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

Water Department

# WATER COMMISSION

Regular Meeting

May 07, 2018

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

*Denotes written materials included in packet.

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 CityClerk.

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 - No action shall be taken on this item.

Announcements - No action shall be taken on this item.

Consent Agenda 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 Items Affecting Water

   Accept the City Council items affecting the Water Department

2. Water Commission Minutes from March 5, 2018

   Approve the March 5, 2018 Water Commission Minutes

3. FY 2018 3rd Quarter Financial Report

   That the Water Commission receive the 3rd Quarter FY 2018 Financial Report.

4. Communication with a Customer Regarding Water Costs

   That the Water Commission receive information and analysis about the cost of a customer's water use, the fees the customer pays, and what those fees pay for.

Items Removed from the Consent Agenda

General Business 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.

5. Recommendations on the FY 2019 Operations and Maintenance Budget and CIP with Updated Financial Pro Forma

   Receive information regarding the Water Department's FY 2019 Recommended Operating and CIP Budgets (Budgets) to familiarize, understand details and ask questions of staff regarding the Recommended Budgets. Formal recommendation to the City Council regarding the approval of the Recommended Budgets will be agendized for the June 4th Water Commission meeting.

6. Water Main Replacement Program Update

That the Water Commission receive information and provide feedback on the Department's history and approach to assessing the condition of the water system and prioritizing the replacement of water mains.

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

7. WSAS Ad Hoc Committee - Update on Project Evaluation Framework

8. Santa Cruz Mid County Groundwater Agency

9. Santa Margarita Groundwater Agency

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

Information Items

10. Email Correspondence Received from Members of the Public.

Receive information on email correspondences from members of the public.

Adjournment

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WATER COMMISSION
INFORMATION REPORT

DATE: 5/3/2018

AGENDA OF: May 7, 2018

TO: Water Commission

FROM: Rosemary Menard, Water Director

SUBJECT: City Council Actions Affecting the Water Department

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RECOMMENDATION: Accept the City Council items affecting the Water Department.

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BACKGROUND/DISCUSSION:

**March 13, 2018**

Resolution Amending the City of Santa Cruz Personnel Complement, Classification and Compensation Plans (Associate Professional Engineer Part Time) (WT)

Resolution No. NS-29,371 was adopted amending the Classification and Compensation Plans and the FY 2018 Budget Personnel Complement by approving various classification and position changes in nine city departments.

**March 27, 2018**

University Tank No. 5 Replacement Project – Replacement of Inlet/Outlet Pipeline, Related Piping and Site Work (WT)

Motion carried to approve the plans, specifications, and contract documents for the University Tank No. 5 Replacement Project – Replacement of inlet/outlet pipeline, related piping and site work and authorize staff to advertise for bids and award the contract in a form to be approved by the City Attorney. The City Manager is hereby authorized and directed to execute the contract as authorized by Resolution No. NS-27,563.

Union Locust Building Improvements – Approval of Plans & Specs, Authorization to Advertise for Bids, and Award of Contract (WT)

Motion carried to approve the Plans and Specifications for the Union Locust Building Improvements, and authorize staff to advertise for bids and award the contract in a form to be

approved by the City Attorney. The City Manager is hereby authorized and directed to execute the contract as authorized by Resolution No. NS-27,563.

Resolution to Reimburse Capital Expenditures Prior to Debt Issuance (WT)

Resolution No. NS-29,378 was adopted authorizing the Water Department to reimburse itself for capital expenditures incurred earlier than 60 days prior to the issuance of debt.

Resolution to Reimburse Capital Expenditures from Future State Water Resources Control Board Funding (WT)

Resolution No. NS-29,379 was adopted authorizing the Water Department to be reimbursed by State Water Resources Control Board (SWRCB) for costs related to the Graham Hill Water Treatment Plant Concrete Tanks Project.

**April 10, 2018**

Felton Diversion Dam Rubber Bladder Plans & Specs (WT)

Motion carried to approve the Plans and Specifications for the Felton Diversion Inflatable Dam Rubber Bladder Replacement Project, and authorize staff to advertise for bids and award the contract. The City Manager is hereby authorized and directed to execute the contract as authorized by Resolution No. NS-27,563 in a form approved by the City

Laguna and Majors Diversions – Professional Service Contract (WT)

Motion carried authorizing the City Manager to execute an agreement in a form to be approved by the City Attorney with Black & Veatch (Rancho Cordova, CA) in the amount of $173,000 to provide professional services related to condition assessment and conceptual design for the Capital Improvement Projects for the Laguna and Majors Diversions.

**April 10, 2018 City Council Joint Session with the Water Commission – 7:00pm**

2018 Annual Water Supply and Demand Assessment (WT)

Resolution No. NS-29,388 was adopted declaring a Stage 1 water shortage alert.

Water Supply Study Session (WT)

Council received a progress report on: (1) the second year of work implementing the Water Supply Advisory Committee's recommended work plan; (2) the Water Supply Advisory Committee's recommended decision-making framework for selecting a water supply augmentation project or portfolio of projects; and, (3) the Water Department's coordinating and collaboration efforts on water supply planning issues.

**April 24, 2018**

River Bank Filtration Study at Santa Cruz and Felton, CA – Award of Contract

Motion carried to accept the proposal of PES Environmental, Inc. (Novato, CA) for a professional services contract for hydrogeological investigations and the feasibility study of riverbank filtration (RBF) along the San Lorenzo River and to authorize the City Manager to execute an agreement in a form to be approved by the City Attorney and reject all other proposals.

PROPOSED MOTION: Motion to accept the City Council items affecting the Water Department.

ATTACHMENTS: None.

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# Water Commission
## 7:00 p.m. – March 5, 2018
## Council Chambers
## 809 Center Street, Santa Cruz

Water Department

## Summary of a Water Commission Meeting

**Call to Order**: 7:00 PM

**Roll Call**

**Present**: Present: L. Wilshusen (Chair), D. Engfer (Vice-Chair), D. Baskin, J. Mekis, A. Schiffrin, D. Schwarm, W. Wadlow

**Absent**: None

**Staff**: R. Menard, Water Director; H. Luckenbach, Deputy Director/Engineering Manager; N. Dennis, Principal Management Analyst; K. Crossley, Sr. Professional Engineer; B. Pink, Environmental Projects Analyst; D. Culver, Acting CFO; K. Fitzgerald, Administrative Assistant III

**Others**: 6 members of the public.

**Presentation**: None.

**Statement of Disqualification**: None.

**Oral Communications**: One public comment was received by Becky Steinbruner.

**Announcements**: None.

**Consent Agenda**

1. City Council Items Affecting Water
2. Approve February 5, 2018 Water Commission Minutes
3. 2018 Water Supply Outlook - Update

Commissioner Schiffrin moved the consent agenda. Commissioner Baskin seconded.

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

**General Business**

4. FY2019-2028 Capital Improvement Plan Summary

A presentation of the project components of the FY 2019- 2028 Capital Improvement Plan (CIP) Summary was given by H. Luckenbach, Deputy Director/Engineering Manager. Note: this presentation was purposefully designed to focus on the projects rather than the financial aspects of the CIP, which will be covered in detail in the budget discussion at the May 7th Water Commission meeting.

Is this the first time that this format for the Capital Improvement Plan has been presented?

- Yes. The purpose of presenting the projects in this format was to show the schedule and work flow for each project (without budget as another data point) as a preface for future discussions when projects are further prioritized and/or shifted per HDR's validation and workload analysis.

What is the strategy of the current Capital Improvement Plan in regards to the prioritization of the projects? Could the presentation of the plan be reorganized to better show how projects are prioritized?

- The project implementation schedule developed for this presentation was intended to show each project by its existing category – rehabilitation/replacement, upgrades, supplemental supply - and is the same format used with the quarterly financial report. This format indicates where there is some flexibility in the planning and implementation of projects.
- The Department is working with HDR to develop a schedule that will reflect staff's analyses of resources and funding required to complete the projects. The resulting schedule may show projects more evenly spread throughout time, which would be done as part of the need to levelize resources. One outcome of this effort will be that it will necessarily prioritize projects.
- The commission's input (e.g., showing priority projects first, being consistent with terms, etc.) will be included in the next version.

Should Desalination also be listed under the "Water Supply Reliability & Studies" section until the final recommendations and decisions are made concerning the water supply?

- The Department can certainly relist Desalination to reflect that status. The current desalination feasibility study has been funded out of the Water Supply Augmentation Strategy project. A footnote can be added to the chart to show this categorization for future clarification and or a new line item.

What are the major considerations for determining the location of the intake gate pipes for the Newell Creek Inlet/Outlet Project?

- The two primary drivers for locating and sizing the intakes for the project are: 1) ability to deliver water to the reservoir and from the reservoir at the required volume rate and 2) providing flexibility to draw water from different elevations within the reservoir in order to optimize water quality.

Why is the University No. 5 (U5) Tank Replacement not eligible for State Revolving Funds (SRF)?

- This project consists of three elements: pipeline replacement, installation of a maintenance tank (to function as temporary storage during construction), and replacement of the U5 tank. The Department initially thought SRF loans could fund a portion of this project, specifically the U5 tank. However, the SRF staff considers the entire project when considering eligibility and because work had already begun on the maintenance tank and pipeline, the entire project was ineligible from receiving funding through the SRF.

Can the Department provide a description of the Union Locust Street Building Expansion?

- The Water Department currently occupies a portion of the first floor of the Union Locust Street Building for staff functions. (City/County Library occupies the remainder of the first floor and the second.) The Library vacated some space on the first floor last year and the Water Department is expanding into this space. The project will remodel the existing space and add the entire front of the first floor to Water Department use to

accommodate current and future staff additions and the project management staff brought in from HDR.

The chart shows that the Department has four years to complete the planned projects for the Graham Hill Water Treatment Plant; how can the remaining infrastructure improvements be outlined to reflect this timeline?

- Water treatment is a major issue at the center of much of our capital planning. Three basic issues need to be addressed in the planning work that will be done in the coming months: the physical and seismic condition of the plant, what upgrades, if any, need to be made to the treatment process to deal with the changed water quality of the current and anticipated future mix of sources of supply without assuming major investments in upgrades to treat winter water, and the increments of treatment plant upgrades required to treat significant quantities of winter water. The Department is planning on bringing an item on these water treatment issues and how they relate to the water supply augmentation strategy in the late fall or winter of 2018/2019. That discussion will provide the opportunity to more fully respond to this question.

Are there any Water Supply Augmentation Strategy projects in the Capital Improvement Plan that are more than six months behind schedule?

- There are currently no projects that are more than six months behind schedule. In fact, at this time the only delay is with the groundwater modeling which is estimated at being approximately 4 months behind schedule.

What is the current status of the Pipe Loop study?

- The work on evaluating surface water- groundwater compatibility is taking place in two phases under the Black & Veatch contract. The first phase is the bench scale testing program, where samples of pipes are harvested and placed in test beakers with finished water to replicate potential future conditions of the pipes. Corrosion effects are evaluated after a period of ~3 months and a full report is expected in May when more decisions can be made on what actions should be taken on second phase. The second phase would involve a pilot-scale Pipe Loop study. There will be no recommendation as to whether or not to pursue phase two until the full report on phase one has been completed.

Is the Santa Cruz Water Department the lead agency in the Pipe Loop study?

- Yes, the Department is the leading agency and is contracted to manage this study by Soquel Creek Water District. Soquel Creek Water District will reimburse the City for 50% of the work completed by the consultant.

Is the bench scale phase causing the delay in the Pipe Loop study?

No. Bench scale testing is less expensive and less time consuming than a full scale pipe loop study and may very well produce all the information that the City and Soquel Creek Water District will need to make a decision about whether or how to proceed with in lieu water transfers.

Will the water that would be produced from any successful river bank infiltration system be considered surface river water or ground water under the State's water rights laws and policies?

- Similar to the water extracted from the Tait wells, the water extracted from riverbank filtration would be considered as surface water and treated as such.

A member of the public commented and suggested including cost data in any future presentations on the CIP.

- Staff responded that the Department's decision not to include CIP project cost data at this time was made in an attempt to highlight the work phases of each project. As noted earlier, cost data will be presented and discussed in the context of the comprehensive budget discussion planned for the May 7th Water Commission meeting.

One additional member of the public commented on topics that were covered in the meeting summary details provided for this agenda item.

5. Draft Agenda for the April 10, 2018 Joint Meeting of the Santa Cruz City Council and the Santa Cruz Water Commission

The Draft Agenda for the April 10, 2018 Joint Meeting of the Santa Cruz City Council and the Santa Cruz Water Commission was presented by R. Menard, Water Director.

Can the Department provide further information to the Water Commission on the Water Supply Augmentation Strategy decision making framework to be presented in Item 3 of the Draft Agenda before the Joint Meeting with City Council?

- Yes, the Department will be providing a presentation and a follow up discussion on Item 3 as well as the other items at next month's Commission meeting. Also, the Commission had a presentation on the Water Supply Advisory Committee's (WSAC) recommended decision-making framework at its November meeting.

Will a discussion on the fishery flows management in the river for this year be covered in the materials and presentation of the 2018 water supply outlook in Item 1?

- Yes that discussion will be included.

A Commissioner commented that it would be beneficial to use the opportunity of the joint meeting to clarify whether the water demand forecast used by WSAC and subsequently in the 2015 update of the City's Urban Water Management Plan contemplated the kind of growth in student population currently being projected by UC Santa Cruz.

One member of the public commented on topics that were covered in the meeting summary details provided for this agenda item.

6. Water Supply Augmentation Strategy, Quarterly Work Plan Update

Please explain No.5 Home Water Use Report on page 6.2

- This is a Demand Management option that is included in the Water Conservation Master Plan. It is an approach that uses the principles of social norming to influence water use. Water usage data for single family residential customers is provided to customers in a printed report or via a customer information portal. A household's usage will be compared to other similar households with a goal of incentivizing those using more water than similar households in their neighborhood to take steps to reduce their water use. Similar water monitoring programs are currently being utilized by other agencies in the Bay Area.

How can redundancy be avoided in accessing customer water usage from Advanced Metering Infrastructure (AMI) based data and separate non-AMI based data software?

- If the Department were to develop a customer portal as a way to deliver home water use reports now and later fully implement AMI, the idea would be to merge AMI data and a customer portal so as not to have competing customer portals.

Will the Home Water Use monitoring option become available to all residents who receive water services through the City?

- The long-term goal of the Department is to provide all city residents access to their water usage data via web portals; but for now it is only available to the test group of customers who will receive a mailed letter that provides online access to water usage data. This letter is part of the pilot program for online access to water usage data. Another tool that is being considered by the Department is providing printed reports targeted to the top 20-30% of the highest water users that will detail their current and goal usage levels, and provides local comparisons to influence lower water usage levels.

