COUNTY OF SONOMA

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

SUMMARY REPORT

Agenda Date: 11/7/2023

To: Board of Directors, Sonoma County Water Agency
Department or Agency Name(s): Sonoma County Water Agency
Staff Name and Phone Number: Dale Roberts 707-547-1979
Vote Requirement: Majority
Supervisorial District(s): Countywide

Title:
Agreement with National Oceanic and Atmospheric Administration Related to Advanced Quantitative Precipitation Information System Project

Recommended Action:
Authorize Sonoma County Water Agency's General Manager to execute the second amended Memorandum of Understanding, in a form approved by County Counsel, with U.S. Department of Commerce National Oceanic and Atmospheric Administration for system integration and coordination. The amended agreement extends the agreement term by one year for a new end date of December 31, 2024, with no change to the agreement amount.

Executive Summary:
Sonoma County Water Agency (Sonoma Water) was awarded $19.84 million in grant funds to implement the San Francisco Bay Area Advanced Quantitative Precipitation Information System project (AQPI Project). Costs incurred by Sonoma Water in implementing the AQPI Project and associated agreements are being reimbursed with these grant funds or by local project partners.

The purpose of the AQPI Project is to provide more precise rainfall forecasting for atmospheric rivers, which will give flood control managers including Sonoma Water, emergency responders, transportation officials, and media outlets more precise information on the location, timing, and intensity of expected rainfall.

The AQPI Technical Advisory Committee is comprised of National Oceanic and Atmospheric Administration (NOAA), Colorado State University's Cooperative Institute for Research in the Atmosphere (CIRA), Center for Western Weather and Water Extremes at Scripps Institute of Oceanography (Scripps), United States Geological Survey - Pacific Coast and Marine Science Center (USGS), Jennifer Krebs dba Jennifer Krebs Environmental Planning, Bay Planning Coalition, and the local project partners that include, but are not limited to, Sonoma Water, San Francisco Public Utilities Commission, Santa Clara Valley Water District, East Bay Municipal Utility District, Alameda County Flood Control & Water Conservation District, Alameda County Water District, East Bay Dischargers Authority, Contra Costa County Flood Control and Water Conservation District, Alameda County Flood Control and Water Conservation District - Zone 7, and the Bay Area Flood Protection Agencies Association.

Implementation of the AQPI Project has been affected by several back-to-back disasters including the major wildfires affecting the Bay Area in 2017, 2019, and 2020 as well as the COVID-19 global pandemic from 2020

into 2023. The AQPI Project also suffered delays related to the 2018-2019 federal government shutdown. This item presents for consideration and approval a second amended memorandum of understanding (MOU) with NOAA to continue the work funded by the grant award.

Discussion:

HISTORY OF ITEM/BACKGROUND

For more than ten years, Sonoma Water and several other agencies in the Bay Area have collaborated with NOAA, CIRA, Scripps, and USGS to develop the AQPI Project. The goal of the AQPI Project is to provide early notification of more precise rainfall location, intensity, and amounts for the improved operations of flood protection facilities, the improved management of water supply reservoirs, the improved operations of combined sewer and wastewater systems, and a myriad of other benefits to transportation and emergency response agencies. According to a cost-benefit analysis performed by NOAA, implementing the AQPI Project can be expected to provide benefits exceeding costs by a ratio of at least 4:1. These benefits accrue through a) avoided flood damage costs from early warnings, b) forecast-based operations to maximize reservoir capture for water supply and fisheries flows, c) minimization of water quality impacts from combined wastewater and sewer systems, and d) enhancement of public safety for the various transportation modes (pedestrian, highways, marine, and airports).

On January 13, 2016, the Department of Water Resources announced statewide Proposition 84 (The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006) grant awards that included over $43 million for water resources-related projects in the San Francisco Bay Area. Nearly half, or $19.84 million was awarded to the AQPI Project. Approximately $12.6 million of the grant funding has been spent to date by the various partners within the grant project. The project was recently granted a time extension through June 30, 2025, with the expectation that NOAA will complete their work by the end of 2024.

