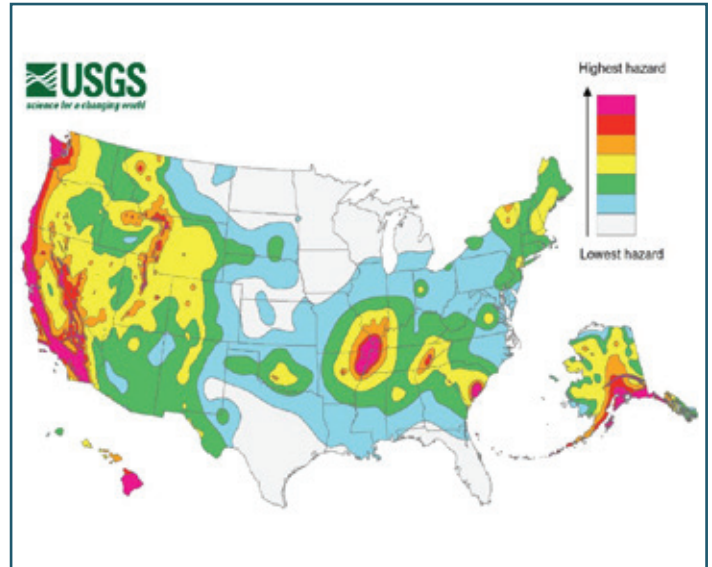
**\$2,250,000**

# Seismic Vulnerability Assessment and Upgrades

Project Number: P-79

## The Project

A seismic vulnerability assessment of the District’s infrastructure and upgrades to key assets will better prepare the District to withstand seismic events. The District presently lacks an understanding of the extent of its vulnerabilities. The assessment will identify major hazard areas, provide a comprehensive list of potentially affected critical assets, describe the anticipated consequences of failure, and provide a prioritized list of necessary upgrades. Water utilities are particularly vulnerable to earthquake damage due to extensive above and below ground pipelines, pumps, tanks, and treatment equipment. Seismic damage to water infrastructure could be the largest cause of economic and community disruption following an earthquake. This project also includes limited funding for design and construction of initial projects.



## Need for Project

The District is located in a seismic hazard area, and much of its treatment and distribution infrastructure was not designed to withstand major seismic events.

**Consequence of Not Doing the Project:** The District’s infrastructure will remain vulnerable and unreliable during seismic emergency events. Damaged infrastructure could result in limited fire protection and loss of sanitary conditions.

## Capital Category

*Emergency Resilience*

Summary

*Seismic Vulnerability Assessment to inspect the system and recommend mitigation measures*

\$970,000

# City of Santa Barbara Interconnect

Project Number: P-80

## The Project

Constructing a new interconnect with City of Santa Barbara will provide the District and the City with an additional backup water supply when either the District or the City experiences a localized interruption. This could occur during an emergency, such as transmission main break or earthquake or during a planned shutdown. The District currently maintains three small interconnects with the City of Santa Barbara with a combined capacity of 2.3 million gallons per day (MGD). The current interconnects can also operate only when the District’s groundwater wells have been turned off. This project would add an estimated 2 MGD of capacity that could be pumped into the District’s transmission main. This will serve a greater number of customers and maintain water service beyond those currently in close proximity to the existing interconnects. Design for this project was completed in 2007.



## Need for Project

An additional interconnect will provide backup water supply in case surface water or groundwater supplies become limited or unavailable.

**Consequence of Not Doing the Project:** Should water facilities of either agency be shut down during an emergency, water service for customers could be compromised without increased capacity from a new interconnection.

## Capital Category

*Emergency Resilience*

Summary

*Install a new interconnect with Santa Barbara to increase backup water supplies*

\$1,500,000

# Goleta West Conduit 10-Mile Conditions Assessment

**Project Number: P-81**

## The Project

The Goleta West Conduit was constructed in 1963 and conveys non-potable water to agricultural customers in the western half of the District’s service area. This project will conduct a conditions assessment of the Goleta West Conduit to identify needed pipeline repairs and extend pipe service life without total replacement. Inspection with video and electromagnetic arrays is needed to provide information about potential problems that cannot be observed via video, such as potential corrosion of the steel pipe cylinder and condition of the metal reinforcing bars in the concrete pipe wrapping. The project will identify necessary repairs and vulnerabilities that can increase the pipeline’s reliability while reducing the potential for failure.



## Need for Project

The Goleta West Conduit is nearing 60 years old. Corrosion and the pipeline’s location in canyons have made it increasingly vulnerable to leaks. The Goleta West Conduit system lacks a backup water supply as customers can only temporarily rely on limited supply from the El Capitan interconnect in the event of an outage.

**Consequence of Not Doing the Project:** A pipeline failure could result in an uncontrolled release of water, causing substantial erosion, reduced fire flow protection, and costly repairs. Due to its remote location, a pipeline failure could also result in an extended outage for Goleta West Conduit.

## Capital Category

*Distribution System Reliability*

**Summary**

*Inspect 10 miles of Goleta West Conduit to identify need for repairs*

**\$1,750,000**

# Recycled Water Main 10-Mile Conditions Assessment

**Project Number: P-82**

## The Project

Conditions assessments are a cost-effective tool to prioritize pipeline repairs and extend pipe service life without total replacement. Installed in the early 1990s, the District’s steel recycled water mains have been subject to greater corrosion due to the higher chlorine levels required for recycled water. Recycled water pipelines were also installed without cathodic protection. The District’s recycled water main conveys 1.5 million gallons per day of recycled water, so a pipeline failure could cause significant damage. Recycled water service for landscape irrigation and other purposes offsets potable demand and the need to secure additional water supplies. This project will employ video inspection and potentially electromagnetic technology to identify potential problems and needed repairs.



## Need for Project

Recycled water mains are at higher risk of failure due to lack of cathodic protection and higher chlorine levels, which increase the rate of corrosion.

**Consequence of Not Doing the Project:** Waiting for the recycled water mains to fail could result in an uncontrolled release of large amounts of chlorinated water, along with higher repair and damage costs. Depending on the location of a pipeline failure, the entire recycled system may experience a prolonged outage until repairs and/or replacements can be completed.

## Capital Category

*Distribution System Reliability*

**Summary**

*Inspect 10 miles of recycled water pipelines to identify corrosion and repair needs*

**\$1,750,000**

# San Marcos Well Emergency Water Distribution Center

Project Number: P-83

## The Project

Designing and constructing an emergency water fill center at the District's San Marcos Well will help distribute potable water to customers in event of an emergency. Water will be provided via a filling station to fill customer containers or to truck water to the community. This central location has sufficient space, paved surfaces, truck and trailer accessibility, and reliable communications facilities. This project includes the design and construction of the filling station and installation of emergency backup power for the San Marcos Well.



## Need for Project

A filling station will provide emergency water supply to the public in the event the distribution system is affected.

**Consequence of Not Doing the Project:** The District will remain dependent on the existing distribution system to supply potable water during emergencies.

## Capital Category

*Emergency Resilience*

## Summary

*Design and construct an emergency water filling station at the centrally located San Marcos Well*

**\$420,000**

# Creek Crossing Inspection and Repair Program: Buried Pipes

Project Number: P-84

## The Project

Creek crossings with buried pipes require routine maintenance to ensure buried pipes continue to have adequate protection from creek debris. The South Coast’s variable winter rains and runoff can carry large loads of debris through creeks, exposing previously buried pipes. Inspecting and repairing creek crossings with buried pipes will mitigate potential service interruptions near the roughly 70 known locations where District water main pipelines traverse under creek crossing or drainage areas. Inspections will determine the extent of recent erosion and the need to add soil cover or rock blankets to control erosion. This project continues the District’s program to inspect and mitigate pipeline-area erosion at the District’s many creek and drainage crossings.



## Need for Project

Protecting pipelines at creek crossings helps maintain uninterrupted service to District customers, both year-round and during natural hazard events (e.g., flash flooding and debris flows). Pipe inspection and protection helps prevent pipeline failures at a lower cost than emergency pipeline replacement.

**Consequence of Not Doing the Project:** Pipelines beneath creeks may remain vulnerable due to damage from boulders and debris flows in creeks, carrying an increased risk for breaks and service disruptions.

## Capital Category

*Emergency Resilience*

Summary

*Inspect buried pipes at creek crossings to maintain adequate coverage and protection*

\$175,000

# Potable Water Backup for Recycled Water System

Project Number: P-85

## The Project

Constructing a direct pipeline to Goleta Sanitary District from the District’s distribution system will provide greater emergency backup water supply to the recycled water system at Goleta Sanitary District and eliminate a capacity bottleneck. The Goleta Sanitary District is currently served potable water from the City of Santa Barbara’s Airport distribution system and is limited by pipeline capacity. This project consists of extending the water main from Hollister Avenue to Goleta Sanitary District and constructing a new meter for direct service. The transmission main along Fairview Avenue from Carson Street to Placencia Street will also be upsized as part of the project for improved system hydraulics. Several isolation valves and hydrants will also be installed along the new main.



## Need for Project

Potable backup to the recycled water system is currently limited by the capacity of the City of Santa Barbara’s service line and meter that serves the Goleta Sanitary District. Should there ever be a break or cross connection on the service line, the recycled water system may be out of service. This project constructs a potable water pipeline directly to the Goleta Sanitary District to provide backup water to the recycled water system.

**Consequence of Not Doing the Project:** Potable backup to the recycled water system will remain limited and dependent on the reliability of Goleta Sanitary District’s service line, which is served by the City of Santa Barbara’s Airport distribution system.

## Capital Category

*Distribution System Reliability*

Summary

*Increase reliability of the recycled water system via direct service line to Goleta Sanitary District*

**\$3,800,000**



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## Section 3: Project Descriptions

### Priority 7: Noncritical Projects to Enhance Level of Service, Sustainability, and Reliability

Ref.	Project Name	TOTAL
P-86	Water Quality Maintenance in Distribution System: Phase 2	\$440,000
P-87	CDMWTP Chain and Flight Scraper Installation	\$4,000,000
P-88	Above Ground Well Facilities BMP Upgrades	\$1,244,000
P-89	CDMWTP Flocculation/Sedimentation/Filter Flexible Covers	\$3,580,000
P-90	CDMWTP Clarifier Improvements	\$6,400,000
P-91	CDMWTP Wet Well Pump and Recirculation Automation	\$500,000
P-92	Remote Distribution System Water Quality Sensors	\$420,000
P-93	Upsize Pipeline at Edison Booster Pump Station	\$1,000,000
P-94	Recycled Water Slough Crossing	\$1,700,000
P-95	District-wide Fixed-Based Meter Reading System	\$11,300,000
P-96	Recycled Water 1 MG Reservoir	\$3,000,000
P-97	San Antonio Booster Pump Station Relocation	\$1,700,000
P-98	CDMWTP Cathodic Protection	\$500,000
P-99	Pressure Relief Valve Monitoring	\$1,400,000
P-100	Additional Injection Wells	\$2,500,000
P-101	Indirect Potable Reuse: Pilot	\$1,500,000
P-102	New Groundwater Monitoring Wells	\$1,000,000
P-103	CDMWTP Storm and Waste Water Improvements	\$500,000
P-104	Reservoir Power Generation	\$900,000
P-105	Water Quality Maintenance in Distribution System: Phase 3	\$1,110,000
P-106	Corona Reservoir Metering Facility	\$2,000,000
P-107	Headquarters Stormwater Improvements	\$200,000
P-108	2 MG Ellwood Reservoir	\$6,000,000
P-109	CDMWTP Hillslope Solar	\$2,000,000
P-110	Well Water Treatment Centralization Study	\$400,000
P-111	Goleta West Conduit Potable Connection	\$28,000,000
P-112	Armitos Avenue Crossing of San Jose Creek	\$800,000
P-113	Railroad Crossing at Kellogg Avenue	\$650,000
P-114	Upsize Los Carneros Pipeline (Covington Way to Calle Real)	\$650,000
P-115	Transmission Main 36-Inch Parallel Pipeline	\$3,200,000
P-116	Cathedral Oaks and Highway 101 Overcrossing: Phase 2A	\$400,000
P-117	Loop at La Vista-Alta Mira Booster Stations	\$375,000
P-118	Ocean Road Pipeline	\$1,900,000
P-119	Recycled Waterline at Fairview Road to Hollister Avenue	\$4,000,000
P-120	Kellogg Pipeline Upsizing	\$1,800,000
P-121	Covington Pipeline Upsizing (Valdez to Fairview)	\$2,000,000
P-122	Cathedral Oaks Pipeline Upsizing (PDP to Northgate)	\$1,800,000

