CITY OF SANTA CRUZ
City Hall
809 Center Street
Santa Cruz, California 95060

WATER COMMISSION

Regular Meeting

July 21, 2022

7:00 P.M. GENERAL BUSINESS AND MATTERS OF PUBLIC INTEREST, ZOOM WEBINAR

COVID-19 ANNOUNCEMENT: This meeting will be held via teleconference ONLY.

In order to minimize exposure to COVID-19 and to comply with the social distancing suggestion, the Council Chambers will not be open to the public. The meeting may be viewed remotely, using the following sources:

- **Online:**https://ecm.cityofsantacruz.com/OnBaseAgendaOnline/Meetings/Search?dropid=4&mtids=124
- **Zoom Live (no time delay):** https://us06web.zoom.us/j/88434634628
- **Facebook:** https://www.facebook.com/SantaCruzWaterDepartment/?epa=SEARCH_BOX

PUBLIC COMMENT:
If you wish to comment on items 1-4 during the meeting, please see information below:

- **Call any of the numbers below. If one number is busy, try the next one. Keep trying until connected.**
  +1 346 248 7799
  +1 253 215 8782
  +1 301 715 8592
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- Enter the meeting ID number: **884 3463 4628**
- When prompted for a Participant ID, press #.
- Press *9 on your phone to "raise your hand" when the Chair calls for public comment.
  - It will be your turn to speak when the Chair unmutes you. You will hear an announcement that you have been unmuted. The timer will then be set to three minutes.
  - You may hang up once you have commented on your item of interest.
  - If you wish to speak on another item, two things may occur:
    1) If the number of callers waiting exceeds capacity, you will be disconnected and you will need to call back closer to when the item you wish to comment on will be heard, or
    2) You will be placed back in the queue and you should press *9 to "raise your hand" when you wish to comment on a new item.

NOTE: If you wish to view or listen to the meeting and don't wish to comment on an item, you can do so at any time via the Facebook link or over the phone or online via Zoom.

The City of Santa Cruz does not discriminate against persons with disabilities. Out of consideration for people with chemical sensitivities, please attend the meeting fragrance free. Upon request, the agenda can be provided in a format to accommodate special needs. Additionally, if you wish to attend this public meeting and will require assistance such as an interpreter for American Sign Language, Spanish, or other special equipment, please call Water Administration at 831-420-5200 at least five days in advance so that arrangements can be made. The Cal-Relay system number: 1-800-735-2922.

APPEALS: Any person who believes that a final action of this advisory body has been taken in error may appeal that decision to the City Council. Appeals must be in writing, setting forth the nature of the action and the basis upon which the action is considered to be in error, and addressed to the City Council in care of the City Clerk.

Other - Appeals must be received by the City Clerk within ten (10) calendar days following the date of the action from which such appeal is being taken. An appeal must be accompanied by a fifty dollar ($50) filing fee.

Call to Order

Roll Call

Statements of Disqualification - Section 607 of the City Charter states that...All members present at any meeting must vote unless disqualified, in which case the disqualification shall be publicly declared and a record thereof made. The City of Santa Cruz has adopted a Conflict of Interest Code, and Section 8 of that Code states that no person shall make or participate in a governmental decision which he or she knows or has reason to know will have a reasonably foreseeable material financial effect distinguishable from its effect on the public generally.

Oral Communications

Announcements

Consent Agenda (Pages 1.1 – 3.14) Items on the consent agenda are considered to be routine in nature and will be acted upon in one motion. Specific items may be removed by members of the advisory body or public for separate consideration and discussion. Routine items that will be found on the consent agenda are City Council Items Affecting Water, Water Commission Minutes, Information Items, Documents for Future Meetings, and Items initiated by members for Future Agendas. If one of these categories is not listed on the Consent Agenda then those items are not available for action.

1. City Council Actions Affecting the Water Department (Pages 1.1 – 1.2)

   Accept the City Council actions affecting the Water Department.

2. Water Commission Minutes from June 6, 2022 (Pages 2.1 – 2.6)

   Approve the June 6, 2022 Water Commission Minutes.

3. Water Supply Augmentation Strategy (WSAS) Quarterly Report (Pages 3.1 – 3.14)

Receive an update regarding the status of the various components of the Water Supply Augmentation Strategy and supporting studies and provide feedback.

Items Removed from the Consent Agenda

General Business (Pages 4.1 – 4.2) Any document related to an agenda item for the General Business of this meeting distributed to the Water Commission less than 72 hours before this meeting is available for inspection at the Water Administration Office, 212 Locust Street, Suite A, Santa Cruz, California. These documents will also be available for review at the Water Commission meeting with the display copy at the rear of the Council Chambers.

4. Workshop on Water Supply Vulnerability Assessment (Pages 4.1 – 4.2)

Receive a presentation about work completed to update the assessment of the vulnerability of the Santa Cruz water system to drought using the new water modeling capabilities developed by the Water Department in collaboration with the University of Massachusetts Hydrosystems Research Group and provide feedback to staff on the assumptions and results presented.

Subcommittee/Advisory Body Oral Reports

5. Santa Cruz Mid-County Groundwater Agency

6. Santa Margarita Groundwater Agency

Director's Oral Report - No action shall be taken on this item.

Information Items

Adjournment

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WATER COMMISSION
INFORMATION REPORT

DATE: 07/14/2022

AGENDA OF: 07/21/2022

TO: Water Commission

FROM: Rosemary Menard, Water Director

SUBJECT: City Council Actions Affecting the Water Department

RECOMMENDATION: That the Water Commission accept the City Council actions affecting the Water Department.

BACKGROUND/DISCUSSION:

June 14, 2022

Emergency Ordinance Amending Chapter 16.02 (Water Conservation) of the Santa Cruz Municipal Code (WT)

Motion **carried** to adopt an emergency ordinance prohibiting and regulating certain uses of water from the City water supply system not essential to the public health and safety and for water conservation purposes.

June 28, 2022

Regional Drought Resiliency Project - Implementation Construction Agreement - Budget Adjustment (WT)

Motion **carried** to:

- Adopt Resolution No. NS-30,013 amending the FY 2022 budget to transfer $1,000,000 within the Water Department's capital budget from the Newell Creek Dam Inlet/Outlet Replacement to a new project for Intertie 1: Santa Cruz – Scotts Valley to be reimbursed through the Multi-Benefit Drought Relief grant program; and
- Authorize the City Manager to execute an Implementation Construction Agreement, in a form to be approved by the City Attorney, between the City of Santa Cruz and Scotts Valley Water District to implement the grant-funded Regional Drought Resiliency Project.

Program Management Services for Water System Capital Investment Program (WT)

Motion **carried** to:

- Authorize the City Manager to renew a Master Services Agreement, in a form to be approved by the City Attorney, with HDR (Walnut Creek, CA) for Program Management Services for a five-year period; and
- Authorize the City Manager to execute Contract Amendment No. 2023-01, in a form to be approved by the City Attorney, with HDR for Service Order No. 8 in the amount of $6,747,350.

Santa Cruz Anadromous Salmonids Habitat Conservation Plan: ASHCP-First Amendment to the Master Services Agreement with Dudek for Environmental Compliance (WT)

Motion **carried** authorizing the City Manager to execute ASHCP-First Amendment to the Master Services Agreement, in a form approved by the City Attorney, for state and federal environmental compliance for the Santa Cruz Anadromous Salmonids Habitat Conservation Plan with Dudek (Santa Cruz, CA) in the amount of $307,050.

PROPOSED MOTION: Accept the City Council actions affecting the Water Department.

ATTACHMENTS: None.

Water Department

Water Commission
7:00 p.m. – June 6, 2022
Council Chambers/Zoom Teleconference
809 Center Street, Santa Cruz

Summary of a Water Commission Meeting

Call to Order: 7:00 PM

Roll Call

Present: D. Alfaro (via Zoom); J. Burks (Vice Chair) (via Zoom), D. Engfer (via Zoom), A. Páramo (via Zoom), S. Ryan (Chair) (via Zoom), G. Roffe (via Zoom)

Absent: T. Burns, with notification

Staff: R. Menard, Water Director (via Zoom); D. Baum, Water Chief Financial Officer (via Zoom); C. Coburn, Deputy Director/Operations Manager (via Zoom); E. Cross, Community Relations Specialist (via Zoom); K. Crossley, Senior Professional Engineer (via Zoom); M. Kaping, Principal Management Analyst (via Zoom); H. Luckenbach, Deputy Director/Engineering Manager (via Zoom); L.Neun, Water Quality Manager (via Zoom); Sarah Perez, Principal Planner (via Zoom); K. Fitzgerald, Administrative Assistant III (via Zoom)

Others: Five members of the public (via Zoom)

Presentation: None.

Statements of Disqualification: None.

Oral Communications: None.

Announcements: None.

Public Hearing

1. 2022 Public Health Goals Report

R. Menard introduced L. Neun for the public hearing on the 2022 Public Health Goals Report.

Why is the City not pursuing additional treatment strategies to address constituents of emerging concern?

