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

WATER COMMISSION

Regular Meeting

May 2, 2022

7:00 P.M. GENERAL BUSINESS AND MATTERS OF PUBLIC INTEREST, COUNCIL CHAMBERS/ZOOM

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/89978065762
- **Facebook:** https://www.facebook.com/SantaCruzWaterDepartment/?epa=SEARCH_BOX

PUBLIC COMMENT:
If you wish to comment during on items 1-6 during the meeting, please see information below:

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- Enter the meeting ID number: **899 7806 5762**
- 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 – 2.6) 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 – 1.12)

   Accept the City Council actions affecting the Water Department.

2. Water Commission Minutes from April 4, 2022 (Pages 2.1 – 2.6)

   Approve the April 4, 2022 Water Commission Minutes.

Items Removed from the Consent Agenda

General Business (Pages 3.1 – 6.108) 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.

3. Update on Vulnerability Analysis Work with Dr. Casey Brown from the University of Massachusetts, Amherst (Pages 3.1 – 3.2)

   Receive a presentation by Dr. Casey Brown and the project team from the University of Massachusetts, Amherst on the Vulnerability Analysis.

4. Results of a Recent Telephone Survey on Water Supply and Water Supply Augmentation Issues (Pages 4.1 – 4.18)

   Receive a presentation on the results of a recently completed Water Department telephone survey on Water Supply and Water Supply Augmentation.

5. Securing Our Water Future – Water Supply Augmentation Alternatives and Evaluation Criteria (Pages 5.1 – 5.11)

   Approve a list of water supply augmentation alternatives to compare as part of the Securing Our Water Future policy development process and approve a prioritized list of quantitative and qualitative evaluation criteria and considerations to use in the planned comparison.

6. Water Department's Proposed Fiscal Year 2023 Operating and FY 2023-27 Capital Investment Program (CIP) Budgets (Pages 6.1 – 6.108)

   Review and provide feedback to staff on the Water Department's Proposed Fiscal Year (FY) 2023 Operating and FY 2023-27 CIP Budgets (Budgets), including an updated multi-year Pro Forma integrating information about the Department's Budgets and financial position.

   Recommend the Chair work with staff to finalize a letter to the City Council related to the Department's FY 2023 Budgets and financial position recommending the Water Department's Budgets to the City Council based on Commission input. This letter will accompany other budget-related materials and will be included in the June 2022 agenda packet when the City Council is scheduled to adopt the FY 2023 Operating and FY 2023-27 CIP Budgets.

Subcommittee/Advisory Body Oral Reports - No action shall be taken on this item.

7. Santa Cruz Mid-County Groundwater Agency

8. Santa Margarita Groundwater Agency

Director's Oral Report

Information Items

Adjournment

WATER COMMISSION
INFORMATION REPORT

DATE: 04/27/2022

AGENDA OF: 05/02/2022

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:

April 12, 2022

No items to report.

April 26, 2022

Agreement with Carollo Engineers for Application Assistance for the United States Environmental Protection Agency Water Infrastructure Finance and Innovation Act Loan and State Revolving Loans for Backbone Water Infrastructure Projects

Motion **carried** authorizing the City Manager to execute an agreement in the amount of $335,419 with Carollo Engineers to support the Water Department's application for a United States Environmental Protection Agency (USEPA) Water Infrastructure Finance and Innovation Act Loan (WIFIA) and State Revolving Loans to support the Capital Investment Program (CIP) in a form to be approved by the City Attorney and to authorize the Water Director to execute future contract amendments within the approved budget.

Approval of Exemption from Local and Apprentice Employment (SCMC Ch. 3.10.080(2)) for Coast Pump Station Powerpack Construction Agreement, Pursuant to the California Public Utilities Commission's Self-Generation Incentive Program (SGIP)

Motion **carried** exempting Tesla, Inc. from the City's local hiring and local apprentice employment requirements as part of the Coast Pump Station Powerpack Construction Agreement, pursuant to the California Public Utilities Commission's Self-Generation Incentive Program (SGIP).

Hydrologic Modeling Support from Shawn Chartrand, Simon Fraser University (SFU), for the Water Supply Augmentation Strategy, Anadromous Salmonid Habitat Conservation Plan, and Water Rights Project

Motion **carried** authorizing the Water Department to issue annual direct contracting purchase orders, for a period not to exceed five years, exceeding the formal bid limit to Simon Fraser University for ongoing water supply modeling to support the implementation of the City's Water Supply Augmentation Strategy, Anadromous Salmonid Habitat Conservation Plan, and Water Rights Project.

University Tank 4 Replacement Project – Award of Professional Services Agreement (WT)

Motion **carried** to:

1) Accept the proposal of Mesiti-Miller Engineers, Inc. (Santa Cruz CA) for Engineering Consulting Design Services for the University Tank 4 Replacement Project in the amount of $427,660 and to authorize the City Manager to execute an agreement in a form approved by the City Attorney, and reject all other proposals.

2) Authorize the Water Director to approve change orders with Mesiti-Miller Engineers, Inc. in a form to be approved by the City Attorney for amounts that are within the approved adjusted budget.

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

ATTACHMENTS:
1. FYI to City Council 04-26-2022

COUNCIL MEETING

4/26, 2022

CITY OF SANTA CRUZ

INFORMATION REPORT

DATE: April 13, 2022

TO: City Council

DEPARTMENT: Water

SUBJECT: Recommended Framework and Decision-Making Schedule for the Securing Our Water Future Process to Complete the 2014 – 2015 Water Supply Advisory Committee Work

APPROVED: DATE: 04.14.22

SUMMARY: In 2015, City Council accepted recommendations for water supply augmentation made by the Council-appointed Water Supply Advisory Committee (WSAC or Committee). These recommendations called for the City to further develop options using surface water, advanced purified recycled water or desalinated ocean water to make critical improvements to its water supply reliability. The recommendations specified completing additional planning and technical feasibility analysis work, including pilot testing if and as needed, so that all options could be evaluated and compared for their cost, yield and ability to be implemented within a reasonable timeframe. From this evaluation, one or more supplemental supply projects would be selected for implementation.

Between 2016 and present, Water Department staff has initiated and completed a significant body of work to provide additional details about cost, yield and timeliness of using available sources. These sources include surface water, advanced treated recycled water, and desalinated water, to improve supply reliability. In addition, Water Department staff has worked with other utility and community interests in the region to complete two required Groundwater Sustainability Plans. This work has resulted in a significantly improved understanding of groundwater sustainability challenges in both the Santa Cruz Mid-County and Santa Margarita groundwater basins (MGB and SMGWB, respectively) and provides important information to integrate into the City's work to improve supply reliability.

After six years of work developing information about the technical feasibility, infrastructure requirements, and potential costs associated with a range of water supply augmentation projects, staff has concluded that we now have the information needed to make informed decisions about how to improve future water supply reliability for Santa Cruz.

In preparing an approach for completing the WSAC process, staff's recommendation builds on the WSAC's recommended evaluation and decision-making process, integrating lessons learned along the way, while taking into account current conditions.

The remainder of this FYI is divided into the following five main sections:

1. High-level summary of the WSAC's work;
2. Important context and drivers for City policy making and setting direction on supply reliability issues;
3. Proposed policy setting framework for Securing Our Water Future that has been developed and reviewed with the Water Commission;
4. Proposed "Securing Our Water Future" work plan and schedule; and
5. Brief overview of the wide range of supplemental supply strategies and projects that have been under consideration following completion of the WSAC work. It also briefly summarizes the work staff will do, in consultation with the Water Commission, to select projects for inclusion in the Securing Our Water Future policy-making and direction-setting process.

1. WSAC Background:[1]

In late 2013, the Santa Cruz City Council paused progress on a regional desalination project sponsored by the City and the Soquel Creek Water District that had been under development for most of a decade. Instead, the Council initiated a community-based process to develop recommendations to address Santa Cruz's long-standing water supply reliability problem. In early 2014, the Council appointed 14 community members to a Water Supply Advisory Committee (WSAC) and gave them the charge to develop recommendations for Council consideration.

Through an 18 month process, the WSAC completed a thorough review of Santa Cruz's water supply situation, developed a problem statement, identified and evaluated dozens of water supply augmentation strategies, created and evaluated a variety of scenarios to fill a 1.2 billion gallon per year projected worst-year water supply shortage, and developed a set of agreements and recommendations for how to move forward with additional work needed to solve the problem they had identified.

In November 2015, the City Council voted unanimously to accept the WSAC's recommendations. In addition, Council directed staff to integrate the WSAC's work into the 2015 Urban Water Management Plan, and to implement follow-up work to fully develop a range of potential solutions to improve the reliability of Santa Cruz's water supply. The idea was that these efforts would inform a set of recommendations to City Council for a project, or portfolio of projects, to achieve water supply reliability. The work plan for this follow-up work is the Water

[1] See Water Supply Advisory Committee October 2015 Final Report on Agreement and Recommendations: https://www.cityofsantacruz.com/home/showpublisheddocument/84832/637594497619670000

Supply Augmentation Strategy (WSAS) and City staff has reported on its progress quarterly to the Water Commission since 2016.

In November 2019, following consultation with the Water Commission, and in a joint meeting of the Water Commission and the City Council, Water Department staff proposed an adaptation to the November 2015 City Council accepted WSAS work plan, which the City Council approved.

The main driver for the WSAS work plan change was a need to revise the WSAC timeline to take advantage of an opportunity to pursue aquifer storage and recovery (ASR) in the MGB. The work on ASR in the MGB completed between 2016 and 2019 indicated there was an increment of water storage that could be developed on a shorter timeline by using existing infrastructure for injection and extraction of treated drinking water into and out of the MGB, and for treatment of the extracted water.

Concurrent with the Department's work on supply augmentation to address the City's vulnerability to long-term droughts, required plans for groundwater sustainability were being completed for both the MGB and SMGWB. The Department worked with regional partners to prepare Groundwater Sustainability Plans (GSP) for the MGB and the SMGWB, as required by the 2014 Sustainable Groundwater Management Act. These plans, and the process used to develop them, have been very useful in understanding the current and future sustainability opportunities and challenges in the two basins. An example of a challenge in the MGB is operating groundwater systems in a manner that protects groundwater elevation along the coast, which is necessary to protect the aquifer from seawater intrusion.

The two GSPs provide critically important context for the Department to use in assessing water supply augmentation options that involve storing treated drinking water or advanced purified recycled water in local groundwater basins. This is important because any supplemental supply project that involves storing treated drinking water or advanced-treated recycled water in local groundwater basins would need to be developed and operated to meet supply reliability objectives for the City, as well as the groundwater sustainability objectives for each basin and their respective GSPs.

2. Current Context and Conditions: The Need for Urgent and Durable Action

a. Climate Change

Given the realities of climate change already occurring in Santa Cruz and the very efficient water use patterns of Santa Cruz's water customers, the water supply reliability situation in Santa Cruz is actually worse than identified during the WSAC's work. The key driver of this is the persistence of weather extremes that bring either very dry or very wet conditions. Even given our history of high water year variability, this pattern is new and particularly concerning because the sizing of Loch Lomond Reservoir was based on the assumption that we would routinely have

wet seasons to replenish storage. So, in very dry conditions, the system's limited storage is a huge vulnerability, particularly in the multi-year droughts that are becoming more common.

b. Highly Efficient Customer Water Use

Without additional supply, curtailments through approaches such as water rationing, are typically used. However in Santa Cruz, curtailments are no longer an effective strategy because customers have already implemented water-conserving practices that leave little water available to cut. Further curtailment would result in negative consequences to public health and safety, and our community's economy and quality of life. So, without improvements to supply reliability, in serious shortage conditions, the City will be required to enforce restrictions that target water used for basic needs such as cooking, drinking, sanitation and public health protection, and normal commerce. Conditions that would drive the need to impose such restrictions include persistent drought that causes Loch Lomond storage to be depleted year-over-year as a result of little annual replenishment. Such conditions are not unheard of, with the Australian Millennium Drought between 1996 and 2009, and the current multi-year-and-counting drought affecting the Colorado River basin, being two very recent examples.

c. The Need for Urgency and Durable Action

Given the very real possibility of significant impacts to the community from ongoing climate change-driven drought, staff believes that it is important to move forward with policy-level decision making on what will likely be a portfolio of projects to augment supply. With policy-level direction in place, staff can proceed with phased development and implementation of supply augmentation projects that help to address our community's longstanding supply reliability challenges.

Even though every potential supply option is not equally developed at this time, staff believes it is possible to compare projects at a conceptual level that support the WSAC's recommended data-driven and highly transparent approach to project selection. Further, the WSAC recognized that phased implementation of one or more supply augmentation projects is the most likely approach to improving supply reliability. Staff's proposed approach recommends that projects are compared with a similar level of detail and informed by the significant amount of work completed on both ASR and advanced-treated recycled water by the Santa Cruz, Soquel Creek, and Scotts Valley water districts.

The proposed approach is designed to provide direction on supply augmentation that can stand the test of time. While earlier attempts to address these issues resulted in Santa Cruz becoming a state leader in water efficiency, that accomplishment, as recognized by the WSAC in its problem statement, has not and cannot resolve our water supply reliability problem. The WSAC

recognized the challenges of creating an adaptable and long-lasting path forward. The proposed Securing Our Water Future approach is purposefully designed to address this need.

3. Proposed Approach to Water Supply Reliability Policy-Making and Direction Setting

Water Department staff is calling the proposed process for policy-level decision-making for water supply augmentation projects "Securing Our Water Future." In effect, it is intended to be the "final act" of the formalized WSAC effort. Realistically, however, even with the proposed policy level direction set, implementation of supply augmentation projects will inevitably be an ongoing effort that will need to continuously consider and respond to additional information that is generated as part of project development efforts. Appropriately, WSAC developed criteria, values and considerations are thoroughly integrated into the way the Department does its business and will continue to be influential as work proceeds over time.

In this section, staff presents information that provides context for the proposed approach and lays out the proposed "inputs" and "outputs" of the policy-setting and direction-setting process.

a. Framework Inputs:

1. WSAS Quarterly Reports to the Water Commission and Technical Memos and Feasibility Analyses Reports 2016 – 2022

   Along with regular quarterly updates on the WSAS implementation work provided to the Water Commission, a number of technical memos and feasibility analyses have been developed and discussed with the Water Commission during the last six years. Examples of these include both the 2018 Phase 1 Recycled Water Analysis and the 2018 Desalination Feasibility Update Review, which included a cost estimate update on the desalination project that was paused in 2013.

2. Technical Memoranda on Project Comparisons

   At the time of their work, the WSAC recognized that the level of information about the potential water supply augmentation options was too uneven to allow for across-the-board comparisons to inform final decision-making about which project or projects to pursue. They wanted to ensure that decisions about supply augmentation projects were made using better information than was available to them. Therefore the WSAC created recommendations to provide information necessary to support data-driven and criteria-based decision-making processes needed for the transparency that they believed is necessary for success.

   The WSAC did quite a bit of work on criteria for decision-making, and this work will be reflected in the project comparison work to be developed in the months ahead. In the Securing Our Water Future work plan and schedule, Water Commissioners will see that the decision criteria from both WSAC and other sources (for example, Groundwater Sustainability plans for the two basins), will be presented, discussed and prioritized.

Staff is working on an exercise similar to the Water Pricing Objective exercise used in water rate making work that resulted in prioritized water pricing policy objectives to be achieved through water rate structures.

b. Framework Outputs

Staff has looked carefully at strategies and tools the City has used to provide durable direction and decisions. A key goal is to find an approach that provides one or more products that include clear, strong, and reasonably complete information to tell an effective story about what the issues are, what the recommendations are, and why action is both necessary and appropriate. With this goal in mind, the proposed actions for the City Council would include two products: first, a Council Resolution and second, a Council Policy.

1. Council Resolution

   The structure of a Council resolution includes a set of recitals that provide context for the action section of the resolution. The recitals typically begin with a set of "Whereas" statements, and when the context has been adequately laid out in the recitals the Council's statement of direction or confirmation of decision is included following a "Now Therefore" statement.

   The benefit of using a resolution is that it provides for a certain durability of the Council's direction; a subsequent Council action would be needed to rescind or modify it. It also has the benefit of packaging information in a form that is readily consumable, presents a complete-enough story of the situation and underscores why the decision or direction that was taken makes sense. This is a significant benefit over the more conventional alternative of packing the explanatory information supporting a Council action in an often 100+ page technically oriented document, even one with a good executive summary.

2. Council Policy

   On occasion, the City Council has taken action following completion of a major piece of work to adopt a policy statement. An example is Council Policy 11.3 on Timber Harvest on Watershed Area and Preservation of Old Growth Trees,[2] which was adopted by the Council following completion of a task force's work in the late 1990s. In general, the concept behind this approach would take language included in the "Now Therefore" section of the resolution (discussed above), and use it as the centerpiece of the Council policy. A significant advantage to including both a Council Policy and a Council Resolution is that Council Policies are more readily accessible and stand as part of the Council's Policy Manual, which gives them greater visibility than exists with a resolution that accompanies a specific Council action. The proposed Council Policy would include

[2] https://www.cityofsantacruz.com/government/city-council/council-policy-manual

a reference to the Council Resolution that would help provide an important link between the two actions.

4. Proposed Securing Our Water Future Work Plan and Schedule

In the Water Commission's Draft Work Plan presented to the Commission at its April 4, 2022 meeting, the schedule provided below was presented and discussed. Included are the following:

- April 4, 2022 –
  - Presentation, discussion of and feedback on the Securing Our Water Future Framework
  - Presentation on the Water Reliability Projects to be evaluated
- May 2, 2022 –
  - Presentation on and Approval of Evaluation/Decision-Making Criteria
  - Update on the water system vulnerability analysis work being done in collaboration with the University of Massachusetts team
- June 6, 2022 –
  - Phase 1 of Project Evaluations
- July/August/September – dates to be determined – Working on scheduling 2 meetings
  - University of Massachusetts work on climate change vulnerability analysis
  - Phase 2 of Project Evaluations, including the impact/influence of the vulnerability assessment work
- October 3, 2022 –
  - Draft final technical memoranda on project comparisons, draft Council Resolution and draft Council Policy
- November 7, 2022 –
  - Water Commission action on recommendations to Council for Securing Our Water Future, including all the elements described in this report, for Council action on November 22, 2022, or in a possible joint meeting of the Council and Water Commission to be scheduled for late November or early December

The direction set through this process would inform a follow-up work plan to develop an implementation plan for supply augmentation projects - the Water Supply Augmentation Implementation Plan (WSAIP). The WSAIP is intended to be an implementation road map including project descriptions, implementation schedules and planning level budgets. Required California Environmental Quality Act (CEQA) analysis would be developed in parallel with the WSAIP, likely building from the Department's certified Water Rights EIR.

5. Initial Supplemental Supply Project Alternatives

Table 1[3] below shows the wide range of supplemental supply projects that have been developed or explored as part of the WSAS work plan between 2016 and the present. Many of these

[3] Acronyms used in Table 1 include:
GW = groundwater; RW = recycled wastewater; NPR = non-potable reuse, e.g., water for irrigation; AWTP = advanced water treatment plant for wastewater recycling; WWTF/SCWWTF = wastewater treatment facility/Santa

options are included in SMGWB and MGB GSPs in Sections 4 and 5, Projects and Management Actions, and Plan Implementation, respectively. All the options that explore active recharge of either or both groundwater basins, whether the supply is treated drinking water or advanced purified wastewater, are under active discussion, although those in the MGB are generally further along than those in the SMGWB.

Through the work that has been completed, conclusions about some of these project options allow them to be eliminated from the list as potential stand-alone options to meet the City's 1.2 billion gallons per projected year worst-year water supply shortage.

For example, as the WSAC made clear as part of their problem statement, water conservation alone cannot close the gap. In addition, the 2018 Phase 1 Recycled Water Study identified and evaluated a number of potential irrigation-oriented non-potable reuse options but concluded that overall demand for irrigation water is relatively low and highly decentralized, making it both expensive and not particularly beneficial from a supply augmentation perspective. And, while water transfers and exchanges may be effective elements to include as part of an ASR project, in order for Santa Cruz to develop the necessary drought supply some form of active recharge would be needed to meet the City's yield goal.

Department staff is working to develop a more limited list of projects to include in planned comparative analysis work and will be discussing their proposal, along with priority evaluation criteria to use in the analysis, with the Water Commission in May.

Submitted by:

Rosemary Menard
Water Director

Cruz wastewater treatment facility; GHWTP = Santa Cruz's Graham Hill surface water treatment plant for drinking water

Table 1

Santa Cruz Supplement Water Supply Alternative Matrix

WSAC Alternatives	Lead	Alternative	Description	Source Water
Conservation	SCWD	Increse water conservation where feasible	Evaluate opportunities remaining for the City to improve efficiency while considering equitable water rates	City's Potable Water
In Lieu Transfers and Exchanges	SCWD - SqCWD SVWD - SLVWD	In Lieu Water Transfers/Exchanges with SqCWD	Evaluate opportunities to utilize existing interties/infrastructure to transfer/exchange supply	City's Potable Water, SqCWD GW or RW?
		In Lieu Water Transfers/Exchanges with SVWD	Evaluate opportunities to utilize existing interties/infrastructure to transfer/exchange supply	City's Potable Water, SVWD GW or RW?
		In Lieu Water Transfers/Exchanges with SLVWD	Evaluate opportunities to utilize existing interties/infrastructure to transfer/exchange supply	City's Potable Water, SLVWD GW or SW?
Aquifer Storage and Recovery (ASR)	SCWD	Mid County Groundwater Basin (MCGB)	ASR Injection wells at Beltz Wells 8, 9, 10 and 12	City's Potable Water
			ASR Injection wells at Beltz Wells and HB5, SC2, SC4, SC10	City's Potable Water
	SCWD - SVWD	Santa Margarita Groundwater Basin (SMGB)	ASR Injection wells near Hanson's Quarry. Infrastructure needs TBD	City's Surface Water
Recycled Water	SCWD	NPR Baseline	New Tertiary Treatment to serve in-plant and nearby irrigation uses - *part of Pure Water Soquel (PWS) Project* -	Santa Cruz WWTF
		NPR Phase I	Increase reuse near the SCWWTF; Expand tertiary treatment with new conveyance to serve nearby schools	Santa Cruz WWTF
		NPR Phase II	Turnout from PWS Conveyance Pipeline to meet Pasatiempo Golf Course irrigation demands.	Santa Cruz WWTF
		NPR Phase III	Serve NPR uses on the East Side City from expanded tertiary treatment at the PWS Chanticleer Site	Santa Cruz WWTF
	SCWD - SqCWD	MCGB Indirect Potable Reuse (IPR)	IPR at Beltz Wellfield from expanded PWS AWPF. No ASR	Santa Cruz WWTF
				Santa Cruz WWTF
			IPR at Beltz Wellfield from expanded PWS AWPF used ONLY as a backup to ASR	Santa Cruz WWTF
			New well(s) east of Chanticleer to inject purified water from the PWS AWPF. Extracted water transfer/exchange between SqCWD and City.	PWS Purified Water
			New sea water instrusion barrier well(s) south of Beltz Wellfield using purified water from expanded PWS AWPF - with or without ASR (TBD)	PWS Purified RW for SW Barrier Wells
	SCWD - SVWD	SMGB IPR	Purified water from PWS AWPF conveyed to Scotts Valley for recharge in the SMGB	Santa Cruz WWTF
			New AWTP in Scotts Valley (location TBD) with recharge at or near Hansen Quarry and El Pueblo wells	Santa Cruz WWTF + SVWD WWTF
	SCWD	Surface Water Augmentation (SWA)	SWA via a new City AWPF with blending in Loch Lomond Reservoir	Santa Cruz WWTF
		Direct Potable Reuse via Raw Water Augmentation	DPR via a new City AWPF with raw water blending prior to treatment at GHWTP	Santa Cruz WWTF
Desalination	SCWD	Seawater Desalination	New local seawater desalination facility to operate year-round or during droughts, similar to scwd2 project. Consider with or without partnerships	Monterey Bay

Water Commission
7:00 p.m. – April 4, 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: J. Burks (Vice Chair) (via Zoom), T. Burns (Via Zoom), D. Engfer (via Zoom), A. Páramo (via Zoom), S. Ryan (Chair) (via Zoom), G. Roffe (via Zoom)

Absent: D. Alfaro, with notification

Staff: R. Menard, Water Director (via Zoom); C. Coburn, Deputy Director/Operations Manager (via Zoom); E. Cross, Community Relations Specialist (via Zoom); D. DeBrito, H. Luckenbach, Deputy Director/Engineering Manager (via Zoom); Associate Planner II (via Zoom); Sarah Perez, Principal Planner (via Zoom); B. Pink, Environmental Programs Analyst II (via Zoom); K. Fitzgerald, Administrative Assistant III (via Zoom)

Others: Four members of the public (via Zoom)

Presentation: None.

Statements of Disqualification: None.

Oral Communications: One member of the public spoke.

Announcements: Chair Ryan announced that General Business items 6 and 7 will be heard in reverse order.

Consent Agenda

1. City Council Items Affecting the Water Department

2. Water Commission Minutes From March 7, 2022

3. Water Supply Augmentation Strategy (WSAS) Quarterly Report

4. Working Draft of the Water Commission 2022 Work Plan

What is the timeline for the leak detection notification program mentioned on page 3.2?

- This is part of the "Reimagining Conservation" work that is underway and will be included in discussions at future Water Commission meetings. A program like this would

likely not be implemented before FY 2024 when the new metering infrastructure is in place.

What is driving the variability in injection rates and total injection volumes as mentioned on page 3.5?

- The objective of an ASR program is to maintain consistent rates of injection and extraction and these rates depend on available supply, infrastructure, treatment capacity, basin characteristics, etc. The ongoing pilot and demonstration work is allowing us to fine tune the process given all of these variables so that a permanent facility is designed and operated efficiently and effectively. Pilot testing includes varying injection rates to find the optimal rate. Similarly, the amount of water put in to the basin is influenced by available water, basin capacity, infrastructure, etc. As intended, the pilot testing is informing the amount of water available for injection, the infrastructure's ability to put the water into the ground, and the basin's ability to receive the water at rates of injection. Again, the pilot testing will inform size, rates, volumes, etc. of full scale operation but in the meantime, during piloting, rates will vary.

Will Kennedy Jenks continue the Triple Bottom Line analysis work now that Bob Raucher has retired?

- Kennedy Jenks will lead the alternatives analysis from the consultant side now that Bob Raucher is working at a reduced capacity. However, Bob Raucher will stay involved to ensure consistency with previous processes. This process will be vetted through the Water Commission to allow for any input and modifications and to ensure transparency.

No public comments were received.

Commissioner Engfer moved the Consent Agenda. Commissioner Páramo seconded.

VOICE VOTE:	MOTION CARRIED
AYES:	All
NOES:	None
ABSTAIN:	A. Páramo, from the March 7th, 2022 Water Commission minutes due to absence.

Items Pulled from the Consent Agenda – None.

General Business

5. 2022 Annual Water Supply and Assessment

R. Menard introduced B. Pink for the presentation and discussion of the 2022 Annual Water Supply and Demand Assessment.

Would it be possible to include some sort of messaging or reminder to customers about their monthly usage and how it would compare if Stage 1 restrictions were in place?

- It may be possible to include some sort of communication to remind customers to continue water-efficient practices and the Department will follow up with our utility billing people to pursue this idea.

Can staff confirm that the surface flows will be at critically dry levels through the year?

- The reservoir draw-down model includes a variety of inputs, one of those being which fish flow levels are anticipated to be required. The fish flow agreement divides flow requirements into five segments or quintiles and varies the flow requirements to provide more water for summer rearing when flow levels are higher and lower flows when there is less water in the system. For te model this year, the critically dry category was selected of how dry the spring was and the projected continued impacts to flows of dry conditions through the spring and summer.

Does the 7 million gallons being produced per day include volumes that are being pumped into the Beltz wells for ASR?

- Yes.

How are surface water and groundwater levels affected by San Lorenzo Valley Water District's pumping activities?

- There is not enough data available so it is not known at this time.

Can staff expand on the changes in the variability in rainfall year-over-year during December to March?

- The pattern of precipitation that used to start up in November and continue fairly predictably through the winter and into the early spring has shived over the last couple of decades to one where a large part of annual rainfall is delivered in only a few storms often concentrated into one or two months. This year we saw the benefits of that in rising Loch Lomond storage levels through mid-January following a series of storms in the last half of December, and the three months following those storms were among the driest on record. This change in precipitation patterns can have a significant impact on the availability of "winter water" for projects such as aquifer storage and recovery, and this is one of the things that the vulnerability analysis work that is ongoing with the U Mass team is exploring.

Will the Governor's recent executive order potentially change staff's decision to recommend that water restrictions not be put in place?

- The impact of the executive order on our operation this summer are not known at this time.

No public comments were received.

Commissioner Engfer moved the staff recommendation on item 6. Commissioner Páramo seconded.

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

6. Newell Creek Pipeline Improvement Project - Final Environmental Impact Report

H. Luckenbach introduced D. DeBrito for the presentation and discussion of the Newell Creek Pipeline Improvement Project.

What is the estimated timeline for completion of the prioritized sections of the pipeline?

- The current estimation for the North Brackney segment is about nine months and the current estimate for the Felton to Graham Hill segment varies from 14 to 16 months.

Can CA State Parks force the City to excavate and remove the old pipeline as indicated by their comment in the Final EIR?

- This project will be implemented per the easement agreement made in 1965 that was put in place for the installation and ongoing maintenance and use of the pipeline as it was installed through Pipeline Road. There are ongoing discussions regarding the city's legal requirements under that agreement versus what is being addressed in the Final EIR.

How many evenings will horizontal directional drilling (HDD) cause overnight noise?

- The overnight noise would be generated for a single 24-hour period, essentially just one night.

Where will the 30-inch diameter pipeline be installed and how will it connect to the 24-inch diameter pipe?

- The 30-inch pipe is just for the portion subject to HDD in the North Brackney area but the remainder of the pipeline be 24-inch pipe.

One member of the public spoke.

H. Luckenbach responded to the commenter's question regarding pipeline sizing that an analysis was conducted and the 24-inch was determined to be satisfactory and consistent with water rights.

Commissioner Burns moved the staff recommendation on item 6. Commissioner Engfer seconded.

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

7. Framework for Decision-Making on Securing Our Water Future

R. Menard presented the Framework for Decision-Making on Securing Our Water Future.

Does staff have an idea of the right number of alternatives to assess?

- The right number of alternatives are those that, through feasibility analyses, demonstrate the ability to meet water supply objectives over time, including ability to adapt to varying circumstances including climate.

Has this type of policy setting or this resolution approach been used for past attempted projects within the city?

- No.

What other public-facing strategies can staff deploy to increase the likelihood that the public will accept these approaches?

- Among other efforts, a a public opinion poll regarding supply alternatives and some of the choices that are available is being planned and also staff is working on an outreach plan that will engage the community and interest groups, This effort will run in parallel with the planned work with the Water Commission as presented in the staff report for this item.

Is the option to increase the capacity of the Loch Lomond Reservoir viable?

- This option was reviewed during the WSAC process and it is not technically feasible.

On the chart on page 6.10 under Recycled Water NPR Phase III, does expanded recycled water use in the East Side area mean recycled water will be used for irrigation in places like parks and schools?

- Yes, that kind of use was included in the project that was developed for the Recycled Water Phase 1 Study that was completed in 2018. But to clarify, the table is meant to provide a list of all alternatives that have been looked at and, due to the high cost of a stand-alone non-potable reuse projects for irrigation , that approach would only be implemented as part of another project that met water supply augmentation objectives. An example of that would be indirect potable reuse for groundwater replenishment.

Will there be a joint meeting between the Water Commission and City Council to discuss this approach?

- There is nothing scheduled at this time but a meeting could be planned around October or November depending on what the City Council has on its agendas around that time.

One member of the public spoke.

There was no action taken on this item.

Subcommittee/Advisory Body Oral Reports

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

Chair Engfer reported that the last MGA meeting was held on March 17th and the board approved parameters for the 2022-2023 budget and appointed a representative to the SB 552 drought response working group that the County is using to support drought and water shortage contingency planning for those in the County served by small systems and private wells. The next MGA meeting will be held on June 16th

9. Santa Margarita Groundwater Agency (SMGWA)

Commissioner Engfer reported that the SMGWA met on March 24th and appointed a well owner representative to the drought response working group and accepted staff's recommendation on a plan for the identification, consideration, and prioritization of projects and management actions that the participating agencies would implement to improve conditions in the Santa Margarita basin. The next SMGWA meeting will be held on April 28th and this group will continue to meet monthly for the remainder of the year.

Director's Oral Report: R. Menard reported that the current plan is for advisory body public meetings will continue to be held virtually as the City Council moves to a hybrid format on April 26th. The July and September Water Commission meetings will also need to be rescheduled since they fall on federal holidays. R. Menard also reported that she has been appointed by the National Drinking Water Advisory Committee to a working group representing large water systems in the country. The group will be looking at approaches to issues such as disinfection by-products from microbial treatments as well as various treatment methods.

Adjournment Meeting adjourned at 9:32 PM.

WATER COMMISSION
INFORMATION REPORT

DATE: 04/26/2022

AGENDA OF: 05/02/2022

TO: Water Commission

FROM: Taylor Kihoi, Associate Professional Engineer
Heidi Luckenbach, Deputy Director/Engineering Manager

SUBJECT: Update on Vulnerability Analysis Work with Dr. Casey Brown from the University of Massachusetts, Amherst

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RECOMMENDATION: Receive a presentation by Dr. Casey Brown and the project team from the University of Massachusetts, Amherst on the Vulnerability Analysis.

BACKGROUND/DISCUSSION:

The team from the University of Massachusetts, Amherst (UMass) includes Dr. Casey Brown, Professor at the Department of Civil and Environmental Engineering at UMass, and Baptiste Francois and Hadi Heidari from Hydrosystems Group (HRG), a research group of the Civil and Environmental Engineering Department at UMass. The Vulnerability Analysis consists of two parts:

1. Water System Model and Resilience Assessment
2. Vulnerability Assessment and Adaption Planning.

Work to date has focused largely on the former.

As reported to the Water Commission at their April meeting through the quarterly Water Supply Augmentation Strategy update, Water Department staff has been working with HRG on the Water System Model Development and Resilience Assessment, developing and now validating a new supply model for the Santa Cruz water system, as well as the creation of a weather generator to identify climate scenarios that would challenge the water system's reliability resulting in annual deficits.

At the meeting, Dr. Casey Brown will cover the following topics.

1. Weather-generator, process and results
2. Water supply model, development and calibration
3. Water supply model, comparisons/validation with Confluence® model

Future Water Commission meetings and topics are shown below.

July 2022
Climate change vulnerability assessments
Adaptation scenarios selection

August 2022
Trigger points
Adaptation scenario results

FISCAL IMPACT: No financial impact.

PROPOSED MOTION: No motion required. This item is informational only.

ATTACHMENTS: None.

WATER COMMISSION
INFORMATION REPORT

DATE: 04/26/2022

AGENDA OF: 05/02/2022

TO: Water Commission

FROM: Rosemary Menard, Water Director

SUBJECT: Results of a Recent Telephone Survey on Water Supply and Water Supply Augmentation Issues

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RECOMMENDATION: That the Water Commission receive a presentation on the results of a recently completed Water Department telephone survey on Water Supply and Water Supply Augmentation.

BACKGROUND: From time to time, the Water Department conducts phone surveys to provide us with information about community attitudes and preferences related to Water Department operations, planning and performance issues. These surveys are conducted by a professional survey research firm and often include one or more benchmark questions – the same question asked over time – to help an organization asses how its community attitudes about the organization's performance or issues it is dealing with change over time.

In preparation for the Department's development work to shift from financial planning and rate-making to decision-making related to water supply and supply augmentation, in late 2021 staff began working on the current survey instrument with a goal of using this survey to assess community values and attitudes related both to the drivers of the need for more supply and to supply augmentation alternatives. In particular, survey participants were asked a number of questions specifically related to advanced treated recycled water and desalination, with a goal of gaining a much clearer understanding of community views on these two supply augmentation alternatives.

DISCUSSION: Gene Bregman, of the Gene Bregman and Associates survey research firm, will present the results of the recently completed Water Department community survey and be available to answer questions. His presentation is attached and provided in advance for information.

FISCAL IMPACT: No financial impact.

PROPOSED MOTION: No motion required. This item is informational only.

