RAMONA MUNICIPAL WATER DISTRICT
AGENDA MEMO

Agenda Item No. F.1
Regular Board Meeting of December 14, 2021

Jim Hickle, President
and Members of the Board of Directors
Ramona, CA 92065

RE: PRESENTATION AND DISCUSSION OF THE 2021 WATER MASTER PLAN UPDATE

Members of the Board:

Purpose

To present to and have the Board of Directors receive and file the results of the 2021 Water Master Plan Update, which includes near- and long-term, as well as programmatic, capital improvement recommendations.

Background

A water master plan is used to guide an agency in the logical and orderly development, revisions to, and expansion of its water distribution system. The master plan is general in nature, providing schematic alignments and general locations of facilities. Master plans provide criteria which agency staff use daily in reviewing development inquiries. A master plan, being a comprehensive review of the system's current performance and future requirements, helps the agency plan for and provide necessary and critical services. A comprehensive master plan provides the following benefits:

- Inventories existing system facilities and operations including the capture of institutional knowledge,
- Validates system performance and identifies existing system deficiencies, as may exist,
- Identifies existing and future system water demand requirements,
- Provides a decision-making framework for capital improvement needs,
- Tests and evaluates system operational alternatives, and
- Prioritizes cost-effective implementation of improvements through buildout.

The last Water Master Plan was prepared by Boyle Engineering Corporation and completed in December, 1998. That master plan was authorized in an Agreement between the Ramona Municipal Water District (District) and Boyle Engineering Corporation, dated March 6, 1998.

As expected, the operational conditions of the District in 1998 were much different than those of today. Of note, the District in 1998 owned and operated the Barger Water Treatment Plant (Barger Plant), which has since been decommissioned. The Barger Plant had a treatment capacity of approximately 4.0 million gallons per day (mgd), receiving untreated water from the

City of San Diego's Sutherland Reservoir. Under consideration was a Cross-Town Pipeline connecting Lake Ramona to the Barger Plant for increased water production. Ultimately, the District decided to expand the Poway Pump Station and increase purchase of water from the San Diego County Water Authority (SDCWA). As a result, the 1998 Water Master Plan included recommendations for expansion of the Poway Treated Water Pump Station, the construction of a new pipeline from the Poway Pump Station to the Mt. Woodson Reservoir, and the construction of the Cross-Town Pipeline.

Additionally, the 1998 Master Plan identified an estimated $8 million of distribution system improvements to be constructed by 2010. These improvements, including pipelines, pump stations, and reservoirs, were planned to convey water from the western to the eastern portion of the District. The recommended improvements primarily served new development, while also resolving existing distribution system challenges. From the Capital Improvement Projects identified in the 1998 Water Master Plan the Julian pump station and the 16-in transmission pipeline to the San Diego Country Estates (SDCE) Tank 1 were completed.

Analysis of the 1998 water system was completed using an existing water system model provided by the District. That hydraulic model was updated to reflect then-current conditions. All the analyses in the 1998 Master Plan assumed that the Barger Plant to be in operation. As a result, those analyses incorporated treated water supplies that no longer exist in the District water system.

Discussion

As the above summary highlights, the District has not updated its Water Master Plan in approximately 23 years. Since the development of the 1998 Master Plan, the District has undergone many significant water delivery system changes, including decommissioning of the Barger Plant and significant decreases in overall water demand. For example, the projected 2020 average annual water demand from the 1998 Master Plan was approximately 7.9 million gallons per day (mgd) or 12.2 cubic feet per second (cfs). The recorded 2020 District-wide average water demand was approximately 7.4 cfs (4.7 mgd), representing an approximate 40 percent decrease in total water use compared to projected 2020 water demands from the 1998 Master Plan. The most recent change in water service includes decommissioning of the District untreated water system, requiring further evaluation prior to full implementation.

As a result of these and other operational challenges, the Board directed staff to update the 1998 Water Master Plan. District staff prepared a Request for Proposals in 2019. Following review of received proposals, the District awarded the Water Master Plan Update Project to Carollo Engineers (Carollo) in December 2019.

The purpose of the 2021 Water Master Plan Update (WMPU) is to assist the District in the planning, development, and implementation of water system facility improvements to provide reliable and enhanced service for existing customers, and to serve anticipated future land use changes and growth. This WMPU considers existing conditions as well as future anticipated conditions identified by District staff, and analysis from Carollo. The objective of this WMPU is to

serve as a strategic planning guide for upgrading, improving, and expanding the District's water system.

