SPECIAL NOTICE REGARDING CORONAVIRUS DISEASE 2019 (COVID-19) AND PARTICIPATION IN PUBLIC MEETINGS

On March 4, 2020, Governor Newsom declared a State of Emergency resulting from the threat of COVID-19. Governor Newsom issued Executive Order N-25-20 (3-12-20) and Executive Order N-29-20 (3-17-20) which temporarily suspend portions of the Brown Act relative to conducting public meetings. Subsequent thereto, Governor Newsom issued Executive Order N-33-20 (3-19-20) ordering all individuals to stay at home or at their place of residence. Accordingly, it has been determined that all Board and Workshop meetings of the San Bernardino Valley Municipal Water District will be held pursuant to the Brown Act and will be conducted via teleconference. There will be no public access to the meeting venue.

BOARD OF DIRECTORS WORKSHOP - ENGINEERING
TUESDAY, MAY 11, 2021 – 2:00 P.M.

PUBLIC PARTICIPATION

Public participation is welcome and encouraged. You may participate in the May 11, 2021, meeting of the San Bernardino Valley Municipal Water District online and by telephone as follows:

Dial-in Info: (877) 853 5247 US Toll-free
Meeting ID: 753 841 573
PASSCODE: 3802020

https://sbvmwd.zoom.us/j/753841573

If you are unable to participate online or by telephone, you may also submit your comments and questions in writing for the District's consideration by sending them to comments@sbvmwd.com with the subject line "Public Comment Item #" (insert the agenda item number relevant to your comment) or "Public Comment Non-Agenda Item". Submit your written comments by 6:00 p.m. on Monday, May 10, 2021. All public comments will be provided to the Chair and may be read into the record or compiled as part of the record.

IMPORTANT PRIVACY NOTE: Participation in the meeting via the Zoom app is strongly encouraged. Online participants MUST log in with a Zoom account. The Zoom app is a free download.
Please keep in mind: (1) This is a public meeting; as such, the virtual meeting information is published on the World Wide Web and available to everyone. (2) Should you participate remotely via telephone, your telephone number will be your "identifier" during the meeting and available to all meeting participants; there is no way to protect your privacy if you elect to call in to the meeting.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
380 E. Vanderbilt Way, San Bernardino, CA 92408

BOARD OF DIRECTORS WORKSHOP - ENGINEERING

AGENDA

2:00 PM Tuesday, May 11, 2021

CALL TO ORDER
Chairperson: Director Harrison
Vice-Chair: Director Hayes

1) INTRODUCTIONS

2) PUBLIC COMMENT
Any person may address the Board on matters within its jurisdiction.

3) SUMMARY OF PREVIOUS MEETING

3.1 April 13, 2021, Meeting (Page 3)
Summary Notes BOD Workshop - Engineering 041321

4) DISCUSSION ITEMS

4.1 Proposed Program of Work for Engineering/Operations Department FY 21/22 (Page 14)
Staff Memo - Proposed Program of Work for the Engineering/Operations Department FY 21/22

4.2 Proposed Program of Work for Environmental Department FY 21/22 (Page 15)
Staff Memo - Proposed Program of Work for the Environmental Department FY 21/22

4.3 Consider the proposal by Geoscience to provide modeling support for the proposed artificial recharge project at the Cactus Basins in the amount of $84,142 (Page 16)
Staff Memo - Consider the proposal by Geoscience to provide modeling support for the proposed artificial recharge project at the Cactus Basins in the amount of $84,142
Geoscience Proposal

4.4 Consider Proposed 2021 Water Supply Contingency Program to meet BVMWC In-Lieu Water Demand (Page 25)

Staff Memo - Consider Proposed 2021 Water Supply Contingency Program to meet BVMWC In-Lieu Water Demand

5) FUTURE BUSINESS

6) ADJOURNMENT

PLEASE NOTE:
Materials related to an item on this Agenda submitted to the Board after distribution of the agenda packet are available for public inspection in the District's office located at 380 E. Vanderbilt Way, San Bernardino, during normal business hours. Also, such documents are available on the District's website at www.sbvmwd.com subject to staff's ability to post the documents before the meeting. The District recognizes its obligation to provide equal access to those individuals with disabilities. Please contact Melissa Zoba at (909) 387-9228 two working days prior to the meeting with any special requests for reasonable accommodation.

DATE: May 11, 2021

TO: Board of Directors Workshop – Engineering

FROM: Staff

SUBJECT: Summary of April 13, 2021 Board of Directors Workshop – Engineering

The Engineering Workshop convened on April 13, 2021, via Zoom video-teleconference. Director Harrison chaired the meeting.

Directors Present: President Kielhold, Vice President Hayes, Director Botello, Director Harrison, and Director Longville.

Staff Present:
Heather Dyer, MS, MBA – Chief Executive Officer/General Manager
Wen B. Huang, PE, MS – Chief Engineer/Deputy General Manager
Cindy Saks, CPA – Chief Financial Officer/Deputy General Manager
Bob Tincher, PE, MS – Chief Water Resources Officer/Deputy General Manager
Melissa Zoba, MBA, MPA – Chief Information Officer

Kristeen Farlow, MPA – External Affairs Manager
Anthony Flordelis – Systems Analyst
Joanna Gibson, MS – Habitat Conservation Program Manager
Jose Macedo, ML, CPT-P (USA Retired) – Clerk of the Board/Assistant to the CEO

Members of the Public Present:
Richard Corneille, San Bernardino Valley Water Conservation District
David Raley, San Bernardino Valley Water Conservation District
Melody McDonald, San Bernardino Valley Water Conservation District
Robert Fisher, United States Geological Survey

Pursuant to the provisions of Executive Order N-29-20 issued by Governor Gavin Newsom on March 19, 2020 this meeting will be conducted by teleconference only.

