



COUNTY OF SONOMA

575 ADMINISTRATION
DRIVE, ROOM 102A
SANTA ROSA, CA 95403

SUMMARY REPORT

Agenda Date: 7/23/2019

To: Board of Directors, Sonoma County Water Agency
Department or Agency Name(s): Sonoma County Water Agency
Staff Name and Phone Number: Chris Delaney / 547-1946
Vote Requirement: Majority
Supervisory District(s): All

Title:

Hydrologic and Hydraulic Engineering Support for the Lake Mendocino Forecast Informed Reservoir Operations Final Viability Assessment

Recommended Actions:

In an ongoing effort to build flexibility in the operations of Lake Mendocino to improve water supply resiliency and reliability:

Authorize Sonoma County Water Agency's General Manager to execute an agreement with HDR Engineering, Inc., for hydrologic and hydraulic engineering support for the Lake Mendocino forecast informed reservoir operations final viability assessment through March 31, 2021, in the not-to-exceed amount of \$430,000.

Executive Summary:

Forecast Informed Reservoir Operations (FIRO) is a proposed alternative management strategy. The strategy aims to use data from watershed monitoring and state-of-the-art weather and water forecasting to adaptively manage reservoir storage levels by incorporating forecasts of available water to meet the goals of improving water supply reliability without impairing flood protection to downstream communities.

This item requests authority for Sonoma County Water Agency's General Manager to execute an agreement with HDR Engineering, Inc., to provide hydrologic and hydraulic engineering services for the preparation of the Lake Mendocino Forecast Informed Reservoir Operations Final Viability Assessment (Final Assessment) for the amount of \$430,000.

Discussion:

HISTORY OF ITEM/BACKGROUND

Lake Mendocino is located on the east fork of the Russian River in Mendocino County, California. Created in 1958 by the Coyote Valley Dam, it provides flood control, water supply, recreation and stream flow regulation. The United States Army Corps of Engineers (Corps) owns and operates the dam in accordance with the Lake Mendocino Water Control Manual (Manual), 1959, revised in 1986. Sonoma County Water Agency (Sonoma Water) is the local partner that manages water stored in Lake Mendocino for water supply. The Manual specifies elevations for an upper volume of reservoir storage that must be kept available for capturing storm runoff and reducing flood risk and a lower volume of storage that may be used for water supply. During a flood event, runoff is captured by the reservoir and released soon after to create storage space for another potential storm. The Manual is based on typical historical weather patterns- wet during the winter, dry otherwise.

The Manual utilizes gross estimates of flood potential to establish reservoir storage and release requirements.

It does not account for changing conditions in the watershed-for example, increased variation in dry and wet weather patterns and reductions to imported flows into the lake that have occurred since 1986. Also, the Manual's reservoir operations procedures were developed decades ago, without the benefit of current science that more accurately predicts weather and streamflow.

Given reduced supplies, changed hydrologic conditions, and technological advances, some adjustments to the current reservoir operating procedures may be possible to optimize the goals of maintaining flood control while bolstering water supply reliability for downstream users and the environment (e.g., to support recovery of endangered and threatened fish).

Lake Mendocino is the first pilot location to evaluate the feasibility of FIRO, which is led by an interagency steering committee consisting of members from the University of California San Diego, Scripps Institute, California Department of Water Resources, Corps, National Oceanic and Atmospheric Administration (NOAA), Bureau of Reclamation, United States Geological Services, and Sonoma Water (collectively "Steering Committee").

In July 2017, the Steering Committee completed a preliminary viability assessment (Preliminary Assessment) of FIRO for Lake Mendocino, which found that a forecast based decision support system could be a viable solution to meet project goals. In October 2018, the Corps approved a major deviation request made by the Steering Committee to implement components of the Preliminary Assessment for water year 2019, and results of this limited implementation have supported the findings of the Preliminary Assessment. The Steering Committee has begun development of the Final Assessment, which will build off of the studies completed for the Preliminary Assessment to further analyze the feasibility of FIRO for Lake Mendocino and potentially make recommendations for permanent modification of the Manual.

Sonoma Water desires HDR Engineering, Inc. (Consultant) to evaluate channel flow capacity downstream of Lake Mendocino and assess existing reservoir operational constraints associated with downstream flow capacity. Sonoma Water also desires Consultant to design and evaluate a water control plan for Lake Mendocino that is similar to the forecast-based approach that was developed for Folsom Reservoir located in northern California. The Steering Committee wishes to evaluate this approach because it has been accepted by the Corps and could be adapted to Lake Mendocino to provide water supply and flood control benefits. This plan will be included with other reservoir operations alternatives that will be evaluated in the Final Assessment.