ATTACHMENTS:
1. March 2022 Water Department Community Survey Results

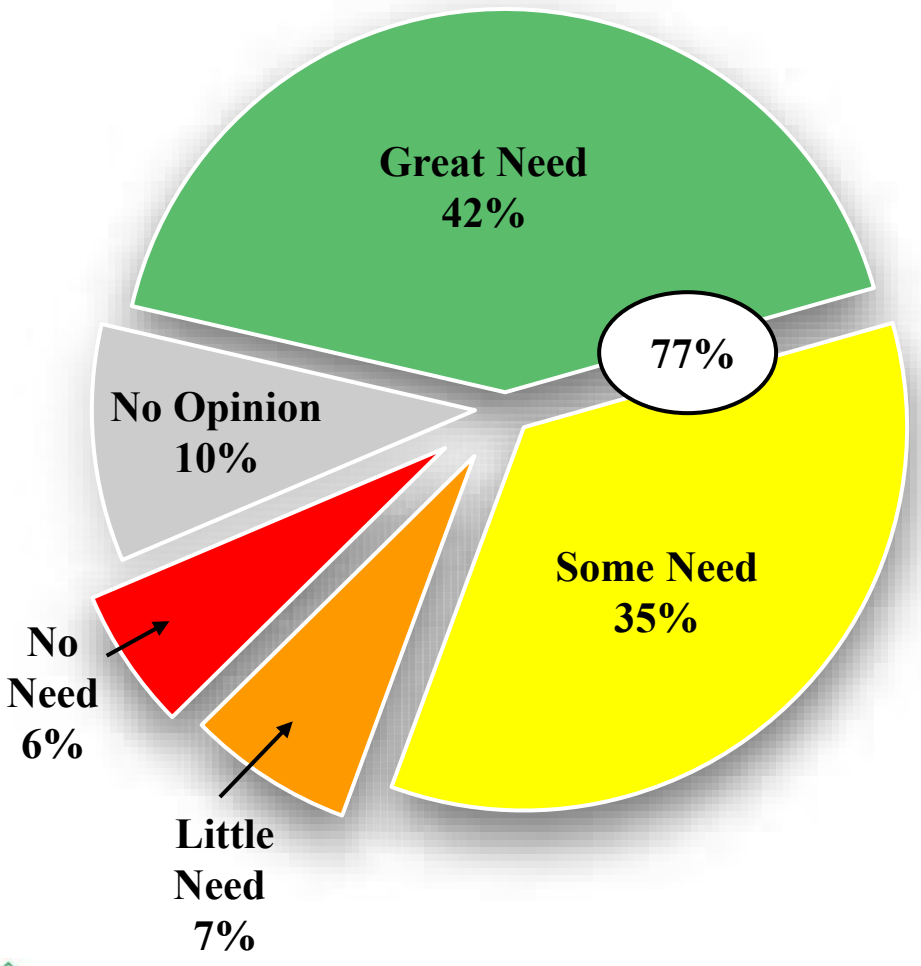
Summary Charts of Results from a Survey of Voters in the Santa Cruz Water Department

400 Interviews
April 2022

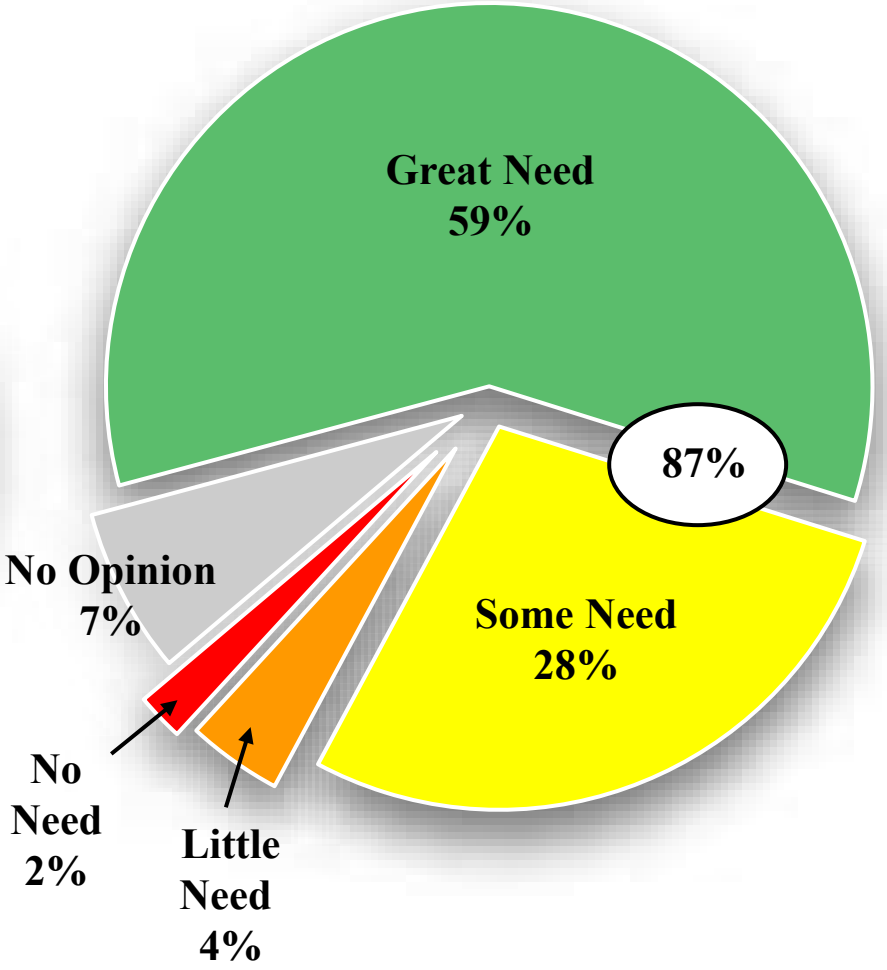
conducted by

GENE BREGMAN & ASSOCIATES
Public Opinion & Marketing Research

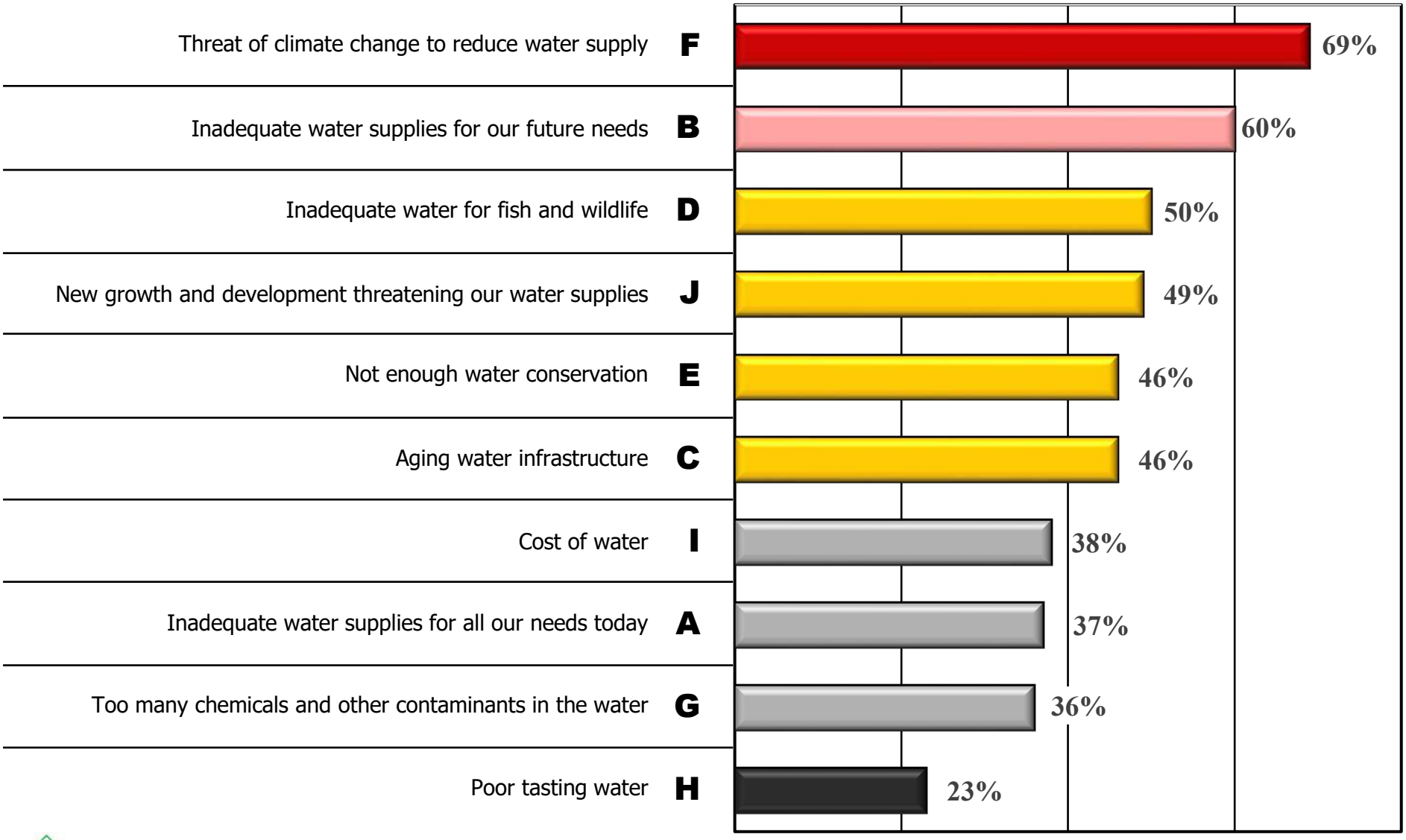
Need for Additional Water Today



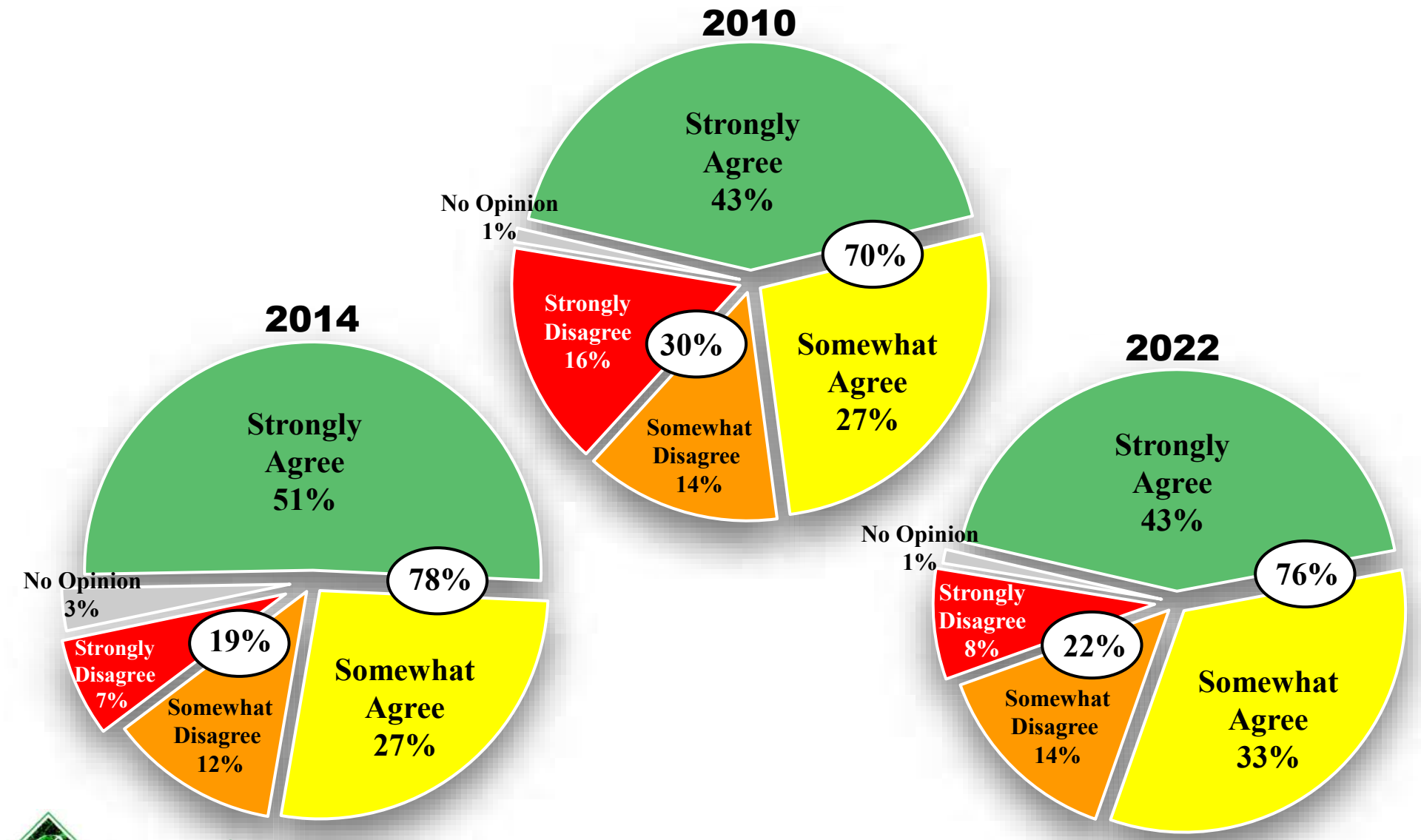
Need for Additional Water in Future



Very Serious Water Supply Issues: 2022



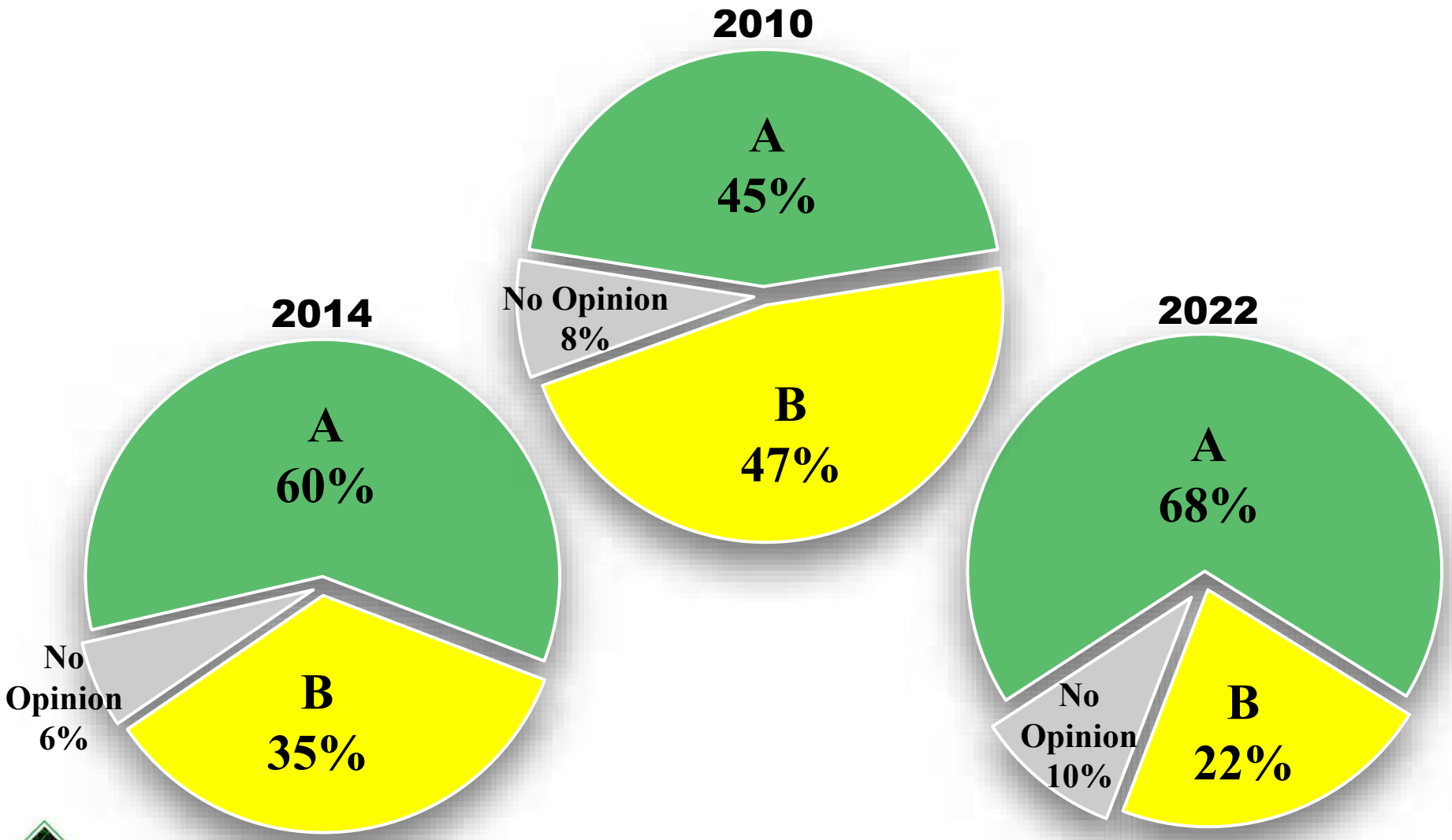
"I've already cut back on water use for my home as much as I can; there's not much more I can do to save water."



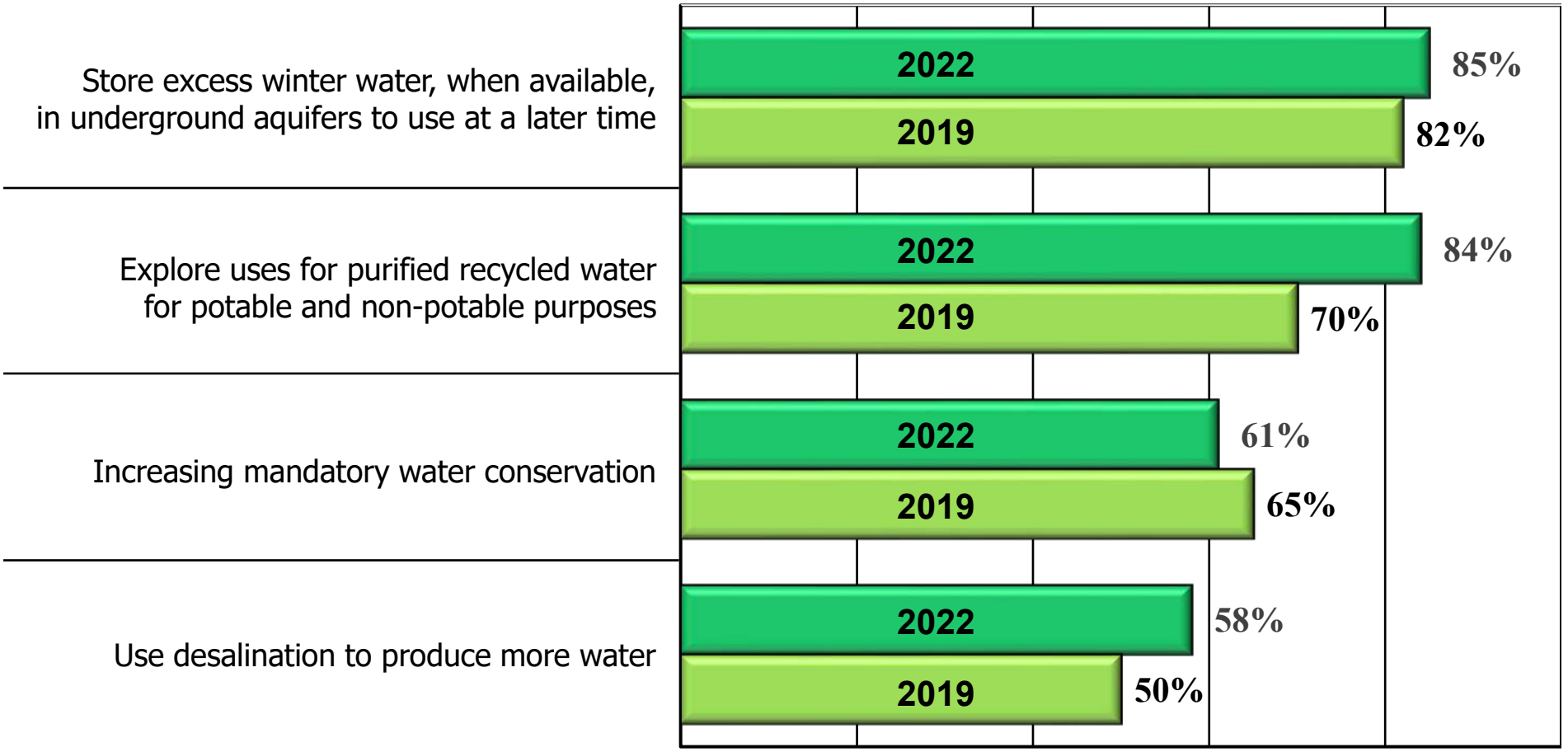
Statement Coming Closer to Voter's Opinion

A: We need to find new sources of water if we are going to solve our long-term water supply problems

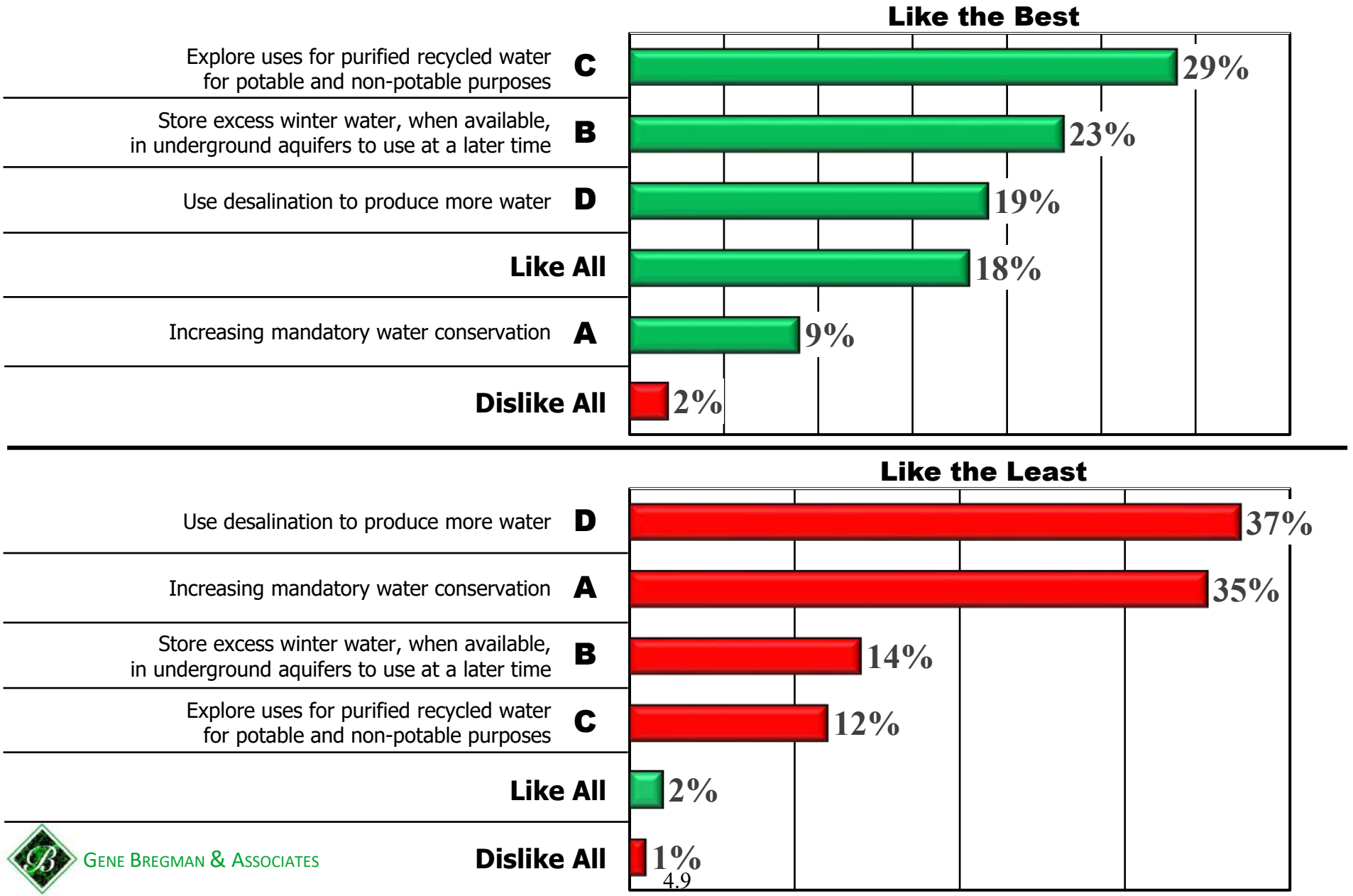
B: We can solve most of our long term water supply problems by just using less



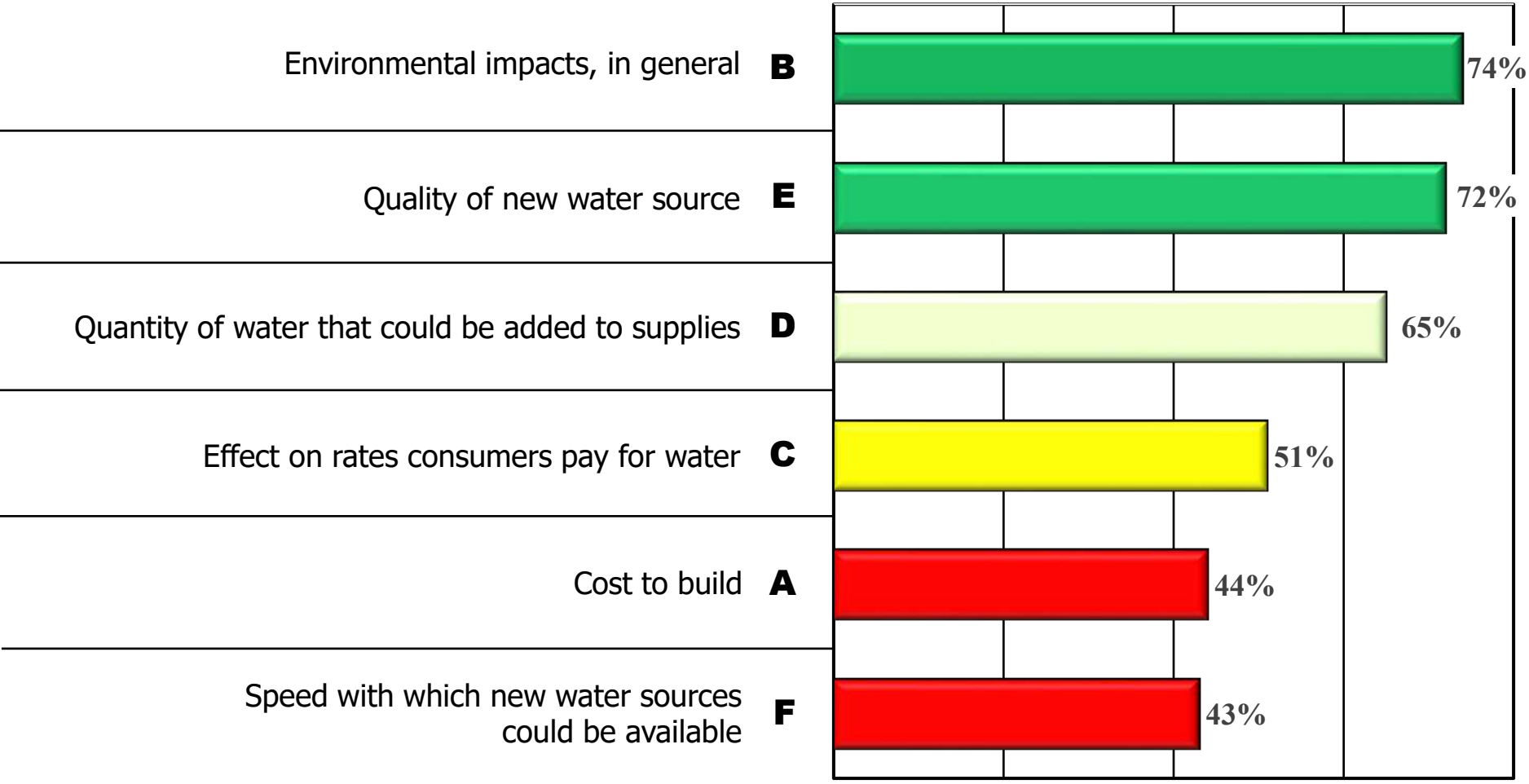
Evaluating Ways to Address Water Shortages: Excellent / Good Idea



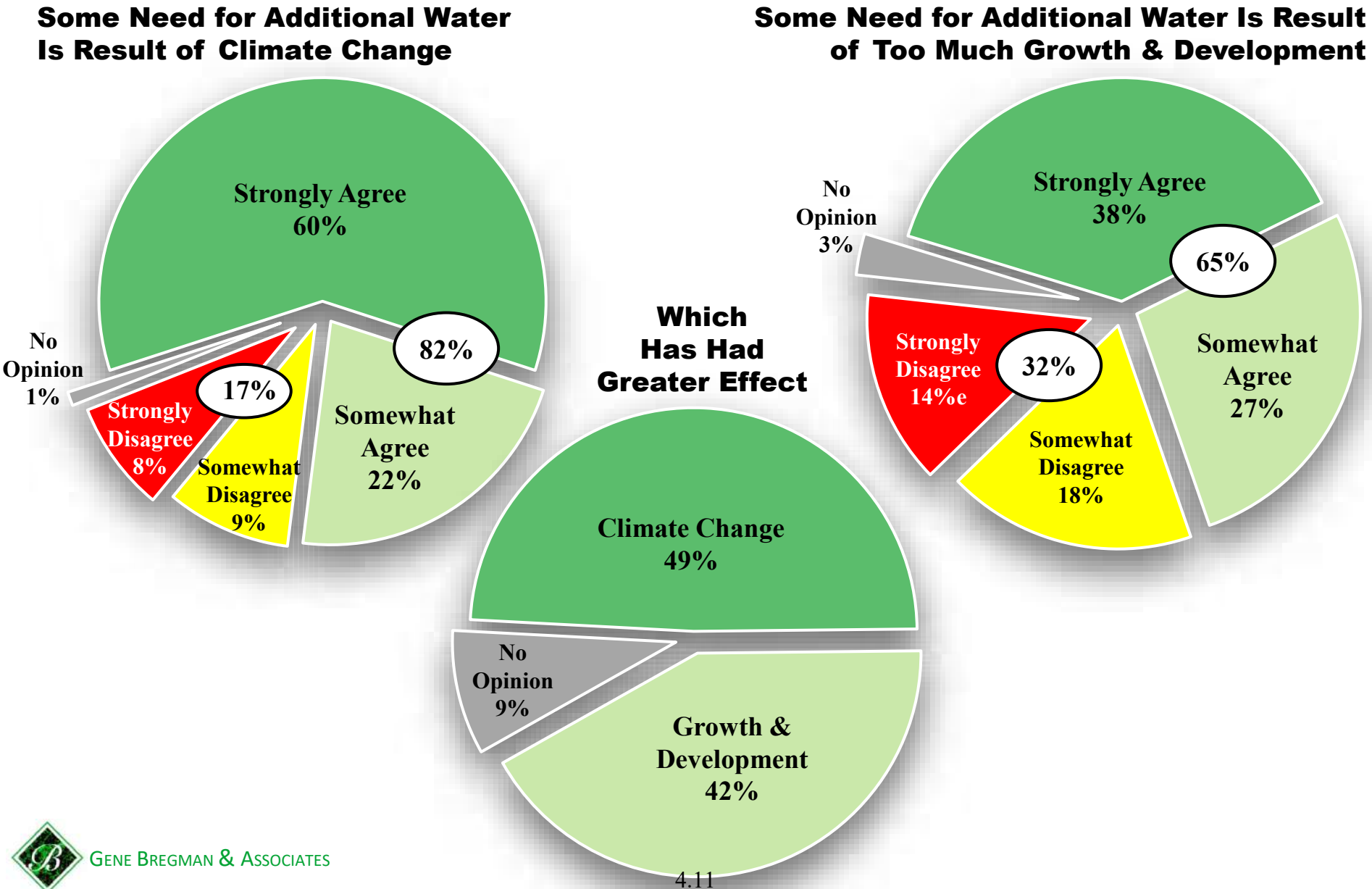
Best and Worst Ways to Address Water Shortages



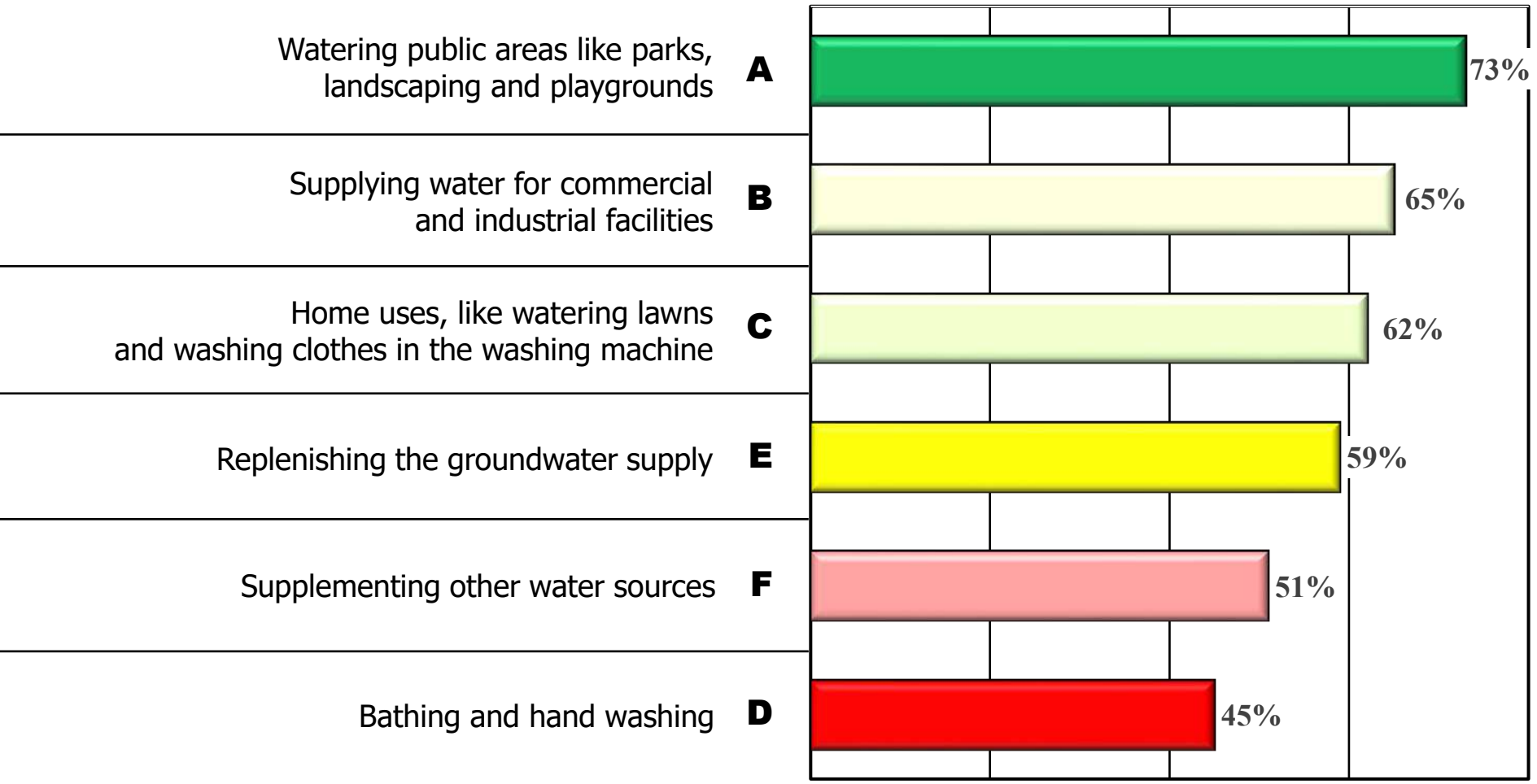
Very Important Considerations When Developing Strategies to Increase Water Supplies



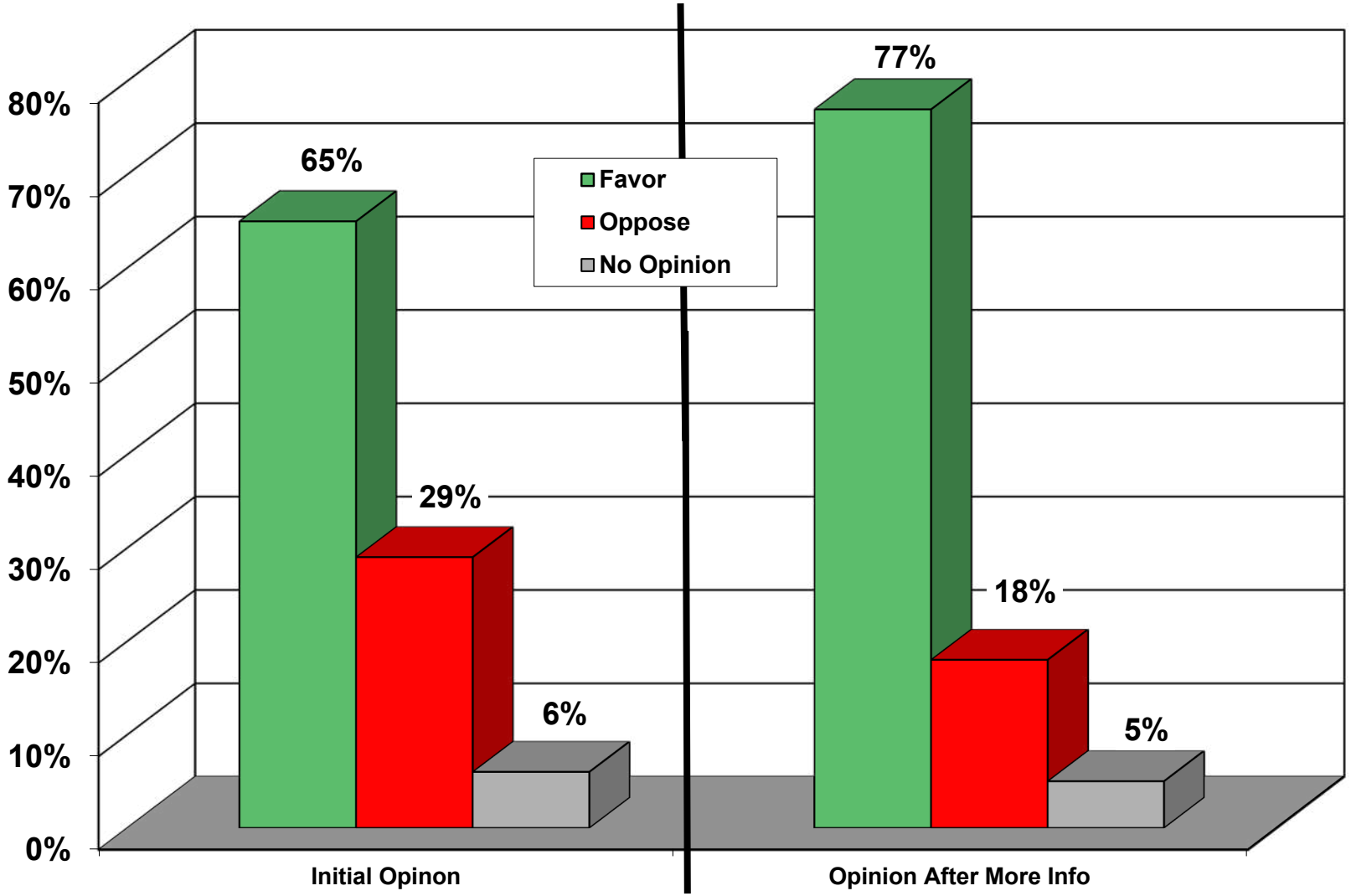
Climate Change vs. Too Much Growth & Development



Proportion Strongly Favoring Uses of Purified Recycled Water



Overall Opinions of Using Newest Technologies To Add Purified Recycled Water to Drinking Water Supplies



Proportions Much More Likely to Favor Using Newest Technologies to Add Purified Recycled Water to Drinking Water Supplies