2. Public Comment

Director Harrison invited public comment. There was none.

3. Summary of Previous Meeting

The meeting notes from the March 9, 2021 Board of Directors Workshop – Engineering were accepted.

4.1 Presentation on United States Geological Survey Western Ecological Research Center 2020 Surveys / Studies within the Upper Santa Ana River Habitat Conservation Plan Planning Area

Habitat Conservation Program Manager Joanna Gibson introduced Dr. Robert Fisher of the United States Geological Survey (USGS) Western Ecological Research Center to present research conducted last year, which was partially funded by a Technical Assistance Agreement with Valley District. It focused on five species covered under the HCP, and data collected will be used to inform long term management and monitoring, she noted.

Dr. Fisher gave background on the agreement and described the biodiversity futures areas and the objective to develop a patchwork of conservation plans across jurisdictions. The job of USGS is to determine how the puzzle pieces fit together and complete conservation across the landscape, he said. He advised that Valley District's plan is the first big plan in western San Bernardino County.

Dr. Fisher detailed tasks related to the Santa Ana Sucker and findings on genetic connectivity. He noted that lab work and field work had been delayed due to COVID-19, and advised that the tasks are behind schedule, but progress is being made. The data has been generated and the genetics management plan has been submitted, he stated.

The Mountain Yellow-legged frog has dramatically declined, Fisher said, with only about 200 individuals remaining. Monitoring surveys are being done annually at three locations, he explained. The frog population had gone extinct from City Creek, but a captive breeding program and re-introduction resulted in the largest number of individuals. Other locations were negatively affected by debris flow after the 2003 fires, he noted. Fisher explained the

use of environmental DNA to determine frog populations and said he hopes to have the results in the next few months.

The Western Spadefoot is a species that breeds in pools, Fisher noted, and explained the surveys detecting the presence of the Spadefoot in six out of 12 sites. Dr. Fisher advised that the USGS has brought resources to the project from other sources to compete the jobs as a partnership. He also advised that there are access issues at some Spadefoot locations.

Fisher described the Santa Ana Speckled Dace, a native fish, which was also heavily impacted by fire. They were detected at four out of eight sites, and some of those were re-introduced populations, he stated. He explained the fish size differences in location and the importance of this demographic pattern over time to assure resiliency.

The Southwestern Pond Turtle is the only native aquatic turtle in Southern California, Fisher said. Although 27 sites were surveyed, turtles were only detected in one location. The survey will be revisited next year, he advised. Non-native turtles were found at 12 sites and a recommendation will be made as to what to do with those, he said.

Dr. Fisher shared the next steps including future Santa Ana Sucker scenarios, continued monitoring and restoration, results of eDNA, continued resolution of pond sizes for Southwestern Pond Turtles, and added work on snakes and horned lizards.

In response to Director Longville, Dr. Fisher provided detail on the Speckled Dace. CEO / General Manager Heather Dyer asked about the genetic similarities in the Lytle Creek population and whether the area had been isolated due to the fires. Dr. Fisher noted that the researchers had difficulty finding the fish at one of the Lytle Creek forks and posited that there may be a lot of trout predation in that area. More time will be needed to understand and better resolve the question. It is also possible that people in the area are releasing things such as goldfish with diseases that jump to the native fish, he said.

Director Longville noted the effect on the Dace from the fires in 2003, but there was no burn in Lytle Creek that year. Dr. Fisher added that in City Creek the fish has recovered.

Director Botello observed that in City Creek things appear to be thriving. Dr. Fisher said the area was amazing, but then the fires and debris flow in 2003 changed the landscape. The creek area has now recovered, he explained, and said that resiliency is desirable and a testament to good management.

Director Harrison asked about the stream next to the Robidoux Center and reminded that a pond turtle was found there. Ms. Dyer explained Sunnyslope Creek and added that it is also sometimes used by the Santa Ana Sucker which is why it needs to be restored.

Action Item(s): Receive and file.

5.1 Consider Proposal from PFM Solutions / Synario Software for the development of a Financial Model

Chief Financial Officer/ Deputy General Manager Cindy Saks explained that the Excel dashboard financial model developed in 2008 needs to be updated. Ms. Saks detailed the process for the Request for Proposal (RFP) for a new financial model study. All five responders were well qualified, she noted. Proposal costs ranged from $30,750 to $70,050, and each is unique.

Staff recommends the PFM Solutions / Synario Software tool, Saks advised. Synario Software is a division of PFM, with whom the District's current financial adviser, Richard Babbe, is affiliated, Saks explained.

The Synario tool will allow the District to view different scenarios, especially capital projects, in a variety of ways in order to evaluate, she explained, and noted that legal counsel Varner Brandt is reviewing the subscription and agreement. The price would be an onboarding fee of $15,750 for model setup, and a $15,000 per year ($5,000 per user for three users) licensing fee.

Director Hayes asked about the capability of comparing the ad valorem vs. rates. Ms. Saks said it would be integrated as part of the setup.

CEO / General Manager Dyer added that other options were complicated Excel-based spreadsheet models, but this cloud-based tool is built based on the assumptions and has independent variables. She detailed an example and noted its versatility.

Director Longville commented on the foresight to move beyond Excel and asked about length of life of the software, impacts to other elements and adaptability. Ms. Saks gave detail on preparation for setup and noted that the software team is always updating the tool. Ms. Dyer noted that one of the attractive parts of this software is that the platform is upgraded, and new capabilities are part of what the District would already own. She added that this is new technology and she asked about company longevity. She said she was

assured that they have the full financial and corporate support of PFM and expects it to become a more commonly used tool in the water industry.

In response to President Kielhold, Ms. Saks said she could think of no additional dependencies for the District with it being a cloud-based system. She added that she asked about lag time and was assured that the model worked rapidly.