- There are no recommendations for additional treatment strategies in the Public Health Goals Report beyond the treatment processes already in place and the treatment process upgrades that are being included in the Facilities Improvement Plan (FIP) for the Graham Hill Water Treatment Plant, which will add the ability to address trace contaminants such as CECs.

Is the City expected to calculate potential health effects due to the presence of low levels of these constituents?

- No.

What is the approach to planning resources to manage future emerging or unregulated contaminants?

- The Water Department is taking a proactive approach by investing in research and analysis, pursuing additional treatment processes, actively monitoring regulations and their change processes and ensuring that the Water Quality Lab is stays current with testing and monitoring protocols.

One member of the public spoke.

Staff responded to the member of the public's questions regarding the treatment methods that are used to address arsenic at the Beltz Water Treatment Plant, specifically, noting that the recommended technologies, oxidation and filtration, are already in place. The samples that contained arsenic had been collected prior to the initiation of the injection phase of aquifer storage and recovery.

Commissioner Engfer moved the staff recommendation on item 1. Commissioner Burks seconded.

VOICE VOTE: MOTION CARRIED
AYES: All
NOES: None
ABSTAIN: None

Consent Agenda

2. City Council Items Affecting the Water Department

3. Water Commission Minutes from May 2, 2022

4. FY 2022 3rd Quarter Unaudited Financial Report

Commissioners requested that the May 2, 2022 minutes be corrected on page 2.1 to reflect that Commissioner Alfaro was not absent.

No public comments were received.

Commissioner Engfer moved the Consent Agenda. Commissioner Alfaro seconded.

VOICE VOTE: MOTION CARRIED
AYES: All
NOES: None
ABSTAIN: None

Items Pulled from the Consent Agenda – None.

General Business

5. FY 2023 Operating and Capital Investment Plan Budgets

R. Menard introduced D. Baum and M. Kaping for the discussion of the Water Department's FY 2023 Operating and FY 2023-27 Capital Investment Program budgets.

Why is there a $10 million increase in revenues expected between FY 2024 and FY 2025?

- Revenues are expected to increase based on the approved rates that will take effect during those years.

No public comments were received.

Commissioner Páramo moved the staff recommendation on item 5. Commissioner Roffe seconded.

VOICE VOTE: MOTION CARRIED
AYES: All
NOES: None
ABSTAIN: None

6. June Water Commission Discussion on Securing Our Water Future Initiative Topics

R. Menard introduced H. Luckenbach, and Claudia Llerando and Dawn Taffler (both from Kennedy Jenks) for the discussion of Securing Our Water Future Initiative topics.

Is there a level of uncertainty that staff has come across while researching each alternative?

- The alternatives are at different stages of development, which yields varying levels of available data that we used in this analysis. Our approach was to bring each alternative to a comparable level of development by using all available reports from the City and as well as the Groundwater Sustainability Plan (GSP) to establish a reasonable and reasonably informed set of assumptions for each alternative.

Was the construction of the infrastructure needed to support some alternatives, such as Desal, Indirect Potable Reuse (IPR) and Direct Potable Reuse (DPR), included in the total carbon budgets?

- The greenhouse gas emissions include energy estimates for treatment, operation and maintenance, and pipeline installation but not for construction materials so there is an opportunity to evaluate how raw materials are sourced and how the GHGs from materials production influences the total carbon footprint.

Commissioners suggested including additional budget details on the major components of each alternative such as pipelines and treatment facilities in the project fact sheets.

Are other ancillary effects or benefits such as environmental health, a component of each alternative? For example positive impacts to groundwater-dependent ecosystems (GDEs), increase stream baseflow, and contribute to lower water temperatures.

- Such effects have not been captured in terms of cost or benefits.

Can staff elaborate on how many concepts will be a part of the policy?

- The goal of the policy is to set direction on what reliability target we want to achieve and maintain and to describe a general approach for achieving that level of reliability or drought resiliency. Given the limited range of supply augmentation options available locally, it is unlikely that any options will be eliminated from further consideration. Rather the policy direction, including any values, priorities, or other considerations incorporated into the policy, will be used, along with detailed implementation planning that is also under development, to determine which project(s) to implement in what order to achieve the reliability target. The policy will also likely include an adaptive management provision that supports an iterative approach to implementing supply augmentation projects as conditions develop over time.

Is it feasible to include an information sheet that communicates why water conservation alone is not substantial enough to address the supply gap?

- While it not the intent to include that in this process, we can consider developing some type of messaging that addresses that issue.

How will the availability and transparency of these concepts increase so that they can be accessed by the public?

- We are developing a robust communication plan that involves public outreach activities as well as printed and online materials and possible media coverage tours etc. that provide an opportunity to highlight the options that are being discussed and analyzed.

Commissioners suggested that staff include an info graphic that conceptually explains the various recycled water uses.

Commissioners suggested listing other key benefits of each alternative, aside from providing drinking water.

Regarding greenhouse gas emissions, isn't the energy supplied from Central Coast Community Energy (3CE) sourced from more renewable sources than energy supplied by PG&E?

- At this time, PG&E is supplying more renewable energy however 3CE is targeting 100% renewable energy by 2030.

Is there more surface water available for injection than has been projected thus far?

- For clarification, the notes on the ASR concept are based on the groundwater modeling work by Pueblo Water Resources and does not take in account any impacts from the Pure Water Soquel project. However, yes, the modeling work to date shows there is some surface water available for other uses such ASR in the Santa Margarita basin. The surface water vulnerability analysis work we will be hearing more about in July will provide additional information on this topic.

What is the timeline for ASR implementation?

- The project description shows an estimated timeline is ten years from the present day, although in reality, implementation is likely to be incremental over time. The ten-year timeline accounts for flexibility in timing for permitting development and pilot testing.

Regarding IPR as it relates to the Santa Margarita basin, can staff elaborate on the assumed amount of water that is projected to remain in the basin?

- 710acre feet per year is the assumed amount that needed to achieve sustainable groundwater levels in that basin. It is possible that with further development of options to address the sustainability requirements in the Santa Margarita basin that the "leave behind" volume from an ASR project could be different than the 710 acre feet being used in this option.

Would the plants and technology for Desal and DPR be operational only during the years when supply is low?

- No, due to operational requirements associated with dealing with treatment processes involving membranes, it isn't very feasible to operate these kinds of facilities in an "only when needed" mode. Thus, the assumption is that they would have to be operational year round and every year.

Are there updates on state requirements that could make Desal more technically feasible?

- Not at this time. The recent California Coastal Commission decision on the proposed Huntington Beach Desal Project demonstrates that both the technical feasibility work and the permitting process for a desal project are multiple year, very expensive undertakings involving a significant amount of uncertainty.

Commissioners requested that a footnote be added to indicate that the evaluation criteria are listed in order of importance as ranked by Commissioners.

Is it possible to include a breakdown of other operating costs such as the energy use associated with pumping water to higher elevations?

- Yes. To clarify, the costs provided in this presentation are per unit of water produced, which is why they appear higher than expected.

One member of the public spoke.

Staff responded to the public comments regarding the energy used to pump water to Scotts Valley Water District through the Pure Water Soquel treatment plant on Chanticleer Ave, the use of indirect potable reuse and recycled water pipeline projects for irrigation and whether the incorporation of DPR or Desal would create improvements to outfall pipe from the wastewater plant.

No action was taken on this item.

Subcommittee/Advisory Body Oral Reports

7. Santa Cruz Mid-County Groundwater Agency (MGA)

The MGA has not met since March 17, 2022 the next meeting will be on June 16, 2022 and will include a discussion on the budget as well as a discussion on the recent Grand Jury report, and issues related to providing a response by the August 22 deadline.

8. Santa Margarita Groundwater Agency (SMGWA)

The SMGWA last met on May 26, 2022 and discussed administrative topics. The next meeting is scheduled for June 23, 2022.

Director's Oral Report: H. Luckenbach will serve as the Interim Water Director through the first week of July.

Information Items: The Commission and staff discussed the informational items included in the agenda packet.

Staff responded to the public comments regarding low-income household water rate assistance.

Adjournment: The meeting adjourned at 9:25 PM.

WATER COMMISSION
INFORMATION REPORT

DATE: 07/18/2022

AGENDA OF: 07/21/2022

TO: Water Commission

FROM: Heidi Luckenbach, Deputy Director/Engineering Manager

SUBJECT: Water Supply Augmentation Strategy (WSAS) Quarterly Report

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RECOMMENDATION: That the Water Commission receive an update regarding the status of the various components of the Water Supply Augmentation Strategy and supporting studies and provide feedback.

BACKGROUND and DISCUSSION: Following the completion of the Water Supply Advisory Committee (WSAC) process, the City Council accepted the Final Report on Agreements and Recommendations that included an Implementation Plan and Adaptive Management Strategy. The WSAC work was adopted as part of the 2015 Urban Water Management Plan and is currently referred to as the Water Supply Augmentation Strategy (WSAS) that includes an Implementation Work Plan (Work Plan).

