Agenda Item # 3.1
For Board of Public Utilities Meeting of: August 17, 2023

CITY OF SANTA ROSA
BOARD OF PUBLIC UTILITIES

TO: BOARD OF PUBLIC UTILITIES
FROM: COLIN CLOSE, SENIOR WATER RESOURCES PLANNER
SUBJECT: STUDY RESULTS FOR THE WATER SUPPLY ALTERNATIVES PLAN

AGENDA ACTION: STUDY SESSION

RECOMMENDATION

It is recommended by Santa Rosa Water that the Board of Public Utilities hold a Study Session to receive information, ask questions, discuss, and provide feedback to staff regarding the water supply options study results and draft supply portfolios for the Water Supply Alternatives Plan.

EXECUTIVE SUMMARY

Santa Rosa Water wishes to diversify and increase its potable urban water supply portfolio to enhance its resiliency during Sonoma Water supply shortages (particularly during droughts) or service interruptions that could occur in catastrophic events. With expertise and assistance from Woodard & Curran, the project team has completed a study of 18 water supply sources to assess their feasibility as new supply options. The team also developed four portfolio alternatives (mixes of the most feasible water supply options). In separate meetings, the study results and the draft portfolios alternatives were presented to the Water Team, the external Stakeholder Group, and the community to seek their input. The feasibility study Technical Memorandum and a narrative description of the Draft Portfolios were revised to integrate the comments received. Staff and the consulting team will present the study findings and draft portfolios to the Board of Public Utilities to seek input before developing a Draft Water Supply Alternatives Plan.

BACKGROUND

Santa Rosa Water can meet approximately seven percent of its annual urban demand for potable water using city wells, and relies on Sonoma Water, a water wholesaler, to provide the remaining 93 percent of potable supply for urban customers. As a result of this dependency, if Sonoma Water has a supply shortage or an interruption in service, Santa Rosa's public water system will have a water supply shortage.

In just the past 20 years the region has experienced three droughts, and each time Santa Rosa has declared a water shortage and required its customers to reduce potable water use by 20 percent. Climate change models predict regional droughts will become more severe (hotter, drier, longer) and/or occur with more frequency. Given these realities, Santa Rosa Water wishes to increase both the diversity and production capacity of its urban potable water supply portfolio.

The project scope of work includes soliciting input from an interdisciplinary team of Water staff, an external Stakeholder Group representing a wide range of interests, the community, and the Board of Public Utilities. To determine the most feasible water supply options, Woodard &

Curran conducted a study of potential water sources from January through May 2023. In separate working sessions, Woodard & Curran presented the study results to the Water Team and the Stakeholder Group in May to seek their questions, comments, and input. After revising the study with input from both groups, Woodard & Curran presented the study results and draft portfolios to the Water Team, the Stakeholder group, and the community in separate meetings in June and July 2023. In response to the input received, the project team finalized the study's Technical Memorandum and refined the portfolio options.

After receiving input and feedback from the Board of Public Utilities during the Study Session, the project team will finalize the portfolios of feasible water supply options for achieving Santa Rosa Water's long-term urban water supply goal and develop a Draft Water Supply Alternatives Plan (Draft Plan). Staff will seek input on the Draft Plan from the Water Team, Stakeholder Group, and community in August 2023. After integrating input, the Draft Plan will be presented to the Board of Public Utilities in a study session and to the City Council in a separate study session in late September 2023. The final Water Supply Alternatives Plan will be presented separately to the Board of Public Utilities and the City Council in October 2023.

PRIOR BOARD OF PUBLIC UTILITIES REVIEW

On May 19, 2022, the Board of Public Utilities approved the issuance of a Request for Proposals (RFP) to solicit proposals from qualified consultants to complete a study of potential water supply sources and develop a Water Supply Alternatives Plan for increasing the City's water supply resiliency and reliability.

On September 15, 2022, the Board of Public Utilities received a staff briefing on the Water Supply Alternatives Plan project efforts, including information about the consultant selection process, scope of work, anticipated timeline and milestones, the key deliverables, plan for engaging the public and a stakeholder group in providing input, and next steps.

On January 19, 2023, the Board of Public Utilities held a study session in which staff and the consulting team presented the water supply feasibility study parameters and received input from Board of Public Utilities before finalizing the approach and proceeding with the study.

ANALYSIS

The feasibility study included a pre-screening analysis of 18 water supply options to narrow the list of options for more detailed assessment. Thirteen options were advanced to the formal screening step to compare cost effectiveness and scalability. Each of these water supply options was developed at a conceptual level (size, infrastructure needs, approximate location, etc.) to estimate potential water supply yield and costs. Seven options were found to be the most feasible options. The attached Technical Memorandum provides a detailed description of the methodology, analysis, results, and study findings. A brief summary is provided below.