Vice President Hayes asked about access to and transfer of the District's historical data when it comes time to move to a different platform. Ms. Saks indicated it would not likely transfer back to Excel and said the data that had been input would still be held by the District for use in the future.

In response to Director Botello, Ms. Saks indicated she is comfortable with the level of support to be provided and acknowledged there will be a learning curve.

CEO / General Manager Dyer indicated that this will be helpful in preparing a financial strategy.

Action Item(s): Forward the consultant agreement with PFM Solutions / Synario Software for the development of a Financial Model, once all agreements are agreed to form by District house counsel, to a future Board meeting for consideration.

5.2 Consider Reimbursement Agreement with East Valley Water District for Design of the Regional Recycled Water Facilities

Chief Engineer/Deputy General Manager Wen Huang provided background on Valley District's involvement with the project. Valley District worked collaboratively with local agencies to conduct a regional recycled water concept study in 2016. The recommendations included Valley District taking the lead in development of regional recycled water infrastructure, he said.

The Board has an agreement with East Valley Water District (EVWD) and San Bernardino Municipal Water District for a Local Resources Investment Program (LRIP), Huang explained. He reminded the Board about the service of Directors Kielhold and Botello on the Regional Recycled Water Ad Hoc Committee.

Valley District also entered into reimbursement agreements with EVWD for design and construction of a regional recycled water pipeline, Huang added. He provided an overview of the recycled water facilities map. He reminded the Board about issues discovered about

recharging recycled water in the Redlands basins given its proximity to the Santa Ana River and the potential for groundwater mounding during certain hydrological conditions. As a result, rather than recharging into the groundwater basin, recharge will end up in the River, creating undesirable consequences, he noted.

In recent months, the Board purchased land and the pipeline will be redirected to the Weaver Basins, Huang explained. Director Longville asked if the pipeline from the Clean Water Factory routed to the Redlands Basin would not result in the same problems. Mr. Huang detailed the route, ending at Weaver Basins.

Director Longville asked for detail on funding mechanisms and said she wanted to be certain that anything created by the District for one area may be done for another retail area if applicable, assuring no favored or unfavored areas.

Mr. Huang indicated that groundwater modeling done by EVWD shows that the Weaver Basins will be a better location for recharge than Redlands Basins, however if a high groundwater situation occurs, other locations where water can be sent will spread the load. He detailed the phases of pipeline construction.

Huang summarized the scope of work, including three components.

Design of the rerouted pipeline to Weaver Basins is estimated at $472,971 and is the first component of the reimbursement agreement, Huang advised. Staff's conceptual design of the Weaver Basins on a 63-acre lot includes set aside of about 22 acres of mitigation land for the San Bernardino Kangaroo Rat, he said. Final design work is estimated at $524,009.

Huang reminded the Board about the well required to be abandoned which will be funded by the seller of the land. He advised that there is potential of having EVWD's team abandon the well and a proposal will be included for consideration in the Board meeting packet if received in time.

Mr. Huang gave history of the Alabama Street pipeline (also referred to as the Santa Ana River pipeline) built in the 1960s for treated wastewater. Staff wants to rehabilitate the pipeline if there is cost benefit to do so, Huang said. A condition assessment will be needed including a video survey and possible cut for lab evaluation of strength and lifecycle analysis prior to expenditure of time and money for rehab. This component of the reimbursement agreement is about $279,728, Huang noted.

The pipeline has been abandoned within the city and may have been severed in areas of new development, Huang noted. However, in the case of the section in the Amazon

Warehouse area, the City reserved an easement around the building to accommodate future reconnection, he said. He also pointed out damaged sections.

Director Harrison noted that the pipeline offers the potential to send water to the west in the case of a high groundwater problem.

Huang detailed the project benefits including 16,600 acre-feet of new water for the basin, providing drought-proof water supply, and augmenting local and imported water to supply up to 33,000 households annually and flexibility in recharge of State Water Project (SWP) water and stormwater.

In response to Director Harrison, Mr. Huang explained that there will be expenses related to an additional two miles of pipeline that will be needed in comparison going to Weaver instead of Redlands Basin, and construction of the new Weaver Basins. Huang offered additional detail and said costs are hard to estimate for purposes of comparison, and include intangibles.

Vice President Hayes indicated support and said she liked the flexibility. Director Longville noted the total cost of $1,276,708 and clarified that this is a reimbursement to EVWD as they have already begun to work with contractors on this scope of work. She asked how this investment by Valley District impacts the fact that the LRIP is paying EVWD for the new acre-feet they build.

Mr. Huang explained they are two separate issues. Director Longville clarified that one part is the new water supply, the other is the system and EVWD will use the funds from LRIP to pay for the recycled water plant. Huang noted that Valley District will be providing the facilities for conveyance and recharge of the recycled water; everything else is EVWD's responsibility including impacts. Ms. Longville requested for the Board meeting a summary of how it all fits together. Ms. Dyer added that before the Board today is the cost of bringing the infrastructure into existence that supports the LRIP program. Valley District is asking EVWD to take the lead on design and construction because they are already out there, and this is an extension of Valley District's ability to build infrastructure by using their contracts that are already in existence and reimbursing those costs.

Mr. Huang noted that this design-build process will really speed up the project.

In response to Director Harrison, Ms. Dyer stated that LRIP incentivizes EVWD to create the water via a 20-year funding agreement and deliver that recycled water to Valley District. This reimbursement agreement allows Valley District to take the water and put it where desired. Chief Water Resources Officer/Deputy General Manager Bob Tincher added that they are

only paying for 20 years, but the water will continue flowing. The pipeline keeps the water in the basin rather than being sent down the river, he said. The cost per acre foot would be very competitive with other programs, Tincher added.

Director Longville opined that the cost of the pipeline would be a bargain.

