REGULAR MEETING
of the
OPERATIONS & CUSTOMER RELATIONS COMMITTEE
MONTECITO WATER DISTRICT
583 SAN YSIDRO ROAD, MONTECITO, CALIFORNIA

AUGUST 17, 2026
9:30 A.M.

Attend in Person or Join by Teleconference:
https://www.zoomgov.com/j/1652641684?pwd=PNVXSQxK96BGpxbPG8hwLomMyfbs32.1
Webinar ID: 165 264 1684 Passcode: 663 769
Tel: (669) 254-5252

AGENDA

1. CALL TO ORDER, DETERMINATION OF COMMITTEE QUORUM

2. PUBLIC FORUM

NOTE: This portion of the agenda may be utilized by any person to address the Operations & Customer Relations Committee on any matter within the jurisdiction of the Committee. No consideration or discussion shall be undertaken by Committee members at this time on any item not appearing on this agenda except as permitted by the Ralph M. Brown Act. Discussion items receiving recommendations by the Committee, and/or items requiring action will be placed on the agenda of a future meeting of the Montecito Water District Board of Directors.

3. ITEMS FOR COMMITTEE CONSIDERATION

* A. Discussion of Treatment Alternatives to Manage Calcification at District Treatment Plants

* B. Review of the Highline Preliminary Design Report

* C. Review of Termination Agreement for 270 Toro Canyon Road

* D. Temporary Access Agreements for the Highline Repair at Bella Vista Project

E. Update on Reservoir Seismic Retrofit and Replacement Project (ASADRA)

F. Update on FEMA Project Approvals and Reimbursements

* G. Customer Relations and Public Information Update

4. ITEMS FOR A FUTURE AGENDA

5. ADJOURNMENT

Montecito Water District conducts its meetings in-person in accordance with the Brown Act and also provides alternative methods of participation which permit members of the public to observe and

** Indicates attachment included for this item*

address public meetings telephonically and/or electronically. These methods of participation can be accessed through the internet link provided at the top of this agenda.

This agenda was posted on the District website, and at the Montecito Water District outside display case at 9:30 a.m. on August 14, 2026. The Americans with Disabilities Act provides that no qualified individual with a disability shall be excluded from participation in, or denied the benefits of, the District's programs, services, or activities because of any disability. If you need special assistance to participate in this meeting, please contact the District Office at 805-969-2271. Notification at least twenty-four (24) hours prior to the meeting will enable the District to make appropriate arrangements.

Agendas, agenda packets, and additional materials related to an item on this agenda submitted to the Committee after distribution of the agenda packet are available on the District website.

MONTECITO WATER DISTRICT
MEMORANDUM

SECTION: 3-A

DATE: AUGUST 17, 2026

TO: OPERATIONS AND CUSTOMER RELATIONS COMMITTEE

FROM: ASSISTANT GENERAL MANAGER

SUBJECT: DISCUSSION OF TREATMENT ALTERNATIVES TO MANAGE CALCIFICATION AT THE DISTRICT WATER TREATMENT PLANTS

RECOMMENDATION:

1. That the Operations and Customer Relations Committee recommend the Board of Directors direct staff to proceed with Alternative 2 - Carbon Dioxide (CO_2) dosing system for managing calcification at the Bella Vista Water Treatment Plant.
2. That the Operations and Customer Relations Committee recommend the Board of Directors direct staff to proceed with Alternative 1 – Water Softening System for managing calcification at the Doulton Water Treatment Plant and authorize the use of an additional $60,000 from the unused portion of the Bella Vista Treatment Plant pH Adjustment Project to cover the capital cost in excess of the budgeted amount.

BACKGROUND:

The Montecito Water District (District) operates two surface water treatment plants that serve approximately 13,000 customers in Montecito, Summerland, and portions of Toro Canyon. The District has experienced significant calcium carbonate scaling at the Bella Vista Water Treatment Plant (BVWTP), Doulton Water Treatment Plant (DWTP), and in portions of the distribution system. Elevated calcium concentrations and alkalinity in the District's source water promote calcium carbonate precipitation during treatment, resulting in fouling of treatment media, increased maintenance requirements, reduced treatment efficiency, and shortened media life, shortened equipment life within the treatment plant, distribution system, and customer piping in the vicinity of BVWTP.

The District retained Water Quality Treatment Solutions (WQTS), now part of Hazen and Sawyer, to evaluate treatment alternatives for automated pH adjustment. The technical memorandum included as **Attachment 1** summarizes the alternatives evaluated and concludes that each of the proposed treatment technologies is capable of reliably achieving the desired pH control.

This topic was introduced to the Operations and Customer Relations Committee in January 2026. Based on the Committee's feedback, the Study in Attachment 1 was revised and finalized in March 2026. Since that time, Hazen and Sawyer has continued working with District staff to develop

conceptual designs and planning-level cost estimates for the treatment alternatives at both facilities.

As shown in Figure 4 in **Attachment 1**, the BVWTP influent water quality (alkalinity, calcium, LSI and CCPP) has worsened over the last 10 years. The water quality constituents favoring calcium carbonate precipitation are gradually increasing. This explains why the calcification problem has become a larger issue at the treatment plant in recent years.

DISCUSSION:

This staff report summarizes the alternatives evaluated for each treatment plant, compares them to the existing operating condition (no action), and presents staff recommendations for the preferred treatment approach at each facility. It should be noted that the cost estimates included in **Attachment 1** have been superseded by the updated planning-level cost estimates presented in this staff report.

BELLA VISTA WATER TREATMENT PLANT:

To improve treatment performance and reduce long-term maintenance costs, staff evaluated three alternatives for the Bella Vista Water Treatment Plant (BVWTP):

- Alternative 1 - Sulfuric Acid Dosing System
- Alternative 2 - Carbon Dioxide (CO_2) Dosing System
- Alternative 3 - Continue Existing Operations (No Action)

The first two alternatives lower the raw water pH prior to treatment to minimize calcium carbonate scaling. These alternatives assume dosing 100% of the time, with dosing rates fluctuating based on the plant flow rate and raw water quality at the time. The third alternative maintains existing operations and relies on periodic rehabilitation after scaling occurs.

ALTERNATIVE 1 – SULFURIC ACID DOSING SYSTEM

This alternative would install a sulfuric acid storage and feed system consisting of a bulk storage tank, secondary containment, metering pumps, chemical injection piping, static mixer, online pH monitoring, and SCADA integration. Sulfuric acid is metered into the raw water upstream of filtration to reduce pH and minimize calcium carbonate precipitation. A photo of a similarly sized system is shown in the figure below. The system would use a double walled Hastelloy metal tank and double walled Hastelloy piping to reduce corrosion potential.

The use and storage of sulfuric acid would introduce additional safety requirements associated with the handling of a highly corrosive chemical. The design of the tank and piping areas would provide appropriate secondary containment, chemical-resistant materials and equipment, and a readily accessible emergency eyewash and shower facilities would be installed in areas where employee exposure could occur. Personnel would also require appropriate personal protective equipment and training for the maintenance of the chemical feed system, as well as procedures for

responding to spills or releases. Deliveries would be handled by a third party vendor and require oversight by District personnel. The sulfuric acid storage and feed system would also be subject to hazardous chemical training, storage and reporting requirements.

Figure 1 – Sulfuric Acid Chemical Feed Pump (left) and Dosing Tank (right)

District staff contacted the regional office of the State Division of Drinking Water (DDW) to discuss the use of sulfuric acid systems. The DDW District Engineer indicated he was not aware of any agencies in their regional jurisdiction that are using sulfuric acid for pH adjustment. District staff contacted several agencies in the San Francisco and Los Angeles areas using sulfuric acid. Engineers and operators from these systems indicated maintenance of the sulfuric acid systems can be challenging, with pipe leaks occurring frequently and small spills requiring cleanup by agency staff. While deliveries are handled by the sulfuric acid vendor, small leaks were generally repaired by agency staff.

Estimated Costs

The estimated capital cost for the sulfuric acid dosing system is approximately **$654,000**. The estimate includes installation of a complete chemical feed system capable of automatically reducing raw water pH prior to filtration.

Major cost components include the sulfuric acid storage tank, secondary containment, chemical metering equipment, process piping, instrumentation and controls, electrical improvements, contractor mobilization, and construction contingency.

Table 1 – Sulfuric Acid Dosing System Capital Costs

Cost Component	Estimated Cost
Chemical Storage Tank & Secondary Containment	$85,000
Metering Pumps & Chemical Feed Equipment	$60,000
Process Piping & Injection Equipment	$45,000
Instrumentation & Controls	$55,000
Electrical & SCADA Integration	$40,000
Installation, Contractor Overhead & Mobilization	$140,000
Engineering Design and Inspection	$120,000
20% Construction Contingency	$109,000
Total Estimated Capital Cost	**$654,000**

Annual operating costs primarily consist of sulfuric acid purchases, routine maintenance of the chemical feed system, electrical power consumption, and periodic instrumentation calibration. Under this alternative, the filter and clarifier media would still require replacement every 10 years.

Table 2 – Sulfuric Acid Dosing System Annual Costs

Component	Annual Cost
Sulfuric Acid Chemical	$9,900
Equipment Maintenance	$8,000
Instrument Calibration & Miscellaneous	$1,400
Electrical Power	$1,000
Filter & Clarifier Maintenance	$41,895
Total Annual O&M	**$62,195**

The estimated 20-year lifecycle cost is approximately $1.9 million (in 2026 dollars).

Advantages and Disadvantages

The advantages and disadvantages of the sulfuric acid dosing system are shown in the table below.

Table 3 – Sulfuric Acid Dosing System Advantages & Disadvantages

Advantages	Disadvantages
Lowest initial capital cost.	Requires storage of concentrated sulfuric acid and repair of specialty sulfuric acid piping.
Lowest annual operating and maintenance cost.	Requires secondary containment and emergency eyewash/shower facilities.
Lowest estimated 20-year lifecycle cost.	Operators must be present during chemical deliveries.
Proven and widely used technology throughout the water industry.	Additional regulatory requirements associated with hazardous chemical storage.
Reliable operation with relatively simple mechanical equipment.	Potential for acid spills and associated environmental and personnel risks.
Straightforward process control with readily available replacement parts.	Routine maintenance of chemical feed pumps and corrosion-resistant equipment.
Results in slightly better water quality at effluent of plant than CO_2 treatment	Risk of excessive dosing may result in temporary pH reduction

ALTERNATIVE 2 – CARBON DIOXIDE (CO_2) DOSING SYSTEM

This alternative injects liquid carbon dioxide into the raw water where it forms carbonic acid, lowering pH prior to filtration. The system includes a bulk CO_2 storage tank, vaporizer, gas feed panel, carrier water system, diffuser, pH instrumentation, and automated controls. A photo of a CO_2 dosing system is shown in the figure below.

District staff contacted the regional office of the State Division of Drinking Water (DDW) to discuss the use of CO_2 systems. The DDW District Engineer indicated CO_2 is used by numerous agencies in their jurisdiction including the City of Santa Barbara and the City of San Luis Obispo. District staff contacted several agencies using CO_2. These agencies reported their CO_2 systems require little to no maintenance and repairs. Their operators indicated the CO_2 system was simple and reliable. The monthly deliveries are observed by agency staff and tanks are inspected annually.

The use and storage of bulk carbon dioxide would require personnel training regarding the hazards of CO_2, including procedures for performing maintenance on the system.

Figure 2 – Carbon Dioxide Storage Tank and Equipment Panels

Estimated Costs

The estimated capital cost for the carbon dioxide dosing system is approximately **$828,000**. The estimate includes a complete CO_2 storage and feed system consisting of a bulk storage tank, vaporizer, gas feed panel, carrier water system, diffuser, instrumentation, controls, electrical improvements, and associated installation costs.

Table 4 – Carbon Dioxide System Capital Costs

Cost Component	Estimated Cost
Bulk CO_2 Storage Tank	$90,000
Vaporizer & Heater	$45,000
Gas Feed Panel & Controls	$95,000
Carrier Water System & Diffuser	$55,000
Instrumentation & Controls	$55,000
Electrical & SCADA Integration	$45,000
Installation, Contractor Overhead & Mobilization	$175,000
Engineering Design and Inspection	$130,000
20% Construction Contingency	$138,000
Total Estimated Capital Cost	**$828,000**

Annual operating costs include bulk CO_2 purchases, routine maintenance, power, and calibration. Under this alternative, the filter and clarifier media would still require replacement every 10 years.

Table 5 – Carbon Dioxide System Annual Costs

Component	Annual Cost
CO_2 Supply	$18,200
Equipment Maintenance	$2,600
Instrument Calibration	$1,300
Electrical Power	$1,500
Filter & Clarifier Maintenance	$41,895
Total Annual O&M	**$65,495**

The estimated 20-year lifecycle cost is approximately $2.13 million (2026 dollars).

Advantages and Disadvantages

The advantages and disadvantages of the CO_2 dosing system are shown in the table below.

Table 6 – Alternative 2 CO_2 Dosing System Advantages & Disadvantages

Advantages	Disadvantages
Eliminates storage and handling of concentrated sulfuric acid.	Highest initial capital cost.
Significantly improves operator safety.	Higher annual operating cost than sulfuric acid.
Eliminates the potential for acid spills.	Higher estimated lifecycle cost than sulfuric acid.
Reduces long-term corrosion associated with concentrated acid handling.	More mechanically complex system.
Simplifies chemical deliveries with minimal operator involvement.	Requires vaporizer, carrier water system, and gas flow controls.
Lower regulatory burden associated with hazardous chemical storage.	Higher electrical demand and additional preventive maintenance.
Provides near equivalent treatment performance to sulfuric acid.	Requires specialized replacement parts for certain equipment.
	Requires storage of high pressure (400 psi) gas on site

ALTERNATIVE 3 – CONTINUE EXISTING OPERATIONS (NO ACTION)

Under this alternative, the District would continue operating the treatment plant without reducing raw water pH. Calcium carbonate scaling would continue to accumulate within the treatment process, requiring periodic rehabilitation of the filtration system approximately every five years to restore treatment performance. The 5-year replacement timing was determined based on filter performance over the last 20 years.

Rehabilitation activities would include:

- Acid washing existing filter media (annually except the 5th year when media is replaced)
- Replacement of filter media (every 5 years)
- Replacement of filter underdrains (every 5 years)
- Cleaning and rehabilitation of filter structures (every 5 years)
- Disposal of spent media (every 5 years)
- Pump and mechanical equipment maintenance activities

Estimated Costs

This alternative requires no initial capital investment. However, continued calcium carbonate scaling would require periodic rehabilitation of the treatment system approximately every five years to restore treatment performance.

The rehabilitation estimate includes replacement of treatment media every 5 years, acid washing annually (except the 5th year when media is replaced), replacement of underdrain piping every 5 years, replacement of worn pumps, valves and piping annually, and contractor mobilization.

Table 7 – Alternative 3 – No Action Annual Maintenance Costs

Cost Component	Annual Cost
Replace Treatment Media (every 5 years)	$22,760
Acid Wash Existing Media (4 out of every 5 years)	$39,960
Replace Underdrain Piping (every 5 years)	$26,880
Pump & Mechanical Equipment Repairs	$25,410
Valve and Nozzle Repairs	$4,200
Contractor Mobilization, Overhead and Profit	$10,000
5% Construction Contingency	$6,311
Total Rehabilitation Cost	**$132,521**

The estimated 20-year lifecycle cost is approximately $2.78 million (2026 dollars).

Advantages and Disadvantages

The advantages and disadvantages of the No Action alternative are shown in the table below.

Table 9 – Alternative 3 – No Action Advantages & Disadvantages

Advantages	Disadvantages
No initial capital investment.	Does not address the underlying cause of calcium carbonate scaling.
No chemical storage or handling.	Highest long-term maintenance cost.
No new treatment equipment to maintain.	Major rehabilitation required approximately every five years.
No additional operator training required.	Planned treatment plant outages during rehabilitation.
Avoids hazardous chemical permitting and storage requirements.	Continued scaling of treatment equipment and piping.
Existing operating practices remain unchanged.	Increased reliance on contractor support for rehabilitation activities.
	Reduced treatment reliability between rehabilitation cycles.

ALTERNATIVE COMPARISON

The table below provides a summary comparison of each alternative based on their costs, effectiveness, and operational considerations.

Table 9 – Comparison of Alternatives

Evaluation Criteria	Sulfuric Acid	Carbon Dioxide	Continue Existing Operations
Initial Capital Cost	$495,000	$673,000	$0
Annual O&M	$62,195	$65,495	$132,521
20-Year Lifecycle Cost	$1,897,900	$2,137,900	$2,776,620
Addresses Root Cause	✓	✓	✗
Operator Safety	Good	Excellent	Excellent
Hazardous Chemical Storage	Yes	No	No
Mechanical Complexity	Low	Moderate	Low
Long-Term Reliability	High	High	Moderate
Planned Major Outages	None	None	Annually

The evaluation demonstrates that implementing a chemical pH adjustment system is more cost-effective than continuing existing operations. While the "Continue Existing Operations" alternative avoids an initial capital investment, it does not address the underlying cause of calcium carbonate scaling and is projected to require approximately $2.59 million in rehabilitation expenditures over the next 20 years, in addition to recurring plant outages and operational disruptions.

Both chemical treatment alternatives effectively reduce raw water pH, minimize calcium carbonate precipitation, extend the service life of treatment media, and improve long-term treatment reliability.

The sulfuric acid alternative offers the lowest capital cost and the lowest estimated lifecycle cost. However, it requires storage and handling of concentrated sulfuric acid, introduces additional regulatory and safety requirements, and increases operator exposure to hazardous chemicals during deliveries and maintenance activities. Based on conversations with the DDW District Engineer and managers from other agencies, sulfuric acid is less common in water treatment facilities and not preferred by agencies that have switched to CO_2.

The carbon dioxide alternative requires a higher initial investment and a higher estimated lifecycle cost, but it eliminates the storage of concentrated acid, significantly reduces operator safety risks, eliminates the potential for acid spills, and simplifies chemical handling. These operational and safety benefits provide meaningful long-term value and reduce overall operational risk to the District.

RECOMMENDATION FOR BELLA VISTA WATER TREATMENT PLANT:

Staff recommend implementation of the Carbon Dioxide (CO_2) Dosing System. Although the sulfuric acid dosing system provides the lowest estimated lifecycle cost, staff believe the incremental increase in capital and lifecycle costs associated with the carbon dioxide alternative is justified by the improvements in operator safety, reduction in hazardous chemical handling, elimination of acid spill risk, and reduced long-term operational risk.

The carbon dioxide system provides equivalent treatment performance while creating a safer operating environment for District staff and reducing the risks associated with storing and handling concentrated sulfuric acid.

For these reasons, staff recommend the Board direct staff to proceed with the Carbon Dioxide Dosing System as the preferred pH adjustment alternative for the BVWTP.

DOULTON WATER TREATMENT PLANT:

The Doulton Water Treatment Plant (DTP) also experiences raw water with elevated calcium concentrations that contribute to scaling within the treatment process. Calcium accumulation has resulted in fouling of treatment media, deterioration of underdrain piping, increased maintenance of pumps and treatment equipment, and reduced treatment efficiency.

DWTP flow rates are small compared to BVWTP (~ 70-100 gallons per minute). Given the size of this plant, acid dosing is not economical and instead, a water softening system that partially removes calcium from the water and reduces the CaCO3 precipitation potential of the water is more appropriate.

The two alternatives reviewed for the DWTP include:

- Alternative 1 - Install a Water Softening System
- Alternative 2 - Continue Existing Operations (No Action)

The water softening alternative removes hardness before treatment, reducing calcium scaling throughout the treatment process. The second alternative maintains current operations and relies on periodic rehabilitation of treatment facilities after scale accumulation occurs.

ALTERNATIVE 1 – INSTALL WATER SOFTENING SYSTEM

This alternative installs a water softening system upstream of the treatment process to reduce calcium hardness before water enters the treatment plant. The project includes:

- Water softening equipment
- Concrete equipment pad
- Associated process piping
- Electrical connections
- Startup and commissioning

The District would contract with Rayne Water Conditioning to provide ongoing regeneration and maintenance of the softening system.

The estimated capital cost of the water softening system is $150,000 with annual service costs of $29,376 based on quotes from Rayne. **The estimated 20 year lifecycle cost is $737,520.**

The advantages of the water softening system are that it addresses the root causes of scaling, extends treatment media life, reduces pump and piping maintenance, improves treatment reliability, and eliminates acid washing of media. The disadvantages are higher initial capital investment, annual service contract requirement, ongoing operating cost of regeneration, installation of new treatment equipment, and maintenance of the added equipment.

ALTERNATIVE 2 – CONTINUE EXISTING OPERATIONS (NO ACTION)

Under this alternative, the District would continue operating the treatment plant without removing calcium hardness from the raw water. Scale accumulation would continue to occur, requiring periodic rehabilitation of the treatment plant approximately every five years. Typical rehabilitation activities include:

- Replace treatment media
- Acid wash media
- Repair underdrain piping
- Replace worn pumps
- Replace miscellaneous treatment equipment

There is no capital cost for this alternative. Rehabilitation costs have been developed using prior years' experience and are estimated to be $43,470 annually. **The estimated 20 year lifecycle cost is $869,400.**

The advantages of this alternative is the lack of required capital investment, no new equipment to operate, and existing operations remain unchanged. The disadvantages are that it does not address the underlying cause of scaling, higher long term maintenance cost, requires major rehabilitation every 5 years, periodic plant outages, deterioration of equipment, and increased maintenance labor.