Please elaborate on the term GRR found on page 6.5.

- GRR and GRRP are used in the industry to describe Groundwater Replenishment Reuse Projects. These projects involve the planned use of recycled municipal wastewater for the purpose of replenishing a groundwater basin.

What quantity of water for groundwater replenishment was identified as being available to the City from the recycled water study and will that volume be enough to meet the City's needs if Soquel Creek's Pure Water Soquel project goes forward?

- The Recycled Water Feasibility Planning Study identified the seasonal and diurnal volumes of water available from the City's wastewater treatment facility. The project studied to date included the Pure Water Soquel Project plus GRR for the City with the remainder of the available summer flow; the most conservative approach. This analysis, while encouraging in terms of the injection and extraction capability of the basin, was limited by the volume of water available in the summer, and injection/extraction in the City's service area. The next step will be to analyze non-summer volumes (which will be higher than summer time) and additional wells to better understand the feasibility of joint GRRPs.

Is water compatibility (between the source water and native groundwater) an issue with GRRPs?

- It is possible that water compatibility could be an issue. Soquel Creek Water District is conducting its own compatibility tests with the source water and advanced treated recycled water for the Pure Water Soquel Project which could provide some useful data.

- At the end of the discussion on desalination on page 6.9, there is a reference to a planned meeting with state agency staff to discuss the implications of the Ocean Plan Amendment on a potential desal plant option. Which state agencies are going to participate, and what will be their familiarity with the work the City has already done on desal? The Department will be meeting with staff from the California Coastal Commission (CCC), Central Coast Regional Water Quality Control Board (CCRWQCB), State Water Resources Control Board (SWRCB) to discuss the Desalination Feasibility Update Review in the context of the 2016 Ocean Plan Amendment (OPA) which adds requirements to seawater desalination intakes and discharges. Regarding their familiarity with the feasibility and process of desalination, the CCC and RWQCB staff were both involved in the scwd2 project, and the SWRCB staff is tasked with implementing the 2016 OPA so they all should be very familiar.

Can the Department provide a copy of the summary of the new approach to climate change that has been developed and is being used in the ongoing work looking at Aquifer Storage and Recovery?

- Yes, the work on a summary memo is underway. In addition to the memo, the Department is planning on having Shawn Chartrand provide a presentation to the Commission that details the approach he took to developing this updated projection for future climate change. We expect to schedule that presentation for some time in the next three to six months.

How can residents who have already subscribed to receiving their bills online be notified of the Dishwasher Rebate program referenced on page 6.2?

- Last month, bill inserts describing the new dishwasher rebate program were included in customer bills. For those customers receiving online bills, access to any informational updates included in bills at http://www.cityofsantacruz.com/government/city-departments/water/conservation/rebates/energy-star-clothes-washer-rebates

Is there a sample of the marketing for the pilot project on Advanced Metering Infrastructure (AMI) on page 6.2?

- As noted in the write up, the Department is conducting an evaluation of how having information affects the way irrigation water is being used. The test group is split into two (a control and a treatment group) with the treatment group receiving "marketing materials" (a letter) that lets them know how to access their account and use the information available online to manage their use. The control group will not receive this information. Data from the two groups for usage between May and November this year will be evaluated late this year.

Where can the Trussell Technologies report referenced on page 6.7 be accessed publicly?

- The report is available on the City website and the Department will follow up after the meeting to ensure it is available. http://www.cityofsantacruz.com/government/city-departments/water/online-reports

How will the Trussell Technologies Source Water Monitoring evaluation be used in considering the potential for using river bank filtration to reduce turbidity during the winter?

- A significant amount of previously unavailable information on the water quality parameters of the City's various source waters has been collected and analyzed during the last two years. This data creates a foundation for evaluating a variety of additional opportunities and challenges, including whether or to what degree river bank filtration could be an effective approach to reducing turbidity in the San Lorenzo River during the winter, thereby potentially making more water available for use in various storage and water transfer projects.

A member of the public commented on what he believes to be the excellent potential for water transfers to be a useful tool for addressing groundwater depletion in our region.

**Subcommittee/Advisory Body Oral Reports**

7. WSAS Ad Hoc Committee – Project Evaluation Framework

Commissioner Engfer announced the Ad Hoc Committee is meeting and is in the informational gathering stage.

8. Santa Cruz Mid-County Groundwater Agency

Commissioner Baskin reported the MGA Board Members are in the information gathering stage with the Agency staff and the public in learning the regulatory framework under which all groundwater agencies will operate in regards to water basins and aquifers.

9. Santa Margarita Groundwater Agency

Commissioner Engfer reported the SMGWA Board is in the formative stages. There was Brown Act seminar at the last meeting that provided information on private well owners. Hydro Focus has been selected by the SMGWA as the consultant for the ground water model review and evaluation, and facilitation services are being sought out through an RFQ. The next meeting will take place on April 26th.

**Director's Oral Report:** The Department will be presenting at a meeting of the Soquel Creek Water District (SqCWD) board meeting on the 20th of March at 6:00pm at the Capitola Council Chambers. The presentation will focus on describing and discussing the Department's work on winter water harvest options including in lieu and ASR. Gary Fiske will be presenting an updated version of the work originally presented in October of 2017.

On the financial side, quarterly cash flow analyses on CIP spending has indicated that we will need between $7 and $11 million to complete the work planned for the remainder of this fiscal year (through June 30th). This is a planned situation, as the 2016 Long Range Financial Plan includes financing about 75% of the CIP through issuing long term debt. As we aren't quite ready to move forward with issuing debt we have determined that obtaining a Revolving Line of Credit would be a good way for us to provide bridge funding until later this year or early in the next calendar year when we will be in a better position to define what spending we will need to finance over the coming three years. The Revolving Line of Credit is a strategy for short term borrowing at lower interest rates that could better manage current and future expenditures.

Is the requested amount between $7 million - $11 million needed to cover costs for this fiscal year?

- Yes, it is to cover expenditures through the end of this fiscal year.

Why does the Department need this additional funding?

- This additional funding will further advance the stages of the projects that are in the Capital Improvements Plan. For example, the work with consultants AECOM and HDR, Inc. to move Newell Creek Dam Inlet/Outlet project to 100% design.

How has the $25 million loan from Ibank been spent?

- There was a reimbursement resolution that was approved in April of 2014. From April 2014 to the time the Ibank loan was finalized, the Department accumulated expenditures that had to be reimbursed when the loan funds were finally received. The money was absorbed into the system to replenish the Department's reserves, the 90 day cash reserve, and to prepare the fund balance for the future.

What is the range of the funding that can be borrowed from the Revolving Line Credit?

- The Department expects to establish a line of credit for between $25 and $50 million.

When the will the WSAC Annual Report be available?

- As of today, the report has gone to the printer and will be mailed to the customers first.

Final Comments and Requests for Follow up.

1. Provide an update on the Water Supply Outlook in April 2018.

2. Ensure the public access to the Trussell Technology report on Source Water Monitoring on the City website.

**Adjournment** Meeting adjourned at 9:06 PM.

Respectfully submitted,

*Katy Fitzgerald*
Staff

WATER COMMISSION
INFORMATION REPORT

DATE: 5/3/2018

AGENDA OF: 5/7/18

TO: Water Commission

FROM: Malissa Kaping, Management Analyst

SUBJECT: 3rd Quarter FY 2018 Financial Report

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RECOMMENDATION: That the Water Commission receive the 3rd Quarter FY 2018 Financial Report.

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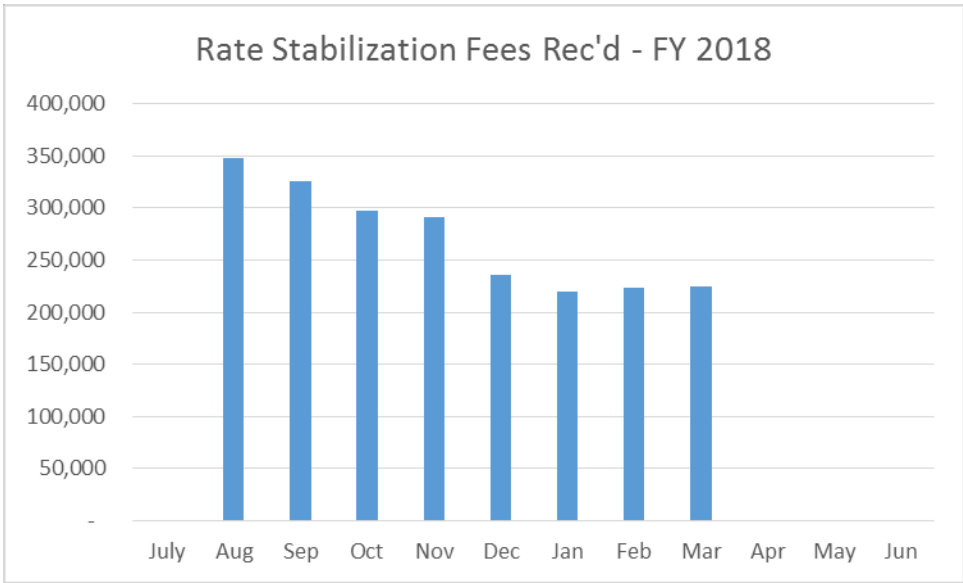
BACKGROUND/DISCUSSION: The 3rd quarter report for FY 2018 is attached showing a snapshot of our financial status for 75% of the fiscal year. 61% of budgeted revenues have been received and 65% of budgeted expenses has been spent or encumbered; however, the net balance between revenues and O&M expenses remains positive with a net balance of over $2.6M.

**Difference between Adopted Budget and Adjusted Budget**
The bulk of budget adjustments occurred earlier in the year and were reported in the 2nd quarter report. During the 3rd quarter as a result of FY2018 mid-year budget adjustments, an adjustment of less than $50K was made in personnel costs to adjust an Associate Professional Engineer position from temporary to a permanent .75 FTE. Expenses for Services, Supplies, and Other increased by $773K for additional program management tasks from HDR Engineering, $80K for Drinking Water State Revolving Fund application assistance from Carollo Engineering, $12K for the Newell Creek Dam spillway repairs, and was reduced by $180K to correct the PO carry-forward amount from FY2017.

**Rate Stabilization Fund Balance**
The Rate Stabilization Fee (RSF) of $1 /ccf, effective with the July billings delivered in August is credited directly to Fund 713, the Water Rate Stabilization fund, as bills are paid. The total received in RSFs through 3/31/18 is nearly $2.17M. As expected, the trend in RSFs paid, as shown in the next chart, matches the trend in the volume of water sales.




**CIP Projects Overview**
The project totals, durations, and current status match the FY2019 CIP budget request. As will be discussed during the Water Commission meeting, the CIP will be updated again after staff and HDR complete the CIP validation process to confirm project scheduling priorities and cost estimates.

FISCAL IMPACT: None

PROPOSED MOTION: Accept the un-audited 3rd Quarter FY 2018 Financial Report.

ATTACHMENTS: 3rd Quarter FY 2018 Financial Report

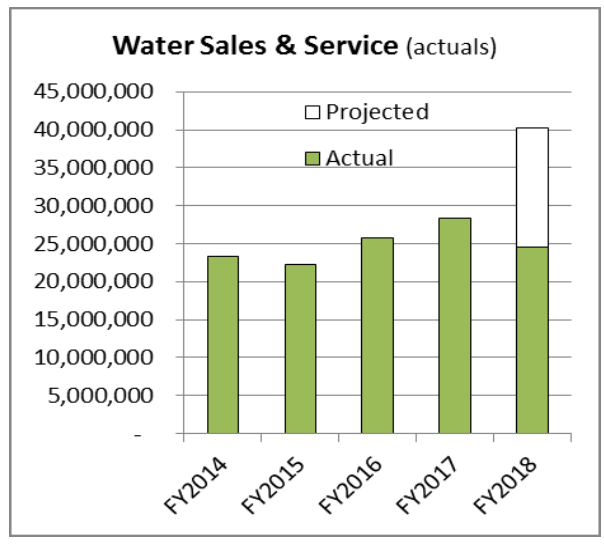
# Water Department
# 3rd Quarter FY 2018 Financial Report
# Preliminary, Unaudited, as of 3/31/18

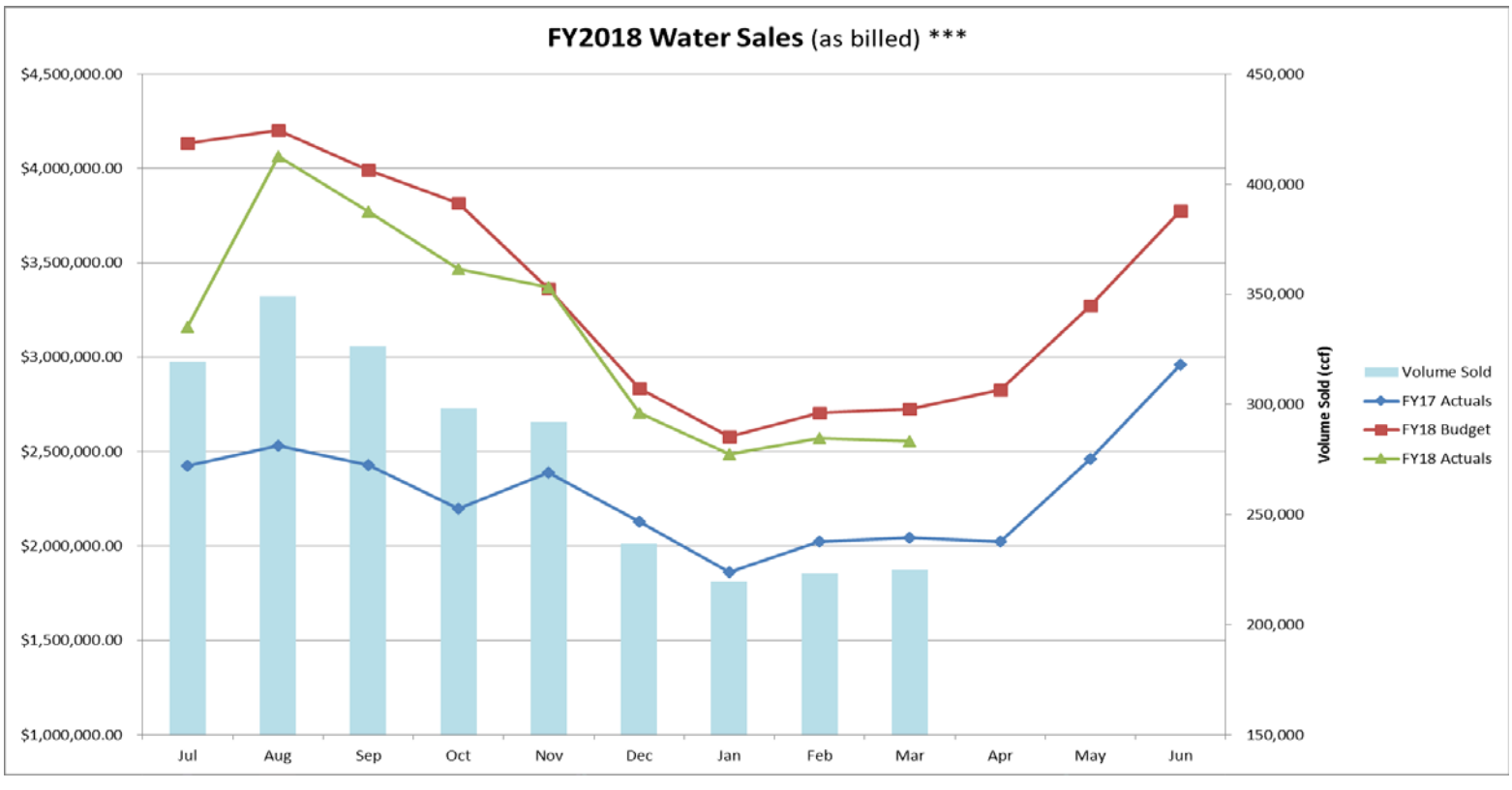
## Financial Status for Water Operations, Fund 711