Mr. Richard Corneille spoke about the recycled water project in Orange County and reminded the Board about the stringent recycled water requirements of the State Department of Health. Mr. Huang acknowledged the points and assured that the water quality is being addressed and permits are in process. Some drinking water wells will be taken out of service due to the recharge, he noted. The dischargers are responsible for their own water quality impacts, Huang advised, and the modeling exercises and interaction with regulatory agencies are in progress.

In response to Director Harrison's inquiry about pipeline cost in comparison, Mr. Huang explained that the cost will be further refined as the design process moves forward and estimated that the cost could be in the range of $5 to $6 million in addition to the construction costs of $16 million.

Director Botello expressed concern about the age of the pipeline but indicated support.

Vice President Hayes recalled that the Health Department requirements had been considered in the planning stages for the Sterling Natural Resources Center.

Action Item(s): Forward the consideration of entering into a reimbursement agreement with EVWD for design of the regional recycled water facilities to the next Board of Directors meeting.

5.3 Consider Agreement for Recharge in San Bernardino County Flood Control Facilities

Chief Water Resources Officer/Deputy General Manager Bob Tincher advised the Board that there is already an agreement with the San Bernardino County Flood Control District to recharge in their basin and said this could be considered a replacement agreement. He gave detailed background on the existing agreement and cooperation between the agencies. The facilities are based on a management concept to deliver water through the groundwater basin, Tincher said.

There is considerable storage space in the basin, Tincher said, so a decision was made that rather than build regional pipelines across the service area, water would be delivered into

the basin then retailers may locate wells wherever it is convenient. Foundational to the concept is the agreement with the Flood Control District dating back to 1972 for use of their detention basins, Tincher said. Flood Control has a secondary mission to recharge water and Valley District assists with that, but Flood Control is focused on managing floodwater and is also a key player in the Integrated Regional Water Management Plan.

In 2013, Valley District also signed a 10-year Planning Memorandum of Understanding with Flood Control. The original 1972 agreement was evergreen (never expired) and covered groundwater recharge, easements for facilities, and common use agreement.

Today, Tincher continued, the pipeline infrastructure and facilities are more extensive, and the Active Recharge Project represents a different way of using Flood Control facilities to slow down the water and increase the amount of recharge.

The Cactus Basins, Tincher noted, are not included, and will have a separate agreement.

The proposed 2021 agreement is a term of 20 years with six, five-year extensions as the County Board of Supervisors is trying to get away from evergreen agreements. This would replace all prior agreements, Tincher explained. Staff was concerned that there should be at least a 50-year period for the facilities being in operation and there is no expectation that the relationship will discontinue after 50 years, Tincher said. There wouldl be a new $20 per acre-foot “lease” type payment for SWP recharge, he noted, which can be passed through to the recharged water recipient.

A temporary construction easement for a portion of the Foothill Pipeline that was never perfected would be completed under this agreement, he noted.

The agreement does not include permits but lays out a process to work with Flood Control and provides a general framework and costs, Tincher explained.

The Advisory Commission on Water Policy is supportive of the concept, Tincher advised.

Director Longville noted that other agencies in the area have worked with Flood Control, said she wants to make sure that the $20 per acre foot is comparable to other wholesale water agencies and asked for larger context. She also asked if the agreement could be expanded to new water supply, noting that recycled water is different. He said that the fee was similar to what is being paid to the San Bernardino Valley Water Conservation District and said he would investigate what is being charged to others by Flood Control.

Director Harrison asked to clarify Director Longville’s answer to the $20 per acre foot for the recycled water from the Sterling Project or state water project. In response to Director

Harrison, Mr. Tincher clarified that there is no fee for local water (storm water), but if recycled water were moved into a flood control basin, that would be subject to a fee.

Director Kielhold asked how much water was recharged into Flood Control facilities last year. Mr. Tincher responded there were 29,000 acre-feet (af) last year, and approximately 139,400 af from 2012 to 2019. He indicated there may be some water this year from Santa Ana and Mill Creek flow, but it is not likely. Kielhold asked about expenditures for permits for basin maintenance and wondered if the permitting cost would offset the lease fee via a credit. Mr. Tincher said there is discussion about clarifying the lease fee and usage within the District's service area.

President Kielhold pointed to language in the agreement and suggested a meeting with staff to review concerns.

Mr. Tincher assured Vice President Hayes that the agreement makes provisions for cooperation and does have certain protections.

CEO / General Manager Dyer explained it has taken staff a few years to get to this draft of an agreement and reminded the Board about the need to maximize the District's investments at Flood Control's Waterman location. She added that the District is also working with the City of San Bernardino to develop the nearby Devil Basins in order to get water to that general area of the groundwater basin. She acknowledged the Board's questions and concerns and suggested another workshop to further discuss the issues.

Vice President Hayes asked about the Sycamore easement; staff will investigate, but it is unused, Tincher said. Neither was the Rialto-Colton Basin in the 1972 agreement, he replied. Hayes noted the concern of Rialto that this agreement does not cover the use of the Cactus Basins and said that the water subcommittee has asked for Ms. Dyer and Mr. Tincher to meet to discuss. Mr. Tincher explained that Flood Control had determined the Cactus Basins were to be a separate agreement. Mr. Huang suggested that Flood Control may be willing to include the Cactus basins upon completion of that Basin's CEQA analysis.

Director Longville commended staff's efforts and noted the desire for another workshop.

Director Botello said he felt it premature to send this forward to the Board meeting and asked for additional information on the fiscal impact over 20 years at the next workshop. Asked to get a little more detail about what things may costs in terms of maintenance and permitting in order to have a true picture of what this agreement would will cost Valley District.

Mr. Richard Corneille commented that all the active recharge transfer projects or the proposed ones should be on the listing of facilities included in the agreement.