ALTERNATIVE COMPARISON

Evaluation Criteria	Water Softener	No Action
Initial Capital Cost	$150,000	$0
Annual O&M	$29,376	$43,470
20-Year Lifecycle Cost	$737,520	$869,400
Addresses Root Cause	✓	✗
Improves Reliability	✓	✗
Planned Major Outages	None	Every Five Years
Equipment Protection	High	Low
Water Quality Improvement	Yes	No

The evaluation indicates that installation of a water softening system provides a proactive solution to calcium scaling by reducing hardness before water enters the treatment process. Although the alternative requires an initial capital investment and ongoing service costs, it addresses the underlying cause of scale formation and is expected to improve water quality and treatment reliability, extend the life of treatment media, reduce wear on pumps and process equipment, and minimize the need for major rehabilitation.

The "No Action" alternative avoids an initial capital investment but does not resolve the underlying water quality issue. Instead, it relies on recurring rehabilitation activities—including media replacement, acid washing, underdrain repairs, and pump replacement—approximately every five years. Over a 20-year planning period, these activities are estimated to cost approximately $800,100 (2026 dollars) and require periodic treatment plant outages.

While the difference in estimated 20-year lifecycle cost between the two alternatives is approximately $62,600, the water softening system provides operational benefits that are not fully reflected in the cost comparison, including improved treatment reliability, reduced maintenance demands, and a more proactive asset management strategy.

RECOMMENDATION FOR DOULTON WATER TREATMENT PLANT:

Staff recommend installation of the Water Softening System. Although the water softening alternative requires an initial capital investment and ongoing annual service costs, it addresses the underlying cause of calcium scaling rather than periodically repairing its effects. The estimated 20-year lifecycle cost is approximately $737,520, compared to $800,100 for continuing existing operations.

Beyond the modest lifecycle cost savings, the water softening system is expected to improve water quality and treatment reliability, extend the service life of treatment assets, reduce maintenance demands, minimize treatment plant outages, and better protect the District's infrastructure. Staff believes these operational benefits justify implementation of the water softening system and provide the greatest long-term value to the District and its ratepayers.

For these reasons, staff recommend the Board direct staff to proceed with the Water Softening System as the preferred treatment methodology for the DWTP.

SCHEDULE:

If supported by the Operations Committee and approved by the Board of Directors, staff will proceed with design and procurement of the selected pH adjustment systems at both treatment plants. The engineering design and procurement of the long-lead specialty equipment are anticipated to require approximately **2 to 3 months**. Concurrently, staff will prepare construction documents for the installation of the electrical, instrumentation, communications, mechanical, and concrete improvements required to support the new treatment systems.

Implementation of either the sulfuric acid or carbon dioxide alternative will require approval of a permit amendment from the California Division of Drinking Water (DDW). Staff will prepare and submit the permit amendment application following Board authorization. The DDW review and approval process is anticipated to require approximately **2 to 3 months**.

Upon completion of equipment procurement, permit approval, and contractor procurement, construction is anticipated to begin in **early 2027**. Construction, startup, operator training, and commissioning are expected to be completed in **spring 2027**, after which the new treatment system will be placed into full operation.

FISCAL IMPACT:

The Fiscal Year (FY) 2027 adopted budget includes $900,000 for the implementation of a pH adjustment project at the BVWTP. The estimated capital cost of the Carbon Dioxide System is $828,000 and can be completed within the budgeted amount.

The FY2027 adopted budget also includes $90,000 for the implementation of pH adjustment at the DWTP. The estimated capital cost of the Water Softening System is $150,000. Staff are requesting the Board of Directors authorize the use of unused funds from the Bella Vista Treatment Plant pH Adjustment project to cover the additional $60,000.

ATTACHMENTS:

1. Technical Memorandum - *Alternative Strategies for Mitigating Calcification at the Montecito Water District's Treatment Plants and Distribution System*

Hazen *Technical Memorandum*

March 6, 2025

To: Adam Kanold, P.E.
Assistant General Manager
Montecito Water District

From: Issam Najm, Ph.D., P.E.

Project: Calcification Control at the BVWTP and Distribution System

Re: Alternative Strategies for Mitigating Calcification at the Montecito Water District's Treatment Plants and Distribution System

The Montecito Water District (District) operates two surface water treatment plants serving a population of approximately 12,000 in Montecito and Summerland in Santa Barbara County. The District has been experiencing significant calcification at its Bella Vista Water Treatment Plant (BVWTP) and in the distribution system and premise plumbing. The District retained the services of WQTS[1] to investigate the cause of this challenge and identify potential mitigation measures. This Technical Memorandum (TM) presents the outcome of WQTS work.

WATER SYSTEM

The District's water source is Jameson Lake, which is a dammed reservoir on the Santa Ynez River. Water from Jameson Lake is transported through the Doulton Tunnel; a 2.2-mile tunnel dug through the Santa Ynez mountains. At the south portal of the Tunnel, the bulk of the water flows to the BVWTP, while a small portion of it is diverted to the Doulton Water Treatment Plant (DWTP) which serves a small zone in the District's service area. Both Plants are conventional surface water filtration plants, but BVWTP has a capacity of 1,640 gallons per minute (gpm), while the DWTP has a capacity of only 100 gpm with a typical flow of 35 to 45 gpm.

While the water received at BVWTP and DWTP is predominantly Jameson Lake water, there is significant groundwater intrusion into the water flow in the Doulton Tunnel that varies between dry and wet seasons.

WATER QUALITY

District staff closely monitors the quality of the water at Jameson Lake, at the south portal of the Doulton Tunnel, and at the treated water leaving the treatment plants. The average and range of key water quality parameters are presented in Table 1 for 30 samples collected from the influent to the

Job no 20296-000

[1] Effective January 1, 2026, WQTS was acquired by Hazen and Sawyer.

BVWTP between 2022 and 2025. The range is bound by the 5th percentile and the 95th percentile values. The water treated at the District's plants has a high calcium hardness with an average of 300 mg/L as $CaCO_3$ and a high alkalinity with average of 214 mg/L as $CaCO_3$.

Table 1 – General Water Quality at the Influent to the BVWTP (2022 – 2025)

Parameter	Unit	Average	Range (5th – 95th Percentile)
pH	SU	8.06	7.93 – 8.20
Alkalinity	mg/L as $CaCO_3$	214	196 – 234
Calcium	mg/L	120	106 – 146
Calcium Hardness	mg/L as $CaCO_3$	300	264 – 365
TDS	mg/L	592	580 – 620
Temperature	°C	16	14 – 19
LSI	--	0.90	0.75 – 1.03
CCPP	mg/L as $CaCO_3$	36	28 – 45

LSI: Langelier Saturation Index; CCPP: Calcium Carbonate Precipitation Potential

Table 1 also includes the average and range of the Langelier Saturation Index (LSI) and the Calcium Carbonate Precipitation Potential (CCPP), both of which were calculated for each of the 30 samples. These two parameters are used as indicators of the calcification potential of a water and are calculated using the water's pH, alkalinity, calcium, total dissolved solids (TDS), and temperature. The LSI and CCPP values can be positive or negative. Positive values indicate that the water is super-saturated with calcium carbonate, $CaCO_3$, while negative values indicate that the water is under-saturated with $CaCO_3$ and will have the tendency to dissolve $CaCO_3$ from surfaces in contact with the water (e.g., cement lining). In the positive range, the higher the LSI and CCPP values are, the greater the amount of $CaCO_3$ that will precipitate out of the water over time.

There are no regulatory standards for LSI and CCPP values. However, based on professional experience, it is desirable to maintain the LSI of treated water entering a distribution system between 0.0 and 0.5, and maintain the CCPP between 4 and 10 mg/L as $CaCO_3$. These ranges will result in modest precipitation of $CaCO_3$ as water travels through the distribution system, which helps protect metal surfaces in the system from the corrosive nature of water. The LSI and CCPP values listed in Table 1 are significantly higher than the recommended ranges for both parameters, which explains why the BVWTP is experiencing significant calcification (i.e., $CaCO_3$ precipitation) in its filters and in its distribution system.

The chemical quality of the south portal water was compared to that of the water exiting Jameson Lake. A graphical comparison of the average annual LSI and CCPP values of the two locations are presented in Figures 2 and 3, respectively. The plots show that the LSI and CCPP values in Jameson Lake water are within acceptable ranges, but they increase dramatically as the water passes through the Doulton Tunnel. This analysis demonstrates that tunnel intrusion water is the greatest contributor to the high $CaCO_3$ precipitation potential of the water entering the District's treatment plants.

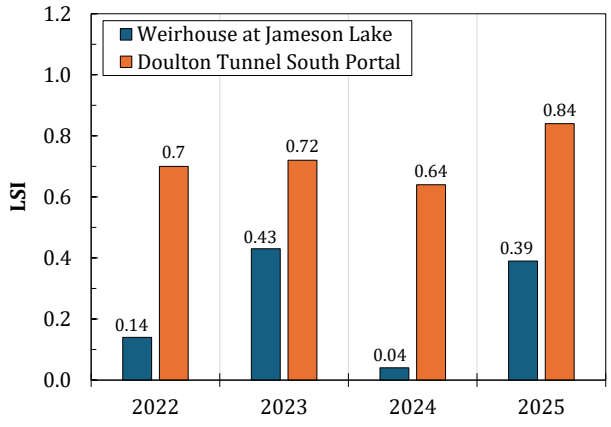

Figure 2 – Annual Average LSI Values at Jameson Lake vs Outlet of Doulton Tunnel

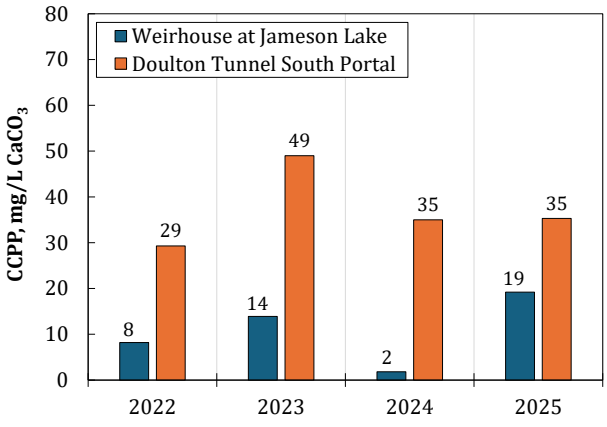

Figure 3 – Annual Average CCPP Values at Jameson Lake vs Outlet of Doulton Tunnel

Another point of concern is that the factors favoring CaCO3 precipitation are gradually increasing. Figure 4 presents a 10-year profile of the alkalinity, calcium, LSI, and CCPP values at the influent to the BVWTP. All four parameters have increased significantly during this period, which helps explain why the calcification challenge has become more difficult to manage in recent years.

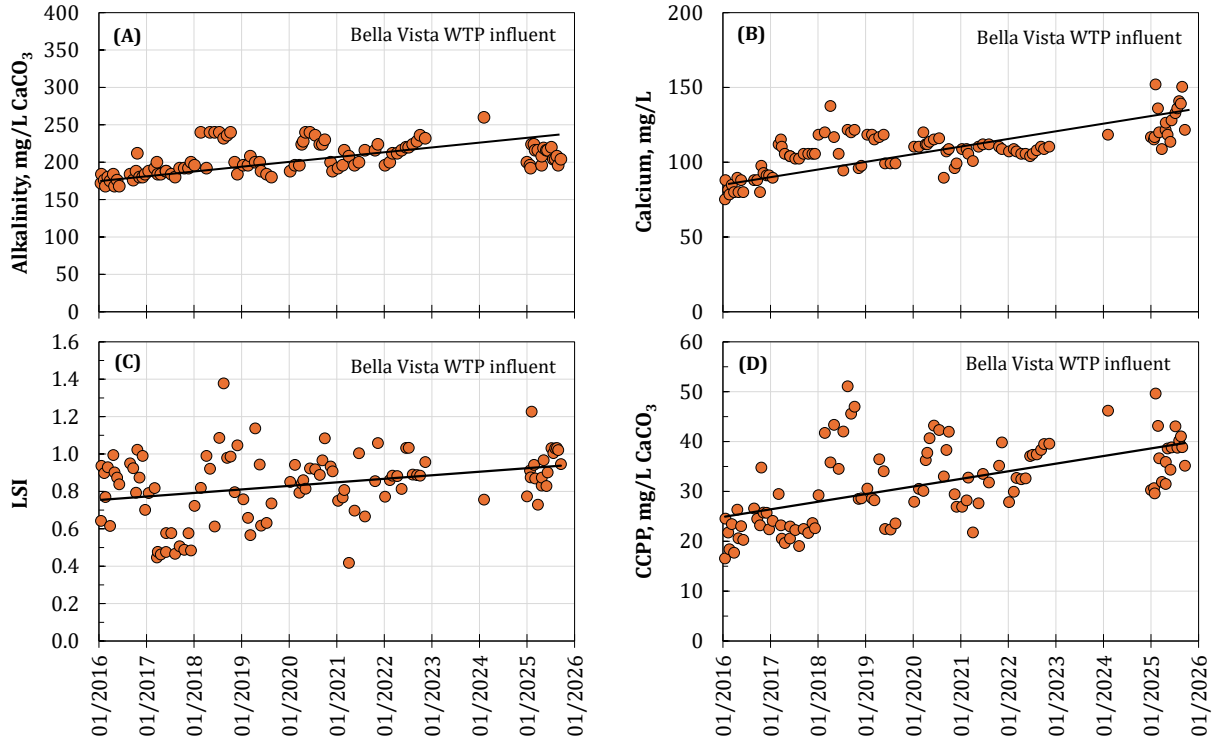

Figure 4 – Rise in Alkalinity (A), Calcium (B), LSI (C), and CCPP (D) in the Influent Water to the BVWTP Over the Last 10 Years

RECOMMENDED CHANGE IN WATER QUALITY

To lower the water's potential to precipitate $CaCO_3$, the chemistry of the water needs to be modified. The most significant water quality parameter that affects the values of LSI and CCPP is pH, and it is the least costly to change than other contributing parameters. A decrease in the pH of the water translates into an almost equal decrease in the LSI value. The pH of the water can be lowered with the addition of an acid. The second significant factor is the calcium concentration, which can be lowered with a softening process such as ion-exchange (IX) or high-pH precipitation.

Lowering the pH of the water is the most effective and least costly water quality modification that can be implemented at the BVWTP to meet the goal of lowering the LSI and CCPP values in the water passing through the plant and in the distribution system. However, changing the pH of water served into a water system should be done carefully because pH of water also affects the rate at which metals are released from corrosion scales. This applies to both unlined iron pipes in the distribution system as well as premise plumbing.

To help determine what pH level the water could be lowered to without adversely impacting metals release in the distribution system, it is noted that the District also obtains and serves treated water from the City of Santa Barbara's Cater Water Treatment Plant (Cater). Under typical conditions, the Cater water is blended with the effluent of the BVWTP and then served into the system. However, when the BVWTP is off-line, the system receives 100% Cater water. This suggests that the corrosion scales in the system are already acclimated to the Cater water quality and thus maintaining the treated BVWTP water between its current quality and that of Cater water should have no negative effect on the distribution system.

Figure 5 presents a comparison of pH, calcium, LSI, and CCPP between the treated water from the BVWTP and that from Cater. The water from BVWTP consistently has higher pH and higher calcium concentrations than Cater water, which then translates into higher LSI and CCPP values as shown in the bottom graphs in Figure 5. More importantly, the pH profiles show that the pH in the treated BVWTP water could be lowered to as low as 7.5 and still be in the pH range of Cater water currently served into the District's water distribution system.

Therefore, for the purposes of this evaluation, a target BVWTP treated water pH of 7.5 will be adopted.

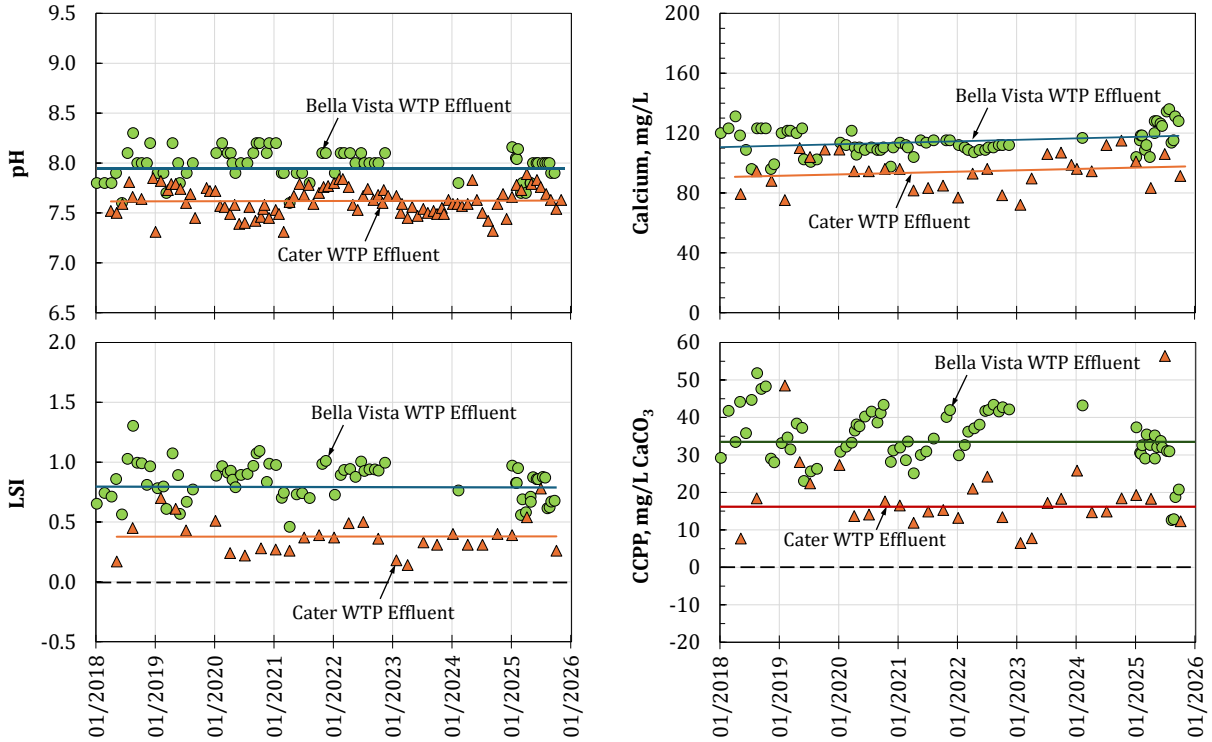

Figure 5 – Water Quality Difference between Treated Water from BVWTP and that from Cater WTP

CHEMICAL ADDITION SYSTEM ALTERNATIVES

Lowering the pH of water requires the addition of an acid. Two acid types were evaluated: Sulfuric Acid, H_2SO_4, or carbonic acid generated with the addition of carbon dioxide, CO_2. Both acids are commonly used in drinking water treatment and are readily available commercially. However, the two forms of acid vary greatly in characteristic, risk, and cost.

Sulfuric acid is purchased as a liquid product with acid content as high as 93%. It requires an onsite storage tank and feed system that is integrated into the plant computer control system for proper dosing. The acid product is delivered to the BVWTP as a bulk truck delivery and is pumped by the delivery truck to the onsite storage tank. The challenge with sulfuric acid is that it is a highly hazardous and corrosive chemical. Proper and safe storage and use of this product is critical. Its use also means that a hazardous chemical truck will drive through the community to deliver the chemical to the plant on a frequent basis.

Carbon dioxide is purchased as liquified gas delivered to the plant by a truck hauling a pressurized vessel. The truck is equipped to transfer the liquified gas from the pressurized vessel to an onsite pressurized liquid CO_2 tank. The CO2 gas released from the pressurized tank is injected into a small water stream to generated a high concentration carbonic acid solution. The carbonic acid is then injected into the main water flow to achieve the pH suppression goal. The gas flowrate out of the

pressurized tank is modulated and controlled to achieve the target water pH. The CO2 tank and carbonic acid generation system are typically sold as a package system (e.g., TOMCO®, https://tomcosystems.com).

CHEMICAL DOSES REQUIRED

An analysis was conducted to estimate the sulfuric acid or CO_2 dose required to lower the influent water at BVWTP to 7.5. Historical water quality data collected since 2016 were applied to chemical dosing models to calculate the acid dose required. The resulting calculated doses required are plotted in Figure 6. The left chart is for H_2SO_4 while the right chart is for CO_2. The error bars shown represent the range of doses required to achieve a target pH of 7.5±0.1.

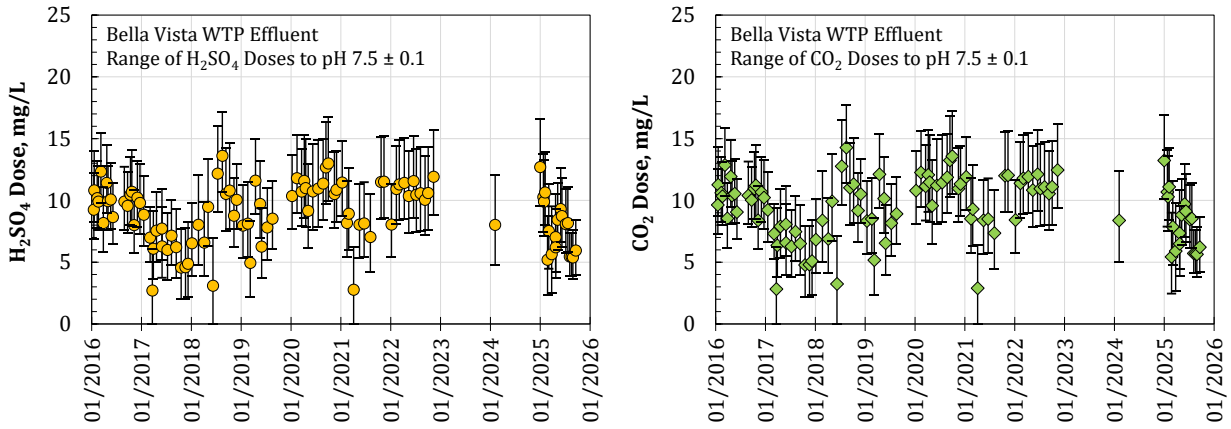

Figure 6 – Historical Doses of H_2SO_4 or CO_2 that Would have Been Required to Lower the pH of the BVWTP Water from its Measured Value to a pH of 7.5 ± 0.1

Table 2 summarizes the calculated average, 5th percentile, and 95th percentile doses that would have been required during the last 10 years to lower the pH of BVWTP water to 7.5. The average doses are relatively similar at 9.3 mg/L for sulfuric acid and 8.9 mg/L for CO_2. The maximum doses calculated were 14.3 mg/L for sulfuric acid and 13.6 mg/L for carbon dioxide.