As per the WSAC Final Agreements and Recommendations, the Water Commission receives quarterly updates on the status of the various elements of the recommended plan. This is the 25th quarterly update.

New Items/Highlights:

1. Aquifer Storage and Recovery (ASR)
   ASR Demonstration Studies began recovering previously injected water at existing Beltz production wells 8 and 12. Injection completed in early May, after which the water was stored in the aquifer for one month; average injection rates were 300 gallons per minute (gpm) and 330 gpm at Beltz 8 and Beltz 12, respectively. Total injection volumes were 35.9 million gallons (MG) and 49.7 MG at Beltz 8 and Beltz 12, respectively. ASR recovery is planned to continue into August with an average extraction rate of 450 gpm at both Beltz 8 and Beltz 12.

The Water Supply Augmentation Strategy (WSAS) consists of the following elements as defined by the WSAC:

- Element 0: Demand Management. Implementation of the Long Term Water Conservation Master Plan is foundational to the WSAS.

- Element 1: In Lieu. This alternative could include the sale of water to other agencies with or without the assumption of additional water back to the City during droughts.
- Element 2: Aquifer Storage and Recovery. Evaluations of both the Mid-County and Santa Margarita Groundwater Basins are being conducted.
- Element 3: Advanced Treated Recycled Water or Seawater Desalination.

Progress and status of the various WSAS-related work items are described here in detail.

ELEMENT 0: DEMAND MANAGEMENT

Overview: Element 0 of the City's Water Supply Augmentation Strategy consists of ongoing demand management activities. The primary goal of this element is to generate an additional 200 to 250 million gallons per year in demand reduction by year 2035 from expanded water conservation.

Staff continue to evaluate the future of conservation and water efficiency programs and how they can be adapted to meet the current needs of our customers.

Summary: The Water Conservation section has been actively working on the following items during this reporting period.

- Implementing the new State mandated water restrictions. The State Water Resources Control Board (SWRCB), in response to the Governor's executive order in March calling for new actions to combat the drought, issued new emergency conservation regulations. While Santa Cruz met exemption criteria (adequacy of water supply through September 2023, no reliance on state water, and below 55 gallons per person per day water use), SWRCB has required agencies like Santa Cruz to implement watering limits (number of watering days and time of day), stricter enforcement of existing water waste regulations, and a communications and outreach program for water conservation. Staff has been working on various communication and outreach efforts including outbound messages via WaterSmart Software, a new 2022 water restriction web page, and printing of a new door hanger with drought information. Ongoing attempts have been made to hire temporary water conservation workers for the summer to assist with the drought program, but to date, no hires have been made.

- Working closely with customers as new meters are installed as part of the meter replacement program. More leaks are appearing in the utility metering software and staff is taking time to assist customers in signing on to the WaterSmart customer portal and enabling leak notifications. Staff is also proactively identifying and notifying customers about leaks and attempting to diagnose.

- Staff is developing a formal leak program. With a fairly consistent leak rate for single-family residents of approximately 4.5 – 5%, a leak program will address the loss of water and reduce the duration that leaks persist. Such a program will include initial leak notification/alerting, customer outreach and assistance, and code enforcement activities. The program will capitalize on the interval data from the new water meters and also tie the offering of any future leak forgiveness to a customer first signing up for WaterSmart

and setting up leak notifications. A formalized leak program will require the establishment of criteria for what constitutes a leak and what the leak thresholds will be for each customer class.

ELEMENT 1: WATER TRANSFERS AND/OR WATER EXCHANGES

Overview: This work is considering the feasibility of sending excess City surface water to neighboring agencies for the purpose of passively recharging the groundwater basin(s). In-Lieu is now described as follows.

- Water Transfers: Selling treated surface water to neighboring agencies for the purpose of augmenting their own water supplies and possibly (passively) recharging the groundwater basin if less groundwater was used by the neighboring agencies.
- Water Exchanges: Negotiating an agreement whereby treated surface water provided to neighboring agencies would, by allowing the groundwater basins to recharge, provide additional groundwater back to the City during water supply shortages.

Summary: The second five-year pilot test period begins on November 1, 2021. No water has been transferred between the two agencies since January 2021 due to lack of availability. However, staff from Soquel Creek Water District (SqCWD) and the City continue to meet to discuss how to resolve the various areas of concern. The following key topics are under investigation:

- Presence of ammonia in either or both the O'Neill Ranch or Beltz 12 well and impact on water quality
- Water quality issues associated with reversal of flow in either or both systems
- Hydraulic capacity of the City system and ability to transfer water during ASR extraction period.

Contract Update(s)
Purchase Order Agreement with the District for cost-sharing of Water Quality Sampling and Development of Water Quality Results Technical Memorandum (TM).

- PO Opened: January 2017 (Phase 1 Bench-scale work)
- Project Partner(s): Soquel Creek Water District
- Engaged Stakeholders: None at this time.
- Original PO Amount: $60,000
- PO Change Order (Phase 2 Water Quality Monitoring/Pilot Test): $45,000
- Amount Spent: $76,349 (unchanged)
- Amount Remaining: $28,651
- **Status: Complete**

ELEMENT 2: AQUIFER STORAGE AND RECOVERY

Overview: Aquifer Storage and Recovery (ASR) is being evaluated as a form of actively recharging the groundwater basin(s). Work in this area includes the Mid-County Groundwater Basin (MCGB) and the Santa Margarita Groundwater Basin (SMGWB). ASR is a project that

has been included in the Groundwater Sustainability Plans (GSPs) for both the MCGB and the SMGWB.

Summary: As defined by the WSAC, this work has three phases: Phase I consists of higher-level feasibility work; i.e., site-specific injection capacity and geochemical analyses, groundwater modeling and development of a pilot test program; Phase II includes the pilot testing; and Phase III is project implementation. It is worth noting that several schedule adjustments have been made using the WSAC adaptive management process:

1. WSAC supported the evaluation of ASR as a general concept without detailing which groundwater basin.
2. In 2019, City Council approved a modified implementation schedule that split the analysis between the MCGB and SMGWB as well as split the analysis of ASR wells in the MCGB between using existing infrastructure from that of new infrastructure.
3. Work in the SMGWB has been slowed to inform the development of the GSP for the GSA of the SMGWB. With this GSP being submitted to DWR, work has proceeded on the development of projects and management actions described in that GSP, including ASR.

In the MCGB, injection began in mid-January and continued into the early half of May. A total volume of 49.7 million gallons (MG) was injected at Beltz 12 at an average rate of 330 gallons per minute (gpm). At Beltz 8, a total volume of 35.9 MG was injected at an average rate of 300 gpm. Following injection, the water was stored in the aquifer for one month. Water quality sample results from the storage period were submitted to the State Water Resources Control Board Division of Drinking Water (DDW) with a request to put the recovered water into the City's distribution system. DDW confirmed that all drinking water standards were met and approved the use of Beltz 8 in the distribution system, after treatment through the Beltz Treatment Plant, as well as the use of Beltz 12, after treatment through the Beltz 12 Treatment Plant. Recovery began in early June at an average rate of 450 gpm at each well and is expected to continue into August, though the end date could change based on actual flow rates, water quality, or water levels.

Throughout the demonstration study, a variety of water level and water quality data are being collected at Beltz 8 and 12 as well as several existing, proximate monitoring wells. A quarterly report was submitted to the Regional Water Quality Control Board, which included the monitoring data and confirmed that water level and water quality responses to ASR demonstration operations at both Beltz 8 and 12 during this period were consistent with the predicted responses and were in compliance with project requirements.

One of the primary objectives of the study is to better understand how ASR affects ammonia and hydrogen sulfide at Beltz 12, specifically near the end of the ASR extraction period when the well begins to produce a mixture of ASR injected water and native groundwater. Work to prepare for and mitigate impacts from elevated concentrations of ammonia and hydrogen sulfide near the end of the ASR extraction period is ongoing. Part of this effort includes coordinating with SqCWD regarding their O'Neill Ranch Well and sharing available ammonia data. The City is also continuing to coordinate with SqCWD regarding private well monitoring and mitigating potential impacts to water levels at the nearby private wells during the ASR demonstration study.