Director Harrison summarized the issues and indicated that the agreement will need to come back to the Board. Ms. Dyer asked Board members to email her any specific questions or concerns to be certain they are addressed at the next meeting.

Director Longville requested staff provide a memo listing concerns voiced at this meeting.

Action Item(s): This item was returned to the staff and CEO/General Manager for additional staff analysis and presentation at a future workshop.

6. Future Business

None.

7. Adjournment

Staff Recommendation

Receive and File

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

DATE: May 11, 2021

TO: Board of Directors' Workshop - Engineering

FROM: Wen Huang, Chief Engineer/Deputy General Manager

SUBJECT: Proposed Program of Work for the Engineering/Operations Department FY 21/22

Staff has been working on the development of Valley District's budget for fiscal year 2021-22. At this workshop, the Engineering/Operations Department will present its proposed program of work to be considered for next fiscal year. The program of work includes items performed by staff and items that will likely require consulting support. This presentation will give the Board a better understanding of key projects and initiatives for the Engineering/Operations Department prior to the June 7, 2021 general fund budget workshop.

Fiscal Impact:

The final list of work items in the program of work for the Engineering/Operations Department will be included in the proposed Valley District budget for next fiscal year, which will be considered by the Board at the June 7, 2021 general fund budget workshop.

Staff Recommendation:

Provide feedback to staff on the priorities and initiatives proposed for FY 21/22

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

DATE: May 11, 2021

TO: Board of Directors Workshop - Engineering

FROM: Joanna Gibson, Upper SAR Habitat Conservation Program Manager

SUBJECT: Proposed Program of Work for the Environmental Department FY 21/22

Staff have been working on development of the Environmental Department's budget for fiscal year 2021-22. At the workshop, the Environmental Department will identify a proposed program of work to be considered for next fiscal year. The program of work focuses on the Upper Santa Ana River HCP, other proposed large-scale environmental efforts, as well as environmental support to Valley District Departments (e.g., Engineering). The presentation will provide the Board with an overarching understanding of the Environmental Department's primary projects and project support areas in advance of the June 7, 2021 general fund budget workshop.

Fiscal Impact:

A budget to support the program of work outlined by the Environmental Department will be included in the proposed Valley District budget for next fiscal year, proposed for consideration by the Board at the June 7, 2021 general fund budget workshop.

Staff Recommendation:

Provide feedback to Environmental Department staff on the proposed program of work for FY 21/22

DATE: May 11, 2021

TO: Board of Directors' Workshop – Engineering

FROM: Adekunle Ojo, Manager of Water Resources
Chris Jones, Biological Resources Project Manager
Wen Huang, Chief Engineer/Deputy General Manager

SUBJECT: Consider the proposal by Geoscience to provide modeling support for the proposed artificial recharge project at the Cactus Basins in the amount of $84,142

As part of the ongoing efforts for artificial recharge in the Rialto-Colton Basin (up to 7,000 acre-feet per year initially depending on State Water Project availability), staff recently requested a proposal from Geoscience to provide modeling support. Specifically, the purpose of this modeling is to evaluate the potential impacts of artificial recharge at the proposed Cactus Basins on groundwater levels and perchlorate concentration. As the prime developer of the Upper Santa Ana River Integrated Model that will be used to perform the required tasks, Geoscience is uniquely qualified to perform this work.

Background:

In the past, Valley District facilitated the recharge of imported water for the Rialto-Colton Basin using the Linden Ponds; these are no longer in existence and were very ineffective as recharge ponds. In 2012, Valley District began the stakeholder process related to artificial recharge at the Cactus Basins and subsequently partnered with the San Bernardino County Flood Control District, which was interested in using the same basins for flood control. Due to the existence of a Superfund site (perchlorate contaminant plume) within close proximity of the basins, the stakeholders have had to carefully consider the impact of artificial recharge on the perchlorate plume and cleanup efforts led by the U.S. Environmental Protection Agency.

In 2017, Geoscience was contracted to develop the Upper Santa Ana River Integrated Model ("Integrated Model"), which integrated the existing groundwater models for the Yucaipa, San Bernardino, Rialto-Colton, Riverside, and Chino groundwater basins. The purpose of this model integration was to resolve the inconsistencies in underflow across the basin boundaries used by the existing models. The Integrated Model was used as a scientific tool to determine what factors contribute to reduced streamflow in the Santa Ana River and to evaluate potential effects from proposed projects on streamflow and groundwater levels across the basin, including the Upper Santa Ana River Habitat Conservation Plan (HCP) Covered Activities.

After the flow model calibration was completed, a solute transport model was calibrated using the perchlorate data collected for the Rialto-Colton Joint Groundwater Model for the period from 2000 to 2014. Since the Integrated Model was calibrated through 2016, Geoscience is proposing to update the perchlorate data to include the two additional years – 2015 and 2016. Subsequently, Geoscience will verify the Integrated Model using the updated perchlorate data and conduct additional model calibration, if necessary, based on the verification results.

Due to potential habitat constraints in the lower Cactus Basins (i.e., Nos 1 and 2) and possible adverse impacts to the perchlorate plume migration from continuous recharge in the upper basins (i.e., Nos 4 and 5) based on earlier modeling studies, it is currently proposed that the artificial recharge will primary occur in the Cactus Basin No. 3 in the near future. When Basin No. 3 is not accessible due to maintenance activities or equipment failures, recharge may occur in Basin No. 5 on an intermittent basis with limited quantities. The proposed recharge quantities in Basin Nos 3 and 5 will be optimized via the modeling exercises. The conclusion and recommendation from the exercises will be incorporated into the environmental documentation for the Project.