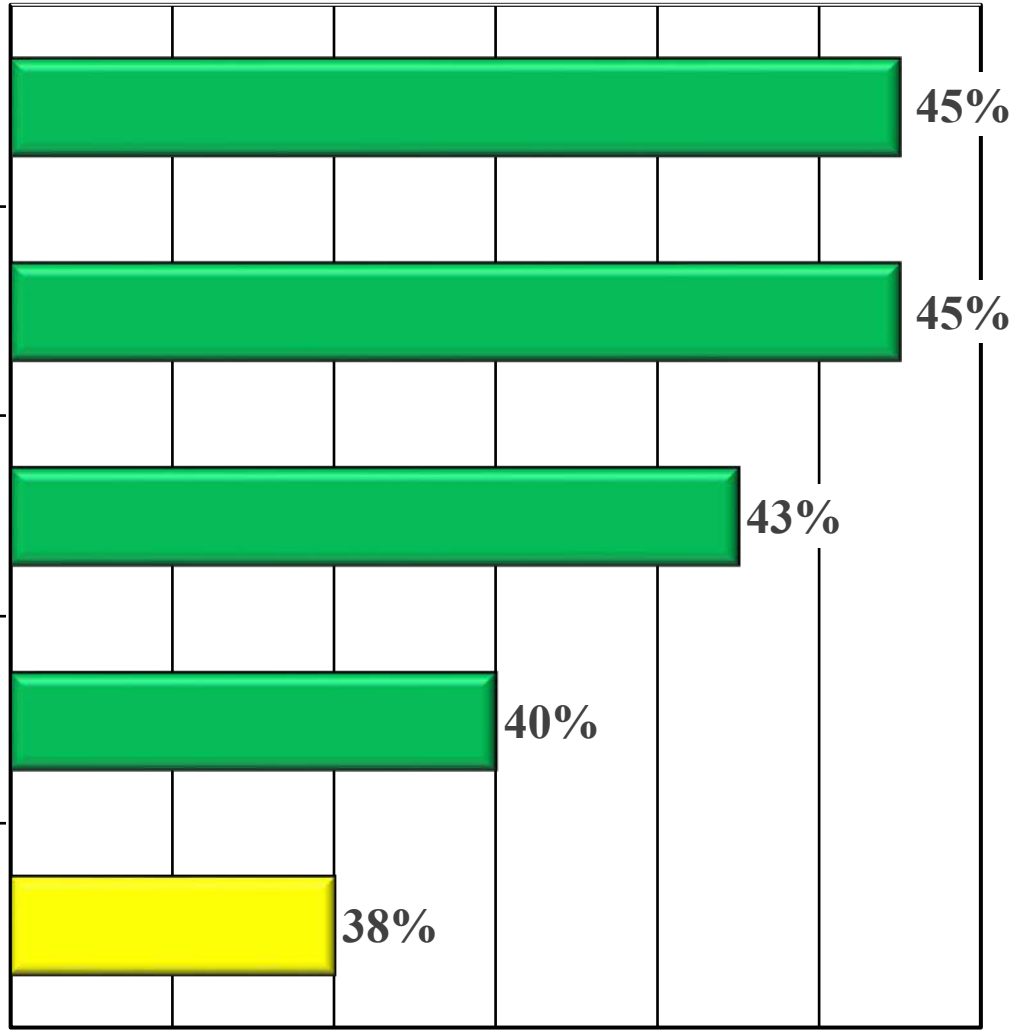
A — With climate change and long periods of drought, we need to find new, sustainable water supplies. Purified, recycled water can meet that need

B — Even after recycled water is purified at the water treatment plant, it does not go directly to the tap. It is safely returned back into the environment where it is mixed with other groundwater and treated again before it is used

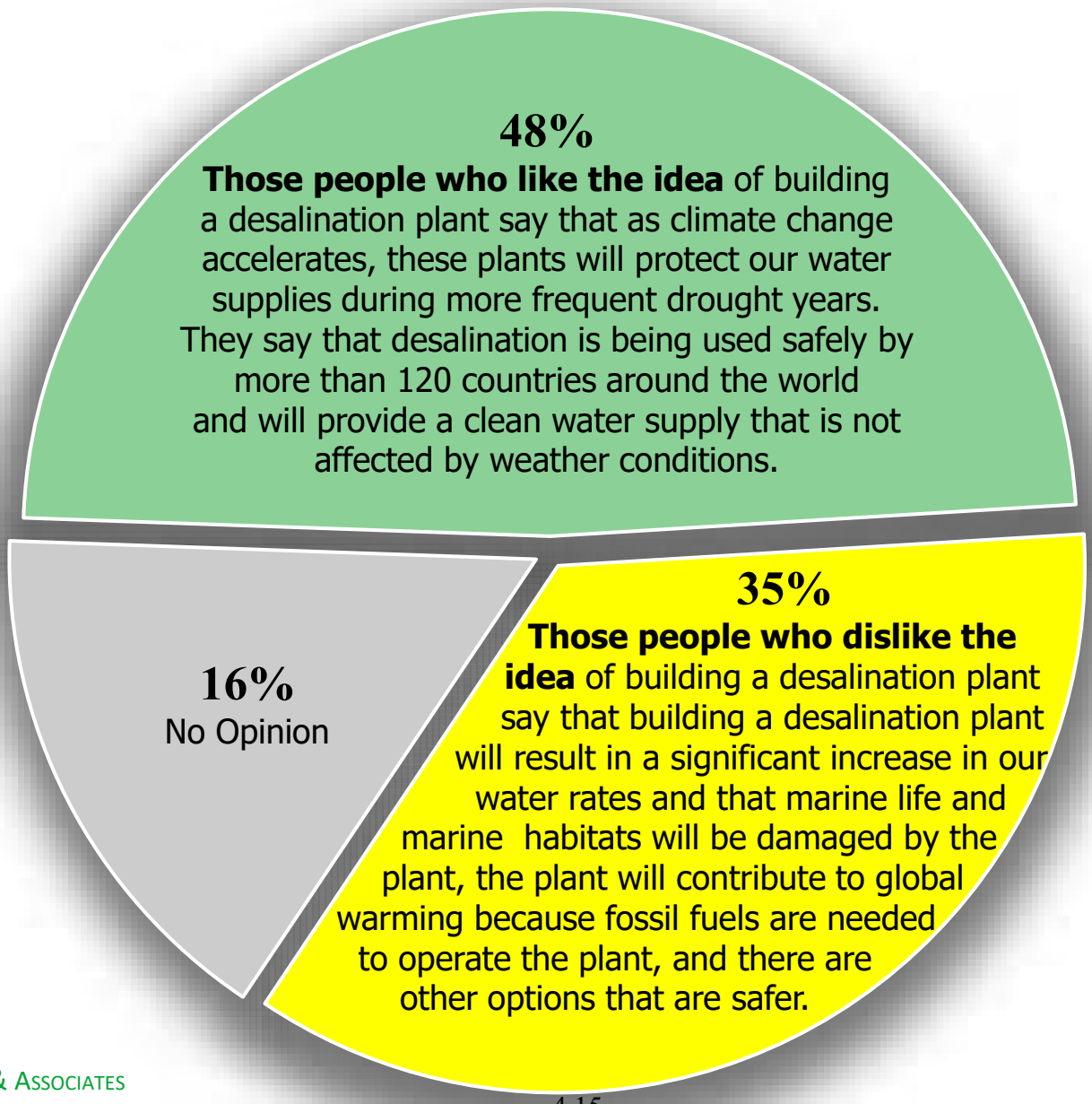
C — Recycled water has been used throughout the world for decades. In Orange County, they have been adding purified recycled water to their drinking supplies for over 30 years

E — It makes sense for Santa Cruz to be on the cutting edge of producing sustainable and efficient water supplies. As in so many things, we can be a leader in this, too, using new technologies to guarantee we have drinking water for the future

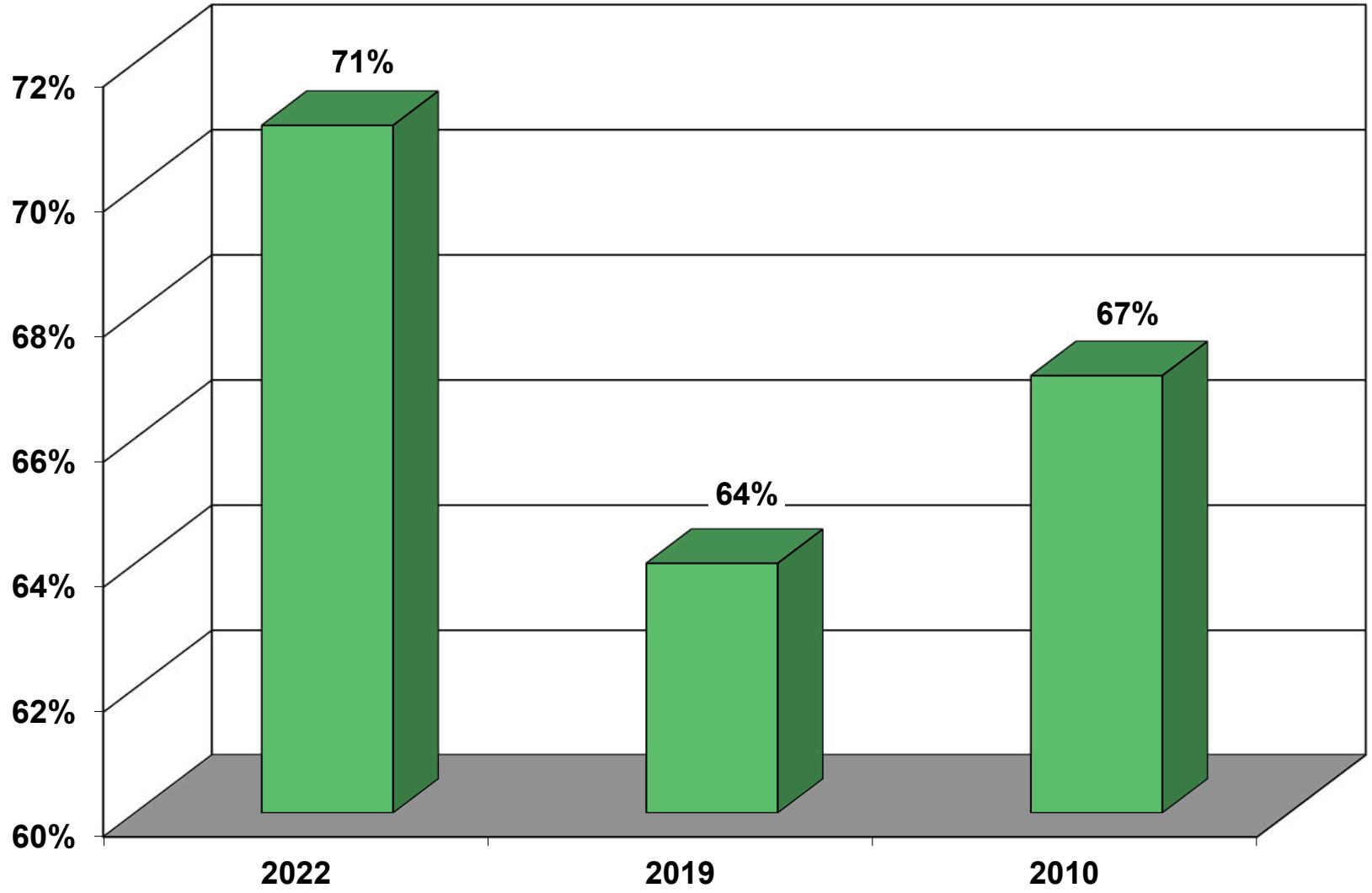
D — All water has been recycled countless times by the natural water process. The purification of recycled water just speeds up what happens naturally



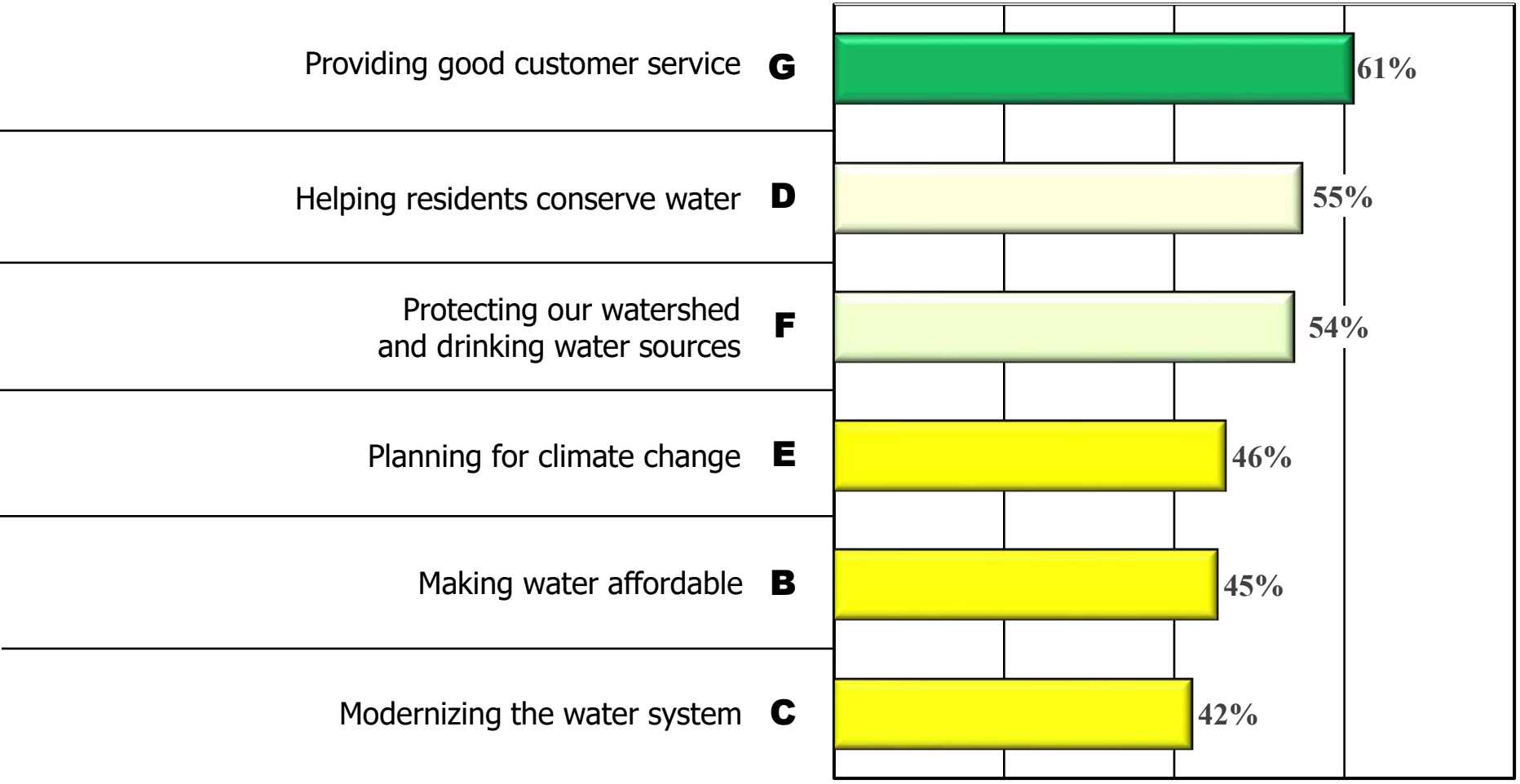
Statement Preferred Concerning Desalination



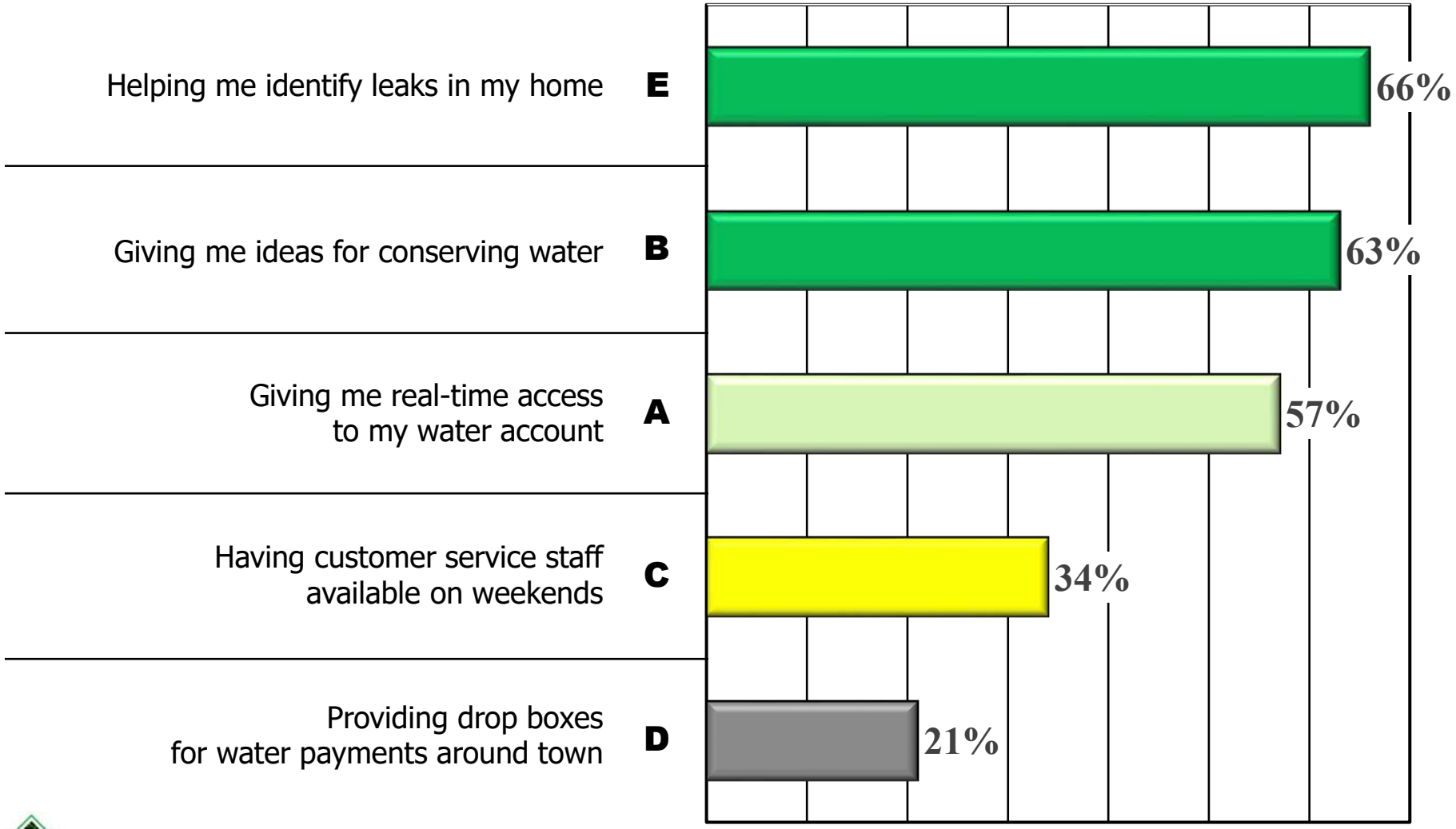
Excellent / Good Overall Job Rating For Santa Cruz Water Department



Excellent / Good Job Ratings For SCWD on Specific Attributes



Ways SCWD Can Assist Customers



WATER COMMISSION
INFORMATION REPORT

DATE: 04/26/2022

AGENDA OF: 05/02/2022

TO: Water Commission

FROM: Rosemary Menard, Water Director
Heidi Luckenbach, Deputy Director/Engineering Manager

SUBJECT: Securing Our Water Future – Water Supply Augmentation Alternatives and Evaluation Criteria

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RECOMMENDATION: That the Water Commission approve a list of water supply augmentation alternatives to compare as part of the Securing Our Water Future policy development process and approve a prioritized list of quantitative and qualitative evaluation criteria and considerations to use in the planned comparison.

BACKGROUND: At the Water Commission's April 4, 2022[1] meeting, staff presented a proposed approach for developing policy level recommendations to the City Council on water supply augmentation. Part of the information provided for the April 4th Commission meeting described a process for narrowing the range of alternatives to be evaluated and also an approach to prioritizing evaluation criteria to be used that is similar to that used by Water Commissioners in 2020 to prioritize water pricing policy objectives. At the May 2, 2022 Water Commission meeting, staff will be presenting a proposed list of supply augmentation alternatives to be evaluated and also providing the Commission with the results of the Water Commissioner's input on priority evaluation criteria for use in comparing alternatives.

Founded in the work performed since 2015 implementing the Water Supply Augmentation Strategy developed by the Water Supply Advisory Committee, the Securing our Water Future process establishes feasible water supply alternatives to meet supply and reliability objectives. The SOWF will include feasible alternatives vetted across adopted criteria as well as policy-level guidance to staff in terms of how to further develop implementable water supply augmentation projects.

In contrast, and occurring simultaneously, the Water Supply Augmentation Implementation Plan (WSAIP) builds on the SOWF alternatives by optimizing the utilization of source waters (surface

[1] Materials from this meeting are available online at https://ecm.cityofsantacruz.com/OnBaseAgendaOnline/Documents/ViewDocument/Water_Commission_1882_Agenda_Packet_4_4_2022_7_00_00_PM.pdf?meetingId=1882&documentType=AgendaPacket&itemId=0&publishId=0&isSection=false

water, recycled water, etc.) to be responsive/adaptive to a changing climate. An outcome of the WSAIP is a road map, complete with action triggers to transition from one supply project to another. Similar change management and adaptive pathways strategies were developed by the WSAC and incorporated into their Final Report on Agreements and Recommendations.

DISCUSSION:

A. Supply Augmentation Alternatives

Between 2016 and the present, considerable technical feasibility and analytical work focusing on supply augmentation options using the City's available source options, surface water, advanced treated recycled water and desalinated ocean water has been completed.[2]

As might be expected and as demonstrated by the table of supply augmentation alternatives included with the April 4, 2022 Water Commission materials, there are or can be many permutations of what is basically the same supply augmentation option. For example, there are aquifer storage and recovery (ASR) projects that could be developed in the Mid-County Groundwater Basin (MCGB) or the Santa Margarita Groundwater Basin (SMGWB) and these projects might be developed with or without some provisions for water transfers or exchanges. Similarly, indirect potable reuse (IPR) projects could be developed, and in the case of the Pure Water Soquel Project (PWS) are being developed in the MCGB, in the SMGWB. And these projects might be developed with or without production of tertiary treated wastewater for irrigation uses at, for example, area golf courses.

Standing back from what fairly quickly expands to dozens of alternatives that could be developed and evaluated, it is fairly easy to see that there are a few basic water supply options that provide the structure around which all the various permutations can be developed. It is this set of water supply options that staff recommends be considered in the comparative analysis that is being proposed as part of the Securing Our Water Future process.

The specific recommendations for the Water Commission's consideration for supply augmentation projects to include in the Securing Our Water Future process are as follows:

1. ASR in the MCGB – groundwater modeling shows that ASR in the MCGB can meet approximately 50% of the City's water supply gap. GW modeling occurring during and subsequent to the MCGB development of the Groundwater Sustainability Plan (GSP) used assumptions about demands, climate, and the operation of PWS, etc., that are being further refined in ongoing work about this project and those results will be reflected in the WSAIP.
2. IPR in the SMGWB – preliminary groundwater modeling performed for the SMGWB GSP characterized that basin's ability to provide storage for the Department's drought supply. IPR groundwater replenishment alternatives were also evaluated in the City's 2018 Phase 1 Recycled Water Feasibility Planning Study (RWFPS)[3] and further

[2] Additional analyses have been completed on demand management opportunities and, due to the already highly efficient water use patterns of Santa Cruz's water service customers, further demand management reductions, as part of the solution to the region's long-stand supply reliability problems, are not being pursued. The reason for this is that further demand reductions does not and cannot eliminate the underlying supply reliability problem or make the size of the problem to be solved materially different.

[3] See: https://www.cityofsantacruz.com/home/showpublisheddocument/84834/637594502205400000

developed between 2018 and 2022, showing promise as possible storage/supply alternatives.

3. Direct Potable Reuse (DPR) – Also evaluated in the City's 2018 RWFPS, this alternative sends advanced purified water to the GHWTP for additional treatment and blending with water being produced from that facility. Advance purified water could be supplied by the PWS facility or a new AWPF; and
4. Desalination – based on the updated desalination project reviewed in Dudek's 2018 memo.[4]

Focusing the analysis on these four basic options is in keeping with direction from the Water Supply Advisory Committee (WSAC) to consider the full range of options in selecting supply augmentation for implementation. Commissioners can be assured that following the completion of the Securing Our Water Future policy-setting process, the subsequent work of Department staff will be working on detailed implementation planning for supply augmentation, and some of the various project add-ons such as non-potable water for irrigation or integration of options for water transfers or exchanges will be explored and, if advantageous, added to the basic options being developed. Specifically, the planned follow-on development of the Water Supply Augmentation Implementation Plan (WSAIP) will build from the policy direction established in the Securing Our Water Future process.

Attachment 1 summarizes these four projects and provides initial comparative information about three important evaluation metrics developed by WSAC:

1. Cost
2. Yield
3. Timeliness.

Additional discussion about evaluation criteria follows.

B. Evaluation Criteria for Securing Our Water Future Process

Any project development effort inherently includes evaluation criteria. Sometimes these criteria are explicit, and sometimes they aren't, but decision-making on projects will always include some kind of criteria. Explicit criteria for the purpose of evaluating water supply augmentation alternatives were provided by the Water Supply Advisory Committee. In addition, staff has also considered industry-standard criteria as well as criteria used in the rate-making work to ensure a comprehensive evaluation of supply alternatives. Attachment B is a list of the sources and products where various criteria have been used.

As was the case in the earlier Commission work on discussions of the development of water rates, staff is proposing a process for honing the list of criteria to those most critical to be used in developing policy direction. Through an iterative process, staff worked together to consolidate the larger list of criteria included in Attachment 2 to a group of 15 criteria that includes a fairly comprehensive and diverse set of potential criteria, including both those that are quantitative and those that are qualitative.

Attachment 3 provides a brief definition for each proposed criterion. This material was provided to Water Commissioners with a request for them to provide their input about how to prioritize

[4] See: https://www.cityofsantacruz.com/home/showpublisheddocument/84842/637594507704230000

the criteria for their use in the Securing Our Water Future process. The idea of asking Commissioners to provide input on how to prioritize the criteria is modeled on the Water Pricing Policy Objectives priority setting process that has been used in water rate-making work in 2016 and 2021. This process isn't designed to completely eliminate or remove from further consideration criteria ranked lower on the list. Rather the prioritization process is intended to give staff direction about where to focus analytical work and also helps create the opportunity for Commissioners and staff to understand the degree to which each other's perspectives are aligned or, in cases where Commissioner views may be divergent, to have the opportunity to discuss and potentially revise the priority list.

Staff will be receiving Commissioners' input on these materials for the May 2nd Water Commission meeting and will collate and present it at the meeting.

C. Next Steps

Following Commissioners' input on water supply alternatives and evaluation criteria, staff will begin developing materials for the June 6, 2022 Commission meeting, the first of two planned discussions on the comparative analysis of water supply augmentation alternatives.

The July 21st Water Commission meeting, rescheduled due to conflict with the July Fourth holiday, will include a presentation and discussion of the results of the supply vulnerability analyses work that will provide important context for the Commission's consideration related to the potential implications of climate change on water supply.

The September 5th Commission meeting is being rescheduled to August 29th due to its conflict with the Labor Day holiday, and at this meeting, Commissioners will be working on reviewing and finalizing the comparative analysis information on the supply augmentation alternatives being considered in the policy-setting process.

FISCAL IMPACT: No fiscal impact from this action at this time.

PROPOSED MOTION: Motion to approve a list of water supply augmentation alternatives to compare as part of the Securing Our Water Future policy development process and approve a prioritized list of quantitative and qualitative evaluation criteria and considerations to use in the planned comparison.

ATTACHMENTS:
1. Table of Alternatives
2. Comprehensive List of Possible Evaluation Criteria
3. Evaluation Criteria Materials Sent to Water Commissioners

Estimated Range	Estimated Range	Estimated Range
< 10% of Gap	$ < $10 M	< 3 years
10-50% of Gap	$$ $10 to $50 M	3-5 years
50-80% of Gap	$$$ $50 to $100 M	5-10 years
> 80% of Gap	$$$$ $100 to $150 M	> 10 years
	$$$$$ >$150 M	

Santa Cruz Securing Our Water Future
Project Alternatives Matrix

WSAC Alternatives	Lead	Alternative	Description	Source Water	Potential Yield [a]	Project Cost Range [b]	Timeliness for Implementation [c]
Aquifer Storage and Recovery (ASR)	SCWD	Mid County Groundwater Basin (MCGB)	Optimized ASR using existing wells + new wells	City's Treated Drinking Water		$$	
			Optimized ASR +IPR/Seawater barrier	City's Treated Drinking Water + PWS Purified Water		$$$	
	SCWD - SVWD - Other	Santa Margarita Groundwater Basin (SMGB)	ASR in the SMGB	Raw Surface Water from Loch Lomond or Newell Creek		$$$$	
Recycled Water	SCWD - SqCWD	MCGB Indirect Potable Reuse (IPR)	IPR using PWS AWPF Purified Water	PWS Purified Water		$$$	
	SCWD - SVWD - Other	SMGB IPR	IPR using PWS AWPF Purified Water conveyed to SMGB	PWS Purified Water		$$$$	
	SCWD	Direct Potable Reuse via Raw Water Augmentation	DPR via a new City AWPF with raw water blending prior to treatment at GHWTP	Santa Cruz WWTF		$$$$	
Desalination	SCWD	Seawater Desalination	New local seawater desalination facility to operate year-round or during droughts, similar to scwd2 project. Consider with or without partnerships	Monterey Bay		$$$$$	

Notes:
All projects on this table are technically feasible, although design details are still needed. All storage projects will require a certain degree of inter-agency collaboration, including the sustainability agencies for both basins. Project success is linked to this collaboration.

a. Estimated potential yield based on previous City studies and estimates of available water sources.

b. Estimated cost range for ASR is based on initial City studies. Estimated cost range for Recycled Water alternatives is based on the RFWFS phase 1 estimates assuming 40% increased costs due to escalation. For Desalination, cost estimates are based on Study developed by Dudek in 2018 assuming 40% increased costs due to escalation.

c. Estimated timeliness based on previous City studies. Time required to implement alternatives will depend on collaboration across all stakeholders as appropriate

Comprehensive List of Possible Criteria/Considerations for Securing Our Water Future

Decision Criteria

I. WSAC Criteria (2015)

A. Technical Feasibility
B. Time Required to Demonstrate Technical Feasibility
C. Time Required to Full-Scale Production
D. Adaptive Flexibility (including scalability)
E. Supply Reliability
F. Supply Diversity
G. Energy Profile
H. Environmental Profile
I. Regulatory Feasibility
J. Legal Feasibility
K. Administrative Feasibility
L. Potential for Grants or special Lower Interest Loans for Engineering and/or Construction
M. Political Feasibility
N. Cost Metrics

II. RWFS Phase 1 (2018)

A. Economic
   1. Cost-Effectiveness
      - Construction Costs ($)
      - O&M Costs ($/yr)
      - Annualized Costs ($/AFY)
      - Recycled Water Delivered (AFY)
   2. Financial Implementability
B. Environmental
   1. CEQA
   2. Environmental Enhancement
      - Energy (KWh/yr)
      - GHG Emissions (CO_2e)
      - Social Cost of Carbon ($/MT)
C. Social
   1. Agency Coordination, Partnerships, and Agreements
   2. Local Disruption
      - Construction footprint (SF)
D. Engineering & Operational Considerations
   1. Improve Regional Water Supply
   2. Maximize Beneficial Reuse
   3. Ease of Implementation
   4. Operational Complexity

III. Phase 2 (Triple Bottom Line) (2019)

A. Financial
   1. Total Capital Cost
   2. Annual O&M Cost
   3. Total Annualized Cost
   4. Cost/mg Produced
   5. Cost/Yield
   6. Grant and Loan Opportunities
   7. Impact on rates
   8. Regulatory Opportunities/Uncertainty
   9. Partnerships
   10. Incremental Opportunities

B. Social
   1. Public Health
   2. Public Safety
   3. Timeliness
   4. Community Acceptance
   5. Employment Impacts
   6. Resiliency
   7. Construction Impact
      - Siting and square footage
      - Community Disruption
   8. Regional/Institutional
   9. Collaborative Opportunities
   10. Impact on Affordability

C. Environmental
   1. Climate Mitigation
      - Carbon Footprint
        - Construction
        - O&M
        - Embedded
   2. Climate Adaptation
      - Seawater Intrusion
      - Coastal Inundation
      - Tidal Basin
      - Wildfire
   3. Groundwater Management
   4. Regulatory Compliance
   5. Habitat/Ecosystems
      - Construction
      - O&M
      - Under future risks
   6. Residuals Management

WATER SUPPLY PROJECT EVALUATION CATEGORIES, SUB-CATEGORIES AND DEFINITIONS	
QUANTITATIVE CATEGORIES	
Criterion	**Definition or Explanation The criterion provides information about:**
Project Costs	
• Annualized Cost per million gallons of Average Year Yield (ACAYY) ($ per million gallon of average year yield)	• WSAC Cost Metric that takes the annualized cost metric above and enhances its comparability with other project options by specifying that the project "yield" which is defined as the amount of water available from that source to meet peak season demands in an average year.
Project Yield	
• Project supply contribution as a % of the worst year supply shortfall (% of the 1.2 billion gallon worst year supply gap)	• The criterion provides information about the percent contribution to reducing the worst year supply gap provides information about the degree to which a project can contribute to closing the supply gap
QUANTITATIVE CATEGORIES	
Criterion	**Definition or Explanation The criterion provides information about:**
Energy Profile and Climate Mitigation	
• Energy use (KWh/year)	• The amount of energy required annually to operate the project.
• Greenhouse gas emissions associated with the project (metric tons of carbon dioxide equivalents released; MT of CO_{2e})	• The amount of greenhouse gases associated with the construction and operation of a project. (similar to the energy version of annualized or life-cycle cost)
Timeliness	
• Time required to begin producing additional an increment of water that makes a significant contribution to improving the system's water supply reliability issue (months/years)	• The number of years required (from date of evaluation and green light to proceed) to complete technical feasibility work, pre-design, design, CEQA, permitting, construction, commissioning and start-up of a project that produces additional water supply
Technical Feasibility	
• Technical Feasibility (yes/no ratings for each element that comprises a project's technical feasibility benchmarks) ○ Example sub-elements for technical feasibility can include constructability, (add to this list)	• The technical and engineering aspects of a project are realistic and achievable and can and will contribute to improving supply reliability
• Operational complexity (high/medium/low)	• Whether/how the project's operation does or does not add significantly to the operational complexity of the existing system

Qualitative Categories	
Criterion	**Definition or Explanation** **The criterion provides information about:**
Environmental Impact	
• Potential impacts of any CEQA-required mitigation that could significantly affect project cost, yield or timeliness parameters (high/medium/low or additional gradations of this scale)	• The likelihood for any potential large impact to cost, yield, or timeliness parameters from CEQA required mitigation for the supply augmentation project.
Funding and Financing	
• Likelihood of the project being fundable with federal or state grant funds (highly likely/unlikely with gradations)	• The potential for the project to be grant funded. An example is the US Bureau of Reclamation's Title XVI grant program that is specifically designed to fund recycled water projects.
• Opportunity for shared funding (yes/no)	• The potential for shared funding through partnerships with other regional water agencies.
Public Acceptability	
• Includes a project (or projects) that is understood and accepted by the general public and key stakeholders. (yes/no or some scale that is graded along the lines of strongly supported/not supported at this time)	• The degree to which there is public understanding and acceptance for the projects under consideration.
Administrative Feasibility	
• Degree of complexity with respect to regulatory, permitting, right of way, or l legal issues and the time required to address and resolve the identified issues (for complexity: high/ medium/low) (for time requirement: number of months or years)	• The complexity and time required to address regulatory, permitting, right-of-way and/or legal issues related to a supply augmentation project and the amount of time needed to address or resolve those issues.
Adaptive Flexibility	
• Increases resiliency to climate change (high, moderate, low) specifically related to: o Certainty of supply during drought o Certainty of supply during extreme wet weather; o Vulnerability to shifting patterns of precipitation due to climate change; o Seawater intrusion; o Coastal inundation and sea level rise; o Wildfire o Seismic events o Other natural disasters	• How a project may (or may not) be able to adapt to changing conditions or be functional in the face of climate change, wildfire, seismic or other natural disasters.
• Project includes characteristics that provides for scalability or provides for it to be implemented incrementally or in phases over time (yes/no)	• The degree to which the project can be relatively easily expanded or scaled up over time or implemented in increments or phases.
• Adaptability to future uncertainty from regulations or source water changes (yes/no)	• Whether or how well a project may (or may not) be able to adapt to changing regulations or source water quality changes.

Priority Setting Process Materials

Category	*Criteria*
Project Cost	1. ***Annualized Cost per million gallons of Average Year Yield (ACAYY)*** ($ per million gallons of average year yield)
Project Yield	2. ***Project's supply contribution as a % of worst year supply shortfall*** (% of the 1.2 billion gallon worst year gap)
Energy Profile and Climate Change	3. ***Energy Use*** *(KWh/yr)* 4. ***Greenhouse Gas Emission*** **(**MT of CO_{2e} **)**
Timeliness	5. ***Time required to for implementation*** (years)
Technical Feasibility	6. ***Technical Feasibility*** (yes/no) 7. ***Operational complexity*** (high/medium/low)
Environmental Impact	8. ***Potential impacts for CEQA required mitigations to impact project cost or timeliness*** (High/Medium/Low)
Funding and Financing	9. ***Likelihood of project being funded by state or federal grants*** (highly likely/highly unlikely) 10. ***Opportunity for shared funding*** (yes/no)
Public Acceptability	11. ***Is understood and accepted by the public and key stakeholders*** (yes/no)
Administrative Feasibility	12. ***Degree of administrative complexity*** of regulatory, permitting or right-of-way issues and time required to address and resolve those issues (complexity = high/medium/low; time required = months or years)
Adaptive Flexibility	13. ***Increases resilience to climate change*** (yes/no) 14. ***Scalable or can be implemented incrementally or in phases*** (yes/no) 15. ***Adaptable to future regulatory or source water changes*** (yes/no)

Criterion #	*Short Criterion Description*

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WATER COMMISSION
INFORMATION REPORT

DATE: 4/28/22

AGENDA OF: May 2, 2022

TO: Water Commission

FROM: David Baum, Chief Financial Officer
Malissa Kaping, Management Analyst
Nicole Dennis, Principal Management Analyst

SUBJECT: Water Department's Proposed Fiscal Year 2023 Operating and FY 2023-27 Capital Investment Program (CIP) Budgets

RECOMMENDATIONS:

1) That the Water Commission review and provide feedback to staff on the Water Department's Proposed Fiscal Year (FY) 2023 Operating and FY 2023-27 CIP Budgets (Budgets), including an updated multi-year Pro Forma integrating information about the Department's Budgets and financial position.
2) That the Water Commission recommend the Chair work with staff to finalize a letter to the City Council related to the Department's FY 2023 Budgets and financial position recommending the Water Department's Budgets to the City Council based on Commission input. This letter will accompany other budget-related materials and will be included in the June 2022 agenda packet when the City Council is scheduled to adopt the FY 2023 Operating and FY 2023-27 CIP Budgets.

BACKGROUND: As outlined in the Water Commission's Bylaws, the Commission's role includes the duty to "make recommendations concerning the proposed annual Water Department budget and CIP." To that end, the Department is presenting the proposed FY 2023 Budget materials to the Water Commission and seeking a recommendation to the Council in the form of a signed letter along with related materials to submit to the City Council.

The Water Department's Operating and Capital Investment Budgets authorize the necessary appropriation amounts for the Department to fulfill its mission to "ensure public health and safety by providing a clean, safe, reliable supply of water to its customers."

The Budgets have been specifically developed to support the continuing operations and maintenance of the water system and its ability to serve the community with high quality and reliable water supply, to provide the resources needed to finance major capital investments for the rehabilitation and replacement of water infrastructure, make further investments in improving

the reliability of the Santa Cruz water supply, and prepare the water system to be more resilient and reliable in the face of the significant uncertainty that arises from climate change.

Updates to the budget will continue to change through budget release on May 10, 2022; information in this report is based on the budget effective April 22, 2022. The final FY 2023 budget proposal will be reviewed with the Water Commission scheduled for June 6, 2022. Santa Cruz City Council will hold its FY 2023 Operating and CIP budget hearings on May 24th and 25th and is currently scheduled to adopt the budget on June 14, 2022.