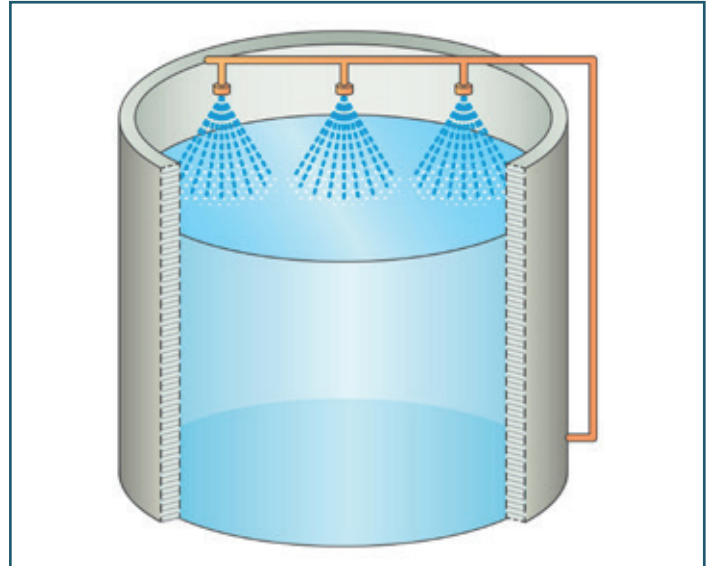
Ref.	Project Name	TOTAL
P-123	Cathedral Oaks and Highway 101 Overcrossing: Phase 2B	\$768,000
P-124	CDMWTP Creek Crossing Improvements	\$1,000,000
P-125	Electronic Document Management System	\$400,000
P-126	Additional Fire Hydrants	\$100,000
P-127	Recycled Water PRV Vault Relocation	\$150,000
P-128	La Gama PR Vault Relocation	\$150,000
P-129	Control Cabinets Wiring Record Drawings Update	\$750,000
P-130	Hydraulic Improvements for Injection	\$1,960,000
P-131	Combined Power Generation	\$800,000
P-132	District Headquarters Rooftop Solar	\$250,000
P-133	Indirect Potable Reuse: Full Scale	\$55,000,000
P-134	Asset Management Program and Computerized Mnt. Sys.	\$140,000
P-135	CDMWTP Filter Building Modifications	\$100,000
P-136	Operations Department Facilities Update	\$450,000
P-137	Replacement Wells	\$27,000,000
	<b>Total</b>	<b>\$189,887,000</b>

## Water Quality Maintenance in the Distribution System: Phase 2

Project Number: P-86

### The Project

Additional reservoir aeration will reduce trihalomethane (THM) levels to help meet drinking water standards. Hydraulic water quality modeling indicates that reservoir aeration is particularly effective in reducing THMs and improving water quality in the District’s furthest zones. This project funds continued water quality improvement measures to be implemented in the distribution system should water quality worsen, including aeration at the Corona Reservoir. Due to the changing water quality conditions at the lake, this project will only be implemented as needed and as a second phase.



### Need for Project

The drought, wildfires, and fluctuating lake levels have resulted in changing water quality conditions at Lake Cachuma. Additional treatment for THMs may be necessary to maintain compliance with State and Federal drinking water standards.

**Consequence of Not Doing the Project:** If water quality continues to decline and the District does not have additional aeration in place, the District may not be able to meet water quality standards in all areas of the distribution system.

### Capital Category

*Water Quality*

Summary

*Install additional reservoir aeration to reduce THM levels in distribution system if needed*

\$440,000

# CDMWTP Chain and Flight Scraper Installation

Project Number: P-87

## The Project

The District's existing solids handling equipment has limited capacity and requires significant upgrades to meet peak treatment flow and to handle higher rates of organics removal treatment. This project includes design and installation of a chain and flight scraper solids handling system that can accommodate continuous flows of 16.5 million gallons per day at increased organic and treatment flow needs. A chain and flight scraper system will remove bottom sludge from the sedimentation basin and transfer it to the sludge basin for drying and water recovery.



## Need for Project

The District currently has four super-scrapers that are insufficient to handle the amount of powdered activated carbon currently being used to remove organic matter from surface water supplies. Changing water quality conditions at Lake Cachuma require additional capacity for solids handling, especially during periods of high customer water demand.

**Consequence of Not Doing the Project:** Limited solids handling capacity directly limits CDMWTP production capacity, and compromises the District's ability to reliably treat water during peak flow or fire protection needs.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Replace Super Scrapers with chain and flight systems to increase solids handling capacity*

**\$4,000,000**

# Above Ground Well Facilities BMP Upgrades

Project Number: P-88

## The Project

The majority of District wells were installed more than 30 years ago and are in need of various upgrades. Even after the completion of recent rehabilitation work, implementing additional best management practice (BMP) improvements at Anita, Airport, San Ricardo, San Antonio, El Camino and San Marcos wells will enhance groundwater treatment and reliability. These include such items as the installation of pressure and flow transmitters, meter upgrades and replacements, and site grading and landscaping improvements for well head protection.



## Need for Project

These additional improvements will help the District maintain its groundwater production capacity and operational efficiency at eight well sites.

**Consequence of Not Doing the Project:** While best management practices are not required, they improve overall performance and operation of District wells. If production capacity declines, recommended BMPs may be necessary to maintain access to groundwater supplies.

## Capital Category

*Groundwater Supply Reliability*

Summary

*Install well facility BMP upgrades to maintain production and treatment capacity*

\$1,244,000

# CDMWTP Flocculation/Sedimentation/Filter Flexible Covers

**Project Number: P-89**

## The Project

Low-lying, flexible, and structurally supported covers for CDMWTP’s exposed sedimentation, flocculation, and filtration ponds will improve water quality and lessen maintenance needs. Covers can reduce algae growth by better regulating water temperature, and provide a barrier to wind, animals, and airborne organic matter that can adversely impact water quality. The covers are comprised of retractable fabric spanning aluminum frames, along with aluminum gangways for operator access. Aluminum gangways allow access to clean the basins from above, eliminating the need for confined space procedures. More cost-effective than a large enclosure structure, these covers are custom designed to fit the needs at CDMWTP.



## Need for Project

Covering the CDMWTP flocculation, sedimentation, and filter basins will improve water quality by reducing algae growth, off-gassing treatment chemicals, and blocking wind that adversely impacts treatment performance.

**Consequence of Not Doing the Project:** Basins will continue to be exposed, requiring increased operations maintenance and temporary shutdowns to remove debris and algae, and the increased use of treatment chemicals.

## Capital Category

*Treatment Plant Reliability*

**Summary**

*Install covers over CDMWTP treatment basins to improve water quality*

**\$3,580,000**

# CDMWTP Clarifier Improvements

Project Number: P-90

## The Project

Plate settlers and piping modifications to the clarifier at CDMWTP will optimize water treatment performance by increasing the effective settling area of the existing sedimentation basins. Plate settlers reduce water turbidity and distribute water entering the clarifier effluent channel (CEC). Plate settlers move water through variably sized inlets to the settling zone where water velocity is controlled to increase particle settling. The project includes design and construction of plate settlers and piping modifications that will better remove turbidity from the sedimentation process during high turbidity events and extend filter run times for better filtration rates.



## Need for Project

Installing plate settlers and piping modifications at the CEC improves water quality by slowing the flow and can prolong the service life of filter media.

**Consequence of Not Doing the Project:** The performance of the CEC will remain the same and the level of turbidity and filter run times will not be improved.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Construct and install modifications at CDMWTP's clarified effluent channel to improve water quality*

**\$6,400,000**



# CDMWTP Wet Well Pump and Recirculation Automation

Project Number: P-91

## The Project

This project includes design, construction, and automation of a pump and piping system to continuously recirculate water when CDMWTP is offline for extended periods. The design will include a process to pump water from the clearwell at the end of the treatment train to the beginning of the treatment process for continuous water treatment and rechlorination. Recirculation allows the flocculation and sedimentation basins to remain clean and fresh and to be prepared for CDMWTP to come back online without needing major cleaning or draining. Continuously moving water through the system will improve water quality overall. During past shutdowns the District has used existing filter-to-waste channels to recirculate the water, but the process was a temporary, manual solution. This project provides an automated recirculation process.



## Need for Project

As observed in past CDMWTP outages, water lingering in the sedimentation basins becomes stagnant, and water quality can deteriorate quickly. Due to limited capacity for solids handling, water cannot be sent to the drying basins. Automated recirculation would address extended CDMWTP shutdowns during droughts, or outages of the South Coast Conduit and Tecolote Tunnel.

**Consequence of Not Doing the Project:** During CDMWTP shutdowns, recirculation efforts will continue to be performed manually as recommended by professional engineers. However, this process is inefficient, difficult to sustain over extended periods, and is outside of the CDMWTP's design parameters.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Automate the recirculation of water through CDMWTP during long-term outages*

**\$500,000**

# Remote Distribution System Water Quality Sensors

Project Number: P-92

## The Project

The District is required to monitor water quality at the treatment plant and 28 designated sampling locations in the distribution system. This currently includes manual monitoring of pH, temperature, chlorine residual and conductivity. New sensors will be installed in areas not currently monitored by manual sampling to detect leaks, contamination, or other changes in water quality in remote areas of the distribution system. This includes areas where access is limited, where pipe or facilities malfunctions may go unnoticed, or where increased monitoring would allow the District to respond quickly to changing conditions. Water quality sensors may include pH, temperature, chlorine residual, blue-green algae, organics, and/or total suspended solids.



## Need for Project

Remote water quality monitoring allows for the early detection of pipe breaks, cross-connection contamination, and other unpredictable events that may affect water quality in the distribution system. In emergencies, remote water quality monitoring can allow for targeted restoration of impacted areas of the distribution system. This significantly reduces response times after an emergency and allows the District to reallocate resources.