The proposed work would help:

- Optimize artificial recharge at Cactus Basins without causing negative impacts on remediation pumping or increase in perchlorate concentration in production wells, and
- Determine the feasibility of greater volume and/or more basins for artificial recharge at the Cactus Basins
- Complete the California Environmental Quality Act (CEQA) process by assisting staff and Stantec with addressing geohydrology comments on the Draft Environmental Impact Report and conducting additional as-needed technical analyses

Fiscal Impact:

The fiscal impact of this work is $84,142. The expenditure for this item is available within the current fiscal year General Fund budget in Consultant account 6360. The proposed work is anticipated to take approximately three (3) months, therefore a portion of the cost will be budgeted in the next fiscal year General Fund budget.

Recommended Action:

Direct Staff to place a consulting services agreement on a future Board of Director's meeting for consideration.

Attachment:

Geoscience Proposal

GEOSCIENCE

The First Name in Groundwater

May 3, 2021

Mr. Chris Jones
Project Manager, Biological Resources
San Bernardino Valley Municipal Water District
300 East Vanderbilt Way
San Bernardino, CA 92408-3593

Re: Scope of Work and Cost Estimate to Provide Modeling Support for the Proposed Artificial Recharge Project at the Cactus Basins

Dear Chris:

Per your request at the 15-Mar-21 meeting, Geoscience Support Services, Inc. (Geoscience) has prepared this scope of work and cost proposal to provide modeling support for the proposed artificial recharge project as part of the Cactus Basins EIR. Specifically, the purpose of this modeling is to evaluate potential impacts on groundwater levels and perchlorate from the proposed Cactus Basins artificial recharge project.

The following sections discuss the proposed scope of work, schedule, and cost estimate.

Scope of Work

Task 1.0: Update Perchlorate Data for the Period from 2015 through 2016 and Verify Solute Transport Model Calibration for Perchlorate using the Integrated Santa Ana River Model

Between 2013 and 2015, Geoscience developed a Joint Groundwater Model (JGWM) for the Rialto-Colton Basin from existing models developed by the USGS, County/GLA, USEPA/CH2M Hill, and ERM/Emhart. The JGWM was calibrated using the observed water levels for the period from 1945 through 2014 and observed perchlorate concentrations for the period from 2000 through 2014.

In 2020, Geoscience was tasked with constructing a groundwater flow model for the Upper Santa Ana Valley Groundwater Basin by integrating existing groundwater models of Yucaipa Basin, San Bernardino Basin Area, Rialto-Colton Basin, Riverside-Arlington Basin, and Chino Basin groundwater models. The purpose of this model integration was to resolve inconsistencies in underflow across the basin boundary used by the existing models. This model, known as the Integrated SAR Model, was used as a management

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tool to determine what factors contribute to reduced streamflow in the SAR and to evaluate potential effects from proposed projects on streamflow and groundwater levels across the basin, including Upper SAR Habitat Conservation Plan (HCP) "Covered Activities". After the flow model calibration was completed, a solute transport model was calibrated using the perchlorate data collected for the JGMW for the period from 2000 through 2014. Since the Integrated SAR Model was calibrated through 2016, for purpose of this study, we propose to update the perchlorate data for the period from 2015 through 2016. Verification of the Integrated SAR Model will be conducted using the updated perchlorate data. Additional model calibration will be conducted, if necessary, based on the verification results.

Task 2.0: Develop Assumptions for Model Scenarios, including Baseline Scenario (No Project), Project Scenario, and Alternative Project Scenario

After Task 1 is completed, model assumptions will be developed for three modeling scenarios to evaluate groundwater level and perchlorate impacts as a result of proposed artificial recharge at Cactus Basins.

These scenarios include:

- Scenario 1 – Baseline Scenario (No Project)
- Scenario 2 – Project Scenario
- Scenario 3 – Alternative Project Scenario

The following table summarizes the major assumptions for the scenario runs.

Model Scenario	Hydrologic Base Period	Groundwater Pumping	Artificial Recharge
Scenario 1: Baseline (No Project)	To Be Determined Period chosen will: • Be representative of long-term hydrologic conditions, • Include wet, dry, and average years of precipitation (JGMW has two wet/dry cycles), • Span a 20- to 30-year period, • Have its start and end years preceded by comparatively similar rainfall quantities, • Preferably start and end in a dry year. This minimizes any water draining (in transit) through the vadose zone, and • Include recent cultural/land use, etc. conditions.	• Anticipated pumping demands (To be confirmed with water purveyors) subject to the 1961 Decree and 2018 Settlement Agreement • Lease Agreements (To be confirmed with water purveyors)	None
Scenario 2: Project			• Optimized artificial recharge at Cactus Basin No. 3 (including No. 5 for backup) without causing impacts on remediation pumping or increase in perchlorate concentration in production wells
Scenario 3: Alternative Project			• Artificial recharge at Cactus Basins with greater volume and/or more basins

Task 3.0: Run Flow Model, Particle Tracking, and Perchlorate Model for Model Scenarios and Analyze Model Results

Once the major assumptions are developed and reviewed by the Project Team, Geoscience will run each of the three model scenarios using MODFLOW for the flow model, MODPATH for particle tracking, and MT3D-USGS for the solute transport model for perchlorate.

MODFLOW is a block-centered, finite difference groundwater flow model published by the USGS (McDonald and Harbaugh, 1988). MODFLOW is modular in that all modules interface using a standard format, and new physical processes can and have been added as modules or "packages" to the flow model. MODFLOW is widely used, versatile, industry standard software. MODFLOW-NWT, the Newton formulation of MODFLOW-2005, was used for the Integrated SAR Model. The Newton-Raphson solver is well suited for solving problems involving drying and rewetting nonlinearities of the unconfined groundwater flow equation (Niswonger et al., 2011).

MODPATH is a post-processing package developed to compute three-dimensional flow paths (i.e., particle tracking) using output from the groundwater flow model. MODPATH does not take into account dispersion, retardation, or half-life decay. The results of MODPATH simply provide an indication of the direction and rate of groundwater flow.