DISCUSSION: A number of documents related to the Department's FY 2023 Budget and Pro Forma are provided as part of the package of materials for Water Commission consideration and transmittal to the City Council as part of the Water Commission's recommendation. Included are the Water Department's:

1. FY 2023 Proposed Operating Budget
2. FY 2023-27 CIP Summary by Project
    a. Extension of the Master Services Agreement with HDR for Program Management Services for an additional 5-year period
    b. HDR FY 2023 work plan / Service Order 8
3. CIP Project Fact Sheets – Active Projects
4. Budget Analytics
5. Updated Five-Year Financial Pro Forma

Proposed FY 2023 Operating Budget

The FY 2023 Proposed Operating Budget is slightly over $37 Million and is nearly $1 Million less than the FY 2022 amended budget. The City separates the operating budget into 4 major categories:

- Personnel Services,
- Services, Supplies, and Other Charges,
- Capital Outlay (non-CIP), and
- Debt Service.

		Fiscal Year 2022			
	Fiscal Year* 2021 Actuals	Adopted Budget	Amended* Budget	Year-End Estimate	Fiscal Year 2023 Proposed
EXPENDITURES BY CHARACTER:					
Personnel Services	13,774,554	16,479,243	16,714,151	15,427,372	17,691,829
Services, Supplies, and Other Charges	13,504,675	15,646,123	16,402,854	14,113,092	13,890,856
Capital Outlay	383,593	601,500	762,898	537,012	323,000
Debt Service	3,683,200	4,098,626	4,098,626	4,098,710	5,131,705
Total Expenditures	31,346,021	36,825,492	37,978,530	34,176,186	37,037,390

Direction was provided to Department Managers to budget within 5% of FY 2021 actuals due to continued reduced revenues from drought and the COVID pandemic. The Managers were successful in meeting this goal by budgeting within 2.3% of FY 2021 actuals for Services & Supplies and Capital Outlay. Personnel Services, however, is budgeted to increase 28%, which will be reduced by vacancies. The main reasons for the 28% increase from FY 21 to FY 23 proposal are (1) falling revenues induced a 10% furlough wage reduction in the first 10 ½ months of FY 21 and (2) merit increases, cost of living adjustments, pension benefits and healthcare contributed to the cost increase. Detailed information regarding changes in the budget are explained below in the Five Year Budget Analytics section.

Five Year Budget Analytics

Attachment 4 is a five-year analysis comparing budgeted to actual expenditures at the Department and Section/program level beginning in FY 2018 through the FY 2023 Proposed Budget. The "adjusted budget" column represents the approved budget for a specific year plus any budget adjustments approved administratively or by the City Council. The following are highlights of expenditure trends and notes on the larger year to year changes:

1) FY 2022 Year-End Estimates are lower than the FY 2022 Amended Budget by $2.8 million which is a much smaller difference than in previous years. This is the result of deliberate efforts on the part of management to budget more conservatively. The continuing difference between the FY 22 budget and the year end estimate to complete is the result of some lingering pandemic impacts, reduced ability to proceed on projects when working with our State partners, recruitment delays, and equipment delivery delays, among others.

2) Personnel costs in the FY 2023 Proposed Budget include the addition of 3.0 FTEs of new positions: a Management Analyst (Conservation), an Engineering Technician (Engineering) and a Programmer Analyst (Information Technology) as well as merit increases, and increased costs of health insurance and pension costs. No negotiated salary increases have been included in the FY 2023 Proposed Budget since negotiations with the various labor groups have not been concluded.

   The additional FTEs are in response to evolving workloads. The Engineering counter has experienced a significant increase in plan reviews due to recent state law changes, increased requirements for backflow and cross-connection controls, increased support needed for CIP projects, and increased public visits/calls. The work in Conservation has also been evolving, primarily due to the new metering infrastructure being installed and climate change impacts, and additional analysis is needed for changing water use and consumption trends, water supply availability, source water use, and curtailment impacts. The new Programmer Analyst, funded by Water but in the Information Technology org chart, will provide software programming needed to implement new technologies such as the new metering infrastructure, create reports such as those needed to analyze changing water consumption and provide ongoing support for the Santa Cruz Municipal Utilities billing system and planned new Computerized Maintenance Management software.

3) Services, supplies, & other costs have decreased 15.3% from the FY 2022 Amended Budget which is largely the result of progress or completion of a number of projects such as: Water

Rights, Risk and Resiliency Analysis, and the 2021 Water Rate work. Overall, expenditures are down when comparing the FY 2022 Amended Budget to FY 2023 Proposed.

4) Overall, FY 2023 expenditures are increasing when compared to FY 2021 Actuals and FY 2022 Year-End Estimates which is reflective of a more "normal" return to work for the Department. Year-end FY 2022 operating expenses are based on Year-End estimates developed by Department managers based on six months' worth of data, with projected year-end personnel and cost allocation expenses provided by the Finance Department. The FY 2022 4th Quarter Financial report will show an updated year-end financial position that is provided to the Commission in the fall of 2022.

5) The budget for debt service continues to increase as the Department issues more debt to fund the ambitious CIP. A breakout of the various debt instruments and the FY 2023 Proposed debt service amounts are listed in the table below:

FY 2023 Debt Service	**All Funds**
2014 Refinancing	$705,038
2016 IBank	$1,372,677
2019 Green Bonds	$1,378,500
2020-21 SRF Loans	$1,050,490
2021 Line of Credit	$625,000
Total FY23 Debt Service	$5,131,705

The 2020 and 2021 State Revolving Fund (SRF) loans, which total $149.4 million, will not commence the repayment of principal until after the projects are completed. Accordingly, the first principal payment is likely due on October 31, 2023.

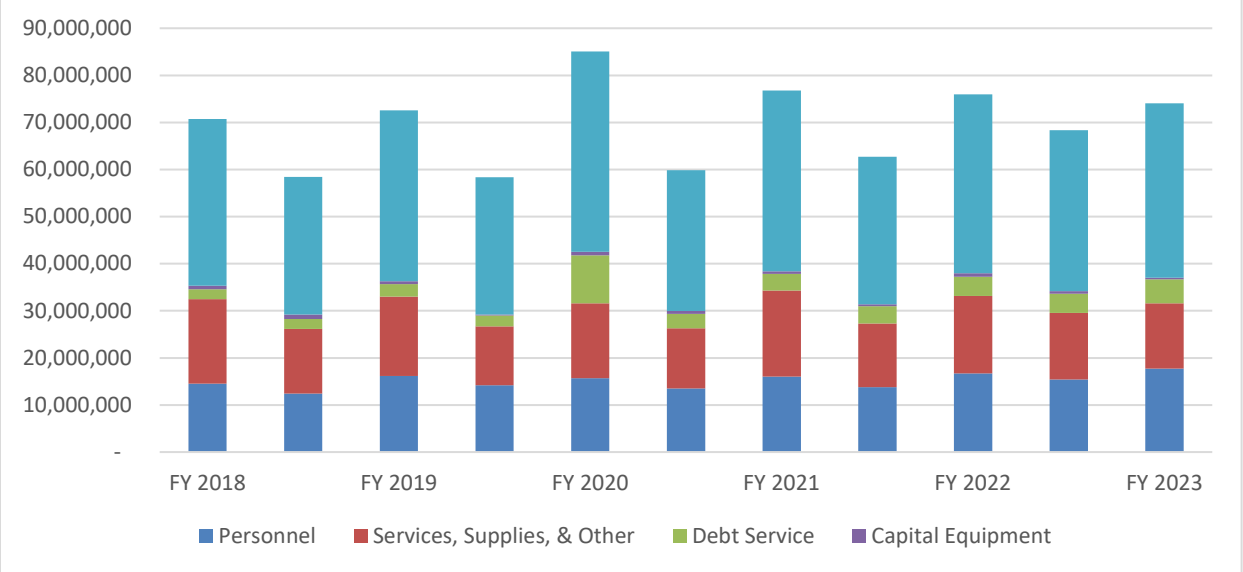
6) Capital Outlay purchases continue to fluctuate from year to year based on identified capital equipment needs and capital purchases planned for FY 2023 is limited with the largest piece of equipment requested being an additional portable generator. During FY 2022 durable equipment purchases were funded from the Water Equipment Replacement Fund (719).

7) In regard to the individual sections and the overall increase between the FY 2022 Year-End Estimates and the FY 2023 Proposed Budget, there are common themes that contribute to increases: merit increases, increased costs of health insurance, pension costs, and increased funding for training and travel. In some cases, these increases are offset for noteworthy reasons discussed below:
   a) Administration – FY 2023 costs have decreased due to the completion of the 2016 Water Rate work and reduction in outside legal fees.
   b) Engineering – The addition of an Engineering Technician position is the primary reason for the increased cost. In addition, staff seeks to charge its labor to the CIP, if appropriate, thereby reducing operating costs.
   c) Meter Shop –Increased costs for FY 2023 can be attributed to additional temporary workers to support the AMI project and new AMI Badger Beacon meter reading costs. After the 22,700 new meters have been installed, savings will occur due to reduced

maintenance costs associated with operating the new meters. These reduced costs will be reflected in the FY 24 budget and potentially a FY 2023 mid-year reduction.

d) Conservation – an additional Management Analyst position is recommended and typical salary and benefit costs account for the primary increase in FY 2023.
e) Operations Management and Administration – Cost increases are related to additional project work planned for FY 2023 such as the fire resiliency work.
f) Water Resources – FY 2023 Proposed costs have increased as compared to the FY 2022 Year-End Estimates due to: the transfer of a vacant Associate Planner position from Engineering to support planned implementation of the anadromous salmonid habitat conservation plan, and the water rights changes, as well as costs for office space and an additional vehicle for this group when they had to be relocated away from the Graham Hill Water Treatent Plant due to construction impacts
g) Production – Increased costs for FY 2023 are largely due to increased energy and chemical costs as well as increased security patrols, well assessment/testing/rehabilitation and vegetation management services at the Department various facilities.
h) Quality Lab – Increased costs are for chemicals, outside laboratory testing, support for implementation of new regulations which require consultants and a standards audit.

Overall, the following chart highlights the difference between operating budget and actual expenses from FY 2018 through FY 2023. For each fiscal year in the chart, the first bar is the budget and the second bar is actual expenses. In each of the five prior years, the actual expenses were at least 10% less than the adopted budget. FY 21 was lower by 18% due to 10% salary reduction for the first 10 ½ months, which was the primary reason for the reduction in FY 21.



Proposed FY 2023-2027 CIP Budget

Included in the agenda packet are three attachments for the FY 2023-2027 Proposed CIP Budget:

1) a detailed CIP summary of per project budget estimates by FY;

2) information about the proposed extension of the HDR Program Management contract and the high level scope of work for the HDR work for FY 2023; and
3) CIP Project Fact Sheets for each active CIP project.

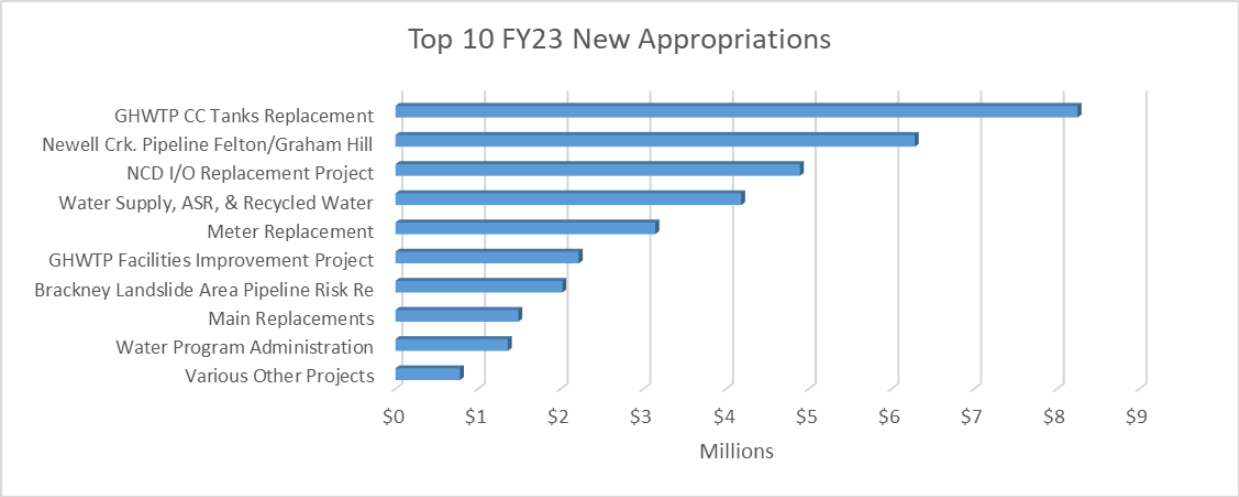
The Project Fact Sheets are posted to the City's website and are designed to provide information not only to the Water Commission and City Council but also to project neighbors and potential contractors. These sheets provide detailed information regarding each project including a project description, lifetime cost, and schedule. Fact Sheets for projects in post-construction are not included.

The proposed budget to be presented to Council is for the five-year period of FY2023-2027 recommending nearly $295 Million in new appropriations, with the bulk of the money for Infrastructure Resiliency and Climate Adaptation projects.

The FY 2023 new appropriation of $35.5 Million and a significant carryforward is expected from previously budget, unspent funds. Supply chain disruptions have delayed projects, especially during the past couple years due to COVID.

Prudent budgeting would include the expectation that the amount spent remain below the budget each year (which would result in some carry-forward each fiscal year); however, the large carry-forward from FY 2022 is due in part from current volatile market conditions causing scheduling changes and is not expected to be experienced in the future. Project costs are not changing but rather deferred to a future fiscal year.

The following highlights the largest new appropriations in the upcoming budget cycle.



Master Service Agreement Extension (with HDR)

2022 represents the 5 year milestone for the Water Department and HDR's partnership on the Santa Cruz Water Program. As background, in 2017, recognizing that the staffing needs of large scale capital program would exceed the capable but small Water Department Engineering Section, staff recommended a consultant program management model to deliver the unprecedented set of projects. Program Management services can vary widely based on types of

the projects and needs of their owners from project management, administrative systems and support, processes and software tools and applications, as well as technical review/advice, and financial, legal and permitting support. In December 2017, City Council authorized a master service agreement for Program Management Services (MSA) with HDR Inc. Recognizing the long-term nature of implementing public infrastructure projects, the contract with HDR was approved for a 5 year period, with an option to renew. A high level overview and recap of the first 5 years of programs services is provided as Attachment 2.

At the core, HDR serves as an extension of staff to directly manage or support the management of projects. This flexible staffing model has worked well given the diverse types and sizes of projects. In addition to staffing support, HDR has introduced industry best practices to execute projects in the most efficient and cost effective manner. These organizational systems and structures provide a framework for effective project management including schedule development, project cost estimating and forecasting systems, risk management, and decision making and change management procedures. The changes introduced by HDR have strengthened the institutional systems around project delivery and will continue after the HDR/Water Department partnership concludes.

The Water Program has developed significant momentum and progress is tangible on multiple fronts. A final water supply augmentation implementation plan is under development; two Newell Creek Pipeline projects with a combined value of nearly $40 Million are completing design; and the Newell Creek Dam Inlet/Outlet project, a $100 Million project will complete construction in early 2023. Despite the progress made there is much work left to complete. As described above, approximately $295 Million of Capital Investments are planned between FY 23-27 focusing on water treatment and water supply.

Given the work ahead, staff recommends extension of the program management contract with HDR. As support to this recommendation, the draft FY 2023 annual work plan is included as an attachment, to give a sense of work on just the next year horizon. As mentioned above the resource needs to support the Program are dynamic and should be flexible to adapt to the evolving project and program needs. Over the last 5 years, the Water Department has added several permanent positions in response to the expanded capital program. Cross training and transitions are also underway to “insource” roles and service typically provided by HDR including design management, administrative support, cost controls, contract management, quality assurance, and construction management and inspection. Ongoing staff resource planning analysis has informed transition/succession planning, and defined a more concrete timeline for conclusion of the program management contract in 2027, at which point the need for HDR’s services will be reassessed.

Beyond extending the MSA, no significant changes are proposed to the program management contract structure or scope. Because the 5-year MSA is set to expire in December of this year and midway through the upcoming FY 2023, staff is planning to take a single item to Council to renew the MSA for an additional 5 years and approve the annual work plan and fee for FY 2023 in June 2022.

Working Draft FY 2022-2037 Pro Forma

The updated Financial Pro Forma is provided (Attachment 5) and includes an overview of the Water Department's financial performance for the FY 2023 Proposed Operating Budget and a 1 year CIP. The Pro Forma is based on running the model developed for the 20 Long Range Financial Plan (LRFP) as appropriately updated over time. There are a number of assumptions incorporated into the Pro Forma which include:

1) Sales of 2.37 billion gallons of water each fiscal year;
2) Inflation factors of:
   a) 6.9% for rate increase FY 2023;
   b) 0% for salaries;
   c) 7% for benefits;
   d) 5% for services and supplies; and
   e) 5% for Capital Outlay.
3) CIP is based upon an updated 5-year plan;
4) Interest rate for future debt is up to 4% through 2027.

The updated Financial Pro Forma reflects FY 2023 estimated total revenues of $42,056,855 and total operating expenditures of $31,905,685, debt service of $5,131,705 as well as $35,499,221 in capital expenditures.

The Department obtained a $50 Million Line of Credit (LOC) at the end of FY 2021 to help meet short-term financing needs for FY 2022 through FY 2024 and provide a financial bridge to planned long-term debt financing. As of April 27, 2022, SCWD has submitted claims totaling $69.5 million and have received reimbursements totaling $57.2 million with a balance due of $12.3 million. The wait time to receive reimbursements is averaging 125 days. A $21 million draw from the LOC has allowed the SCWD to keep pace with the increasing capital expenditures, especially during the long reimbursement waiting periods.

Staff is also pursuing funding from the Environmental Protection Agency (EPA) Water Infrastructure Finance and Innovation Act (WIFIA) which is currently reflected in the Pro Forma as well as grant opportunities as available. Staff submitted a Letter of Interest in July 2021. As a result, EPA invited SCWD to apply for a WIFIA loan. The WIFIA application is due in December but staff expects to submit the application in the Summer. EPA is expected to review the application for up to nine months, structuring the loan is expected to take three months and closing should occur by Summer 2023. Due to rising interest rates, we will seek to complete the loan expeditiously. As of today, the WIFIA loan rate for 40 years would be 2.84%.

The projected size and timing of debt issues to finance these capital projects is summarized in the table below. These figures include the additional DWSRF, WIFIA, or grant funding for projects that may defer or replace projected borrowing shown on the next page. The total anticipated debt issues total $244 Million over the next five years.

Size and Timing of Debt Issues Needed to Fund Capital Program

2023	2024	2025	2026	2027
$ 34,456,835	$ 53,004,997	$ 50,526,288	$ 54,191,228	$ 51,976,209

Amounts reflected in the Financial Pro Forma include Fund 711 (Water Operations), Fund 713 (Rate Stabilization), Fund 716 (90 Day Operating Reserve), and Fund 717 (Emergency Reserve) and Fund 715 (System Development). The current established reserves and target funding levels include the following:

- Rate Stabilization Reserve (Fund 713) of $10 million;
- Water Emergency Reserve Fund (Fund 717) at minimum level of $3 million; and
- An Operating Reserve equal to 180 days of operating expenses, with 90 days of operating cash in Water Operating Cash Reserve Fund (Fund 716), and the remaining 90 days of operating cash in the Water Operating Fund (Fund 711). The annual funding targets for these reserves are based on the Department's annual operating budget and the metric is to have both Fund 716 and Fund 711 meet the annual 90 days operating cash criterion by the fiscal year's June 30 closing date.

The reserves in the Long Range Financial Plan (LRFP) set forth above are all met in the proposed budget. Similarly, the debt service coverage ratio is a minimum of $1.50 net revenue for each $1 of debt service as established in the LRFP.

FISCAL IMPACT: Funds are available to support the FY 2023 Proposed Budgets as demonstrated in the Financial Pro Forma.

ATTACHMENTS:
1. FY 2022 Proposed Operating Budget
2. FY 2023-27 CIP Summary by Project
   2a. HDR Agreement - 5 Year Recap
   2b. HDR FY 2023/Service Order 8 Annual Work Plan
3. CIP Project Fact Sheets
4. Budget Analytics
5. Five-Year Financial Pro Forma

Water Department

The mission of the Water Department is to ensure public health and safety by providing a clean, safe and reliable supply of water. We strive to serve the community in a courteous, efficient, cost-effective and environmentally sustainable manner.

We are passionate about our work and try to instill our values of integrity, innovation, objectivity, professionalism, teamwork and transparency in everything we do. We collect water, treat and test it, move it, store it, distribute it, track how much is used and bill our customers for their use. We are at the end of the phone when customers call, and the smiling faces customers see when they visit the Department. We educate our customers about the quality of their water and how to use less. Our work includes maintenance and operation of the Loch Lomond Recreation area, as well as the protection of Majors, Liddell, Newell Creek, Zayante and Laguna watersheds. We are stewards of an important community asset - the water system and all it entails, as well as a range of natural resources and ecosystems that many species depend on. We take pride in meeting the diverse needs of the broad region we serve and value our partnerships with neighboring agencies to develop long range solutions to the regions drinking water needs.

Core Services

Everyday Department staff work hard to produce and deliver millions of gallons of water to nearly 98,000 customers and perform all the related utility, land and natural resource management activities that often happen behind the scenes, but play a part in providing reliable, high quality water service to our community. In addition to the Department's daily duties, the Department is undergoing a major reinvestment in water infrastructure from upgrades to the water treatment plant, improvements to the Loch Lomond dam and the replacement of all system meters, to mention a few. In order to perform this work, the Water Department is organized into four areas: Operations, Engineering, Customer Service and Administration.

Operations - The Operations group is responsible for managing the watersheds; collecting, treating and testing untreated and treated water; and storing and distributing treated water to our customers and consists of the following sections: Water Resources, Water Production, Water Quality Control (laboratory), Distribution and the Water Recreation Facility (Loch Lomond).

- The Water Resources Management section is responsible for the drinking water source protection, environmental regulatory compliance, and general natural resource management. The section coordinates environmental projects related to water rights, water supply, habitat conservation, and environmental resource protection.
- The Water Production section is responsible for production, operation, and maintenance of water storage, diversion, collection, pumping, and treatment facilities from all sources throughout the system. This 24/7 work is made more challenging with the Concrete Tank Replacement project underway and planned upgrades to the Graham Hill Water Treatment Plant in the near future.
- The Water Quality Control (laboratory) section performs all water quality testing, and oversees matters pertaining to water quality control to maintain compliance with State and federal standards and for planning for future treatment needs.
- The Water Distribution section is responsible for the maintenance and operation of all transmission mains, distribution mains, service lines, and hydrants in the service area. Distribution staff also replace significant segments of distribution mains as part of the Capital Investment Program (CIP).
- The Water Recreation Facility section operates and maintains Loch Lomond Recreation Area. This section is also responsible for patrolling watershed property and protecting source water quality. We are pleased our ranger staff are, once again, providing in-person, watershed education program for local elementary school children at Loch Lomond.

Engineering - The Water Engineering section is composed of two main functions: Engineering and Utility and Environmental Planning.

- The Water Engineering section provides engineering, planning, project design and construction management necessary for water facilities, as well as evaluation and installation of water saving technologies. The section keeps current with new technologies and water quality issues, remaining sensitive to mitigation of environmental impacts; reviews all requests for water services; maintains record of facilities, installations and maps; and oversees the Backflow Prevention Program. In 2017, the department embarked on an ambitious system-wide reinvestment with the Engineering section at the helm. This program includes the replacement of storage tanks, transmission lines, and the exploration of increasing storage in underground aquifers in partnership with neighboring agencies.
- The Utility and Environmental Planning group helps the Department to plan adequately for a 21st century drinking water system. Foundational documents such as the Urban Water Management Plan, serves as a guide to future projects by ensuring there are adequate water supplies. In addition, there are numerous federal, State and local environmental laws the Department must comply with to complete the planned infrastructure investments in the water system.

Customer Service - The Customer Service group consists of three sections: Customer Service, the Meter Shop and Water Conservation. These three sections interface with the public frequently and we strive to provide consistently excellent customer service.

- The Customer Service section (Santa Cruz Municipal Utilities – SCMU) provides customer service for water, sewer, refuse and recycling services to the residents and businesses of the City of Santa Cruz, and only water services to the unincorporated surrounding areas. This section manages utility accounts and billing, processes opening and closing of accounts; and provides service in response to customer requests.
- The Meter Shop section is responsible for reading, inspecting, installing, maintaining, and replacing water meters in the service area that covers the City of Santa Cruz and the unincorporated surrounding areas. As part of a large capital project, all water meters in the service area are being replaced. The new meters will give water customers more timely and accurate usage information as well as improve the billing process.
- The Water Conservation section is responsible for promoting efficient water use and for implementing management practices that reduce customer demand for water, including public information and education activities, water budgets for large landscape customers, plumbing fixture replacement and appliance rebate programs, technical assistance, administration of landscape, and water waste regulations. The Conservation section has been instrumental to teaching customers about the new metering system and how to use it to their advantage.

Administration - The Water Administration section coordinates and manages department business by focusing on the following operational areas: human resources, finances, public relations, safety, and regulatory compliance. Administration is responsible for maintaining a rate structure that reflects cost of service, solicits federal, state and other funds to finance the Department's Capital Investment Program, and ensures adequate reserves. This section also facilitates the communication and interaction with the Water Commission, City Council City Manager’s Office and regulatory agencies.

Accomplishments and Goals

FY 2022 Accomplishment	Infrastructure	DT & Other Business Sectors	Fiscal Sustainability	Core Services	Equity, Health & Well-Being, Sustainability	New & Improved Funding Sources	Green Economy
Produced and delivered 2.49 billion gallons of clean, safe, reliable drinking water.				x			
Completed the Proposition 218 process which resulted in City Council approval of 5 year rates (2023-2027) along with the Long Range Financial Plan	x		x				
Secured funding for critical water supply capital projects, including an application invitation from the Environmental Protection Agency to obtain a $164 million low interest loan.	x		x			x	
Completed the Department Emergency Response Plan, as required by the 2018 America's Water Infrastructure Act				x			
Completed Laguna Creek Diversion retrofit project	x			x			
Incorporated the source water monitoring program which resulted in 34% more samples processed	x			x			
Completed the Ocean Street Extension Water Main Replacement	x			x			
Began installation phase of the system-wide Meter Replacement Project	x		x	x			
Updated the Operations Plan for the Graham Hill Water Treatment Plan				x			
Completed the 2020 Urban Water Management Plan and Water Shortage Contingency Plan			x				

FY 2023 Goals	Infrastructure	DT & Other Business Sectors	Fiscal Sustainability	Core Services	Equity, Health & Well-Being, Sustainability	New & Improved Funding Sources	Green Economy
Submit the $164 million low interest loan application for the federal Environmental Protection Agency (WIFIA) and the initial package for Drinking Water State Revolving Fund for Facility Improvement Project at the Graham Hill Water Treatment Plant.	x		x				
Solicit grants from federal and state programs as they become available			x				
Complete the Anadromous Salmonid Habitat Conservation Plan	x				x		
Finalize the water rights petition process	x			x	x		
Continue work on wildfire resiliency planning	x		x				
Complete construction on the Newell Creek Dam Inlet/Outlet Project	x						
Complete the installation phase of the Meter Replacement Project	x		x				
Complete design and begin construction on two pipelines (Brackney Landslide Risk Reduction project and the Newell Creek Pipeline Felton to Graham Hill Road project)	x						
Complete the Aquifer Storage and Recovery (ASR) demonstration studies at Beltz Wells 8 and 12 leading to the development of full scale & permanent injection and retrieval sites	x						

Workload Indicators and Performance Measures

Workload Indicators	Focus Area	FY 2019 Actual	FY 2020 Actual	FY 2021 Actual	FY 2022 Estimate	FY 2023 Goal
Drinking water consumed (billions of gallons)	Core Service	2.36	2.26	2.13	2.04	2.5
Number of phone calls, emails and lobby visits handled by SCMU Customer Service Unit	Core Service	59,621	63,653	64,000	64,000	64,000
Amount of dollars of new construction investments (in millions)	Infrastructure	$48.5	$29.7	$46.0	$113.2	$35.5

Performance Measures	Focus Area	FY 2019 Actual	FY 2020 Actual	FY 2021 Actual	FY 2022 Estimate	FY 2023 Goal
Compliance with drinking water standards	Core Service	100%	100%	100%	100%	100%
Number of workers comp claims requiring employee absence greater than 30 days	Core Service	1	0	0	0	0
Maintain excellent bond ratings to ensure favorable borrowing rates thereby reducing cost to customers	Infrastructure	AA-/A+	AA-/A+	AA-/A+	AA-/A-	AA-/A-
Percentage of customer bills paid within 60 days (1)	Fiscal Sustainability	98%	97%	91%	94%	98%

(1) The Governor's Executive Order prohibited water shut-off from 4/2/20 to 12/31/21. Accordingly, FY20 an FY21 are higher than normal delinquency rates.

Budget Summary - Water

		Fiscal Year* 2021 Actuals	Fiscal Year 2022 Adopted Budget	Fiscal Year 2022 Amended* Budget	Fiscal Year 2022 Year-End Estimate	Fiscal Year 2023 Proposed
EXPENDITURES BY CHARACTER:						
Personnel Services		13,774,554	16,479,243	16,714,151	15,427,372	17,691,829
Services, Supplies, and Other Charges		13,504,675	15,646,123	16,402,854	14,113,092	13,890,856
Capital Outlay		383,593	601,500	762,898	537,012	323,000
Debt Service		3,683,200	4,098,626	4,098,626	4,098,710	5,131,705
Total Expenditures		31,346,021	36,825,492	37,978,530	34,176,186	37,037,390
EXPENDITURES BY ACTIVITY:						
Water Administration	7101	5,838,628	6,832,579	7,083,921	6,171,092	5,517,605
Water Engineering	7102	1,969,117	2,733,585	2,759,319	2,331,996	2,839,827
Water Customer Services	7103	1,985,247	2,156,811	2,159,047	2,073,964	2,165,490
Water Conservation	7104	726,902	923,414	1,095,295	801,656	1,218,567
Water Resources	7105	2,039,642	1,898,211	2,111,936	1,673,906	2,081,860
Water Production	7106	6,641,345	8,114,704	8,231,200	7,773,018	8,209,911
Water Quality	7107	1,601,453	1,766,806	1,785,987	1,754,292	2,020,736
Water Distribution	7108	4,428,150	5,164,890	5,277,832	4,868,405	4,823,510
Water Recreation	7109	1,117,544	1,398,771	1,401,827	1,227,785	1,364,624
Water Operations	7110	500,959	832,416	719,055	450,772	635,719
Water Meter Shop	7113	861,595	904,679	979,178	808,920	1,027,836
Water Debt Service	7140	3,604,550	4,098,626	4,098,626	4,098,710	5,131,705
Drought Response 2014	7199	30,890	-	275,307	141,670	-
Subtotal Other Funds		31,346,021	36,825,492	37,978,530	34,176,186	37,037,390
Total Expenditures		31,346,021	36,825,492	37,978,530	34,176,186	37,037,390
RESOURCES BY FUND						
Water	711	37,572,138	40,699,706	40,707,839	36,129,170	38,526,543
Water Rate Stabilization Fund	713	2,980,114	3,248,689	3,248,689	2,860,909	3,058,312
Water System Development Fees Fund	715	1,325,845	410,000	410,000	472,000	472,000
Water - Emergency Reserve Fund	717	131,970	-	-	0	-
Total Resources		42,010,066	44,358,395	44,366,528	39,462,079	42,056,855
		FY 2020			**FY 2021**	**FY 2022**
TOTAL AUTHORIZED PERSONNEL:		117.25			116.25	116.25

*Sums may have discrepancies due to rounding

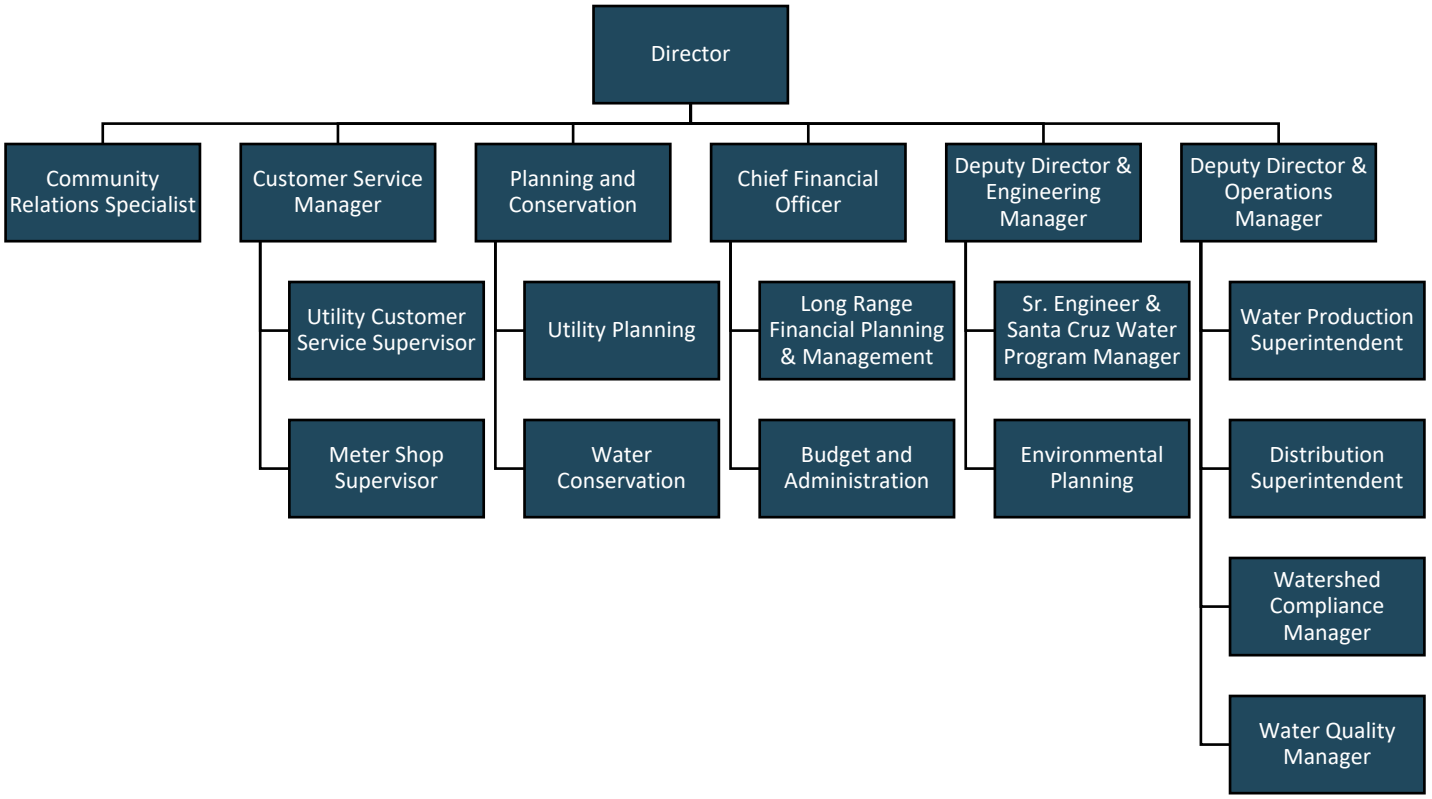
Staffing

Positions	2019-20 Revised*	2020-21 Revised*	2021-22 Revised*	2022-23 Proposed	FY 2023 Change
Administrative Assistant I/II	2.00	2.00	2.00	2.00	-
Administrative Assistant III	2.00	2.00	2.00	2.00	-
Assistant Engineer I/II	4.00	4.00	4.00	4.00	-
Associate Planner I/II	3.00	3.00	3.00	3.00	-
Associate Professional Engineer	4.75	4.75	4.75	4.75	-
Chief Ranger	1.00	1.00	1.00	1.00	-
Community Relations Specialist	1.00	1.00	1.00	1.00	-
Customer Service Manager	1.00	1.00	1.00	1.00	-
Deputy Water Director/Engineering Manager	1.00	1.00	1.00	1.00	-
Deputy Water Director/Operations Manager	1.00	1.00	1.00	1.00	-
Director of Water Department	1.00	1.00	1.00	1.00	-
Engineering Associate	1.00	1.00	1.00	1.00	-
Engineering Technician	2.00	2.00	2.00	3.00	1.00
Environmental Microbiologist I/II/III	2.00	2.00	2.00	2.00	-
Environmental Programs Analyst I/II	1.00	1.00	1.00	1.00	-
Laboratory Technician	2.00	2.00	2.00	2.00	-
Management Analyst	2.00	3.00	3.00	4.00	1.00
Principal Management Analyst	1.00	1.00	2.00	2.00	-
Principal Planner	1.00	1.00	1.00	1.00	-
Ranger I/II	3.00	3.00	3.00	3.00	-
Ranger Assistant	3.50	3.50	3.50	3.50	-
Senior Electrician	1.00	1.00	1.00	1.00	-
Senior Professional Engineer	1.00	1.00	1.00	1.00	-
Senior Ranger	2.00	2.00	2.00	2.00	-
Senior Water Distribution Operator	6.00	6.00	6.00	6.00	-
Superintendent of Water Treatment and Production	1.00	1.00	1.00	1.00	-
Superintendent of Water Distribution	1.00	1.00	1.00	1.00	-
Utility Account Specialist	4.00	4.00	4.00	4.00	-
Utility Maintenance Technician	4.00	4.00	4.00	4.00	-
Utility Service Field Technician I/II	2.00	2.00	2.00	2.00	-
Utility Service Representative I/II	6.00	6.00	6.00	6.00	-
Utility Supervisor	1.00	1.00	1.00	1.00	-
Water Chief Financial Officer	1.00	1.00	1.00	1.00	-
Water Conservation Representative	2.00	2.00	2.00	2.00	-
Water Distribution Crew Leader III/IV	6.00	6.00	6.00	6.00	-

	2019-20 Revised*	2020-21 Revised*	2021-22 Revised*	2022-23 Proposed	FY 2023 Change
Water Distribution Operator II/ III	9.00	9.00	9.00	9.00	-
Water Distribution Sup V Chief Distribution Operator	1.00	1.00	1.00	1.00	-
Water Facilities Electrical/Instr Tech II/III	1.00	1.00	1.00	1.00	-
Water Facilities Field Supervisor	1.00	1.00	1.00	1.00	-
Water Facilities Mechanical Tech II/III	2.00	2.00	2.00	2.00	-
Water Facilities Mechanical Supervisor	1.00	1.00	1.00	1.00	-
Water Meter Specialist	3.00	3.00	3.00	3.00	-
Water Meter Supervisor	1.00	1.00	1.00	1.00	-
Water Meter Technician	1.00	1.00	1.00	1.00	-
Water Quality Chemist I/II/III	2.00	2.00	2.00	2.00	-
Water Quality Manager	1.00	1.00	1.00	1.00	-
Water Resources Analyst	3.00	3.00	3.00	3.00	-
Water Resources Supervisor	2.00	1.00	1.00	1.00	-
Water Treatment Operator II/III/IV	8.00	8.00	8.00	8.00	-
Water Treatment OIT II/III/IV	1.00	1.00	1.00	1.00	-
Water Treatment Sup IV/V-Chief Plant Operator	1.00	1.00	1.00	1.00	-
Watershed Compliance Manager	1.00	1.00	1.00	1.00	-
	117.25	117.25	118.25	120.25	2.00

*Revised salary authorizations are Adopted staffing plus any Mid-year adjustments

Organization Chart



FY23-27 Capital Investment Program Budget (Active Projects)

Project Title	FY23 Request	FY24 Estimate	FY25 Estimate	FY26 Estimate	FY27 Estimate
1.3.1 Tait Diversion Rehab/Replacement	112,125	-	306,466	634,382	583,239
1.4 Felton Diversion Pump Station Assessment	-	-	123,159	509,763	446,244
1.5 NCD I/O Replacement Project	4,891,490	531,368	544,090	564,222	371,202
2.1.1 N. Coast Repair Ph 4 Des and Const	150,000	-	-	1,879,294	3,647,046
2.2.1 Newell Crk. Pipeline Felton/Graham Hill	6,282,090	14,366,405	8,123,366	-	-
2.2.3 Brackney Landslide Area Pipeline Risk Re	2,019,210	7,750,168	-	-	-
3.1 Water Supply Augmentation	2,119,721	2,932,871	6,342,964	8,934,115	10,225,337
3.2 Recycled Water Feasibility Study	-	-	-	-	-
3.2 Recycled Water- SDC	-	-	-	-	-
3.3 ASR Planning	718,540	62,000	-	-	-
3.3 ASR Planning- SDC	-	-	-	-	-
3.3.1 ASR - Mid County Existing Infrastructure	1,261,950	3,543,978	2,760,432	-	-
3.3.2 ASR - Mid County New Wells	45,541	2,571,670	3,846,369	3,927,533	2,443,635
3.3.3 ASR - Santa Margarita Groundwtr Basin	36,306	167,274	57,821	29,980	-
4.3 GHWTP CC Tanks Replacement	8,250,865	10,661,566	4,128,439	-	-
4.4.1 Distribution System Water Quality Improv	-	-	-	-	-
4.4 GHWTP Facilities Improvement Project	2,218,339	5,638,712	23,776,977	36,311,883	37,820,422
4.5 River Bank Filtration Study	44,221	539,201	2,115,461	1,901,130	817,429
4.7 Beltz 12 Ammonia Removal	107,519	-	-	-	-
5.2 Meter Replacement	3,142,958	-	-	-	-
6.1 University Tank 4 Rehab/Replacemen	253,523	4,720,472	161,034	-	-
Aerators at Loch Lomond	38,323	-	-	-	-
Beltz WTP Filter Rehabilitation	480,645	-	-	-	-
CMMS Software Replacement for Water Dept	-	-	-	-	-
Facility & Infrastructure Improvements	-	446,064	462,568	479,684	497,432
GHWTP Chlorination Station Improvements	250,000	-	-	-	-
GHWTP SCADA I/O Comm Replacement	230,000	-	-	-	-
GHWTP SCADA Radio System Replacement	-	-	-	-	-
Main Replacements - Eng Section - Transm	-	-	-	-	-
Main Replacements - Engineering Section	1,048,976	2,333,345	-	-	-
Main Replacements - Transmission -SDC	-	-	-	-	-
Main Replacements -Customer Initiated	-	55,758	57,821	59,961	62,179
Main Replacements- Distribution Section	437,315	1,449,708	1,503,346	1,558,973	1,616,654
Main Replacements -Outside Agency	-	55,758	57,821	59,961	62,179
N Coast System Repair/Replace-Planning	-	-	-	-	-
Security Camera & Building Access Upgrad	-	-	-	-	-
Union/Locust Back-up Generator	-	-	-	-	-
Water Program Administration	1,359,564	2,527,076	2,495,788	2,588,132	2,487,160
Water Program Management Reserve	-	5,099,815	5,228,658	5,469,230	5,635,455
FY Total	**35,499,222**	**65,453,210**	**62,092,578**	**64,908,242**	**66,715,612**
				Total FY23-27:	**294,668,865**

City of Santa Cruz Program Management

PROGRAM OVERVIEW

Since 2017, HDR has supported the City of Santa Cruz Water Department in implementing the Santa Cruz Water Capital Improvement Program, a dedicated effort to improve the City's water supply system. The program's overarching goals to deliver enhanced system resiliency and supply reliability for the community.