**Consequence of Not Doing the Project:** The District will continue to rely on manual water quality sampling for remote areas of the system, requiring more time in the field and travel for operators. In an emergency, diagnosis of poor water quality and restoration of service may be slower.

## Capital Category

*Water Quality*

Summary

*Expand automated water quality data collection capabilities to remote areas of the system*

\$420,000

# Upsize Pipeline at Edison Booster Pump Station

Project Number: P-93

## The Project

The District uses a mix of groundwater and surface water to mitigate water quality impacts from Lake Cachuma. Blending operations would be improved by increasing the pipeline capacity downstream of Edison Booster Pump Station (BPS). The volume of water discharged from Edison PRV is limited by downstream pipeline size, which restricts the District’s ability to blend water. This project upsizes the Edison PRV line from 12 inches to 16 inches to accommodate greater flows, and may reduce trihalomethane (THM) levels in portions of the system.



## Need for Project

Upsizing the pipeline allows for movement of more water, which is expected to improve water quality and help the District continue to meet THM drinking water standards.

**Consequence of Not Doing the Project:** Water quality blending operations would continue to be limited by flow capacity, and less blended groundwater and surface water would move through the distribution system.

## Capital Category

*Water Quality*

Summary

*Upsize the Edison BPS pipeline to increase capacity and improve system water quality*

\$1,000,000

# Recycled Water Slough Crossing

Project Number: P-94

## The Project

Constructing a new recycled water crossing at Goleta Slough crossing will mitigate the risk of failure in the steel pipeline along Moffet Place and Sandspit Road near Goleta Beach. Relocating this main will also mitigate the need to relocate the pipeline in the future as potentially compelled by the planned managed retreat of Goleta Beach by Santa Barbara County. The District delivers approximately 1.5 million gallons per day to recycled water customers to offset potable water demand, and all of the recycled water supply is conveyed through this pipeline located 25 feet beneath the slough. The project will include design, permitting, and construction of the new slough crossing.



## Need for Project

The existing pipeline is deteriorating and is at increased risk of failure. The County of Santa Barbara may compel the District to relocate a portion of the recycled water line for the managed retreat of Goleta Beach.

**Consequence of Not Doing the Project:** An eventual break of the recycled water main would mean a sustained outage of the recycled water system, as replacement would require a lengthy process of design, permitting, and construction. Additionally, a pipeline and/or valve rupture at this location could cause accidental and uncontrolled discharge of a significant volume of highly chlorinated water.

## Capital Category

*Distribution System Reliability*

Summary

*Design and construct relocation of the recycled water line at Goleta Slough*

\$1,700,000

# District-wide Fixed-Based Meter Reading System

**Project Number: P-95**

## The Project

Automated Meter Reading (AMR) will be outfitted on all small meters to provide readily accessible data to the customer and the District. The District already uses AMR technology on a select portion of its large meters covering 80% of the system by total water volume. The District-wide fixed base meter reading system consists of transmitters (meters) and receivers (reading software). These systems can be either hard-wired with information sent through cable or telephone lines, or wireless with repeater towers or antennas. This software is also able to detect customer leaks and monitor for highly abnormal water use patterns to prevent water waste and potential property damage. A contractor will install necessary hardware and software and assist in installation of the meters.



## Need for Project

This project will extend AMR to all meters, including Single Family Residential customers. It will eliminate the need for manual reads, although AMR systems typically require additional resources to manage the technological components. Additionally, software used with AMR meters is able to detect reverse flow events through the meter, identifying potential contaminant backflow issues and water quality concerns.

**Consequence of Not Doing the Project:** The District will continue to rely on manual meter reading for its smaller water customers who account for 20% of water usage.

## Capital Category

*Distribution System Reliability*

## Summary

*Install Automated Meter Reading (AMR) at all District meters for billing accuracy and water loss*

**\$11,300,000**

# Recycled Water 1 MG Reservoir

Project Number: P-96

## The Project

A one million gallon (MG) recycled water reservoir will increase recycled water storage, providing increased operational flexibility. Currently, recycled water is distributed through the booster pump stations located at Goleta Sanitary District and Hollister Avenue. During power outages, recycled water deliveries are interrupted. The proposed reservoir site is within the Ellwood 440 Pressure Zone and the proposed tie-in to the existing recycled water distribution system would be located at Cathedral Oaks Road. This project will also ensure adequate supplies of recycled water are available for customers during periods of peak recycled water demand.



## Need for Project

A recycled water storage reservoir will reduce service interruptions by providing continued recycled water during short-term recycled water system outages.

**Consequence of Not Doing the Project:** Recycled water system customers will continue to experience service interruptions when equipment malfunctions or power outages occur.

## Capital Category

*Distribution System Reliability*

## Summary

*Install a 1 million-gallon recycled water storage reservoir to improve operational flexibility*

**\$3,000,000**

# San Antonio Booster Pump Station Relocation

**Project Number: P-97**

## The Project

Relocating the San Antonio Booster Pump Station will eliminate flow restrictions to the San Marcos Reservoir and San Marcos Pressure Zone. The pump station is currently fed by a long section of undersized 8-inch pipelines. The proposed new location for the booster station is off of La Riata Lane, near the existing La Riata Reservoir. New 12-inch diameter piping and the relocated booster station will be fed by a short section of 12-inch pipeline from the La Riata Reservoir. The project will include design and construction of the relocation and associated piping.



## Need for Project

Relocating the San Antonio Booster Station and increasing pipeline diameter will provide improved operational flexibility and fire flows in the San Marcos Zone.

**Consequence of Not Doing the Project:** The current flow to San Marcos Reservoir will continue to limit the availability of water storage and system flexibility.

## Capital Category

*Distribution System Reliability*

**Summary**

*Relocate San Antonio Booster Pump Station to improve operational flexibility*

**\$1,700,000**

# CDMWTP Cathodic Protection

**Project Number: P-98**

## The Project

CDMWTP relies on two large, steel water storage tanks that are vulnerable to electrochemical corrosion and could benefit from a corrosion cathodic protection system. CDMWTP’s tanks store filter backwash water during the filter backwashing process. A new cathodic protection system can control the corrosion of metal by making it the cathode of an electrochemical cell, where electrochemical corrosion is transferred to a sacrificial anode that is preferentially corroded. Cathodic protection is among the most cost-effective options for preventing steel infrastructure corrosion. The project includes design and construction of additional deep well anodes, rectifiers, and cathodic protection test stations at CDMWTP.



## Need for Project

Corrosion is an ongoing problem that results in the deterioration and failure of steel infrastructure. Properly maintained cathodic protection prolongs the service life of steel infrastructure, minimizes service interruptions, and reduces the need for costly repairs.

**Consequence of Not Doing the Project:** Steel infrastructure at CDMWTP will continue to be subject to corrosion-related deterioration, and potential outages of the treatment system.

## Capital Category

*Treatment Plant Reliability*

## Summary

*Design and install cathodic protection on CDMWTP steel infrastructure to extend service life*

**\$500,000**



# Pressure Relief Valve Monitoring

**Project Number: P-99**

## The Project

The District operates and maintains more than 100 pressure relief valves (PRV) in the distribution system. PRVs facilitate the movement of water in the system by delivering high pressure water to lower pressure zones. Adding automated monitoring devices to pressure relief valves (PRVs) will help the District monitor water movement, validate its hydraulic model, improve blending operations for water quality, and comply with water loss regulations. It may also assist in identifying areas where water pressures can spike due to leaks or hydrant use. The project prioritizes PRVs with connections to the District's SCADA network for online tracking and data recording.



## Need for Project

Pressure monitoring and management are fundamental activities in maintaining reliable water deliveries to customers. PRVs help maintain adequate pressure, reliable asset performance, and reduce operating costs. Additional monitoring will help staff manage leaks and backflow events, while also capturing historical operational data.

**Consequence of Not Doing the Project:** The District will continue to rely on manual system pressure reads rather than automated reads and may be limited in its ability monitor PRV operability.

## Capital Category

*Distribution System Reliability*

## Summary

*Install PRV pressure and flow meters to monitor water movement for operational efficiencies*

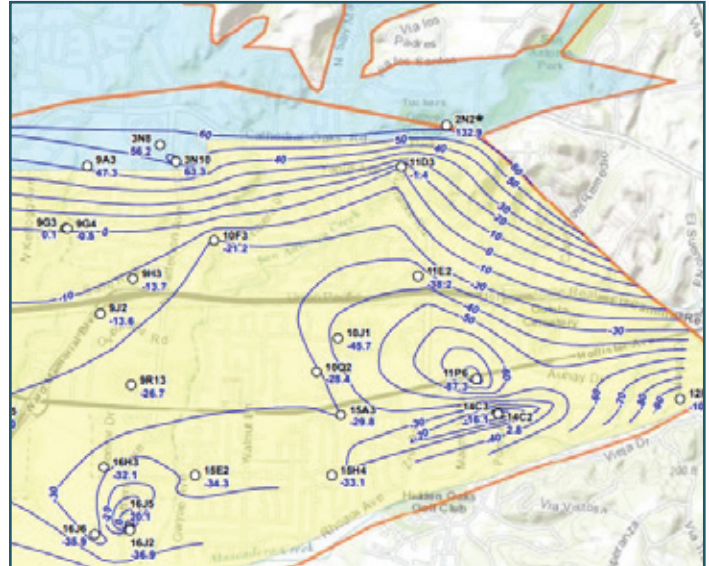
**\$1,400,000**

# Additional Injection Wells

Project Number: P-100

## The Project

The capacity of the District’s injection wells is roughly 10 acre-feet per day (AFD). Constructing additional injection wells will augment the District’s groundwater basin replenishment for its Aquifer Storage and Recovery (ASR) program. This project involves identifying existing and new injection well sites, analyzing the optimal rechargeable zones, determining the distribution system capacity to deliver additional injected water, permitting, and potentially drilling new injection wells. The project may also include installing new pressurized injection wells. This option will be evaluated against upgrading the existing ASR wells.



## Need for Project

The District has increasingly relied on groundwater to offset drought and water quality impacts to surface water supplies. When the Bradbury Dam at Lake Cachuma spills, the District has historically injected water into the groundwater basin. This accelerates the recovery of groundwater in the basin and allows the District to make use of this excess water at a later time.

**Consequence of Not Doing the Project:** The District will maintain its limited injection capacity, and basin recovery will be slower than if the new injection wells were built.

## Capital Category

*Groundwater Supply Reliability*

Summary

***Install groundwater injection wells to accelerate recharge of the Goleta Groundwater Basin***

\$2,500,000

# Indirect Potable Reuse: Pilot

**Project Number: P-101**

## The Project

The District’s 2016 Recycled Water Feasibility Study examined options to expand the use of recycled water. The study identified indirect potable reuse (IPR) as the most feasible reuse water supply. The study recommended testing a small-scale pilot treatment system as a first step in further exploring IPR. IPR involves additional treatment of the District’s existing recycled water supply from Goleta Sanitary District and injecting the purified water into the Goleta Groundwater Basin where it would mix with existing groundwater supplies prior to its extraction for subsequent treatment and delivery. This project will be installed in partnership with Goleta Sanitary District and will include design, permitting, and construction. Matching funding for the potable reuse may be available from State and Federal grants.