Table 2 – Average, Minimum, and Maximum Doses Required to Lower Historical pH Values of BVWTP Water to 7.5 with Sulfuric Acid or Carbon Dioxide Addition (2016 – 2025)

Parameter	Unit	Sulfuric Acid	Carbon Dioxide
Average Dose	mg/L	9.3	8.9
Minimum Dose	mg/L	2.8	2.7
Maximum Dose	mg/L	14.3	13.6

RESULTING WATER QUALITY

The resulting impact of lowering the pH to 7.5 on the LSI and CCPP values during the last 10 years is presented in Figures 7 and 8 for sulfuric acid addition and carbon dioxide addition, respectively. With either acid, lowering the pH to 7.5 lowers the LSI to below 0.5 (average of 0.31), which is at the desired target. The CCPP value is also reduced significantly, but the average remains at 19.5 mg/L as $CaCO_3$ which is above the target of 4 to 10 mg/L as $CaCO_3$, but still significantly lower than the average of 32 mg/L as $CaCO_3$ without acid addition.

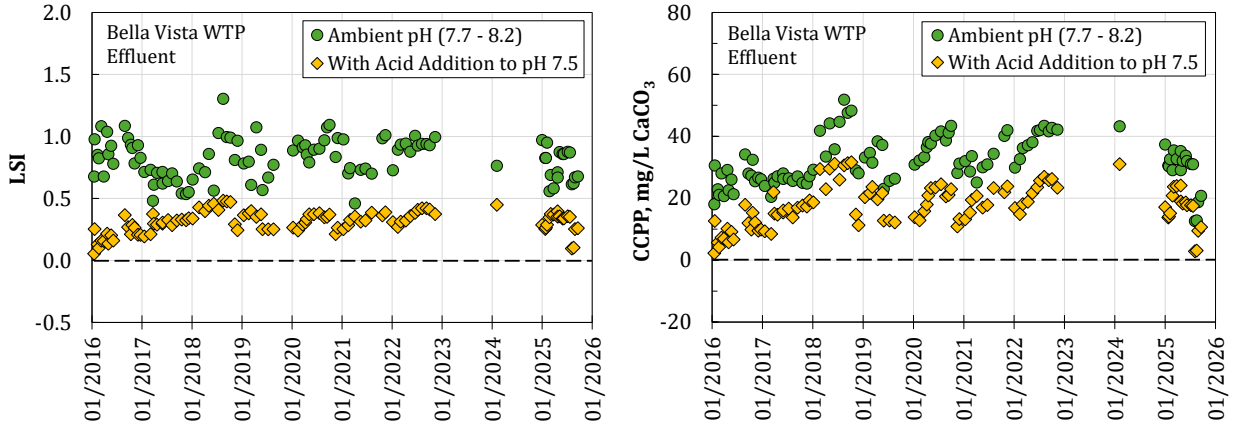

Figure 7 – Estimated Reduction in LSI and CCPP Values in the Effluent of the NVWTP after Sulfuric Acid Addition to lower the pH 7.5 ± 0.1

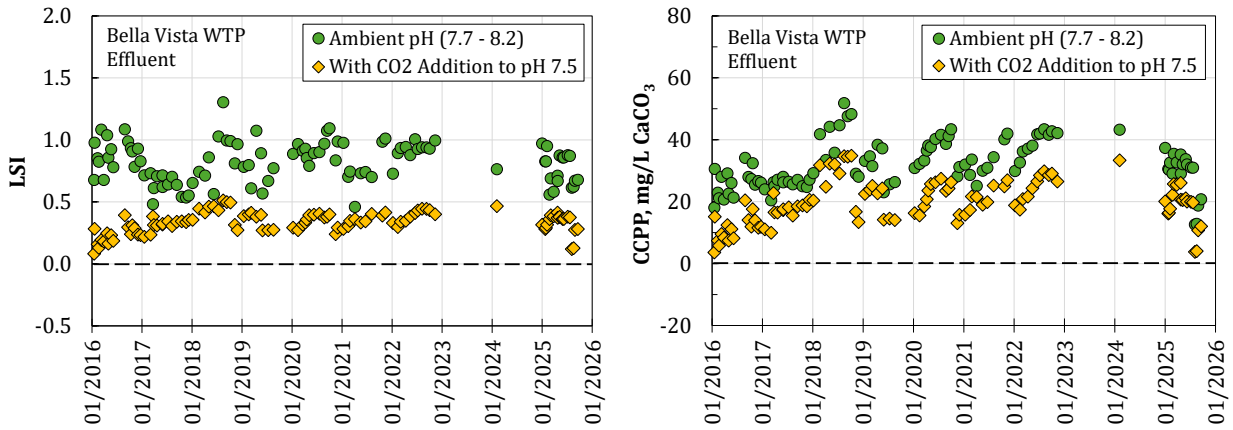

Figure 8 – Estimated Reduction in LSI and CCPP Values in the Effluent of the BVWTP after Carbon Dioxide Addition to lower the pH 7.5 ± 0.1

Table 3 lists the average values of relevant water quality parameters from the period of 2016 through 2025 without acid addition and with the addition of either sulfuric acid or carbon dioxide to target a pH of 7.5.

Table 3 – Estimated Average Values of General Water Quality Parameters in the Effluent of the BVWTP if the pH was lowered to 7.5 (2016 – 2025)

Parameter	Unit	No Acid Addition	Sulfuric Acid	Carbon Dioxide
pH	SU	8.0	7.5	7.5
Alkalinity	mg/L as $CaCO_3$	205	195	205
Calcium	mg/L	110	110	110
TDS	mg/L	570	579	579
LSI	--	0.82	0.31	0.33
CCPP	mg/L as $CaCO_3$	32	17.4	19.5

BVWTP Acid System Design Criteria

Based on the calculated doses and using the maximum and average flowrate at the BVWTP, the general design criteria for a sulfuric feed system or CO_2 feed system were prepared and are presented in Table 4. The table focuses on chemical feed rates and storage volume required for 30 days of continuous operation under maximum and average chemical demand conditions. Under maximum flowrate and maximum dose conditions, BVWTP would consume 18.5 gallons/day of 93% sulfuric acid or 29.3 gallons/day of liquified CO_2 gas. These values decrease to 6.3 gallons/day of sulfuric acid and 10.1 gallons/day of liquified CO_2 under average flowrate and average dose conditions. If the District selects a minimum of 30 days of operational storage under maximum demand conditions, then the usable sulfuric acid storage volume should be no less than 556 gallons while that of liquified CO_2 should be at least 879 gallons.

Table 4 – Anticipated Design Criteria for a Sulfuric Acid or Carbon Dioxide Feed System at the BVWTP

Parameter	Unit	Sulfuric Acid	Carbon Dioxide
BVWTP Flowrate			
Maximum Flowrate	gpm	1540	1540
Average Flowrate	gpm	807	807
Acid Dose to pH 7.5			
Average. Dose	mg/L	9.3	8.9
Minimum Dose	mg/L	2.8	2.7
Maximum Dose	mg/L	14.3	13.6
Acid Daily Demand			
Max. Demand at Max. Flow	lbs/day	264	252
Ave. Demand at Ave. Flow	lbs/day	90	86
Acid Hourly Demand			
Max. Dose at Max. Flow	lbs/hr	11.0	10.5
Ave. Dose at Ave. Flow	lbs/hr	3.8	3.6
Assumed Acid % by wt.	% by wt.	93%	100%
Assumed Specific Gravity	--	1.836	1.03
Volumetric Demand			
Max. Dose at Max. Flow	gal/day	18.5	29.3
Ave. Dose at Ave. Flow	gal/day	6.3	10.1
Mass Required for 30 days of Operation			
Max Dose at Max. Flow	lbs	7,921	7,553
Ave. Dose at Ave. Flow	lbs	2,710	2,593
Vol. Required for 30 days of Operation			
Max Dose at Max. Flow	gallons	556	879
Ave. Dose at Ave. Flow	gallons	190	302

PROBABLE CAPITAL COST

A probable capital cost estimate was developed for incorporating either a sulfuric acid system or a carbon dioxide feed system into the BVWTP. A summary of the total probable capital cost is presented in Table 5 which suggests a budgetary cost of $690,000 for a sulfuric acid system and a budgetary cost of $1.18M for a carbon dioxide system. The estimate is considered to be an AACE Class 5 level with a typical accuracy range of –50% on the low side and +100% on the high side.

Table 5 – Summary of Probable Capital Cost for a Sulfuric Acid System or a Carbon Dioxide System Addition to the BVWTP

Parameter	Sulfuric Acid System	Carbon Dioxide System
Dosing Equipment & Storage	$440,000	$910,000
Fire Suppression System	$120,000	$90,000
Electrical and Controls	$130,000	$180,000
TOTAL	**$690,000**	**$1,180,000**

Several assumptions had to be made to prepare the probable cost estimate. Table 6 includes a listing of the items included in the cost estimate for the dosing and storage systems, fire suppression systems, and electrical and controls systems.

Table 6 – Items included in the Probable Cost Values

Sulfuric Acid	Carbon Dioxide
Dosing and Storage: a. Furnish and install a 600-gallon double-wall storage tank b. Furnish and install duplex pump skid c. Include a 5-ft × 5-ft house keeping pad for tank and for pump skid d. Allow for piping to dosing point	**Dosing and Storage**: a. Furnish and install a 4-ton CO_2 feed system, including tank, vaporizer, and appurtenances. b. Place cast-in-place concrete slab-on-grade for feed system (10-ft × 20-ft) c. Allow for piping to dosing point
Fire Suppression: a. Furnish and Install dry-pipe fire suppression at the chemical storage area only, assume 400 sf b. Include fire alarm panel, pulls, horns, and strobes	**Fire Suppression**: a. Furnish and Install wet-pipe fire suppression at the chemical storage area only, assume 400 sf b. Include fire alarm panel, pulls, horns, and strobes
Electrical and Controls: a. Include field wiring b. Include instrumentation	**Electrical and Controls**: a. Include field wiring b. Include instrumentation

Additional assumptions included in the estimate include the following:

1. The CO_2 tank will be set on a concrete slab outside the existing building, while the sulfuric acid tank will be housed inside the existing building. If there is inadequate space inside the existing building, an outside enclosure will need to be built to accommodate the acid tank. The cost of the additional enclosure is not included in this estimate.
2. All feed equipment will be installed within an existing building. Adequate space is available without relocating existing equipment or modifying the building structure.
3. Power will be provided from an existing panel or MCC within the building.
4. Connection to SCADA will be provided from an existing PLC or ethernet port within the building.
5. No work outside the building is provided. All connection for power, control, or utilities are assumed available within the building.
6. The dry type fire sprinkler system will be supplied from utility water already within the building and only the area directly overhead the chemical storage is sprinkled.
7. Any connections will be made during scheduled shutdowns.

The following items were specifically excluded from the scope of this estimate:

1. Hazardous material abatement, removal or disposal
2. Bypass or temporary treatment
3. New electrical equipment
4. PLC or new control equipment
5. Work outside the footprint of the building

SUMMARY AND RECOMMENDATIONS

An analysis was conducted to quantify the calcification potential of the water served by the District and identify treatment measures that could be implemented to reduce the calcification potential. The following are highlights of the analysis, findings, and recommendations:

1. The chemical characteristics of the water treated at the BVWTP results in excessive precipitation and buildup of calcium carbonate, $CaCO_3$, in the BVWTP filters and in the distribution system. The $CaCO_3$ precipitation potential is gradually increasing over time.
2. Groundwater intrusion inside the Doulton Tunnel is the main contributor to the excess supersaturation of the water with calcium carbonate. The average LSI and CCPP values in the influent to the BVWTP over the last four years (2022 – 2025) were 0.9 and 36 mg/L as $CaCO_3$, respectively.
3. $CaCO_3$ precipitation can be reduced to typical levels by lowering the pH of the influent water to the plant from about 8.0 to about 7.5. This lower value should not have a negative impact on the distribution system or premise plumbing because the District typically serves 100% water from the City of Santa Barbara Cater water treatment plant, and that water has an average pH between 7.5 and 7.6.
4. Two acids were evaluated for pH suppression: Sulfuric acid and carbon dioxide. The average and maximum doses were calculated based on the chemical quality of the water measured over the last 10 years.
5. An average sulfuric acid dose of 9.3 mg/L or an average CO2 dose of 8.9 mg/L is required to lower the pH to 7.5, which in turn will lower the average LSI to less than 0.5 and lower the average CCPP value to less than 20 mg/L as $CaCO_3$.
6. Acid should be added to the influent water upstream of the addition of chlorine or coagulant. However, no specific contact time is necessary between acid addition and chlorine or coagulant addition.
7. The probable capital cost for incorporating a sulfuric acid feed system at the BVWTP was estimated at $690,000, while that for incorporating a carbon dioxide system was estimated at $1.18M. These cost values have an uncertainty range of –50% and +100%.

Finally, while not discussed in this TM, upon a recommendation from the District Board members, the mitigation strategy for the 100-gpm Doulton WTP will include a resin softening system that partially removes calcium from the water and reduces the $CaCO_3$ precipitation potential of the water. This option is less complicated for the small plant and eliminates the need to deliver and setup an acid feed system at that location. District staff will work with equipment vendors to purchase and install the softening system. This softening approach was not considered for BVWTP because of its much larger size compared to that of the Doulton WTP.

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MONTECITO WATER DISTRICT
MEMORANDUM

SECTION: 3-B

DATE: AUGUST 17, 2026

TO: OPERATIONS AND CUSTOMER RELATIONS COMMITTEE

FROM: ASSISTANT GENERAL MANAGER

SUBJECT: REVIEW OF THE HIGHLINE PRELIMINARY DESIGN REPORT

RECOMMENDATION:

That the Operations and Customer Relations Committee recommend that the Board of Directors discuss, accept and file the 2026 Highline Preliminary Design Report.

DISCUSSION:

The District entered into a contract with Wood Rodgers in late 2023 for the development of a Preliminary Design Report (PDR) for the Highline, a critical District transmission pipeline. The Highline is approximately 7 miles in length, with approximately 4 miles constructed between 1924 and 1940. The purpose of the PDR is to evaluate options for replacement of the 4 miles of aging Highline and ultimately identify the most feasible and cost-effective approach. Additionally, the PDR provides a long-range budget and phasing plan for execution.

Wood Rodgers presented the Highline PDR methodology and preliminary results to the Committee and Board of Directors in January 2026. Input from the Committee and Board was incorporated into the draft Highline PDR report provided in Attachment 1. Wood Rodgers will be present at the meeting to present the Highline PDR report and results.

Given the significance of the Highline replacement project (approx. $35M over 20 years), staff are seeking support from the Committee to present the Highline PDR report to the Board of Directors.

FISCAL IMPACT:

Wood Rodgers' approved budget to complete the preparation of the Highline PDR was Board authorized in September 2023. The project is expected to be completed within budget.

ATTACHMENTS:

1. Draft Preliminary Highline Design Report by Wood Rodgers
2. Presentation – Overview of the Highline Preliminary Design Report

HIGHLINE PRELIMINARY PLANNING & DESIGN REPORT

August 2026

Prepared for:

MONTECITO WATER DISTRICT

Prepared by:

WOOD RODGERS

DEVELOPING INNOVATIVE DESIGN SOLUTIONS

MONTECITO WATER DISTRICT HIGHLINE PRELIMINARY PLANNING & DESIGN REPORT

Prepared By:

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Acknowledgements:

Wood Rodgers would like to acknowledge the following Montecito Water District staff for their support and contributions during the preparation of this Preliminary Design Report:

District Staff:

Adam Kanold, P.E. – Assistant General Manager/Engineering Manager

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APPENDIX A	Segment Figures
APPENDIX B	Opinion of Probable Cost
APPENDIX C	Ranking Matrix
APPENDIX D	Environmental Considerations and Constraints Analysis
APPENDIX E	Rehabilitation Documentation

LIST OF ABBREVIATIONS:

ACP	Asbestos Cement Pipe
AWWA	American Water Works Association
AML	Approved Material List
DIP	Ductile Iron Pipe
FT	Feet
FPS	feet per second
GPM	gallons per minute
HDPE	High Density Polyethylene
HGL	Hydraulic Grade Line
ID	Inside Diameter
MOAP	Maximum Allowable Operating Pressure
PDR	Preliminary Planning and Design Report
PVC	Polyvinyl Chloride
STA	Station

1.0 EXECUTIVE SUMMARY

The Montecito Water District retained Wood Rodgers to prepare this Preliminary Planning and Design Report (PDR) evaluating approximately four miles of the Highline pipeline installed prior to 1940. The Highline is a seven-mile transmission main forming a critical backbone that connects eight reservoirs and provides system-wide operational flexibility.

Due to its age and importance to system reliability, the Highline requires systematic upgrades to ensure uninterrupted service under normal and emergency demand conditions.

This study evaluated replacement and rehabilitation alternatives of the Highline, divided into 26 segments, using a weighted ranking approach. Recommended improvements primarily include replacement with ductile iron pipe within or near existing alignments, targeted relocation through existing roadways to improve access, and limited trenchless rehabilitation in difficult terrain.

Implementation is recommended in phased projects from 2028 through 2045, prioritizing segments based on risk, cost, constructability, and geographic location to support efficient construction and capital planning. The total opinion of probable construction cost is approximately **$36.6 million**.

2.0 INTRODUCTION AND PROJECT BACKGROUND

2.1 Project Purpose and Objective

The Montecito Water District (District) has identified the need to analyze the "Highline" which serves as the major backbone for the District's distribution system. The District has contracted with Wood Rodgers to develop a Preliminary Planning and Design Report (PDR) for the replacement or rehabilitation of any Highline pipeline sections that were constructed before 1940 in a programmatic fashion. This limits the pipeline replacement to approximately four of the seven miles of the Highline.

This PDR will allow the District to plan and budget for future projects that involve u pgrading the Highline, which has been divided into twenty six segments. This process consisted of conducting field observations to document the location of each segment, analyzing the Highline by segments and utilizing a weighted ranking process that has been developed with input from the District. The following alternatives were identified and ranked for each Highline segment identified as a part of the project:

1. Replace in Place (Alternative A)
2. Replacement within Easement (Alternative B)
3. Rehabilitation with Liner (Alternative C)
4. Replacement Outside of Easement (Alternative D)

This PDR is a concept level planning report providing recommendations for the replacement methodology for each pipe segment. The design phase of each segment will require further analysis beyond the scope of this document. This PDR provides guidance and design recommendations and should be utilized as a high-level guide for further investigations and the subsequent design phases.

2.2 Existing Highline Overview

The District operates a potable water system to provide water service to its customers. This distribution system is complex due to the geographical features of the area. Much of the District's potable water distribution system dates from the late 1920's. One of the more significant parts of the District's infrastructure is the "Highline". This pipeline connects eight of the District's storage reservoirs, making it an important asset as it is related to the hydraulic connectivity within the system and allows for operational flexibility.

The Highline, located along the northerly boundary of the District's service territory, is approximately seven miles long. The pipeline varies in size, ranging from 8-inches to 18-inches in diameter. The pipeline consists of welded steel, riveted steel, cast iron, and ductile iron. The installation year for this pipeline ranges from 1924 to segments which were replaced as recently as 2019. Additionally, there are several direct connections to the Highline for customer service lines as well as distribution pipelines along the entirety of the Highline. The majority of the Highline runs through undeveloped land, private property, and has some segments near existing public roads.

The District provided Wood Rodgers with their GIS shapefiles that were used to analyze the Highline and its connected appurtenances. It should be noted that the GIS line work was derived from as-builts that date back as far as the 1920's and the actual alignment of some water mains may vary from the locations shown in figures in this report.

2.3 Scope of Work

The scope of this PDR included the following elements:

1. Perform a utility investigation in the vicinity of the Highline
2. Perform a right of way and property constraints analysis
3. Identify potential stakeholders.
4. Document environmental constraints
5. Perform a hydraulic review of the existing system and the effects of the proposed recommendations
6. Define alignment alternatives and upgrade methods
7. Prioritize segments of the Highline for replacement or rehabilitation
8. Develop opinions of probable cost for the recommended upgrade with prioritization

2.4 Site Investigations and Data Collection

Wood Rodgers performed an initial site investigation that involved walking the alignment of the Highline and taking photos to assist with the analysis. These photos were collected within a GIS geodatabase to allow for georeferencing of the photos and determine the spatial location of the Highline in relation to other topographical features as well as any notable visible features in the vicinity of the Highline such as existing utilities, hardscape, and structures.

2.5 Segmentation

Due to the overall length of the Highline analyzed within this study, all four miles of the Highline were divided into individual segments to allow for analysis of the pipeline upgrade alternatives and to develop feasible projects for future implementation. Segmentation of the Highline was an iterative process which considered points of connection to the existing Highline, topography (creek crossings, steep slopes, etc.), nearby vehicular access or travel ways, location and grouping of customer services and overall pipeline segment length. The segments are numbered from west to east with a total of twenty six segments.

2.6 Evaluation Methodology

Wood Rodgers utilized a weighted ranking process that ranked the four upgrade alternatives to objectively determine the optimal replacement or rehabilitation approach for each identified pipe segment. As previously mentioned, all Highline segments evaluated were identified by their installation date of before the year 1940. This yielded 26 segments that would serve as potential projects in the future. It should be noted that the segments were established with input from the District.