The program involves delivering

>25 PROJECTS *over* **14+** YEARS

Including projects which:

- Replace aging infrastructure
- Address regulatory compliance
- Augment and diversify water supply to reduce drought

PROGRAM MANAGEMENT

The fully integrated management approach to this extensive program carefully balances the following key elements:

TECHNICAL

Efficiently deliver projects using best management practices, advanced and proven technology to secure safe and reliable drinking water.

FINANCIAL

Ensure the program is affordable, delivers best-value projects, and mitigates schedule delays.

REGULATORY

Move the program forward while proactively engaging regulators every step of the way.

STAKEHOLDER

Value stakeholder input, communicate transparently, and maintain program support.

PROGRAM BENEFITS

EXPERIENCE

Enhanced depth and breadth of experience available to support projects by drawing from unique consultant staff expertise.

- Access to technical resources for immediate WTP analyses in response to CZU fire in watershed
- Constructability reviews staffed from program team improve quality of contract documents
- Technical experts support confident navigation of the Department's first collaborative delivery procurement
- Knowledge in support of the City's operations proposal approach for Soquel's advanced water purification facility

SKILL BUILDING

Knowledge transfer and succession planning opportunities for City staff by integrating teams while maintaining ownership.

- Project team formation balances resource availability with growth opportunity
- FIP CM team includes City staff development as Resident Engineer and Inspector
- City engineer recently transitioned into Program role as Design Manager

FLEXIBILITY

Staffing flexibility to match program needs by leveraging the depth and variety of consultant staff expertise.

- Employ both short-term and 5-year staff planning tools to assess needs, fill gaps, and add expertise. Efficient response to changing staff needs to keep projects on track
- As projects end, supplemental program staff transition off until City team proceeds at pre-program levels
- Program electrical engineer provides continuity in project support following City staff departure

PROJECT DELIVERY

Improved project delivery effectiveness by standardizing and implementing organizational systems and structure.

- "Stage gate" meetings utilize "right fit" leadership engagement through project life, enabling up to four fold increase in project output
- Project delivery models and processes will "live on" as best practice after program ends

OPERATIONS ENGAGEMENT

Earlier and increased engagement followed by improved asset handoff strategy.

- Operations Liaison role for WTP projects mitigates resource drain on staff and enhances communication
- Cross project coordination meetings streamline planning for operational shut downs

QUALITY

Comprehensive quality program drives excellence in four areas: process quality, project quality, business delivery, and technical delivery.

- Quarterly program quality reviews and ongoing quality assurance action log maintain focus and accountability
- Monthly project quality report cards document successes and identify where support is needed

CONTROLS TRACKING

Program level schedule and cost tracking and forecasting keep leadership informed, support capital planning, and enable timely response to variances to keep the program on-track.

- Excel based cost systems allow direct access by PMs for most up to date cost info
- Monthly reviews with each PM provides support and accountability to own project level cost, schedule and risk

RISK INFORMED PLANNING

Qualitative risk registers and quantitative risk modeling highlight where risk mitigation has maximum impact.

- Program risk modeling annually informs management of reserve contingency
- Project managers learn to "speak risk" through every project phase

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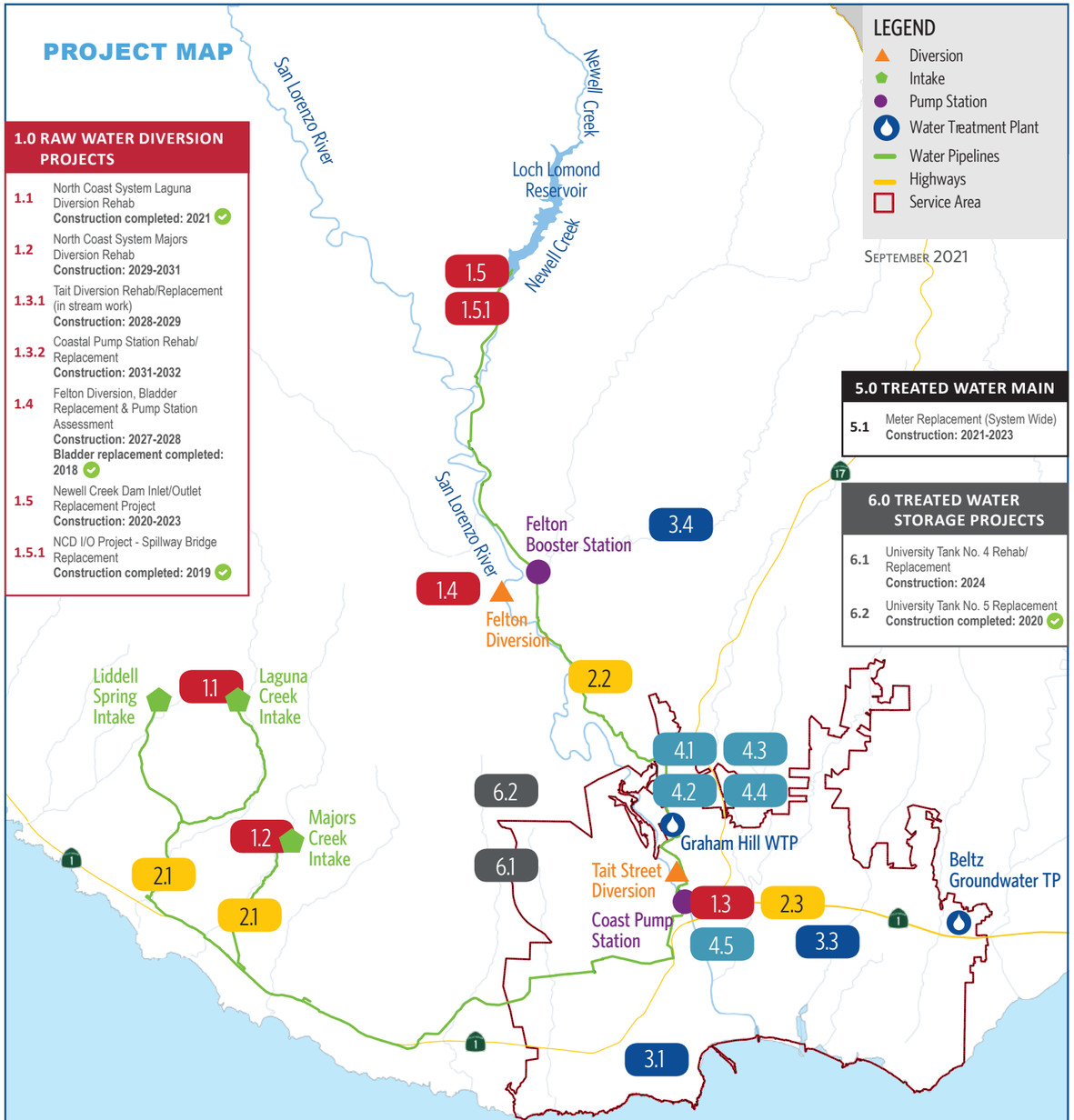
PROJECT MAP



LEGEND

- Diversion
- Intake
- Pump Station
- Water Treatment Plant
- Water Pipelines
- Highways
- Service Area

SEPTEMBER 2021

1.0 RAW WATER DIVERSION PROJECTS

1.1	North Coast System Laguna Diversion Rehab **Construction completed: 2021**
1.2	North Coast System Majors Diversion Rehab **Construction: 2029-2031**
1.3.1	Tait Diversion Rehab/Replacement (in stream work) **Construction: 2028-2029**
1.3.2	Coastal Pump Station Rehab/ Replacement **Construction: 2031-2032**
1.4	Felton Diversion, Bladder Replacement & Pump Station Assessment **Construction: 2027-2028** **Bladder replacement completed: 2018**
1.5	Newell Creek Dam Inlet/Outlet Replacement Project **Construction: 2020-2023**
1.5.1	NCD I/O Project - Spillway Bridge Replacement **Construction completed: 2019**

5.0 TREATED WATER MAIN

5.1	Meter Replacement (System Wide) **Construction: 2021-2023**

6.0 TREATED WATER STORAGE PROJECTS

6.1	University Tank No. 4 Rehab/ Replacement **Construction: 2024**
6.2	University Tank No. 5 Replacement **Construction completed: 2020**

2.0 RAW WATER PIPELINE PROJECTS

2.1	North Coast System Repair & Replacement Project **Construction: 2021-2033**
2.2.1	Newell Creek Pipeline Felton/Graham Hill **Construction: 2023-2024**
2.2.2	Newell Creek Pipeline Felton/Loch Lomond **Construction: 2030-2032**
2.2.3	Bradkney Landslide Area Risk Reduction **Construction: 2023-2024**
2.3	Coast Pump Station 20-inch Raw Water Pipeline Replacement **Construction completed: 2021**

3.0 WATER SUPPLY AUGMENTATION

3.1	Water Supply Augmentation Planning
3.2	Recycled Water Feasibility Study
3.3	Aquifer Storage & Recovery - Mid-County Basin **Construction: 2023; 2026-2028**
3.4	Aquifer Storage & Recovery - Santa Margarita Basin **Construction: 2028-2029**

4.0 WATER TREATMENT RELIABILITY PROJECTS

4.1	Graham Hill WTP Tube Settlers Replacement **Construction completed: 2019**
4.2	Graham Hill WTP Flocculator Rehab/Replacement **Construction completed: 2021**
4.3	Graham Hill WTP Concrete Tanks Project **Construction: 2021-2024**
4.4	Graham Hill WTP Facility Improvement Plan **Construction: 2024-2028**
4.5	River Bank Filtration Study **Construction: 2024-2026**

PROJECT HIGHLIGHTS

Newell Creek Dam Inlet/Outlet Replacement Project

- Award Winner – 2021 West Region Merit Award (Association of State Dam Safety Officials)
- $77M construction project addresses existing deficiencies, established reliable supply storage, and improves operation efficiency, system performance and maintenance access
- Construction phase: April 2020—Feb 2023
- Obtained Key Permits/Approvals (Division of Safety of Dams Division of Drinking of Water, Army Corp, CA Fish and Wildlife)
- Includes four Environmental Mitigation/Restoration projects, in progress
- Met key regulatory milestone by completing in stream work by November 11, 2020
- 1500 ft of 12-ft diameter tunnel; with 48-inch and 10-inch inlet/outlet pipelines; three 60-inch vertical inlet shafts in depths up to 120 feet water; 2000 ft 30-in pipeline
- Minimal disruption to reservoir and water supply operations during construction
- Implemented heightened on-site safety protocols through CZU complex fire evacuation and COVID safety procedures; no medical or first aid safety incidents to date during construction
- Secured project funding through State Revolving Fund loan

PROGRAM MANAGEMENT HIGHLIGHT: Integrated City/HDR project management team through design and construction; effective operations coordination of source water quality monitoring

Graham Hill Water Treatment Plant (GHWTP) projects

Facilities Improvements Project (FIP)

- $100M (est. construction) project upgrades aging treatment plant to reliably meet current and future treatment objectives, increase resilience to changing source water quality and emerging contaminants, support water supply strategy and reduce operational stress
- Current project phase: Preliminary Design
- Utilized new to the City (voter approved) delivery method: progressive design build

PROGRAM MANAGEMENT HIGHLIGHT:

HDR provided project planning, testing, and conceptual design; risk modeling, delivery method selection and procurement; project management; O&M liaison support

Concrete Tanks Replacement

- Addresses infrastructure deficiency, improves water quality and increases operational flexibility
- Construction Phase: 2021- 2024
- $30M construction project Replaces three 0.75 MG concrete tanks at the end of their useful life, three pumping, stations, electrical building and process improvements
- Procured new CM software (Procore)
- Secured project funding through SRF and WIFIA loans
- Safety First- Maintaining solid safety record with 0 recordable incidents

PROGRAM MANAGEMENT HIGHLIGHT:

HDR provided project management, value engineering, risk modeling, constructability review, construction management, environmental monitoring, O&M liaison; asset management

Newell Creek Pipeline Replacement: Felton to Graham Hill

- This project replaces and relocates 4.4 miles of the Newell Creek Pipeline between Felton Pump Station and Graham Hill Water Treatment Plant (Est. construction $25M)
- Provides continued reliability of critical water supply infrastructure
- Current project phase: 90% Design
- Conducted system modeling and hydraulic surge analyses
- Conducting Right-of-Way analysis for easements along proposed alignments
- Project funding through SRF and WIFIA loans
- Program Manager services include integrated Project Management team, planning, modeling, and conceptual design, environmental leadership, technical reviews, real estate and right of way, constructability reviews, cost estimating, risk modeling

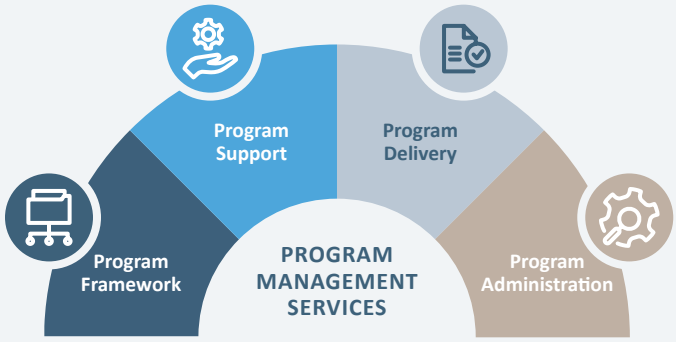
PROGRAM MANAGEMENT HIGHLIGHT: HDR led the programmatic approach for CEQA process which streamlined regulatory approvals for three pipeline projects; The integrated team included technical experts for design and cost reviews.

Water Supply Augmentation (planning and testing phase)

- The Water Supply Program evaluates multiple alternatives to augment existing water supplies and implements the feasible water supply projects, including Aquifer Storage and Recovery (ASR), Recycled Water, In-LIeu Water Transfers, and/ or Riverbank Filtration
- Current project phase: Planning and Testing
- Vulnerability Study with Drs Raucher and Brown; new supply model; updated water demand forecast; groundwater and ASR modeling; and development of the Water Supply Augmentation Implementation Plan, by 2024
- Planning includes initiation of new supply model completion of update to water demand forecast
- Pilot testing of ASR injection at Betlz Wells in Mid-County aquifer is ongoing
- Completed full scale pilot testing for in-lieu water transfers with Soquel Creek Water District

PROGRAM MANAGEMENT HIGHLIGHT: HDR is supporting the implementation of this water supply program with key technical advisory resources. Additional services include project management support.

COMPREHENSIVE PROGRAM MANAGEMENT SERVICES PROVIDED



PROGRAM FRAMEWORK

- Governance Structure
- PMO Mobilization
- Program and Team Chartering
- Program Management Plan
- Program Organization and Resources Plan

PROGRAM SUPPORT

- Capital Planning, Economics and Financing Support
- Communications
- Environmental Support
  - Environmental Monitoring/ Compliance
  - Environmental Permitting
  - Environmental Review/Planning
- Health And Safety Support
- Operations Support
  - Asset Management
  - Asset Onboarding
  - Condition Assessment
  - Operational Optimization
  - Operational Readiness
  - Testing/Startup/Commissioning
- Organizational Strengthening
- Procurement and Contracting Support
- Real Estate
- Regulatory and Permitting Support
- Sustainability and Resiliency

PROGRAM DELIVERY

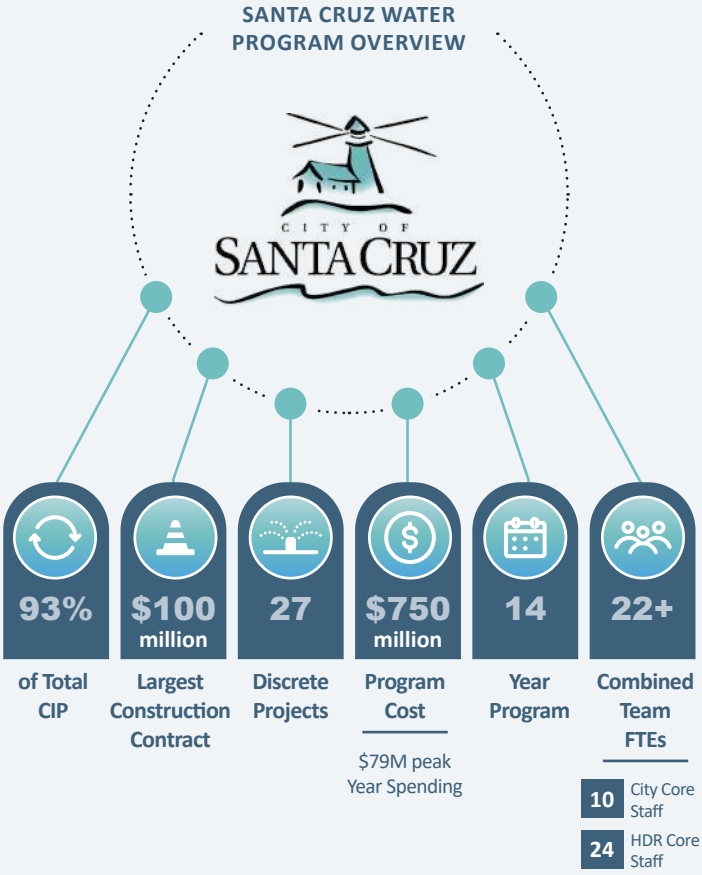
- Construction Management
  - Claims Management and Forensics
  - Construction Planning
  - Contract Administration
  - Dispute Resolutions
  - Field Inspections
- Planning and Design Management
  - Conceptual Engineering
  - Design Integration/Reviews
  - Design Standards/Guidelines
  - Master Planning
  - Value Engineering
- Program Delivery Strategy
  - Delivery Methods Selection
  - Project Packaging/Sequencing
  - Scope Validation/Definition
- Project Management And Delivery

PROGRAM ADMINISTRATION

- Change Management
- Cost Estimating
- Document Management
- Program Controls
  - Cost Management
  - Earned Value Management
  - Reporting
  - Schedule Management
  - Work Breakdown Structure
- Program Tools
  - Collaboration Site/Portal
  - Dashboards
  - IT Setups/Systems Integration
  - PMIS/CMIS/Other Delivery Tools
- Quality Management
- Risk Management

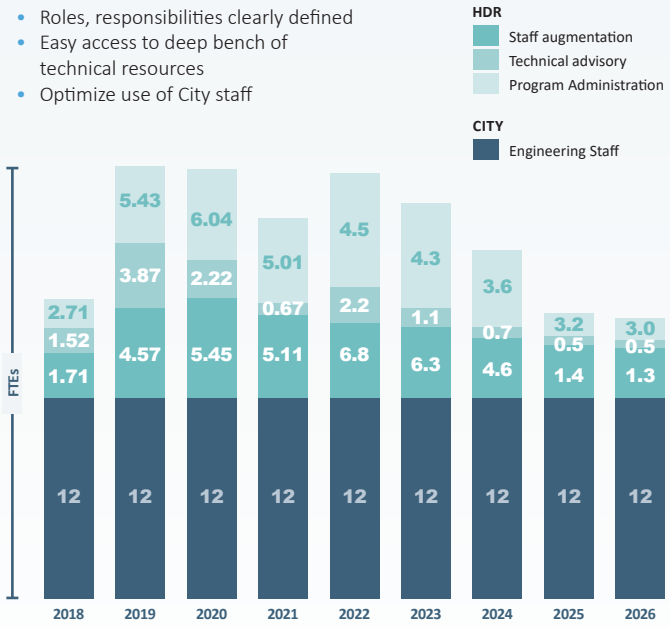
Many of this program's goals - beyond building projects - have been realized in the past 5 years. The team looks forward to another productive 5 years.

PROGRAM BY THE NUMBERS



PROGRAM STAFFING EFFECTIVELY SUPPLEMENTS CITY RESOURCES

- Roles, responsibilities clearly defined
- Easy access to deep bench of technical resources
- Optimize use of City staff



Fiscal Year 2023-Annual Work Plan

Santa Cruz Water Program

Introduction

The City of Santa Cruz's Water Department is implementing the Santa Cruz Water Program (Program) to address a number of critical needs for backbone infrastructure rehabilitation or replacement and to develop supplemental supply that would improve the reliability of the Santa Cruz water system. In the fall of 2017, the Water Department selected HDR to provide program management services to support implementation of the Program, and in December 2017, The City Council approved a five-year Master Services Agreement that is the basis for developing specific task or service orders. This Annual Work Plan (AWP) summarizes Service Order 8 and covers HDR's anticipated program management activities, staffing, schedule, and fees in fiscal year 2023 (FY 2023), which covers the period of July 1, 2022 to June 30, 2023.

Overview of Work Performed during FY 2022

Over the past fiscal year, the Program team of city and HDR staff engaged in Program implementation in the areas of design and planning project management, program administration and controls, planning and preliminary engineering, design, construction management, and other program support areas such as environmental and right of way services. Table 1 summarizes the Program wide, and project level activities for fiscal year 2022.

Table 1 – Project Work Completed (Fiscal Year 2022)

No.	Projects	Phase	Key Work Completed
1.1	Laguna Creek Diversion Retrofit	Construction	• Contractor site mobilization • Obtained permit extension to complete in-creek construction work • Substantial completion of construction; Notice of completion planned for June 2022. • Initiated environmental mitigation activities
1.3.1	Tait Diversion Rehab / Replacement Project	Planning	• Fish Screening Alternatives Analysis Report • Completed annual condition inspection confirming no emergency improvements required • Initiated salinity study
1.4	Felton Diversion and Pump Station	Planning	• Project Initiation • Condition assessment of the Pump Station
1.5	Newell Creek Dam Inlet/Outlet Replacement Project	Construction	• West Region Award of Merit granted to City for NCDIO project by the Association of State Dam Safety Officials • Tunnel excavation • In-reservoir construction of upper inlet • Drilling and grouting of the vertical shafts of upper, middle, and lower inlets. • Completed pile driving in the reservoir
2.1	North Coast System Repair and Replacement	Planning	• Peer review of cost estimate • Completed preliminary planning phase and delivery method selection

No.	Projects	Phase	Key Work Completed
2.2	Newell Creek Pipeline Rehab/ Replacement	Planning, Environmental Permitting	• Finalized Traffic Management Plan • Released Draft and Final EIR • EIR public engagement
2.2.1	Newell Creek Pipeline - Felton/Graham Hill	Design	• Basis of Design Report and 30%, design, cost estimate • Risk quantification workshop and risk quantification model report • 60%, 90% design submittals and cost estimates • Constructability reviews • Hydraulic analyses • Initiation of Right of Way and property acquisition
2.2.3	Brackney Landslide Area Pipeline Risk Reduction	Design	• Potholing, geotechnical explorations, and survey • Basis of Design Report and 30% Design • 60%, 90% design submittals and cost estimates • Constructability reviews • Final survey base maps • Initiation of Right of Way and property acquisition
2.3	Coast Pump Station Raw Water Pipeline Replacement	Post-Construction	• Milestone meeting for construction completion and project close out • Regulatory consensus achieved on environmental mitigation
3.1	Water Supply Augmentation	Planning	• Water Rights Final EIR • Vulnerability Study for long term supply reliability • Initiated second five-year pilot test period for water transfers/exchanges • Initiate evaluation of existing Beltz water treatment plant in support of supply augmentation • Review of climate change hydrologic model • Contracting for Water Supply Augmentation Implementation Plan report
3.3	ASR Planning	Planning	• ASR Pilot Cycle 3a completion (Beltz 8) • Planning, permitting, and initiation of demonstration testing at Beltz 8 and 12 wells • Phase 1 of the groundwater modeling focused on defining a feasible ASR project
4.3	Graham Hill WTP Concrete Tanks	Construction	• Soil nail wall installation • Partnering with the contractor • Updated risk quantification model • Assessment of waste discharge permit to accommodate future treatment needs • Demolish solids tank • Completed first concrete pour for Solids Tank foundation
4.3.1	Graham Hill WTP Entrance Gate Improvements	Design	• PG&E Approval for relocation of utility pole at the plant entrance • Installed entrance gate

No.	Projects	Phase	Key Work Completed
4.4	Graham Hill WTP Upgrades (Facility Improvement Plan)	Design	• Finalized Progressive Design Build contract • Issued Design NTP • Conducted site tours at other treatment plants to support pretreatment process selection • Conduct team Partnering workshop with DB team • Finalized pretreatment process selection • Initiated preliminary design, including multiple project workshops • Conducted Envision® (sustainability rating) process approach review
4.7	Beltz 12 Well Ammonia Treatment	Design	• Beltz 12 Ammonia control memo • Design project initiation • Completed 50% design
5.2	Meter Replacement	Procurement	• Procurement for meter equipment, installation services, and consulting project management support • Issued Construction NTP • Completed controlled launch and initiated full implementation
6.1	University Tank No. 4 Rehab / Replacement	Planning	• Pipeline Condition Assessment • Planning Study with alternatives analysis • Issued RFP and award of design services • Initiated design
6.2	University Tank No. 5 Replacement	Post -Construction	• Finalized project closeout
	Water Rights Amendments	Planning	• City Council certified the Water Rights EIR
N/A	Asset Management	Planning	• Cross-department evaluation of proposals for Computerized Maintenance Management System (CMMS) software • Finalized system selection for new CMMS in conjunction with Public Works and IT
N/A	Distribution System Water Quality Improvements Study	Planning	• Workshop to review distribution system reliability goals • Initiation of study.
N/A	Program Wide Items	All / Ongoing	• Risk Management: quarterly program risk reviews; risk quantification workshop and annual update to risk quantification model • Quality Management: quarterly reviews and reports • Monthly Program reporting • Updates to Program Management Plan • Workforce development trainings including SharePoint Tips and Tricks, Quality Management, Virtual Meetings, Construction Schedule Reviewing, Asset Management, Managing Virtual Teams, True Colors, Decision Making Best Practices, and Business Case Evaluation, Quality Report Cards. • Maintained program progress while supporting Water Department leadership transitions • Program controls implementation: monthly schedule updates and master format enhancement to add project funding components, cost management system updates with monthly reporting, document

No.	Projects	Phase	Key Work Completed
			management, finance team support of fiscal year budgeting and forecasting • Implemented program schedule improvements to improve consistency in environmental activities across all projects and update the Environmental Section of the Program Management Plan • "Regulator Roadshow" meetings with agencies to maintain collaborative communication on upcoming projects and reviews • Developed new employee training for environmental planning • Formal invitation to apply for a WIFIA (federal loan) for multiple projects • Drafted Construction Management Procore System Guide • Review and update the Program Escalation Factor • Document management implementation: ongoing improvements to SharePoint and associated training of City administrative staff • Program and safety consultant management and reporting • Design Review (Bluebeam) software training • Full implementation of O&M Liaison role to support treatment projects and balance operations resource limitations; bi-monthly check-ins to review and confirm performance

Photo 1: Laguna Dam Excavation

Photo 2: Laguna Dam - Rebar cage installed for Coanda Intake Screen

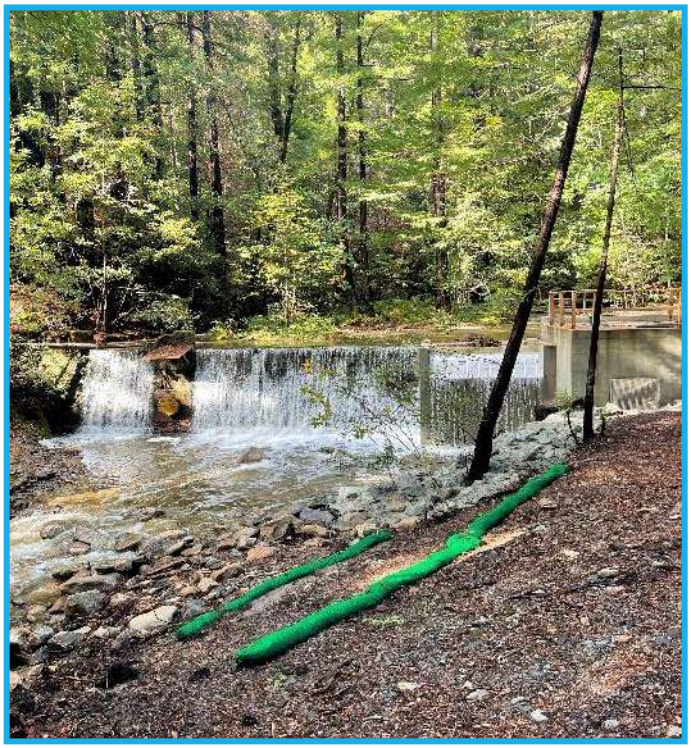


Photo 3: Rewatered Laguna Creek and Dam

Photo 4: Tait Diversion Fish Passage Alternatives

Photo 5: Lowering of steel casing for middle intake shaft at Newell Creek Dam

Photo 5: Using crane to lower rebar cage into Newell Creek Dam embankment CISS Piles

Photo 6: Newell Creek Dam Inlet/Outlet – Concrete pour for invert in tunnel for working slab

Photo 7: Newell Creek Dam Inlet/Outlet Project – Probe drilling prior to mandatory grouting

Photo 8: Newell Creek Dam I/O Replacement Project – Roadheader in tunnel near Sta 22+67

Photo 9: GHWTP Concrete Tanks soil nail wall rebar work

Photo 10: Graham Hill WTP Concrete Tanks Replacement – Soil nail installation and existing tanks

Photo 11: GHWTP Concrete Tanks Replacement Project - Residual Tank: Concrete Pouring from Pump Truck adjacent to Plant clarifiers. Slab and Slab Footing N-S quadrant looking SE

Photo 12: Residual Tank: Looking at slab footing rebar and seismic wall anchors

Photo 13: GHWTP Concrete Tanks Replacement – Soil nail wall at 3rd lift

Photo 14: GHWTP Concrete Tanks Replacement Project – Solids Tank Demolition

Photo 15: GHWTP Concrete Tanks Replacement Project – Solids Tank Demolition

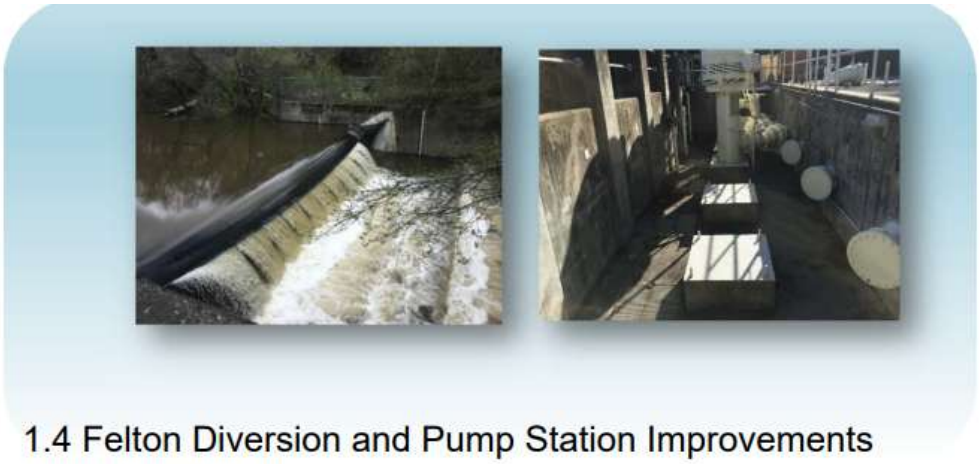
Photo 16: New pedestrian path on outside of GHWTP entry gate

Photo 17: New right turn exit lane from GHWTP with final pavement

Photo 18: Entrance driveway with new island and final paving

Photo 19: New entry gates in the closed position from the outside

Photo 20: GHWTP Facilities Improvement Project Team Pretreatment Process Decision Celebration Lunch



1.4 Felton Diversion and Pump Station Improvements

Current Status: Planning

Background

The Felton Bladder Dam, shown in the left photo above, was replaced in 2018 after nearly 30 years of operation. Follow-up assessments of the pump station and fish ladder/screens are anticipated to start in 2021.

Project Description

The initial planning/feasibility includes the following tasks: assess existing mechanical and electrical infrastructure for capacity/condition, and review compliance issues related to the Endangered Species Act (fish ladder, intake screens).

Project Benefits

Benefits of this project include:

- Improved passage and protection for listed aquatic species
- Diversion redundancy
- Improved functionality and reliability

Photo 21: Felton Diversion Pump Station Assessment

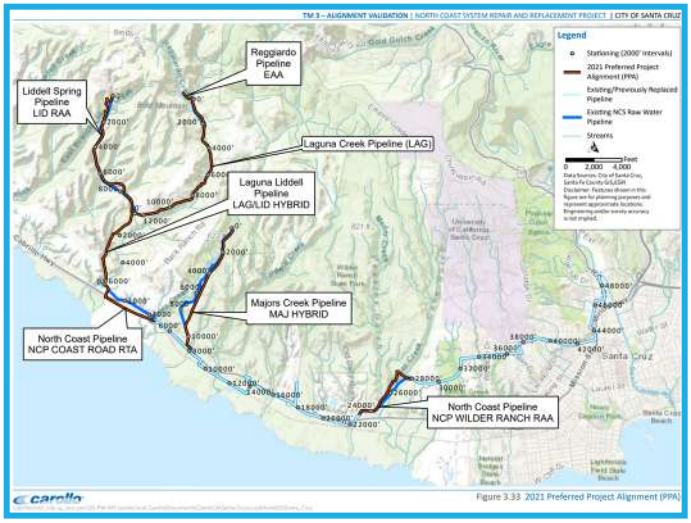


Photo 22: North Coast System Preferred Alignment

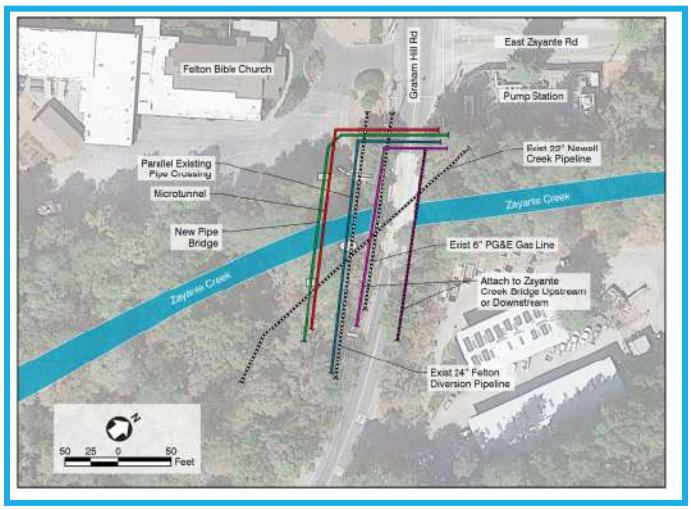


Photo 23: Zayante Creek Crossing Alternatives for the Newell Creek Pipeline Felton-Graham Hill Project

Photo 24: U4 Tanks Structural Condition Assessment site photos

Photo 25: Ropes access used to inspect the pipes on a steep incline for U4 Tank pipes condition assessment

Overview of Planned Work during FY 2023

During FY 2023, the Santa Cruz Water Program team of City and HDR staff will continue to implement the Program Management Plan, an organizational framework with processes for managing and staffing individual capital projects that are at different stages of development. During FY 2023, projects will continue to progress from planning into design and from design into construction and through the construction phase. Table 2 lists the Program projects starting or ongoing in FY 2023 and divides them into their particular phase(s) of work: Planning Projects, Projects in Design and Projects in Construction.