The AQPI Project is a nine-year project to provide improved precipitation and hydrologic information to water agencies and other stakeholders in the San Francisco Bay area to assist the region in mitigating flood hazards, maximize water supply, and enhance ecosystem services. The primary emphasis is to improve short-term (48 hour) monitoring and prediction of high-impact rainfall events. The secondary emphasis focuses on improved medium-range precipitation forecasts (out to 10 days) for water supply.

The grant funding is being used to place up to five new radar units throughout the Bay Area, specifically to provide more precise rainfall forecasting for atmospheric rivers. NOAA, CIRA, Scripps, and USGS estimate that over the last few decades more than 50 percent of major flooding in the Bay Area, and closer to 70 percent in the North Bay, has come from atmospheric rivers that often are not detected with conventional, high-aiming S -band, or NEXRAD, radar units that were originally designed for thunderstorms in the flat terrain of the plains of the Midwest. The new radar system also will give flood control managers, emergency responders, transportation officials, and media outlets more precise information on where, when, and the intensity of expected rainfall, as the local radars would be better suited to tracking precipitation in the hilly terrain of the Bay Area.

Local project partners are hosting radar sites based on site surveys completed from 2016 to 2022 for the AQPI Project. Current local project partners include Santa Clara Valley Water District, San Francisco Public Utilities Commission, County of Marin, East Bay Municipal Utilities District, the Bay Area Flood Protection Agencies

Association, and Sonoma Water. Radars are deployed and operational in Santa Rosa, Santa Clara, and San Ramon. A fourth radar will be operational south of San Francisco by the end of 2023. After the installation of the fourth radar, the project will be approximately 80% complete. The fifth radar will be deployed and operational by the end of 2024 adjacent to County of Marin's Fire Lookout Tower at Mount Barnabe. The data from the ocean facing fifth radar will allow the AQPI system to better measure atmospheric river moisture content, velocity, and direction for incorporation into near term precipitation and streamflow forecasts.

MOU WITH NOAA

On August 17, 2017, Sonoma Water and NOAA entered into a MOU in the amount of $6,596,159 for system integration and coordination. To date, NOAA has roughly $740,000 remaining on their contract. Extending NOAA's current contract will allow them to complete all necessary work as described in the MOU, such as incorporating the data from the remaining radars to refine the precipitation forecasting models NOAA has already developed under the AQPI project. Tasks under the MOU, with NOAA acting as the technical lead, included the following: direct technical aspects of the AQPI Project in conjunction with the Technical Advisory Committee, develop the AQPI system architecture, design and develop high-resolution and medium-range precipitation forecast products, integrate software systems, and develop a tailored AQPI user interface to display and deliver meteorological products.

Implementation of the AQPI Project has been affected by several back-to-back disasters including the major wildfires affecting the Bay Area in 2017, 2019, and 2020 as well as the COVID-19 global pandemic from 2020 into 2023. The AQPI Project also suffered delays related to the 2018-2019 federal government shutdown. As a result of these disruptions, radar site selections, radar deployments (done in conjunction with CIRA), other surface instrumentation deployments, and system development have been delayed. Now that sites are selected, and property agreements are in place for the radar sites, design and construction are proceeding. Construction, testing, and commissioning of the radar and surface monitoring equipment will be completed by the end of 2024.

Due to the aforementioned delays, in December 2021 the Board authorized Sonoma Water to amend the agreements with project partners related to the AQPI Project by extending the terms of those agreements through 2023. In September 2023, California Department of Water Resources granted an additional time extension for the AQPI precipitation monitoring equipment through December 2024. Sonoma Water again amended the project partner agreements also by extending the terms of those agreements an additional year through 2024, as authorized by Board action in December 2021.

Under the second amended MOU, NOAA will continue to provide these services. The MOU extends the term by one year for a new end date of December 31, 2024, with no change to the agreement amount.

County of Sonoma Strategic Plan Alignment:

This item directly supports the County's Five-year Strategic Plan and is aligned with the following pillar, goal, and objective.

> **Pillar:** Resilient Infrastructure
> **Goal:** Goal 5: Support, fund, and expand flood protection.
> **Objective:** Objective 1: Develop partnerships with cities, tribal governments, and private organizations regarding flood protection and sustainability to identify gaps and address climate change impacts.

The AQPI Project supports Sonoma County's efforts to partner with other local entities in order to prepare, mitigate, and prevent community impacts caused by emergencies and natural disasters including, but not limited to, flood protection and other adverse effects from heavy precipitation events.