These segments were scored through several criteria and assigned an upgrade methodology that was determined through the weighted ranking process. Once the segments received their preferred upgrade methodology, the segments were then prioritized based on the criticality of the segment of pipeline and cost of the project. This process was established to allow the District to ensure project phasing aligns with available future financial funding and District pipeline replacement objectives.

3.0 EXISTING CONDITIONS AND CONSTRAINTS

3.1 Utility Investigation

Utility investigations were conducted to identify existing utilities within the project vicinity and to aid in the evaluation of the alternatives for each segment. As a part of this project, utility research consisted of formal written requests for available as-builts, record drawings, and facility maps from the various public utilities and utility providers within the project limits.

Wood Rodgers used the Dig Alert Design Lookup on-line resource to identify the potential public utilities and agencies within the project area. A utility request letter with an exhibit depicting the project alignment options and overall limits was provided to all utilities that were identified. These existing utilities were mapped at a concept level within GIS to assist in the evaluation of the alternative alignments.

Table 1 presents a summary of the utilities contacted along with a status of the existence of utilities within the Project area.

Table 1 – Utility Investigation Summary

Utility/Public Agency Name	Utility Type	Responded to Utility Request	Has Utilities within Project Limits
Cox Communications	Communication	Yes	Yes
Montecito Sanitary District	Sewer	Yes	Yes
Socal Gas Distribution	Gas	Yes	Yes
Socal Gas transmission	Gas	Yes	Yes
Southern California Edison	Electric	Yes	Yes
Frontier	Communication	Yes	Yes
Crown Castle*	Communication	Yes	Yes
Montecito Creek Water Company	Water	Yes	No
AT&T Transmission	Communication	Yes	No
AT&T Distribution	Communication	Yes	No
Woodman Telco	Communication	Yes	No

** The as-built utility data provided by COX Communications was insufficiently legible for accurate placement and mapping within ArcGIS Pro. The potential for conflict with COX Communications' utilities was assessed to be minimal compared to other utility providers. During the design phase of the project, it will be essential to identify the exact location of every utility for design and construction.*

In addition to conducting the above utility investigation, any existing utility mark-outs observed during the site visit were captured using georeferenced photos and field notes.

All known utilities were mapped in the GIS utility base using the information collected from utility research and the site visit. The mapping of the utilities is shown at an approximate location and were not mapped at a design level accuracy.

3.2 Right Of Way And Property Constraints

The District holds easements and utilizes the public right of way for the Highline pipeline. Many of the easements on private property are over 100 years old. This PDR included a high level review of District easements to assist in determining the optimal replacement method. District Highline easements range from 8-ft wide to 20-ft wide based on the available information provided.

3.3 Permitting And Outside Stakeholder Evaluation

When considering the replacement and rehabilitation alternatives, coordination with outside stakeholders may be required. Santa Barbara County (County) is the only potential permitting agency within the project area. There are several instances along the Highline where proposed alternatives cross Santa Barbara County right-of-way and utilities including storm drain culverts. In these instances, coordination with the County would be necessary along with any encroachment permits that may be required if the pipeline is relocated within the public right-of-way.

3.4 Environmental Considerations and Constraints Analysis

An environmental considerations and constraints analysis was performed to inform the various alternatives and was used in the weighted ranking of each alternative. The Environmental Considerations and Constraints Analysis for the Montecito Water District Highline Project report can be found within this report in **Appendix D**. Within the report are recommendations, estimated costs, documentation, and permitting requirements for each segment based on known environmental constraints. These considerations and costs have been considered as part of each alternative. See the full report for further information and detailed recommendations for each individual segment.

4.0 BASIS OF DESIGN AND TECHNICAL EVALUATION

4.1 Hydraulic Design Parameters

Hydraulic design parameters were developed for use in the subsequent design phases to assist in analyzing and confirming final required pipeline diameters. The recommend hydraulic design parameters are summarized in **Table 2**.

Table 2 –Recommended Hydraulic Design Parameters

	2006 Hydraulic Model Analysis	Other Water Purveyor Standards	AWWA Standard	Recommended Hydraulic Design Parameter
Maximum Velocities	10 fps during PHD	5 fps during MDD 10 fps during PHD 15 fps during MDD + FF	4 – 6 fps	6 fps during ADD 10 fps during PHD 15 fps during MDD + FF
Static Pressures	40 – 150 psi	40 psi minimum during ADD, MDD, and PHD	40 – 130 psi	40 – 300 psi
Dynamic Pressures	N/A	40 psi minimum during PHD	NA	40 psi minimum during PHD
Maximum Headloss	10 ft/kft during PHD	10 ft/kft during PHD	5 – 7 ft/kft for pipes < 16-inches 2 – 3 ft/kft for pipes >/= 16-inches	10 ft/kft during PHD
Fire Flow Residual Pressure	20 psi	20 psi	N/A	20 psi

[1] *Other standards are derived from water agencies near the District.*

It should be noted that AWWA M32 Computer Modeling of Water Distribution Systems (AWWA M32) and California Regulations Related to Drinking Water (California Water Regulations) have also been reviewed to justify the recommended design parameters. AWWA sets typical pressure and velocity criteria that can be used to ensure the adequacy of customer service. Per AWWA, pressures can range from 40 psi to around 110 psi during average day demand conditions but may be higher and closer to 130 psi if the system is in mountainous regions. Since the Highline

traverses an extremely mountainous terrain as it follows the contours of the Montecito foothills, the Highline ranges in elevation from 1950-ft to 530-ft with corresponding system pressures ranging from 20 psi to 300 psi. Due to this terrain, this pipeline experiences pressures higher than 130 psi in some locations, justifying the recommended pressure range to be from 40 – 300 psi. The California Water Regulations also state that the minimum pressure in a distribution system should be 40 psi during average day demands and 20 psi during maximum day with fire flow demands.

4.2 Hydraulic Evaluation

AWWA M32 has general guidelines that identify typical velocities and headloss within piping systems. Per AWWA M32, the typical velocity within a pipe should fall between 4 to 6 fps. However, AWWA M32 does not specify under what demand condition this velocity range corresponds. Therefore, Wood Rodgers analyzed the total system demand for the District and compared it to the capacity of a 14-inch pipe, which is the smallest diameter pipe along the Highline within this study. For a 14-inch pipe 2,900 gpm can be conveyed with a velocity of 6 fps. Alternatively, a 14-inch pipe can convey up to 4,800 gpm with a velocity of 10 fps. It should be noted that the total demand in the District's system during a maximum day demand event is approximately 7,800 gpm, which is distributed amongst the entire system.

Per the District, the Highline typically flows 1,000 gpm during normal conditions. The District also noted that the Highline can experience flows of 1,600 gpm if there are high customer demands and Hot Springs Reservoir and Buena Vista Reservoir are being filled at the same time. Per the District, a high flow event of 2,800 gpm was recorded one time due to extraordinary flow conditions when filling Romero, Hot Springs, and Terminal Reservoirs at the same time solely from Jameson Lake water.

Additionally, as a testament to the 14-inch Highline performance during the 2017 Thomas Fires, it is of note that there were no deficiencies observed during the active deployment of 9,000 fire fighters along the Highline.

Also, most recently the District conducted a comprehensive hydraulic modeling effort using an updated and calibrated model in early 2026 to analyze the distribution system's response to a wildland fire in the District's service area. The wildland fire was focused in an area where the Highline and its connected reservoirs were critical to conveying water for fire suppression, while still meeting customer demands during a maximum day demand condition. This modeling effort concluded that the existing system performs satisfactorily, even under an extreme emergency event.

Based on the above, a 14-inch diameter Highline meets all current and future needs to convey flow meeting both District and industry guidelines.

4.3 Potential Pipe Relocation Hydraulics

Some segments of the Highline pipeline were considered to be relocated outside of their existing easements. In these areas, the change in elevation (if any) was analyzed to ensure that the pipeline would convey proper pressures to the system after the relocation. It was found that most alternatives will not have pressure issues because they are either near or below the elevation of

the existing Highline. For relocation alternatives that significantly increased the overall length of the pipeline, the total headloss incurred is a more important parameter to consider to ensure that these relocations do not impact the overall hydraulic performance of the Highline.

This report concluded that no major Highline multi-segmented relocations should take place due to the several ranking factors implemented with each segment's alternatives. Provided that the proposed pipeline diameter remains the same or larger as the Highline segment it is replacing, headloss would be reduced or remain the same given that DIP has a larger inner diameter than the stated size of the existing pipe.

4.4 Bella Vista Drive Hydraulics

An alternative considered for Segments 19-22 involved relocating the Highline outside of the easement into Bella Vista Drive north of and higher than the existing Highline alignment. To analyze this section, Bella Vista reservoir was set to half full at with a hydraulic grade line of 1061 ft. On Bella Vista Drive, there are elevations that are as high as 1058 ft. To overcome the low-pressure issues that would occur from this relocation and allow Bella Vista Reservoir to convey flow via gravity, it would be necessary to lower the pipe via deep open trenching or trenchless construction methods to ensure that the pipeline does not create a high point which would prevent Bella Vista from conveying flow past this point.

The alternative relocation for Segments 19-22 was not selected due to the other ranking factors as compared to the alternatives proposed. Should the District in the future consider relocating the Highline pipeline into Bella Vista Drive, these considerations would need to be analyzed further.

4.5 Pipeline Rehabilitation Systems

Pipeline rehabilitation was screened at a conceptual level in this PDR to determine where it may be viable. Detailed product selection will be completed during the subsequent design phases to select the optimal lining system for rehabilitation where implemented. For comparison purposes within this PDR, the BulletLiner trenchless lining system was selected as an example lining product because it is a Class 3 liner that can be installed through several 45-degree bends without reducing the pressure rating.

Internal trenchless lining was identified as the most suitable rehabilitation approach for the Highline because it minimizes excavation in difficult terrain. In accordance with AWWA M28, rehabilitation methods are selected based on the pipeline issue being addressed. For the Highline, the primary long-term concern is structural deterioration from aging and corrosion rather than water quality or hydraulic deficiencies.

Structural Classification: Per AWWA M28, rehabilitation liners are categorized as follows:

- **Class 1:** Nonstructural lining used primarily for corrosion protection.
- **Class 2:** Interactive lining that can bridge limited defects but relies on the host pipe for structural support.
- **Class 3:** Semi-structural lining that can bridge holes and gaps and remains self-supporting when depressurized.

- **Class 4:** Fully structural lining that functions similarly to replacement pipe but typically reduces internal diameter more than lower classes.

Based on the Highline's current condition, material, and historical performance, a Class 3 lining system is the most appropriate rehabilitation category if rehabilitation is selected. It provides additional structural capacity, can bridge holes and gaps, and is well suited for aging steel pipe where catastrophic longitudinal cracking is not the expected failure mode.

CPM Pipelines' BulletLiner system was used as a representative Class 3 product to compare rehabilitation against full replacement and to identify high-level installation constraints and applicability for the Highline. BulletLiner is a trenchless, flexible fabric-reinforced Class 3 liner. Supporting product information is included in **Appendix E**. Concept-level checks indicate that a Class 3 liner is structurally adequate for the Highline under the anticipated operating conditions and existing cover depths.

The BulletLiner system has an estimated service life of 50 years and is most advantageous where trenchless installation can reduce excavation, such as steep terrain, dense vegetation, and creek crossings where the pipeline is not exposed and at risk for future damage by debris flows. Additional excavation pits will be required where service connections or appurtenances must be reconnected.

4.6 Replacement Pipeline Material Evaluation

For the pipeline replacement materials considered for this project, only materials currently installed within the District's system were evaluated, including ductile iron pipe (DIP) and welded steel (WS). The following materials were excluded from this evaluation since they are not prevalent within the District's distribution system.

- Polyvinyl Chloride (PVC)
- High Density Polyethylene (HDPE)

The majority of the Highline is currently a WS pipeline and a minority utilizing riveted steel. As most of the District's distribution system is DIP, Wood Rodgers evaluated WS and DIP to identify the advantages and disadvantages of each material. The following provides an overview of several considerations when identifying which material should be considered for pipeline replacement.

- Working Pressure
- Thrust Restraint
- Pipe Deflection/Changes of Direction
- Corrosion Protection
- Construction Considerations
- Pipe Availability/Cost

Working Pressures:

Hydraulic modeling indicates the Highline experiences working pressures up to approximately 300 psi during minimum hour conditions. Both ductile iron pipe (DIP) and welded steel (WS) can be designed to meet these pressures. DIP would require a pressure class of 300 psi or greater, while preliminary calculations indicate a 0.25-inch steel cylinder is appropriate for WS to provide

both structural capacity and corrosion allowance. From a hydraulic standpoint, DIP has a slightly larger internal diameter and higher conveyance capacity than cement mortar lined WS pipe.

DIP is available in pressure classes up to 350 psi with a surge allowance of 100 psi. Preliminary WS sizing in accordance with AWWA M11 indicates a minimum steel cylinder thickness of 0.25 inches is appropriate to provide both structural capacity and corrosion allowance, with final thickness to be confirmed during design.

From a hydraulic standpoint, DIP has a slightly larger internal diameter and greater conveyance capacity than cement mortar lined WS pipe. However, from a working pressure perspective, both materials are suitable for the anticipated Highline operating conditions.

Thrust Restraint:

DIP is typically restrained with mechanical joints and, in some cases, thrust blocks, although fully restrained joints can be used where thrust blocks are impractical. WS pipe is fully welded, creating a fully restrained system without thrust blocks, but requiring a welder during construction inflating labor costs and project timelines. Overall, both materials can provide satisfactory restraint for the Highline.

Pipe Deflection/Changes of Direction:

DIP can accommodate limited deflection at joints, with larger changes in direction requiring fittings. WS pipe can be fabricated for custom vertical and horizontal deflections, which may be advantageous in steep terrain or along roadways with tight radii. Both materials are suitable for the Highline, although WS may provide greater flexibility depending on final alignment and profile.

Corrosion Protection:

For corrosion protection, DIP requires polyethylene encasement, while WS pipe would rely on cement mortar coating and increased wall thickness for corrosion allowance. WS provides a slight advantage because the coating and thicker steel are less susceptible to localized damage during installation. This is due to the risk of the DIP polyethylene encasements tearing if not installed appropriately.

Construction Considerations:

From a construction standpoint, DIP is faster and simpler to install, with smaller staging needs and no specialty welding required. WS installation is more complex due to field welding, shop-fabricated connections, and mortar lining/coating repairs at welded joints. DIP also provides the District with greater flexibility for future maintenance and repairs using in-house staff as welders will not be necessary.

Pipe Availability and Cost:

DIP is more readily available in the required sizes and is not custom fabricated. WS pipe is made to order, requires detailed lay drawings, and typically has longer fabrication and delivery lead times. In general, WS is also more expensive due to fabrication requirements and field welding.

Table 4 below contains an overall comparison between DIP and WS pipe based on the evaluation performed above.

Table 4 – Comparison Summary of Ductile Iron Pipe vs. Welded Steel Pipe

Factors and Characteristics	Advantage	
	Ductile Iron	Welded Steel
Working Pressures	✓	✓
Hydraulic Properties (Friction Loss)	✓	
Thrust Restraint	✓	✓
Pipe Deflection / Changes in Direction		✓
Corrosion Protection		✓
Construction Considerations	✓	
Pipeline Availability and Installation Cost	✓	

For pipeline replacement, although WS may have the ability to accommodate unique/custom pipe deflections, the construction of WS pipelines may prove to be difficult due to the unique terrain surrounding the Highline and may prevent the District from self-performing future repairs.

Ductile Iron pipe is recommended for the Highline segment replacements as it is more efficient with costs, construction timelines, and potential future repairs.

DIP systems designed to meet District standards will be sufficient to withstand the working pressures of the system and will provide the District with a reliable distribution pipeline

5.0 SEGMENT EVALUATION CRITERIA AND ALTERNATIVES

5.1 Evaluation Criteria

The following criteria were used for each segment to recommend either a replacement or rehabilitation method.

Hydraulic Performance: During the ranking process, a hydraulic analysis was conducted to determine hydraulic deficiencies along the existing Highline. Segments that were relocated away from the existing alignment/easement were examined to identify if possible hydraulic deficiencies may be introduced from the proposed project. Such examples include reduction of the pipeline diameter or relocating the pipeline to a higher elevation which may introduce high points that could result in capacity deficiencies. In the ranking criteria, a higher hydraulic performance score for each segment methodology correlates to an equal or better performance than that of the existing pipeline.

Construction Risk and Constructability: During the ranking process, construction complexity, construction risk, and overall constructability were considered. For example, an excavator should be limited to a slope of 70% (35 degrees). Slopes exceeding 35 degrees would be considered difficult terrain for an excavator meaning that construction within those areas would receive a lower score in the ranking matrix. Difficult access to the Highline segment was also considered, such as segments within deep valleys and/or creeks.

Probable Construction Cost: A preliminary cost analysis was completed for each segment and for each alternative replacement or rehabilitation methodology. Upgrade methods that are more cost effective received a higher score and the methods that have a higher construction cost received a lower score relative to each individual segment's alternatives.

Future Maintenance and Operation of Pipe: The future accessibility of the upgraded pipe section was also taken into consideration in the ranking matrix. Some existing segments of the pipeline are difficult to access due to difficult terrain or private property with limited equipment and vehicular access. If the pipeline is currently located in those types of locations, a lower score was attributed to the methods that involved rehabbing/replacing the pipe within the existing alignment/easement.

Environmental Constraints: While the environmental constraints identified for each segment can be mitigated, factors such as extended project timelines, construction costs due to mitigation efforts, and permitting requirements were taken into consideration. When analyzing all alternative methods of each segment, the level of environmental mitigation or permitting requirements required were considered. The alternatives with lower environmental constraints received a higher score.

Outside Stakeholder Coordination: If a replacement or rehabilitation method involved permitting or coordination with an outside stakeholder, this lowered the method's score. In the ranking matrix, a higher score is indicative of coordinating with few to no outside stakeholders.

Need for a New Easement: This criterion only applies to relocation outside of the public right-of-way. Rehabilitation and replacement in place do not require a new easement and therefore receive a higher score. Relocation of the pipeline into the public right-of-way receives a higher score as well since a new easement would not be necessary.

Useful Service Life: A rehabilitated (lined) pipeline has an estimated useful life of 50 years whereas a new pipeline has an estimated useful service life of 100 years. When considering an upgrade method, a pipeline segment that has been rehabilitated would receive a slightly lower score since it has a lower useful service life.

Each criterion described above was weighed to either increase or decrease its impact on the overall score for an alternative. The list of the ranking criteria and weighting is summarized in **Table 3** below. A higher weight value indicates more importance. Through multiple discussions and meetings, the District provided input on the ranking criteria and their associated weighting of criticality.

Table 3 –Ranking Criteria and Weighting

Ranking Criteria	Criteria Definition	Weight (1-5)
Hydraulic Performance	Hydraulic performance of new pipeline. Do pressures, and HGL's meet District Criteria?	2
Construction Risk and Constructability	Is the location of the proposed alternative in an accessible area? For rehabilitation, are there several service and appurtenance connections that require transitions?	4
Probable Construction Costs	Probable construction costs based on the type of upgrade methodology.	4
Future Maintenance and Operation of Pipeline	Is the proposed alignment in a location that would pose significant challenges for equipment and personnel to access?	5
Environmental Constraints	How many environmental constraints are there to mitigate for each segment relative to each alternative?	2
Outside Stakeholder Coordination	Will the proposed pipeline location need coordination with stakeholders other than property owners?	1
Need for a New Easement	Would the pipeline require a new easement, or the revision of an existing easement to accommodate a relocated pipeline?	4
Useful Service Life	Estimated useful service life of replacement or rehabilitation of the proposed segment.	3

5.2 Replacement Alternatives

Four (4) different replacement alternatives were considered, as summarized below.

1. **Replacement in Place:** Replacing the pipeline in place of the existing segment requires the existing Highline segment to be completely removed and the pipeline constructed in the same alignment and elevation. Open trenching replace in place is the traditional approach to pipeline replacement. This work requires the installation of a temporary bypass since the pipeline segment would be out of service during construction. This option utilizes conventional construction equipment such as excavators, requiring access for this equipment. Pipe bursting is a trenchless application that pulls a pipe with a cutting head at the leading face through the existing pipeline. Pipe bursting was not considered for this study given the high number of services lines, fire hydrants, and laterals off the Highline in all segments. Traditional replacement in place is preferred.
2. **Replacement Within Easement:** This method also considers the use of open trench construction using conventional construction equipment. The primary difference between this option versus replacing in place is that the construction of the new pipeline can occur while the existing Highline remains in operation, eliminating the need for a temporary bypass pipeline.
3. **Rehabilitation in Place:** Most pipeline rehabilitation technologies consist of an internal lining system. Pipeline rehabilitation is beneficial when surface access is limited or steep

slopes prevent construction equipment from reaching the pipeline. Rehabilitation requires access pits at every existing connection such as customer service laterals, distribution system connections, air/vacuum release valves, blow offs and isolation valves. Discussion of the selected pipe liner is provided in **Appendix E**.

4. **Replacement out of Easement:** Replacement out of the existing easement would be accomplished using open trench construction and conventional equipment. This replacement methodology is the preferable option if an existing road is nearby that provides a better pipeline alignment and future access. In some cases, this alternative would result in a new easement on private property and quitclaiming of the existing easement should the relocated pipeline be placed within private property. Some Highline realignments also require new distribution pipelines to maintain hydraulic continuity and customer service.

6.0 SEGMENT REPLACEMENT/REHABILITATION RECOMMENDATIONS

The following sections provide the recommended pipe diameter, material, and upgrade alternatives for each segment, including length, estimated cost, and proposed implementation year. **Appendix A** illustrates all segments with each upgrade methodology. **Appendix B** includes the preliminary opinion of probable cost for each segment's recommended alternative. **Appendix C** contains the calculated scores for each segment's upgrade alternatives based upon the weighted ranking. **Appendix D** includes all environmental considerations applicable to each segment and alternative.