Table 2 –Program and Project Work Planned by Phase[a] (Fiscal Year 2023)

Program Wide		
• Risk management: quarterly reviews, risk model update • Technical expert support and deliverable reviews • Quality management implementation • Design Review software implementation – ongoing support • Monthly Program reporting	• Program controls implementation: schedule, cost, change management • Document management • Department finance support • Program CM Oversight • Program Environmental Advisory • General electrical staff support	• Program O&M Liaison • Workforce development trainings • Asset Management (Asset Onboarding and CMMS Implementation support) • Right of Way support • Constructability reviews
Planning Projects	**Projects in Design**	**Projects in Construction**
1.3.1 - Tait Diversion Rehab/ Replacement 1.4 - Felton Diversion and Pump Station Assessment 3.1 - Water Supply Augmentation 3.2 - Recycled Water Feasibility Study 3.3 - Aquifer Storage & Recovery Planning 7.1 - Water Rights (ongoing) 7.2 - Habitat Conservation Plans (ongoing) N/A - Distribution System Water Quality Improvements	3.3.1 - ASR Mid County Existing Infrastructure 4.4 - Graham Hill WTP Facilities Improvement Project 4.5 - River Bank Filtration Study 4.7 – Beltz 12 Well Ammonia Removal 6.1 - University Tank No. 4 Rehab / Replacement	1.5 - Newell Creek Dam Inlet/Outlet Replacement 2.2.1- Newell Creek Pipeline Rehab/ Replacement (Felton/Graham Hill) 2.2.3 - Brackney Landslide Area Pipeline Risk Reduction 4.3 - Graham Hill WTP Concrete Tanks 4.7 – Beltz 12 Well Ammonia Removal 5.2 - Meter Replacement

a) Projects may be shown twice if they transition between phases, for example from design to construction.

This AWP includes a wide range of services focused on progressing each of the projects forward. Table 3 summarizes the types of services for each of the three categories of services that HDR will be providing during FY 2023 as part of Service Order 8.

Table 3 –Types of Services for each Project Phase (Fiscal Year 2023)

HDR Planning Services	HDR Design Management Services	HDR Construction Services
• Review and document existing information and identify data gaps. • Conduct planning level studies to define technical feasibility and cost. • Prepare reports, presentations, and briefing materials to support decision-making processes and stage gate meeting approvals. • Develop implementation and sequencing plans and schedules for recommendations. • Facilitate planning meetings and workshops for Water Department Staff to discuss alternatives and coordinate with stakeholders. • Perform/support business case evaluations and document recommendations. • Support Water Department Staff in the update and calibration of hydraulic models. • Perform infrastructure condition assessments to support planning. • Assist the Department in financial analysis associated with program funding efforts • Support the Department's implementation of asset management system onboarding for capital projects. • Augment the city staff by providing PMs, and project engineers for various projects including: Tait Diversion, Felton Diversion, Water Supply Augmentation including ASR and Recycled Water planning. • Assist in reviewing of planning consultant deliverables • Provide environmental advisory support, program-wide	• Provide Design Management lead. • Provide general electrical engineering and operations specialist staff augmentation support. • Support PMs in management of consultants and alignment with program reporting and processes. • Support implementation of design management and cost estimating guidelines. • Augment the City staff by providing PMs and/or project engineers for various projects including: U4 Tank Project, GHWTP Facility Improvement Project, and Beltz 12 Ammonia Removal Project. • Assist in hiring design consultants, reviewing consultant deliverables, conducting value engineering (VE) efforts or cost estimating, as requested. • Support ROW acquisition activities and obtaining permits-to-enter for planning (North Coast System Pipeline) and design (Newell Creek Pipeline projects (Felton/Graham Hill, Brackney)). • Provide designated environmental lead for permitting efforts associated with: Newell Creek Pipeline Rehab/Replacement. • Provide environmental compliance management services • Assist with other environmental technical support, including CEQA, NEPA, technical study, field surveys, or permit application. • Support Department Staff in the development and implementation of communications and community engagement plans. • Provide technical expert input as requested. • Support ongoing implementation and use of collaborative design review software on projects.	• Provide Construction Management lead. • Implement Program Construction Management Guidelines • Implement Construction Management software for new construction projects. • Augment the City staff by providing PMs and/or project engineers for construction phase projects including: Newell Creek Dam Inlet/Outlet Pipeline, Newell Creek Pipeline Felton/Graham Hill, Brackney Landslide Risk Reduction, Belt 12 Ammonia Removal, and Concrete Tanks Replacement. • Provide project manager, project engineer, construction management resident engineer, document manager, lead and special inspector(s), as required, for the Newell Creek Dam Inlet/Outlet, GHWTP Concrete Tanks project, and Entrance Improvements project. • Provide post construction start-up commissioning and operations support. • Provide monthly Program reporting of CM activities. • Provide workforce development training in areas of Construction Management • Assist with environmental mitigation, monitoring and/or procurement of such services.

Figure 30 shows the schedule of activities planned for each project, with work broken down into several phases: planning, design, bidding, construction and project close out.

CITY of SANTA CRUZ WATER PROGRAM

Capital Improvement Projects

Level 1 - Single Line Schedule

Santa Cruz Water Program

Activity ID	Activity Name	Start	Finish
	City of SCWP	19-Feb-18 A	15-Aug-33
	1.1 - Laguna Creek Diversion Retrofit Project	30-Jun-18 A	31-Jan-23
	1.3.1 - Tait Diversion Rehab/Replacement Project	30-Jun-18 A	07-Aug-31
	1.3.2 - Coast Pump Station Rehab/Replacement	28-Aug-18 A	15-Aug-33
	1.4 - Felton Diversion and Pump Station Assessment	30-Jun-18 A	15-Jun-29
	1.5 - Newell Creek Dam Inlet/Outlet Replacement Project	21-May-18 A	22-Feb-24
	2.1 - North Coast System Repair and Replacement Project	02-Oct-18 A	30-Jun-22
	2.1.1 - North Coast System Phase 4	10-Aug-21 A	20-Jul-32
	2.2. - Newell Creek Pipeline Rehab / Replacement	01-Apr-18 A	30-May-24
	2.2.1 - Newell Creek Pipeline Felton/Graham Hill	01-Sep-19 A	20-Jun-25
	2.2.2 - Newell Creek Pipeline Felton/Loch Lomond	08-Nov-21 A	04-Apr-33
	2.2.3 - Brackney Landslide Area Pipeline Risk Reduction	02-Mar-20 A	27-Jun-25
	2.3 Coast Pump Station 20" RWP Replacement	02-Jul-18 A	14-Apr-22
	3.1 - Water Supply Augmentation	30-Jun-18 A	01-Aug-22
	3.2 - Recycled Water Feasibility Study	30-Jun-18 A	03-May-23
	3.3 - ASR Planning (Existing Contracts FY20-FY21)	01-Dec-19 A	31-May-23
	3.3.1 - ASR Mid County Existing Infrastructure	30-Jun-20 A	02-Apr-25
	3.3.2 - ASR Mid County New Wells	01-Jun-23	20-Feb-29
	3.3.3 - ASR Santa Margarita Groundwater	01-Apr-24	23-Aug-30
	3.3.4 - ASR Pipeline New	01-Jul-25	13-Aug-30
	4.1 - Graham Hill WTP Tube Settlers Replacement	19-Feb-18 A	10-May-22
	4.2 - Graham Hill WTP Flocculator Rehab / Replacement	01-Nov-18 A	10-May-22
	4.3 - Graham Hill WTP Concrete Tanks Project	30-Jun-18 A	23-Oct-25
	4.3.1 - Graham Hill WTP Entrance Improvements	05-Oct-20 A	15-Jul-22
	4.4 - Graham Hill WTP Facilities Improvements Project	01-May-18 A	17-May-29
	4.5 - River Bank Filtration Study	09-May-18 A	07-Dec-27
	4.7 - Beltz 12 Well Ammonia Removal	01-Nov-21 A	10-Jan-24
	5.2 - Meter Replacement	02-Apr-18 A	31-May-23
	6.1 - University Tank No.4 Rehab / Replacement	16-Aug-18 A	16-Dec-25
	6.2 - University Tank No.5 Replacement	30-Jun-18 A	01-Mar-22 A

Planning
Design
Environmental
Construction
Post Construction

Program Administration and Construction Services not Shown

Page 1 of 1

City Program Director: Kevin Crossley
HDR Program Manager: Karen Pappas

Data Date: 31-Mar-22
Print Date: 14-Apr-22

Figure 30: Santa Cruz Water Program Master Program Schedule

Staffing

The major resources being provided through the HDR Program Management Contract involve staffing services. These services are necessary because, on average, the Water Department's annual capital program expenditures are rising nearly five-fold over spending levels during the last decade. The Water Department's Engineering Section currently includes around 12 full time equivalent (FTE) positions supporting the capital program in various capacities, including one vacant Management Analyst position. The staffing analysis completed in 2018 during the Program Validation effort estimated total staffing needs required to manage and support the Program projects in peak years at 20 FTEs. Staff augmentation for project management (including project managers, engineers, environmental leads, but not including program administration or construction management, for example) is estimated at 7.0 FTEs for FY23.

The staffing augmentation plan for FY23 was developed to support the implementation plans and schedules for each Program project. The staffing plan integrates the Water Department's available staff in Engineering and Operations and Maintenance and supplements resource needs with compatible HDR staff. A key focus of both City and HDR administrative and operating personnel who are part of the Program is the consistent and efficient delivery of project from planning through construction, while maintaining the Department's ability to produce and deliver a reliable supply of high quality drinking water to its customers throughout project construction. Achieving this goal requires ongoing planning and coordination by all members of the team.

Part of the ongoing work on the Program to date has been to identify, integrate, and maintain HDR Program team members. Table 4 identifies HDR key staff in each of the three major Service Order 8 work areas.

Table 4 – Key HDR Staffing for Planned Program Management Services (Fiscal Year 2023)

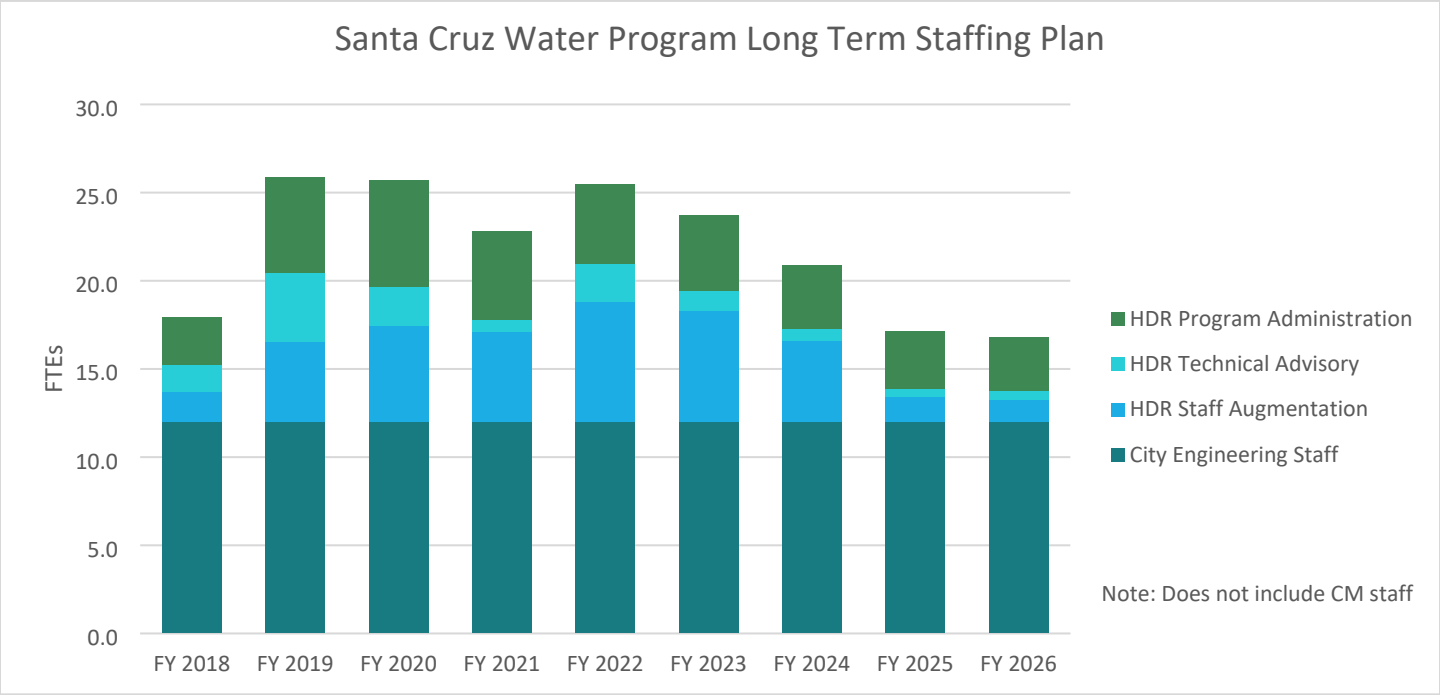
HDR Planning Services	HDR Planning and Design Management Services	HDR Construction Services
John Nelson	Greg Bradshaw	Ron Perkins
Brain Watanabe	Holly Burles	Roger Hatton
Allison McReynolds	Lock Kwan	Jim Hestad
Allan Scott	Phoenix Nguyen	Shane Clements
Tom McCormack	Ed Woo	Kelly Bartron
MIke Munson	Brian Watanabe	Jay Lloyd
Augustine Inferrera	Shane Clements	Summer Pardo
Jeremy English	Jillian Brown	
Leslie Tice	Ray Genato	
	Guy Voss	
	Jim Hestad	
	Mike Munson	
	Sifang Shan	
	Shelly Austin	
	Alan Hang	
	Uri Shelby	
	Augustine Inferrera	
	Kristine Shaw	
	James Prossick	
	Tong Wu	

Ongoing Program management and administration will be led by Karen Pappas (Program Manager), Molly Owens (Controls Manager), Cathy Westcot (Scheduling), John Buttz (Quality Management) and Sandie Goings (Document Management). Implementation of the Santa Cruz Water Program also involves a range of ongoing administrative and quality control services including, for example:

- Monthly progress reporting including cost and schedule tracking, risk management and quality assurance;
- Document management and SharePoint site maintenance and updates; and

- Application and updates to the Program Management Plan, implementation of the program health and safety plan.

All personnel to support the Program are identified in writing and authorized by the City's Program Director. The personnel and labor hours for the FY 2023 Work Plan represent the Program Team's best understanding of the strategic, technical, and administrative requirements for delivering the planned services. Actual requirements may vary and the City and HDR will work together to adjust the staffing and distribution of labor hours within this AWP to maintain progress toward delivery of the Program.



Fiscal Year 23 Project Components

Table 5 presents the work to be done on each project during the coming fiscal year. The associated fee estimate is under development.

Table 5 –FY Project Components

#	Project	Planning	Design	Bid	Construction
1.1	Laguna Creek Diversion Retrofit				X
1.3.1	Tait Diversion Rehab / Retrofit	X			
1.4	Felton Diversion and Pump Station Assessment	X			
1.5	Newell Creek Dam Inlet-Outlet Pipeline Replacement Project				X
2.1	North Coast System Repair / Replacement	X			
2.2	Newell Creek Pipeline Planning	X			
2.2.1	Newell Creek Pipeline Rehab/Replacement – Felton / Graham Hill			X	X
2.2.3	Newell Creek Pipeline – Brackney Landslide Area Pipeline Risk Reduction			X	X
3.1	Water Supply Augmentation [a]	X			
3.2	Recycled Water Feasibility	X			
3.3	Aquifer Storage & Recovery (ASR)	X			
4.3	Graham Hill WTP Concrete Tanks Project				X
4.3.1	Graham Hill WTP Entrance Improvements				X
4.4	Graham Hill WTP Facility Improvements Project		X		
4.5	Riverbank Filtration Study	X			
4.7	Beltz 12 Well Ammonia Removal		X	X	X
6.1	University Tank No. 4 Rehab/Replacement		X		
N/A	Asset Management: On Boarding and Computerized Maintenance Mgt. System Implementation Support	X			
N/A	Program Administration [b]	X	X	X	X
N/A	Other Program-Wide Work [c]	X	X	X	X

[a] Includes planning support for all Water Supply Planning projects, including Recycled Water Feasibility (3.2), ASR Planning (3.3), and ASR Mid County Existing Infrastructure (3.3.1).

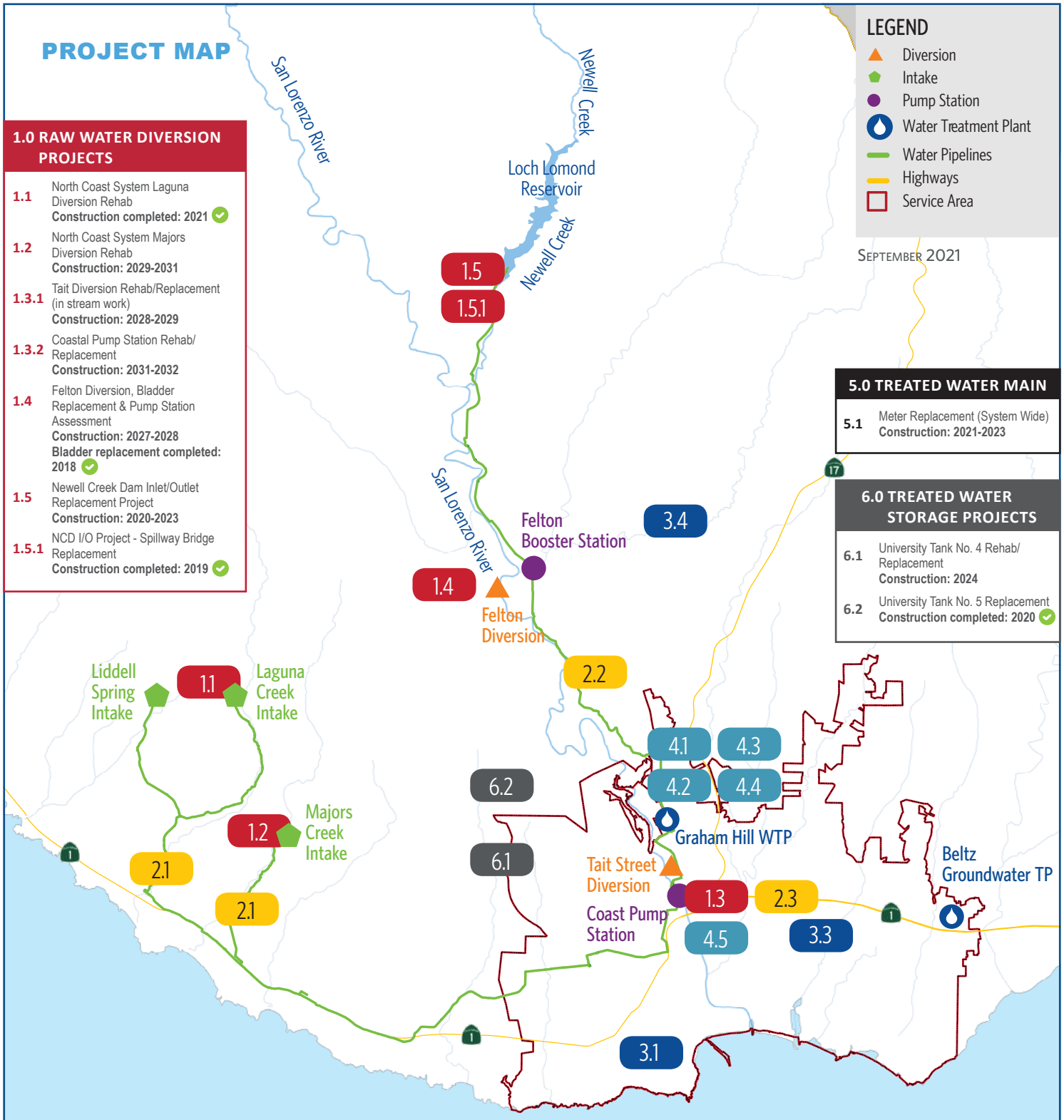
[b] Includes General Program Administration, Risk Management, Document Management, Procurement & Contract Administration Implementation support, SH&E Plan documentation, Quality Assurance Implementation, Project Delivery Model Implementation, Program Controls (Schedule, Cost Management, Program Monthly Report), Annual Work Plan, Workforce Development Trainings, Program staffing and resource management, Invoice preparation.

[c] Includes Staff Augmentation (Planning & Design Management, Project Management, Project Engineering support, Environmental Leads, Environmental Advisory, Electrical support, Operations support), Design Review Software Implementation, General Construction Management oversight, Construction Management information system procurement, and support for Right of Way, Communication & Public Outreach, Project Funding, and Program Technical (general).

Funding Source:

Funding for all activities planned as part of Service Order 8, including the program management fee, is included in the Water Department's FY 2023 Capital Investment Program. Additional work planned for FY 2023 includes continuation of minimal activities pre-authorized and funded within the prior Service Order 7. As many of the projects included in Water Program are large and will occur over multiple years, the Department developed the 2021 Long Range Financial Plan to identify the steps needed to fund these investments in rehabilitating or replacing existing water system infrastructure and developing a supplemental supply to improve the reliability of the Santa Cruz water system. That plan was approved by the City Council on April 6, 2021 and is guiding the Department's approach to planning for and funding this more than decade long capital reinvestment cycle.

Over the last year, the Water Department made progress towards executing two low-interest loans through the State Revolving Fund (SRF). The Department continues to also consider the Water Infrastructure Finance and Innovation Act (WIFIA) loans for projects. Both the State (SRF) and Federal (WIFIA) loan programs reimburse for design, construction, and program management costs-to implement a project. Finally, the City has secured FEMA Hazard Mitigation Program grant funding for one project (2.2.3), applied for WaterSmart grant funding for one project (5.2) and continues to seek grant opportunities for others.


PROJECT MAP
LEGEND
Diversion
Intake
Pump Station
Water Treatment Plant
Water Pipelines
Highways
Service Area
SEPTEMBER 2021
San Lorenzo River
Newell Creek
Loch Lomond Reservoir
Newell Creek
San Lorenzo River
Felton Booster Station
Felton Diversion
Liddell Spring Intake
Laguna Creek Intake
Majors Creek Intake
Graham Hill WTP
Tait Street Diversion
Coast Pump Station
Beltz Groundwater TP
1.1
1.2
1.3
1.4
1.5
1.5.1
2.1
2.1
2.2
2.3
3.1
3.3
3.4
4.1
4.2
4.3
4.4
4.5
6.1
6.2
1.0 RAW WATER DIVERSION PROJECTS
1.1 North Coast System Laguna Diversion Rehab
Construction completed: 2021
1.2 North Coast System Majors Diversion Rehab
Construction: 2029-2031
1.3.1 Tait Diversion Rehab/Replacement (in stream work)
Construction: 2028-2029
1.3.2 Coastal Pump Station Rehab/ Replacement
Construction: 2031-2032
1.4 Felton Diversion, Bladder Replacement & Pump Station Assessment
Construction: 2027-2028
Bladder replacement completed: 2018
1.5 Newell Creek Dam Inlet/Outlet Replacement Project
Construction: 2020-2023
1.5.1 NCD I/O Project - Spillway Bridge Replacement
Construction completed: 2019
5.0 TREATED WATER MAIN
5.1 Meter Replacement (System Wide)
Construction: 2021-2023
6.0 TREATED WATER STORAGE PROJECTS
6.1 University Tank No. 4 Rehab/ Replacement
Construction: 2024
6.2 University Tank No. 5 Replacement
Construction completed: 2020
2.0 RAW WATER PIPELINE PROJECTS
2.1 North Coast System Repair & Replacement Project
Construction: 2021-2033
2.2.1 Newell Creek Pipeline Felton/Graham Hill
Construction: 2023-2024
2.2.2 Newell Creek Pipeline Felton/Loch Lomond
Construction: 2030-2032
2.2.3 Bradkney Landslide Area Risk Reduction
Construction: 2023-2024
2.3 Coast Pump Station 20-inch Raw Water Pipeline Replacement
Construction completed: 2021
3.0 WATER SUPPLY AUGMENTATION
3.1 Water Supply Augmentation Planning
3.2 Recycled Water Feasibility Study
3.3 Aquifer Storage & Recovery - Mid-County Basin
Construction: 2023; 2026-2028
3.4 Aquifer Storage & Recovery - Santa Margarita Basin
Construction: 2028-2029
4.0 WATER TREATMENT RELIABILITY PROJECTS
4.1 Graham Hill WTP Tube Settlers Replacement
Construction completed: 2019
4.2 Graham Hill WTP Flocculator Rehab/Replacement
Construction completed: 2021
4.3 Graham Hill WTP Concrete Tanks Project
Construction: 2021-2024
4.4 Graham Hill WTP Facility Improvement Plan
Construction: 2024-2028
4.5 River Bank Filtration Study
Construction: 2024-2026

1.3.1 Tait Diversion Retrofit

Current Status: Planning

Project Need	The Tait Diversion Dam and Intake (Diversion) is one of SCWD's critical water supply sources, supplying up to 12.2 cubic feet per second when in operation and approximately half of the overall annual water supply. Due to its age (> 50 years), sanding issues and damage from large storm events; significant capital investment is needed to modernize this facility and maintain its reliability and functionality and to improve the fish passage and fish screening functions.
Background	The Water Department contracted with HDR in 2018 to conduct a Condition Assessment of the Diversion. Results from this assessment indicated that structural deficiencies were present (e.g. exposed rebar, scouring, etc.), and updated techniques were necessary to prevent debris & sediment from clogging the intake. Improvements to the site also include modernization of the fish passage/screening functions based upon updated California Department of Fish and Wildlife (CDFG) and National Marine Fisheries Service (NMFS) criteria.
Project Description	This project includes an alternatives analysis of the existing diversion including consideration of sanding issues, climate change influenced sea level rise, fish passage & screening improvements, and potential dam rehabilitation or replacement. The project will ensure reliable, environmentally responsible and efficient diversion of water from the San Lorenzo River.

Project Benefits

Benefits of this project include:

- Fish passage & screening improvements
- Protection from flood damage and/or sea-level rise.
- Operational flexibility
- Sand/grit management
- Improved equipment reliability (e.g. pumps, valves, etc.)

Escalated Estimate

Construction	$3,990,000
Other Costs*	$3,620,000
Total Project	$7,610,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
MAY 2019 OCT 2023	JUN 2026 MAR 2028	DEC 2029 AUG 2030	AUG 2030 AUG 2031

Revised: 4/19/22

1.3.2 Coast Pump Station Rehabilitation/ Replacement

Current Status: Project Definition/ Feasibility

Project Need

The Coast Pump Station lies below the 100-year flood elevation and experienced significant flooding in 2012 and 2017 resulting in damage to generators, pumps, etc. This project will address the issue of flooding and other facility deficiencies including: replacement of damaged and/or corroded equipment/piping, repair or replacement of the backwash system, and other related projects in coordination with the Tait Diversion Rehab/Replacement Project.

Background

No efforts have been completed to date. The project stages to be completed include planning, design, and construction as shown on the following page.

Project Description

This project seeks to improve aging infrastructure as well as address potentially increased occurrences of flooding.

Project Benefits

Benefits of this project include:

- Flood protection
- Facility & equipment modernization
- Operation & maintenance improvements

Escalated Estimate

Construction	$7,630,000
Other Costs*	$3,230,000
Total Project	$10,860,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
JAN 2029 AUG 2033	MAY 2029 MAY 2031	JUL 2031 AUG 2032	AUG 2032 AUG 2033

Revised: 4/19/2022

1.4 Felton Diversion and Pump Station Condition Assessment

Current Status: Planning

Background

The Felton Bladder Dam, shown in the left photo above, was replaced in 2018 after nearly 30 years of operation. Follow-up assessments of the pump station and fish ladder/screens started in 2021.

Project Description

The initial planning/feasibility includes the following tasks: assess existing mechanical and electrical infrastructure for capacity/condition, and review compliance issues for the fish ladder and intake screens.

Project Benefits

Benefits of this project include:

- Improved passage and protection for aquatic species
- Diversion redundancy
- Improved functionality and reliability

Escalated Estimate

Construction	$ 2,310,000
Other Costs*	$ 2,070,000
Total Project	$ 4,380,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
JUL 2020 JUN 2022	AUG 2025 APR 2027	DEC 2027 JUN 2028	JUN 2028 JUN 2029

Revised: 4/18/22

1.5 Newell Creek Dam Inlet/ Outlet Replacement Project

Current Status: Construction

Project Need

The existing inlet/outlet works is approaching the end of its useful design life, as illustrated by three primary identified deficiencies: inlet/outlet conduit deterioration, an inoperable fifth inlet in the reservoir, and an inoperable and partially closed plug valve at the toe of the dam.

Background

Completed in 1961, the earth fill dam stands approximately 195 feet tall with a crest length of approximately 750 feet. Newell Creek Dam impounds Loch Lomond Reservoir with a maximum storage capacity of approximately 8,646 acre-feet. The dam is operated by the Water Department and regulated by the California Department of Water Resources Division of Safety of Dams (DSOD). The Water Department hired AECOM in 2015 to perform an alternatives analysis, and

subsequently to develop design documents and cost estimates for a full replacement.

Project Description

- Three new inlets that control and convey flows
- New outlet structure with valves and controls to provide for energy dissipation for water releases to the Newell Creek Pipeline (NCP) and beneficial releases to Newell Creek
- New seepage collection and monitoring system
- 1,500 foot-long 10-foot diameter tunnel with 48-inch and 10-inch inlet/outlet pipelines
- Replacement of approximately 2,000 linear-foot segment of the NCP
- New intake control building on dam crest
- Access road improvements including a new culvert crossing at spillway plunge pool
- Decommissioning the existing inlet/outlet works

Project Benefits

Benefits of this project include:

- Protects the City's water supply system by addressing existing deficiencies
- Establishes long-term reliable storage of drinking water supply
- Meets DSOD drawdown requirements
- Improves overall operational efficiency and system performance
- Improves inspection and maintenance access

Escalated Estimate

Construction	$ 69,980,000
Other Costs*	$ 36,180,000
Total Project	$106,160,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and management costs.

Potential Funding Source

DWSRF Loan and Pay as you go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
JUL 2018	JUL 2018	JUN 2020	FEB 2023

SEP 2018	JAN 2020	FEB 2023	FEB 2024

Revised: 4/18/22

2.1.1 North Coast System Phase 4

Current Status: Planning

Project Need

Rehabilitation and/or replacement of leaking and unreliable pipelines.

Background

The Water Department operates a 19-mile long pipe network and four surface water diversion structures on Liddell, Reggiardo, Laguna, and Majors Creeks (collectively referred to as the North Coast System) which provides up to 25 percent of Santa Cruz's overall water supply. The system of pipelines and diversions are reaching the end of their expected life and require increased routine maintenance and emergency repairs.

In 2005, Carollo Engineers prepared a preliminary engineering study and Environmental Science Associates prepared a programmatic Environmental Impact Report (PEIR) for the North Coast System. To date, six miles of pipe, or 30% of the system, has been replaced. The Laguna Diversion Retrofit Project was completed in summer/fall of 2021. In September 2020, Carollo Engineers was contracted to update the prior planning study, including an assessment of the prior alignment adopted in 2005 against current conditions. The 2021 Planning Study considered a number of changes that have occurred in the North Coast System since the prior analyses in 2005, including: less water available from north coast streams for diversion in order to preserve flows for endangered Coho Salmon and threatened Steelhead; land transfers from mostly private to public ownership, including the establishment of the Cotoni-Coast Dairies National Monument under the Bureau of Land Management; and damages sustained by the Majors pipeline during storms in 2019/2020 which rendered water from the Majors Diversion unavailable until repairs could be completed. The 2021 Planning Study provided

recommendations for a slightly modified alignment from the 2005 engineering study and PEIR, based on hydraulic modeling, field visits, and environmental constraints, amongst other factors. Additionally, the 2021 Planning Study included an Implementation Plan which detailed estimates for construction timelines, project budget, as well as recommendations on delivery method. An outcome of the 2021 Planning Study and Implementation Plan was the consolidation of all remaining segments of the North Coast Pipeline and the Majors Diversion Rehab into one larger project, titled the North Coast System Phase 4.

Project Description

The North Coast System Phase 4 consists of the replacement of the remaining North Coast pipeline segments and rehabilitation of the Majors Diversion. The design and construction of this project is estimated to begin in approximately 2025 and finish in approximately 2031/2032.

Project Benefits

Benefits of this project include:

- Enhance water system reliability-maintain source diversity
- Preserve access to high quality water
- Minimize leaks and water loss
- Reduce risk of resource impacts due to leaks

Potential Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Escalated Estimate

Project 2.1.1 – North Coast System Phase 4	
Construction	$58,980,000
Other Costs*	$ 31,790,000
Total Project	$ 90,770,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
OCT 2020 DEC2021	JUL 2026 JUN 2028	FEB 2030 JUL 2031	JUL 2031 JUL 2032

Revised: 4/18/2022

2.2 Newell Creek Pipeline Rehabilitation/ Replacement

Current Status: Design

Project Need

The Newell Creek Pipeline was constructed in the 1960's and is experiencing increased frequency of breaks due to age, pipe condition (corrosion), and unstable geologic conditions along its alignment. This project will improve system reliability and reduce costs and impacts due to ongoing failures and subsequent repairs of the pipe.

Background

The Newell Creek Pipeline conveys raw water to and from the Loch Lomond Reservoir which is the Water Department's only water supply storage facility. This source is critical to meeting customer demands during dry seasons as well as during storm events. The pipeline was constructed through geologically and seismically active mountainous terrain and has the complication of subsequent development surrounding much of the alignment.

Project Description

The Water Department contracted with HDR in 2018 to perform an alternatives analysis of the nearly 9.5 miles of pipeline from the Newell Creek Dam to the Graham Hill Water Treatment Plant. This resulted in splitting the project into three segments and prioritizing their design and construction over the next 16 years. In addition, the Water Department contracted with Dudek in 2019 for the preparation of a project-level environmental review (EIR) for replacement of the entire Newell Creek Pipeline and regulatory permitting for the priority segments described below. The EIR considered designs where available for the priority segments and a conservative disturbance corridor for the remaining segments without designs, thus covering all potential projects impacts for the entire Newell Creek Pipeline replacement.

The design and construction of the three segments are budgeted under separate capital projects: 2.2.1 Newell Creek Pipeline Felton/Graham Hill WTP (Design), 2.2.2 Newell Creek Pipeline Newell Creek Dam/Felton (Project Definition/Feasibility), and 2.2.3 Brackney Landslide Area Pipeline Risk Reduction (Design).

Project Benefits

Benefits of this project include:

- Definition and prioritization of construction segments and environmental review to support design and construction.

Escalated Estimate

Construction	$	NA
Other Costs*	$	1,610,000
Total Project	$	1,610,000

* Other costs may include planning/preliminary engineering, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grants (FEMA), Loans (WIFIA/SRF), or Pay As You Go

Current Schedule Start-Finish Dates

Planning/Env	Design	Construction	Post Construction
SEPT 2019 JUN 2022			

Revised: 04/18/2022

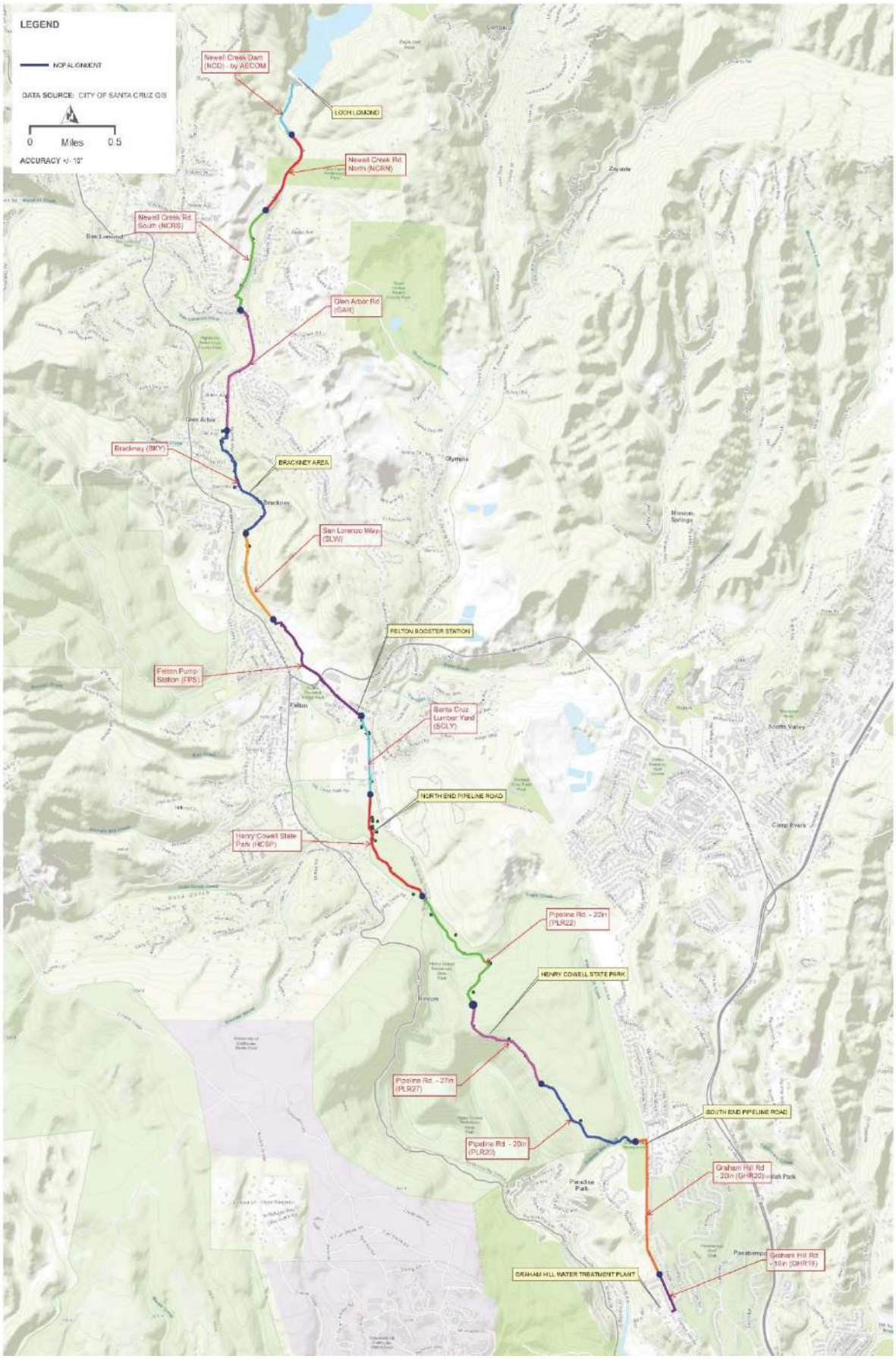


Figure: Existing full alignment of Newell Creek Pipeline

2.2.1 Newell Creek Pipeline, Felton-Graham Hill Water Treatment Plant

Current Status: Design

Project Need

The Newell Creek Pipeline is experiencing an increased frequency of breaks due to age, corrosion and land movement along its alignment through active geology. This project is intended to ensure continued reliability of this critical water supply transmission main. Th reach of pipeline between Felton Booster Pump Station (FBPS) and the Graham Hill Water Treatment Plant (GHWTP) is considered a high priority for replacement due to its increasin frequency of breaks and limited access for repairs.