| | FY 2018 Ado Budget | FY 2018 Adj Budget | Actual YTD Thru 3/31/18 | Remaining Enc | FY 2018 YTD Act + Enc | YTD % of Budget Act + Enc |
|---|---|---|---|---|---|---|
| **Revenues** | | | | | | |
| Water Sales and Service * | 40,171,529 | 40,171,529 | 24,611,829 | - | 24,611,829 | 61% |
| Miscellaneous | 1,193,181 | 1,536,181 | 954,545 | - | 954,545 | 62% |
| Grants & Other Financing | - | - | 10,613 | - | 10,613 | 0% |
| **Total Revenues** | **41,364,710** | **41,707,710** | **25,576,987** | **-** | **25,576,987** | **61%** |
| | | | 0 | | | |
| **Expenses** | | | - | | | |
| Personnel | 14,249,469 | 14,501,384 | 8,898,114 | - | 8,898,114 | 61% |
| Services, Supplies, and Other | 14,667,833 | 18,090,513 | 8,685,631 | 3,165,385 | 11,851,016 | 66% |
| Capital Outlay: Other | 175,000 | 692,680 | 614,492 | 51,550 | 666,042 | 96% |
| Debt Service | 1,949,327 | 1,949,327 | 1,532,563 | - | 1,532,563 | 79% |
| **Total Expenses** | **31,041,629** | **35,233,903** | **19,730,799** | **3,216,936** | **22,947,735** | **65%** |
| Balance | 10,323,081 | 6,473,807 | 5,846,187 | | 2,629,251 | |

## Fund Balances

| | Balance as of 3/31/18 | Target for FY end ** |
|---|---|---|
| 711- Enterprise Operations | 10,074,877 | 7,329,745 |
| 713- Rate Stabilization | 4,657,658 | 5,821,270 |
| 714- Public Art | 316,244 | N/A |
| 715-System Devel. Charges | 3,658,763 | N/A |
| 716- 90-Day Operating Reserve | 6,516,570 | 7,148,009 |
| 717- Emergency Reserve | 3,055,696 | 3,100,000 |
| 718- MHJB Endowment | 142,751 | 145,000 |




* Actual revenues received (not as billed) for Fund 711, does not include Rate Stabilization Fee

** Target balance for Fund 711 and 716 updated from FY2019 Pro Forma

*** Includes Rate Stabilization Fee

## CIP Projects Overview, as of 3/31/2018

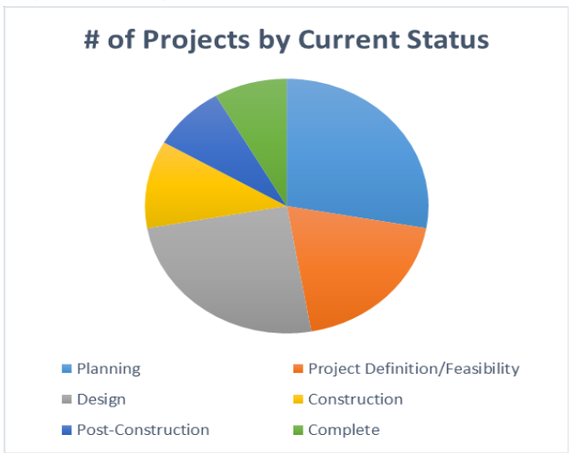
| Rehab or Replacement Projects | Project # | Life of Project Total (Projected) * | Spend Thru 3/31/18 ** | Project Duration | Current Status |
|---|---|---|---|---|---|
| Aerators at Loch Lomond | c701706 | 350,000 | - | 2017-2019 | Design |
| Bay Street Reservoir Reconstruction | c700313 | 25,774,072 | 25,352,742 | 2007-2019 | Post-Constr |
| Beltz 10 & 11 Rehab & Development | c700026 | 509,243 | 106,836 | 2017-2018 | Design |
| Coast Pump Station Line Repairs | c701707 | 695,120 | 130,000 | 2018 | PD/Feasibility |
| Felton Diversion Replac. & Pump Station | c701602 | 1,111,900 | 98,732 | 2016-2020 | Design |
| Gravity Trunk Main Valve Replacement | c701504 | 640,000 | 583,519 | 2014-2017 | Complete |
| Newell Creek Dam Inlet/Outlet Pipeline | c701606 | 49,192,744 | 5,020,760 | 2016-2022 | Design |
| Newell Creek Pipeline Rehab/Replacement | c701701 | 20,022,600 | 9,999 | 2016-2020 | Planning |
| N. Coast System Rehab- Laguna Diversion | c701801 | 1,620,000 | - | 2018-2021 | PD/Feasibility |
| N. Coast System Rehab- Majors Diversion | c701802 | 1,570,000 | - | 2018-2021 | PD/Feasibility |
| North Coast System Rehab | c709835 | 27,640,259 | 14,007,074 | 2003-2023 | Planning |
| Pressure Regulating Stations | c701703 | 490,000 | 119,150 | 2017-2020 | Construction |
| San Lorenzo River Diversion & Tait Wells | c709872 | 2,295,014 | 1,981,624 | 2002-TBD | Planning |
| Tube Settler Replacement | c701708 | 2,875,200 | 228,589 | 2018-2019 | Design |
| University Tank No. 4 Rehab/Replace | c701505 | 3,770,000 | - | 2014 - 2020 | Planning |
| University Tank No. 5 Replacement | c701506 | 4,428,000 | 559,624 | 2014 - 2019 | Construction |
| Water Treatment Upgrades | c700025 | 1,857,147 | 1,636,858 | On-going | Planning |
| Wharf Water Main Replacement | c701613 | 193,501 | 158,188 | 2016 | Complete |
| WTP Concrete Tanks Replacement | c701501 | 28,838,320 | 2,043,977 | 2014 - 2021 | Design |
| WTP Filter Rehabilitation and Upgrades | c701303 | 6,037,300 | 6,019,570 | 2013 - 2018 | Post-Constr |
| WTP Flocculator Improvements | c701502 | 3,220,000 | - | 2018-2020 | Planning |
| | | **183,130,420** | **58,057,243** | | |

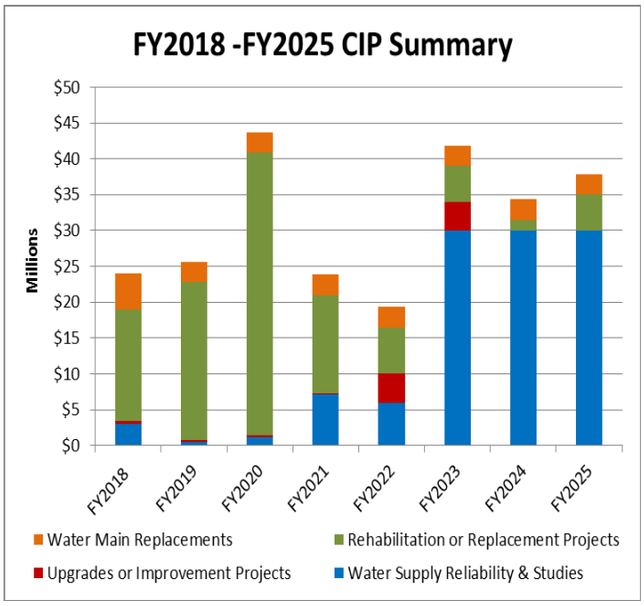
| Upgrades or Improvement Projects | Project # | Life of Project Total (Projected) * | Spend Thru 3/31/18 ** | Project Duration | Current Status |
|---|---|---|---|---|---|
| Advanced Metering Infrastructure (AMI) | c701603 | 11,100,000 | 29,100 | 2017-2023 | PD/Feasibility |
| Brackney Landslide Risk Reduction | c701803 | 70,100 | 70,100 | TBD | Planning |
| Coast Pump Station Flood Reduction | c701804 | 67,300 | 67,300 | TBD | Planning |
| Loch Lomond Facilities Improvements | c701301 | 385,000 | 73,626 | 2013-2020 | Design |
| Photovoltaic System Evaluation/Construc | c701607 | 910,000 | 838,082 | 2016-2018 | Post-Constr |
| Security Camera & Building Access Upgrades | c701704 | 645,000 | 176,996 | 2016-2019 | Construction |
| Spoils and Stockpile Handling Facilities | c701508 | 350,000 | 237,054 | 2015-2019 | Construction |
| Union/Locust Building Expansion | c701805 | 450,000 | 36,711 | 2017-2018 | Design |
| Water Resources Building | c701702 | 1,100,000 | 206,585 | 2017-TBD | Design |
| | | 15,077,400 | 1,735,555 | | |

| Water Supply Reliability & Studies | Project # | Life of Project Total (Projected) * | Spend Thru 3/31/18 ** | Project Duration | Current Status |
|---|---|---|---|---|---|
| Aquifer Storage and Recovery | c701609 & -10 | 3,985,000 | 849,950 | 2016 - 2022 | PD/Feasibility |
| Recycled Water | c701611 & -12 | 675,000 | 573,807 | 2016 - 2018 | PD/Feasibility |
| River Bank Filtration | c701806 | 1,300,000 | - | 2018-2019 | PD/Feasibility |
| Source Water Evaluation | c701608 | 1,200,000 | 424,528 | 2016 - 2020 | Planning |
| Water Supply Reliability - WSAC | c701402 & -03 | 2,296,250 | 2,296,249 | 2014 - 2016 | Complete |
| Water Supply Augmentation Strategy | c701705 | 106,648,352 | 155,848 | 2020 - 2025 | Planning |
| | | 116,104,602 | 4,300,382 | | |

| Water Main Replacements | Project # | Average Spend Per Year | Spend For 7/1/17 - 3/31/18 | Project Duration | Current Status |
|---|---|---|---|---|---|
| Main Replacements - Engineering Section | c700002 + | 1,298,289 | 3,999,409 | Annual - Ongoing Programs | |
| Main Replacements - Customer Initiated | c700004 | 35,759 | - | | |
| Main Replacements - Distribution Section | c701507 | 369,643 | 178,293 | | |
| Main Replace.- Outside Agency Initiated | c700003 | 172,564 | 123,625 | | |
| | | 1,876,255 | 4,301,326 | | |

* Non-inflated 2015 dollars, will change as projects move through design process. Includes budget adjustments in process.
** Amount includes current encumbered and spent funds from the project start through 3/31/18.



WATER COMMISSION
INFORMATION REPORT

DATE: 5/3/2018

AGENDA OF: May 7, 2018

TO: Water Commission

FROM: Rosemary Menard

SUBJECT: Communication with a Customer Regarding Water Costs

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RECOMMENDATION: That the Water Commission receive information and analysis about the cost of a customer's water use, the fees the customer pays, and what those fees pay for.

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BACKGROUND: In March the Council received the communication below from a water customer regarding concerns about his/her bill.

Council members,

What is going on in the water department? Our rates have been increased every year after year and have become unaffordable. Every year the letters keep talking about infrastructure fees which seem to never go away. I have conserved use, paid penalty's, and paid drought fees. The water department still seems to raise our rates to an unfordable rates. It's seems like that we pay more money, conserve usage and nothing fixes the problem. You council members need to get a handle on this. Or we can replace you and vote someone in office that can. My winter water bill is just as expensive as my 2016 summer bill. This makes no sense. I use less, conserve and still pay more. Where is the money going? It is not going into the infrastructure? It is going into salaries, PERS costs and Benefits. Get a hold of this and manage this. Awaiting for a reply or your excuses and reasons why the rates are expensive. Sounds like the civil grand jury needs to write grand jury report about the wasteful water and city garbage rates that keep going up and up and we still receive the same low level service.

Staff prepared the following information and analysis in response and is sharing it with you for your information.

PROPOSED MOTION: Receive information and analysis about the cost of a customer's water use, the fees the customer pays, what those fees pay for.

ATTACHMENTS: April 17, 2018 Letter to Customer

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WATER DEPARTMENT
212 Locust Street, Suite A, Santa Cruz, CA 95060 ◆ 831-420-5200

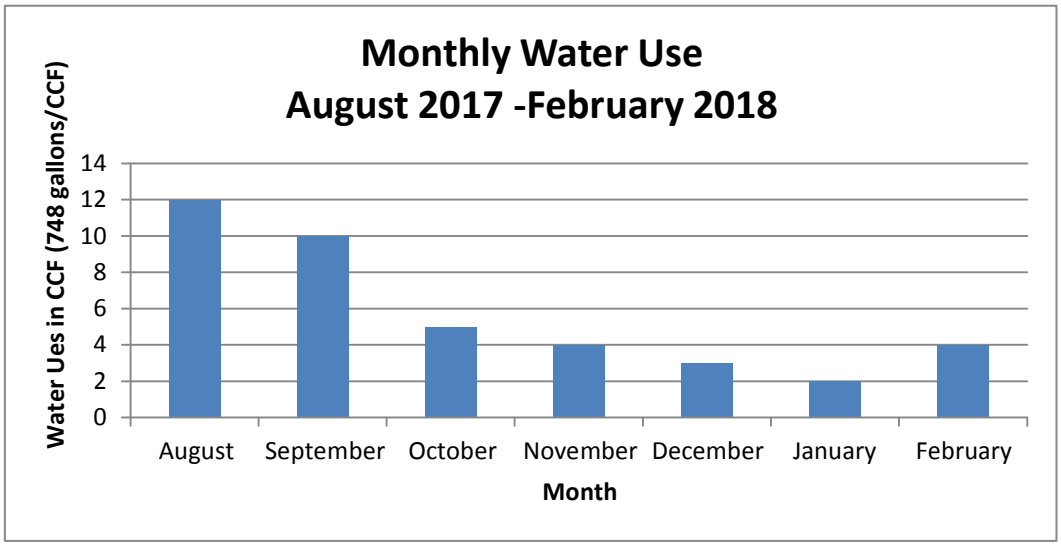
April 17, 2018

[redacted]

[redacted]

On March 11, 2018 you sent an email to Santa Cruz City Council members regarding your concerns about increases to your water bill. I asked for your property address so that I could look at your account and provide you with specific information about your water use, as well as some additional perspective on why your rates have increased and what your rate dollars are paying for. Thank you for responding to my request for your address. Below you will see the analysis we've done and after you've had a chance to review it, I would be happy to discuss it with you should you have further questions or comments.