Alternative A (replace in place) and Alternative B (replace within easement) are functionally equivalent, with the exception that Alternative A requires temporary bypass piping during construction. This requirement increases construction costs, resulting in Alternative B consistently receiving a higher evaluation score. During future design phases, the feasibility of installing parallel piping adjacent to the existing Highline shall be confirmed. If an adequate location is unavailable, Alternative A shall be reconsidered as the better alternative. It should be assumed that an approximate additional 10 to 20% cost should be added to any segment recommended with Alternative B should it later be decided to be revised to be Alternative A to account for the extra temporary bypass piping.

6.1 Segment 1

This project segment proposes the replacement of approximately 700 linear feet of existing 14-inch steel water main with new 14-inch ductile iron pipe along East Mountain Drive east of the Cold Springs Road intersection. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Terminal Cold Springs Pressure Zone.

The recommended alternative for this segment, Alternative D, includes the installation of a new 14-inch ductile iron pipeline to replace the existing 14-inch steel pipeline within the public right of way. This alternative scored the highest due to the ease of constructing a new pipeline within the adjacent East Mountain Drive.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	700-ft
Recommended Upgrade Methodology	Relocate Outside of Easement
Estimated Project Cost	$ 1,223,681
Proposed Implementation Year	2038

6.2 Segment 2

This project segment proposes the replacement of approximately 375 linear feet of existing 14-inch steel water main with new 14-inch ductile iron pipe within the existing easement west of East Cold Springs Creek adjacent to East Mountain Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Terminal Cold Springs Pressure Zone.

The recommended alternative for this segment, Alternative B, the replacement alongside the existing 14-inch steel pipeline within the existing easement with a 14-inch ductile iron pipeline without a temporary bypass. This alternative scored the highest due to far lower project costs when compared to relocating outside of the existing easement.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	375-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 750,727
Proposed Implementation Year	2028

6.3 Segment 3

This project segment proposes the replacement of existing 14-inch steel water main with approximately 130 linear feet of new 14-inch ductile iron pipe within/near 960 East Mountain Drive private property east of East Mountain Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Terminal Cold Springs Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within East Mountain Drive was found to be not viable for segments 3 through 11 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance and lower project costs.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	130-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 366,235
Proposed Implementation Year	2038

6.4 Segment 4

This project segment proposes the replacement of existing 14-inch steel water main with approximately 800 linear feet of new 14-inch ductile iron pipe between the private properties of 960 East Mountain Drive and 1130 East Mountain Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Terminal Cold Springs Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within East Mountain Drive was found to be not viable for segments 3 through 11 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, lower construction risk, and longer useful service life.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	800-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 1,559,704
Proposed Implementation Year	2036

6.5 Segment 5

This project segment proposes the replacement of existing 14-inch steel water main with approximately 950 linear feet of new 14-inch ductile iron pipe crossing and existing private drive directly adjacent to 1130 East Mountain Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Terminal Cold Springs Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within East Mountain Drive was found to be not viable for segments 3 through 11 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, lower construction risk, and longer useful service life.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	950-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 1,558,689
Proposed Implementation Year	2036

6.6 Segment 6

This project segment proposes the replacement of existing 14-inch steel water main with approximately 100 linear feet of new 14-inch ductile iron pipe northernly adjacent to 1192 East Mountain Drive crossing an existing private driveway. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Terminal Cold Springs Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within East Mountain Drive was found to be not viable for segments 3 through 11 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, lower construction risk, and longer useful service life.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	100-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 227,783
Proposed Implementation Year	2037

6.7 Segment 7

This project segment proposes the replacement of existing 14-inch steel water main with approximately 150 linear feet of new 14-inch ductile iron pipe northeast adjacent of 1192 East Mountain Drive within dense trees and vegetation. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Terminal Cold Springs Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within East Mountain Drive was found to be not viable for segments 3 through 11 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, lower construction risk, longer useful service life.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	150-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 329,503
Proposed Implementation Year	2037

6.8 Segment 8

This project segment proposes the replacement of existing 14-inch steel water main with approximately 525 linear feet of new 14-inch ductile iron pipe in private property west of Hot Springs crossing Hot Springs Creek. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Terminal Cold Springs Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within East Mountain Drive was found to be not viable for segments 3 through 11 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, lower construction risk, and longer useful service life.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	525-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 1,024,588
Proposed Implementation Year	2037

6.9 Segment 9

This project segment proposes the replacement of existing 14-inch steel water main with approximately 645 linear feet of new 14-inch ductile iron pipe along Hot Springs Road. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Hot Springs Pressure Zone.

The recommended alternative for this segment, Alternative D, includes the installation of a new 14-inch ductile iron pipeline to replace the existing 14-inch steel pipeline within the public right of way. Relocation outside the easement within East Mountain Drive was found to be not viable for segments 3 through 11 due to the overall cost of the combined project. This alternative scored the highest due to lower construction risk, lower project costs, and ease of access for future maintenance as result of relocating the existing pipeline into Hot Springs Road,

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	645-ft
Recommended Upgrade Methodology	Relocate Outside of Easement
Estimated Project Cost	$ 1,111,890
Proposed Implementation Year	2029

6.10 Segment 10

This project segment proposes the replacement of existing 14-inch steel water main with approximately 650 linear feet of new 14-inch ductile iron pipe between the private properties of 936, 944, and 946 Hot Springs Road crossing an existing private asphalt driveway and within dense vegetation. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Hot Springs Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within East Mountain Drive was found to be not viable for segments 3 through 11 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, ease of future maintenance, and longer useful service life.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	650-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 1,035,311
Proposed Implementation Year	2035

6.11 Segment 11

This project segment proposes the replacement of existing 14-inch steel water main with approximately 225 linear feet of new 14-inch ductile iron pipe southeast of 946 East Mountain Drive and northwest of Oak Creek Canyon Road within dense vegetation. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Hot Springs Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within East Mountain Drive was found to be not viable for segments 3 through 11 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, ease of future maintenance, and longer useful service life.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	225-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 417,674
Proposed Implementation Year	2035

6.12 Segment 12

This project segment proposes the replacement of existing 14-inch steel water main with approximately 1,250 linear feet of new 14-inch ductile iron pipe along Oak Creek Canyon Road. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the San Ysidro Pressure Zone.

The recommended alternative for this segment, Alternative D, includes the installation of a new 14-inch ductile iron pipeline to replace the existing 14-inch steel pipeline within the public right of way. This alternative scored the highest due to lower construction risk and ease of access for future maintenance as the pipeline will be within a paved roadway.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	1,250-ft
Recommended Upgrade Methodology	Relocate Outside of Easement
Estimated Project Cost	$ 1,948,181
Proposed Implementation Year	2034

6.13 Segment 13

This project segment proposes the replacement of existing 14-inch steel water main with approximately 275 linear feet of new 14-inch ductile iron pipe easterly adjacent to the private property of 1395 Oak Creek Canyon Road. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the San Ysidro Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. This alternative scored the highest due to better hydraulic performance and lower project costs remaining within the existing easement.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	275-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 566,588
Proposed Implementation Year	2039

6.14 Segment 14

This project segment proposes the replacement of existing 14-inch steel water main with approximately 700 linear feet of new 14-inch ductile iron pipe within private property north of 1510 East Mountain Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the San Ysidro Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. This alternative scored the highest due to lower construction risk and lower project cost by remaining within the existing easement.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	700-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 1,227,593
Proposed Implementation Year	2039

6.15 Segment 15

This project segment proposes the replacement of existing 14-inch steel water main with approximately 1,100 linear feet of new 14-inch ductile iron pipe southernly adjacent to 1640 East Mountain Drive within a private driveway and crossing East Mountain Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the San Ysidro Pressure Zone.

The recommended alternative for this segment, Alternative D, includes the installation of a new 14-inch ductile iron pipeline to replace the existing 14-inch steel pipeline in a new alignment with a new easement. This alternative scored the highest due to lower construction risk, lower project costs, and ease of future maintenance for a pipeline within an access road.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	1,100-ft
Recommended Upgrade Methodology	Relocate Outside of Easement
Estimated Project Cost	$ 1,782,560
Proposed Implementation Year	2032

6.16 Segment 16

This project segment proposes the replacement of existing 14-inch steel water main with approximately 225 linear feet of new 14-inch ductile iron pipe northwest adjacent to 903 Park Lane within private property. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Buena Vista Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. This alternative scored the highest due to better hydraulics, lower project costs, and no need for a new easement.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	225-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 411,878
Proposed Implementation Year	2040

6.17 Segment 17

This project segment proposes the replacement of existing 14-inch steel water main with approximately 400 linear feet of new 14-inch ductile iron pipe southernly adjacent to 905 Park Lane with a majority of the proposed pipeline with a private driveway. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Buena Vista Pressure Zone.

The recommended alternative for this segment, Alternative D, includes the installation of a new 14-inch ductile iron pipeline to replace the existing 14-inch steel pipeline in a new alignment with a new easement. This alternative scored the highest due to ease of constructability within an existing access road outside of private improvements, lower project costs, and ease of future access and maintenance.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	400-ft
Recommended Upgrade Methodology	Relocate Outside of Easement
Estimated Project Cost	$ 702,765
Proposed Implementation Year	2040

6.18 Segment 18

This project segment proposes the replacement of existing 14-inch steel water main with approximately 1,160 linear feet of new 14-inch ductile iron pipe along Bella Vista Drive south of 2200 Bella Vista Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Buena Vista Pressure Zone.

The recommended alternative for this segment, Alternative D, includes the installation of a new 14-inch ductile iron pipeline to replace the existing 14-inch steel pipeline within the public right of way. This alternative scored the highest due to ease of constructability within Bella Vista Drive, lower project costs, ease of future access and maintenance, and no need for a new easement.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	1,160-ft
Recommended Upgrade Methodology	Relocate Outside of Easement
Estimated Project Cost	$ 1,831,536
Proposed Implementation Year	2040

6.19 Segment 19

This project segment proposes the replacement of existing 14-inch steel water main with approximately 575 linear feet of new 14-inch ductile iron pipe near Bella Vista Drive west of 2303 Bella Vista Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Bella Vista Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within Bella Vista Drive was found to be not viable for segments 19 through 22 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, constructability, and lower project costs.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	575-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 1,199,337
Proposed Implementation Year	2041

6.20 Segment 20

This project segment proposes the replacement of existing 14-inch steel water main with approximately 850 linear feet of new 14-inch ductile iron pipe south of Bella Vista Drive east of 2303 Bella Vista Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Bella Vista Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within Bella Vista Drive was found to be not viable for segments 19 through 22 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, constructability, and lower project costs.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	850-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 1,111,093
Proposed Implementation Year	2041

6.21 Segment 21

This project segment proposes the replacement of existing 14-inch steel water main with approximately 750 linear feet of new 14-inch ductile iron east of 999 Romero Canyon Drive a portion of which crosses existing private driveways and Romero Canyon Road. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Bella Vista Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within Bella Vista Drive was found to be not viable for segments 19 through 22 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, constructability, and lower project costs.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	750-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 1,564,398
Proposed Implementation Year	2042

6.22 Segment 22

This project segment proposes the replacement of existing 14-inch steel water main with approximately 2,875 linear feet of new 14-inch ductile iron within vegetated hills beginning east of Romero Creek through Buckthorn Road ending the alignment at Bella Vista Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Bella Vista Pressure Zone.

The recommended alternative for this segment, Alternative B, proposes installing a new 14-inch ductile iron pipeline within the existing easement, parallel to the existing 14-inch steel pipeline, and completing the work without a temporary bypass. Relocation outside the easement within Bella Vista Drive was found to be not viable for segments 19 through 22 due to the overall cost of the combined project. This alternative scored the highest due to better hydraulic performance, constructability, and lower project costs.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	2,875-ft
Recommended Upgrade Methodology	Relocate Within Easement
Estimated Project Cost	$ 6,904,883
Proposed Implementation Year	2043

6.23 Segment 23

This project segment proposes the replacement of existing 14-inch steel water main with approximately 1,670 linear feet of new 14-inch ductile iron pipe beginning near Bella Vista Reservoir and moves through an existing dirt driveway south of 2790 Bella Vista Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Bella Vista Pressure Zone.

The recommended alternative for this segment, Alternative D, includes the installation of a new 14-inch ductile iron pipeline to replace the existing 14-inch steel pipeline in a new alignment with a new easement. This alternative scored the highest due to ease of constructability within an existing dirt access road away from private improvements, lower project costs, and ease of future access and maintenance.

Project Overview	
Diameter/Material	14-inch / Ductile Iron
Proposed Pipeline Linear Footage	1,670-ft
Recommended Upgrade Methodology	Relocate Outside of Easement
Estimated Project Cost	$ 2,678,477
Proposed Implementation Year	2030

6.24 Segment 24

This project segment proposes the rehabilitation of approximately 1,350 linear feet of existing 8-inch steel water main along mountainous regions of Montecito northeast of Bella Vista Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Bella Vista Zone and above the Picay Hydroelectric Facility.

The recommended alternative for this segment, Alternative C, includes the rehabilitation of the existing 8-inch steel pipeline utilizing a trenchless liner technology. This alternative scored the highest due to the existing steep terrain making accessibility difficult and lower project costs.

Project Overview	
Diameter/Material	8-inch / Steel
Proposed Pipeline Linear Footage	1,350-ft
Recommended Upgrade Methodology	Rehabilitate in Place
Estimated Project Cost	$ 1,363,219
Proposed Implementation Year	2045

6.25 Segment 25

This project segment proposes the rehabilitation of approximately 550 linear feet of existing 8-inch steel water main along mountainous regions of Montecito northeast of Bella Vista Drive. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities above the Picay Hydroelectric Facility.

The recommended alternative for this segment, Alternative C, includes the rehabilitation of the existing 8-inch steel pipeline utilizing a trenchless liner technology. This alternative scored the highest due to the existing steep terrain making accessibility difficult and lower project costs.

Project Overview	
Diameter/Material	8-inch / Steel
Proposed Pipeline Linear Footage	550-ft
Recommended Upgrade Methodology	Rehabilitate in Place
Estimated Project Cost	$ 885,484
Proposed Implementation Year	2045

6.26 Segment 26

This project segment proposes the replacement of approximately 2,065 linear feet of existing 18-inch steel water main with new 18-inch ductile iron pipe beginning northwest of 1210 Toro Canyon Road, continues along an existing dirt driveway, and ends west of Toro Canyon Creek. This pipeline is a critical transmission main, conveying water to distribution pipelines, customers, and facilities near the Doulton Pressure Zone.

The recommended alternative for this segment, Alternative D, includes the installation of a new 18-inch ductile iron pipeline to replace the existing 18-inch steel pipeline in a new alignment with a new easement. This alternative scored the highest due to ease of constructability within an existing dirt access road away from mountainous and vegetated terrain, lower project costs, and ease of future access and maintenance.

Project Overview	
Diameter/Material	18-inch / Ductile Iron
Proposed Pipeline Linear Footage	2,065-ft
Recommended Upgrade Methodology	Relocate Outside of Easement
Estimated Project Cost	$ 3,689,270
Proposed Implementation Year	2044

7.0 Opinion of Probable Construction Cost and Segment Prioritization

7.1 Basis of Costs

A preliminary cost analysis was performed for each alternative for each segment. The costs were developed utilizing bid estimates from similar projects, including projects recently bid by the District for portions of the Highline replacement. Pipeline vendors and rehabilitation liner manufacturers were contacted for budgetary costs. The technical submittals/documentation from both liners can be found in **Appendix E**. For projects that include work occurring within difficult terrain or steep canyons, a price adjustment was included to account for the difficulty of construction in these areas. Table 5 below contains the estimated project costs in present-day dollars for each segment.

7.2 Segment Prioritization and Phasing Recommendations

Segments were prioritized for implementation based on several factors as summarized below.

Cost Per Segment: Wood Rodgers used the District's 10 year Capital Improvement Plan and 5- Year Rate Study to determine available funding for each fiscal year for pipeline improvements. These funds were utilized to help determine how many segments may be completed within each fiscal year.

Proximity: Grouping nearby, similarly prioritized segments allows construction to be coordinated more efficiently, reducing cumulative impacts on residents while potentially lowering overall design, planning, and construction costs.

Priority Ranking: The District's 2024 Asset Management Plan primarily guided which pipeline segments were highest priority. A ranking score was assigned to each pipeline segment based on its current condition and risk included in the District's Asset Management Plan. After analyzing the pipelines, a score was assigned to each pipeline based on their likelihood of failure and consequence of failure. Pipeline segments were ranked from 1-5 with 5 being the highest priority and risk to the District.

Rehabilitation by Liner: Lastly, there are two segments that are recommended to be rehabilitated in place by utilizing a pipeline lining technology. Due to the unique construction and installation related to rehabilitation, it will be beneficial to group both rehabilitation projects into the same year. This would allow the District to plan accordingly and ensure an efficient construction phase, potentially lowering installation costs.

After taking into consideration these prioritization factors, the segments were grouped into project task years. These task years represent the year in which the project would commence. Table 5 below contains a detailed breakdown of each segment and their recommended task year prioritization, costs, upgrade methodology, and proposed segment length.

Table 5 –Segment Prioritization/Implementation

Segment	Alt	Type of Replacement/Rehabilitation	Project Cost	Task Year	Approx Length of Proposed Segment (ft)
2	B	Replace Within Easement	$750,727	2028	375
9	D	Relocate Outside of Easement	$1,111,890	2029	645
23	D	Relocate Outside of Easement	$2,678,477	2030	1,670
15	D	Relocate Outside of Easement	$1,782,560	2032	1,100
12	D	Relocate Outside of Easement	$1,948,181	2034	1,250
10	B	Replace Within Easement	$1,035,311	2035	650
11	B	Replace Within Easement	$417,674	2035	225
4	B	Replace Within Easement	$1,559,704	2036	800
5	B	Replace Within Easement	$1,558,689	2036	950
6	B	Replace Within Easement	$227,783	2037	100
7	B	Replace Within Easement	$329,503	2037	150
8	B	Replace Within Easement	$1,024,588	2037	525
1	D	Relocate Outside of Easement	$1,223,681	2038	700
3	B	Replace Within Easement	$366,235	2038	130
13	B	Replace Within Easement	$566,588	2039	275
14	B	Replace Within Easement	$1,227,593	2039	700
16	B	Replace Within Easement	$411,878	2040	225
17	D	Relocate Outside of Easement	$702,765	2040	400
18	D	Relocate Outside of Easement	$1,831,536	2040	1,160
19	B	Replace Within Easement	$1,199,337	2041	575
20	B	Replace Within Easement	$1,111,093	2041	850
21	B	Replace Within Easement	$1,564,398	2042	750
22	B	Replace Within Easement	$6,904,883	2043	2,875
26	D	Relocate Outside of Easement	$3,689,270	2044	2,065
24	C	Rehabilitate in Place	$1,363,219	2045	1,350
25	C	Rehabilitate in Place	$885,484	2045	550
		Total	**$36,577,375**		**20,130**

8.0 SUMMARY AND CONCLUSION

This PDR provides a planning level evaluation and recommendations for either replacement or rehabilitation for approximately four miles of the Highline that was installed prior to 1940 with costs and prioritization for project implementation. The results of this report will inform the District's 10-year Capital Improvement Program and annual budgeting process. The first project (Segment 2) will begin the design phase in Fiscal Year 2027.