Next Steps:

- Complete Phase I ASR Groundwater Modeling Final Report – Fall 2022
- Complete first year of operations for the ASR Demonstration Studies at Beltz 8 and 12 and evaluate impacts in the MCGB – Fall 2022
- Finalize scope and contract with CDMSmith to evaluate the existing Beltz water treatment plant in Live Oak with and without ASR – Summer/Fall 2022
- Site-specific feasibility assessment for consideration of pilot test at Beltz 10/11 – Summer/Fall 2022 (noting that an outcome of this consideration may be a decision to pursue a new well in a different location)

Contract Update(s):

Consultant: Pueblo Water Resources – Phase I

- Contract Signed: February 2016
- Project Partners: None at this time.
- Engaged Stakeholders: Soquel Creek Water District, County of Santa Cruz, Scotts Valley Water District, San Lorenzo Valley Water District
- Original Contract Amount: $446,370
- Contract Amendment No. 1: $377,615
- Contract Amendment No. 2: $35,000
- Contract Amendment No. 3: $193,390 (for modeling indirect potable reuse projects, but funded by Recycled water)
- Amount Spent: $860,393
- Amount Remaining: $183,031

Consultant: Pueblo Water Resources – ASR Phase II – Beltz 12 ASR Pilot Test

- Contract Signed: October 2018
- Project Partners: None at this time.
- Engaged Stakeholders: Soquel Creek Water District, County of Santa Cruz
- Original Contract Amount: $458,085
- Amount Spent: $433,796 (unchanged)
- Amount Remaining: $24,289
- **Status: Complete.**

Consultant: Pueblo Water Resources (Pueblo) – ASR Phase II – Beltz 8 ASR Pilot Test

- Contract Signed: January 2020
- Project Partners: None at this time.
- Engaged Stakeholders: Soquel Creek Water District, County of Santa Cruz
- Original Contract Amount: $1,051,945
- Contract Amendment No. 1 (Increase in monitoring well depth): $47,172
- Contract Amendment No. 2: $133,104
- Amount Spent: $1,200,676
- Amount Remaining: $31,545
- Status: Cycle 3a pilot testing at Beltz 8 was completed June 2021.

Consultant: Pueblo Water Resources – ASR Phase II – Beltz 12 ASR Demonstration Study

- Contract Signed: November 2021

- Early notice to proceed - $55,304
- Engaged Stakeholders: Soquel Creek Water District
- Original Contract Amount: $ 262,744
- Amount Spent: $121,875
- Amount Remaining: $140,869
- Status: Injection and storage are complete. Recovery is ongoing through August 2022.

Consultant: Pueblo Water Resources – ASR Phase II – Beltz 8 ASR Demonstration Study

- Contract Signed: November 2021
- Original Contract Amount: $202,580
- Amount Spent: $67,409
- Amount Remaining: $135,171
- Status: Injection and storage are complete. Recovery is ongoing through August 2022.

ELEMENT 3: ADVANCED TREATED RECYCLED WATER AND DESALINATION

Overview: Advanced Treated Recycled Water and Desalination were included within the same Element with the intention that, following feasibility-level work, only one would proceed for further evaluation and preliminary design. The use of recycled water is included in the GSPs for both the MCGB and the SMGWB.

Summary: Kennedy Jenks was hired in 2019 to expand the feasibility-level work of the recycled water alternatives identified through their Phase 1 study, as well as to develop the Water Supply Augmentation Implementation Plan, or WSAIP. The WSAIP is the initiative that further develops feasible water supply augmentation projects and portfolios of projects, together with findings from the vulnerability analyses, for implementation.

While currently focused on the Securing Our Water Future (SOWF) initiative described below, Kennedy Jenks continues to work with staff to refine the water supply alternatives for the WSAIP including various ASR-only and ASR/indirect potable reuse (IPR) alternatives in the MCGB and SMGWB as well as direct potable reuse (DPR) and desalination.

In other news, construction of the Pure Water Soquel (PWS) project is ongoing with installation of the City's new tertiary treatment system and conveyance pipeline at the WWTF recently commencing. Once complete this project will replace the recently abandoned tertiary system at the WWTF and, if authorized and permitted, could provide offsite use for irrigation and bulk water.

New 6" tertiary treated pipeline braced to existing structure

Next Steps:

- Groundwater modeling of several recycled water options in the MCGB including a combination with a City ASR project, and/or a seawater intrusion barrier well in the City's portion of the MCGB.

Contract Update(s):

Consultant: Kennedy Jenks, Recycled Water Feasibility Study – Phase 2

- Contract Signed: December 20, 2019
- Project Partners: City Public Works
- Engaged Stakeholders: Scotts Valley Water District, Soquel Creek Water District, County of Santa Cruz
- Original Contract Amount: $260,000
- Contract Amendment No. 1: $496,205
- Contract Amendment No. 2: Administrative only
- Contract Amendment No. 3: $350,000
- Amount Spent: $534,518
- Amount Remaining: $571,687
- Schedule: Contract is seeing an ongoing delay due to issues related to groundwater modeling, and overall alignment of all components of the supply augmentation analysis.

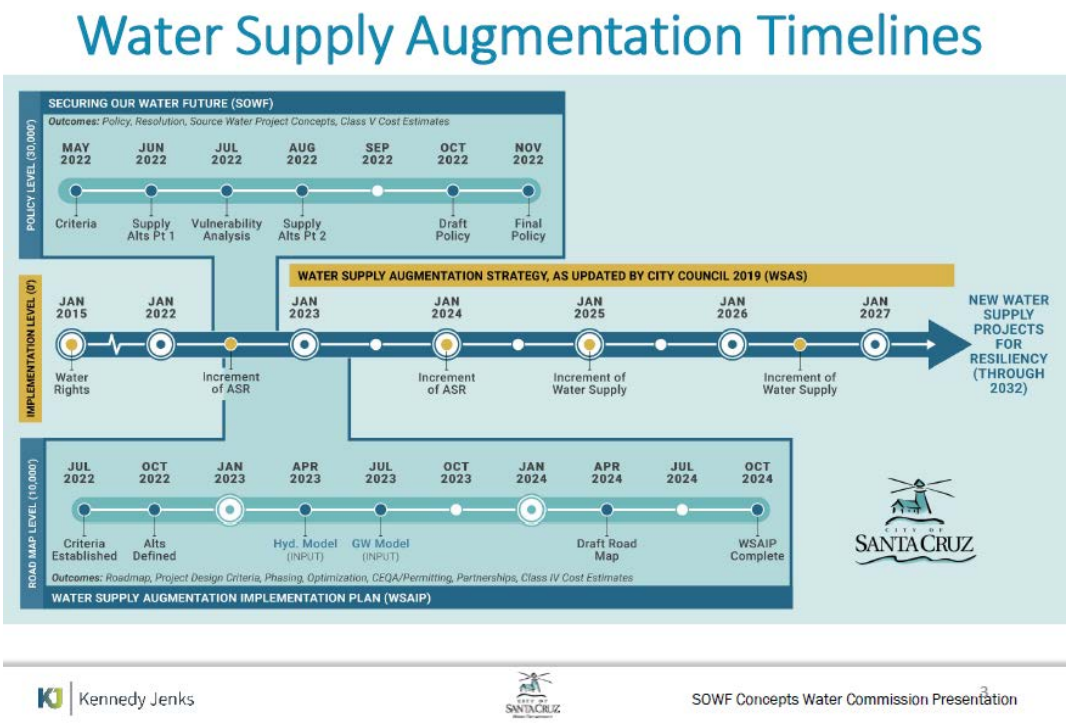
OTHER

Water Supply Augmentation Implementation Plan (WSAIP)

As described to the Commission at their June meeting (with graphic repeated below), three efforts are underway at the policy (Securing our Water Future or SOWF), project development

(Water Supply Augmentation Implementation Plan or WSAIP) and project implementation phases.

Below is a brief description of work being performed for each effort.



Securing Our Water Future, SOWF
University of Massachusetts Hydrosystems Research Group has developed the Santa Cruz Water Model (SCWM) and successfully validated results against Confluence©, the City's ongoing water supply planning model. Together with the newly-created weather generator, the sensitivity of the water system to changes in precipitation and temperature is being identified including the conditions under which the City is challenged in meeting demands. These conditions will be discussed with the Commission at their July 21, 2022 meeting followed in August by a discussion on improved system performance with the addition of the supply alternatives approved by the Commission: ASR in the MCGB, IPR in the SMGWB, Direct Potable Reuse and seawater desalination. Draft policy language will be shared with the Commission in the fall before potential Council consideration and action.

Water Supply Augmentation Implementation Plan (WSAIP)
Planning and coordination is ongoing with Scotts Valley Water District and San Lorenzo Valley Water District to develop a preliminary work plan and project initiation for three projects identified in the GSP for the SMGWB: ASR, IPR and SLVWD's conjunctive use with utilization of Loch Lomond Allotment.

Supply Project Implementation
The ASR demonstration project consists of injection, storage and extraction. While not yet complete with the extraction phase, this effort at Beltz 8 and 12 constitutes a full cycle of ASR

and a first increment of additional storage in the system. Much has been learned, and much remains to be learned about the ongoing feasibility of ASR in the MCGB.

Source Water Monitoring
No new report.

Santa Cruz Water Rights Project
The Santa Cruz Water Rights Project Final Environmental Impact Report was certified by City Council on December 14, 2021, concluding the City's CEQA process. The State Water Resources Control Board (SWRCB) process to amend the City's post-1914 water rights is ongoing. Action by City Council to amend the City's pre-1914 water rights is expected after completion of the SWRCB process.