First, I want to break down what you're being charged and give you information about what the various fees are for. The graph below shows your water use from August 2017 through February 2018.




During the period shown on the graph above, 40 ccf (29,920 gallons) of water were used at your property. Your August and September 2017 consumption was much higher than your consumption in the other months; usage in August and September accounted for more than half of all your water use. Typically, water use during this time period indicates landscape irrigation.

One way to lower your bill is to look for opportunities to improve the efficiency of your landscape irrigation. You may be able to reduce your water demand by modifying your landscape, particularly if it includes turf. You can access information on these topics, including rebates for turf removal, at the Water Department's website at: http://www.cityofsantacruz.com/government/city-departments/water/conservation

**The Fees You See on Your Water Bill:**

Your bill looks different now than it looked 18 months ago. Here's what's changed:

1. We reduced the fixed monthly Ready-to-Serve charge. The fixed monthly fee now reflects the actual costs to read your meter, maintain your meter, produce and process your bill, and provide customer service. The fee now accounts for about 8% of total revenue, down from about 35% prior to October 2016;
2. Most of your bill now is driven by your Water Consumption charges. Water consumption is divided into 4 tiers or blocks and water used in the higher tiers is more expensive than water used in lower tiers. For example, Tier 1 water costs about a penny a gallon ($0.01) while Tier 4 water costs about a penny and a half a gallon ($0.015). The point of tiered rates is to incentivize efficient water use, particularly related to irrigation demand as that is a discretionary use of water.
3. Historically, the cost of maintaining our infrastructure has been recovered by the monthly fixed charge combined with consumption charges. However, as we're entering an era of major reinvestment in our infrastructure as well as development of supplemental supply, we decided to create a separate, identifiable fee, so you'll now see a separate fee on your bill called the "Infrastructure Reinvestment Fee." Having a separate fee allows us to be more transparent with our customers because this fee is set specifically to recover the cost of cash and debt financing for system infrastructure investments. This fee is also tiered to water use, with Tier 1 usage costing about 3/10$^{th}$ of a cent per gallon and Tier 4 costing about 7/10$^{th}$ of a cent per gallon.
4. Producing and delivering water has a high fixed cost no matter how much water is produced. This is the case because few of our costs relate specifically to the amount of water produced, with water-treatment chemicals and power being the two main variable costs. When we changed our rates to collect most of our revenue from water use (vs. the fixed Ready-to-Serve charge,) we introduced significant potential for revenue variability. This potential for revenue variability is being addressed by ~~the~~ increasing the Rate Stabilization Reserve from its current level of $2.5 million to $10 million by July of 2021. The goal here is to build a reserve fund to use when revenue declines due to low usage. The Rate Stabilization Fee of $1 per CCF (748 gallons) has been applied to build this reserve.

It may be useful to think about these four categories of costs in terms that are similar to what a homeowner has to deal with in his or her daily life:

**Category 1:** the Ready-to-Serve charge. This cost is like a home mortgage. You pay the same amount every month whether you are on vacation or at home. It is a basic fixed cost to keep a roof over your head;

**Category 2:** Water Consumption charges. This cost is like your groceries and other consumables – you pay for what you use. Your personal choices and values affect how much you spend and you can choose to spend more or less beyond the basics;

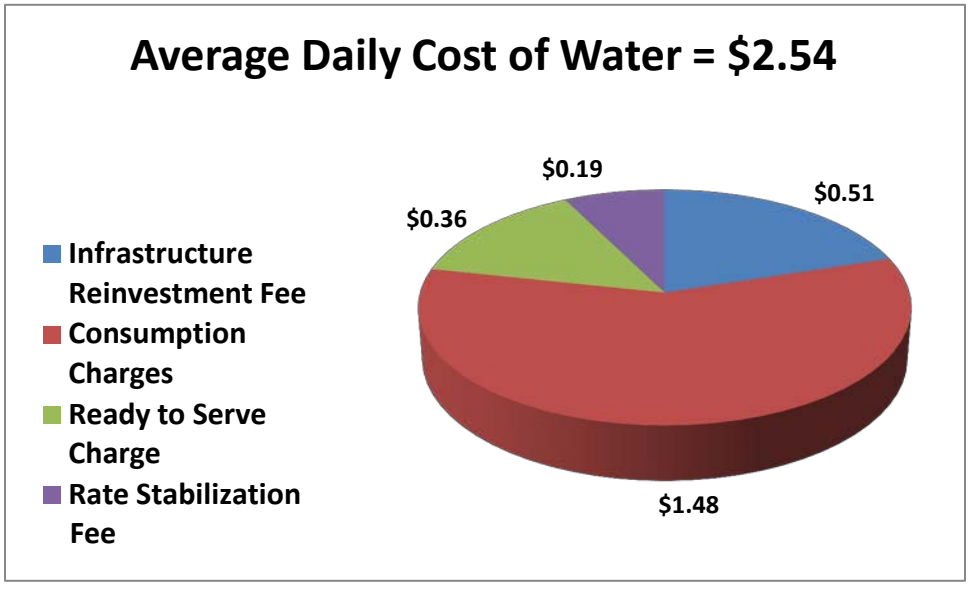
**Category 3**: the Infrastructure Reinvestment Fee. This is similar to what a homeowner spends on home maintenance, including both small things like paint and big things that come along less frequently like replacing a roof, or heating, plumbing or electrical systems;

**Category 4:** the Rate Stabilization Fee: This is like home insurance. It's protection against a catastrophic loss from something unexpected happening.

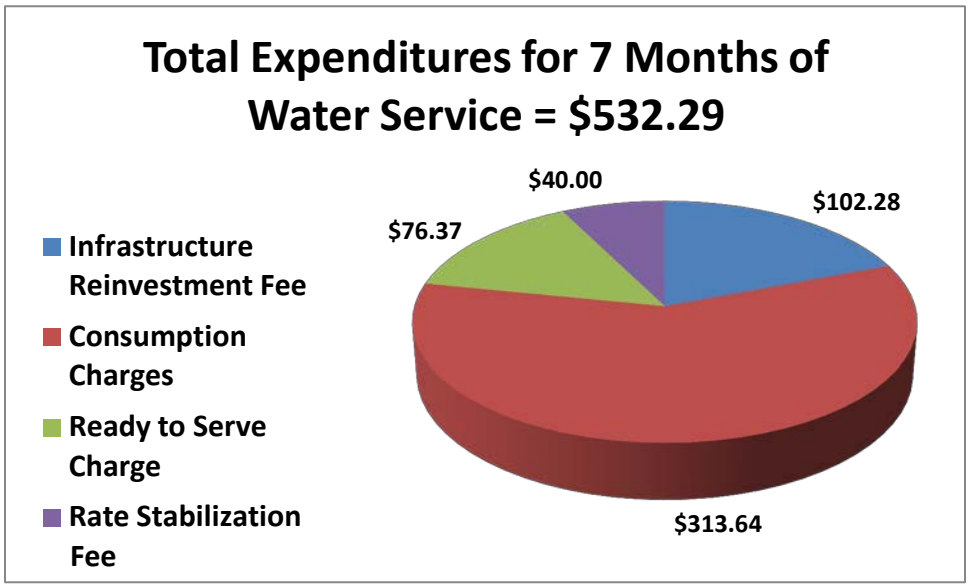
**What You Are Paying for Water – Some Perspectives:**

Using the data from your bills between August 2017 and February 2018, we calculated your average daily cost of water at $2.54. This translates to $0.018, or slightly less than two cents per gallon of high quality drinking water delivered to your property 24/7/365. Based on billing records for your property for the same time period (August 2015 to February 2016) the cost of water per gallon was $0.0143, so overall the cost for water service to your property has gone up 25% between August 2015 and August 2017. I do recognize that that is a pretty big increase over a relatively short period of time, and I'll address what drove the increase below.

You can see in the pie chart below how the $2.54 average daily cost is made up of costs for each of the four types of charges described above.



To give you a more composite view of what you're paying for water, I've taken the data for the seven months and distributed the amount across the same four categories used in the chart above.

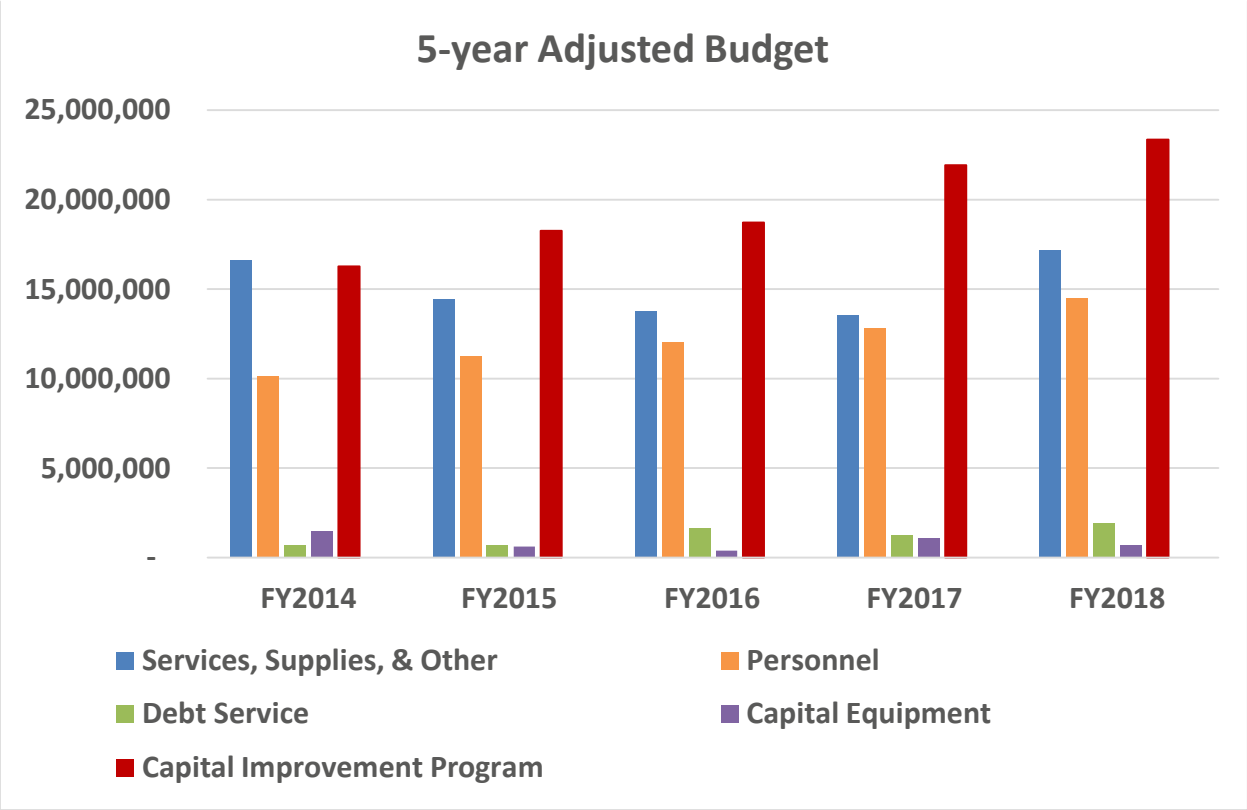



During the seven month period, 59% of your total charges were for Consumption Charges. About 2/3rds ($194.76 of $313.64) of your Consumption Charges were related to water used in July and August 2017 (billed in August and September 2017). As noted above, with so much of what you've paid possibly being related to summer irrigation, you may have an opportunity to reduce water costs by reducing or increasing the efficiency of your outdoor water use.

**The Value Proposition – What You Paid, and What You Bought:**

Most of us make judgement calls every day about whether we're comfortable or satisfied with what we're paying for goods and services. A key point we consider is the value of what we're paying for. Below is information about what you're actually buying when you pay your water bill to give you information to help answer the value proposition question for yourself.

1. The Santa Cruz water system serves about 100,000 people in the City of Santa Cruz and in parts of Capitola and the unincorporated areas of Santa Cruz County. This fiscal year (July 1, 2017 to June 30, 2018), City Council adopted the Water Department's operating and capital budget of $55 million. The graph below breaks down the key components of our budget: capital Improvements, personnel, services and supplies, etc.




2. The Santa Cruz water system is a community asset with a depreciated (book) value of around $400 million and a replacement value of something like $800 million. It includes approximately 350 miles of pipelines; 26,000 meters, untreated water and treated water storage; hundreds of valves; fire hydrants; pump stations; diversion facilities on multiple surface water sources; a large reservoir and earth-filled dam; a groundwater system with multiple production and monitoring wells; and two groundwater and one large surface water treatment plants.

3. Many system assets have reached the end of their useful life and major reinvestment is required to ensure reliable service. In addition, the water system does not have adequate untreated water storage to ensure reliable service when the area experiences dry winters. A supplemental water supply is needed to better prepare us to deal with multi-year droughts such as were experienced between 2013 and 2016.

4. Over the coming decade, the Water Department expects to spend an estimated $300 million on water system rehabilitation and replacement for aging infrastructure and for supplemental supply. In short, we need to replace old and failing infrastructure and improve system reliability to get us through multi-year droughts without the need for significant curtailments.

As discussed earlier, given the necessary investment to rehabilitate and replace key elements of the water system we wanted to provide a direct and transparent way to let people know what their rate dollars are being used to buy. The Infrastructure Reinvestment Fee was our way to do this.

During the seven month period of your water use that we evaluated, the Infrastructure Reinvestment Fee made up 19% of what you paid. As an example of what things cost and what your dollars were spent on from the Reinvestment Fee, I've looked at six recently completed pipeline replacement projects, including one on 14th Avenue that replaced 1095 linear feet of water main. All told, the six projects replaced 25,639 linear feet (4.86 miles) of water mains and pipelines. Half were contracted out for construction and the other half, typically the smaller projects, were completed by Water Department crews, with average cost per foot being in similar ranges for both methods of construction.