## Need for Project

Future droughts and changing State and Federal Regulations may affect the availability of groundwater and surface water supplies to meet customer demand in the coming decades. Additionally, to support sustainable basin management and the District’s Aquifer Storage and Recovery program, the District is actively looking at injection opportunities to recharge the basin. A pilot test of IPR technology will demonstrate the potential feasibility of providing an additional source of purified, potable water to District customers.

**Consequence of Not Doing the Project:** Not doing an IPR Pilot Project now will delay any potential alternative water supply project into the future.

## Capital Category

*Groundwater Supply Reliability*

**Summary**

*Design and construct a small-scale indirect potable reuse pilot to determine feasibility*

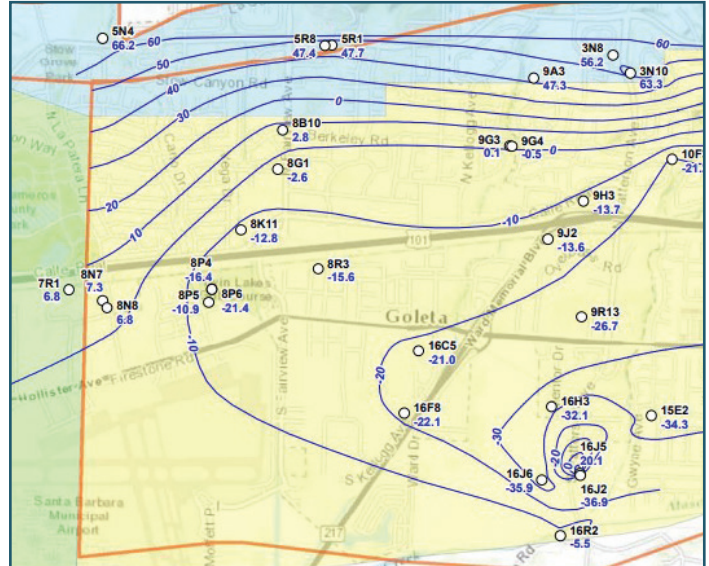
**\$1,500,000**

# New Groundwater Monitoring Wells

Project Number: P-102

## The Project

The District currently monitors groundwater elevations semi-annually in coordination with the United States Geological Survey (USGS). Data is used to inform groundwater management and planning, as well as for annual regulatory needs with the Wright Judgement and SAFE Ordinance. This project identifies sites for additional groundwater monitoring wells in areas of the basin lacking sufficient data. The District will evaluate optimal locations based on subsurface geology, land availability, and potential for the aquifer area to be negatively impacted by pumping drawdown resulting in subsidence or water quality deterioration.



## Need for Project

The District’s 2016 Groundwater Management Plan recommended additional monitoring well data be collected from areas of the basin lacking sufficient information to better inform groundwater management planning. This data would be especially helpful during periods of low groundwater storage to avoid negative impacts such as deteriorating water quality, land subsidence, and other risks.

**Consequence of Not Doing the Project:** The District will continue to base its modeling of groundwater levels and elevation changes on existing monitoring wells in the Goleta Groundwater Basin.

## Capital Category

*Groundwater Supply Reliability*

Summary

*Drill additional monitoring wells to provide improved data on groundwater basin levels*

\$1,000,000

# CDMWTP Storm and Waste Water Improvements

Project Number: P-103

## The Project

A 2014 study reviewed the storm water discharge system at CDMWTP and its waste water treatment system. The study recommended several best management practices for site improvements. This project will implement the recommended upgrades in the report, including laboratory pre-treatment and drainage improvements. Items for improvement to storm water drainage included increasing the storage facilities to better capture and treat storm water. Such facilities could include detention basins, decanting skimmers, debris screens, and intercepting ditches.



## Need for Project

Storm water and waste water controls are needed to reduce the environmental impacts of CDMWTP operations.

**Consequence of Not Doing the Project:** CDMWTP will rely on existing drainage patterns to control storm and waste water, which may result in treatment plant interruptions.

## Capital Category

*Treatment Plant Reliability*

Summary

*Implement remaining recommendations for site drainage and sewage treatment at CDMWTP*

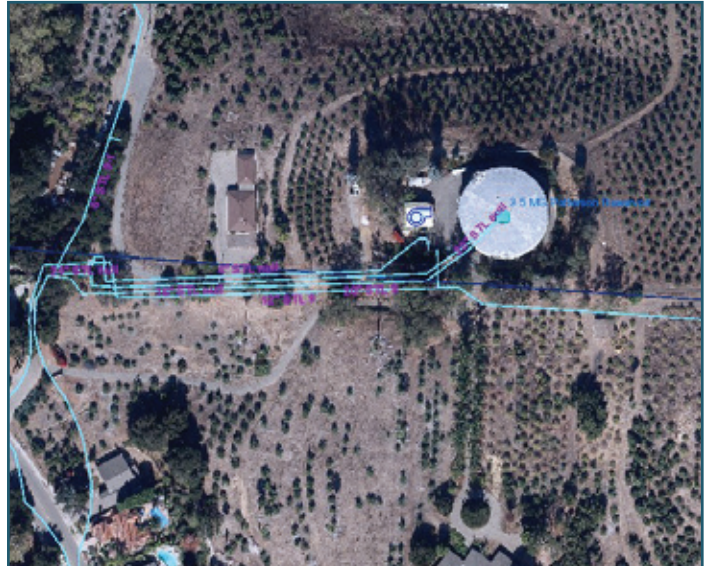
\$500,000

# Reservoir Power Generation

**Project Number: P-104**

## The Project

As part of the District’s sustainability efforts and to offset increased power costs, a study conducted in 2013 outlined various potential locations for new hydroelectric turbine installations throughout the District’s distribution system. Installing hydroelectric turbines at the Patterson, Ellwood, and/or Fairview Reservoirs will capture energy available from the District’s gravity fed operations and offset the District’s energy bills. This project includes design, permitting, construction, and coordination with Southern California Edison, the Western Renewable Energy Generation Information System, and the California Energy Commission to meet regulatory and operational requirements.



## Need for Project

Hydroelectric turbines use pressure and flowing water to spin turbines and generate electricity. The electricity generated from turbines installed at Patterson, Ellwood and Fairview Reservoirs could generate up to \$165,000 per year of additional revenue depending on the type of system selected at each site. The additional revenue would help support District operations, offset increasing energy costs, and assist in the overall goals of the District to reduce carbon emissions.

**Consequence of Not Doing the Project:** The District will not realize energy cost savings at these potential hydro-turbine locations.

## Capital Category

*Cost Efficiency and Productivity*

**Summary**

*Install hydroelectric generators at Patterson, Ellwood, and Fairview Reservoirs*

**\$900,000**

# Water Quality Maintenance in the Distribution System: Phase 3

Project Number: P-105

## The Project

Installing trihalomethane (THM) reduction treatment in remote areas of the distribution system will help the District continue to meet THM drinking water standards. As part of the Water Quality Maintenance in the Distribution System project, this third phase may include aeration treatment in Barger, La Riata, and/or San Marcos zones. Water quality can degrade in remote areas of the distribution system where demand is less, and water is turned over less frequently. Water quality modeling and engineering analysis shows that additional aeration treatment is a cost-effective approach to water quality maintenance in the event further treatment is needed. The project may include procurement and installation of reservoir aerators or other newer treatment technology as water quality becomes variable or as new regulations are introduced.



## Need for Project

Changing conditions at Lake Cachuma have elevated surface water organic levels, increasing the formation rate of disinfection byproducts, including THMs. The District has employed reservoir aeration treatment and operational modifications to maintain water quality throughout the distribution system. Additional treatment may be necessary and will be considered should water quality conditions worsen.

**Consequence of Not Doing the Project:** If water quality declines further, the District may not be able to ensure all reaches of the District distribution system remain in compliance with THM drinking water standards.

## Capital Category

*Water Quality*

## Summary

*Install additional aeration treatment in the distribution system to maintain water quality if needed*

**\$1,110,000**

# Corona Reservoir Metering Facility

Project Number: P-106

## The Project

During blending operations, Patterson Reservoir pumps groundwater uphill into Corona Reservoir where it mixes with treated surface water. Installing a metering facility at Corona Reservoir will allow the District to quantify these flows, and help the District optimize blending to improve water quality and reduce pumping costs. The project includes design and construction of an underground bypass downstream of Corona Reservoir on the 42-inch transmission main. The bypass will include with a 16-inch meter to measure uphill flows and a 24-inch meter to measure downhill flows from Corona Reservoir.



## Need for Project

The District does not currently have the infrastructure needed to accurately measure the blending of groundwater and surface water supplies in the Corona Reservoir. This project allows the District to optimize system operations and potentially reduce blending pumping costs, while maintaining water quality.

**Consequence of Not Doing the Project:** The District will continue to rely on rough estimates to understand the blended flows of surface water and groundwater in the transmission main.

## Capital Category

*Water Quality*

Summary

*Install metering to optimize the blending of ground and surface water at Corona Reservoir*

**\$2,000,000**



# Headquarters Stormwater Improvements

Project Number: P-107

## The Project

While the District is currently compliant with its Industrial Stormwater Permit, the District may be compelled in the future to install additional improvements identified in the 2014 Stormwater Headquarters Master Plan. This Master Plan was developed to comply with State Water Resources Control Board Industrial Stormwater General Permit regulations, and it requires the District to employ best management practices to prevent and treat stormwater discharge from the District’s Headquarters. Additional identified projects include, but are not limited to, installing a bioretention area, parking lot wetlands, and/or permeable paving.



## Need for Project

If the District’s stormwater discharge quality declines, the District will need to implement additional stormwater improvement measures to prevent permit violations.

**Consequence of Not Doing the Project:** If storm water regulations are violated, the District may be compelled to hire a Qualified Industrial Stormwater Practitioner to develop an Emergency Response Action Plan filed with the State.

## Capital Category

*Regulatory Compliance*

Summary

*Maintain stormwater pollution prevention compliance measures at District Headquarters*

\$200,000

## 2 MG Ellwood Reservoir

**Project Number: P-108**

### The Project

A new 2 million gallon (MG) reservoir next to the existing Ellwood Reservoir is needed to better meet operational, emergency, and fire flow demands in the Reduced Ellwood 440 Pressure Zone. Demands have increased as western Goleta has been developed, and have exceeded the capacity of the existing 1.5 MG reservoir. Each pressure zone of the water system should have adequate storage capacity to supply water during an unplanned outage of a transmission main or other unexpected system scenario. The Reduced Ellwood Zone is currently equipped to receive backup water supply via the emergency Edison Booster Pump Station, which itself does not have the capacity to meet peak summer demands. This project will design and construct a second Ellwood Reservoir.



### Need for Project

The capacity of the existing Ellwood reservoir is 1.5 MG, below optimal levels to meet peak hourly flow and fire flow. Should an emergency arise, such as a wild fire or a transmission line break, storage capacity of the existing reservoir and backup supply through Edison Booster Pump Station could be insufficient to meet the flow demand and supply for 4,000 District customers.

**Consequence of Not Doing the Project:** The Reduced Ellwood Zone may not have sufficient backup water supply in the event of a planned or unplanned water outage.