MT3D-USGS is a USGS updated version of the MT3DMS, and it includes new solute transport modeling capabilities to accommodate flow terms calculated by MODFLOW packages that were previously unsupported by MT3DMS and to provide greater flexibility in the simulation of solute transport and reactive solute transport (Bedekar, V., and Morway, E.D, 2016). The flow in and out of each model cell calculated by the flow model is read by MT3D-USGS and used to track concentrations – in this case, concentrations of perchlorate.

For the flow model, an iterative process of adjusting pumping will also be used for each model scenario until the pumping fully complies with the 1961 Decree. Based on our previous modeling experience, three (3) to six (6) iterative model runs are required for each of the model scenarios.

Geoscience will analyze the model results to evaluate project impacts on remediation pumping and production wells. For Scenario 2, several model runs are expected to determine the maximum artificial recharge at Cactus Basin No. 3 without causing impacts on remediation pumping or production wells.

For each model run, Geoscience will analyze the following model-predicted parameters:

- Average Spring water level of the three Index Wells
- Water levels in production wells
- Basin groundwater storage
- Perchlorate plume migration and perchlorate concentration in production wells

- Backward particle tracks for production and remediation wells

Task 4.0: Prepare Draft and Final Modeling Technical Memorandum

Geoscience will prepare a draft technical memorandum summarizing all work conducted for this study. This technical memorandum will include model descriptions, assumptions, and modeling results.

Figures and tables will be included in the technical memorandum to show modeling results, including:

- Model-calculated average of Spring-high water level elevations of Index Wells,
- Water budgets with each inflow and outflow term, including outflow to Riverside Basin,
- Basin groundwater storage,
- Model-predicted water levels in production wells and monitoring wells,
- Pumping by each water purveyor in compliance with the 1961 Decree,
- Model-predicted perchlorate concentrations in production wells and monitoring wells,
- Model-predicted perchlorate plume extent in selected years by model layer, and
- Backward particle tracks

Geoscience will submit the draft technical memorandum to the Project Team for review and comments. A Final Technical Memorandum will then be prepared that incorporates all comments received on the draft technical memorandum.

Task 5.0: Provide Professional Services to Support Stantec through the CEQA Process

Geoscience will provide support to Stantec through the CEQA process. This includes assisting Stantec with addressing comments on the Draft EIR relating to the geohydrology and conducting additional technical analyses, as needed.

Task 6.0: Project Management and Prepare for and Attend Meetings (Assumes Five Meetings)

Geoscience will coordinate project activities during the course of the project. Project management includes additional hours and costs to cover tasks related to any unforeseen issues or requests that arise during the course of the project.

Geoscience will also prepare for and attend five (5) meetings to present modeling assumptions and results during the course of the modeling effort.

Schedule

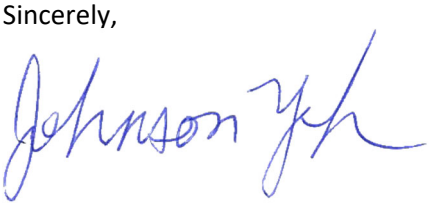
Proposed Tasks 1 through 4 presented above are anticipated to take approximately three months, including two months for the modeling analysis, two weeks to prepare a draft TM, and two weeks to finalize the TM. Tasks 5 and 6 will be completed in accordance with the CEQA process.

Cost Estimate

A breakdown of cost by task and anticipated staff participation is provided in attached Table 1. As shown, the total proposed cost for Task 1 through Task 6 is $84,142.

If you have any questions, please contact us at (909) 451-6650

Sincerely,



Johnson Yeh, PhD, PG, CHG
Principal Geohydrologist
Encl.

Cost Proposal for Professional Services
To Provide Modeling Support for the Proposed Artificial Recharge Project at the Cactus Basins

Task	Description	GEOSCIENCE SUPPORT SERVICES, INC.							TOTALS		
		Principal Modeler	Senior Modeler	Project Geohydrologist	Staff Modeler	Staff Geohydrologist	GIS/CAD Specialist	Total Geoscience Hours	Labor	Reimbursable Expenses[1]	Total Cost
	Hourly Rate:	$286	$261	$207	$204	$165	$150				
1.0	Update Perchlorate Data for the Period from 2015 through 2016 and Verify Solute Transport Model Calibration for Perchlorate using the Integrated Santa Ana River Model	1	8		24			33	$ 7,270		$ 7,270
2.0	Develop Assumptions for Model Scenarios, including Baseline Scenario (No Project), Project Scenario, and Alternative Project Scenario	1	12		12		4	29	$ 6,466		$ 6,466
3.0	Run Flow Model, Particle Tracking, and Perchlorate Model for Model Scenarios and Analyze Model Results	2	24		72			98	$ 21,524		$ 21,524
4.0	Prepare Draft and Final Modeling Technical Memorandum	2	24	8	32		32	98	$ 19,820		$ 19,820
5.0	Provide Professional Services to Support Stantec through the CEQA Process	4	24	4	24		8	64	$ 14,332		$ 14,332
6.0	Project Management and Prepare for and Attend Meetings (Assumes Five Meetings)	15	40					55	$ 14,730		$ 14,730
	TOTAL HOURS AND COST	**25**	**132**	**12**	**164**	**0**	**44**	**377**	**$ 84,142**	**$ -**	**$ 84,142**

Notes:

Reimbursable Expenses include Subconsultant fees, equipment, mileage, and report reproduction costs.
GEOSCIENCE is aware of the requirements of California Labor Code Sections 1720 et seq. and 1770 et seq., which require the payment of prevailing wage rates and the performance of other requirements on certain “public works” and “maintenance” projects. The work GEOSCIENCE performs does not fall under prevailing wage rate categories.