The 18 water supply options considered are listed below, with strikeout through five options that were set aside from this current effort. Of those set aside, three options (GW-4, GW-5, SW-3) were set aside because regional efforts are already underway to assess potential projects, and two options (PR-3b and SW-2) were set aside due to the fact that Lake Ralphine would not be able to function effectively for storage.

Groundwater
GW-1 Additional groundwater extraction wells
GW-2 Conversion of emergency wells to supply wells
GW-3 Aquifer Storage and Recovery
~~**GW-4** Regional groundwater extraction wells~~
~~**GW-5** Regional Aquifer Storage and Recovery~~

Purified Recycled Water
PR-1 Produce at Laguna Treatment Plant (direct use)
PR-2 Produce at a satellite location (direct use)
PR-3a Produce at Laguna Treatment Plant and inject into groundwater via aquifer storage & recovery wells (indirect use)
~~**PR-3b** Produce at Laguna Treatment Plant and add to Lake Ralphine before use (indirect use)~~
PR-3c Produce at Laguna Treatment Plant and add to Lake Sonoma (or alternate) before (indirect) use
PR-4 Regional purified recycled water

Nonpotable Recycled
RW-1 Expand Nonpotable Recycled Water Service

Desalination
DE-1 Brackish desalination (likely Regional)
DE-2 Ocean desalination (Santa Rosa or Regional)

Surface/Stormwater
SW-1 Capture excess winter flows from Santa Rosa Creek/ Laguna de Santa Rosa, store in aquifer for later withdrawal
~~**SW-2** Store excess winter flows from Santa Rosa Creek/Laguna de Santa Rosa, store in enlarged Lake Ralphine, construct water treatment plant to withdraw from Lake Ralphine~~
~~**SW-3** Regional Stormwater~~

Efficiency Programs to Reduce Demand
E-1 Aggressive incentives for efficiency programs (turf removal, direct install toilets) to reduce demand

Next, the remaining thirteen options were screened based on high level cost estimates and scalability (volume of water that could be produced under a range of scenarios). Based on the results of the screening process, seven options advanced to undergo a further feasibility analysis.

Those seven water supply options include:
- GW-1: Add Extraction Wells
- GW-2: Convert Emergency Wells
- GW-3: City Aquifer Storage and Recovery (ASR) Wells
- PR-2: Satellite Direct Potable Reuse (DPR)
- PR-4: Regional DPR
- SW-1: Stormwater Storage in Aquifer
- E-1: Efficiency Programs

These seven options were further analyzed and scored based on a list of defined evaluation criteria that had been previously established based on input from the Water Team, Stakeholder Group, community, and the Board of Public Utilities. A numeric score was assigned for each criterion using a 3-point scale from 0 to 2, with 2 being the most favorable. The raw score for each criterion was then weighted (multiplied by 5, 3, or 1) based on its level of importance as determined with input from the various stakeholders (with 5 being highest).

The feasibility analysis also assessed supply option performance under a range of future conditions beyond the baseline scenario. Performance of the options was examined under varying future hydrologic conditions, and varying Sonoma Water dry-year allocations were evaluated. In general, as future conditions become less favorable, a supplemental water supply would need to be used more often and would become more cost-effective.

Next, the project team developed four potential portfolio alternatives (mixes of water supply options) based on the results of the feasibility analysis. Each portfolio was developed focused on a specific metric: affordability, implementation speed, volume of water, and adaptability. The attached Draft Portfolios provides a narrative description of the four portfolios.

The project team is currently developing a draft version of the Water Supply Alternatives Plan (Plan) to provide a range of pathways forward for the city to achieve its water supply resiliency goals. The project team will seek input from the Water Team, Stakeholder Group, community, Board of Public Utilities, and City Council in August and September 2023, prior to finalizing the Plan in October 2023.

FISCAL IMPACT

The Study Session is for information only, and no Board action is being taken. There is no fiscal impact from this Study Session.

ENVIRONMENTAL IMPACT

This action has been reviewed in accordance with the California Environmental Quality Act (CEQA) and qualifies for the statutory exemption provided under Title 14 § 15262 of the California Code of Regulations because it is a project involving only feasibility or planning studies for possible future actions which the Board has not approved, adopted, or funded.

This action is also categorically exempt pursuant to CEQA Guidelines Section 15306 - Informational Collection. Section 15306 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded.

BPU/COMMISSION/COMMITTEE REVIEW AND RECOMMENDATIONS

On April 28, 2022, the City Council/Board of Public Utilities Liaison Subcommittee, by motion, approved the staff recommendation to (1) solicit proposals and ask the BPU to award a contract, (2) conduct the study and prepare the draft plan, (3) review the draft plan in a BPU study session to solicit input from the BPU and public, revise the plan as needed, and finalize the plan, and (4) execute the plan over time and report progress to the BPU periodically.

NOTIFICATION

Not applicable.

ATTACHMENTS

- Attachment 1 - Technical Memorandum
- Attachment 2 - Draft Portfolios

CONTACT

Colin Close, Senior Water Resources Planner