Background

The Newell Creek Pipeline conveys raw water to and from the Loch Lomond Reservoir which is the Water Department's only water supply storage facility. This source is critical to supply the water system during dry seasons as well as storm events. The pipeline was constructed through active mountainous terrain. Subsequent development surrounding much of the alignment has complicated emergency repair response. A portion of this segment lies within property now owned by California State Parks.

Project Description

The entire Newell Creek Pipeline extends 9.5 miles from the Newell Creek Dam to the Graham Hill Water Treatment Plant. This phase of the overall project replaces the pipeline between FBPS and the GHWTP in a 4.4 mile run mostly along Graham Hill Road.

Project Benefits

Benefits of this project include:

- Continued reliability of critical water supply infrastructure.

Escalated Estimate

Construction	$ 24,020,000
Other Costs*	$ 9,040,000
Total Project	$ 33,060,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs

Potential Funding Source

US EPA WIFIA and California Water Board Clean Water State Revolving Fund (CWSRF) loans and rate-revenue financing.

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
SEP 2019 MAY 2020	DEC 2020 JUL 2022	JAN 2023 MAY 2024	MAY 2024 MAY 2025

Revised: 4/18/22

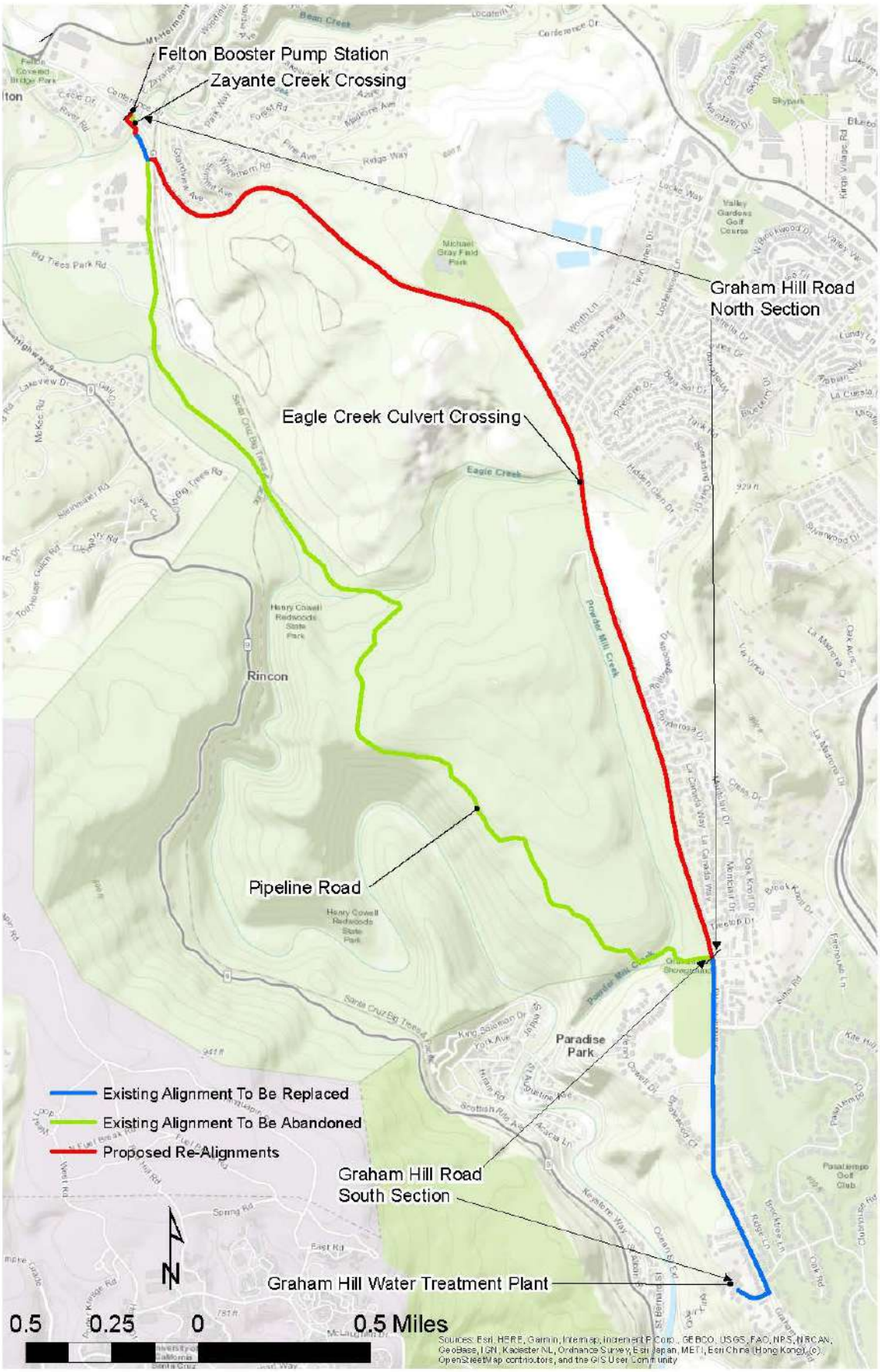


Figure: Existing Pipe Alignment (Blue); Proposed Pipe Alignment (Red)

2.2.2 Newell Creek Pipeline Replacement / Loch Lomond - Felton

Current Status: Not Initiated

Project Need

The Newell Creek Pipeline is experiencing an increased frequency of breaks due to age, corrosion and land movement along its alignment through active geology. This project is intended to ensure continued reliability of this critical water supply transmission main.

Background

The Newell Creek Pipeline conveys raw water to and from the Loch Lomond Reservoir which is the Water Department's only water supply storage facility. This source is critical to supply the water system during dry seasons as well as storm events. The pipeline was constructed through active mountainous terrain and has the complication of subsequent development surrounding much of the alignment with minimal road widths.

Project Description

The entire Newell Creek Pipeline extends 9.5 miles from the Newell Creek Dam to the Graham Hill Water Treatment Plant. This phase of the overall project replaces the pipeline between Loch Lomond and Felton Booster Pump Station.

Project Benefits

Benefits of this project include:

- Continued reliability of critical water supply infrastructure.

Escalated Estimate

Construction	$ 28,690,000
Other Costs*	$ 13,740,000
Total Project	$ 42,430,000

*Other costs may include planning/preliminary engineering, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning/Env	Design	Construction	Post Construction
NA	NOV 2027	APR 2030	APR 2032
NA	OCT 2029	APR 2032	APR 2033

Revised: 4/20/2022

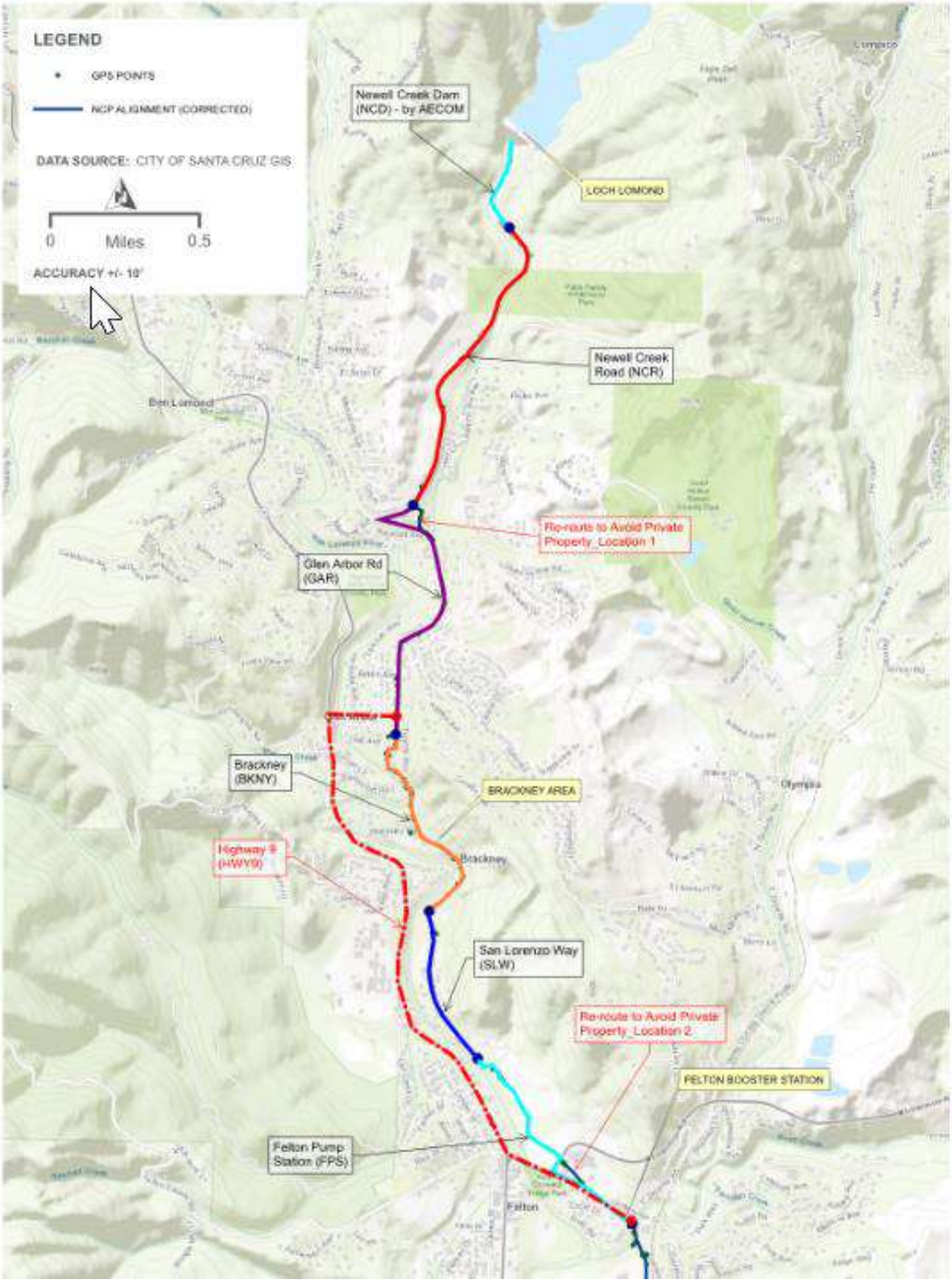


Figure: Existing Pipe Alignment (Blue); Proposed Pipe Alignment (Red)

2.2.3 Brackney Landslide Area Pipeline Risk Reduction Project

Current Status: Design

Project Need

Constructed in 1961, the Newell Creek Pipeline (NCP) is a 9.5 mile pipeline connecting Loch Lomond Reservoir to the Water Department's treatment plant. The project is a ½-mile section located along an abandoned railroad bed and steep hillside above the San Lorenzo River in the Brackney area, where landslides threaten the integrity of the pipeline.

Background

The NCP conveys raw water to and from Loch Lomond Reservoir, which is the Water Department's only raw water supply storage facility. This source is critical to supply the water system during dry seasons, when the demand cannot be met with other sources, and storm events, when other sources are too turbid to treat. Historical damages occurred in the Brackney area in 1982, 1995 and 2017.

Project Description

The project will construct approx. 2,600-LF new NCP using two techniques, horizontal directional drilling (HDD) and open cut trenching. The HDD (~1,600-LF) will be 30-inch fused HDPE carrier pipe, 80-100-feet deep, use drill and intersect, cross the Ben Lomond Fault, and is in close proximity to the San Lorenzo River. The open cut (~1,000-LF) will be 24-in PVC. Approx. 2,250-LF of existing 22-in NCP will be abandoned in place.

The project will require new easements for realignment. Due to limited access, construction staging, and permitting, the project will require close coordination with neighbors, the county, other utilities, and permitting agencies.

Project Benefits

Benefits of this project include:

- Increase reliability of critical water supply infrastructure.

Escalated Estimate

Construction	$ 7,360,000
Other Costs*	$ 4,130,000
Total Project	$11,490,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs

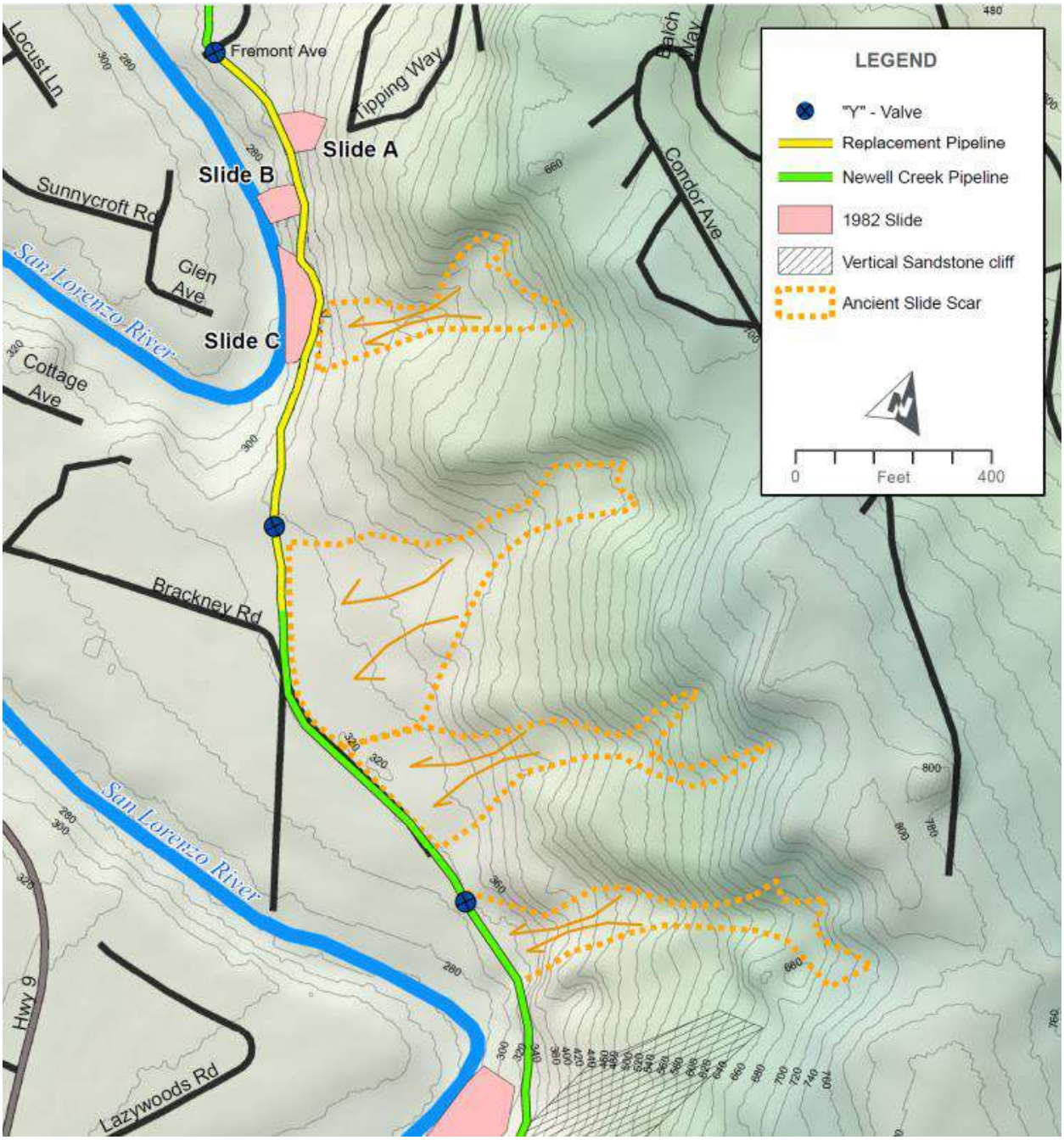
Potential Funding Source

FEMA Hazard Mitigation Grant Program (HMGP) and matching Pay as you go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
APR 2020 MAY 2020	DEC 2020 SEPT 2022	MAY 2023 APR 2024	APR 2024 JUN 2025

Revised: 4/18/2022



Existing Newell Creek Pipeline (NCP) with Pipeline Section to be Realigned and Abandoned at Brackney Landslide

3.x Water Supply Augmentation Strategy Projects

Current Status: Project Definition/Feasibility/Partial Implementation

Project Need

The Water Department is evaluating several alternatives for augmenting existing water supplies. Alternatives include Aquifer Storage and Recovery (ASR), In-Lieu Water Transfers and Exchanges, Desalination and Recycled Water.

Background

As part of the Water Supply Augmentation Plan (2015) developed by the Water Supply Advisory Committee, the Water Department is evaluating the feasibility of using ASR, recycled water, and/or in-lieu transfers and exchanges to augment its water supply. These active and passive groundwater storage projects would provide water to the City during extended drought periods. Desalination would act as a backup if these other alternatives cannot meet the supply needs of the City.

Phase 2 of the Recycled Water Feasibility Planning Study is ongoing and building on the findings of Phase 1 including groundwater replenishment in one or both of the two local groundwater basins. The Water Department is pilot testing ASR in several existing production wells as part of an on-going ASR project in the Mid-County Groundwater Basin that may result in the installation of up to 10 ASR wells.

Project Description

ASR in the Mid-County and Santa Margarita Groundwater Basins is being considered by the Water Department to take advantage of available water from its surface water sources, beyond what is needed to meet its system demands, and injecting and storing the water in the regional aquifers. For water transfers, the Water Department would capture excess surface water, treat to potable standards at the Graham Hill Water Treatment Plant, and convey through existing and potentially new water distribution systems to neighboring communities served by Scotts Valley Water District, San Lorenzo Valley Water District and Soquel Creek Water District.

Phase 2 of the Recycled Water Feasibility Study began in November 2019 and takes several of the alternatives from Phase 1 and advances them in design, cost estimate, and potential yield, to provide more accurate understanding of the long-term benefit(s) to the Water Department. The study is scheduled to conclude in mid-2021.

The Water Department is also conducting a Water Supply Augmentation Implementation Study over the next 18-24 months that aims to create a road map for long-term implementation of the feasible alternatives that is adaptable and responsive to climate change.

Project Benefits

Benefits of the Water Supply Augmentation projects include:

- Providing a source of water for recovery by the Water Department and other users of the basin during drought or high demand periods, addressing part or all water supply deficiencies.
- Reducing (or eliminating) periodic peak season water supply shortfalls.
- Beneficial use of treated wastewater.
- Providing supplemental water supply.

Escalated Estimate

Construction	$ 116,370,000
Other Costs*	$ 15,990,000
Total Project	$ 132,360,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Current Schedule Start Dates

Planning	Design	Construction	Post Construction
STARTED DEC 2019	START 2022	COMPLETE 2030	COMPLETE 2031

Revised 4/18/2022

4.3 Graham Hill WTP Concrete Tanks Replacement

Current Status: Construction

Project Need

The Graham Hill Water Treatment Plant's four post-tensioned concrete tanks are nearly 60 years old. Three of the tanks, Filtered Water, Reclaim, and Solids Storage Tanks are visually deteriorating as the tanks approach the end of their service life.

Background

As part of the Water Department's overall plan to ensure compliance with changing water quality regulations and to maintain plant reliability, several improvements are needed to expand the existing Graham Hill Water Treatment Plant. The Water Department hired Kennedy Jenks to complete a Concrete Tanks Assessment and Evaluation report summarizing visual and structural deficiencies with the four Concrete Tanks. Based on the results of this report, design was completed for design of the replacement of three concrete tanks and associated pump stations, piping, equipment, electrical upgrades, and site improvements.

Project Description

This project includes the construction of the three concrete tanks (0.75 MG Filtered Water Tank, 0.7 MG Reclaim Tank, and 0.7 MG Solids Storage Tank), relocation and redesign of the existing Reclaim and Wash Water Supply Pump Stations, design of new Decant and Solids Pump Stations, as well as replacement of related equipment, piping, and other appurtenances. In addition, a new electrical building and several retaining walls will be constructed, and the existing access roadway to the site will be widened.

Project Benefits

Benefits of this project include:

- Three new concrete tanks constructed to current seismic and other applicable standards and codes.
- Improved finished water quality through post-chlorination with the new Filtered Water Tank with chlorine contact raceway
- Increased operational flexibility and redundancy with improvements to pump stations and piping layouts

Escalated Estimate

Construction	$ 28,350,000
Other Costs*	$ 18,140,000
Total Project	$ 46,490,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

DWSRF Loan and matching Pay as you go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
DEC 2018	JAN 2019	FEB 2021	OCT 2024
DEC 2018	AUG 2020	OCT 2024	OCT 2025

Revised: 4/18/2022

4.4 Graham Hill WTP Facilities Improvement Project

Current Status: Design

Project Need

The Graham Hill Water Treatment Plant (GHWTP) was commissioned in 1960 and has provided high quality potable water to the City of Santa Cruz for the last 60 years. Many modifications to GHWTP have been made over the years in response to changing regulations, permit requirements and to increase system reliability. The facility is reaching the end of its useful life and requires improvements to best implement the Water Supply Augmentation Strategy and allow the plant to continue to reliably meet current, as well as future treatment objectives.

Background

The Water Department hired HDR in 2018 to identify and develop a plan for overall improvements to the GHWTP to address the aging facilities so that the plant can continue to reliably meet current, as well as, future treatment objectives. In 2021, the Water Department awarded the progressive design-build Phase 1 design contract to the AECOM-W M Lyles joint venture team. The design-build team will work closely with the Water Department to fully develop the layout and configuration of the updated water treatment plant.

Projects Major Processes and Components

- Replacement of rapid mix basin with flash mix structure
- Replacement of existing pretreatment processes with high rate clarification (HRC)
- Conversion of existing filters to dual media filters
- Replacement of recycled stream treatment process including polymer system
- Construction of residuals dewatering facility, including mechanical dewatering equipment, equalization tanks, feed pump station, building, cake pumps, and load leveling system
- Replacement or new construction of chemical storage tanks, chemical

transfer pumps, and chemical piping for all plant chemicals
- Construction of structural improvements for existing operations building
- Construction of new two-story operations building
- Replacement of existing filter gallery
- Construction of ancillary improvements, including replacement/rehab of existing pipelines, storm drain improvements, flood protection, replacement of HVAC units, and various electrical and instrumentation improvements

Project Benefits

- Upgrade treatment processes to reliably meet current and future regulations.
- Increase resiliency to address changing source water quality and emerging contaminant concerns.
- Reliably treat winter water that was previously too turbid for the plant to process.

Escalated Estimate

Construction	$ 109,540,000
Other Costs*	$ 41,480,000
Total Project	$ 151,020,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Sources

US EPA WIFIA and California Water Board Clean Water State Revolving Fund (CWSRF) loans and rate-revenue financing.

Contract Type

Progressive Design-Build

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
JAN 2019	AUG 2021	OCT 2024	APR 2028
MAY 2020	MAR 2024	APR 2028	APR 2029

Revised 4/18/2022

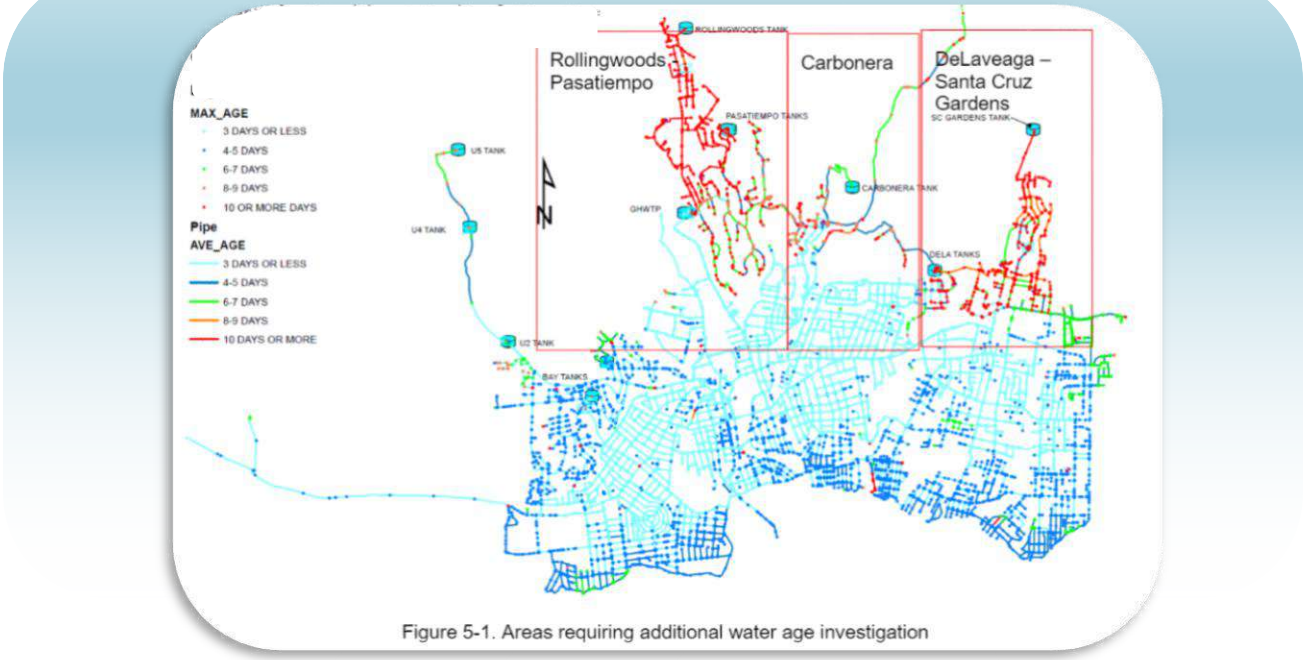


Figure 5-1. Areas requiring additional water age investigation

Distribution System Water Quality Improvements Study

Current Status: Planning

Project Need / Background

Certain zones of the water distribution system have the potential to experience elevated water age, and low chlorine residuals. To avoid high water age, these areas are flushed to improve water turnover and maintain water quality. This practice consumes operations staff time, and increases water loss.

Project Description

This project will identify and evaluate potential infrastructure improvements (for example, tank aerators) to improve water turnover, enhance water quality, reduce water waste, and improve operations efficiency. Subsequent phases will include design and construction.

Project Benefits

Benefits of this project include:

- Reduced time that treated water stays in the system
- Enhanced water quality
- Reduced water waste, and
- Improved operations efficiency

Escalated Estimate

Construction	NA
Other Costs*	$110,000
Total Project	$110,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

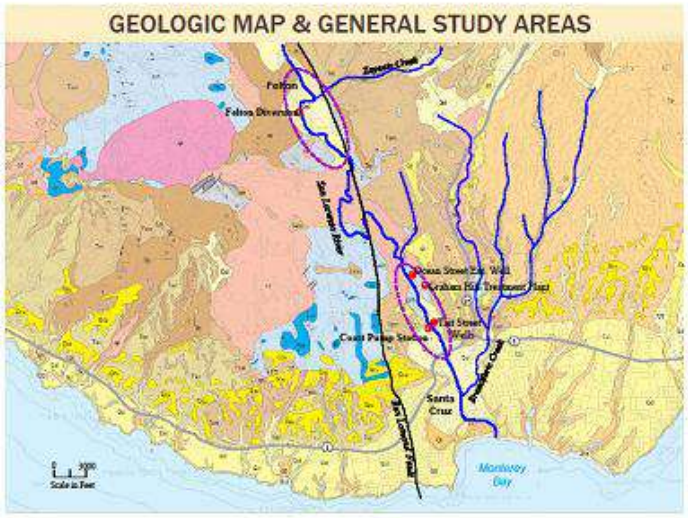
Potential Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Completion
2020 - 2022	TBD	TBD	2022

Revised: 4/18/22



4.5 Riverbank Filtration

Current Status: Planning

Project Description

This project assessed the feasibility of new riverbank filtration wells along the San Lorenzo River near two different existing surface water diversions at Tait and Felton. Desktop analyses and field work concluded in 2021 and found that additional vertical wells could be constructed in the vicinity of the existing Tait diversion. In the next phase of the project, cost benefit analyses will be conducted to determine whether or not up to three new wells should be constructed.

Project Backgound

The Water Department operates two surface diversions and three vertical wells along the San Lorenzo River (SLR). The three wells provide a consistent source of low turbidity, high quality water and are more reliable source of water from the (SLR) than the diversions that can be impacted by storms, fire and flooding.

Project Need

Given the increased frequency of flooding and variable water in the SLR associated with storms, the Water Department is evaluating the feasibility of expanding the use of riverbank filtration as a means of collecting water from the SLR. Collection of water in this manner will further guarantee a reliable source of supply through buried infrastructure, and will improve the water quality because of the natural filtration through the alluvial material.

Project Benefits

Potential benefits of this project include:

- Improved reliability of municipal water supply
- Expanded sourcewater supply option
- Improved sourcewater quality
- Cost saving by reducing treatment requirements

Escalated Estimate

Construction	$ 3,620,000
Other Costs*	$ 3,380,000
Total Project	$ 7,000,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design*	Construction*	Completion*
AUG 2018 AUG 2022	JUL 2022 AUG 2023	MAR 2024 NOV 2026	NOV 2026 NOV 2027

*If the project is advanced.

Revised: 4/18/2022

4.7 Beltz 12 Well Ammonia Removal

Current Status: Design

Project Need

In 2020, ammonia and hydrogen sulfide was detected in raw groundwater at Beltz 12. This led to a decrease in production, then to well shutoff due to limited capacity with the existing treatment equipment. Beltz 12 is planned to provide 500 gpm of treated groundwater to support demands in future dry years. Therefore, it is crucial to address these water quality issues.

Background

The Water Department hired Corona Environmental to evaluate various treatment alternatives and HDR to design the selected treatment process. Design is underway to bring the well back online to support drought demands.

Project Description

Beltz 12 Well Ammonia Removal adds three major upgrades to the existing treatment process: oxidation of hydrogen sulfide, additional chlorine for ammonia removal and sufficient contact time to reach breakpoint chlorination to ensure free chlorine residual in finished water.

The upgrades consist of the following items:

- Oxidant (chlorine or others)
- Upsized chlorine system
- Pressurized contact vessel

Project Benefits

Benefits of this project include:

- Removal of elevated ammonia and hydrogen sulfide
- Sustain production capacity
- Maintain reliable supply during droughts

Estimated Cost

Construction	$1,120,000
Other Costs*	$790,000
Total Project	$1,910,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Completion
JUL-2021 DEC-2021	DEC-2021 JUN-2022	SEP-2022 Dec-2022	DEC 2022

Revised: 04/18/22

5.2 Meter Replacement Project

Current Status: Construction

Project Need	The water metering system, consisting of meters and radios, is failing: water meters are slowing down or not registering at all, resulting in widespread revenue loss, excessive and costly maintenance, and inefficient meter reading and billing.
Background	The Water Department has completed a comprehensive business case evaluation which compares the costs and benefits of the current year-after-year meter replacement approach versus a systematic two-year meter replacement program. The business case finds that a two-year replacement program is less expensive and achieves greater customer and utility benefit than the year-after-year approach.
Project Description	The meter replacement project consists of procurement of meters and lids, installation services, and project management services. System-wide installation is scheduled to take 12-18 months.

Project Benefits

Benefits over the life of this project include:

- $6.5M avoided labor costs; $3M improved meter registration; $1M reduced overtime, seasonal labor and vehicle cost
- Improved customer service; advanced leak detection and water loss reduction; reduced carbon footprint; improved safety; improved ratemaking analysis

Escaladed Estimate

Construction	$ 10,990,000
Other Costs*	$ 3,920,000
Total Project	$ 14,910,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

Bonds and Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction
APR 2018 NOV 2021	N/A	DEC 2021 FEB 2023

Revised: 4/18/2022

University Tank No. 4 Rehabilitation/ Replacement

Current Status: Design

Project Need

University Tank No. 4 (U4) is a 0.4MG steel reservoir with a diameter of 54 feet and a shell height of 24 feet constructed in 1965. The tank predominantly serves the University of California – Santa Cruz (UCSC). Recent video inspections of U4 in 2019 show signs of corrosion on the tank floor, shell and roof necessitating a full rehabilitation or replacement project to ensure ongoing reliability.

Background

The U4 Tank is a component of the "University System", consisting of the U2 Tank/U4 pump station, the U4 Tank/U6 pump station, and the U5 Tank, all connected by a 14-inch transmission line paralleling Empire Grade. Following the 2019 condition assessment and prioritization of the tank repair, pre-design and planning work was completed by the Water Department which determined that upsizing the tank is not necessary based on increased water conservation and expected demands at UCSC and citywide. In addition, water age issues experienced throughout the University system, suggests adequate or excess storage is already provided. The Water Department completed

alternatives analyses in 2020 and 2021 which outlined six different alternatives for tank replacement. The alternatives were scored based on operational, environmental, economic, and social factors, and the replace-in-kind alternative was determined to be the preferred alternative. Following discussions with UCSC in early 2022, the Water Department released the design RFP for the U4 Tank Replacement Project and selected a consultant to begin design work in spring 2022.

Project Description

This project includes design and construction of the replacement University Tank 4 to ensure continued reliable service. The project would construct a temporary maintenance tank to ensure ongoing service when the U4 Tank is taken offline, demolish the existing tank, and construct a replacement 0.4MG bolted steel tank. Throughout design, the Water Department will coordinate with UCSC and regulatory permitting agencies to ensure the necessary approvals, easements, and/or legal agreements are in place prior to beginning construction.

Project Benefits

Benefits of this project include:

- Improved system reliability and redundancy
- Water quality improvements
- Operational upgrades (e.g. access, safety, etc.).

Escalated Estimate

Construction	$3,820,000
Other Costs*	$2,400,000
Total Project	$6,220,000

* Other costs may include planning, design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

US EPA WIFIA and rate-revenue financing.

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
MAR 2020 NOV 2021	APR 2022 JAN 2024	MAR 2024 NOV 2024	NOV 2024 NOV 2025

Revised: 4/18/2022

Loch Lomond Aerator Replacement Project

Current Status: Construction

Project Need / Background

The Loch Lomond Reservoir is owned and operated by the City of Santa Cruz Water Department. As the City's primary source of raw water storage, the reservoir was formed by the impoundment of Newell Creek following the construction of the Newell Creek Dam (NCD) in 1960. Loch Lomond Reservoir supplements other raw water sources during peak demands, prolonged droughts, and during times when other City water sources are nonoperational and/or difficult to treat (e.g. system maintenance projects, high stream turbidity, etc.).

Various forms of operational infrastructure ensure that Loch Lomond provides a consistent, reliable, and high-quality source of raw water including an aeration system that provides air to the deeper levels of the lake to improve taste/odor, reduce treatment costs, and improve overall lake water quality.

The current aeration system has been in operation since 1985, supplying compressed air to diffusers located at a depth of approximately 100 feet below the lake surface. In recent years, the current system has undergone extensive repairs, many of which require commercial divers and specialized equipment.

Project Description

This project includes the replacement of the existing aeration system with a new system that, instead of using compressed air, will use oxygen. Delivering pure oxygen to the reservoir via a diffuser system is a more efficient, operationally flexible and effective way of managing water quality issues. Project components include a liquid oxygen tank and foundation, flow control manifold and lake diffuser system.

Project Benefits

Benefits of this project include:

- Increased operations reliability
- Operational flexibility
- Improved water quality
- Reduced maintenance costs

Escalated Estimate

Construction	$740,000
Other Costs	
Total Project	$740,000

*Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

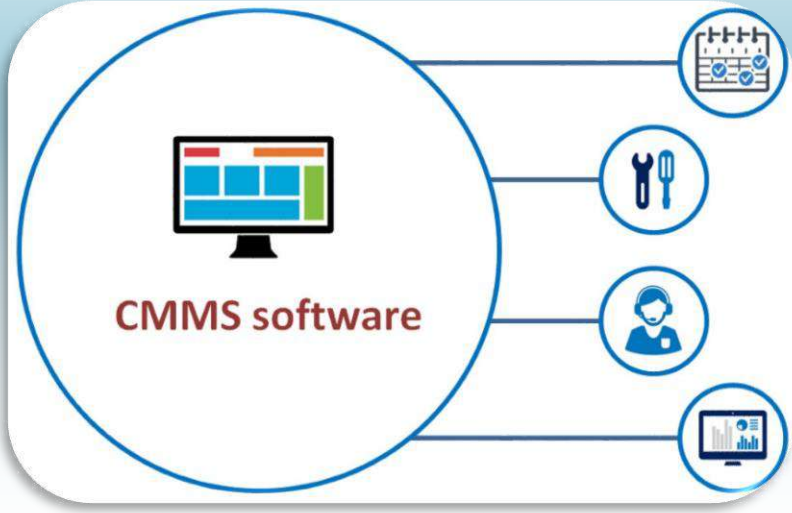
Potential Funding Source

TBD: Bonds, Grant, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Completion
2020	2021	IN-PROGRESS	2023

Revised: 4/18/22



Computerized Maintenance Management System Software Replacement

Current Status: Planning

Project Need / Background

In 2019 an operations and maintenance technology evaluation found the current work order and preventive maintenance system called Maintenance Connection, used by the Water-Distribution Section as well as several Public Works sections to be insufficiently supporting the City's needs.

Project Description

This system will be replaced with one that is more intuitive, GIS-based, and aligned with existing work processes while also enhancing coordination between various City sections using the software.

Project Benefits

Benefits of this project include:

- Increased efficiency and long term cost savings associated with enhanced maintenance practices that extend useful life of potable water infrastructure
- Improved use of City technology investments for utility management and decision-making

- Use of mobile technology to capture work in the field and to more easily provide critical information to field service staff

Escalated Estimate

Construction	NA
Other Costs*	$390,000
Total Project	$390,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Completion
2019-2021	2022	2022-2023	2023

Revised: 4/18/2022

Facility and Infrastructure Improvements

Current Status: Ongoing Program

Project Need/Background

The Facility and Infrastructure Improvements "FI&I" project serves as a programmatic project to reserve budget for minor system issues that may not be defined or scoped by longer range planning documents, facility master plans or condition assessments. When minor system issues are identified and sufficiently defined, a new CIP project is created and budget is reassigned from the FI&I to a new stand alone project at that time.