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

DATE: May 11, 2021

TO: Board of Directors' Workshop - Engineering

FROM: Mike Esquer, Senior Project Manager
Wen Huang, Chief Engineer/Deputy General Manager

SUBJECT: Consider a Proposed 2021 Water Supply Contingency Program to Meet the BVMWC In-Lieu Water Demand

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This Memorandum provides background information regarding a proposed 2021 Water Supply Contingency Program for the Bear Valley Mutual Water Company (BVMWC) in-lieu water demand with an associated budget for consideration by the Board of Directors. The historically dry conditions in California coupled with environmental restrictions in the Sacramento-San Joaquin Delta has led the Department of Water Resources to set the State Water Project (SWP) allocation at 5% (5,130 acre-feet) for 2021. In response to this condition, Staff met with BVMWC to identify alternatives to meet the Valley District's in-lieu obligations for BVMWC in 2021 and conserve the use of SWP water. Among other things, the strategy is to develop replacement local water supplies to make up for the lack of imported water for the in-lieu obligations. This is the same strategy that was effectively and successfully implemented during the previous drought conditions in 2014 and 2015.

More specifically, the strategy is to develop groundwater sources to meet some of the 2021 supplemental water demands by establishing a budget of up to $600,000 for the CEO/General Manager to implement activities required to meet our obligations. In light of the quickly approaching summer season, staff is requesting that the Board of Directors consider authorizing these funds so the replacement water sources can be available in time to meet the expected peak demand season. Once approved, the monetary budget outlined in this memorandum will be funded through the payment of $1,600,000 paid by Big Bear Municipal Water District (BBMWD) to Valley District for the 2020-2021 fiscal year. This payment is made in accordance with the 1996

Big Bear Municipal Water District Agreement (Big Bear Agreement) to cover Valley District's costs to provide in-lieu water to BVMWC in exchange for water being retained in Big Bear Lake. Staff is recommending the Board of Directors direct staff to forward this item to the next Board of Directors' meeting for consideration.

Discussion:

The Department of Water Resources (DWR) is currently projecting a 5% allocation for SWP Table A water in 2021. As previously presented to the Board of Directors, it is estimated that the combined availability for all sources of water, including SWP water, banked water, and projected availability of purchased Yuba Accord water, for deliver in 2021 is 29,837 acre-feet as shown in Exhibit A. On the other hand, based on the orders received, it is estimated that up to 20,625 acre-feet of imported water is needed for 2021 including the delivery of up to 8,500 acre-feet of in-lieu water that is being requested by BVMWC pursuant to the Big Bear Agreement. Per the Big Bear Agreement, BVMWC may request up to 65,000 acre-feet of in-lieu water to be delivered by the District in any ten-year period. In 2021, BVMWC may request up to a total amount of 12,000 acre-feet of in-lieu water as part of the 65,000 acre-feet ten-year total. Instead of using the limited SWP supplies to meet this demand, staff is recommending that some of the funds derived from BBMWD be used to develop or re-establish the lowest cost available replacement supplies (i.e. wells and groundwater). Staff believes it is important to carry over a portion of imported water available in 2021 in case the drought conditions continue in 2022. Staff will also be working with the water retailers in an effort to identify water saving and groundwater sources that may be available to make up for the lack of imported supplies. It is estimated that up to approximately 4,000 acre-feet from local sources may be available in 2021 by re-equipping unused or underused private and municipality owned wells to meet almost half of the 8,500 acre-feet of in-lieu water requested by BVMWC. This replacement strategy will allow Valley District to meet its planned carry-over of up to approximately 17,000 acre-feet of the 2021 SWP water supply for use in 2022 if the drought continues into the next year.

Potential wells being considered for re-equipping and/or use are owned by the SBVMWD, City of Redlands, East Valley Water District (EVWD), BVMWC and private owners. The use of wells would offset SWP water normally supplied to BVMWC in the EVWD Edwards & North Fork canals, Redlands' Aqueduct and the BVMWC Highline. Valley District staff estimates a maximum cost of $600,000 to develop and/or pay for the pumping of these wells. Staff estimated a cost of $100,000 for well rehabilitation and $500,000 ($125/acre-feet) for that will cover the electrical and operations & maintenance costs per acre foot of water production. Based on the discussion with

BVMWC, rather than Valley District paying them for the actual costs of the production for the in-lieu water, BVMWC would prefer to receive a like-amount credit in their prepaid account against their future orders of paid SWP water. Staff is continuing to work with local agencies to identify and develop these alternative sources of water and will implement the lowest costs supply options first. Only those funds necessary to provide the replacement water supplies will be used. A report of all expenses associated with this program will be brought back to the Board at a future meeting.

The following is a partial list of wells under consideration for the 2021 water supply contingency program (Well Name - Owner). Some of the wells were rehabilitated with the participation by Valley District as part of the 2014 and 2015 Program and are ready to go this year:

San Bernardino Ave. Well – SBVMWD
Plant 28A Well – EVWD
Plant 143 Well – EVWD
Plant 25A Well – EVWD
Church St. Well – City of Redlands
Orange St. Well – City of Redlands
Agate #1 Well – City of Redlands
Nye Well – Crafton Mutual Water Co.
Judson Well – BVMWC
Crafton Well – Crafton Mutual Water Co.
Happe Mutual Well – Private Owners
King St. Mutual Well – Private Owners
Raught Well – Private Owners
Tres Lagos Well – Private Owners

Fiscal Impact:

Staff estimates a budgetary cost of up to $600,000 will be needed for development of the alternative groundwater supply to meet the demand of in-lieu water to BVMWC. This allocation of funds was not anticipated and therefore was not identified in the in the approved Fiscal Year 2020-21 General Fund Budget, although the income from BBMWD is included in the Fiscal Year 2020-2021 Budget.

Recommendation:

Direct Staff to bring this item to the next Board of Directors' meeting for consideration.