APPENDIX A Segment Figures

SEGMENT 1

HIGHLINE PRELIMINARY DESIGN REPORT

MONTECITO, CA

Cold Springs Reservoir

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 1
- ALT A
- ALT B
- ALT C

SEGMENT 1
- ALT D

PREFERRED ALTERNATIVE

POTENTIAL REHABILIATION ENTRY/EXIT PIT

Segment 1

Segment 2

E Mountain Dr

Cold Springs Rd

12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

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Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Sewer Manholes
- Existing Sewer
- Existing Electrical
- Existing Transmission Gas
- Existing Distribution Gas

NORTH

0 25 50 100 150 200 Feet

WOOD RODGERS

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SEGMENT 2
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

SEGMENT 2
- ALT D

E Mountain Dr

East Cold Springs Creek

E Mountain Dr

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

Segment 1

SEGMENT 2
- ALT A
- ALT C

Segment 2

SEGMENT 2
- ALT B

PREFERRED ALTERNATIVE

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

WOOD RODGERS

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SEGMENT 3
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

SEGMENT 3
- ALT B

PREFERRED ALTERNATIVE

SEGMENT 3-11
- ALT D

SEGMENT 3
- ALT A
- ALT C

POTENTIAL REHABILIATION ENTRY/EXIT PIT

POTENTIAL REHABILIATION ENTRY/EXIT PIT

Segment 3

Segment 4

E Mountain Dr

E Mountain Dr

E Mountai

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 20 40 80 120 Feet

WOOD RODGERS

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ALTERNATIVE D FOR SEGMENTS 3-11

HIGHLINE PRELIMINARY DESIGN REPORT

MONTECITO, CA

Segment 2
Segment 3
Segment 4
Segment 5
Segment 6
Segment 7
Segment 8
Segment 9
Segment 10
Segment 11

SEGMENT 3-11
ALTERNATIVE D

E Mountain Dr
Hot Springs Rd
Hot Springs Creek
East Cold Springs Creek
Riven Rock Rd
Ashley Rd

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 160 320 640 960 1,280 Feet

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SEGMENT 4
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

SEGMENT 4
- ALT D (SEE FIGURE 4)

SEGMENT 4
- ALT B

PREFERRED ALTERNATIVE

SEGMENT 4
- ALT A
- ALT C

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENTS 3-11
- ALT D (SEE OTHER EXHIBIT)

POTENTIAL REHABILIATION ENTRY/EXIT PIT

Segment 4

Segment 5

29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 25 50 100 150 200 Feet

WOOD RODGERS

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POTENTIAL REHABILIATION ENTRY/EXIT PIT

Segment 4

SEGMENT 5
- ALT B

PREFERRED ALTERNATIVE

SEGMENTS 3-11
- ALT D (SEE OTHER EXHIBIT)

SEGMENT 5
- ALT A
- ALT C

POTENTIAL REHABILIATION ENTRY/EXIT PIT

Segment 5

37+00
38+00
39+00
40+00
41+00
42+00
43+00
44+00
45+00
46+00
47+00

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SEGMENT 5
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 30 60 120 180 240 Feet

WOOD RODGERS

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SEGMENT 6
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 6
- ALT B

PREFERRED ALTERNATIVE

Segment 5

Segment 6

Segment 7

Segment 8

47+00

48+00

49+00

50+00

51+00

SEGMENT 6
- ALT A
- ALT C

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENTS 3-11
- ALT D (SEE OTHER EXHIBIT)

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Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer
- Existing Distribution Gas

NORTH

0 15 30 60 90 120 Feet

WOOD RODGERS

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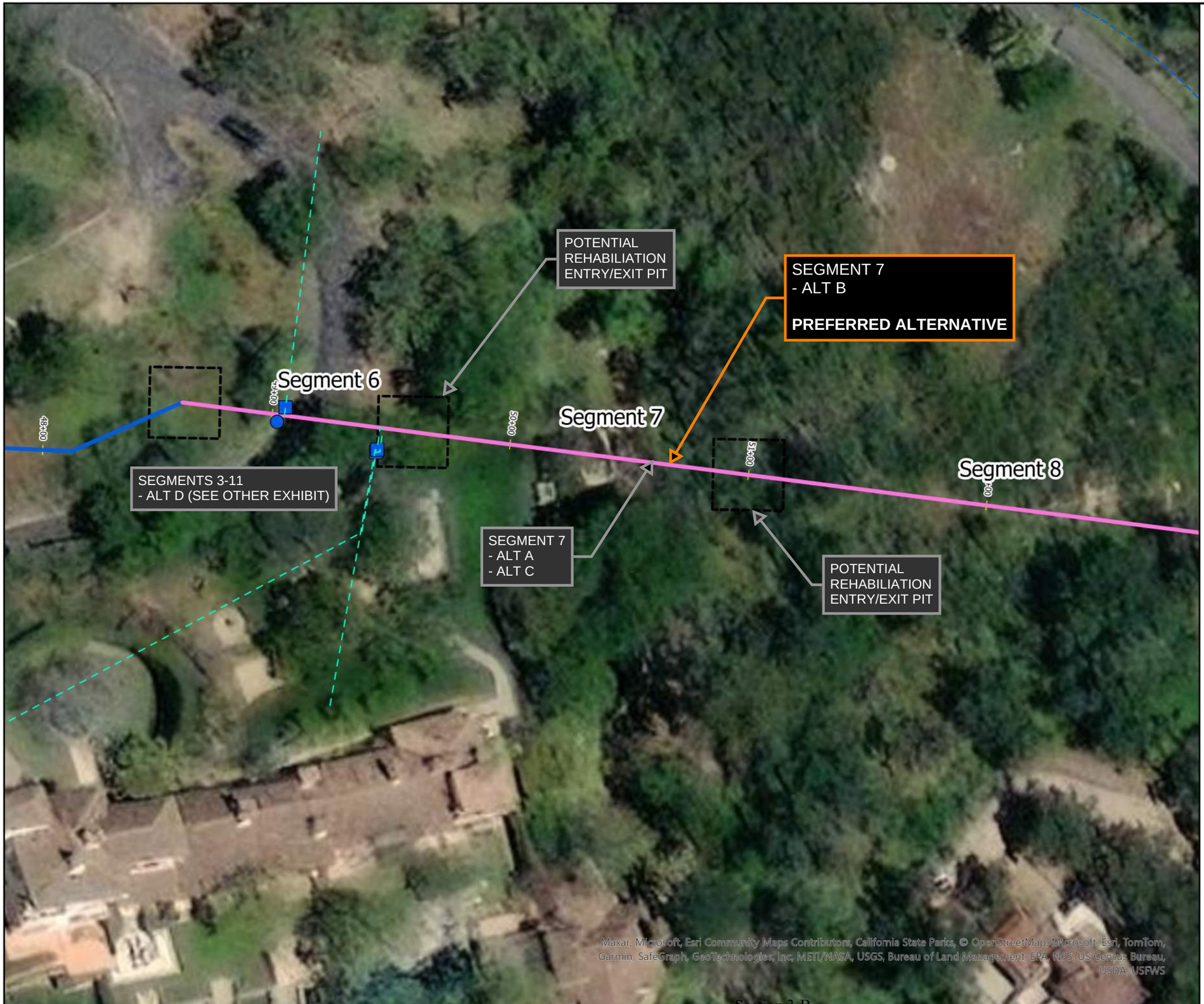

SEGMENT 7
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 15 30 60 90 120 Feet

WOOD RODGERS

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SEGMENT 8
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 8
- ALT B

PREFERRED ALTERNATIVE

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 8
- ALT A
- ALT C

SEGMENT 3-11
- ALT D (SEE OTHER EXHIBIT)

Segment 7

Segment 8

Segment 9

Hot Springs Creek

Hot Springs Rd

50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00

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Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 20 40 80 120 160
Feet

WOOD RODGERS

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SEGMENT 9
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

POTENTIAL REHABILIATION ENTRY/EXIT PIT

Segment 8

Hot Springs Creek

Hot Springs Rd

Segment 9

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 8
- ALT A
- ALT C

Segment 10

SEGMENT 9
- ALT D

PREFERRED ALTERNATIVE

SEGMENT 3-11
- ALT D (SEE OTHER EXHIBIT)

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Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 20 40 80 120 160 Feet

WOOD RODGERS

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SEGMENT 10
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 20 40 80 120 160 Feet

WOOD RODGERS

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SEGMENT 11
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 15 30 60 90 120 Feet

WOOD RODGERS

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SEGMENT 12
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

SEGMENT 12
- ALT D

PREFERRED ALTERNATIVE

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

SEGMENT 12
- ALT A
- ALT B
- ALT C

Segment 12

Oak Creek Canyon Rd

Oak Creek

85+00
86+00
87+00
88+00
89+00
90+00
91+00
92+00

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer
- Existing Distribution Gas

NORTH

0 30 60 120 180 240 Feet

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SEGMENT 13
- ALT D

SEGMENT 13
- ALT A
- ALT C

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

SEGMENT 13
- ALT B

PREFERRED ALTERNATIVE

Segment 13

Segment 14

100+00
101+00
102+00
103+00
104+00
105+00
106+00
107+00
108+00

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SEGMENT 13
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 20 40 80 120 160
Feet

WOOD RODGERS

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SEGMENT 14
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 14 - ALT D

SEGMENT 14 - ALT B

PREFERRED ALTERNATIVE

SEGMENT 14 - ALT A - ALT C

Segment 14

Segment 15

POTENTIAL REHABILIATION ENTRY/EXIT PIT

E Mountain Dr

107+00
108+00
109+00
110+00
111+00
112+00
113+00
114+00

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Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer
- Existing Distribution Gas

NORTH

0 20 40 80 120 160 Feet

WOOD RODGERS

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SEGMENT 15
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

SEGMENT 15
- ALT D

PREFERRED ALTERNATIVE

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

SEGMENT 15
- ALT A
- ALT B
- ALT C

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

Segment 14

Segment 15

E Mountain Dr

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 40 80 160 240 320 Feet

WOOD RODGERS

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SEGMENT 16
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 16 - ALT D

SEGMENT 16 - ALT A - ALT C

SEGMENT 16 - ALT B

PREFERRED ALTERNATIVE

POTENTIAL REHABILIATION ENTRY/EXIT PIT

Segment 16

Segment 17

151+00

152+00

153+00

154+00

155+00

156+00

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer
- Existing Distribution Gas

NORTH

0 15 30 60 90 120 Feet

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SEGMENT 17
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 17
- ALT A
- ALT B
- ALT C

SEGMENT 17
- ALT D

PREFERRED ALTERNATIVE

POTENTIAL REHABILIATION ENTRY/EXIT PIT

Segment 17

155+00
156+00
157+00
158+00
159+00
160+00

Park Ln

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Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 15 30 60 90 120 Feet

WOOD RODGERS

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SEGMENT 18
- ALT A
- ALT B
- ALT C

POTENTIAL REHABILIATION ENTRY/EXIT PIT

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 18
- ALT D

PREFERRED ALTERNATIVE

Segment 18

Bella Vista Dr

Buena Vista Creek

188+00 189+00 190+00 191+00 192+00 193+00 194+00 195+00 196+00 197+00 198+00 199+00

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SEGMENT 18
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 30 60 120 180 240 Feet

WOOD RODGERS

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SEGMENT 19
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

SEGMENT 19-22
- ALT D

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

Bella Vista Dr

Segment 19

203+00
204+00
205+00
206+00
207+00
208+00

SEGMENT 19
- ALT A
- ALT C

SEGMENT 19
- ALT B

PREFERRED ALTERNATIVE

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Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 20 40 80 120 160 Feet

WOOD RODGERS

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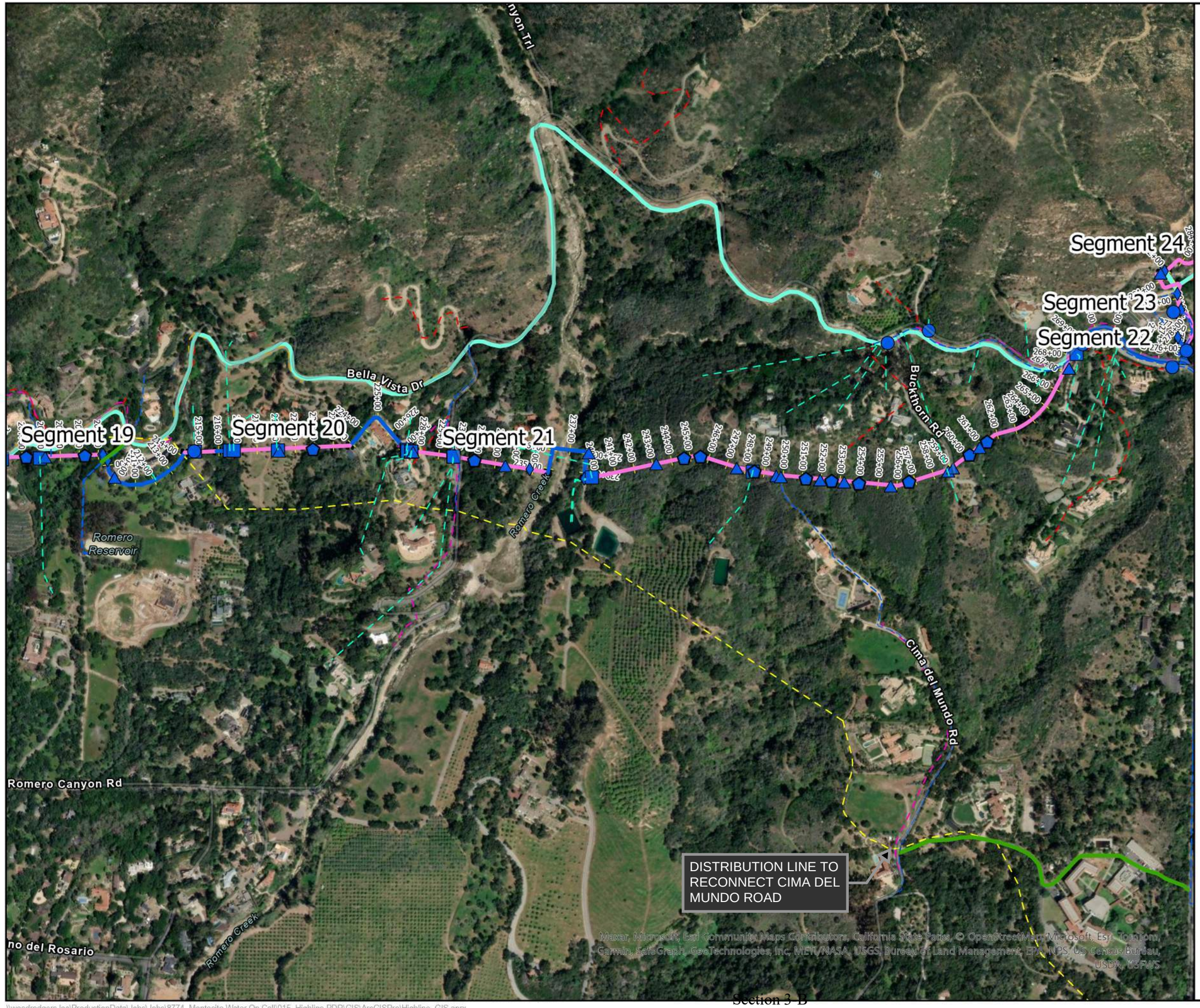
SEGMENT 19-22

HIGHLINE PRELIMINARY DESIGN REPORT

MONTECITO, CA



Legend

Highline

- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities

- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities

- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 200 400 800 1,200 1,600 Feet

WOOD RODGERS

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SEGMENT 20

HIGHLINE PRELIMINARY DESIGN REPORT

MONTECITO, CA

Legend

Highline

- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities

- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities

- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 35 70 140 210 280 Feet

WOOD RODGERS

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SEGMENT 21
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

SEGMENT 19-22
- ALT D

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

SEGMENT 21
- ALT A
- ALT C

SEGMENT 20
- ALT B

PREFERRED ALTERNATIVE

Bella Vista Dr

Romero Canyon Rd

Romero Creek

Segment 21

225+00
226+00
227+00
228+00
229+00
230+00
232+00
233+00
234+00
236+00
237+00

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Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 35 70 140 210 280
Feet

WOOD RODGERS

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SEGMENT 22
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

SEGMENT 19-22
- ALT D

POTENTIAL
REHABILIATION
ENTRY/EXIT PIT

SEGMENT 22
- ALT B

PREFERRED ALTERNATIVE

SEGMENT 22
- ALT A
- ALT C

Segment 22

Bella Vista Dr

Romero Creek

Buckthorn Rd

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Distribution Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 87.5 175 350 525 700 Feet

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SEGMENT 23
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

POTENTIAL REHABILIATION ENTRY/EXIT PIT

POTENTIAL REHABILIATION ENTRY/EXIT PIT

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 23
- ALT A
- ALT B
- ALT C

SEGMENT 23
- ALT D

PREFERRED ALTERNATIVE

Segment 24

Segment 23

297+00

296+00

295+00

294+00

293+00

292+00

291+00

290+00

289+00

288+00

287+00

286+00

285+00

284+00

283+00

282+00

281+00

280+00

279+00

278+00

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Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer
- Existing Distribution Gas

NORTH

0 40 80 160 240 320 Feet

WOOD RODGERS

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SEGMENT 24

HIGHLINE PRELIMINARY DESIGN REPORT

MONTECITO, CA

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer
- Existing Distribution Gas

NORTH

0 40 80 160 240 320 Feet

WOOD RODGERS

SEGMENT 25
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Sewer Manholes
- Existing Sewer
- Existing Distribution Gas

NORTH

0 15 30 60 90 120 Feet

WOOD RODGERS

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SEGMENT 26
HIGHLINE PRELIMINARY DESIGN REPORT
MONTECITO, CA

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 26
- ALT A
- ALT B
- ALT C

POTENTIAL REHABILIATION ENTRY/EXIT PIT

SEGMENT 26
- ALT D

PREFERRED ALTERNATIVE

Segment 25

Segment 26

Toro Canyon Rd

Toro Canyon Rd

Legend

Highline
- Existing Highline
- Analyzed Segment
- Out of Easement Replacement
- Out of Easement Distribution Connect
- Entry/Exit Pits for Rehabilitation

Existing Water Facilities
- Existing Fire Hydrant
- Existing Highline Connected Pipelines
- Existing Service Laterals
- Existing ARV
- Existing Blow-Off
- Existing Sample Station
- Existing Water Meter
- Existing Isolation Valve

Existing Utilities
- Existing Transmission Gas
- Existing Comm
- Existing Electrical
- Existing Distribution Gas
- Existing Sewer Manholes
- Existing Sewer

NORTH

0 60 120 240 360 480 Feet

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APPENDIX B Opinion of Probable Cost

Montecito Water District
Opinion of Probable Cost

Segment 1 Relocate Outside of Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 735,000
2	Connection to Existing Main	EA	$ 16,000.00	$ 48,000
3	Air Release Valve	EA	$ 6,000.00	$ 6,000
4	1" Service Laterals	EA	$ 3,100.00	$ 15,500
5	2" Service Laterals	EA	$ 4,000.00	$ 8,000
6	14" Gate Valve	EA	$ 11,000.00	$ 22,000
7	Hydrant Installation	EA	$ 10,000.00	$ 10,000
SUBTOTAL				***$ 844,500***
Mobilization (5%) of Total Cost				***$ 42,225***
TOTAL				***$ 886,725***
PLANNING/DESIGN (15%)			***$ 133,009***	***$ 1,019,734***
CONTINGENCY (20%)			***$ 203,947***	***$ 1,223,681***

Montecito Water District
Opinion of Probable Cost

Segment 2 Replace Within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,260.00	$ 472,500
2	Connection to Existing Main	EA	$ 19,200.00	$ 38,400
3	Air Release Valve	EA	$ 7,200.00	$ 7,200
SUBTOTAL				***$ 518,100***
Mobilization (5%) of Total Cost				***$ 25,905***
TOTAL				***$ 544,005***
PLANNING/DESIGN (15%)			***$ 81,601***	***$ 625,606***
CONTINGENCY (20%)			***$ 125,121***	***$ 750,727***

Montecito Water District
Opinion of Probable Cost

Segment 3 Replace Within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,575.00	$ 204,750
2	Connection to Existing Main	EA	$ 24,000.00	$ 48,000
SUBTOTAL				***$ 252,750***
Mobilization (5%) of Total Cost				***$ 12,638***
TOTAL				***$ 265,388***
PLANNING/DESIGN (15%)			***$ 39,808***	***$ 305,196***
CONTINGENCY (20%)			***$ 61,039***	***$ 366,235***

Montecito Water District
Opinion of Probable Cost

Segment 4 Replace Within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,260.00	$ 1,008,000
2	Connection to Existing Main	EA	$ 19,200.00	$ 38,400
3	Air Release Valve	EA	$ 7,200.00	$ 7,200
4	14" Gate Valve	EA	$ 13,200.00	$ 13,200
5	Blow-Off	EA	$ 2,400.00	$ 4,800
6	2" Service Laterals	EA	$ 4,800.00	$ 4,800
SUBTOTAL				***$ 1,076,400***
Mobilization (5%) of Total Cost				***$ 53,820***
TOTAL				***$ 1,130,220***
PLANNING/DESIGN (15%)			***$ 169,533***	***$ 1,299,753***
CONTINGENCY (20%)			***$ 259,951***	***$ 1,559,704***

Montecito Water District
Opinion of Probable Cost

Segment 5 Replace within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 997,500
2	Connection to Existing Main	EA	$ 16,000.00	$ 32,000
3	Air Release Valve	EA	$ 6,000.00	$ 6,000
4	Hydrant Installation	EA	$ 10,000.00	$ 20,000
5	1" Service Laterals	EA	$ 3,100.00	$ 6,200
6	1.5” Service Laterals	EA	$ 3,000.00	$ 6,000
7	2" Service Laterals	EA	$ 4,000.00	$ 8,000
SUBTOTAL				***$ 1,075,700***
Mobilization (5%) of Total Cost				***$ 53,785***
TOTAL				***$ 1,129,485***
PLANNING/DESIGN (15%)			***$ 169,423***	***$ 1,298,908***
CONTINGENCY (20%)			***$ 259,782***	***$ 1,558,689***

Montecito Water District
Opinion of Probable Cost

Segment 6 Replace within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 105,000
2	Connection to Existing Main	EA	$ 16,000.00	$ 32,000
3	Hydrant Installation	EA	$ 10,000.00	$ 10,000
4	1" Service Laterals	EA	$ 3,100.00	$ 6,200
5	2" Service Laterals	EA	$ 4,000.00	$ 4,000
SUBTOTAL				***$ 157,200***
Mobilization (5%) of Total Cost				***$ 7,860***
TOTAL				***$ 165,060***
PLANNING/DESIGN (15%)			***$ 24,759***	***$ 189,819***
CONTINGENCY (20%)			***$ 37,964***	***$ 227,783***

Montecito Water District
Opinion of Probable Cost

Segment 7 Replace within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,260.00	$ 189,000
2	Connection to Existing Main	EA	$ 19,200.00	$ 38,400
SUBTOTAL				***$ 227,400***
Mobilization (5%) of Total Cost				***$ 11,370***
TOTAL				***$ 238,770***
PLANNING/DESIGN (15%)			***$ 35,816***	***$ 274,586***
CONTINGENCY (20%)			***$ 54,917***	***$ 329,503***

Montecito Water District
Opinion of Probable Cost

Segment 8 Replace within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,260.00	$ 661,500
2	Connection to Existing Main	EA	$ 19,200.00	$ 38,400
3	Air Release Valve	EA	$ 7,200.00	$ 7,200
SUBTOTAL				***$ 707,100***
Mobilization (5%) of Total Cost				***$ 35,355***
TOTAL				***$ 742,455***
PLANNING/DESIGN (15%)			***$ 111,368***	***$ 853,823***
CONTINGENCY (20%)			***$ 170,765***	***$ 1,024,588***