SWRCB noticed the City's water rights change petitions in February 2021. Two protest letters and one letter of support were received during the public noticing period. Letters of protest were received from the San Lorenzo Valley Water District (SLWVD) and the San Andreas Land Conservancy (SALC) (letter from David Kossack). A letter of support was received from California Department of Fish and Wildlife. The City and SLVWD executed two agreements to resolve the protest effective in January 2022. SWRCB is considering requesting SALC to produce additional evidence to resolve that outstanding protest and/or if a hearing will be held prior to action on the petitions.

SWRCB indicated that resolution of the petition process could occur as early as the end of 2022, but additional time may be needed depending on their workload. Next steps in the change petition process are for the City to develop and submit proposed water rights accounting methodology to SWRCB. Water Department staff is currently finalizing the requested accounting methodology for submittal to SWRCB.

Outreach and Communication
WSAC-related outreach during this quarter has included the following.

- Monthly Our Water, Our Future email newsletters to WSAC email list.
- Survey on Community Attitudes about Water Supply (Bregman and Associates)
- SCMU Review – History of Water Supply Projects in Santa Cruz
- Development and implementation of Communication Plan (Att 1)

Funding Considerations
FISCAL IMPACT: None.

PROPOSED MOTION: This item is for information and discussion only. No motion is required.

ATTACHMENT(S):
1. Securing Our Water Future Communication Plan

Securing our Water Future Communication Plan

Duration: May 2022 – December 2022

Outcomes:

- A majority of the community understands that climate change is the "game changer" for the reliability of our water supply, and that we must supplement our current sources.
- Key stakeholders support the proposed policy-making process.

Goals:

1. Understanding that Santa Cruz has a serious problem with the reliability of its water supply that must be solved.
2. Understanding that climate change is the key driver in the need to secure our water future with new supply sources.
3. Recognition that growth is planned-for, and is not the driving need for new supply.
4. Understanding that water conservation alone will not ensure water reliability.
5. Awareness that SCWD has reached an important milestone in completing the work recommended by the community-driven Water Supply Advisory Committee (WSAC).

Strategies:

- Launch speakers bureau programs.
- Recruit champions.
- Utilize storytelling through Department and City formats
- Utilize paid content.
- Pitch content to all media channels.

Key Messages

Goal #1 – Understanding that Santa Cruz has a serious problem with the reliability of its water supply that must be solved.

Key message: Santa Cruz has had intermittent water shortages for decades, solved by periods of restricting customer water use. Customer use is now so low, and shortages by climate change so frequent, that restrictions are no longer a solution. We must add to our supply.

Supporting message:
With residential water use so low, the only place to gain water with restrictions are the business, industrial, and manufacturing sectors. This places the community's future economy at risk.

Goal #2 – Understanding that climate change is the key driver in the need to secure our water future with new supply sources.

Key message: Supplementing our efficient use of water with new water sources will help mitigate the impact climate change is having on our water supply reliability.

Supporting messages:

- Increasing extreme weather events caused by climate change, such as atmospheric rivers and ongoing drought, change the ways we need to process and treat water. We're modernizing our system to secure the community's water future.
- Historically, Santa Cruz only had water shortages in two out of every eight years. The city's water supply storage was designed to be depleted and replenished annually. Now, rainfall patterns have reversed and annual replenishment is no longer reliable.

Goal #3 - Recognition that growth is planned-for, and is not the driving need for new supply.

Key message: We plan for growth. Projected city growth – meaning state-assigned growth and additional housing requirements – is included in our water supply planning.

Supporting messages:

- Even with 40% growth since the 1960s, we're using as much water now as we were then, thanks to conservation efforts including plumbing code changes and water efficient appliances and landscapes.
- Our supply problem is caused by a lack of storage. We're working hard on several solutions to solve that problem.

Goal #4 - Understanding that water conservation alone will not ensure water reliability.

Key message: Our customers' baseline use is the same now as it was under mandatory water rationing in 2014. This shows that the majority of our customers are already highly efficient and that there's very little discretionary water left in the system to cut. We will not be able to conserve our way out of long-term drought without significantly impacting our economy and quality of life.

Supporting message: Our customers' efficient use of water makes Santa Cruz one of the lowest water-using cities in the state. With continued wise use of water and supplemental supply, we can ensure our customers have the water they need under drought and normal conditions.

Goal #5 - Awareness that SCWD has reached an important milestone in completing the work recommended by the community-driven Water Supply Advisory Committee (WSAC).

Key message: The WD has reached a critical milestone by completing the work recommended by WSAC to identify sources of water supply that can secure our water future.

Supporting messages:

- The Water Department is following a course that was set by a diverse group of community members after an 18-month deep dive into the city's water system.
- The next milestone will be for Council to create durable policy that can ensure projects to secure the community's water future can be implemented.
- The Water Department is prepared to implement new supply solutions and work is underway.

Strategies

Launch speakers bureau program

- Create standard, customizable power-point program
- Contact SC business associations, neighborhood associations, and other stakeholders for speaking engagements

Recruit champions

- Contact prior WSAC members to provide updates and engage their support
- Provide quarterly updates to Council
- Solicit endorsements at speakers bureau programs as appropriate
- Engage WD staff and provide monthly updates

Push out stories through Department and City formats

- Create social media calendar for City and WD channels, utilizing Program photos and video footage
- Reorganize project webpages
- Regularly update project webpages
- Work with other City departments to broadly distribute WD climate video
- Link and share relevant news stories to WD SOWF/WSAS work
- Create WD video updates and post on social media
- Utilize the SCMU Review to push out key messages and provide project updates

Utilize paid content

- Create stories for Lookout
- Look for other opportunities to create unedited content

Pitch content to all media channels

- Create advance news calendar
- Create on-site story opportunities, e.g. visits to construction sites, treatment plant, etc.

Key Planning Dates

MONTH	WATER COMMISSION	CITY COUNCIL
*June 2022 RM out of town	6/6: • Recommendation on FY23 budget and capital program • SOWF project evaluations, part 1	6/14 or 28 Council action on FY 23 budget and capital program
July 2022	7/21: • UMass vulnerability analysis • WSAC quarterly report	
August 2022	8/29: SOWF project evaluations, part 2	8/16 (tentative) Study session on water supply
October 2022	10/3: SOWF draft council policy/resolution & direction for projects to include in the WSAIP & any necessary CEQA analysis	
November 2022	11/7: *Recommendation* – SOWF – Council policy/resolution and direction for projects to include in the WSAIP & any necessary CEQA analysis	11/22: Council *action* on SOWF council policy/resolution and direction for projects to include in the WSAIP and any necessary CEQA analysis

Social Media Calendar:

MONDAY	TEACHABLE TUESDAY	*WATERSHED WEDNESDAY	THROWBACK THURSDAY	FRIDAY FUN FACTS
Water Commission reminders	• Department updates • Climate change • Project updates • Water industry news	*Water Resources	• WSAC process • Water supply history • Santa Cruz water system history	• Water trivia • Department trivia • Industry trivia

WATER COMMISSION
INFORMATION REPORT

DATE: 07/16/2022

AGENDA OF: 07/21/2022

TO: Water Commission

FROM: Rosemary Menard, Water Director

SUBJECT: Workshop on Water Supply Vulnerability Assessment

RECOMMENDATION: That the Water Commission receive a presentation about work completed to update the assessment of the vulnerability of the Santa Cruz water system to drought using the new water modeling capabilities developed by the Water Department in collaboration with the University of Massachusetts Hydrosystems Research Group and provide feedback to staff on the assumptions and results presented.

BACKGROUND: At the Water Commission's August and December 2021 and May 2022 meetings, Dr. Casey Brown from the University of Massachusetts Hydrosystems Research Group presented information describing the work his team is doing to develop a new water system model for the Santa Cruz water system, including developing a very robust approach to challenging the water system with changed hydrologies that could result from plausible climate change scenarios. Presentations have described the validation of the system model with the results from the Confluence© model that has long been used by the Water Department in assessing and planning for water supply augmentation. In addition, presentations have included information about the climate change weather generator, and the hydrological model that converts weather inputs to local hydrology that is used to challenge the system and assess its vulnerability to climate change.

Throughout the development process for the new model, its capability to help predict the system's vulnerability to drought under a range of plausible climate change scenarios was described as an important element in the ongoing process of implementing the recommendations of the 2014 – 2015 Water Supply Advisory Committee (WSAC). This work focuses on defining the size of the worst single year shortages and worst multi-year shortages, basically updating the work done as part of the WSAC's process as updated and presented to the Water Commission in the April 2019 presentation and discussion of results of the Water Supply Augmentation Strategy to that point. The vulnerability assessment results are now ready for presentation and discussion and will be the focus of the Water Commission's July 21, 2022 meeting.

DISCUSSION: Dr. Casey Brown and Water Department staff will lead a workshop format presentation and discussion of the results of the vulnerability analysis work completed to date.

This work assesses system performance without supply augmentation projects. The August 29, 2022 Water Commission meeting will include a presentation of vulnerability assessment work incorporating each of the supply augmentation strategies under consideration as part of the Securing Our Water Future.

