



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

STRATEGIC ANALYSIS/PLAN COMMITTEE WORKSHOP

AGENDA

3:00 PM Thursday, February 14, 2019

PURPOSE -

Prepare a recommendation and budget for the development of a Strategic Plan for the Board to consider that incorporates existing projects and plans but also examines other opportunities and determines additional projects and plans that would be beneficial to Valley District and cost effective to its ratepayers. This committee will seek input from other water agencies in California that have done this type of analysis.

*Chairperson: Director Longville
Committee Member:*

CALL TO ORDER

1. **INTRODUCTIONS**
2. **PUBLIC COMMENT** - *Any person may address the Board on matters within its jurisdiction.*
3. **SUMMARY OF PREVIOUS MEETING**
 - 3.1. December 13, 2018, Meeting (Page 3)
[Meeting Summary Strategic Analysis/Plan Cmte 121318](#)
4. **DISCUSSION ITEMS**
 - 4.1. Consider RAND Proposal for Water Supply Evaluation (Page 7)
[Staff Memo RAND Supply Evaluation](#)
[RAND Summary Water Supply Evaluation Proposal](#)
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 Lillian Hernandez at (909) 387-9214 two working days prior to the meeting with any special requests for reasonable accommodation.



DATE: February 14, 2019
TO: Board of Directors
FROM: Bob Tincher, Deputy General Manager - Resources
SUBJECT: Summary of the December 13, 2018 Strategic Analysis/Plan Committee Workshop

The Strategic Analysis/Plan Committee held a Workshop on December 13, 2018. Director Longville chaired the meeting and Directors Kielhold, Harrison, Hayes and Navarro participated in the meeting. Doug Headrick and Bob Tincher, from staff, were also in attendance. The following agenda items were discussed:

- A. Summary of June 14, 2018 Meeting.** There were no changes to the meeting summary

- B. Consider a Study with the RAND Corporation to Evaluate Water Supplies.** In November 2017, the Board hired the RAND Corporation (RAND) to perform an independent analysis of the water demands in the San Bernardino Valley Regional Urban Water Management Plan (RUWMP). RAND is in the process of publishing their findings in a study titled *Estimating Water Demands in the San Bernardino Valley Municipal Water District* (Study). The results of the Study were presented at the November 13, 2018 Board of Directors Workshop. Director Longville, Chair of the Strategic Analysis & Plan Committee, prepared a memorandum summarizing the results of the Study which was presented at the workshop and included below.

The Study generally provided an independent analysis of the RUWMP “Reliability Factor”, a 10% increase in projected demands, that is used to overcome future uncertainties in both supplies and demand. The Study evaluated the RUWMP demand based on plausible variations in (1) future population growth, (2) water conservation and (3) change in temperature and concluded that demands should be increased by 10% to

help overcome uncertainties in demand. In other words, the entire Reliability Factor in the RUWMP is consumed by overcoming uncertainties in demand. Given that the entire Reliability Factor has essentially been consumed by uncertainties in demand, staff recommended the Board consider a similar study of the water supplies in the RUWMP in order to determine any incremental change that may be needed in the Reliability Factor to overcome uncertainties in supplies. According to RAND, this type of study requires more extensive modeling than the demand study and will cost between \$100,000 and \$200,000. The Committee asked staff to obtain a proposal from RAND to evaluate the water supplies in the *San Bernardino Valley Regional Urban Water Management Plan* and to place the proposal on an upcoming Committee meeting for further discussion.

Director Longville's memo as presented at the meeting:

Date: December 13, 2018
To: Strategic Analysis/Plan Committee Workshop
From: Committee Chair Susan Longville
Re: MEMO regarding September 2018 RAND Justice, Infrastructure, & Environment Project Report prepared for San Bernardino Valley Municipal Water District entitled "Estimating Future Water Demand for San Bernardino Valley Municipal Water District" NOT CLEARED FOR PUBLIC RELEASE

At a Board Workshop on November 13, 2018, the RAND Corporation (RAND) summarized the above-referenced Project Report in a PowerPoint presentation. RAND was seeking any final input before the report is finalized and published. The Board did not direct RAND to finalize the Study until future discussion following the certification of the November election. Director Longville stated she would prepare a MEMO with any input she had on RAND's *independent evaluation of the long-term demand methodology and assumptions used by Valley District's retail agencies that were used to develop a single consolidated approach that reflects additional drivers and accounts for uncertainties that were used to develop new demand forecasts for each retail agency that reflect a range of plausible future drivers of demand, including climate, population growth and per capita water use, to better understand how water demand could evolve in coming decades* as described in the Abstract on page iv. I request that staff and RAND review this memo prior to the Committee Workshop for quality control.