### Capital Category

*Distribution System Reliability*

**Summary**

*Design and construct a second Ellwood Reservoir to accommodate peak demand and fire flow*

**\$6,000,000**

# CDMWTP Hillslope Solar

Project Number: P-109

## The Project

Solar energy generation at CDMWTP will provide renewable power, lower energy costs, and limited backup energy if the CDMWTP emergency power generator becomes inoperable. CDMWTP is one of the biggest energy-consuming District facilities. South-facing hillsides surround the plant and provide a suitable location for solar energy generation. Based on historical energy demands, ground-mounted solar panels could generate enough power to offset a majority of the CDMWTP’s average energy demand. However, the payback period may be greater than 20 years based on current electricity costs. This project includes solar design and construction, as well as identifying available incentives to offset project costs.



## Need for Project

Using renewable energy can reduce power costs, while also providing energy security and independence. Revenue generation can also offset increasing energy costs and meet the District’s goal of reducing carbon emissions. Onsite power generation may also mitigate potential public safety power shutdown impacts.

**Consequence of Not Doing the Project:** The District will continue to rely on the electrical grid and the onsite diesel power generator at CDMWTP, forgoing potential energy cost-savings.

## Capital Category

*Cost Efficiency and Productivity*

## Summary

*Install solar panels at CDMWTP to generate an independent energy source and offset energy costs*

**\$2,000,000**

# Well Water Treatment Centralization Study

Project Number: P-110

## The Project

Currently seven of the District’s nine wells have on-site treatment. Alternatively, a centralized well water treatment facility will allow raw well water to be piped to a single central location for treatment and distribution. The benefit of centralized well treatment is consistent treated water quality and uniform blending into the distribution system. This project studies the economic feasibility of centralized well treatment for all or several District wells. A groundwater treatment consultant will be selected to conduct the study, present a number of alternatives, and determine the feasibility of centralized well water treatment.



## Need for Project

Onsite well water treatment at each of the District’s nine production wells requires frequent chemical deliveries at scattered sites and produces varying water quality at each location. Centralized well water treatment can generate more consistent water quality and reduce operating costs through centralized maintenance, less equipment, and less frequent chemical deliveries.

**Consequence of Not Doing the Project:** The District will continue to rely on dispersed well treatment facilities and variable treated groundwater quality in different areas of the distribution system.

## Capital Category

*Treatment Plant Reliability*

Summary

*Study the feasibility of centralized well treatment to minimize operational costs across multiple wells*

\$400,000

# Goleta West Conduit Potable Connection

Project Number: P-111

## The Project

The District currently receives a waiver from the Federal Surface Water Treatment Rule to provide chlorinated non-potable water to customers served by the Goleta West Conduit (GWC) pipeline. This project identifies alternatives to provide potable water to GWC customers. One method consists of a dedicated potable pipeline from CDMWTP, operated and maintained by the District. Other alternatives may include individual point-of-use treatment systems for each customer, a small water treatment plant along the GWC, or new wells to pump and treat groundwater in the GWC area.



## Need for Project

The State Water Resources Control Board Division of Drinking Water has allowed the District to provide bottled water to GWC customers as an alternative source of potable water. Should this no longer be allowed, this project will provide potable water directly to GWC customers.

**Consequence of Not Doing the Project:** State or Federal regulators may compel the District to complete serve potable drinking water to GWC customers.

## Capital Category

*Regulatory Compliance*

Summary

*Evaluate and construct a potable water supply alternative for the Goleta West Conduit Customers*

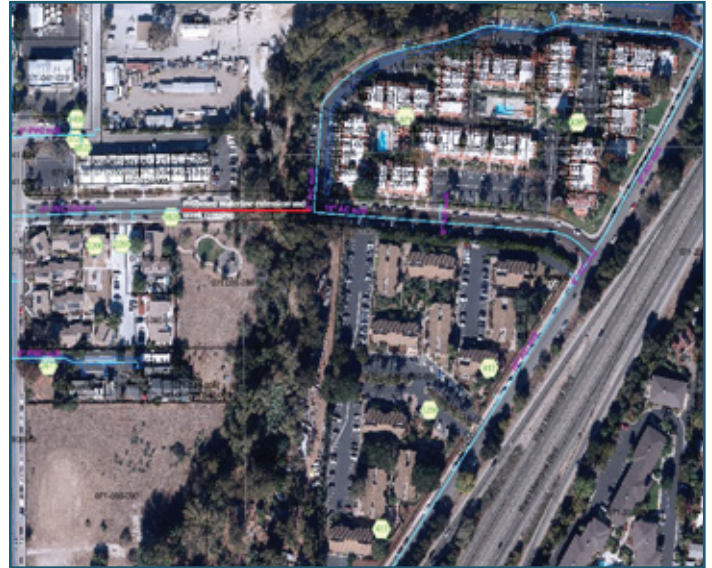
**\$28,000,000**

# Armitos Avenue Crossing of San Jose Creek

Project Number: P-112

## The Project

District customers near Dearborn Place and Armitos Avenue are presently vulnerable to outages when Hollister or Dearborn water mains require repair and outages. Adding a pipeline connection across San Jose Creek on Armitos Avenue can reduce service interruptions to hundreds of area residents. This project includes design, permitting, and construction of a pipeline that connects the 8-inch Armitos Avenue pipeline on the west side of San Jose Creek to a larger 10-inch pipeline on the east side.



## Need for Project

Over 200 homes in the Dearborn area are fed by a single pipeline and are subject to service outages when repairs are needed upstream. The new pipeline provides a second connection that increases operational flexibility and reduces service interruptions.

**Consequence of Not Doing the Project:** Customers on Dearborn Place will continue to be subject to service outages during planned or unplanned work on Dearborn Place or Hollister Avenue.

## Capital Category

*Distribution System Reliability*

## Summary

*Connect two pipelines at Armitos Avenue and San Jose Creek to increase service reliability*

**\$800,000**

# Railroad Crossing at Kellogg Avenue

Project Number: P-113

## The Project

The District has an existing pipeline across Highway 101 that terminates at the railroad track. This project extends the pipeline under the railroad and connects it to the existing pipeline at Kellogg Avenue. Connecting the two pipelines will improve system-wide distribution reliability and create another freeway crossing at North Kellogg Avenue for overall system reliability. A looped connection will also improve water quality and fire flow for a portion of Old Town Goleta. Design for this pipeline connection was completed in 2019. This project includes encroachment permitting and construction.



## Need for Project

Connecting pipelines on either side of the railroad track at North Kellogg Avenue will increase distribution reliability, improve water quality and fire flow, and reduce service interruptions to a portion of Old Town Goleta.

**Consequence of Not Doing the Project:** Portions of Old Town Goleta will continue to be subject to existing limitations on fire flow, water quality, and service outages.

## Capital Category

*Distribution System Reliability*

## Summary

*Connect two pipelines at the railroad and Kellogg Avenue to reduce water service interruptions*

**\$650,000**

# Upsize Los Carneros Pipeline (Covington Way to Calle Real)

Project Number: P-114

## The Project

This project upsizes the Los Carneros Road pipeline from 14 inches to 20 inches between Covington Way and Calle Real. Because the area is fed with an undersized pipeline for current demand, flow capacities can exceed the recommended maximum. Upsizing the main will eliminate the flow limitation for areas downstream, including Isla Vista and UCSB. This project includes design and construction of the upsized pipeline.



## Need for Project

Upsizing the Los Carneros pipeline will double the current flow capacity and eliminate a bottleneck during peak demand or fire flow demand to a densely populated area of the District.

**Consequence of Not Doing the Project:** If high fire flows are required in the area fed by Los Carneros pipeline, the high water flow velocity may scour the pipe, resulting in possible pipeline failure.

## Capital Category

*Distribution System Reliability*

Summary

*Upsize the Los Carneros pipeline to increase flows and meet fire flow needs*

\$650,000



# Transmission Main 36-Inch Parallel Pipeline

Project Number: P-115

## The Project

The District’s transmission main runs from CDMWTP southerly to Cathedral Oaks Road and then easterly along Cathedral Oaks Road and feeds a majority of the District’s reservoirs and customers. The existing transmission main is aging and has been subject to earth movements. It is at increased risk of failure, raising the need to consider adding redundancy. A parallel 36-inch transmission main to the existing transmission main between CDMWTP and Cathedral Oaks can provide redundancy in the event of a transmission main failure. A second transmission main can also be used while the existing main is out of service for maintenance and/or inspection.



## Need for Project

A second, parallel main provides reliability and flexibility during planned and unplanned outages.

**Consequence of Not Doing the Project:** An unplanned outage of the existing main may require extensive emergency response, costly repairs, and reliance on backup supply through the Ellwood Zone, groundwater wells, and/or interconnections with the City of Santa Barbara.

## Capital Category

*Distribution System Reliability*

Summary

*Design and construct a parallel transmission main for resiliency and operational flexibility*

\$3,200,000

# Cathedral Oaks and Highway 101 Overcrossing: Phase 2A

Project Number: P-116

## The Project

Phase 1 of the Cathedral Oaks and Highway 101 Overcrossing (completed in 2012) installed sleeves for the potable and recycled water lines in the overcrossing bridge. Phase 2A realigns a portion of Hollister Avenue by the City of Goleta, which will include replacement of a recycled pipeline (approximately 500 feet) in Hollister Avenue that no longer aligns with the road to allow better pipeline access. This project will also install several hundred feet of new pipeline to connect potable water pipelines on either side of the highway. This will loop a dead-end of the potable distribution system.



## Need for Project

The District often needs to relocate and replace facilities due to outside agency projects. The City of Goleta is conducting its Cathedral Oaks Road/Highway 101 Overcrossing Project, which realigned sections of Hollister Avenue. To take advantage of relocations, the District will also loop the potable water pipeline system in this area to decrease water age and improve local water quality.

**Consequence of Not Doing the Project:** An unplanned outage of the existing pipeline may require extensive emergency response, costly repairs, and backup water supplies to the Ellwood Zone.

## Capital Category

*Distribution System Reliability*

## Summary

*Install a new pipeline in conjunction with the City of Goleta's Highway 101 Overcrossing project*

**\$400,000**

# Loop at La Vista-Alta Mira Booster Stations

Project Number: P-117

## The Project

This project installs approximately 850 feet of new pipeline at the north ends of La Vista Road and Alta Mira Drive. The new pipeline will connect and loop existing pipelines, which will improve fire flow and water quality in the area. The project will include design and construction of the pipeline, as well as the installation of an additional fire hydrant. By installing the pipeline, the La Vista and Alta Mira Booster Stations will be hydraulically connected, improving reliability and operational flexibility, and will reduce pumping and maintenance costs.



## Need for Project

The existing pipelines in La Vista Road and Alta Mira Drive come to dead ends several hundred feet short of creating a looped water system. This project improves water system reliability and water quality for the area, while also installing an additional fire hydrant to better meet fire flow requirements.

**Consequence of Not Doing the Project:** Water pressure and flow capacity may continue to be limited in the area of La Vista Road and Alta Mira Drive.