The format of the workshop will segment the content to be presented into chunks, with a pause and opportunity for questions for clarification or elaboration following each segment before proceeding to the next segment. The basic structure of the presentation will follow the following outline:

1. Assumptions
   Supply modeling work uses the demand projections for 2040/2045 from the 2021 Long Range Demand Forecast as included in the 2020 Urban Water Management Plan.
   a. Precipitation – what changes are we most likely to experience (to be used in assessing system performance for 2040 and 2070 – Note, these may be two different values.
   b. Temperature – what changes are we most likely to experience (to be used in assessing system performance for 2040 and 2070 – Note, these may be two different values.

   The results for most likely changes in precipitation and temperature to be observed by 2040 and 2070 will be used (have been/are being used) to facilitate audience understanding by reducing the amount of information being presented to what is considered most relevant/likely. All data produced can be made available to respond to questions.
2. System Performance in 2040 and 2070
   a. Worst single-year shortage (single year/annual)
   b. Worst multi-year shortage (cumulative over the back to back years of shortage)
3. Sensitivity Analyses (Variability Analysis)
   a. By increasing the variability of the impacts of climate change within a given year, for example as occurs when annual precipitation occurs in a few storms rather than spread out over the full historic wet season, how do the results shown in #2 change?
4. Introduction to Establishing a Water Supply Reliability Goal
   a. Augmentation project sizing is influenced by multiple factors including by the decision about an acceptable level of shortages including the frequency and duration of any shortages that would be accepted, how to incorporate results of sensitivity analysis, and analysis to the trade-offs between project costs and the direct and indirect costs of curtailment, which is the alternative to fully meeting demand by adopting a 100% reliability goal.

A more complete discussion of possible supply reliability goals will occur at the Water Commission's August 29th meeting in conjunction with presentation and discussion of water system performance with the supply augmentation alternatives being evaluated.

FISCAL IMPACT: None at this time.

PROPOSED MOTION: No formalized action needed.

ATTACHMENTS: None.

The Quest for Affordable Water

G. Tracy Mehan III

It was long overdue for water rates to increase. With the inexorable aging of the infrastructure, an investment gap resulting from years of underfunding, and steady population growth, it was even inevitable for rates to increase eventually. But recent rate increases have exceeded inflation by multiples, and given the uneven distribution of income, the poorest and oldest customers experience the greatest difficulties paying their increasing water utility bills. This has led to calls for more customer assistance, bans on service shutoffs (a last and only resort for utilities), and cross-subsidies in rate design.

Most water systems are either embedded in municipal governments or governed by independent authorities, with members appointed by elected officials, so politics intrudes into rate-setting in ways not seen in private business decisions—hence, the salience of the affordability issue. The new Infrastructure Investment and Jobs Act (IIJA) is a historic, welcome development, especially its targeted support for disadvantaged communities. But more resources will be required to close the infrastructure investment gap. AWWA's 2012 report, *Buried No Longer*, identified an infrastructure investment need of approximately $1 trillion over 25 years for drinking water alone, and IIJA includes roughly $50 billion for water and wastewater projects. The $15 billion included in IIJA for lead service line removal is a solid down payment on this new federal mandate, but this is a fraction of what is needed. And the $9 billion for "emerging contaminants" will most likely be overtaken by regulations under the Clean Water Act and Safe Drinking Water Act. Some of these compounds may also be designated as "hazardous substances" for purposes of Superfund liability, which could drive up disposal costs of treatment residue and biosolids for utilities.

More federal support for the water sector is not guaranteed in the future. Congressional appropriations vary, while regulations are permanent. Water customers will remain the primary source of financial support for the utility sector under any realistic scenario. Besides being the right thing to do, mitigating the affordability problem is crucial to the aspirational goal of full- or even substantial-cost pricing in the utility sector. Failure to address the affordability problem will encourage political opposition to water rates necessary to support basic infrastructure and operations, especially during an inflationary spiral.

Utilities, states, and the federal government need to be proactive. However, states seem more focused on education and healthcare than on utility matters. And there are a limited number of water utilities with customer assistance programs, which is an area the sector needs to improve. As for the federal government, tax-exempt bonds, state revolving funds, the Water Infrastructure Finance and Innovation Act, and special appropriations for such things as lead service line replacement are helpful, but they generally require adequate rates to service the debt incurred.

Another factor here is that water utility customers lack the broader social safety net provided to other sectors. Grocery chains do not distort prices to subsidize low-income customers, and shoppers might be arrested if they walk out of the store without paying for their groceries. Mortgage companies and builders do not discount their charges to homeowners, and if homeowners quit paying the mortgage, the bank will foreclose on the house. But these sectors have food stamps, the Supplemental Nutrition Assistance Program, the Housing Choice Voucher Program, and Federal Housing Administration loans for those in need of assistance. For struggling customers of power utilities, there is a Low-Income Energy Assistance Program (LIHEAP). Nothing similar exists for water or wastewater customers.

The good news is that Congress authorized a one-time Low Income Household Water Assistance Program (LIHWAP) in the wake of COVID-19 through the American Rescue Plan. It has also provided for pilot programs and a federal study as part of IIJA but has yet to appropriate funds.

LIHWAP will no doubt differ considerably from LIHEAP since the scale of water utility operations is very different from that of power companies. AWWA and the Water Utility Council have yet to take a position on a permanent LIHWAP program, but whether from a utility at the local level or the federal government at the national level, assistance needs to be provided to our low-income customers by means of separate programs or subsidies that do not interfere with or distort adequate water rates essential to the future of safe drinking water and public health.

G. Tracy Mehan III is executive director of the AWWA Government Affairs Office in Washington, D.C. He can be reached at tmehan@awwa.org.

https://doi.org/10.1002/awwa.1935

Marin water district vets desalination, recycled water cost

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Peacock Gap Golf Club, above, StoneTree Golf Club and Bay Club Ross Valley are among the large employers in Marin that have reported pandemic-related layoffs. (Alan Dep/Marin Independent Journal)

By **WILL HOUSTON** | whouston@marinij.com |
PUBLISHED: July 16, 2022 at 7:54 p.m. | UPDATED: July 17, 2022 at 9:39 p.m.

The Marin Municipal Water District took a deeper look at some of the more complex and expensive options on the table for new supply: desalination plants and recycled water.

The district board and consultants with the Jacobs Engineering firm held discussion Tuesday on the preliminary cost estimates, water yields and challenges of building desalination plants and expanding the district's recycled water system.

“Really our goal is to make sure we communicate what those options are and understand what the costs of those options are,” Paul Sellier, a district official, told the board. “In subsequent meetings, we’re going to take these water supply options or alternatives and we’re going to run them through the model to see what effect they have on the water supply deficits that we established as a baseline.”

The district, which serves 191,000 central and southern Marin residents, launched the study into new water sources in March after facing potential reservoir depletion from the drought. Rains in late 2021 worked to nearly refill the district’s reservoirs, giving the county’s largest water supplier more time to study the costs and benefits of potential new sources of supply.

The study, set for completion later this year, is reviewing several new water sources, including a pipeline across the Richmond-San Rafael bridge to connect to Central Valley suppliers, increasing local storage, groundwater storage and desalination.

The study has determined the district would need a range of 3,000 to 11,700 acre-feet of additional water each year to weather prolonged droughts, extreme short-term droughts, natural disasters and increased water demand.

A Marin County Civil Grand Jury report released this summer stated the district has not adequately prepared its water supply for droughts and recommended the district secure 10,000 to 15,000 acre-feet of new supply.

The district has about a two-year supply of water, with 75% coming from local reservoirs in the Mount Tamalpais watershed and the remainder from Russian River water imports.

While the reservoirs can hold a total of 80,000 acre-feet of water — with an acre-foot being nearly 326,000 gallons — district staff said only 55,000 acre-feet of it is considered a reliable water supply. About 15,000 acre-feet of water are deemed emergency supply for extreme droughts, and the final 10,000 acre-feet are considered unusable because of siltation and pumping limitations.

Three desalination options were reviewed by staff on Tuesday.

The first option would have the district build a desalination plant on San Pablo Bay near San Rafael that could initially produce up to 5,600 acre-feet per year but could be expanded to produce up to 16,800 acre-feet.

The cost per acre-foot is estimated at $5,100 for a smaller plant, but that cost would be reduced to an estimated $3,100 if the district expanded the plant to its maximum water production.

Another option would be to lease or buy portable desalination plants that could provide up to 6,000 acre-feet of water per year but at the high cost of $5,700 per acre-

foot. The district considered renting these types of plants last year when it was facing a water shortage.

“This equipment is containerized, but they’ve designed it to basically be plug-and-play, which makes it much easier to implement,” district consultant Jim Lozier told the board on Tuesday.

A third option would be to collaborate with other Bay Area water suppliers to invest in a regional desalination plant near Antioch in Contra Costa County.

Marin would receive 5,600 acre-feet of water at a cost of $3,900 per acre-foot. Part of this cost includes having to build a water pipeline across the Richmond-San Rafael Bridge to transport the water into the district’s distribution system.