1. The independent review of the current methodology that Valley District employs to develop the RUWMP (Regional Urban Water Management Plan) demand forecast in Section 2 was complete and informative, however I found the key assumptions RAND "teased out" of the current methodology the most enlightening because they point out what is not being considered including:
 - a. After accounting for mandatory water use reduction targets by 2020, per customer water use rates are then held constant with no consideration of agencies reducing water demand as a result of more ambitious water use efficiency programs.
 - b. The number and distribution of customer types does not vary reflecting any change in land use over time.

- c. The demand projections are annual and do not reflect any seasonal dynamics of demand.
 - d. The demand projections do not reflect the economic effects on water use over time.
 - e. The current model assumes constant per capita and per customer water use for all future years after 2020.
 2. The Project Report includes methodology methods being employed by other agencies in Southern California that each have some similarity to the Valley District service area including:
 - a. The Irvine Ranch Water District model forecasts water sales to other agencies.
 - b. The San Diego County Water Authority (SDCWA) model relates historic water demand patterns to socioeconomic variables such as household income and consumer responses to water pricing changes and physical variables like weather patterns to predict future municipal and industrial water demands. This model allows scenario planning within the service area in which parameters within the model can be changed to represent potential futures.
 - c. The San Diego County model also utilizes the Alliance for Water Efficiency's Water Conservation Tracking Tool to develop a conservation scenario in which future water demand savings are achieved through passive building code-based savings and active demand management program savings.
 - d. The Inland Empire Utilities Agency model uses two separate approaches to forecast demand that includes an econometric approach like SDCWA and a GIS-based land-use model using five categories of residential development along a spectrum of density. Both models have been shown to predict within the error ranges of each other, providing strong confidence in each methodology reflecting that econometric modeling and scenario planning are superior approaches.
3. The Project Report clearly describes the standardized demand forecasting approach that RAND developed to add additional demand drivers and considers uncertainties by adding the three additional factors:
 - a. A climate factor that models changes in water demand per degree increase in temperature;
 - b. An efficiency factor that models changes in water demand due to conservation, technology adoption, water use behaviors and other drivers of changes in per customer water use; and
 - c. A population growth factor that models a range of population growth rates.
4. The Project Report analysis suggests that the Valley District's future demand could be higher than estimated in the RUWMP if temperature and population increase more than projected, and water use efficiency is less than expected and suggests that investments in water use efficiency could be worthwhile and that demand management strategies could shield Valley District from uncertainties in climate and population growth.
5. The Project Report makes a logical and compelling case for why Valley District should recommend the standardized demand forecasting approach be adopted by its retail agencies and used for future updates.
6. The Project Report suggests that Valley District could track how these drivers impact demand over time, quantify temperature or population growth thresholds that could cause demand to exceed available supply and develop

targeted demand management strategies to mitigate high rates of demand growth.

7. The Project Report suggests this approach would enable Valley District to present the advantages of demand reduction programs (e.g. conservation, technology, turf replacement) by quantifying their impact on demand.
8. The Project Report concludes that a complementary look at future supplies is necessary to make sound recommendations on how to ensure future water supply meets water demand.

For the reasons listed above, I recommend that the Board (1) direct RAND to finalize the Study; (2) direct staff to work with RAND to bring back to the Board an additional scope of work from RAND examining future supplies and (3) direct staff to recommend the standardized demand forecasting approach be adopted by its retail agencies and used for future updates.

Staff Recommendation:

Receive and file



DATE: February 14, 2019

TO: Strategic Analysis & Plan Committee Workshop

FROM: Bob Tincher, Deputy General Manager - Resources

SUBJECT: Consider a Study with the RAND Corporation to Evaluate Water Supplies

In November 2017, the Board hired the RAND Corporation (RAND) to perform an independent analysis of the water demands in the *San Bernardino Valley Regional Urban Water Management Plan* (RUWMP). RAND has published their findings in a study titled *Estimating Water Demands in the San Bernardino Valley Municipal Water District* (Study).

The Study generally provided an independent analysis of the RUWMP “Reliability Factor”, a 10% increase in projected demands, that is used to overcome future uncertainties in both supplies and demand. The Study evaluated the demands in the RUWMP based on plausible variations in (1) future population growth, (2) water conservation and (3) temperature and generally concluded that the 10% Reliability Factor is consumed by overcoming uncertainties in demand. Given that the entire Reliability Factor has been consumed by uncertainties in demand, staff is recommending that the Board authorize RAND to do a study of the water supplies in the RUWMP in order to determine any incremental change that may be needed in the Reliability Factor to overcome uncertainties in supplies. At the Committee’s request, staff requested a proposal from RAND for this work.