The average cost per linear foot for these six projects was $416, with costs per linear foot ranging from $145 to nearly $1000 per linear foot. These costs vary so much because of differing conditions and project scales at each site. The project on 14th Avenue had an average cost of $362 per linear foot, which means that the $102 in Infrastructure Reinvestment Fees collected from you bought about 4 inches of new water main.

The Infrastructure Reinvestment Fee you paid was combined with the contributions of all the other customers to support the whole capital investment program, which this year is $25 million. Given the cost and scale of the work that needs to be done on the water system in the coming decade, water rates must rise to cover this investment. Nevertheless, I want to assure you that, on behalf of all our customers, we are working very hard to be as efficient and cost-effective as possible in the way we use rate-payer funds to operate and maintain the Santa Cruz water system.

**Conclusion**

I hope the background information on your water use, as well as the corresponding costs and what they pay for, is a helpful tool to help you better understand why water service costs what it does. We are proud to serve the community with what we believe is a very high-quality product. Our customers are only charged for the service and product they receive; there is no "profit" in the City of Santa Cruz's water utility service.

I would welcome the opportunity to talk with you about how you are experiencing the rates as well as show you some of the work we're doing every day and the projects we're working on that will ensure that you and all of our customers have good clean water today and every day. Please feel free to contact me at 831-420-5205 or rmenard@cityofsantacruz.com to discuss further.

Sincerely,

Rosemary Menard
Director

WATER COMMISSION
INFORMATION REPORT

DATE: 5/1/2018

AGENDA OF: May 7, 2018

TO: Water Commission

FROM: Nicole B. Dennis,
Principal Management Analyst

SUBJECT: Water Department's FY 2019 Recommended Operating and Capital Investment Program (CIP) Budgets

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RECOMMENDATION: Receive information regarding the Water Department's FY 2019 Recommended Operating and CIP Budgets (Budgets) to familiarize, understand details and ask questions of staff regarding the Recommended Budgets. Formal recommendation to the City Council regarding the approval of the Recommended Budgets will be agendized for the June 4th Water Commission meeting.

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BACKGROUND: The responsibility, as outlined in the Water Commission Bylaws, includes the duty to "make recommendations concerning the proposed annual Water Department budget and CIP." The City of Santa Cruz will hold its annual Operating and CIP budget hearings on June 6, 2018. Both of the Operating and CIP Budgets are scheduled to be adopted later in June. Due to Water Commission meeting schedule and the production of the printed budget document, the Water Commission will be provided with a draft of the FY 2019 Operating and CIP budgets for review and feedback at their May 7th meeting. The final, printed version will be provided to the Commission at their June 4th meeting. It should also be noted the "official" FY 2019 Recommended Operating Budget will not include activity level detail; rather it will summarize all information at the Department level. To ensure a thorough review by the Water Commission, activity level detail is being provided as part of this report.

The Department's FY 2018 Accomplishments and FY 2019 Goals are attached to this report for the Commission's reference. This information will appear in the in the printed FY 2019 Recommended Budget document.

DISCUSSION: The Water Department's FY 2019 Operating and CIP budgets authorizes the maximum appropriation amount for the designated fiscal year necessary for the Department to fulfill its mission including: raw water collection and treatment, drinking water furnished to customers, infrastructure investment, engineering, customer service and billing, all facility and system maintenance, resources to implement water conservation measures, water quality

monitoring and reporting, operation of the Loch Lomond recreation area, departmental finance, and administration functions, and watershed management and resource management activities.

FY 2019 Recommended Operating Budget

In preparing the FY 2019 Recommended Operating Budget, the Department adopted a new process to evaluate budget requests for additional resources based on analysis and similar criteria. The process allowed requests to be developed by any staff member and was based on a standardized format which is consistent with the Department's Strategic Planning work. During the managers' deliberation process, multiple year budget analytics were incorporated into the process which compared prior year adjusted budget with actual expenditures. The Department is committed to continue the processes implemented this year as it will help the Department include more staff into and demystify the budget process, better connect staff to their decision making role in implementing the budget, as well as better inform managers and help them make more realistic estimates regarding the amount of work they are able to accomplish in the upcoming year.

Six budget proposals for additional resources were submitted and four proposals were included in the FY 2019 Recommended Budget. The FY 2019 Recommended Operating Budget includes the addition of 4.0 positions and the deletion of 2.0 positions for a net increase of 2.0 FTEs. In Production, a Facilities Mechanical Supervisor is being added for succession planning purposes. A vacant Engineering Technician position is recommended for deletion and an Assistant Engineering position will be added to better match workload requirements. At the Loch Lomond Recreation Area, two Senior Rangers are being added to provide shift supervision 7 days a week and a Ranger position is being deleted. The total number of positions included in the FY 2019 Recommended Budget is 114.25 FTEs.

Additional recommendations include: investment in a new Laboratory Information Management System (LIMS) ($215,000), funding to implement Home Water Use reporting ($75,000), funding for a safety consultant and additional safety solutions and trainings ($100,000), and vehicle replacement/purchases of $110,000. All in all, the Department's FY 2019 Recommended Operating budget is modest. The FY 2019 Recommended total is roughly $500,000 more than FY 2017 actual expenditures.

FY 2019 Recommended Capital Investment Program Budget

The CIP represents our best thinking about the implementation of projects over the next three years. There are no major changes from last year in terms of projects and schedule, spending was overestimated in some cases and the reasons for this will be discussed at the meeting.

As has been discussed previously with the Commission, HDR, our program manager, is currently implementing a process project validation as part of its mobilization effort. The project validation effort involve a thorough evaluation of each of the projects in the Program and development of recommendations to modify the CIP in terms of schedule and budget. This process is also normalizing all project budgets for contingencies and inflation which will yield more consistent estimating across all the projects. More information will be available in within the fall and we anticipate returning to the Commission discuss the results of the project validation work and incorporate the results into the FY 2020 – 2030 CIP.

The FY 2019 Recommended CIP Budget, as it will appear in the official document, is attached for the Water Commission's reference. The operating budget detail is included in the budget analytics attached to this report and the official document will be provided to the Commission at their June meeting.

FY 2019 Draft Pro Forma

The Water Department's FY 2019 Draft Pro Forma (Pro Forma) is also attached for the Commission's review. The calculations in Pro Forma are based on the FY 2019 Recommended Operating and CIP Budgets. There are a number of assumptions incorporated into the Pro Forma which include:

1) Sale of 2.5 billion gallons in water sales during FY 2018.
2) Inflations factors of:
    a) 3% for salaries;
    b) 9% for benefits;
    c) 5% for operation and maintenance costs; and,
    d) 5% for Capital Outlay.
3) CIP is based upon the current 10 year plan.
4) Interest rate for future debt of 5%.

Additional pension costs were also incorporated into the model for the next five years. With the exception of #3 above, all of these assumptions are the same as were used in the Pro Forma created as part of the development of the 2016 Long Range Financial Plan.

For FY 2018, the Water Enterprise Pro Forma reflects total revenues of $42,947,892 and total expenditures for the operating budget of $30,605,002 (plus debt service of $2,593,985) for a total of 33,198,987 as well as $20,559,220 in capital expenditures.

In order to maintain the twin goals of a debt service coverage of 1.5x and 180 days cash, as well as reserve targets of $3.1 million in the Emergency Reserve (Fund 717) and the growth of the Rate Stabilization Fund (Fund 713) to $10 million. The Department will be issuing a Revolving Line of Credit in FY 2018 to help meet short term financing needs for FY 2018 and FY 2019. It is anticipated this Line of Credit will be repaid with proceeds from an anticipated bond issue in FY 2020. Staff is also pursuing two Drinking Water State Revolving Fund loans for the GHWTP Concrete Tanks project (~$30 million) and the Newell Creek Dam Inlet/Outlet Pipeline project (~$40 million) which is not reflected in the Pro Forma due to the lengthy approval process. Staff will continue to work closely with Public Financial Management (PFM) to determine how and when to issue conventional debt to finance the CIP.

It should be noted, the expenses reflected in the Pro-Forma occur in Fund 711 – Water Operating Fund. However, a very small portion of some capital projects, $485,000, also has been scheduled to be partially funded from Fund 715 – System Development Fund. Those projects include Water Treatment Upgrades, Aquifer Storage and Recovery, Recycled Water, Water Supply Reliability - WSAC and Main Replacements.

Five Year Operating Budget Analytics

The Department is providing a five year analysis comparing budgeted to actual expenditures, at the Department and activity/program, level beginning in FY 2014 through the FY 2019 Recommended Budget. The "adjusted budget" column represents the approve budget for the specific year plus any items rolled forward into the following fiscal year and any budget adjustments approved by the City Council. Funding for items rolled into the following fiscal year included multi-year projects and purchases.

For FY 2018, the rolled forward amounts of approximately $5 million are isolated to illustrate their impact on the FY 2018 Adjusted Budget. A few notes on the larger year to year changes are highlighted below:

1) The large amount of Finance Charges and Transfers are related to the receipt of the IBank loan proceeds;
2) Debt service continues to increase as the Department issues more debt to fund the CIP;
3) Considering the negotiated salary increases, rise in the cost of pensions combined with additional staff, increased personnel costs have grown a modest average of 5% a year;
4) The uptick in services and supplies spending in FY 2018 can be attributed to increased spending for the HCP and water rights work, the HDR Program Management contract, and the Newell Creek Dam Spillway assessment. It should be noted that the FY 2018 amount are based on estimated actuals and we anticipate actual expenditures will be less than what is displayed past on past experience;
5) Capital Equipment purchases fluctuate from year to year based on identified capital equipment needs. In FY 2019, The Water Department will be establishing a new "Capital Equipment Replacement Fund" (Fund 719) as a sinking fund for future capital replacement. The current plan is to allot a total of $350,000 for three fiscal years to jump start the fund and will be reevaluated at the end of time period. Our goal is to reduce fluctuations in capital equipment expenditures to better project longer term capital equipment needs.

FISCAL IMPACT: Funds are available to support the FY 2019 Recommended Operating and CIP Budgets as demonstrated in the FY 2019 Draft Pro Forma.

RECOMMENDED MOTION: No action requested at this time. Request the Commission submit questions and provide feedback on the FY 2019 Recommended Operating and CIP Budgets in anticipation of a formal recommendation to approve the Water Department's FY 2019 Operating and CIP budgets to the City Council.

Attachments:

1) Water Department's FY 2019 Accomplishments and Goals
2) Water Department's FY 2019 Recommended CIP Budget
3) Water Department's FY 2019 Draft Pro Forma
4) Water Department's FY 2019 Recommended Budget Analytics

## Department Description

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're at the end of the phone when customers call with questions and we're the smiling faces they see when they visit the department. We educate our customers about the quality of their water, how to use less water and provide them the tools to do so. Our work includes the maintenance and operation of Loch Lomond Recreation area, as well as the protection of the 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 we and many species depend upon and that are important elements of a sustainable community. We take pride in meeting the diverse needs of the broad region we serve.

The Department is organized into operational and administrative sections. Operational sections include Production, Water Quality Lab, Distribution, Water Resources and the Loch Lomond Recreation area. These sections are responsible for managing the watersheds; collecting, treating and testing untreated and treated water; and storing and distributing treated water to our customers. The administrative sections are comprised of Finance and Administration, Engineering, Conservation, Customer Service, and Community Relations. Staff in these sections provide leadership, plan and implement the Capital Improvement Program (CIP), develop and implement financial plans, read meters, bill customers and collect revenues, help our customers conserve water and support active community outreach and engagement efforts covering a range of department activities.

Everyday Department staff work hard to produce and deliver millions of gallons of water to 96,000 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 and high quality water service to our community.

## FY 2018 ACCOMPLISHMENTS

### Water Supply Planning and Delivering a Substantially Increased Capital Program

The Water Department has embarked on an historic and ambitious 10 year/$300 million Capital Improvement Program to reinvest in the utility's backbone infrastructure while planning and evaluating a supplemental water supply project following the approach recommended by the Water Supply Advisory Committee (WSAC).

In order to accomplish this critical work, the Department has engaged and engineering firm in what is called a program management contract. This approach allows the department to augment in-house engineering staff with additional the technical resources and expertise that are needed to deliver the CIP.

Major water supply and capital reinvestment planning activities during FY 2018 include:

- Providing the Santa Cruz Water Commission with comprehensive quarterly reports on the status of implementing the WSAC recommended work plan, including efforts related to demand management programs, groundwater storage strategies involving both passive and active recharge of regional aquifers, advanced treated recycled water, and seawater desalination. The City Council and Water Commission continued their annual, joint meeting to discuss progress in each of these areas.
- Producing and distributing the 2017 WSAC Annual Report "Our Water, Our Future" describing progress made to date on implementing the WSAC recommendations;
- Working in cooperation with the various regional water agencies to establish effective working relationships, engage in regional water resources planning and management activities such as the implementation of the Sustainable Groundwater Management Act, working with the Soquel Creek, San Lorenzo Valley and Scotts Valley water districts on potential projects for the conjunctive use of regional surface and groundwater resources, and working specifically with the Soquel Creek Water District on water quality blending studies that will assess the feasibility of delivering treated surface water from Santa Cruz to Soquel Creek's service area, which is entirely dependent on groundwater.
- Initiating the Riverbank Filtration study to assess the feasibility of being able to draw low turbidity water from the system when the surface water is very turbid as a means to increase available water supply and system reliability during storm events.
- Continuing focused project planning for the Newell Creek Dam Inlet/Outlet Pipeline project, which is the largest capital project currently under development. Key FY 2018 milestones for this project, which is required by the state Division on the Safety of Dams, include initiating CEQA, preparing an updated Emergency Action Plan (EAP) and Dam Failure Inundation Maps, and creating a lake model to support placement of the new inlets/outlets structures, as well as for use in ongoing lake water quality planning and management activities.
- Engaging a specialized consultant to help us apply for $30 million in Drinking Water State Revolving Fund (DWSRF) loan for the GHWTP Concrete Tanks project which, if successful, would offer financing at a substantially lower interest rate than typical municipal revenue bond financing would provide.

**Infrastructure, infrastructure, infrastructure**

As the planning for the Department's large CIP ramped up, several major capital projects were completed or achieved major milestones during FY 2018 including:

- Completing the Bay Street Tanks project by installing new landscaping and solar panels on this $26 Million multi-phased and multi-year project;
- Finishing the design work for the replacement of the University #5 Tank, as well as installing the maintenance tank to be used while the permanent tank is under construction;
- Completing a remodel and expansion of the Department's offices at Locust Street to accommodate additional staff and the program management team;
- Initiating the permitting work for the replacement of the Felton Diversion's inflatable dam, which is use when we pump water from the San Lorenzo River to the Loch Lomond Reservoir;
- Completing a comprehensive conditions assessment of the Loch Lomond Reservoir spillway, which found no deficiencies; and

- Completing the construction of 25,639 linear feet (4.86 miles) of raw water and treated water pipelines at an average cost of $415 per linear foot ($2.2 M/mile) including: 3110 linear feet on Cedar Street, 3710 linear feet on River Street, 16,500 linear feet in Phase 3 of the North Coast Pipeline replacement project, 1,095 feet on 14th Avenue in Live Oak, 400 linear feet in Harvey West Park, 200 linear feet on Robertson, 350 linear feet on Thurber Lane, and 874 linear feet on Carol Avenue.