Currently, the district is only supplying recycled water to the Terra Linda area. Options to expand service to the Peacock Gap area of San Rafael or to San Quentin State Prison — the district’s largest water user — would yield minimal water savings of 166 acre-feet and 154 acre-feet, respectively, at a high cost of $5,300 and $4,300 per acre-foot, respectively, said district consultant Ryujiro Tsuchihashi.

Other options that would treat wastewater and integrate it back into the drinking water supply have yet to be implemented in California and have had a history of public resistance when proposed in the past.

“In addition to laying out all these pipelines throughout the service area and into the mountain, I think a lot of people will be worried about the public outreach and the public acceptance issue,” Tsuchihashi told the board.

Board member Cynthia Koehler pushed back on what she described as the consultants’ “negative” outlook on recycled water and public acceptance of water reuse options.

“I think assumptions from the past are not going to serve us well in light of the public’s considerable education about what’s been going on across the West and in California and with water supply declining,” Koehler said.

Koehler suggested that the district consider polling ratepayers on the recycled water options to gauge public interest.

Marin Conservation League member Larry Minikes urged the board to provide more information on how the projects would impact ratepayers’ bills.

“I think the main question is, what is it going to cost me?” Minikes said. “That’s what I’m going to want to know if you poll me. I’m not really going to care that much about what kind of industrial thing you do. I’m going to want to know what it’s going to cost me.”

The board is set to hold a discussion on options of increasing local water supplies, bolstering supplies from Sonoma County and pipeline connections to other Bay Area and California water suppliers at 7:30 p.m. July 19.

A desalination plant on San Pablo Bay near San Rafael could produce up to 16,800 acre-feet of water a year, according to Marin Municipal Water District estimates. (Alan Dep/Marin Independent Journal)

"Unprecedented" Water Cutbacks From Fresno to Oregon Border

CalMatters

In sweeping water curtailments stretching from Fresno to the Oregon state line, cities and growers in the Sacramento-San Joaquin Delta watershed have been ordered to stop pumping from rivers and streams.

The cutbacks, announced Thursday by the State Water Resources Control Board, will affect about 4,500 water rights in the Delta watershed, including 400 or more held by 212 public water systems, beginning Wednesday. But they're concentrated around the San Joaquin River and its tributaries, where state officials expect "significant, very deep cuts."

Water board staff called the cutbacks "unprecedented," although similar curtailments were imposed in the watershed last year, just much later in the year, in August.

California's water rights system operates on the basis of seniority — those with the oldest claims are typically the last to be cut back. But even those with rights in the San Joaquin watershed that date back to 1900, before California enacted its water rights law, are expected to be hit with the curtailment orders.

"This is now affecting water users that may have not been impacted in well over 100 years, or were affected for the first time just last year," said Ryan Jacobsen, CEO of the Fresno County Farm Bureau. "This is not only a historic cutback, but we hope it's not what is now the baseline for the future."

The pain for growers will vary, depending on their access to other water supplies, such as wells.

"Similar to last year, for some of those agricultural users, they have no other supply, thus they feel immediate pain," Jacobsen said. "For others, they may have to use groundwater instead."

Last summer, thousands of water users were ordered to stop diverting water from rivers after many growers had already made planting decisions.

Public water systems that could be affected by the curtailments include the cities of Lodi and Vallejo, and San Francisco's Regional Water System, according to a water board document. Many cities have a variety of water sources, such as groundwater and stored supplies, and it is not immediately clear how much water they will lose.

The Sacramento River watershed, although hit hard by the drought, is expected to be relatively spared by the new cutbacks for now.

"In the Sacramento watershed, we actually don't anticipate significant curtailments at this time," Erik Ekdahl, a deputy director with the State Water Resources Control Board, said at the water board meeting today.

The lack of substantial curtailments there, Ekdahl said, are "largely related to the reduction in water use by the Sacramento River and Feather River settlement contractors," which have contracts entitling them to certain amounts of water even in dry years.

In the Sacramento Valley, for instance, major irrigation districts have already agreed to reduce their water deliveries to 18%, a massive cut from their typical dry-year reductions that leave 75% of their supply intact.

Smaller tributaries, however, including Cache and Putah Creeks are expected to see curtailments, Ekdahl said.
Deeper cutbacks could come as the summer continues.
The news of the curtailments comes as Californians once again fell short of Gov. Gavin Newsom's entreaties to conserve water. New data released today shows households and businesses in cities and towns increased water use by 17.6% in April compared to two years ago.
Urban water use decreased in northern coastal and mountain regions by about 10 to 14% and flatlined in the San Francisco Bay Area. But it increased everywhere else — from 2.2% in the Sacramento River area, to more than 40% in the deserts of southeast California. The increase once again cut into the state's total water savings since last July, which now sit at 2% overall relative to 2020.
Southern California water users haven't been unscathed by the drought. The giant Metropolitan Water District this month imposed strict water restrictions on 6 million of its 19 million customers, including in parts of Los Angeles, that rely on the parched State Water Project.
https://calmatters.org/environment/2022/06/california-delta-water-cutbacks/?utm_source=CalMatters%20Newsletters&utm_campaign=8dbfd5dbef-WHATMATTERS&utm_medium=email&utm_term=0_faa7be558d-8dbfd5dbef-150181777&mc_cid=8dbfd5dbef&mc_eid=2833f18cca

Water Infrastructure Takes Decades: "No Easy Solutions Left"

Sacramenbto Bee

Fritz Durst, a farmer in Yolo County, didn't receive enough water from the federal government to plant a rice crop this spring. But the feds did give him a consolation prize. In March the U.S. Environmental Protection Agency invited the backers of Sites Reservoir — a mammoth water storage project in the Sacramento Valley that's being personally led by Durst — to apply for a $2.2 billion construction loan.
The loan is far from a done deal, but the invitation means the EPA is seriously interested in backing the project, bringing Sites tantalizingly close to reality after years of planning.
"I was ecstatic. We finally convinced people this was a worthy project," said Durst, chairman of the Sites Project Authority.
The announcement that the Environmental Protection Agency is interested in loaning big money to the project is proof of the project's worthiness — and could well prove decisive in getting the project off the ground.
Even if all goes according to plan — a pretty big if — Sites wouldn't finish construction until 2030.
The status of Sites says a lot about how things stand in the third year of California's terrible drought. There are no quick fixes, no immediate remedies.
"What people have got to realize is," Durst said, surveying one of his unplanted rice fields recently, "there's no easy solutions left."

Building support for a big water project is often a time-consuming process in California. And once the permits are in hand and the financing is set, it could be years before the goal of increased water supply is achieved.

That point is being driven home time and again with sobering regularity. A simple, non-controversial water project in rural south Sacramento County, designed to "bank" billions of gallons of water below ground as a reserve for drought periods, won't be ready until late 2024.

A more ambitious project, a multibillion-dollar recycling plant capable of putting a significant dent in the Los Angeles area's water woes, is moving through the planning process but won't produce drinkable water for another 10 years.

The fact is, California is responding to the drought at something other than lightning speed.

Its urban residents aren't heeding Gov. Gavin Newsom's call to cut their water usage by 15%. Since he made his plea last July, water savings total just 3%. And its public officials are struggling to get water-infrastructure projects over the finish line. A catastrophic development — a city running out of drinking water — could prompt California to slash red tape or push through funding more quickly.

Even so, the big complicated endeavors will still drag well beyond the life of the current drought — to a time, perhaps, when the public appetite for spending money on water projects will have diminished. Then, when the next drought hits, the projects will be at square one.

"We can't build infrastructure in under a decade," said Jeff Kightlinger, former general manager of the Metropolitan Water District of Southern California. "If you don't start until five years from now, you won't have it until 15 years," he said.

In the meantime, Californians can't look to new reservoirs or other major water projects to ease the current drought. "It takes so long to build something, to get the financing," said Jeffrey Mount, a water-policy expert at the Public Policy Institute of California. In the short run, "the real progress is going to be incremental — we're going to fix this canal here, we're going to fix this dam there."

It's always loomed as a tempting remedy for a state that sits on the ocean and seems to be constantly dealing with drought: Pull water out of the sea. Feed it through a membrane to remove salt and other impurities. Drink up. Desalination is a viable, though expensive, technology known around the world. A Carlsbad plant north of San Diego, the largest in the Western Hemisphere, has been humming since late 2015. It creates 50 million gallons of drinkable water a day and accounts for about 10% of the San Diego area's supply.

But when the project's developer, Poseidon Water, proposed building a sister plant an hour down the road in Orange County, state regulators said no. Last month the California Coastal Commission voted unanimously to reject a similarly-sized plant in Huntington Beach proposed by Poseidon Water, the company behind the Carlsbad project.

The agency justified its decision mainly on environmental grounds: Commissioners said they feared for the marine life that would get sucked into the Huntington Beach plant's giant intake valve — and the sea creatures that would suffer from the millions of gallons of briny water that would get discharged into the ocean after the desalination process was completed.

