City of Santa Barbara
Public Works Department

Memorandum

DATE: July 16, 2020

TO: Water Commission

VIA: Joshua Haggmark, Water Reources Manager

FROM: Dakota Corey, Water Supply Analyst

SUBJECT: Enhanced Urban Water Management Plan Update

The purpose of this memo is to provide an update on the long term water supply planning efforts underway as part of the Enhanced Urban Water Management Plan (EUWMP) project. The project commenced in March 2020 and is scheduled for completion by July 2021. The Water Commission was previously provided an update on the project at their regular April 2020 meeting, which focused on the project's multi-faceted stakeholder engagement approach. Since then, the project team, including City staff and the firm Water Systems Consulting, Inc. (WSC), have made significant progress in defining future water demands and analyzing the City's current water supply portfolio to identify any potential future water supply gaps. At the time this memo was written, the team had also facilitated two Water Vision Santa Barbara stakeholder group meetings. The next stakeholder group meeting is scheduled for July 8, 2020.

<u>Future Water Demand Envelope</u>

The City's most recent water demand forecast was prepared in support of its 2015 Urban Water Management Plan, based on data from the City's 2011 Long Term Water Supply Plan (LTWSP), 2011 General Plan, and the Council-adopted water conservation program developed in 2010 by Maddaus Water Management (MWM), using their Least Cost Planning Decision Support System Model. This demand projection needed to be updated for the EUWMP because: the City is emerging from an unprecedented drought (in both duration and severity) that exceeded the "design drought" considered in the previous demand forecast; there are imminent impacts from the State's new water use efficiency requirements (SB 606 and AB 1668) that must be addressed; and the City's Community Development Department is updating their growth forecasts in response to the State's updated long-term housing goals.

An update to the City's Water Conservation Strategic Plan by MWM is underway concurrent to the EUWMP project. In support of this update, MWM developed a new baseline water demand projection with support and data from Community Development

and Water Supply staff along with the WSC team. The new demand projection includes assumptions that account for multiple variables, including:

- Population growth projections are based on Regional Growth Forecast 2050 Santa Barbara County (SBCAG, January 2019), provided by Community Development.
- Employment projections are from the California Employment Development Department (EDD) for the Santa Maria-Santa Barbara Metropolitan Statistical Area.
- Post-drought demands will rebound to 90 percent of 2008-2013 average demands. The rebound is assumed to take seven years.
- Includes estimated water savings from the plumbing code.
- Incorporates the City's existing water conservation program, along with additional cost-effective measures suggested by MWM's modeling work.

There are uncertainties associated with these assumptions and demand projections in general, which resulted in WSC working with MWM to develop a "demand envelope" to explore a range of potential demand scenarios that account for the uncertainties with the largest potential impact to the projections. Specifically, uncertainty with population projections, employment projections, and post-drought demand rebound was analyzed.

Results of the demand analysis indicate that the post-drought demand-rebound variable has the largest impact of demand projections. This variable is dependent on the water use behavior of existing customers. Human behavior is notoriously difficult to predict, and some people made permanent water-saving changes in response to the drought. Water Supply staff will continue to monitor water use to update demand projections and adjust water supply strategies as part of the City's adaptive management approach. The EUWMP will consider this demand uncertainty when developing, analyzing, and recommending future supply portfolios. For a more detailed explanation of the demand analysis, please see the attached Draft Demands Projection Basis Technical Memo prepared by WSC.

Evaluation of Current Water Supply Portfolio

The City's current water supply portfolio was modeled using historical Santa Ynez River hydrology from 1942-2019. The modeling effort also considered existing constraints, such as the new Cachuma Water Rights Order and a ten year "design drought" spanning the years 2013-2022. The design drought is modeled using actual supply availability from 2013-2019 and the average supply yield from 2015-2017 for the years 2020-2022. The design drought assumes desal water is available for the entirety of the drought period. Future supply projections were then modified based on uncertainties, including climate change, potential future regulatory action (such as the pending Biological Opinion at Cachuma), and increasing sedimentation in Gibraltar Reservoir. Results of the modeling were compared against the future water demand envelope to identify any gaps the City's current water supply portfolio may have meeting future demands.