Montecito Water District
Opinion of Probable Cost

Segment 9 Relocate Outside of Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 677,250
2	Connection to Existing Main	EA	$ 16,000.00	$ 64,000
3	Hydrant Installation	EA	$ 10,000.00	$ 10,000
4	Air Release Valve	EA	$ 6,000.00	$ 6,000
5	1" Service Laterals	EA	$ 3,100.00	$ 3,100
6	1.5” Service Laterals	EA	$ 3,000.00	$ 3,000
7	2" Service Laterals	EA	$ 4,000.00	$ 4,000
SUBTOTAL				***$ 767,350***
Mobilization (5%) of Total Cost				***$ 38,368***
TOTAL				***$ 805,718***
PLANNING/DESIGN (15%)			***$ 120,858***	***$ 926,575***
CONTINGENCY (20%)			***$ 185,315***	***$ 1,111,890***

Montecito Water District
Opinion of Probable Cost

Segment 10 Replace Within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 682,500
2	Connection to Existing Main	EA	$ 16,000.00	$ 32,000
SUBTOTAL				***$ 714,500***
Mobilization (5%) of Total Cost				***$ 35,725***
TOTAL				***$ 750,225***
PLANNING/DESIGN (15%)			***$ 112,534***	***$ 862,759***
CONTINGENCY (20%)			***$ 172,552***	***$ 1,035,311***

Montecito Water District
Opinion of Probable Cost

Segment 11 Replace Within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 236,250
2	Connection to Existing Main	EA	$ 16,000.00	$ 32,000
3	1.5" Service Laterals	EA	$ 3,000.00	$ 6,000
4	2" Service Laterals	EA	$ 4,000.00	$ 4,000
5	Hydrant Installation	EA	$ 10,000.00	$ 10,000
SUBTOTAL				***$ 288,250***
Mobilization (5%) of Total Cost				***$ 14,413***
TOTAL				***$ 302,663***
PLANNING/DESIGN (15%)			***$ 45,399***	***$ 348,062***
CONTINGENCY (20%)			***$ 69,612***	***$ 417,674***

Montecito Water District
Opinion of Probable Cost

Segment 12 Relocate Outside of Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 1,312,500
2	Connection to Existing Main	EA	$ 16,000.00	$ 32,000
SUBTOTAL				***$ 1,344,500***
Mobilization (5%) of Total Cost				***$ 67,225***
TOTAL				***$ 1,411,725***
PLANNING/DESIGN (15%)			***$ 211,759***	***$ 1,623,484***
CONTINGENCY (20%)			***$ 324,697***	***$ 1,948,181***

Montecito Water District
Opinion of Probable Cost

Segment 13 Replace Within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,260.00	$ 346,500
2	Connection to Existing Main	EA	$ 19,200.00	$ 38,400
3	1" Service Laterals	EA	$ 3,720.00	$ 3,720
4	Blow-Off	EA	$ 2,400.00	$ 2,400
SUBTOTAL				***$ 391,020***
Mobilization (5%) of Total Cost				***$ 19,551***
TOTAL				***$ 410,571***
PLANNING/DESIGN (15%)			***$ 61,586***	***$ 472,157***
CONTINGENCY (20%)			***$ 94,431***	***$ 566,588***

Montecito Water District
Opinion of Probable Cost

Segment 14 Replace Within Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 735,000
2	Connection to Existing Main	EA	$ 16,000.00	$ 64,000
3	1" Service Laterals	EA	$ 3,100.00	$ 6,200
4	14" Gate Valve	EA	$ 11,000.00	$ 22,000
5	Air Release Valve	EA	$ 6,000.00	$ 18,000
6	Blow-Off	EA	$ 2,000.00	$ 2,000
SUBTOTAL				***$ 847,200***
Mobilization (5%) of Total Cost				***$ 42,360***
TOTAL				***$ 889,560***
PLANNING/DESIGN (15%)			***$ 133,434***	***$ 1,022,994***
CONTINGENCY (20%)			***$ 204,599***	***$ 1,227,593***

Montecito Water District
Opinion of Probable Cost

Segment 15 Relocate Outside of Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 1,155,000
2	Connection to Existing Main	EA	$ 16,000.00	$ 48,000
3	Hydrant Installation	EA	$ 10,000.00	$ 10,000
4	1" Service Laterals	EA	$ 3,100.00	$ 6,200
5	1.5" Service Laterals	EA	$ 3,000.00	$ 3,000
6	2" Service Laterals	EA	$ 4,000.00	$ 8,000
SUBTOTAL				***$ 1,230,200***
Mobilization (5%) of Total Cost				***$ 61,510***
TOTAL				***$ 1,291,710***
PLANNING/DESIGN (15%)			***$ 193,757***	***$ 1,485,467***
CONTINGENCY (20%)			***$ 297,093***	***$ 1,782,560***

Montecito Water District
Opinion of Probable Cost

Segment 16 Replace Within the Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 236,250
2	Connection to Existing Main	EA	$ 16,000.00	$ 48,000
SUBTOTAL				***$ 284,250***
Mobilization (5%) of Total Cost				***$ 14,213***
TOTAL				***$ 298,463***
PLANNING/DESIGN (15%)			***$ 44,769***	***$ 343,232***
CONTINGENCY (20%)			***$ 68,646***	***$ 411,878***

Montecito Water District
Opinion of Probable Cost

Segment 17 Relocate Outside of Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 420,000
2	Connection to Existing Main	EA	$ 16,000.00	$ 48,000
3	Air Release Valve	EA	$ 6,000.00	$ 6,000
4	14" Gate Valve	EA	$ 11,000.00	$ 11,000
SUBTOTAL				***$ 485,000***
Mobilization (5%) of Total Cost				***$ 24,250***
TOTAL				***$ 509,250***
PLANNING/DESIGN (15%)			***$ 76,388***	***$ 585,638***
CONTINGENCY (20%)			***$ 117,128***	***$ 702,765***

Montecito Water District
Opinion of Probable Cost

Segment 18 Relocate Outside of Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 1,218,000
2	Air Release Valve	EA	$ 6,000.00	$ 6,000
3	2" Service Laterals	EA	$ 4,000.00	$ 8,000
4	Connection to Existing Main	EA	$ 16,000.00	$ 32,000
SUBTOTAL				***$ 1,264,000***
Mobilization (5%) of Total Cost				***$ 63,200***
TOTAL				***$ 1,327,200***
PLANNING/DESIGN (15%)			***$ 199,080***	***$ 1,526,280***
CONTINGENCY (20%)			***$ 305,256***	***$ 1,831,536***

Montecito Water District
Opinion of Probable Cost

Segment 19 Replace Within the Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,260.00	$ 724,500
2	Connection to Existing Main	EA	$ 19,200.00	$ 57,600
3	Air Release Valve	EA	$ 7,200.00	$ 7,200
4	Blow-Off	EA	$ 2,400.00	$ 4,800
5	1.5" Service Laterals	EA	$ 3,600.00	$ 7,200
6	14" Gate Valve	EA	$ 13,200.00	$ 26,400
SUBTOTAL				***$ 827,700***
Mobilization (5%) of Total Cost				***$ 41,385***
TOTAL				***$ 869,085***
PLANNING/DESIGN (15%)			***$ 130,363***	***$ 999,448***
CONTINGENCY (20%)			***$ 199,890***	***$ 1,199,337***

Montecito Water District
Opinion of Probable Cost

Segment 20 Replace Within the Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 840.00	$ 714,000
2	Connection to Existing Main	EA	$ 12,800.00	$ 25,600
3	Air Release Valve	EA	$ 4,800.00	$ 4,800
4	Blow-Off	EA	$ 1,600.00	$ 1,600
5	2" Service Laterals	EA	$ 3,200.00	$ 12,800
6	Hydrant Installation	EA	$ 8,000.00	$ 8,000
SUBTOTAL				***$ 766,800***
Mobilization (5%) of Total Cost				***$ 38,340***
TOTAL				***$ 805,140***
PLANNING/DESIGN (15%)			***$ 120,771***	***$ 925,911***
CONTINGENCY (20%)			***$ 185,182***	***$ 1,111,093***

Montecito Water District
Opinion of Probable Cost

Segment 21 Replace Within the Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,260.00	$ 945,000
2	Connection to Existing Main	EA	$ 19,200.00	$ 76,800
3	Air Release Valve	EA	$ 7,200.00	$ 14,400
4	Blow-Off	EA	$ 2,400.00	$ 2,400
5	1" Service Laterals	EA	$ 3,720.00	$ 7,440
6	1.5" Service Laterals	EA	$ 3,600.00	$ 10,800
7	2" Service Laterals	EA	$ 4,800.00	$ 9,600
8	14" Gate Valve	EA	$ 13,200.00	$ 13,200
SUBTOTAL				***$ 1,079,640***
Mobilization (5%) of Total Cost				***$ 53,982***
TOTAL				***$ 1,133,622***
PLANNING/DESIGN (15%)			***$ 170,043***	***$ 1,303,665***
CONTINGENCY (20%)			***$ 260,733***	***$ 1,564,398***

Montecito Water District
Opinion of Probable Cost

Segment 22 Replace Within the Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,575.00	$ 4,528,125
2	Connection to Existing Main	EA	$ 24,000.00	$ 72,000
3	Air Release Valve	EA	$ 9,000.00	$ 99,000
4	Blow-Off	EA	$ 3,000.00	$ 27,000
5	1" Service Laterals	EA	$ 4,650.00	$ 4,650
6	2" Service Laterals	EA	$ 6,000.00	$ 18,000
7	14" Gate Valve	EA	$ 16,500.00	$ 16,500
SUBTOTAL				***$ 4,765,275***
Mobilization (5%) of Total Cost				***$ 238,264***
TOTAL				***$ 5,003,539***
PLANNING/DESIGN (15%)			***$ 750,531***	***$ 5,754,070***
CONTINGENCY (20%)			***$ 1,150,814***	***$ 6,904,883***

Montecito Water District
Opinion of Probable Cost

Segment 23 Relocate Outside of Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	14" Ductile Iron Pipe	LF	$ 1,050.00	$ 1,753,500
2	14" Gate Valve	EA	$ 11,000.00	$ 11,000
3	Air Release Valve	EA	$ 6,000.00	$ 36,000
4	Connection to Existing Main	EA	$ 16,000.00	$ 48,000
SUBTOTAL				***$ 1,848,500***
Mobilization (5%) of Total Cost				***$ 92,425***
TOTAL				***$ 1,940,925***
PLANNING/DESIGN (15%)			***$ 291,139***	***$ 2,232,064***
CONTINGENCY (20%)			***$ 446,413***	***$ 2,678,477***

Montecito Water District
Opinion of Probable Cost

Segment 24 Rehabilitation with Liner

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	8" Liner Installation	LF	$ 264.00	$ 356,400
2	Entry Pit Excavation	LS	$ 24,000.00	$ 24,000
3	Exit Pit Excavation	LS	$ 24,000.00	$ 24,000
4	Connection to Existing Main	EA	$ 19,200.00	$ 38,400
5	Air Release Valve	EA	$ 7,200.00	$ 7,200
6	8" Gate Valve	EA	$ 4,800.00	$ 4,800
7	Temporary Bypass Pipeline	LF	$ 360.00	$ 486,000
SUBTOTAL				***$ 940,800***
Mobilization (5%) of Total Cost				***$ 47,040***
TOTAL				***$ 987,840***
PLANNING/DESIGN (15%)			***$ 148,176***	***$ 1,136,016***
CONTINGENCY (20%)			***$ 227,203***	***$ 1,363,219***

Montecito Water District
Opinion of Probable Cost

Segment 25 Rehabilitation with Liner

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	18" Liner Installation	LF	$ 594.00	$ 326,700
2	Entry Pit Excavation	LS	$ 24,000.00	$ 24,000
3	Exit Pit Excavation	LS	$ 24,000.00	$ 24,000
4	Connection to Existing Main	EA	$ 19,200.00	$ 38,400
5	Temporary Bypass Pipeline	LF	$ 360.00	$ 198,000
SUBTOTAL				***$ 611,100***
Mobilization (5%) of Total Cost				***$ 30,555***
TOTAL				***$ 641,655***
PLANNING/DESIGN (15%)			***$ 96,248***	***$ 737,903***
CONTINGENCY (20%)			***$ 147,581***	***$ 885,484***

Montecito Water District
Opinion of Probable Cost

Segment 26 Relocate Outside of Easement

BID ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	TOTAL PRICE
1	18" Steel Pipe	LF	$ 1,200.00	$ 2,478,000
2	Air Release Valve	EA	$ 4,800.00	$ 24,000
3	12" Gate Valve	EA	$ 4,000.00	$ 8,000
4	Hydrant Installation	EA	$ 8,000.00	$ 8,000
5	1" Service Laterals	EA	$ 2,480.00	$ 2,480
6	Connection to Existing Main	EA	$ 12,800.00	$ 25,600
SUBTOTAL				***$ 2,546,080***
Mobilization (5%) of Total Cost				***$ 127,304***
TOTAL				***$ 2,673,384***
PLANNING/DESIGN (15%)			***$ 401,008***	***$ 3,074,392***
CONTINGENCY (20%)			***$ 614,878***	***$ 3,689,270***

HIGHLINE PIPELINE PRELIMINARY DESIGN REPORT

August 17, 2026

Operations and Customer Relations Committee

WOOD RODGERS

Purpose

- The Preliminary Design Report (PDR) is a concept level planning study for the replacement of approx. 4 miles (out of 7 total) of pre-1940s “Highline” pipeline
  - Evaluates options for replacement and helps to identify the most feasible and cost-effective approach
  - Provides a long-range budget and phasing plan for execution
- The PDR is a conceptual guide for future detailed design of each segment
- Montecito Fire Protection District reviewed and provided input on the Highline PDR

Existing Highline

- **Purpose:** Conveys water from Jameson Lake to Terminal Reservoir, connects to 8 storage reservoirs and serves as the backbone of the system
- **Length:** Approximately 7 miles long
- **Diameter:** 12” – 18”
- **Material:** Welded steel, riveted steel, cast iron, ductile iron
- **Age:** Originally installed in 1924, some segments replaced as recently as 2019
- **Location:** Significant portion located in difficult terrain with limited access

Data Gathering

- Walked entire length of the Highline
- Collected photos and data using GIS tools
- Discussed challenges with Operations staff
- Review easements and right of way
- Performed utility research
- Conducted desktop environmental assessment

Segment Development

4 miles of Highline was divided into 26 segments considering:

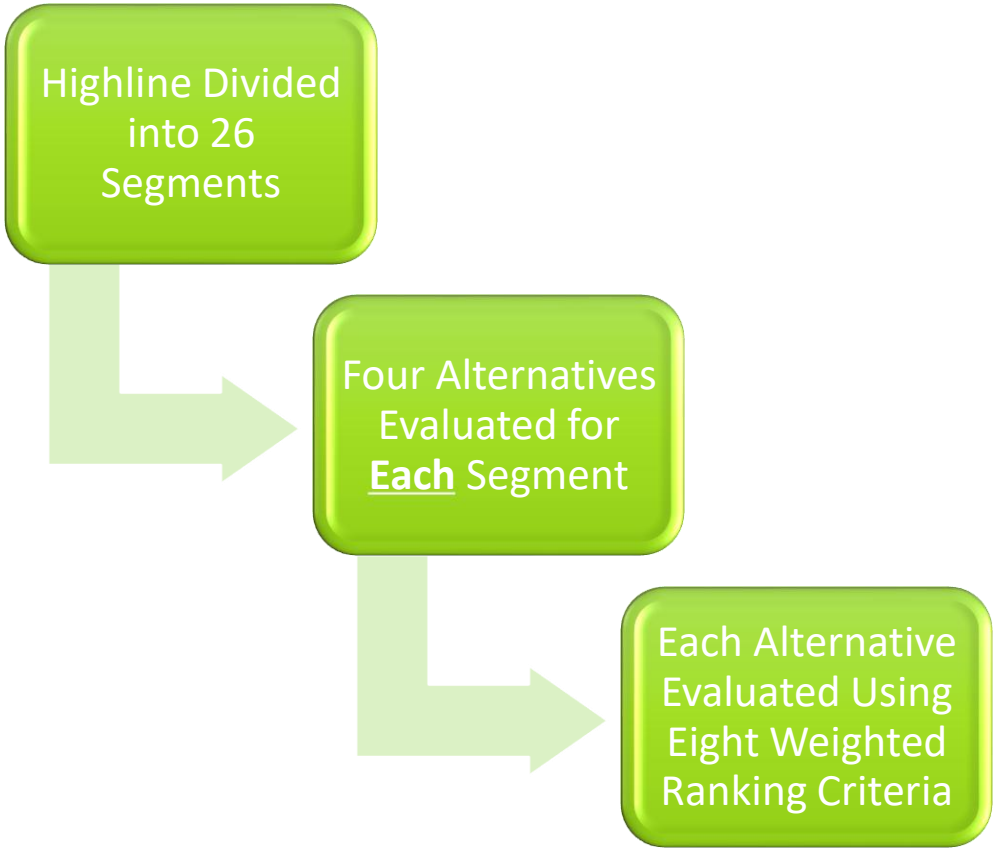
- Points of Connection to Existing Highline
- Topography (Creek Crossings, Steep Slopes, Etc.)
- Nearby Vehicular Access or Travel Ways
- Location & Grouping of Customer Services
- Pipeline Segment Length

Replacement & Upgrade Approach

Four options for replacing Highline segments include:

1. **Replacement in Place:** replace pipeline within existing alignment
   - Requires temporary bypass during construction
2. **Replacement Within Easement:** replace pipe immediately adjacent to existing Highline
3. **Rehabilitation in Place:** install pipe liner instead of replacement.
   - Ideal for long lengths of pipe, minimal appurtenances, or areas with challenging access
4. **Replacement Out of Easement:** move the pipeline to a more preferrable alignment either due to topography, surface impediments, or nearby right of way.

Evaluation Process



Weighted Ranking Criteria

Ranking Criteria	Criteria Definition	Weight (1-5)
Hydraulic Performance	Hydraulic performance of new pipeline. Do pressures, and HGL's meet District Criteria?	2
Construction Risk and Constructability	Is the location of the proposed alternative in an accessible area? For rehabilitation, are there several connections that require transitions?	4
Probable Construction Costs	Probable construction costs based on the upgrade methodology.	4
Future Maintenance and Operation of Pipeline	Is the proposed alignment in a location that would pose significant challenges for equipment and personnel to access?	5
Environmental Constraints	How many environmental constraints are there to mitigate for each segme nt relative to each alternative?	2
Outside Stakeholder Coordination	Will the proposed pipeline location need coordination with stakeholders other than property owners?	1
Need for a New Easement	Would the pipeline require a new easement, or the revision of an existing easement to accommodate a relocated pipeline?	4
Useful Service Life	Estimated useful service life of replacement or rehabilitation of the proposed segment.	3

Prioritization Approach

Segments prioritized based on:

- Asset Management Plan Consequence / Risk of Failure Ratings (higher risk scores scheduled sooner)
- Group Similar Project Types and Locations
- Group Segments to Achieve Target Annual Project Size

Results

Segment	Alt	Type of Replacement/Rehabilitation	Project Cost	Task Year	Approx Length of Proposed Segment (ft)
2	B	Replace Within Easement	$750,727	2028	375
9	D	Relocate Outside of Easement	$1,111,890	2029	645
23	D	Relocate Outside of Easement	$2,678,477	2030	1,670
15	D	Relocate Outside of Easement	$1,782,560	2032	1,100
12	D	Relocate Outside of Easement	$1,948,181	2034	1,250
10	B	Replace Within Easement	$1,035,311	2035	650
11	B	Replace Within Easement	$417,674	2035	225
4	B	Replace Within Easement	$1,559,704	2036	800
5	B	Replace Within Easement	$1,558,689	2036	950
6	B	Replace Within Easement	$227,783	2037	100
7	B	Replace Within Easement	$329,503	2037	150
8	B	Replace Within Easement	$1,024,588	2037	525
1	D	Relocate Outside of Easement	$1,223,681	2038	700
3	B	Replace Within Easement	$366,235	2038	130
13	B	Replace Within Easement	$566,588	2039	275
14	B	Replace Within Easement	$1,227,593	2039	700
16	B	Replace Within Easement	$411,878	2040	225
17	D	Relocate Outside of Easement	$702,765	2040	400
18	D	Relocate Outside of Easement	$1,831,536	2040	1,160
19	B	Replace Within Easement	$1,199,337	2041	575
20	B	Replace Within Easement	$1,111,093	2041	850
21	B	Replace Within Easement	$1,564,398	2042	750
22	B	Replace Within Easement	$6,904,883	2043	2,875
26	D	Relocate Outside of Easement	$3,689,270	2044	2,065
24	C	Rehabilitate in Place	$1,363,219	2045	1,350
25	C	Rehabilitate in Place	$885,484	2045	550
		Total	**$36,577,375**		**20,130**

Next Steps

- See staff report for staff recommendation
- Design of the highest priority segment (Segment 2) as part of the Fiscal Year (FY) 2027 adopted budget

Questions?

MONTECITO WATER DISTRICT
MEMORANDUM

SECTION: **3-C**

DATE: **AUGUST 17, 2026**

TO: **OPERATIONS AND CUSTOMER RELATIONS COMMITTEE**

FROM: **ASSISTANT GENERAL MANAGER & ENGINEERING MANAGER**

SUBJECT: ***AGREEMENT FOR TERMINATION OF WATER RIGHTS AGREEMENT*** **BETWEEN 270 TORO CANYON REVOCABLE TRUST AND MONTECITO WATER DISTRICT**

RECOMMENDATION:

That the Operations and Customer Relations Committee recommend that the Board of Directors authorize execution of the *Agreement for Termination of Water Rights Agreement* recorded against the 270 Toro Canyon property on March 3, 1987, as Instrument No. 1987-016197 of the Official Records of the County of Santa Barbara, State of California.

DISCUSSION:

In 1973, the District Board of Directors declared a water shortage emergency within the service area. In 1985, the District Board of Directors adopted Ordinance No. 70 amidst an ongoing drought, requiring an owner desiring a new water service connection to transfer the right to extract groundwater on the property to the District.