Why did the commission reject Huntington Beach after approving Carlsbad years earlier? In part because the rules are stricter now, particularly the regulations on a plant's intake valves. The commission also said the risks to the Huntington Beach plant from earthquakes, tsunamis and sea-level rise are greater than previously believed.

As they voted down the Orange County project, commissioners said they weren't ruling out desalination as a concept. "We need every tool in the toolbox, including intelligent desalination," said Chairwoman Donne Bronsey.

Drought-stricken communities are taking a fresh look at desalination as a long-term solution to water shortages.

In 2017 the city of Santa Barbara reopened a desalination plant that had operated briefly in the early 1990s before being mothballed after heavy rains returned. The plant accounts for about 30% of the city's total supply, said water resources manager Joshua Haggmark.

Desalination is among the most expensive sources of water anywhere. The fresh water gushing out of the Carlsbad plant costs $2,725 per acre-foot, or nearly twice as much as the region's other supplies, said spokesman Ed Joyce of the San Diego County Water Authority.

The net effect: about an extra $5 a month in San Diego residents' water bills. Given the cost, desalinated water is likely to remain a niche product, available to prosperous communities "if they're willing to pay a lot and they really need the water," said Ron Stork of Sacramento environmental group Friends of the River. But they might need to find a new supplier.

After the rejection in Huntington Beach, Poseidon says it doesn't foresee another big plant opening in the state. "There is not a path forward for large desalination plants," said Poseidon spokeswoman Jessica Jones.

But Poseidon isn't giving up on California altogether. Jones said the company is in early discussions with public water agencies around the state about developing other projects — stormwater capture facilities, for instance, and even smaller-scale desalination plants. "We know there's still a huge demand due to the drought," she said. "We have answers."

The Coastal Commission's rejection of the Huntington Beach project prompted anger. But a few days after the vote, the governor was smiling when he visited the site of a proposed water-recycling project east of Los Angeles.

The project in Carson would be capable of generating 150 million gallons of drinkable water a day — three times as much as the failed desalination plant. While recycling isn't new, this plant would deploy unusual technologies to achieve new levels of purity. "Water recycling is about finding new water, not just accepting the scarcity mindset,"

Newsom said. "This is a profoundly important project for the state's future." But not the immediate future.

The Los Angeles County Sanitation Districts, which is developing the $4 billion project, is still assembling financing in partnership with the Metropolitan Water District of Southern California and water agencies in Arizona and Nevada.

It will be five years before the project, known as Pure Water Southern California, can create water that's clean enough to be used by oil refineries and other industries. It will be another five years after that, a decade from now, before the plant can make water clean enough to drink.

And probably not a moment sooner. "Can we expedite this? Unfortunately, it's the state of the world. We have to look very carefully at all the environmental impacts, and that takes time," said Bryan Langpap, spokesman for the sanitation agency.

The fact that a project won't get done in time to ease the current drought doesn't mean California should forget about it, Kightlinger said. Just the opposite. The former Metropolitan executive said projects should get started as quickly as possible so they'll be in place for future shortages. "It's not like this is a temporary drought and things will be good in two years," he said. "We need to start moving on these projects."

The last time California had a drought, voters were happy to spend money on water. In November 2014, Californians overwhelmingly approved Proposition 1, which committed the state to borrowing $7.1 billion for various water projects. The bond included $2.7 billion to build or expand reservoirs and other storage projects.

The California Water Commission has spread that money between seven storage projects. But it's not enough to get any of them built. Developers of each facility are still cobbling together the rest of their financing — while plowing through environmental reviews, construction permits and other red tape.

Bottom line, not a single project has been built yet, nearly eight years after voters gave their blessings. One project, to increase water storage in Silicon Valley, is being challenged in the courts. A group of environmentalists and landowners have sued over the proposed $2.5 billion expansion of the tiny Pacheco Reservoir southeast of San Jose. The project has been awarded $504 million in Proposition 1 money. The plaintiffs say the Santa Clara Valley Water District must conduct additional environmental-impact studies to comply with the powerful California Environmental Quality Act.

The water district says it has already done the required studies. As it is, the reservoir expansion isn't scheduled to be completed until 2032. The lawsuit could set the project back a year.

Even the relatively basic projects are still slogging through a lengthy process. The Sacramento Regional County Sanitation District has an ingenious plan for storing water. Its "Harvest Water" plan calls for building a network of pipes and pumps connecting its wastewater treatment plant, near Elk Grove, to an agricultural area at the south end of the county.

Farmers would use recycled water to raise their crops instead of pulling water out of the ground. That would enable a sprawling aquifer — a hidden reservoir half the size of Folsom Lake — to fill up gradually, creating a bank for use in dry years.

In the world of California water, where litigation and controversy are taken for granted, Harvest Water is practically a slam dunk — albeit a slam dunk that will cost $444 million. The state has earmarked nearly $292 million in Proposition 1 money for the project.

Even so, the sanitation district is still working on some of its permits and is scrambling to find additional funding sources. Its consultants haven't finished designing the pumps and pipes.

If all goes according to plan, construction will start next year and finish in late 2024 or early 2025. "Infrastructure is always a challenge; it can't happen overnight," said Terrie Mitchell, the district's legislative and regulatory affairs manager. "Even in a perfect world, if you had all the stars aligned, it's going to take time to get things constructed."

Hoover Dam took five years to build during the Great Depression. The world's largest dam at the time, the product of 3.3 million cubic yards of concrete, the iconic Las Vegas project was finished two years ahead of schedule. California's largest, Shasta Dam, was finished in seven years. Folsom Dam, completed in 1956, was an eight-year build.

Once upon a time, the state and federal governments built huge water-storage projects, and they did it relatively quickly, said the Public Policy Institute's Mount. Elected officials didn't worry much about the environmental consequences of damming the West's major rivers, and there was considerably less red tape.

"That era is done," Mount said.

Which brings us to Sites Reservoir. It's big — the largest reservoir built in California since the 1970s. It's expensive — at $4.4 billion, about four times costlier than the Harvest Water groundwater project in south Sacramento. And it's controversial — a concept based on pulling water out of the overtaxed Sacramento River and storing it for future use.

Not since the federal government's New Melones reservoir on the Stanislaus River, completed in 1979, has anything like this been attempted in California. Sites would become the first significant reservoir built in the state since the Metropolitan Water District opened Diamond Valley Lake (a facility about half the size of Sites) in the early 2000s.

Little wonder, then, that Sites is proceeding slowly. The reservoir, to be built where a town called Sites once stood, was initially proposed by state officials in the 1980s. The initial plan went nowhere but was revived by leaders of several Sacramento Valley farm-irrigation districts.

They formed a governmental entity called a joint powers authority in 2010 and began working on funding and design work. As it stands today, Sites would hold as much as 1.5 million acre-feet of water, making it the eighth-largest reservoir in the state.

The bulk of the water will be owned by 23 water districts that have pledged to invest in Sites. The largest investor, the Metropolitan Water District of Southern California, will lay claim to 311,000 acre-feet worth of supply once the reservoir is filled.

If built, the Sites Reservoir would be the state's eighth largest. Sites would draw water from the Sacramento River via a new underground pipe. That's the main point of

controversy. Environmentalists have criticized the notion of diverting water from the Sacramento, a river that's already a troubled habitat for fish.
In drought years the Sacramento gets so warm in summer that legions of juvenile Chinook salmon, an endangered species, perish. A group called Save California Salmon gathered 50,000 signatures earlier this year on a petition opposing the project. A lawsuit by project opponents is by no means out of the question.
Newsom recently called Sites "something I've long supported," and the state has committed $875 million in Proposition 1 money, the largest single earmark from the 2014 voter-approved bond.

Yet some state officials have questioned the wisdom of pulling water from the river. In a letter sent to Sites officials in January, the California Department of Fish and Wildlife said the diversions contemplated by reservoir operators could mean "potentially significant adverse impacts" the river's fish populations, particularly in dry years.
The agency suggested that Sites pull water out of the river more slowly. Sites is evaluating the agency's comments, and those raised by other stakeholders, and expects to respond when it releases its final environmental impact report early next year, said Sites Authority general manager Jerry Brown (no relation to the former governor, who happens to live near the reservoir location).
Environmentalists and other water experts say building dams these days in California is hard for a reason: Most of the good locations have been taken, and much of the water has been spoken for. "We've done all the easy stuff," Mount said. "Hard projects don't happen quickly." In part because of pipeline limitations,
Brown said Sites wouldn't release more than 500,000 acre-feet of water in any given year — one-third of its capacity.
As far as Stork and other environmentalists are concerned, that alone is reason enough to doubt the viability of Sites — or any other big storage proposal that's being hailed as a cure-all for California's droughts. They argue that the harm done to faltering fish populations outweighs the relatively small amount of water these projects are able to capture.
In a state that uses tens of millions of acre-feet per year, the output from Sites would amount to a mere trickle, Stork said. "It's a demonstration that you can't dam your way to paradise anymore in California," he said.
But Fritz Durst says Sites makes perfect sense in a state with chronic water shortages.
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