## Capital Category

*Distribution System Reliability*

## Summary

*Install a new pipeline at La Vista and Alta Mira to loop dead ends and improve service reliability*

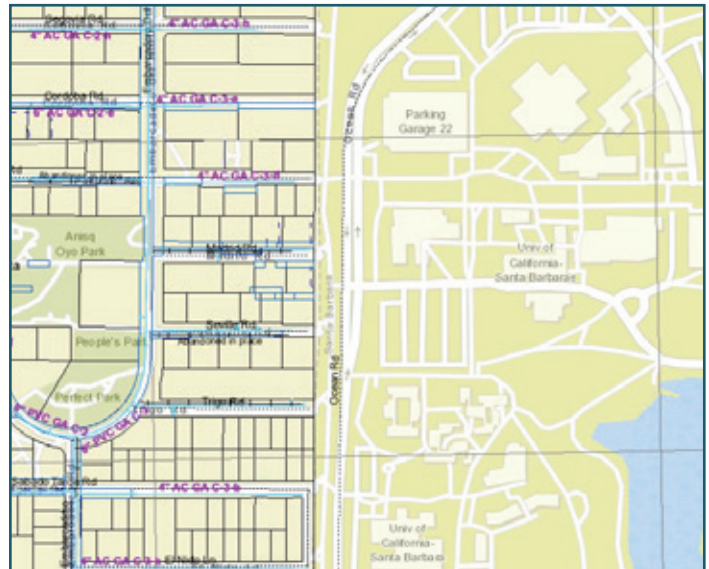
**\$375,000**

# Ocean Road Pipeline

Project Number: P-118

## The Project

There are many undersized pipelines and dead ends in the east part of Isla Vista, which can result in poorer water quality from stagnant water. This project installs a new pipeline on Ocean Road to eliminate dead ends and improve water quality. The new pipeline will make available the connection of many small street mains to be looped along Ocean Road. The project includes easement acquisition, design, and construction. Future projects will connect the existing dead-end pipeline runs on perpendicular streets to the new Ocean Road pipeline.



## Need for Project

Isla Vista’s population has grown beyond the population for which original pipelines were sized. A new pipeline running from El Colegio Road to Del Playa Drive on Ocean Road can eliminate several dead-ends, accommodate increased water demand, provide increased fire flow, and improve water quality.

**Consequence of Not Doing the Project:** Isla Vista pipelines will remain undersized and disconnected, limiting fire flows and water quality improvements.

## Capital Category

*Distribution System Reliability*

## Summary

*Install a new pipeline along Ocean Road for increased system reliability and water quality*

**\$1,900,000**

# Recycled Pipeline at Fairview Road to Hollister Avenue

Project Number: P-119

## The Project

Constructing a looped recycled water system will improve operational reliability. A new pipeline will start at Goleta Sanitary District and continue along Fairview Avenue towards Hollister Avenue. The recycled pipeline will continue west on Hollister Avenue as part of the first phase of the recycled water pipeline extension. Future phases will continue to construct a recycled water pipeline in Hollister Avenue until it connects with the existing pipeline at Storke Avenue.



## Need for Project

Currently, if the recycled pipeline breaks or needs repair, all customers downstream of the leak are interrupted. A looped recycled water system allows water to be supplied from a different pipeline. This recycled water extension would reduce service interruptions to recycled water customers, who rely on recycled water for toilet flushing and landscape irrigation.

**Consequence of Not Doing the Project:** A break of the recycled water line would put downstream recycled water customers out of service until the break is repaired.

## Capital Category

*Distribution System Reliability*

## Summary

*Begin construction of a second recycled water pipeline to hydraulically loop the system*

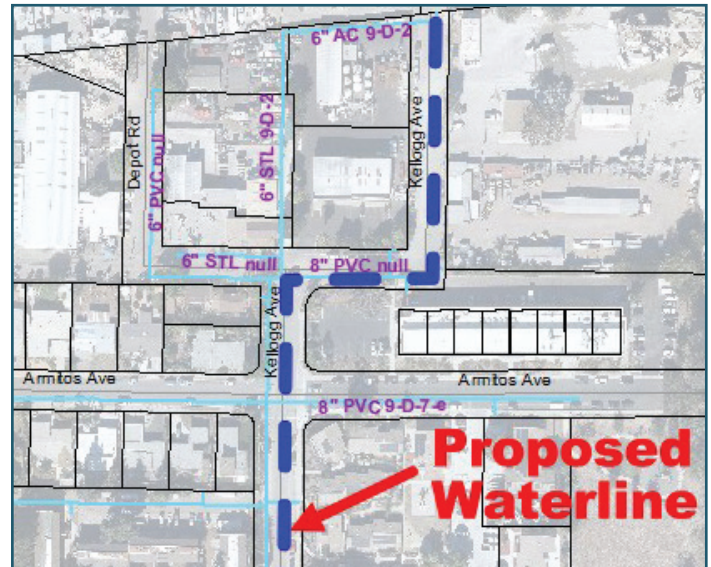
**\$4,000,000**

# Kellogg Pipeline Upsizing

Project Number: P-120

## The Project

This project upsizes the pipeline on Kellogg Avenue after completion of the Railroad Crossing at Kellogg. The pipeline will be upsized and extended to install a new major transmission pipeline along Kellogg Avenue. This will accommodate future pipeline size upgrades in the Old Town Goleta area, while also providing a more reliable water system for meeting peak demand and fire suppression flows.



## Need for Project

Old Town is served by a number of smaller 6-inch pipelines. Upsizing the transmission pipeline along Kellogg Avenue to Hollister Avenue would allow future upsizing of the existing, smaller water lines in the area to accommodate increased demand and water pressures.

**Consequence of Not Doing the Project:** The Old Town Goleta area may continue to experience limited water flows and pressure due to undersized pipelines.

## Capital Category

*Distribution System Reliability*

Summary

*Upsize a pipeline on Kellogg Avenue to increase service reliability in Old Town Goleta*

\$1,800,000

# Covington Pipeline Upsizing (Valdez to Fairview)

Project Number: P-121

## The Project

The pipeline along Covington Way between Valdez Avenue and Fairview Avenue is undersized for current demand in the area. This project upsizes the existing pipeline to meet recommended flow velocities and pressures. The length of the proposed pipeline is approximately 2,800 feet on Covington Way. Existing service lines, water meters, and fire hydrants on Covington Way and Berkeley Road will be disconnected and reconnected to the new pipeline. Three new fire hydrants will also be added to increase fire protection.



## Need for Project

Existing pipelines on Covington Way between Fairview Avenue and Valdez Avenue are insufficient for current conditions. Upsizing the pipeline will be consistent with surrounding pipelines and current GWD Standards and Specifications for new pipelines. Upsizing decreases frictional loss, improves fire flow, and increases water pressure.

**Consequence of Not Doing the Project:** The existing water line may be undersized, limiting water pressures and flows to the surrounding areas.

## Capital Category

*Distribution System Reliability*

## Summary

*Upsize a pipeline along Covington Way to meet increased demands and improve fire flow*

**\$2,000,000**

# Cathedral Oaks Pipeline Upsizing (Paseo Del Pinon to Northgate)

Project Number: P-122

## The Project

This project increases the size of the Cathedral Oaks pipeline between Paseo Del Pinon and Northgate Drive to provide increased flow and improved hydraulics. The project designs and constructs approximately 1,900 feet of new, upsized 20 inch pipeline to replace an existing 12 inch pipeline. Fire flows to the area will be improved, and flow velocities will be reduced, which may help extend the service life of the pipeline.



## Need for Project

Installed in 1969, the Cathedral Oaks pipeline between Paseo del Pinon and Northgate is currently undersized for current conditions. A larger pipeline will increase fire flow and hydraulic pressures to the area.

**Consequence of Not Doing the Project:** This segment of pipeline may experience premature deterioration from scouring caused by elevated flow velocities.

## Capital Category

*Distribution System Reliability*

## Summary

*Install a larger pipeline along Cathedral Oaks for improved water pressure and fire flow*

**\$1,800,000**



# Cathedral Oaks and Highway 101 Overcrossing Project: Phase 2B

Project Number: P-123

## The Project

Phase 2B of the City of Goleta’s Cathedral Oaks Highway 101 Overcrossing Project extends the District’s recycled water distribution system to the north side of Highway 101. This project installs a recycled water pipeline at the Cathedral Oaks Highway 101 overcrossing, achieving the goal of carrying recycled water across the highway for expanded use. Phase 1 was completed in 2012 and consisted of installing sleeves for potable and recycled water lines in the Highway 101 overcrossing bridge. Phase 2A relocates facilities along a portion of Hollister Avenue being realigned by the City of Goleta.



## Need for Project

The final phase of the Highway 101 Overcrossing project extends recycled water service to the northwestern portion of the City of Goleta. Recycled water offsets potable water use and increases the District’s water supply flexibility during water shortages. This project also provides an opportunity for potential recycled water landscape irrigation at the Winchester Commons and surrounding neighborhoods.

**Consequence of Not Doing the Project:** Recycled water use remains limited to the southern side of Highway 101 at Cathedral Oaks and Calle Real.

## Capital Category

*Distribution System Reliability*

## Summary

*Install a recycled water pipeline across Highway 101 to Cathedral Oaks for new recycled water customers*

**\$768,000**

# CDMWTP Creek Crossing Improvements

Project Number: P-124

## The Project

During past winter storm events, the section of the CDMWTP access road at the creek crossing has flooded and prevented access for CDMWTP personnel and chemical deliveries until flooding recedes. This project modifies the access road creek crossing to ensure access to the treatment plant remains open at all times for emergency responders, plant personnel, and critical chemical deliveries. This project will include design, construction, and permitting after review of multiple creek crossing alternatives.



## Need for Project

The CDMWTP access road contains a short, low fair-weather creek crossing, which can become flooded during heavy winter storm events. Treatment plant staff, plant deliveries, and emergency personnel cannot access the treatment plant when the road is flooded.

**Consequence of Not Doing the Project:** The CDMWTP access road may be inaccessible during intense flash flood events, disrupting plant access and potentially leaving the plant understaffed until flooding subsides.

## Capital Category

*Treatment Plant Reliability*

Summary

*Analyze and mitigate periodic inaccessibility of the CDMWTP Access Road due to flooding*

\$1,000,000

# Electronic Document Management System

Project Number: P-125

## The Project

The District generates and manages thousands of important documents across departments and buildings. Organizing and archiving the District’s many thousands of electronic files with an Electronic Document Management System can ensure effective tracking, document access, and knowledge transfer. The project will implement an electronic document management system in three phases. Phase 1 will assess the District’s current ability and needs. Phase 2 will take the District’s documents, easements, record drawings, historical studies, contracts, maps and similar information, and reproduce them in electronic form for improved retrieval capability. Phase 3 will incorporate newly developed documents into an electronic document management system.



## Need for Project

When performing important District analysis and research, the lack of a consolidated and comprehensive document management system challenges the District’s ability to retrieve supporting documents and identify relevant information for important decision-making. Today’s manual documentation practices result in documents being moved, misplaced, and redundant copies being made by departments.

**Consequence of Not Doing the Project:** The District continues to use current documentation tracking processes, which increase the potential for errors, lost information, and delays, and limits improvements to productivity.