In 1987, pursuant to Ordinance No. 70, the property owner at 270 Toro Canyon Road and MWD entered into an agreement whereby the non-exclusive right to extract water from the property was granted and conveyed to MWD in exchange for a new water meter. That agreement was recorded against the property on March 3, 1987, as Instrument No. 1987-016197 of the Official Records of the County of Santa Barbara, State of California. To date, the District has not exercised its right to extract groundwater at the property.

In 1997, the District Board of Directors adopted Ordinance No. 81 which terminated Ordinance No. 70. Ordinance 70 stated: "Any rights to extract water which have been transferred to the District shall, upon written application, be re-transferred by the District to the person or persons then entitled thereto for the benefit of the land described in the original transfer agreement". To date, the rights to extract water at 270 Toro Canyon have not been retransferred to the property owner. In July 2026, the current property owner requested the termination of the 1987 agreement to clean up the property title and a re-transfer of the rights to extract water. A proposed

Termination Agreement is included as Attachment 1, which has been reviewed by District legal counsel.

ATTACHMENTS:

1. Draft Agreement for Termination of Water Rights Agreement between 270 Toro Canyon Revocable Trust and Montecito Water District

RECORDING REQUESTED BY,
AND WHEN RECORDED MAIL TO:

Berkshire Hathaway HomeServices
California Properties
Attn: Team Kogevinas
1255 Coast Village Road, Suite 102C
Santa Barbara, CA 93108

THIS SPACE RESERVED FOR RECORDER ONLY
(Gov. Code § 27361.6)

APN: 005-670-009

AGREEMENT FOR TERMINATION OF WATER RIGHTS AGREEMENT

This AGREEMENT FOR TERMINATION OF WATER RIGHTS AGREEMENT ("Agreement") is made and entered into on this _____ day of _____, 2026, by and between 270 Toro Canyon Revocable Trust, ("Toro Trust") and Montecito Water District, ("MWD") (each individually a "Party" and collectively, "Parties") with reference to the following facts and intentions:

RECITALS

A. Toro Trust is the owner of a parcel of real property described in Exhibit A attached hereto and incorporated herein by this reference, within the County of Santa Barbara, State of California (the "Property"), which is within the service area of MWD.

B. By virtue of its ownership of the Property, Toro Trust retains an overlying correlative right to extract groundwater from below, and within the boundaries of the Property, for use on the Property ("Water Rights").

C. In 1973, the Board of Directors of MWD declared a water shortage emergency to prevail within the service area of MWD ("Emergency").

D. In 1985, to help address this Emergency, the Board of Directors of MWD adopted Ordinance No. 70, requiring an owner, to whom a new water service connection had been granted and who had the right to extract groundwater for use on the property, to transfer the right to extract groundwater to MWD.

E. On February 27, 1987, pursuant to Ordinance No. 70, the owner of the Property entered into an agreement ("Water Rights Agreement") whereby the owner granted and conveyed its rights to extract groundwater from the Property in exchange for the service of water by MWD to the Property. The Water Rights Agreement was

recorded against the property as Instrument No. 1987-016197 of the Official Records of the County of Santa Barbara, State of California.

F. In 1997, the Board of Directors of MWD adopted Ordinance No. 81, entitled "An Ordinance of the Montecito Water District terminating its Ordinances, Resolutions, Rules and Agreements Adopted and Entered into to Implement the Administration of the District's 1973 Declaration of a Water Shortage Emergency." Ordinance No. 81 terminated the Emergency and Ordinance No. 70.

G. Ordinance No. 81 terminated all ordinances, resolutions, rules and regulations, and agreements implementing the declaration of the Emergency. Ordinance 81 also specifically provided that any rights to extract water which had been transferred to MWD pursuant to the water shortage emergency rules and regulations shall, upon written application, be re-transferred by MWD to the person(s) then entitled thereto for the benefit of the land described in the original transfer agreement.

H. On July 20, 2026, pursuant to the provisions of Ordinance No. 81, Toro Trust made a written request to MWD for the re-transfer of the rights to extract groundwater from the Property and for written termination of the Water Rights Agreement.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing Recitals and the mutual covenants and conditions contained herein, the Parties hereto agree as follows:

1. **Termination and Re-Transfer.** The Parties agree to terminate the Water Rights Agreement and MWD agrees to re-transfer the rights to extract water from the Property back to Toro Trust such that there is no further contractual encumbrance by MWD upon Toro Trust's right to extract water from the Property.

2. **Effective Date.** This Agreement shall take effect upon execution by the Parties hereto ("Effective Date").

3. **General Provisions.**

   3.1 **Incorporation of Recitals**. The recitals of this Agreement are material and are incorporated into the operative provisions of this Agreement by this reference.

   3.2 **Cooperation**. Each Party shall, whenever and as often as reasonably requested to do so by another Party, execute, acknowledge and deliver, or cause to be executed, acknowledged and delivered, any and all documents and instruments as may be reasonably necessary, expedient or proper to carry out the intent and purposes of this Agreement, provided that the requesting Party shall bear the cost and expense of the preparation of such

further instruments or documents (except that each Party shall bear its own attorneys' fees).

3.3 **Authority**. The individuals executing this Agreement represent and warrant that they have the authority to enter into this Agreement and to perform all acts required by this Agreement, and that the consent, approval or execution of or by any third party is not required to legally bind the Party for whom they are signing the Agreement to the terms and conditions of this Agreement.

3.4 **Notices and Communication**. Any notice hereunder shall be deemed sufficient if given by one Party to the other in writing and either delivered in person, transmitted by electronic mail (with acknowledgment of receipt made by the receiving Party), or deposited in the United States mail in a sealed envelope, certified and with postage and postal charges prepaid, and addressed as follows:

Toro Trust: [address and email]

MWD: Montecito Water District
Attn: Nick Turner
583 San Ysidro Road
Santa Barbara CA 93108
Phone: 805-969-2271
Email: nturner@montecitowater.com

or to such other address or to such other person as each Party shall have last designated for receipt of notices pursuant to this Agreement. The effective date of such notice shall be the earlier of the date of actual receipt, acknowledgment of receipt, or three days following deposit in the United States mail.

3.5 **Successors and Assigns**. This Agreement will be binding on and will inure to the benefit of the Parties and their respective heirs, legal representatives, successors and assigns.

3.6 **Governing Law**. The validity and interpretation of this Agreement will be governed by the laws of the State of California without giving effect to the principles of conflict of laws, with venue for all purposes to be proper only in the County of Santa Barbara, State of California.

3.7 **Severability**. If any term, provision, covenant or condition of this Agreement is determined to be unenforceable by a court of competent jurisdiction, it is the Parties' intent that the remaining provisions of this Agreement will remain in full force and effect and will not be affected, impaired or invalidated by such a determination.

3.8 **Waiver**. The waiver of any breach of any provision of this Agreement by any Party will not be deemed to be a waiver of any preceding or subsequent breach under this Agreement, nor will any waiver constitute a continuing waiver. No waiver will be binding unless executed in writing by the Party making the waiver.

3.9 **Entire Agreement**. This Agreement contains the entire understanding and agreement of the Parties, and there have been no promises, representations, agreements, warranties or undertakings by any of the Parties, either oral or written, of any character or nature binding except as stated in this Agreement. This Agreement may be altered, amended or modified only by an instrument in writing, executed by the Parties to this Agreement and by no other means. Each Party waives its future right to claim, contest or assert that this Agreement was modified, canceled, superseded or changed by any oral agreement, course of conduct, waiver or estoppel.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first above written.

270 Toro Canyon Revocable Trust

By:_____
John Roger Mepham
Trustee

Montecito Water District

By: _____
Brian Goebel, Board President

By: _____
Nick Turner, Board Secretary

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
COUNTY OF _____)

On _____ before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature:_____

(seal)

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
COUNTY OF _____)

On _____ before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature:_____

(seal)

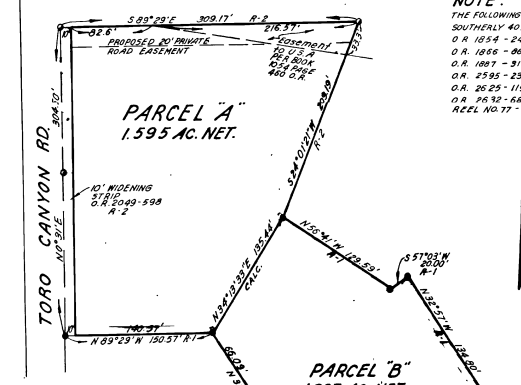
EXHIBIT "A"
Legal Description

APN/Parcel ID(s): 005-670-009

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE UNINCORPORATED AREA IN THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA AND IS DESCRIBED AS FOLLOWS:

PARCEL A, AS SHOWN ON MAP NO. 12, 532, IN THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 18, PAGE 58 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

This map/plat is being furnished as an aid in locating the herein described Land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the Company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.



NOTE:

THE FOLLOWING ESMTS ARE WITHIN THE SOUTHERLY 40 FT. OF PARCEL "B"
O R 1854 - 243
O.R. 1866 - 868
O.R. 1887 - 319
O.R. 2595 - 2314
O.R. 2625 - 1197
O R 2692 - 680
REEL NO. 77 - 37878

BENEFICIAL INTEREST:

THE SIGNATURES OF CROCKER NATIONAL BANK, A NATIONAL BANKING ASSOCIATION AND MARGARET H KAU, AS BENEFICIARIES UNDER DEED OF TRUST RECORDED MARCH 7, 1969 IN BOOK 2264, PAGE 458 AND MARCH 6, 1973 IN BOOK 2450, PAGE 1312 OF OFFICIAL RECORDS, RESPECTIVELY, HAVE BEEN OMITTED, PURSUANT TO SECTION 66445 (f) OF THE GOVERNMENT CODE.

EASEMENT HOLDERS:

THE SIGNATURES OF THE FOLLOWING EASEMENT HOLDERS HAVE BEEN OMITTED PURSUANT TO SECTION 66 436 (c) (1) OF THE GOVERNMENT CODE AS THEIR INTERESTS CAN NOT RIPEN INTO A FEE.
THE UNITED STATES OF AMERICA BY DEED RECORDED IN BOOK 105 4, PAGE 460, SOUTHERN CALIFORNIA EDISON COMPANY BY DEED RECORDED IN BOOK 1854, PAGE 243, GENERAL TELEPHONE COMPANY OF CALIFORNIA BY DEED RECORDED IN BOOK 1856, PAGE 868, SOUTHERN COUNTIES GAS COMPANY OF CALIFORNIA BY DEED RECORDED IN BOOK 1887, PAGE 319, WILLIAM W NORTON AND ELEANOR E. NORTON BY DEED RECORDED IN BOOK 2595, PAGE 2314, EDWIN W. THOMAS, JR. AND GRETCHEN W. THOMAS BY DEED RECORDED IN BOOK 2625, PAGE 1197, CLYDENE GRABOWSKI BY DEED RECORDED IN BOOK 2632, PAGE 680 AND FRANCES PILCHARD WARSHAW BY DEED RECORDED IN REEL NO. 77, PAGE 37878 ALL OF OFFICIAL RECORDS.

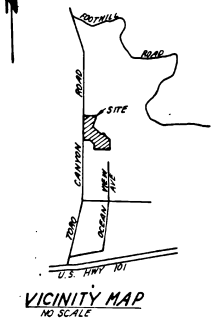
CERTIFICATE OF SECRETARY OF COMMITTEE:

I DO HEREBY CERTIFY THAT THE SUBDIVISION COMMITTEE OF SANTA BARBARA COUNTY, PURSUANT TO GOVERNMENT CODE SECTION 66 412 (d) AND SECTION 21-91 OF THE CODE OF THE COUNTY OF SANTA BARBARA, CALIFORNIA, PASSED, APPROVED, AND ADOPTED RESOLUTION NO. 77-1 ON 6-23-77, APPROVING PARCEL MAP NO. 12,532 AS A LOT LINE ADJUSTMENT.

Robert A. Lord
SECRETARY OF COMMITTEE

LEGEND:

R-1 DENOTES RECORD PER R/S 68-20
R-2 DENOTES RECORD PER P.M. 4-84
● DENOTES ½" PIPE & TAG RCE 3162
RCE 2786 RECORD PER R-1
○ DENOTES ½" PIPE & TAG RCE 3162 & L.S. 3235 RECORD PER R-2



VICINITY MAP
NO SCALE

0 60' 120' 180
GRAPHICAL SCALE

OWNER'S CERTIFICATE

WE HEREBY CERTIFY THAT WE ARE THE OWNERS OF THE LAND INCLUDED WITHIN THE COLORED BORDER LINES OF THIS MAP AND THAT WE ARE THE ONLY PERSONS WHOSE CONSENT IS NECESSARY TO PASS CLEAR TITLE TO SAID LAND AND WE CONSENT TO MAKING AND RECORDING OF THIS MAP AND THE SUBDIVISION AS SHOWN THEREON.

William Dentzel 8/24/77
SIGNED DATE

SIGNED DATE

SIGNED DATE

SIGNED DATE

STATE OF CALIFORNIA
COUNTY OF SANTA BARBARA
ON 8-24-77 BEFORE ME, THE UNDERSIGNED A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, PERSONALLY APPEARED WILLIAM DENTZEL KNOWN TO ME TO BE THE PERSONS WHOSE NAMES ARE SUBSCRIBED TO THE WITHIN INSTRUMENT, AND ACKNOWLEDGED TO ME THAT THEY EXECUTED THE SAME.

WITNESS MY HAND AND OFFICIAL SEAL

Kathryn D. Begg — KATHRYN D. BEGG PRINTED
NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE

MY COMMISION EXPIRES JULY 2, 1978

RECORDER'S CERTIFICATE

FEE: $2.00

Filed this 29th day of Sept., 1977, at 8 M in Book 18 of Parcel Maps at Page 58

At the request of ROB'T H. GARNER

Howard C. Imsand
County Clerk - Recorder

By Judith Holdway Deputy

SURVEYOR'S CERTIFICATE

THIS MAP WAS PREPARED BY ME OR UNDER MY DIRECTION AND WAS COMPILED FROM RECORD DATA IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AT THE REQUEST OF WILLIAM DENTZEL IN JULY, 1977. I HEREBY STATE THAT THE PARCEL MAP PROCEDURES OF THE LOCAL AGENCY HAVE BEEN COMPLIED WITH AND THAT THIS PARCEL MAP CONFORMS TO THE APPROVED TENTATIVE MAP AND THE CONDITIONS OF APPROVAL THEREOF WHICH WERE REQUIRED TO BE FULFILLED PRIOR TO THE FILING OF THIS MAP.

Robt. H. Garner
L.S. 3228

COUNTY SURVEYOR'S CERTIFICATE

This map conforms with the requirements of the Subdivision Map Act and local Ordinance.

Dated: Sept. 27, 1977

Signed: CHARLES E. WAGNER
County Surveyor

Assistant County Surveyor Edward C. Scholz

PARCEL MAP NO. 12,532

A PORTION OF THE OUTSIDE PUEBLO LANDS OF THE CITY OF SANTA BARBARA
BK. A, PG. 92 OF PATENTS
COUNTY OF SANTA BARBARA, CALIFORNIA
SCALE: 1" = 60' JULY, 1977

ROB'T H. GARNER
LICENSED LAND SURVEYOR
1017 SANTA BARBARA STREET
SANTA BARBARA, CALIFORNIA

P. M. BK. 18 PG. 58

INDEXED

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MONTECITO WATER DISTRICT
MEMORANDUM

SECTION: 3-D

DATE: AUGUST 17, 2026

TO: OPERATIONS AND CUSTOMER RELATIONS COMMITTEE

FROM: ASSISTANT GENERAL MANAGER

SUBJECT: TEMPORARY CONSTRUCTION EASEMENTS FOR THE HIGHLINE REPAIR AT BELLA VISTA

RECOMMENDATION:

Information only.

DISCUSSION:

As a result of the January 9 2023, winter storm, the District's 14-inch steel transmission main (referred to as the "Highline"), located along the foothills of Montecito, was damaged by landslides in a remote area above 2500 East Valley Road. The landslides exposed and displaced approximately 300 feet of the Highline in two adjacent ravines where it had been previously buried. While the Highline remains operational, the goal of this project is to reestablish the pipeline alignment and bury it along the slope and at the ravine bottoms to reduce or eliminate the risk of future failure due to similar circumstances.

In June 2026, the Board of Directors awarded a construction contract to American Pipeline Services for the construction of the project and construction is scheduled to begin in early September. The project requires access through two private properties to reach the pipeline and work area. The two access properties are 2500 East Valley Road and 2645 Bella Vista Drive. The District performed site visits with each property owner and/or their representative and has secured Temporary Construction Easements (TCEs) allowing the District and its contractor and consultants to use these properties for access, staging, and storage of equipment and materials during the project. The TCEs were executed by the General Manager in accordance with signatory Resolution 2272 which authorizes the General Manager to execute temporary construction agreements and right of entry agreements with property owners in connection with construction projects.

The TCEs include compensation to 2645 Bella Vista Drive and 2500 East Valley Road owners in the amounts of $5,800 and $22,700, respectively. Compensation was determined from property valuations completed by Hamner Jewell & Associates, the District's right of way consultant. The Board adopted budget for Fiscal Year (FY) 2027 included $50,000 for the acquisition of temporary construction easements for this project.

ATTACHMENTS:

None

MONTECITO WATER DISTRICT
MEMORANDUM

SECTION: **3-G**

DATE: **AUGUST 17, 2026**

TO: **BOARD OF DIRECTORS**

FROM: **PUBLIC INFORMATION OFFICER**

SUBJECT: **CUSTOMER RELATIONS AND PUBLIC INFORMATION UPDATE**

RECOMMENDATION:

Information only.

DISCUSSION:

Communications are consistent with the District's 2022 5-Year Strategic Plan and regional and State initiatives including "Water Conservation is a California Way of Life". District outreach methods include e-News, bill inserts, bill messages, press releases, website updates, articles, social media posts, advertisements, presentations to community organizations, and participation in events. Daily customer contact is an essential District role conducted by an informed and responsive customer service team and staff. Current public facing initiatives include:

Summer Water Usage Outreach - Promoting awareness with regards to seasonal water use is an important ongoing effort. Variations such as temperature and length of day impact needed irrigation, relating to District initiatives such as Water Budgets. Developing responsive customer usage behavior to changing conditions improves water efficiency and can help to avoid water waste. Enews, advertisements, and bill messages all reinforce summer themed water efficiency tips. (Attachment 1)

Current Weather Conditions Now Available on Web Site – District data has been used to generate a publicly available Rainfall Comparison Graph for more than a decade, since the historic drought period during the 2013-2015 years. Local weather reporting has now been expanded to include current conditions and rainfall as measured at the District's weather station**.** These features are in place as the next potential rainy season approaches.

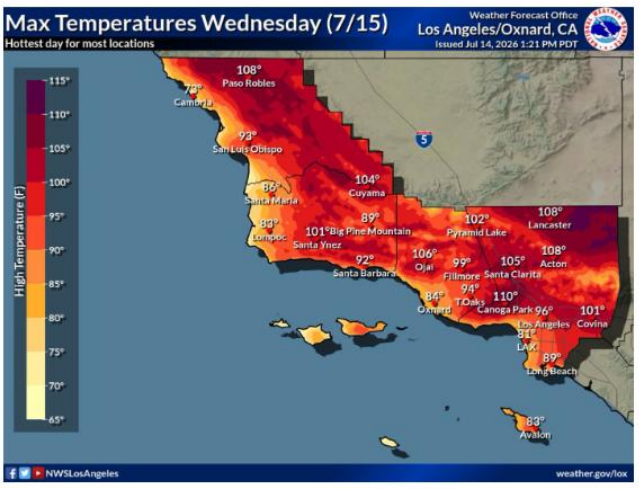
UPCOMING EVENTS: November 7, 2026, Montecito Beautification Day. Montecito Water District to table / provide water at Upper Village.

ATTACHMENTS:

1. Advertisement & Enews
2. Example Weather Data on Web Site

Advertisements and Enews provide summer-themed tips for water use efficiency

MONTECITO WATER DISTRICT
A Reliable Supply Since 1921



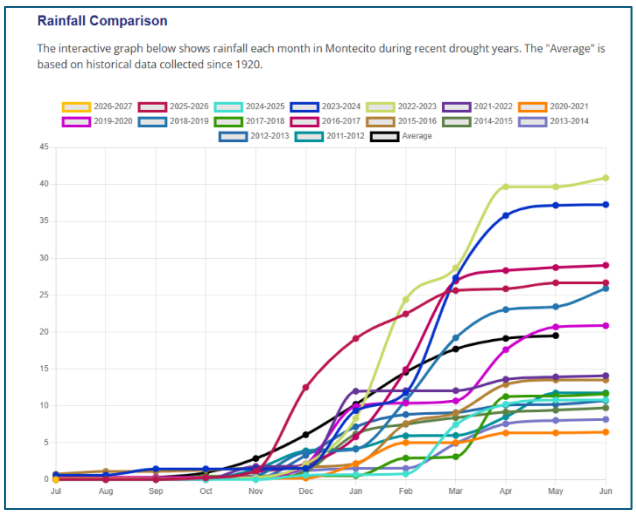
Heatwave

National Weather Service has an extreme heat warning in effect for Wednesday-Thursday, July 15-16

As you think about taking precautions for yourselves and your pets, here are some watering guidelines to help your garden thrive:

- **Irrigate during late evening or early morning hours** to let soil absorb water and help plants rebound to be ready for a hot day ahead.
- **Avoid watering between the hours of 10am and 6pm** when the sun is hot and evaporation is at its peak. In addition to wasting water, irrigating during midday peak-heat hours can further stress plants.

Attachment 2



Two interactive tools provide data on District rainfall:

1. Rainfall Comparison
2. Weather Graph (newly added)

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