SELECTION PROCESS

On June 4, 2018, Sonoma Water issued a Request for Statements of Qualifications to the following six firms:

1. David Ford Consulting Engineers, Sacramento, CA
2. West Consultants, Folsom, CA
3. Environmental Science Associates, San Francisco, CA
4. Schaaf & Wheeler Consulting Engineers, Santa Rosa, CA
5. Balance Hydrologies, Berkeley, CA
6. CH2M Hill, San Diego, CA
7. The five firms listed below submitted Statements of Qualifications:
8. David Ford Consulting Engineers (now HDR Engineering, Inc.)

9. ENGEO Incorporated, Rocklin, CA
10. Water Resources Engineering, Albany, CA
11. West Consultants
12. Wood Environment & Infrastructure Solutions, Inc., Petaluma, CA

The following criteria were used to evaluate each firm:

- 1) Thoroughness of Statements of Qualifications
- 2) Professional qualifications and demonstrated ability to perform the work
- 3) Exceptions to standard terms in the sample agreement

HDR Engineering, Inc., formerly David Ford Consulting Engineers, (consultant) was selected for the subject work because of their expertise and past experience in the fields of hydrology and hydraulics. Additionally the team assembled to complete the project has significant experience in forecast informed reservoir operations at Lake Mendocino and other reservoirs in California.

Sonoma Water may seek to amend or enter into subsequent agreement(s) with Board approval if required, relying upon this competitive selection process, after the preliminary or initial work is completed for the Project.

SERVICES TO BE PERFORMED

Under the proposed agreement, the consultant will evaluate channel flow capacity downstream of Lake Mendocino and associated reservoir operational constraints and design and evaluate a water control plan for Lake Mendocino that is similar to the forecast based approach that was developed for Folsom Reservoir.

The cost of services will not exceed \$430,000; the term end date is March 31, 2021.

The agreement includes two options for Sonoma Water to extend this agreement for a period of one year each by providing written notice to Consultant thirty days in advance of the expiration date of the agreement and of the first extension option.

Prior Board Actions:

- 10/23/2018: Approved fifth amended agreement between Sonoma Water and HDR Engineering, Inc. for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$83,915, term extended for a new not-to-exceed agreement total of \$363,915 and end date of June 30, 2019.
- 10/25/2016: Approved fourth amended agreement between Sonoma Water and David Ford Consulting Engineers, Inc. for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$150,000, term extended for a new not-to-exceed agreement total of \$280,000 and end date of June 30, 2019.
- 10/25/2016: Approved second amended agreement between Sonoma Water and David Ford Consulting Engineers, Inc. for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$36,000, term extended for a new not-to-exceed agreement total of

\$130,000 and end date of April 30, 2017.

10/13/2015: Approved first amended agreement between Sonoma Water and David Ford Consulting Engineers, Inc. for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$69,000, term extended for a new not-to-exceed agreement total of \$94,000 and end date of December 31, 2016.

06/23/2015: Execute an agreement with Regents of the University of California Scripps Institution of Oceanography to prepare the Lake Mendocino Forecast Informed Reservoir Operations Preliminary Feasibility Study in an amount not to exceed \$345,000; agreement terminates on January 31, 2017.

12/18/2014: Approved agreement between Sonoma Water and David Ford Consulting Engineers, Inc. for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$25,000; term end December 31, 2015.

FISCAL SUMMARY

Expenditures	FY 19-20 Adopted	FY20-21 Projected	FY 21-22 Projected
Budgeted Expenses	\$430,000		
Additional Appropriation Requested			
Total Expenditures	\$430,000		
Funding Sources			
General Fund/WA GF			
State/Federal			
Fees/Other	\$430,000		
Use of Fund Balance			
Contingencies			
Total Sources	\$430,000		

Narrative Explanation of Fiscal Impacts:

Budgeted amount of \$430,000 is available from FY 2019/2020 appropriations for the Russian River Projects fund. No additional appropriation is required.

Staffing Impacts:			
Position Title (Payroll)	Monthly Salary Range (A - I Step)	Additions (number)	Deletions (number)
N/A			

Narrative Explanation of Staffing Impacts (If Required):

N/A

Agenda Date: 7/23/2019

Attachments:

Attachment 1: Agreement with HDR Engineering, Inc.

Related Items “On File” with the Clerk of the Board:

None