**Customer Services, Water Use Efficiency, and Community Outreach and Education** A strong customer service ethic is foundational to the work we do in the utility. We help customers with inquiries regarding their bills or conservation rebates, explain our work in the community, provide education on water system and keep the public informed on progress made on the water supply project. The Department also provides the billing and customer service on behalf of the City's three utilities: water, refuse and sewer. In FY 2018 we:

- Supported the implementation of and worked with customers to respond to questions related to the July 1, 2017 rate increases for all three utilities;
- Oversaw development of and began distributing to our customers the "Know Your Water Service" guidebook that provides basic water service information to our customers including information about efficient use of water;
- Produced and distributed the Second Annual Report on progress implementing the Council approved recommendations of the Water Supply Advisory Committee (WSAC);
- Produced and distributed Spring and Fall newsletters for the Santa Cruz Municipal Utilities, which is known as The SCMU Review. The Fall 2017 version focused on Newell Creek Dam, and was a masterpiece of candid, informative writing covering a topic that was high in the public's consciousness due to the situation at the state's Oroville Dam in the winter of 2017;
- Implemented a Home Water Survey program in support of the new leak forgiveness policy developed as part of applying the new water rate structure;
- Improved the large landscape water budget program by providing hourly consumption data online, promoting field surveys and hosting workshops and trainings;
- Continued to offer and promote financial incentive programs for residential, commercial and landscape customers;
- Continued to administer water conservation ordinances, including prohibitions against water waste, requirements for water-efficient landscapes in new development and plumbing fixture retrofit requirements, with this last program reaching a milestone of 10,000 properties processed since it began in 2003;
- Began planning and designing several new programs as contemplated in the Water Conservation Master Plan and
- Designed and implemented an advanced metering infrastructure project for large landscapes, parks and school sites to assess the feasibility of such technology. The new meters provide more timely information to customers to help them better manage their water use.

**Water Quality and Treatment**

The Water Department's core is goal to ensure public health by providing clean and safe water to our customers. Our water quality and treatment functions ensure that water delivered meets all state and federal drinking water regulations. Some key achievements of these groups in FY 2018 included:

- Successfully completing all required drinking water monitoring and compliance sampling, analyses and reporting for regulated contaminants, maintaining the Department's strong performance for providing a water supply that is consistently in compliance with standards set by state and federal regulations;
- Began the implementation of new "The NELAC Institute" standards to maintain the Water Quality Lab's State of California Water Resources Control Board Environmental Laboratory Accreditation Program;
- Supported the Department's Source Winter Water Assessment/Winter Water Monitoring programs by collecting and processing samples and reviewing and commenting on consultant reports and analyses;
- Staff expanded the list of certified analytical methods to include dissolved organic carbon and UV254 and Heterotrophic Plate Counts by Pour Plate and Enterococci analyses, and also created and maintained a picture library of cyanobacteria, other algal species and zooplankton to support reservoir management and treatment planning activities;
- Responded to concerns about home water quality following the lead contamination in Flint, Michigan and the colored water issues in Fresno, California by providing free lead testing in homes and at following up on the State's directives regarding lead testing in elementary schools;
- Provided water quality testing services to support a wide range of operational activities including infrastructure repair projects, treatment plant operations, treatment plant process pilot studies to evaluate alternate combinations of chemicals or treatment processes to address changing water quality; and
- Participated in work to update to the Sanitary Survey, which is a detailed evaluation of surface water sources and an assessment of vulnerability due to contamination.

**System Production and Maintenance**

Every day the Water Department produces and delivers millions of gallons of water to nearly 100,000 customers residing within and outside of the City. A staff of water treatment operators and maintenance professionals is charged with operating and maintaining a set of water facilities that include range from a raw water storage reservoir, multiple flowing sources of supply, wells producing groundwater, untreated and treated water pipelines, treated water storage tanks, pump stations, and treatment facilities. Key accomplishments during FY 2018 include:

- Producing and delivering over 2.6 billion gallons of water to customers;
- Designing and installing a new chemical feed system at the water treatment plant;
- Using an analytical technique called "jar testing" to assess the feasibility and benefits of switching the main coagulant used in water treatment to aluminum chlorohydrate (ACH) to produce better quality water and repurposing one of the treatment plant's bulk chemical storage tanks to receive ACH when its use was found to be highly beneficial;
- Replacing a number of pressure reducing stations to improve our ability to deliver water to customers that meet standard pressures;
- Providing numerous tours of the Graham Hill Water Treatment Plant (GHWTP), both for members of the public, as well as for employees and contractors working on capital projects such as the GHWTP Concrete Tank Rehabilitation Project; and
- Playing an active role in planning for capital improvements to the water system that are under development as part of the major water system reinvestment initiative.

**Water Distribution**

Our state certified Water Distribution Operators provide 24/7 response to interruptions of water service to our 100,000 customers. In addition to doing the construction of new water distribution lines summarized previously, Distribution crews respond to outages caused by vehicles hitting fire hydrants, damage to the water system caused by the actions of other contractors working in the public right of way, for example, those installing fiber optics cable to support high speed internet service, perform emergency repairs of raw water transmission lines, and maintain and patrol miles of pipeline right of way, keeping culverts clean and right of way accessible so that crews can promptly reach leaks and control valves that need to be shut off prior to leak repairs. Additional accomplishments for the Distribution Section in FY 2018 include:

- Repairing or replacing 90 leaking service lines;
- Providing emergency repairs for 33 leaking water mains; and
- Flushing all of the water system's dead end distribution mains and completing high-velocity uni-directional flushing on more than half of the 300 miles of distribution mains.

**Environmental Stewardship**

Providing high quality drinking water begins with protecting and managing our watersheds for both water supply production and for the natural resources and ecosystems that are an integral part of our stewardship role. Included in this role are a wide range of activities such as:

- monitoring and reporting on our use of water rights;
- ensuring our operations and maintenance activities comply with environmental regulations;
- working with federal, state and regional agencies to plan for and protect diverse ecosystems that support sensitive species including, for example, coho salmon and steelhead trout, Mt. Hermon June beetles and red legged frogs; and
- removing invasive species that compete with natural vegetation, and addressing conditions that could exacerbate the ever present threat of wildfire.

We also provide high quality recreation programs and natural resources interpretive services at Loch Lomond Reservoir and Park. Additional accomplishments in FY 2018 included:

- Defended Newell Creek watershed property from the adjacent Bear Fire with the assistance of Cal Fire and Santa Cruz Fire;
- Patrolled watershed lands, performed culvert clearing, trail cleaning and firebreaks maintenance, all of which reduce the potential for catastrophic failures from storms or wildfire;
- Continued implementing land management and protection activities for the Mt. Hermon June beetle a native and threatened species, and were rewarded by observing the beetle on the Bonny Doon mitigation site for the first time in several years;
- Implemented a new volunteer invasive species management program for our Loch Lomond property that has generated good participation;
- Made major progress on finalizing a Habitat Conservation Plan (HCP) for threatened and endangered anadromous salmonids by completing new biological effects analysis and drafting chapters 1-3 and 6 of the HCP;
- Initiated work to address a number of long-standing water rights issues and started the CEQA process that will need to be completed prior to taking the proposed changes to the State Water Resources Control Board for review and action;

- Continued to monitor and take action where needed to protect the City's water rights, including successfully asserting the water rights seniority of the City's water rights on Liddell Creek with the State Water Resources Control Board and Coastal Commission related to the proposed construction and operation of a private well using the same resource;
- Participated in environmental review of a diverse range of proposed programs and projects which could pose impacts to our water source watersheds including the County's proposed cannabis licensing program;
- Partnered with local schools to provide watershed education;
- Expanded the Trout in the Classroom program with the American Fisheries Society; and
- Served a record number of Loch Lomond recreation and interpretive program customers since re-opening the park after the closure caused by 2014-15 drought.

**Working Smarter and More Collaboratively**

Water Department staff has an enormous amount of work accomplish in support of the Department's mission and faces a growing workload across many parts of the Department as it works to deliver the planned reinvestments and new investments in the City's drinking water system. To accomplish these tasks, we are implementing a variety of "work smarter" strategies including:

- Initiating Department-wide skills development in problem solving, communications, and meeting skills to establish a common language and common expectations, and increasing the efficiency of coordination and collaboration activities that are needed for us to be successful in meeting the challenges ahead;
- Using cross functional teams to do work that has multiple dimensions, for example water loss control, which involves staff from Conservation, Engineering, Meters Shop, Production and Distribution to comply with new state regulations that require utilities to complete water loss audits with those audits being validated by third party, independent review; and
- Recognizing and addressing both the utility's need to transfer knowledge from senior level employees approaching retirement and to develop critical technical skills involving mechanical, electrical, and instrumentation specialties. In FY 2018, two Utility Maintenance Technician Trainee programs were implemented as a way to "grow our own" employees with the specialized technical skills we need operate and maintain the water system. Additionally, in FY 2018, we also developed a plan to double fill the position of our most senior mechanical maintenance employee, who will spend his last year at the Department before retiring training our many newer engineering and operating staff, as well as key staff in our program management contract on the details of the system's operation.

Last, we are proud to announce that the City of Santa Cruz received recognition from the Alliance for Water Efficiency for achieving 100% compliance with the AWWA Standard for Water Conservation Program Operation and Management and became the first utility in the nation to earn its platinum status.

## FY 2019 GOALS

In FY 2019, the Department plans to continue focusing on our mission to provide high quality drinking water while protecting our watershed and educating our customers. To fulfill our mission, we must:

- Continue to deliver a reliable and high quality supply of water that complies with all federal and state drinking water standards to our 96,000 customers, 24 hours a day, 7 days a week and 365 days a year;
- Focus on CIP project implementation, with key initiatives being reinvestment in the water system's backbone infrastructure;
- Continue to develop and implement the financial management and planning strategies outlined in the 2016 Long Range Financial Plan so that we can fund reinvestments in the water system and do so in a manner that protects rate-payer interest and provides customers with the best value we can deliver for their contributions to infrastructure rehabilitation and replacement efforts;
- Plan for our customer's future drinking water sufficiency through the implementation on water conservation programs and work to determine the right supplemental water supply project for our community;
- Continue to invest in our workforce to support their ability to meet the challenges we face, and build an effective and well adapted workforce for today and tomorrow; and
- Continue to build upon organization development work begun in 2016 to create a strong, high performing, and highly aligned organization that is nimble, responsive, customer focused, and actively embraces its multi-dimensional role as stewards of infrastructure, natural resources, and water resources that are critically important to the quality of life and public health and safety of our community.

We will accomplish these goals by engaging our dedicated staff, working with other City Departments, working with State and federal regulators and funders, as well as working with our regional partners.

The Water Department's core mission fits squarely with the City Council's Strategic Goal #2, Public Safety and Well Being. Without high quality drinking water, the community health and safety standards would not be met. Additionally, the Department supplies the Fire Department with the water necessary to fight fires.

The balance of work planned for FY 2019 is centered on the City Council's Strategic Goal #3, Infrastructure. The Department plans to accomplish these additional goals for FY 2018:

- Continuing to implement the WSAC recommended work plan including working collaboratively with Soquel Creek Water District on water quality compatibility studies, and completing ASR pilot testing, and the preliminary alternatives analysis of recycled water and seawater desalination as back up supply augmentation options;
- Initiating the NEPA/CEQA process for the draft aquatic-species Habitat Conservation Plan/Section 2081 Permit with NOAA and California DFW;
- Completing CEQA work to address long-standing water rights issues and sending the package of requested changes to the State Water Resources Control Board for review and action;
- Implementing all relevant processes, tools, and procedure developed as part of our CIP program management contract to the rest of the Department to align work processes and take advantage of new tools and techniques;
- Continuing to develop and implement cost-effective financial management and planning strategies for funding our CIP including finalizing applications for funding for eligible projects to the Drinking Water State Revolving Fund;

- Assessing opportunities for implementing additional energy efficiency measures identified though an energy master planning effort;
- Completing construction on several significant infrastructure rehabilitation and replacement projects including:
  - the new inflatable dam at the Felton Diversion; and
  - University Reservoir No. 5
- Completing preliminary engineering, environmental review and design for capital improvement projects to:
  - Replace four, 60-year-old concrete tanks at the Graham Hill Water Treatment Plant with new ones;
  - Rehabilitate or replace the Newell Creek Dam Inlet/Outlet Pipeline;
  - Inform decision-making on whether to repair or replace all or parts of the Newell Creek Pipeline from Loch Lomond to Graham Hill Water Treatment Plant;
  - Inform decision-making on whether the diversion dams on Laguna and Majors can be modified to improve the efficiency and reduce environmental impacts;
  - Replace the aging water main on Water Street; and
  - Inform decision making on how to address aging infrastructure, treatment process issues, such as solids production and long term water treatment needs related to potential supplemental supply options at the GHWTP; and
- Maintaining water service water quality by cleaning and inspecting all potable water storage reservoirs;
- Developing a business case for the use of Advanced Metering Infrastructure in our system; and finally,
- Continuing to engage with regional partners in our area to plan for sufficient water to serve the mid and northern Santa Cruz County area.