## Capital Category

*Cost Efficiency and Productivity*

Summary

*Implement an electronic document management system for process tracking and work efficiency*

\$400,000

# Additional Fire Hydrants

**Project Number: P-126**

## The Project

This project installs up to six fire hydrants in areas that would benefit most from increased fire protection. Fire protection codes for new construction requires new hydrants to be located no further than 500 feet apart in single family residential areas and 300 feet apart in multi-family residential or industrial/commercial areas. Given the pattern of development over the last 65 years, there are areas that could benefit from shorter gaps between hydrants. While these hydrants are not required by the current fire protection regulation for existing construction, recent wildfires close to residential areas serve as reminders of the potential benefits of increased fire protection. This project will apply the requirements for new construction to areas of older construction to improve hydrant access for the fire department.



## Need for Project

Increased wildfire incidence and updated fire protection codes for new construction require closer spacing of fire hydrants. This project would improve fire hydrant coverage in areas of older construction to improve fire-fighting capabilities within the District.

**Consequence of Not Doing the Project:** The Fire Department will rely on existing fire hydrant spacing to respond to emergency events.

## Capital Category

*Emergency Resilience*

**Summary**

*Install additional hydrants in areas most vulnerable to fire*

**\$100,000**

# Recycled Water PRV Vault Relocation

Project Number: P-127

## The Project

The District currently accesses its recycled water pressure reducing valve (PRV) vault within the Glen Annie Golf Course property. This project will relocate the vault to improve access for District operators and contractors. The District currently has limited access to this private property, and vehicular and heavy equipment access is frequently restricted; District staff are compelled to use golf carts as alternative transportation. Thus, District operators are limited in their ability to bring tools and equipment to maintain the vault.



## Need for Project

Due to limited access to the recycled water PRV vault at Glen Annie Golf Course, a relocation can increase service reliability, maintenance, and repairs to the PRV.

**Consequence of Not Doing the Project:** District staff will continue to access the site by permission of the Glen Annie Golf Course using their golf carts, potentially delaying necessary repairs and interrupting recycled water service to customers.

## Capital Category

*Distribution System Reliability*

Summary

*Relocate the Recycled Water Pressure Reducing Vault to improve accessibility and service reliability*

\$150,000

# La Gama PR Vault Relocation

Project Number: P-128

## The Project

The La Gama Pressure Reducing (PR) vault and entry manhole is currently located in the number two lane of Turnpike Road at La Gama Way. This project includes design and construction of a pressure reducing vault in a new, safer location. Relocating the vault out of the middle of the street will reduce safety risks for District operators and reduce traffic disruptions on Turnpike Road.



## Need for Project

District operators access the La Gama vault through a manhole in the middle of Turnpike Road, putting operators at a significant traffic safety risk. Relocating the vault provides safer access and allows for more frequent maintenance based on ease of access.

**Consequence of Not Doing the Project:** District personnel continue to be exposed to risk of harm from vehicle traffic when accessing the La Gama PRV vault, and access to the vault remains limited, restricting routine maintenance and reliability of the facility.

## Capital Category

*Distribution System Reliability*

Summary

*Relocate the La Gama PR vault to a location with safer access*

\$150,000

# Control Wiring Cabinets Record Drawings Update

Project Number: P-129

## The Project

The majority of electronic processes used for operating valves and equipment throughout the District require control panels or motor control centers (MCCs). To ensure the District can effectively troubleshoot problems when they arise, this project consists of updating record drawings for control wiring cabinets. Emergency repairs and modifications have not always been updated in record drawings, resulting in old record drawings that are not accurate or helpful when repairs are needed. This project reviews all the District's control cabinets, including control panels and MCCs, to revise and update the record drawings to reflect current conditions.



## Need for Project

Accurate record drawings for control cabinet wiring are needed for effective maintenance and repairs without delays.

**Consequence of Not Doing the Project:** The District will continue to rely on record drawings that may not reflect as-built conditions, which can result in unforeseen operational problems, safety concerns and added costs to mitigate.

## Capital Category

*System-wide Reliability and Safety*

## Summary

*Update record drawings for control cabinet wiring for improved accuracy and reference*

**\$750,000**

# Hydraulic Improvements for Injection

Project Number: P-130

## The Project

To accommodate increased injection into the Goleta Groundwater Basin for storage, this project adds and upsizes pipelines and connections between pressure zones to overcome hydraulic limitations in the current distribution system. Specifically, groundwater injection is limited by the District’s ability to move water to areas of the distribution system where injection will take place. These improvements are needed to avoid flow velocities scouring pipelines as the District moves more water to parts of the system than originally designed. Specific improvements include, but are not limited to, adding a pipeline crossing beneath Highway 101, adding a pressure reducing valve connection between Turnpike Pressure Zone and the eastern 230 Pressure Zone, and upsizing several key mains.



## Need for Project

Hydraulic improvements will increase the amount of water the District can move through the distribution system for injection.

**Consequence of Not Doing the Project:** The District will limit the amount of water it injects to protect the existing distribution system.

## Capital Category

*Groundwater Supply Reliability*

Summary

*Improve hydraulics of distribution system to accommodate increased injection*

\$1,960,000



# Combined Power Generation

**Project Number: P-131**

## The Project

Hydroelectric turbines at key points in the distribution system can generate power and cost-savings. A 2013 engineering study identified La Riata Reservoir, Sterrett Pressure Reducing Valve, Lateral 7, La Gama Pressure Reducing Valve, and the Glenn Annie Pressure Reducing Valve as locations well suited for power generation. The project will include design and construction and coordination with Southern California Edison, the Western Renewable Energy Generation Information System, and the California Energy Commission to meet regulatory and operational requirements.



## Need for Project

Hydroelectric turbines use pressure and flowing water to spin turbines and generate electricity. The electricity generated from turbines can generate additional revenue depending on the type of system selected at each site. The additional revenue will help support District operations, offset increasing energy costs, and assist in the overall goals of the District to reduce carbon emissions.

**Consequence of Not Doing the Project:** The District will not realize energy cost savings at these potential hydroelectric turbine locations.

## Capital Category

*Cost Efficiency and Productivity*

**Summary**

*Design and construct hydroelectric turbines to generate power and reduce energy costs*

**\$800,000**

# District Headquarters Rooftop Solar

**Project Number: P-132**

## The Project

Solar panels mounted on the south-facing roofs of the District’s Administration, Engineering, and Operations buildings could generate an estimated 113,500 kWh of energy, equal to 71% of the Headquarters’ annual average energy demand. This project includes design and construction of solar systems at the District’s Headquarters, while also identifying rebates and incentives to offset project costs. Although the benefits include offsetting energy use at the District’s Headquarters, the payback period of proposed solar may exceed 20 years based on current electricity costs.



## Need for Project

Using renewable energy can reduce power costs, while also providing energy security and independence. Revenue generation can also offset increasing energy costs and meet the District’s goal of reducing carbon emissions. Onsite power generation may also mitigate potential public safety power shutdown impacts.

**Consequence of Not Doing the Project:** The District will continue to rely on the electrical grid and onsite diesel power generator at its headquarters.

## Capital Category

*Cost Efficiency and Productivity*

## Summary

*Install solar panels at the District’s Headquarters to generate clean energy and offset energy costs*

**\$250,000**

# Indirect Potable Reuse: Full Scale

**Project Number: P-133**

## The Project

The District’s 2016 Recycled Water Feasibility Study examined options to expand the use of recycled water. The study recommended indirect potable reuse (IPR) as the most cost-beneficial and feasible potable reuse alternative water supply. IPR involves additional treatment of the District’s existing recycled water supply from Goleta Sanitary District and injecting purified water into the Goleta Groundwater Basin, where it mixes with existing groundwater supplies prior to its extraction for treatment and delivery. This project consists of design and construction of a treatment facility, pipelines, and injection facilities, following successful completion of a pilot test. Matching funding for the potable reuse is anticipated from State and Federal grants.



## Need for Project

Future droughts and changing State and Federal regulations may affect the availability of groundwater and surface water supplies to meet customer demand in the coming decades. Additionally, to support sustainable basin management and the District’s Aquifer Storage and Recovery program, the District is actively looking at injection opportunities to recharge the basin.

**Consequence of Not Doing the Project:** The District will remain reliant on existing surface water and groundwater supplies.

## Capital Category

*Groundwater Supply Reliability*

**Summary**

*Design and construct a full scale Indirect Potable Reuse system*

**\$55,000,000**

# Asset Management Program and Computerized Maintenance System

Project Number: P-134

## The Project

To minimize costly infrastructure replacement, the District has been building an asset management program over the last two years. Employing a computerized management system can improve the scheduling and tracking of repairs, maintenance, inspections, and conditions assessments. System management prolongs the service life of pipelines, valves, hydrants, reservoirs, pump stations, groundwater wells, treatment facilities, electrical power gear, and fleet vehicles. An Asset Management Program and Computerized Maintenance System will help manage the District’s capital infrastructure, increase operational efficiency and extend the service life of its physical assets. This project will review available computer programs and tools best suited for the District’s infrastructure goals, and implement the most suitable system.



## Need for Project

To help minimize costs to future customers and improve the efficiency of the District’s asset management program, computerized asset management and maintenance systems would improve the efficiency of these efforts. Specifically, computerized systems would improve tracking of maintenance, repair, and conditions assessments and potentially prolong the service life of existing infrastructure.

**Consequence of Not Doing the Project:** The District will continue to rely on field observations for maintenance planning and budgeting with limited information.

## Capital Category

*Cost Efficiency and Productivity*

Summary

*Implement computerized asset and maintenance management programs to prolong asset life*

\$140,000

# CDMWTP Filter Building Modifications

Project Number: P-135

## The Project

Built in 1974 when the Treatment Plant was constructed, the Filter Buildings are now more than 45 years old. To maintain required temperature controls in Filter Building 1, this project will replace and insulate the roof and replace inoperable windows for improved ventilation and equipment cooling. Upgrades will also include seismic, energy efficiency, and interior updates. Design drawings and specifications were completed during CDMWTP Phase 2 upgrades in 2007, but the project was postponed due to budgetary constraints.



## Need for Project

Renovating and retrofitting the 45-year-old CDMWTP Filter Buildings will bring the building into current building code compliance, which will include more recent seismic codes and improve energy efficiency.

**Consequence of Not Doing the Project:** Not completing seismic and energy efficiency upgrades increases the risk of building failure and subjects equipment to warmer temperatures, ultimately shortening service life.

## Capital Category

*Treatment Plant Reliability*

Summary

*Modify and upgrade the CDMWTP Filter Buildings per updated building codes*

**\$100,000**

# Operations Department Facilities Update

**Project Number: P-136**

## The Project

Currently, several offices are located within the District’s Operations Department buildings. These buildings lack central heating and cooling and ergonomic and semi-private workplace stations. Workers are subjected to hot and cold weather, noise, and dust. To cool the buildings, staff employ large, loud industrial fans and keep the doors open, exposing workers to yard noise from trucks and heavy equipment and outdoor conditions. Renovating the District’s Operations Warehouse and Meter Shop to provide a seismically retrofitted and air-conditioned work space for Operations staff will provide a safer workplace. Improvements include finishing and insulating exposed walls; installing central HVAC, installing LED lighting, flooring, desks and computers; and building a meeting area.



## Need for Project

Many District personnel work out of the Operations Warehouse and Meter Shop buildings that were not designed to house permanent staff offices. Operations building cooling, heating and ergonomic upgrades will improve staff productivity and efficiency, as well as provide a safer and healthier work environment.