Carollo began work focused on updating the District's existing hydraulic model. The District's hydraulic model was previously developed using InfoWater® software package and calibrated as part of previous system evaluations. The existing hydraulic model was updated and calibrated as part of this WMPU. District staff provided information from the District water billing system, as well as necessary operations and engineering information regarding current water system facilities, operational settings, and system improvements since the last model update.

As part of the WMPU, Carollo assessed the existing population, water demands, peaking factors, and water loss characteristics of the District's water system. In addition, a detailed discussion is provided of the demand forecasting methodology and demand projections for the planning horizon (2035) and build-out of the District's service area with anticipated development projects. The existing and future District-wide water demands across the planning horizon of the WMPU ranges from an existing average demand of 3,573 afy (4.9 cfs) to 3,911 afy (5.4 cfs) in 2035, still below the projected demands of the 1998 Master Plan.

The WMPU continues its analysis describing the existing water distribution system, including existing pressure zones, pipelines, storage reservoirs, booster pump stations, and pressure reducing valves. The existing water system facilities including 16 pressure zones with 2 main pressure zones, 13 storage reservoirs, 8 booster pump stations (PSs), 21 pressure reducing valves (PRVs), and approximately 239 miles of pipeline. The WMPU also summarizes the existing water supply and recommended improvements to provide emergency water supply. The District's sources of water supply include groundwater from four non-potable wells used for irrigation only in the Wellfield Park property; these non-potable wells are not connected to the treated or untreated distribution systems. The District's primary source of imported treated and untreated water is purchased from the SDCWA. The total capacity from the SDCWA is approximately 50.6 cfs.

The WMPU presents the projected Capital Improvements for the District's potable water distribution system. These improvements incorporate recommended projects identified in the existing and future system analyses. The improvements include planning level cost estimates and proposed phasing for near- and long-term demand conditions. Carollo is recommending improvements that are divided into three phases: near-term, long-term, and build-out. The near-term phase includes projects between the years 2021 through 2025, the long-term phase includes projects between the years 2026 through 2030, and the build-out phase includes projects that are beyond the planning horizon of this evaluation (2031 and beyond).

During completion of the WMPU, the District evaluated and the Board authorized decommissioning of the Untreated Water System in recognition of substantial costs to operate the untreated system, coupled with significant identified capital improvement needs and severely declining water sales in that system. As a result of this decision, untreated water customers have the option to convert to the treated water system or discontinue untreated water service. Additional evaluations were required to define potential impacts of this decision,

including incremental demands from untreated system users transitioning to the treated water system. Carollo had an approved change order to complete the additional analyses. Rather than rewrite large portions of the WMPU, it was decided to incorporate the Untreated Water System Analysis as an appendix to the WMPU. The analyses showed that the existing treated water system can meet the needs of the untreated water customers under normal operating conditions throughout the planning horizon of this study through utilization of existing system capacity. Three specific system improvements were identified for implementation to meet emergency conditions. These three projects are being recommended to be implemented prior to decommissioning of the untreated water system.

Fiscal Impact

The contract for development of the WMPU with Carollo was originally awarded at a cost of $135,096. A contract amendment in the amount of $55,019 was provided based on additional analyses required for additional water demand data and the untreated decommissioning analysis. A second contract amendment in the amount of $30,800 was provided for further untreated water system analyses and finalization of the WMPU document. The total WMPU cost from Carollo is $220,915.

Cost information provided in the WMPU are planning level estimates only. It is envisioned that the District will update the Water Facilities Plan to incorporate WMPU recommendations, and ultimately bring an updated Water Facilities Plan back to the Board for consideration and approval. As such, the Board is not approving or awarding any specific projects through this agenda item. District staff will expedite the design and implementation of the three projects associated with the untreated system decommissioning, if approved by the Board. The cost of three facilities will be brought back to the Board for approval at a later date.

Recommendation

Staff respectfully recommends the Board receive and file the 2021 Water Master Plan Update, and authorize District staff to design the three projects associated with the untreated water system decommissioning, such that the necessary facilities can be implemented prior to the established decommissioning date for the untreated water system.

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Attachments

Attachment 1 RMWD Water Master Plan Update, Carollo, 2021 Page 5-211