# CIP Projects Overview

| Rehabilitation or Replacement Projects | Project # | Prior Years' Spend | FY2018 Amended Budget | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022 - 2030 Projected | Life of Project Total (Projected) |
|---|---|---|---|---|---|---|---|---|
| Aerators at Loch Lomond | c701706 | - | 350,000 | - | - | - | - | 350,000 |
| Bay Street Reservoir Reconstruction | c700313 | 24,428,785 | 1,345,287 | - | - | - | - | 25,774,072 |
| Beltz 10 & 11 Rehab & Development | c700026 | 64,243 | 445,000 | - | - | - | - | 509,243 |
| Coast Pump Station Line Repairs | c701707 | - | 550,000 | 145,120 | - | - | - | 695,120 |
| Felton Diversion Replac. & Pump Station | c701602 | 92,036 | 507,964 | 511,900 | - | - | - | 1,111,900 |
| Newell Creek Dam Inlet/Outlet Pipeline | c701606 | 966,872 | 4,798,872 | 1,677,000 | 2,350,000 | 9,200,000 | 30,200,000 | 49,192,744 |
| Newell Creek Pipeline Rehab/Replacement | c701701 | - | 1,382,600 | 640,000 | 6,500,000 | 5,000,000 | 6,500,000 | 20,022,600 |
| N. Coast System Rehab- Laguna Diversion | c701801 | - | 250,000 | 370,000 | - | 1,000,000 | - | 1,620,000 |
| N. Coast System Rehab- Majors Diversion | c701802 | - | 250,000 | 320,000 | - | 1,000,000 | - | 1,570,000 |
| North Coast System Rehabilitation | c709835 | 12,659,246 | 1,766,013 | 215,000 | - | 1,500,000 | 11,500,000 | 27,640,259 |
| Pressure Regulating Stations | c701703 | 41,229 | 328,771 | 60,000 | 60,000 | - | - | 490,000 |
| San Lorenzo River Diversion & Tait Wells | c709872 | 1,930,345 | 124,670 | 240,000 | - | - | - | 2,295,014 |
| Tube Settler Replacement | c701708 | 47,264 | 1,052,736 | 1,775,200 | - | - | - | 2,875,200 |
| University Tank No. 4 Rehab/Replace | c701505 | - | 220,000 | - | - | 3,550,000 | - | 3,770,000 |
| University Tank No. 5 Replacement | c701506 | 189,608 | 3,838,392 | 400,000 | - | - | - | 4,428,000 |
| Water Treatment Upgrades | c700025 | 430,620 | 1,296,527 | 130,000 | - | - | - | 1,857,148 |
| WTP Concrete Tanks Replacement | c701501 | 420,388 | 2,707,932 | 5,710,000 | 13,500,000 | 6,500,000 | - | 28,838,320 |
| WTP Filter Rehabilitation and Upgrades | c701303 | 5,749,366 | 287,934 | - | - | - | - | 6,037,300 |
| WTP Flocculator Improvements | c701502 | - | 60,000 | 3,160,000 | - | - | - | 3,220,000 |
| | | **47,020,001** | **21,562,699** | **15,354,220** | **22,410,000** | **27,750,000** | **48,200,000** | **182,296,919** |

| Upgrades or Improvement Projects | | Prior Years' Spend | FY2018 Amended Budget | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022 - 2030 Projected | Life of Project Total (Projected) |
|---|---|---|---|---|---|---|---|---|
| Advanced Metering Infrastructure (AMI) | c701603 | 5,600 | 44,400 | - | - | 50,000 | 11,000,000 | 11,100,000 |
| Brackney Landslide Risk Reduction | c701803 | - | 70,100 | - | - | - | - | 70,100 |
| Coast Pump Station Flood Reduction | c701804 | - | 67,300 | - | - | - | - | 67,300 |
| Loch Lomond Facilities Improvements | c701301 | 73,626 | 311,374 | - | - | - | - | 385,000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Photovoltaic System Evaluation/Construc | c701607 | 807,112 | 102,888 | - | - | - | - | 910,000 |
| Security Camera & Building Access Upgrades | c701704 | - | 245,000 | 200,000 | 200,000 | - | - | 645,000 |
| Spoils and Stockpile Handling Facilities | c701508 | 176,355 | 173,645 | - | - | - | - | 350,000 |
| Union/Locust Building Expansion | c701805 | - | 450,000 | - | - | - | - | 450,000 |
| Water Resources Building | c701702 | 28,007 | 1,071,993 | - | - | - | - | 1,100,000 |
| | | **1,090,700** | **2,536,700** | **200,000** | **200,000** | **50,000** | **11,000,000** | **15,077,400** |

| **Water Supply Reliability & Studies** | | **Prior Years' Spend** | **FY2018 Amended Budget** | **FY2019 Request** | **FY2020 Projected** | **FY2021 Projected** | **FY2022 - 2030 Projected** | **Life of Project Total (Projected)** |
|---|---|---|---|---|---|---|---|---|
| Aquifer Storage and Recovery | c701609 & -10 | 263,673 | 3,121,327 | 600,000 | - | - | - | 3,985,000 |
| Recycled Water | c701611 & -12 | 391,494 | 183,506 | 100,000 | - | - | - | 675,000 |
| River Bank Filtration | c701806 | - | 1,200,000 | 100,000 | - | - | - | 1,300,000 |
| Source Water Evaluation | c701608 | 181,451 | 668,549 | 350,000 | - | - | - | 1,200,000 |
| Water Supply Augmentation Strategy | c701705 | 13,166 | 665,186 | 980,000 | 1,670,000 | 7,320,000 | 96,000,000 | 106,648,352 |
| | | **849,784** | **5,838,568** | **2,130,000** | **1,670,000** | **7,320,000** | **96,000,000** | **113,808,352** |

| **Water Main Replacements** | | **Prior Years' Spend** | **FY2018 Amended Budget** | **FY2019 Request** | **FY2020 Projected** | **FY2021 Projected** | **FY2022 - 2030 Projected** | **Life of Project Total (Projected)** |
|---|---|---|---|---|---|---|---|---|
| Main Replacements - Customer Initiated | c700004 | 301,259 | 50,000 | 50,000 | 50,000 | 50,000 | 450,000 | 951,259 |
| Main Replacements - Distribution Section | c701507 | 661,729 | 613,271 | 325,000 | 325,000 | 325,000 | 2,925,000 | 5,175,000 |
| Main Replacements - Engineering Section | c700002 + | 7,137,305 | 4,764,790 | 2,250,000 | 2,250,000 | 2,250,000 | 20,250,000 | 38,902,095 |
| Main Replacements - Outside Agency | c700003 | 1,130,709 | 701,083 | 250,000 | 250,000 | 250,000 | 2,250,000 | 4,831,792 |
| | | **9,231,002** | **6,129,144** | **2,875,000** | **2,875,000** | **2,875,000** | **25,875,000** | **49,860,146** |

| | **Prior Years' Spend** | **FY2018 Amended Budget** | **FY2019 Request** | **FY2020 Projected** | **FY2021 Projected** | **FY2022 - 2030 Projected** | **Total Life of Projects (Projected)** |
|---|---|---|---|---|---|---|---|
| **TOTAL** | 58,191,487 | 36,067,110 | 20,559,220 | 27,155,000 | 37,995,000 | 181,075,000 | 361,042,817 |

# CIP Detail

## Rehabilitation or Replacement Projects

### Aerators at Loch Lomond (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2017-2019 **Project Status:** Design **Project #:** c701706 **Project Manager:** Taylor Ronne

**Project Description:** Condition assessment followed by rehabilitation or replacement of the aerators for Loch Lomond Reservoir.

**Work planned for FY2019:** Replacement of the aerators with a high efficiency oxygenation system including a new compressor, pressure swing absorption system (PSA), and line diffuser.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 350,000 | - | 350,000 | - | - | - | - | 350,000 |
| **Project Total** | **-** | **350,000** | **-** | **350,000** | **-** | **-** | **-** | **-** | **350,000** |

### Bay Street Reservoir Reconstruction (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2007-2019 **Project Status:** Post-Constr **Project #:** c700313 **Project Manager:** Doug Valby

**Project Description:** The Bay Street Reservoir reached the end of its useful life and was replaced with two 6 MG tanks. Final project elements include site clean-up, security, and landscaping.

**Work planned for FY2019:** Ongoing monitoring of landscaping survival and infrastructure warranties.

| | Prior Years' Spend [(1)] | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| c700313, Fund 711 | 19,483,869 | 1,056,707 | 740,776 | 315,931 | - | - | - | - | 20,540,576 |
| c700027, Fund 715 | 4,944,916 | 288,581 | 183,181 | 105,400 | Project to close | | | | 5,233,496 |
| **Project Total** | **24,428,785** | **1,345,287** | **923,957** | **421,330** | **-** | **-** | **-** | **-** | **25,774,072** |

[(1)] Prior year spent includes phases 1, 2, and 3; includes all spent from FY2007 through FY2017.

## Beltz 10 and 11 Rehab & Development (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2017-2018 **Project Status:** Design **Project #:** c700026 **Project Manager:** Isidro Rivera

**Project Description:** This project would convert an existing monitoring well to a production well, renamed Beltz 11, and will rehabilitate Beltz 10. Beltz 10 and 11 will pump from the Santa Margarita aquifer. The project would reduce pumping from the Purisima Formation which is impacted by pumping by the City and other users. Project includes feasibility study (that will include feasibility of wells to function as ASR wells), pump test, CEQA and construction efforts.

**Work planned for FY2019:** Rehabilitate Beltz 10 to regain pumping capacity and Redevelop Beltz 11 monitoring well. Perform pump tests of redeveloped Beltz 11 to determine feasibility of converting it to a production well.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 64,243 | 445,000 | 42,593 | 402,407 | - | - | - | - | 509,243 |
| **Project Total** | **64,243** | **445,000** | **42,593** | **402,407** | **-** | **-** | **-** | **-** | **509,243** |

## Coast Pump Station Line Repairs (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2018 **Project Status:** PD/Feasibility **Project #:** c701707 **Project Manager:** Kalen Dodd

**Project Description:** Condition assessment followed by rehabilitation or replacement of the Coast Pump Station discharge pipeline.

**Work planned for FY2019:** Select a design consultant, evaluate replacement alternatives, complete design, and put project out for bidding and construction.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 550,000 | 130,000 | 420,000 | 145,120 | - | - | - | 695,120 |
| **Project Total** | **-** | **550,000** | **130,000** | **420,000** | **145,120** | **-** | **-** | **-** | **695,120** |

## Felton Diversion Replac. & Pump Station (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2016 - 2020 **Project Status:** Design **Project #:** c701602 **Project Manager:** Matt Zeman

**Project Description:** This project consists of evaluation of the existing dam and pump station with recommendations to rehabilitate or replace existing facilities. The bladder dam is being replaced as part of this project and the condition assessment may recommend other improvements.

**Work planned for FY2019:** Install new rubber inflatable bladder as an in-kind replacement of the existing 33-year old bladder.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 92,036 | 507,964 | 6,696 | 501,268 | 511,900 | - | - | - | 1,111,900 |
| **Project Total** | **92,036** | **507,964** | **6,696** | **501,268** | **511,900** | **-** | **-** | **-** | **1,111,900** |

## Newell Creek Dam Inlet/Outlet Pipeline (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2016-2022 **Project Status:** Design **Project #:** c701606 **Project Manager:** Leah Van Der Maaten

**Project Description:** The Newell Creek Dam was installed in the 1960's. A pipeline runs through the base of the dam to deliver water to the reservoir from Felton Diversion and from the reservoir to the Graham Hill Water Treatment Plant. The pipeline rehabilitation includes inspection of the pipeline and its appurtenances which will result in rehabilitation or replacement of all or parts of the inlet/outlet. This project is being implemented with oversite by the Division of Safety of Dams and, having demonstrated compliance with existing seismic regulations, is strictly addressing rehabilitation and replacement of the pipeline.

**Work planned for FY2019:** Right-of-Way work and acquisition of necessary easements, Finalizing 50% Design, 90% Design, 100% Design, CEQA & Permitting.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 966,872 | 4,798,872 | 4,110,989 | 687,883 | 1,677,000 | 2,350,000 | 9,200,000 | 30,200,000 | 49,192,744 |
| **Project Total** | **966,872** | **4,798,872** | **4,110,989** | **687,883** | **1,677,000** | **2,350,000** | **9,200,000** | **30,200,000** | **49,192,744** |

## Newell Creek Pipeline Rehab/Replacement (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2016 - 2020 **Project Status:** Planning **Project #:** c701701 **Project Manager:** Doug Valby

**Project Description:** This pipeline was constructed in the 1960s and extends from the toe of the Newell Creek Dam to the Graham Hill Water Treatment Plant. This project will conduct a condition assessment and program level environmental review followed by rehab and/or replacement of all or parts of the pipeline. This project is intended to ensure continued reliability of this water supply transmission main.

**Work planned for FY2019:** Planning study to prioritize segments for phased replacement and analyze alignment alternatives.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 1,382,600 | 9,999 | 1,372,601 | 640,000 | 6,500,000 | 5,000,000 | 6,500,000 | 20,022,600 |
| **Project Total** | **-** | **1,382,600** | **9,999** | **1,372,601** | **640,000** | **6,500,000** | **5,000,000** | **6,500,000** | **20,022,600** |

## N. Coast System Rehab- Laguna Diversion (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2018 - 2021 **Project Status:** PD/Feasibility **Project #:** c701801 **Project Manager:** Sarah Easley Perez

**Project Description:** The City diverts water from Laguna and Majors Creeks. These sources are passively diverted into pipelines that carry the water to the North Coast Pipeline. The North Coast System Rehab project (c. 2002) included the evaluation of the diversions to determine if they are sound and if modifications could be made to improve the efficiency and reduce the potential environmental impacts associated with City operations. This project will update the findings of the 2002 analysis, and design and construct needed improvements.

**Work planned for FY2019:** Condition assessment and conceptual design.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 250,000 | - | 250,000 | 370,000 | - | 1,000,000 | - | 1,620,000 |
| **Project Total** | **-** | **250,000** | **-** | **250,000** | **370,000** | **-** | **1,000,000** | **-** | **1,620,000** |

## N. Coast System Rehab- Majors Diversion (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2018 - 2021 **Project Status:** PD/Feasibility **Project #:** c701802 **Project Manager:** Sarah Easley Perez

**Project Description:** The City diverts water from Laguna and Majors Creeks. These sources are passively diverted into pipelines that carry the water to the North Coast Pipeline. The North Coast System Rehab project (c. 2002) included the evaluation of the diversions to determine if they are sound and if modifications could be made to improve the efficiency and reduce the potential environmental impacts associated with City operations. This project will update the findings of the 2002 analysis, and design and construct needed improvements.

**Work planned for FY2019:** Condition assessment and conceptual design.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 250,000 | - | 250,000 | 320,000 | - | 1,000,000 | - | 1,570,000 |
| **Project Total** | **-** | **250,000** | **-** | **250,000** | **320,000** | **-** | **1,000,000** | **-** | **1,570,000** |

## North Coast System Rehabilitation (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2003 - 2023 **Project Status:** Planning **Project #:** c709835 **Project Manager:** Kevin Crossley

**Project Description:** Springs and streams along the coast north of the City limits supply approximately 25% of the City's raw water. Some of the facilities related to these water supplies are reaching the end of their useful life. This program consists of six phases over the next 15 to 20 years to evaluate, rehabilitate, and replace portions of the existing infrastructure to ensure continued reliability. Phase 4 is budgeted to begin in FY2021.

**Work planned for FY2019:** Update planning documents to define scope and schedule for remaining phases of work (Phase 4 through 6).