RAND has prepared a \$163,836 proposal for a supply study. They have requested that their detailed proposal, which includes methods that they consider to be proprietary, not be posted on Valley District’s website or distributed. For this reason, a summary proposal has been attached to this memo and staff will separately provide the Committee with a copy of RAND’s detailed proposal.

Fiscal Impact:

The 2019-20 General Fund Budget included \$100,000 to complete the RAND water demand study and to provide for a possible water supply study. About \$21,000 was used for the water demand study leaving about \$79,000 in this budget line item. The remaining funds needed to complete the supply study, about \$85,000, is available from unspent funds in the same budget category.

Staff Recommendation:

Direct staff to place this item on an upcoming Board of Directors agenda for consideration.



January 24, 2019

RAND Proposal 2019-0325

Robert M. Tincher, M.S., P.E.
Manager of Water Resources
San Bernardino Valley Municipal Water District
380 E. Vanderbilt Way
San Bernardino, California 92408
bobt@dbvmwd.com

Subject: RAND Proposal 2019-0325 entitled, “Identifying Vulnerabilities in San Bernardino Valley Municipal Water District’s Water Supply Plans”

Dear Mr. Tincher:

The RAND Corporation (“RAND”) is pleased to submit the enclosed proposal for the subject effort. RAND requests funding in the amount of \$164,836 for a proposed period of performance of April 1, 2019 through September 30, 2020.

RAND respectfully reserves the right to negotiate mutually agreeable terms, particularly in these areas of intellectual property and publication rights. RAND is a nonprofit institution that helps to improve policy and decision-making through research and analysis. Our nonprofit status and mission require that we serve the public interest through dissemination of our research results, which also helps to ensure our commitment to clients of high quality, objective, and independent research.

For any contractual or business matters, please contact the undersigned via email at bmthimun@rand.org or via telephone at (310) 393-0411, Ext. 6093.

Sincerely,

Busisiwe Mthimunye
Contract Administrator

Enclosure(s)

RESEARCH AREAS
Children and Families
Education and the Arts
Energy and Environment
Health and Health Care
Infrastructure and Transportation
International Affairs
Law and Business
National Security
Population and Aging
Public Safety
Science and Technology
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Santa Monica, CA
Washington, DC
Pittsburgh, PA
New Orleans, LA
Jackson, MS
Boston, MA
Cambridge, UK
Brussels, BE
Canberra, AU



Proposal No. 2019-0325

Proprietary

PROPOSAL

Evaluating the Robustness of San Bernardino Valley Municipal Water District's Water Supply Plans

Submitted Electronically to

Robert M. Tincher, M.S., P.E.
Manager of Water Resources
San Bernardino Valley Municipal Water District
380 E. Vanderbilt Way
San Bernardino, CA 92408
bobt@sbymwd.com

Submitted by

RAND Corporation
1776 Main Street, P.O. Box 2138
Santa Monica, CA 90407-2138

Busisiwe Mthimunye, Contract Administrator bmthimun@rand.org

Submitted on

January 24, 2019

Evaluating the Robustness of San Bernardino Valley Municipal Water District's Water Supply Plans

Michelle Miro, David Groves, James Syme
RAND Corporation
January 24th, 2019

Executive Summary

The San Bernardino Valley Municipal Water Valley District (Valley District) recently updated its Regional Urban Water Management Plan (RUWMP) in 2016 that describes how water supply planning could meet water demands through 2040 (Water Systems Consulting Inc, 2016). The RUWMP describes its main strategy for managing water supply variability over time as recharging local groundwater basins during wet years with imported supplies, precipitation, and local surface supplies; and drawing from the recharged basins during drier years under yield constraints adjudicated by the Western Judgement and other legal agreements.

This proposed project would work with the Valley District to characterize the uncertainty in future water supply and evaluate the robustness of the Valley District's RUWMP supply plans to a wide range of plausible futures, including the demand uncertainty considered by the first RAND study. It would then evaluate several options and investments that Valley District could take to ensure robustness of its long-term water strategy, thus providing valuable information to support discussions about new investments or management practices for the future. This study will also produce decision support tools tailored for use by Valley District's staff, board and stakeholders.

Budget

Michelle Miro, Project Leader Period of Performance: April 1, 2019 – September 30, 2020	
Personnel Costs	\$159,512
<i>Travel Costs</i>	\$511
<i>Other Direct Costs</i>	\$4,814
Total Costs	\$164,836