Sonoma Water Strategic Plan Alignment:
Flood Protection, Goal 1: Provide efficient and effective flood protection programs.
Climate Change, Goal 1: Continuing improving our ability to respond and adapt to climate change.
Our Organization, Goal 3: Continue to improve emergency preparation and response to natural disasters.

The AQPI Project supports several of the goals in the Sonoma Water Strategic Plan. The AQPI Project will improve Sonoma Water's ability to respond to and adapt to the effects climate change is having on precipitation patterns in the region. The AQI Project will improve early warning capabilities to avoid life-safety threats from potential land sliding, debris flows, flooding, erosion, road hazards, and burn scar problems that could be compounded from heavy rain events.

Racial Equity:

Was this item identified as an opportunity to apply the Racial Equity Toolkit?
No

Prior Board Actions:
12/14/21: Amend Agreements Related to Advanced Quantitative Precipitation Information System Project by extending the terms of those agreements through 2023 including agreements with: A) Board of Governors of the Colorado State University System Cooperative Institute for Research in the Atmosphere; B) U.S. Department of Commerce National Oceanic and Atmospheric Administration; C)United States Geological Survey; D) Jennifer Krebs dba Jennifer Krebs Environmental Planning; E) Bay Planning Coalition; and F) East Bay Municipal Utility District, Alameda County Flood Control & Water Conservation District, Alameda County Water District, East Bay Dischargers Authority, Contra Costa County Flood Control and Water Conservation District, and Alameda County Flood Control & Water Conservation District - Zone 7.

The amended agreements include two options for Sonoma Water to extend each amended agreement for a period of one year each by providing written notice to the other party thirty days in advance of the expiration date of the first amended agreement and of the first extension option.

04/20/2021: Approved agreement between Sonoma Water, East Bay Municipal Utility District, Alameda County Flood Control & Water Conservation District, Alameda County Water District, East Bay Dischargers Authority, and Contra Costa County Flood Control and Water Conservation District for temporary deployment of precipitation forecasting system. Cost $165,000 (funds paid to Sonoma Water); term end December 31, 2021.

11/13/2018: Approved agreement between Sonoma Water and Jennifer Krebs dba Jennifer Krebs Environmental Planning for project coordination services. Cost $250,000; term end December 31, 2021.

11/13/2018: Approved agreement between Sonoma Water and Bay Planning Coalition, in a form approved by County Counsel, for stakeholder outreach coordination. Cost $300,000; term end December 31, 2021.

08/15/2017: Approved agreement between Sonoma Water and Board of Governors of the Colorado State

University System - Cooperative Institute for Research in the Atmosphere for system design and implementation. Cost $9,944,053; term end December 31, 2021.

08/15/2017: Approved agreement between Sonoma Water and Board of Governors of the Colorado State University System - Cooperative Institute for Research in the Atmosphere for reimbursement of travel expenses related to design and implementation. Cost $153,000 ($38,250 per partner); term end December 31, 2021.

08/15/2017: Approved Memorandum of Understanding agreement between Sonoma Water and U.S. Department of Commerce National Oceanic and Atmospheric Administration for system integration and coordination. Cost $6,596,159; term end December 31, 2021.

08/15/2017: Approved agreement between Sonoma Water and United States Geological Survey for operational modeling of coastal flooding along the San Francisco Bay margin. Cost $1,171,000; term end December 31, 2021

FISCAL SUMMARY

Expenditures	**FY23-24 Adopted**	**FY24-25 Projected**	**FY25-26 Projected**
Budgeted Expenses			
Additional Appropriation Requested			
Total Expenditures			
Funding Sources			
General Fund/WA GF			
State/Federal			
Fees/Other			
Use of Fund Balance			
Contingencies			
Total Sources			

Narrative Explanation of Fiscal Impacts:
There is no fiscal impact associated with this agenda item.

Staffing Impacts:			
Position Title (Payroll Classification)	**Monthly Salary Range (A-I Step)**	**Additions (Number)**	**Deletions (Number)**

Narrative Explanation of Staffing Impacts (If Required):
N/A

Attachments:
None

Related Items “On File” with the Clerk of the Board:
None