Project Description

Below are previously completed or active examples of the types of projects that would be considered Facility and Infrastructure Improvement projects:

- Pressure regulating station upgrades/replacements
- Union Locust backup power supply
- System Radio Replacements
- SCADA I/O Hardware and Wiring

Project Benefits

Benefits of this project include:

- Provide budget placeholder for small butcritical projects
- Ensure long term budgeting is inclusive and complete

Escalated Estimate

Construction	Per project
Other Costs*	Per project
Total Project	$ 8,740,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

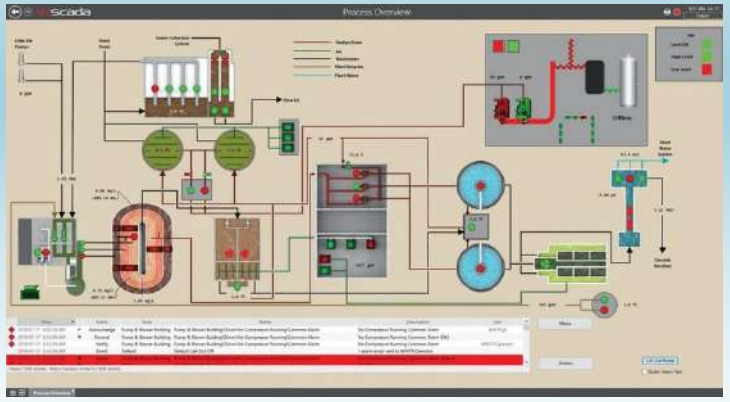
Potential Funding Source

TBD: Bonds, Grant, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Completion
2022			2038

Revised: 4/18/22



SCADA I/O Hardware and Wiring Upgrade Project and GHWTP SCADA Radio System Replacement

Current Status: Planning

Project Need / Background

Radio equipment based at the Graham Hill Water Treatment Plant (GHWTP) communicates with remote operations locations. The existing radio equipment infrastructure is no longer supported and the sole manufacturer is no longer in business.

Project Description

The goal of this project is to replace the radio equipment used to transmit and receive control and status information between the GHWTP (hub) and remote sites. The scope of this project involves approximately 30 remote water site locations including the equipment and wiring replacement and programming of base radio equipment located at the GHWTP.

Project Benefits

Benefits of this project include:

- Increased operations reliability

Escalated Estimate

Construction	NA
Other Costs*	$470,000
Total Project	$470,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

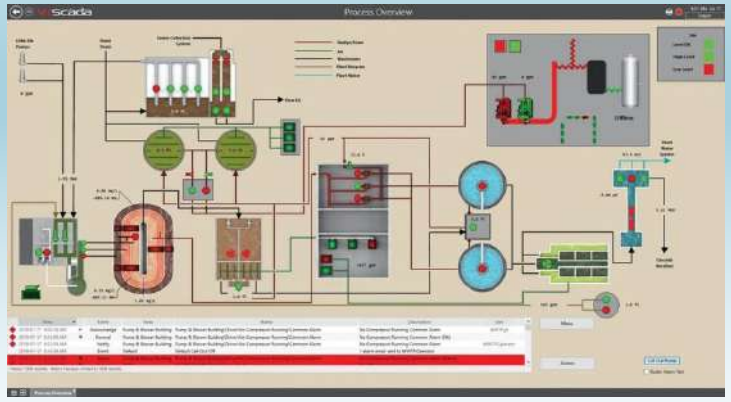
Potential Funding Source

TBD: Bonds, Grant, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Completion
2022	2022	2022-2023	2023

Revised: 4/18/22



SCADA I/O Hardware and Wiring Upgrade Project and GHWTP SCADA Radio System Replacement

Current Status: Planning

Project Need / Background

Radio equipment based at the Graham Hill Water Treatment Plant (GHWTP) communicates with remote operations locations. The existing radio equipment infrastructure is no longer supported and the sole manufacturer is no longer in business.

Project Description

The goal of this project is to replace the radio equipment used to transmit and receive control and status information between the GHWTP (hub) and remote sites. The scope of this project involves approximately 30 remote water site locations including the equipment and wiring replacement and programming of base radio equipment located at the GHWTP.

Project Benefits

Benefits of this project include:

- Increased operations reliability

Escalated Estimate

Construction	NA
Other Costs*	$470,000
Total Project	$470,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grant, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Completion
2022	2022	2022-2023	2023

Revised: 4/18/22

Engineering and Distribution Main Replacement Projects

Current Status: Ongoing program

Project Need

The water system includes 272 miles of treated water main infrastructure that continues to age and deteriorate. Ongoing maintenance replacement is needed to mitigate the risk of catastrophic failures and excessive break rates.

Background

This project is part of the recurring program to replace distribution system water mains identified and prioritized based on data driven models by the Department to maintain water system reliability, deliver adequate fire flows, improve circulation and water quality, and reduce maintenance and emergency repair costs. Main Replacement Planning to define and prioritize specific projects was completed in December 2020 and is updated on an ongoing basis. Priority projects (Listed on Table 1) are identified using a combination of characteristics such as age, material, and leak history, which influence a pipe's likelihood of failure, as well as a combination of circumstances such as poor soils, heavy traffic, and customer outages, which influence a pipe's consequence of failure.

Project Description

In alignment with the Main Replacement Planning work and prioritization, this project includes recurring annual funding for:

- *Rehabilitation and replacement* of water transmission mains. Pipes 10" or larger are typically installed by contractors according to bid plans and specifications.
- *Replacement* of deteriorated or undersized water mains, as identified and prioritized by the Department and implemented by the Distribution Section.
- *Relocation* of water mains, service lines, and appurtenances as necessitated by City, County or other Agency improvements such as road improvement, storm drain improvement projects, and/or other projects that conflict with existing water infrastructure.
- *Re-imbursement* of main replacements needed to accommodate customer-requested service connections to inadequate mains. (Funds, to the extent of the appropriation, are disbursed to customers on a first-come, first-served basis.)

Project Benefits

Benefits of this project include:

- Maintaining water system reliability,
- Delivering adequate fire flows,
- Improving circulation and water quality, and
- Reducing maintenance costs

Escalated Estimate

Construction	Per project $2,090,000 Per year on average	* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grant, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
COMPLETED DEC 2020	Ongoing: Budgeted & Funded Annually each FY	Ongoing: Budgeted & Funded Annually each FY	2026

Table 1: Priority Project List

Project #	Street	Cross Street	Cross Street	Length (ft)	Year of Const.
1	Ocean St. Ext	Crossing St	North end	2540	2021
2	Winkle & Parker	Benson	Sequoia	1210	2022
3	Majors	Laurent	Allegro	1052	2022
	Allegro	Majors	Moore		
4	Spring St	Kalkar	Laurent	2440	2022
5	Laurent	Mission	California	975	2023
6	Van Ness	Mission	Escalona	2092	2023
7	Prospect	East Cliff Dr.	14th Ave	2000	2023
	13th Ave	Prospect St	East Cliff Dr.		
8	Murray St. Bridge	Lake Ave.	Fairview Pl.	1160	2023-2024
9	East Cliff Dr.	Ocean St.	Ocean View Park	780	2024
10	Mission Drive	Hwy 1	Franky	5965	2023-2024
	Paul Sweet	Soquel	Chaminade		
	Commercial Way	Paul Sweet	Commercial Crossing		
11	Lower Harbor	East Side		6816	2024
	Upper Harbor	West Side			
	Upper Harbor	East Side			
12	Manor Dr.	West Cliff Dr.	Lighthouse	1220	2025
13	National	Pelton	Nevada	540	2025
14	West Cliff Dr.	David	Woodrow	892	2025
	David	West Cliff Dr.	Oxford		
15	Wanzer	Swift	Fair	2185	2025
	Getchel	Wanzer	West Cliff		
	John	Wanzer	West Cliff		
16	Highview Dr.	Highview Ct.	to end	700	2026
17	Trevathan	Prospect Hts.	Morrissey	962	2026
18	Marnell	Prospect Hts.	Allerton	490	2026
19	Belvedere	Branciforte	end	850	2026

Revised: 4/18/2022

Security Camera and Building Access Upgrades

Current Status: Construction

Project Need

The Water Department's existing access control system is at 'end of life'. A modern access control system is needed to control access to critical water treatment plant sites, provide monitoring and alarm notifications when intrusions are detected. Video surveillance allows for real-time viewing and investigation of intrusion activity.

Background

The Water Department has selected the Genetec Access Control solution and Ojo Technologies has been selected to install and configure Genetec access control equipment. Four Water department sites have been migrated and using the Genetec Solution.

Project Description

This project involves the continuation of the evaluation and implementation of security camera and building access upgrades at various water department facilities.

Project Benefits

Benefits of this project include:

- Improved security and facility access

Escalated Estimate

Construction	$0
Other Costs*	$551,000
Total Project	$551,000

* Other costs may include planning, design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Completion
2018			JUN 2022

Revised:4/18/22

Union / Locust Admin Building Back-up Generator

Current Status: Design

Project Need / Background

The Water Department's Administration Building does not currently have a backup generator. This vulnerability was highlighted during the 2019 Public Safety Power Shutoffs (PSPS). The administration building lost power for several days. This interrupted the work of staff and impacted normal business functions in particular the customer service group who handle billing and new account signups.

Project Description

This project will provide a back-up generator to maintain key administrative, customer service and engineering functions during power outages.

Project Benefits

Benefits of this project include:

- Maintaining uninterrupted services through power outages.

Escalated Estimate

Construction	NA
Other Costs*	$110,000
Total Project	$110,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grant, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Completion
2021			

Revised: 04/18/22

Water Program Administration

Current Status: Ongoing Program

Project Need	To enhance system resiliency and supply reliability in the face of climate change, the Water Department is delivering a significantly larger capital program over the next 15 years. In 2017 the Water Departmentt contracted a program management consultantto implement consistent and efficient delivery of services, and temporarily supplement City staff resources.
Background	The Water Department has contracted with HDR Inc. for 5 years (with an option to renew) to provide Program Management Services. The contract was initiated in December 2017 and includes annual service orders to reflect services needed during the coming fiscal year.

Project Description

As Program Manager, HDR supplements City staff and brings the additional technical and managerial resources required to implement an expanded Capital Investment Program.

The annual service order for FY23 consists of the following items:

- General program administration
- Risk management
- Document management / SharePoint administration
- Training
- Quality program
- Program controls (schedule, cost, change management)
- Support of the department's finance and accounting systems
- Design management, general electrical and operations support
- General construction management oversight
- Environmental advisory support
- Asset management, computerized maintenance management system implementation

Project Benefits

Benefits of this project include:

- Maximized annual project delivery volume
- Increased rate of completion of projects

Escalated Estimate

Construction	$0
Other Costs* (Cumulative)	$18,930,000
Total	$18,930,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grant, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Ongoing Administration
01/2018 [START]
06/2029 [END]

Revised: 04/18/22

Water Program Management Reserve

Current Status: Ongoing Program

Project Need / Background

A best practice of capital program implementation is to establish and budget for various types of contingency. Both the American Association of Cost Estimating Engineers and Project Management Institute recommend budgeting for this contingency fund independent of individual project estimates that would cover unanticipated cost or schedule changes.

Project Description

The Water Program Management Reserve functions as a contingency fund to cover unplanned cost changes in any separate project under the Capital Investment Program. Across the board cost pressures like inflation or supply chain delays are examples of real world risks that can be mitigated through the use of managemet reserve, to supplement existing project budgets.

Management Reserve requirements are set according to industry best practice and reviewed annually in conjunction with updates to financial and risk management modeling to quantify the capital program risks. The total value of Management Reserve is aligned with the quanification of program risks over the duration of the current CIP (through FY 2033). The currently budgeted management reserve amount in conjunction with other project contingencies correlates to a 70 percentile risk confidence level. In other words the current program budget is carrying sufficient contingency to cover 70% of potential cost and schedule risks. Comparable water programs in California, and Oregon are budgeting at similar risk confidence levels.

Project Benefits

Benefits of this project include:

- Improved confidence to deliver program within budget and maintained project schedules

Remaining Reserve Balance
(as of 1/1/2022)

Construction	NA
Other Costs*	$45,630,000
Total Project	$45,630,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grant, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

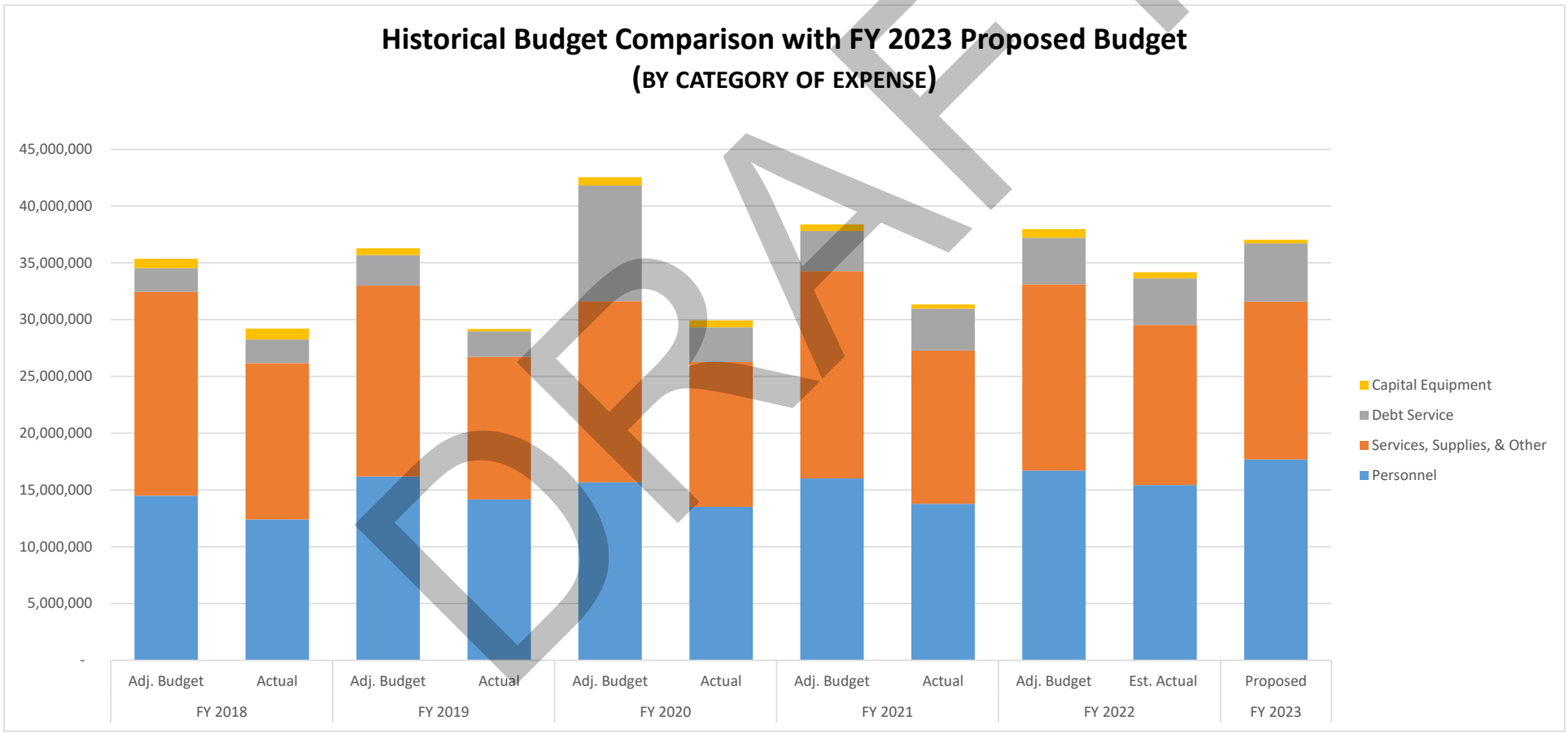
Planning	Design	Construction	Completion
2019			2030

Revised: 04/18/22

Proposed FY 2023 Operating Budget: Fund 711, 715 & 718

BY CATEGORY OF EXPENSE

	FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023
	Adj. Budget	Actual	Adj. Budget	Actual	Adj. Budget	Actual	Adj. Budget	Actual	Adj. Budget	Est. Actual	Proposed
Personnel	14,501,384	12,406,660	16,179,327	14,174,510	15,686,336	13,520,355	16,020,609	$13,774,554	$16,714,151	$15,427,372	$17,691,829
Services, Supplies, & Other	17,952,103	13,763,646	16,823,265	12,553,247	15,929,848	12,742,073	18,258,645	$13,504,675	$16,402,854	$14,113,092	$13,890,856
Debt Service	2,091,114	2,086,043	2,676,489	2,247,613	10,188,026	3,060,716	3,536,295	$3,686,655	$4,098,626	$4,098,710	$5,131,705
Capital Equipment	813,180	965,360	604,034	212,510	739,296	601,675	573,335	$383,593	$762,898	$537,012	$323,000
TOTAL Adjusted Budget	**35,357,781**	**29,221,709**	**36,283,115**	**29,187,880**	**42,543,506**	**29,924,819**	**38,388,884**	**$31,349,476**	**$37,978,530**	**$34,176,186**	**$37,037,390**

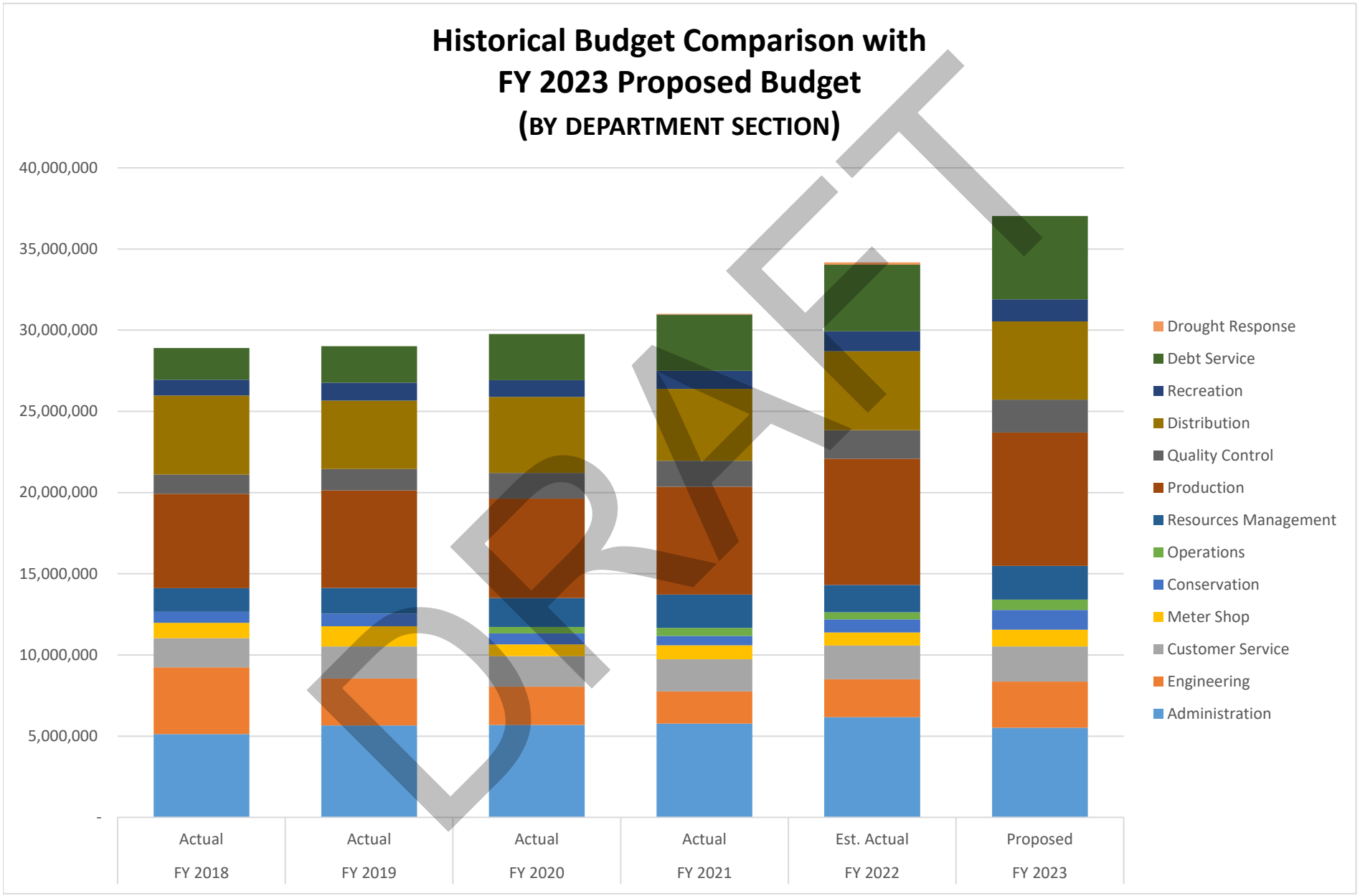


Proposed FY 2023 Operating Budget: Fund 711

BY SECTION

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2022 to FY 2023
	Actual	Actual	Actual	Actual	Est. Actual	Proposed	% Change
Administration	5,126,889	5,660,824	5,685,665	5,780,593	6,171,092	5,517,605	-10.6%
Engineering	4,118,807	2,886,711	2,366,620	1,969,117	2,331,996	2,839,827	21.8%
Customer Service	1,783,540	1,974,229	1,875,267	1,985,247	2,073,964	2,165,490	4.4%
Meter Shop	956,319	1,248,169	719,815	861,595	808,920	1,027,836	27.1%
Conservation	679,791	778,443	681,367	579,067	801,656	1,218,567	52.0%
Operations	-	-	393,104	500,959	450,772	635,719	41.0%
Resources Management	1,455,311	1,581,505	1,780,480	2,039,642	1,673,906	2,081,860	24.4%
Production	5,803,113	6,002,756	6,122,369	6,641,345	7,773,018	8,209,911	5.6%
Quality Control	1,196,124	1,321,358	1,590,499	1,601,453	1,754,292	2,020,736	15.2%
Distribution	4,854,452	4,212,029	4,680,536	4,428,150	4,868,405	4,823,510	-0.9%
Recreation	980,551	1,102,595	1,031,970	1,117,544	1,227,785	1,364,624	11.1%
Debt Service	1,944,803	2,247,613	2,837,975	3,467,752	4,098,710	5,131,705	25.2%
Drought Response	-	-	-	30,890	141,670	-	
TOTAL	**28,899,699**	**29,016,232**	**29,765,667**	**31,003,353**	**34,176,186**	**37,037,390**	8.4%

FY 2023 Debt Service	**All Funds**
2014 Refinancing	$705,038
2016 IBank	$1,372,677
2019 Green Bonds	$1,378,500
2020 State Revolving	$1,050,490
2021 Line of Credit	$625,000
Total FY23 Debt Service	$5,131,705


Historical Budget Comparison with
FY 2023 Proposed Budget
(BY DEPARTMENT SECTION)
40,000,000
35,000,000
30,000,000
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
-
Actual FY 2018
Actual FY 2019
Actual FY 2020
Actual FY 2021
Est. Actual FY 2022
Proposed FY 2023
Drought Response
Debt Service
Recreation
Distribution
Quality Control
Production
Resources Management
Operations
Conservation
Meter Shop
Customer Service
Engineering
Administration

Budget Trends by Percent

	% of Change Comparing Actuals Expenditures					
	FY 2018 to FY 2019	FY 2019 to FY 2020	FY 2020 to FY 2021	FY 2021 to FY 2022	Average	FY 2018 to 2022
Personnel	14.2%	(4.6%)	1.9%	12.0%	5.9%	24.3%
Services, Supplies, & Other	(8.8%)	1.5%	6.0%	4.5%	0.8%	2.5%
Debt Service	7.7%	36.2%	20.5%	11.2%	18.9%	96.5%
Capital Equipment	(78.0%)	183.1%	(36.2%)	40.0%	27.2%	(44.4%)
TOTAL (w/o transfers)	(0.1%)	2.5%	4.8%	9.0%	4.0%	17.0%

	% of Change Comparing Budgeted Amounts						
	FY 2018 to FY 2019	FY 2019 to FY 2020	FY 2020 to FY 2021	FY 2021 to FY 2022	FY 2022 to FY 2023	Average	FY 2018 to 2023
Personnel	11.6%	(3.0%)	2.1%	4.3%	5.8%	4.2%	22.0%
Services, Supplies, & Other	(6.3%)	(5.3%)	14.6%	(10.2%)	(15.3%)	(4.5%)	(22.6%)
Debt Service	28.0%	280.6%	(65.3%)	15.9%	25.2%	56.9%	145.4%
Capital Equipment	(25.7%)	22.4%	(22.4%)	33.1%	(57.7%)	(10.1%)	(60.3%)
TOTAL (w/o transfers)	2.6%	17.3%	(9.8%)	(1.1%)	(2.5%)	1.3%	4.8%

	Budget vs Actuals				
	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Personnel	(14.4%)	(12.4%)	(13.8%)	(14.0%)	(7.7%)
Services, Supplies, & Other	(23.3%)	(25.4%)	(20.0%)	(26.0%)	(14.0%)
Debt Service	(0.2%)	(16.0%)	(70.0%)	4.3%	0.0%
Capital Equipment	18.7%	(64.8%)	(18.6%)	(33.1%)	(29.6%)
TOTAL (w/o transfers)	(17.4%)	(19.6%)	(29.7%)	(18.3%)	(10.0%)

	Percent of Total Budget					
	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Administration	17.7%	19.5%	19.1%	18.6%	18.1%	14.9%
Engineering	14.3%	9.9%	8.0%	6.4%	6.8%	7.7%
Customer Service	6.2%	6.8%	6.3%	6.4%	6.1%	5.8%
Meter Shop	3.3%	4.3%	2.4%	2.8%	2.4%	2.8%
Conservation	2.4%	2.7%	2.3%	1.9%	2.3%	3.3%
Operations	-	0.0%	1.3%	1.6%	1.3%	1.7%
Resources Management	5.0%	5.5%	6.0%	6.6%	4.9%	5.6%
Production	20.1%	20.7%	20.6%	21.4%	22.7%	22.2%
Quality Control	4.1%	4.6%	5.3%	5.2%	5.1%	5.5%
Distribution	16.8%	14.5%	15.7%	14.3%	14.2%	13.0%
Recreation	3.4%	3.8%	3.5%	3.6%	3.6%	3.7%
Debt Service	6.7%	7.7%	9.5%	11.2%	12.0%	13.9%
Drought Response	0.0%	0.0%	0.0%	0.1%	0.4%	0.0%
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

5 Year Financial Pro Forma

Year	2022	2023	2024	2025	2026	2027
Revenues						
Fixed Fee Revenue	$ 3,716,845	$ 3,849,280	$ 4,474,198	$ 5,201,497	$ 5,562,041	$ 5,947,543
Volumetric Revenue	$ 34,184,534	$ 40,092,547	$ 46,116,668	$ 53,549,702	$ 56,572,432	$ 60,288,764
Elevation Surcharges	$ 352,788	$ 352,788	$ 352,788	$ 352,788	$ 352,788	$ 352,788
Rate Stabilization Revenue	$ 3,007,787	$ 3,163,368	$ 3,163,368	$ 3,163,368	$ 3,163,368	$ 3,163,368
Manual Adjustment*	$ (2,875,156)	$ (6,476,411)	$ (2,461,677)	$ (1,743,614)	$ (2,994,902)	$ (1,383,976)
Total Rate Revenue	$ 38,386,797	$ 40,981,573	$ 51,645,346	$ 60,523,741	$ 62,655,727	$ 68,368,488
Non-Rate Revenue						
Other Income	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
Investment Income	$ 75,282	$ 75,282	$ 75,282	$ 75,282	$ 75,282	$ 75,282
Total Non-Rate Revenue	$ 1,075,282	$ 1,075,282	$ 1,075,282	$ 1,075,282	$ 1,075,282	$ 1,075,282
Total Revenues	**$ 39,462,079**	**$ 42,056,855**	**$ 52,720,628**	**$ 61,599,023**	**$ 63,731,009**	**$ 69,443,770**
Operating Expenses						
Personnel	$ 15,427,372	$ 17,691,829	18,930,257	20,255,375	21,673,251	23,190,379
Services, Supplies & Other	$ 14,113,092	$ 13,890,856	14,585,399	15,314,669	16,080,402	16,884,422
Capital Outlay	$ 537,012	$ 323,000	339,150	356,108	373,913	392,609
Other Operating Expenses	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Expenses	$ 30,077,476	$ 31,905,685	$ 33,854,806	$ 35,926,151	$ 38,127,566	$ 40,467,410
Net Operating Revenues	**$ 9,384,603**	**$ 10,151,170**	**$ 18,865,822**	**$ 25,672,872**	**$ 25,603,443**	**$ 28,976,361**
Capital Expenditures (Fund 711 and 715)	$ 113,169,717	$ 35,499,221	$ 65,453,210	$ 62,092,579	$ 65,628,243	$ 66,715,613
Grant Funded	$ -	$ -	$ -	$ -	$ -	$ -
SRF Funded	$ 45,098,300	$ 34,456,835	$ 11,192,934	$ 4,672,528	$ 564,222	$ 371,202
WIFIA Funded	$ 4,797,904	$ -	$ 20,005,117	$ 31,900,342	$ 36,311,883	$ 37,820,422
Currently Funded	$ -	$ -	$ -	$ -	$ -	$ -
Pay-Go Funded	$ 15,094,283	$ 1,042,386	$ 12,448,213	$ 11,566,292	$ 11,437,015	$ 14,739,404
Debt Funded (Tax-Exempt Bonds)	$ 48,179,230	$ -	$ 21,806,946	$ 13,953,417	$ 17,315,123	$ 13,784,585

Year	2022	2023	2024	2025	2026	2027
Debt Service	$ 4,098,710	$ 5,131,705	$ 8,538,626	$ 13,086,745	$ 13,087,449	$ 13,084,562
Net Income	**$ (9,808,390)**	**$ 3,977,079**	**$ (2,121,016)**	**$ 1,019,835**	**$ 1,078,979**	**$ 1,152,395**
Total Cash Balances						
Beginning Total Cash Balance	$ 37,641,118	$ 27,832,728	$ 31,809,807	$ 29,688,791	$ 30,708,626	$ 31,787,605
Calculated Change to Cash Balances	$ (9,808,390)	$ 3,977,079	$ (2,121,016)	$ 1,019,835	$ 1,078,979	$ 1,152,395
Ending Total Cash Balance	$ 27,832,728	$ 31,809,807	$ 29,688,791	$ 30,708,626	$ 31,787,605	$ 32,940,001
Ending Cash Balances by Fund						
Fund 717 (Emergency Reserve)	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000
Fund 713 (Rate Stabilization including Excess)	$ 10,000,000	$ 10,000,000	$ 13,163,368	$ 13,163,368	$ 13,163,368	$ 13,163,368
Fund 716 (90 Day Operating Reserve)	$ 7,416,364	$ 7,867,155	$ 8,347,760	$ 8,858,503	$ 9,401,318	$ 9,978,265
Fund 711 (Water Operations)	$ 7,416,364	$ 10,942,652	$ 8,341,030	$ 8,850,123	$ 9,386,288	$ 9,961,735
Coverage and Targets						
Debt Service Coverage (W/Out Reserves)	2.54x	1.98x	2.21x	1.96x	1.96x	2.21x
Debt Service Coverage Target	1.50x	1.50x	1.50x	1.50x	1.50x	1.50x
Days' Cash (Includes only Funds 711 & 716)	180	215	180	180	180	180
Days' Cash Target	180	180	180	180	180	180

**Manual Adjustment to conform water rate revenue to proposed budget*

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REUTERS

California desalination plant hits regulatory hurdle

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California desalination plant hits regulatory hurdle

FILE PHOTO: Desalination advances in California, despite opponents and looming alternative

Daniel Trotta

Mon, April 25, 2022, 5:30 PM · 3 min read

By Daniel Trotta

(Reuters) -A proposed California desalination plant that would produce 50 million gallons of drinking water per day failed a crucial regulatory hurdle on Monday, possibly

recommended denying approval of the Huntington Beach plant proposed by Poseidon Water, controlled by the infrastructure arm of Canada's Brookfield Asset Management.

The commission's staff said the project was more susceptible to sea-level rise than was understood when it was first proposed more than two decades ago. The plant is expected to produce 50 million gallons (189.3 million liters) of drinking water per day, enough for 16% of the homes in the Orange County Water District, where 2.5 million people live.

The commission staff also deemed the project harmful to nearby fish and bird habitat, said the ground beneath the plant posed a seismic risk, and that the higher cost of the plant's water would squeeze low-income consumers.

The Coastal Commission, which is scheduled to consider the matter on May 12, could defy the staff recommendation and vote to approve the project.

The 12-member commission is made up of six local elected officials and six members of the public who are appointed by the governor, a senate committee, and the assembly speaker.

"When Poseidon first proposed its facility at this location nearly 25 years ago, sea level rise projections were much lower and adaptation planning was in its infancy," the staff report said. "Since that time, our understanding of the severity and consequences of climate change and sea level rise have grown exponentially."

It also raised the risks of sea-rise elsewhere in California. The proposed desalination plant would be on low-lying land about 30 miles (50 km) south of Los Angeles.

"By 2050 to 2070, the surrounding area may be flooded regularly," the report said.

2022
Value of Water Index

Value of Water CAMPAIGN

On an annual basis, the Value of Water Campaign polls American voters to better understand their opinions about the state of our nation's water infrastructure and what they view as priorities for action and potential solutions.

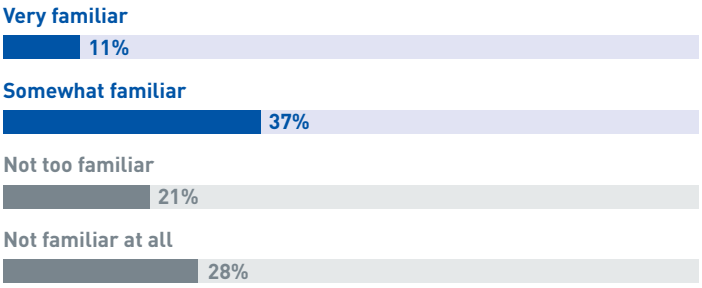
The Value of Water Campaign is pleased to share the results of our seventh annual national poll of over 1,000 American voters, conducted by the bipartisan research team of Fairbank, Maslin, Maullin, Metz, and Associates (D) and New Bridge Strategy (R).

The poll was conducted between March 27 and April 7, 2022. While in previous years, we wanted to gauge the public's support for investing in infrastructure and water infrastructure specifically, this year we were able to probe for insights into how American's felt about the recently passed federal Bipartisan Infrastructure Legislation among other water issues.

Only half the country is familiar with the federal infrastructure bill that passed last year.

When asked if they were familiar with the new federal infrastructure bill, only about half of respondents said they were very familiar or somewhat familiar with the $550 billion legislation. While there are several competing issues vying for voters' attention, the lack of awareness signifies and important opportunity to inform voters on the infrastructure bill.

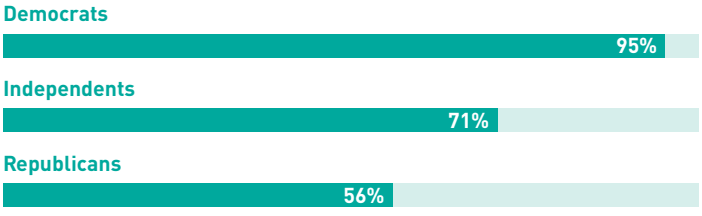
48% of respondents were familiar with the bill



But when they hear what is in the bill, 3 of 4 voters approve of the water infrastructure investments.

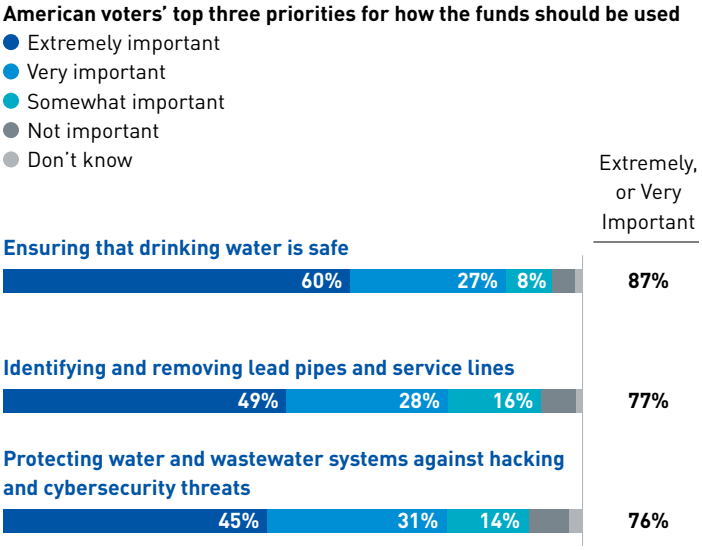
Once respondents were given facts about the water investments in the infrastructure legislation, support was very high. Crucially, support cuts across all ages, genders, and races, and even political party: 95% of Democrats, 71% of Independents, and 56% of Republicans approve of these investments. Given the divided electorate, this is a rare area of bipartisan support.

75% of respondents approve of the water infrastructure investments



Voters expressed clear preferences on outcomes they want to see from investing in water infrastructure.

When given a choice of how the money from the federal infrastructure legislation could be used in their community, voters had three top priorities: Ensuring drinking water is safe; identifying and removing lead service lines; protecting water and wastewater systems against hacking and cyber security threats. Those preferences ranked above other choices including waterfront cleanups, reducing water services disruptions due to severe weather, and improving the taste of drinking water.

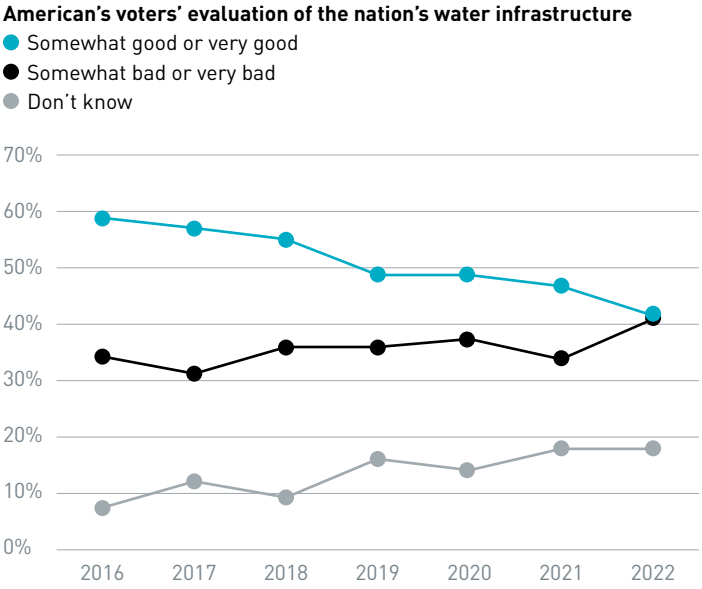


Americans are growing more uncertain about the nation's water infrastructure.

Over the last seven years, fewer Americans have rated the national water infrastructure as good, while the number of Americans who are uncertain about the state of water infrastructure has grown.

This shows a growing recognition that our water infrastructure is in need of repair, replacement, and rehabilitation.

Voters are now evenly split with 41% of respondents believing the nation's water infrastructure is in good condition, and 41% believing it is in bad condition. Since 2016, our polling shows an 18% drop in perception that the nation's water infrastructure is in good condition.



About the Value of Water Campaign

The Value of Water Campaign educates and inspires the nation about how water is essential, invaluable, and in need of investment. Spearheaded by top leaders in the water industry, and coordinated by the US Water Alliance, the Value of Water Campaign is building public and political will for investment in America's water and wastewater infrastructure through best-in-class communications tools, high-impact events, media activities, and robust research and publications. More at **thevalueofwater.org**.