**Consequence of Not Doing the Project:** District personnel continue to work in the Warehouse and Meter Shop buildings not designed for daily, office-based staff work.

## Capital Category

*System-wide Reliability and Safety*

**Summary**

*Redesign and upgrade the Operations Warehouse and Meter Shop buildings for office-based staff*

**\$450,000**

# Replacement Wells

**Project Number: P-137**

## The Project

To begin to replace the District’s well field, whose oldest wells are more than 50 years old, this project funds the drilling and installation of replacement wells to maintain production capacity. To the extent possible, replacement wells will use existing, onsite treatment and monitoring infrastructure to reduce total replacement costs. However, replacement wells must be located at least 50 feet away from the existing well, requiring additional pipework and some property acquisition. Additional property may need to be secured for replacement wells at El Camino, San Ricardo and Shirrell Wells. Replacement wells may be drilled within existing sites at Anita, San Marcos, Airport, San Antonio, University and Berkeley Wells.



## Need for Project

Well replacements are needed to offset declining production and/or address potential failures at nine existing wells, some of which are 50+ years old. Proactive replacement of wells will minimize supply interruptions and water supply shortage impacts on groundwater production and groundwater blending operations. Groundwater provides a backup to surface water supplies during emergencies, periods of drought, and planned shutdowns of CDMWTP and transmission main.

**Consequence of Not Doing the Project:** The District may not have enough groundwater production capacity to meet health and safety needs during a water shortage or unplanned emergency.

## Capital Category

*Aging Infrastructure Replacement*

<b>Summary</b>	<i>Replace nine aging wells to maintain groundwater production capacity</i>	<b>\$27,000,000</b>
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P-4	City, County, Caltrans Required Relocation Projects	One	\$844,979	17
P-5	CDMWTP Leach Field Modification	One	\$107,031	18
P-6	Inoperable Small Meter Replacements	One	\$1,245,384	19
P-7	Inoperable Large AMI Meter Replacements	One	\$759,551	20
P-8	Obsolete Reservoir Hatch Replacements	One	\$142,614	21
P-9	Transmission Main Protection	Two	\$1,658,907	24
P-10	Exposed Goleta West Conduit Pipelines	Two	\$281,211	25
P-11	Inoperable Chlorination and Treatment Equipment Replacements	Two	\$1,154,686	26
P-12	Inoperable Pipeline and Service Line Replacements	Two	\$2,205,716	27
P-13	Inoperable Cathodic Protection System Replacements	Two	\$884,749	28
P-14	Inoperable Reservoir and Reservoir Component Replacements	Two	\$724,177	29
P-15	Inoperable Electrical Power System Replacements	Two	\$747,932	30
P-16	Inoperable Pump and Motor Replacements	Two	\$261,340	31
P-17	Anita Well Filtration Treatment	Two	\$1,287,153	32
P-18	Airport Well Backwash Tank Refurbishment	Two	\$0	33
P-19	Well Filter Media Replacements	Two	\$191,656	34
P-20	Inoperable Above Ground Well Facility Replacements	Two	\$498,317	35
P-21	Inoperable Interconnect Component Replacements	Two	\$20,000	36
P-22	Inoperable Valve Replacements	Two	\$3,366,660	37
P-23	Inoperable Fire Hydrant Replacements	Two	\$1,862,810	38
P-24	Inoperable Recycled Water Facility Replacements	Two	\$76,901	39
P-25	Inoperable Computer and Electronic Hardware Replacements	Two	\$190,410	40
P-26	Pavement Replacements	Two	\$300,095	41
P-27	Inoperable Building Component Replacements	Two	\$1,853,361	42
P-28	Required Main Upsizing	Two	\$60,000	43
P-29	Obsolete SCADA Replacement	Two	\$5,921,337	44
P-30	SCADA Antenna (Monopole) Replacements	Two	\$1,798,135	45
P-31	Corona Pump Station	Two	\$1,800,000	46
P-32	Inoperable Light Vehicle Fleet Replacement	Two	\$1,765,872	47
P-33	Patterson Booster Pump Station Building Skin and Paving	Two	\$190,621	48
P-34	Reservoir Site Generators	Two	\$270,185	49



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P-36	CDMWTP New Solids Drying Bed Pump Station	Three	\$1,072,262	53
P-37	CDMWTP Solids Drying Bed Pump Station	Three	\$22,057	54
P-38	CDMWTP Reclaimed Water Pipe Relocation	Three	\$364,846	55
P-39	CDMWTP Backwash Basin Pump Station Modification	Three	\$72,929	56
P-40	CDMWTP Demonstration Scale GAC Contactor	Three	\$317,350	57
P-41	Water Quality Maintenance in Distribution System: Phase 1	Three	\$2,437,179	58
P-42	CDMWTP and Wells pH Control Upgrades	Three	\$20,000	59
P-43	Distribution Main Tie-ins for Improved Water Quality & Flows	Three	\$726,507	60
P-44	University Well Treatment	Three	\$2,210,692	61
P-45	Airport Well Treatment Upgrade	Three	\$89,324	62
P-46	New Replacement Well	Three	\$3,055,203	63
P-47	CDMWTP Access Road Creekside Erosion Repair and Realignment	Three	\$421,742	64
P-48	Creek Crossing Inspection and Repair Program: Exposed Pipes	Three	\$351,028	65
P-49	CDMWTP Access Road Pavement and Hillside Slump Mitigation	Four	\$500,000	68
P-50	Operations Worker Health and Safety Shower	Four	\$390,000	69
P-51	Transmission Main Relocation: Phase 2	Four	\$2,900,000	70
P-52	San Antonio Well Above Ground Facilities Upgrades	Four	\$1,550,000	71
P-53	Anita Well Above Ground Facilities Upgrades	Four	\$25,000	72
P-54	El Camino Well Above Ground Facilities Upgrades	Four	\$450,000	73
P-55	Cathedral Oaks Transmission Main Extension	Four	\$4,900,000	74
P-56	CDMWTP Water Quality Maintenance	Four	\$40,000,000	75
P-57	Proactive Chlorination and Treatment Facility Replacements	Five	\$460,000	78
P-58	Proactive Pipeline and Service Line Replacements	Five	\$1,800,000	79
P-59	Proactive Reservoir Component Replacements	Five	\$2,000,000	80
P-60	Proactive Electrical Power System Replacements	Five	\$1,240,000	81
P-61	Proactive Above Ground Well Facility Replacements	Five	\$620,000	82
P-62	Proactive Interconnect Replacements	Five	\$160,000	83
P-63	Proactive Valves and PRV Replacements	Five	\$24,100,000	84
P-64	Proactive Fire Hydrant Replacements	Five	\$8,000,000	85
P-65	Proactive Computer and Electronic Hardware Replacements	Five	\$300,000	86
P-66	Proactive Cathodic Protection Systems Replacements	Five	\$1,120,000	87
P-67	Proactive Meters Replacements	Five	\$12,500,000	88
P-68	Proactive Heavy Equipment Replacements	Five	\$1,000,000	89

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P-70	Proactive Fleet Replacements	Five	\$900,000	91
P-71	Inoperable CDMWTP Chlorine Storage Tanks Replacement	Five	\$4,000,000	92
P-72	CDMWTP Filter Trough Improvements	Five	\$500,000	93
P-73	GWC Ellwood Chlorination Station Replacement	Five	\$140,000	94
P-74	CDMWTP Corroded Filter Pipe Replacement	Five	\$2,100,000	95
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P-76	Backup Facilities Emergency Power	Six	\$2,150,000	99
P-77	Garrett Van Horne Emergency Pump Station Improvement	Six	\$580,000	100
P-78	Critical Transmission Main Conditions Assessment	Six	\$2,250,000	101
P-79	Seismic Vulnerability Assessment and Upgrades	Six	\$970,000	102
P-80	City of Santa Barbara Interconnect	Six	\$1,500,000	103
P-81	Goleta West Conduit 10 Mile Conditions Assessment	Six	\$1,750,000	104
P-82	Recycled Water Main 10 Mile Conditions Assessment	Six	\$1,750,000	105
P-83	San Marcos Well Emergency Water Distribution Center	Six	\$420,000	106
P-84	Creek Crossing Inspection and Repair Program: Buried Pipes	Six	\$175,000	107
P-85	Potable Water Backup for Recycled Water System	Six	\$3,800,000	108
P-86	Water Quality Maintenance in Distribution System: Phase 2	Seven	\$440,000	112
P-87	Chain and Flight Scraper Installation at CDMWTP	Seven	\$4,000,000	113
P-88	Above Ground Facilities BMP Upgrades	Seven	\$1,244,000	114
P-89	CDMWTP Floc/Sed/Filter Flexible Covers	Seven	\$3,580,000	115
P-90	CDMWTP Clarifier Improvements	Seven	\$6,400,000	116
P-91	CDMWTP Wet Well Pump and Recirculation Automation	Seven	\$500,000	117
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P-93	Upsize Pipeline at Edison BPS	Seven	\$1,000,000	119
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P-97	San Antonio Booster Pump Station Relocation	Seven	\$1,700,000	123
P-98	CDMWTP Cathodic Protection	Seven	\$500,000	124
P-99	Pressure Relief Valve Monitoring	Seven	\$1,400,000	125
P-100	Additional Injection Wells	Seven	\$2,500,000	126
P-101	Indirect Potable Reuse - Pilot	Seven	\$1,500,000	127
P-102	New Groundwater Monitoring Wells	Seven	\$1,000,000	128

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P-104	Reservoir Power Generation	Seven	\$900,000	130
P-105	Water Quality Maintenance in Distribution System: Phase 3	Seven	\$1,110,000	131
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P-108	2 MG Ellwood Reservoir	Seven	\$6,000,000	134
P-109	CDMWTP Hillslope Solar	Seven	\$2,000,000	135
P-110	Well Water Treatment Centralization Study	Seven	\$400,000	136
P-111	GWC Potable Connection	Seven	\$28,000,000	137
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P-113	Railroad Crossing at Kellogg Avenue	Seven	\$650,000	139
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P-117	8 inch Waterline Loop at La Vista-Alta Mira Booster Stations (850')	Seven	\$375,000	143
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P-119	Recycled Waterline at Fairview Rd to Hollister Avenue	Seven	\$4,000,000	145
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P-121	Covington Pipeline Upsize (Valdez - Fairview)	Seven	\$2,000,000	147
P-122	Cathedral Oaks Pipeline Upsize (Paseo del Pinon-Northgate)	Seven	\$1,800,000	148
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P-124	CDMWTP Creek Crossing Improvements	Seven	\$1,000,000	150
P-125	Electronic Document Management System	Seven	\$400,000	151
P-126	Additional Fire Hydrants	Seven	\$100,000	152
P-127	Recycle Water PRV Vault Relocation	Seven	\$150,000	153
P-128	La Gama PRV Vault Relocation	Seven	\$150,000	154
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P-131	Combined Power Generation	Seven	\$800,000	157
P-132	District Headquarters Rooftop Solar	Seven	\$250,000	158
P-133	Indirect Potable Reuse - Full Scale	Seven	\$55,000,000	159
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P-135	CDMWTP Filter Building Modifications	Seven	\$100,000	161
P-136	Operations Department Facilities Update	Seven	\$450,000	162
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