Results from the modeling effort suggest the following findings:

- The City's biggest water supply challenge is providing sufficient supplies to meet demands in drought years. Desalination, groundwater, and State Water Project supplies are essential to meeting demands during a drought without drastic mandatory conservation. Desalination also provides supply flexibility benefits when prioritized as an annual baseline supply.
- The City's biggest water supply opportunity is the potential to capitalize on surplus water supply assets during normal and wet periods, while also always preparing for future drought conditions.
- Obtaining a Warren Act contract from the U.S. Bureau of Reclamation to store Gibraltar water in Lake Cachuma is important for managing the impact of increased sedimentation in Gibraltar Reservoir.

The largest water supply variables are incremental reduction in water supply reliability resulting from climate change, significant reduction in existing supplies caused by potential future regulatory action, and existing customer post-drought demand rebound. Several potential future supply portfolio themes emerge from the deficiencies of the existing portfolio, such as maximizing reliability or minimizing environmental impact. The next step is to develop and evaluate a variety of themed portfolios, and subsequent iterations, to ultimately define an optimal portfolio for the City.

Stakeholder Engagement

Since staff's last EUWMP update, two Water Vision Santa Barbara stakeholder engagement workshops were held. The first web-based workshop, entitled "Water Management 101" provided an overview of the planning process and was designed to give participants a baseline understanding of key concepts, goals, and challenges so that they could participate thoroughly in future workshops. The Water Vision Santa Barbara stakeholder group includes a diverse membership, with varying degrees of experience in water supply planning, so this baseline knowledge was important to set the stage for future workshops.

The second workshop, entitled "Community Values and Needs," included two interactive small group activities using Zoom webinar technology, to elicit participants' top issues, concerns, challenges, and values related to issues such as water security, affordability, quality, environmental health and resilience, among other topics. The project team distilled input from the first two workshops and several one-on-one interviews to capture the values, outcomes, and ideas that will inform a community-driven Water Vision Santa Barbara. The resulting key points from this effort are the 5 Pillars:

1. The cost of water is equitable and affordable.
2. Access to water is reliable and resilient.
3. The impact of our water decisions on the environment and community is minimized.
4. The community's water is valued and conserved.
5. Our water decisions responsibly support quality of life.

The EUWMP project team will consider all 5 Pillars equally when contemplating Santa Barbara's future water supply and water management plan.

Next Steps

Staff will be coming back to Water Commission in October with another project update. Next steps in the EUWMP project include designing future portfolios that emphasize different priorities or values, such as reliability, local supplies, affordability, and environmental responsibility. The priorities and values emphasized in this effort will be derived from feedback from the Water Vision Santa Barbara stakeholder group and Water Commission. The performance of the future portfolios under multiple different scenarios, including climate change, regulatory decisions, or a natural disaster, will then be evaluated using a multi-criteria scoring/Triple Bottom Line approach, which considers economic, social, and environmental impacts and benefits. This approach allows for the comparison of water supply portfolios and the evaluation of the trade-offs between them. From there, a short list of well-performing portfolios will be identified for further sensitivity analysis.

Between now and the next update to Water Commission, planned for October 2020, the project team will facilitate two more Water Vision stakeholder workshops. The third workshop, scheduled for July 8, 2020, will provide an overview of the analysis of the City's current water supply portfolio described in this memo and will be designed to elicit feedback on future supply considerations and potential portfolio themes. Workshop #4, planned for September 2020, will include a review of the future water supply portfolio options and analysis. In addition, one public workshop open to all members of the public is also planned for September 2020. Feedback from these workshops will be included in the next Water Commission update to inform Water Commission's policy recommendations. Staff will also provide an update on the project to Council in October 2020.

ATTACHMENT: 1. Draft Demands Projections Basis Technical Memo