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 12,659,246 | 1,766,013 | 1,347,828 | 418,185 | 215,000 | - | 1,500,000 | 11,500,000 | 27,640,259 |
| **Project Total** | **12,659,246** | **1,766,013** | **1,347,828** | **418,185** | **215,000** | **-** | **1,500,000** | **11,500,000** | **27,640,259** |

## Pressure Regulating Stations (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2017 - 2020 **Project Status:** Construction **Project #:** c701703 **Project Manager:** Terry McKinney

**Project Description:** Evaluation and replacement of pressure regulating stations (PRS). A PRS maintains (sustains or reduces) downstream pressure in order to deliver sufficient water pressure. The water distribution system contains 15 PRS and they vary in age, with the oldest being 66 years old. This project will evaluate the condition of each PRS and prioritize rehabilitation or replacement over the next 2-4

**Work planned for FY2019:** Replace station R6 at the Pasatiempo 10th green, replace station R16 serving Brookwood Dr., and reconfigure Tanner Heights pressure zone.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 41,229 | 328,771 | 77,921 | 250,850 | 60,000 | 60,000 | - | - | 490,000 |
| **Project Total** | **41,229** | **328,771** | **77,921** | **250,850** | **60,000** | **60,000** | **-** | **-** | **490,000** |

## San Lorenzo River Diversion & Tait Wells (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2002 - TBD **Project Status:** Planning **Project #:** c709872 **Project Manager:** Kevin Crossley

**Project Description:** Conduct a condition assessment of the existing diversion and wells including consideration of sanding issues, potential dam replacement, alternative diversions such as horizontal collector wells (e.g., Ranney Collector). Project will ensure reliable and efficient diversion of water from the San Lorenzo River at Tait St. Current phase includes condition assessment of existing dam & intake and feasibility of additional wells.

**Work planned for FY2019:** Project may be placed on hold due to lack of available staff.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 1,930,345 | 124,670 | 51,280 | 73,390 | 240,000 | - | - | - | 2,295,014 |
| **Project Total** | **1,930,345** | **124,670** | **51,280** | **73,390** | **240,000** | **-** | **-** | **-** | **2,295,014** |

## Tube Settler Replacement (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2018 - 2019 **Project Status:** Design **Project #:** c701708 **Project Manager:** Isidro Rivera

**Project Description:** Design and replacement of tube settlers and related appurtenances.

**Work planned for FY2019:** Replace tube settlers in three sedimentation basins with new, 2' deep unidirectional tube settlers utilizing the existing frame system.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 47,264 | 1,052,736 | 181,325 | 871,411 | 1,775,200 | - | - | - | 2,875,200 |
| **Project Total** | **47,264** | **1,052,736** | **181,325** | **871,411** | **1,775,200** | **-** | **-** | **-** | **2,875,200** |

## University Tank No. 4 Rehab/Replace (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2014 - 2020 **Project Status:** Planning **Project #:** c701505 **Project Manager:** Taylor Ronne

**Project Description:** Perform engineering analysis and condition assessment of the aging University 4 tank to ensure continued reliable service. Project includes design of recoat/rehabilitation project, construction easements from UCSC, plans and specifications for recoat/rehabilitation project, and construction.

**Work planned for FY2019:** A condition assessment and alternatives analysis is planned for FY19.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 220,000 | - | 220,000 | - | - | 3,550,000 | - | 3,770,000 |
| **Project Total** | **-** | **220,000** | **-** | **220,000** | **-** | **-** | **3,550,000** | **-** | **3,770,000** |

## University Tank No. 5 Replacement (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2014 - 2019 **Project Status:** Construction **Project #:** c701506 **Project Manager:** Taylor Ronne

**Project Description:** Perform engineering analysis and condition assessment of the aging University 5 tank to ensure continued reliable service. Project is currently in design of a replacement tank, installation of a smaller maintenance tank, and replacement of 900 LF of water main.

**Work planned for FY2019:** Phase 1 – Maintenance tank will be completed in FY2018. Phase 2 – Water main replacement will be started in FY2018 and completed in FY2019. Phase 3 – Tank replacement will be started in FY2019 and completed in FY2020.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 189,608 | 3,838,392 | 370,017 | 3,468,375 | 400,000 | - | - | - | 4,428,000 |
| **Project Total** | **189,608** | **3,838,392** | **370,017** | **3,468,375** | **400,000** | **-** | **-** | **-** | **4,428,000** |

## Water Treatment Upgrades (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** On-going **Project Status:** Planning **Current Project #:** c700025 **Project Manager:** Kevin Crossley

**Project Description:** Upgrades to the Graham Hill Water Treatment Plant (GHWTP) are necessary to meet new and planned regulatory requirements, and increase overall system reliability. This is a recurring project to prioritize needs and make smaller improvements. The current project includes upgrades to the bulk chemical storage area. Larger projects at the GHWTP become a new CIP project.

**Work planned for FY2019 request:** To be determined.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| c700025, Fund 711 | 367,999 | 1,284,148 | 1,206,238 | 77,911 | 130,000 | - | - | - | 1,782,148 |
| c701401, Fund 711 | 62,621 | 12,379 | - | 12,379 | - | - | - | - | 75,000 |
| **Project Total** | **430,620** | **1,296,527** | **1,206,238** | **90,290** | **130,000** | **-** | **-** | **-** | **1,857,148** |

## WTP Concrete Tanks Replacement (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2014 - 2021 **Project Status:** Design **Project #:** c701501 **Project Manager:** Kalen Dodd

**Project Description:** As part of an overall plan to ensure compliance with changing water quality regulations, improvements are needed at the Graham Hill Water Treatment Plant. This project will evaluate the condition of four concrete tanks located at the site (as well as an off-site concrete tank), make improvement recommendation, and construction. This project is in design with construction anticipated to begin Spring 2019.

**Work planned for FY2019 request:** This project is in design with construction anticipated to begin Spring 2019.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| c701501, Fund 711 | 420,388 | 2,707,932 | 1,623,589 | 1,084,343 | 5,710,000 | 13,500,000 | 6,500,000 | - | 28,838,320 |
| c701503, Fund 711 | - | - | - | - | - | - | - | - | - |
| c701605, Fund 711 | - | - | - | - | - | - | - | - | - |
| **Project Total** | **420,388** | **2,707,932** | **1,623,589** | **1,084,343** | **5,710,000** | **13,500,000** | **6,500,000** | **-** | **28,838,320** |

## WTP Filter Rehabilitation and Upgrades (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2013 - 2018 **Project Status:** Post-Constr **Project #:** c701303 **Project Manager:** Isidro Rivera

**Project Description:** As part of an overall plan to ensure compliance with changing water quality regulations, improvements are needed at the Graham Hill Water Treatment Plant. This project will rehabilitate and improve the filter performance. Project will be complete in the Fall 2018.

**Work planned for FY2019 request:** Construction of the Filter Rehab Project is complete. Staff is working on troubleshooting filter performance related issues on the newly constructed filters. Staff will also conduct final performance testing of the new filters and will update the Graham Hill Water Treatment Plant's Operating Plan with the State Division of Drinking Water.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 5,749,366 | 287,934 | 270,204 | 17,730 | - | - | - | - | 6,037,300 |
| **Project Total** | **5,749,366** | **287,934** | **270,204** | **17,730** | **-** | **-** | **-** | **-** | **6,037,300** |

## WTP Flocculator Improvements (Primary Driver: Rehabilitation or Replacement project)

**Project Duration:** 2018 - 2020 **Project Status:** Planning **Project #:** c701502 **Project Manager:** Isidro Rivera

**Project Description:** As part of an overall plan to ensure compliance with changing water quality regulations, improvements are needed at the Graham Hill Water Treatment Plant. This project will replace aging paddle wheel flocculators and improve sedimentation processes.

**Work planned for FY2019 request:** Select design consultant and initiate design of the project.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 60,000 | - | 60,000 | 3,160,000 | - | - | - | 3,220,000 |
| **Project Total** | **-** | **60,000** | **-** | **60,000** | **3,160,000** | **-** | **-** | **-** | **3,220,000** |

## Upgrades or Improvement Projects

### Advanced Metering Infrastructure (AMI) (Primary Driver: Upgrades or Improvement project)

**Project Duration:** 2017 - 2023 **Project Status:** PD/Feasibility **Project #:** c701603 **Project Manager:** Kyle Petersen

**Project Description:** Evaluate the use of AMI as replacement to the current Automatic Meter Reading (AMR) metering. AMR provides 1-way communication between a meter and the City and AMI provides two-way communication between a meter and the City as well as between a meter and the customer. Benefits include early leak detection, customer conservation affect, and workflow management. A business case is underway; implementation to occur in future years.

**Work planned for FY2019 request:** A pilot project will be completed by the end of 2018 and a business case will be completed to consider the feasibility and impact of the project.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 5,600 | 44,400 | 23,500 | 20,900 | - | - | 50,000 | 11,000,000 | 11,100,000 |
| **Project Total** | **5,600** | **44,400** | **23,500** | **20,900** | **-** | **-** | **50,000** | **11,000,000** | **11,100,000** |

### Brackney Landslide Risk Reduction (Primary Driver: Upgrades or Improvement project)

**Project Duration:** TDB **Project Status:** Planning **Project #:** c701803 **Project Manager:** Ryan Ernst

**Project Description:** Mitigation project to reduce the risk of a landslide on Brackney Rd in order to protect the Newell Creek Pipeline that is our pipeline bringing raw water from the Loch Lomond Reservoir to the Graham Hill Water Treatment Plant.

**Work planned for FY2019 request:** Project timeline and work plan to be determined by FEMA grant requirements. Awaiting grant award notification.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 70,100 | 70,100 | - | - | - | - | - | 70,100 |
| **Project Total** | **-** | **70,100** | **70,100** | **-** | **-** | **-** | **-** | **-** | **70,100** |

## Coast Pump Station & Tait Well Flood Reduction (Primary Driver: Upgrades or Improvement project)

**Project Duration:** TBD **Project Status:** Planning **Project #:** c701804 **Project Manager:** Ryan Ernst

**Project Description:** Mitigation projects to reduce the risk of damage to the Coast Pump Station and Tait Wells No. 4 when the San Lorenzo River floods.

**Work planned for FY2019 request:** Project timeline and work plan to be determined by FEMA grant requirements. Awaiting grant award notification.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 67,300 | 67,300 | - | - | - | - | - | 67,300 |
| **Project Total** | **-** | **67,300** | **67,300** | **-** | **-** | **-** | **-** | **-** | **67,300** |

## Loch Lomond Facilities Improvements (Primary Driver: Upgrades or Improvement Project)

**Project Duration:** 2013 - 2020 **Project Status:** Design **Project #:** c701301 **Project Manager:** Matt Zeman

**Project Description:** Complete facilities assessment and improvement program at Loch Lomond. A Use study was completed in FY 2013 which resulted in a number of planned projects to enhance the recreation area usability for its visitors. Several ADA and other recreational improvements are being pursued.

**Work planned for FY2019 request:** ADA upgrades to Upper Loch View restroom facilities and a new pathway to two new ADA-accessible picnic areas.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 73,626 | 311,374 | - | 311,374 | - | - | - | - | 385,000 |
| **Project Total** | **73,626** | **311,374** | **-** | **311,374** | **-** | **-** | **-** | **-** | **385,000** |

## Photovoltaic System Evaluation/Construc (Primary Driver: Upgrades or Improvement project)

**Project Duration:** 2016 - 2018 **Project Status:** Post-Constr **Project #:** c701607 **Project Manager:** Matt Zeman

**Project Description:** Ongoing project to evaluate, design and construct PV systems on various water department facilities. The current project is at the Bay Street Tank Site. Once installed, each project will add to the departments and City's green energy portfolio and work towards meeting and exceeding our climate action goals.

**Work planned for FY2019 request:** Receive tech memo on PV potential at the interior embankment and second concrete tank roof at Bay Street Tank Site, given that PG&E will shift the time-of-use period which makes solar operating hours less financially beneficial. Also include impacts from the new Monterey Bay Community Power authority on solar pricing.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 807,112 | 102,888 | 30,970 | 71,918 | - | - | - | - | 910,000 |
| **Project Total** | **807,112** | **102,888** | **30,970** | **71,918** | **-** | **-** | **-** | **-** | **910,000** |

## Security Camera & Building Access Upgrade (Primary Driver: Upgrades or Improvement project)

**Project Duration:** 2016 - 2019 **Project Status:** Construction **Project #:** c701704 **Project Manager:** Doug Valby

**Project Description:** Evaluation and implementation of security camera and building access upgrades at various water department facilities. Current security equipment is proprietary and could be improved. A transition to a new system will require camera replacement and additional video storage equipment.

**Work planned for FY2019 request:** Implement phase 2 security camera upgrades and access controls: May include University Pump Stations 2 & 4, Coast Pump Station, Felton Booster Pump Station, and Newell Creek Dam.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 245,000 | 176,996 | 68,004 | 200,000 | 200,000 | - | - | 645,000 |
| **Project Total** | **-** | **245,000** | **176,996** | **68,004** | **200,000** | **200,000** | **-** | **-** | **645,000** |

## Spoils and Stockpile Handling Facilities (Primary Driver: Upgrades or Improvement project)

**Project Duration:** 2015 - 2019 **Project Status:** Construction **Project #:** c701508 **Project Manager:** Taylor Ronne

**Project Description:** Suitable storage for materials (sand, base rock, cold mix and spoils) is needed at the City's Corporation yard. Improvements will allow for better handling of wet spoils generated by the vactor truck, as well as prevent sediment laden runoff from entering the storm water drainage system.

**Work planned for FY2019 request:** Design and construction of the prefabricated roof structure is complete. The final upgrade includes a trench drain to capture solids deposited on the surrounding pavement and vactor trucks, scheduled for design and construction in FY19.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 176,355 | 173,645 | 60,699 | 112,946 | - | - | - | - | 350,000 |
| **Project Total** | **176,355** | **173,645** | **60,699** | **112,946** | **-** | **-** | **-** | **-** | **350,000** |

## Union/Locust Building Improvements (Primary Driver: Upgrades or Improvement project)

**Project Duration:** 2017 - 2018 **Project Status:** Design **Project #:** c701805 **Project Manager:** Malissa Kaping

**Project Description:** Remodel of Union/Locust Building to reduce Library footprint and expand Water space.

**Work planned for FY2019 request:** Construction to begin in late-Spring 2018.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 450,000 | 36,711 | 413,289 | - | - | - | - | 450,000 |
| **Project Total** | **-** | **450,000** | **36,711** | **413,289** | **-** | **-** | **-** | **-** | **450,000** |

## Water Resources Building (Primary Driver: Upgrades or Improvement project)

**Project Duration:** TBD **Project Status:** Design **Project #:** c701702 **Project Manager:** Kalen Dodd

**Project Description:** The Watershed Resources Division is currently housed in temporary trailers. This project consists of a needs assessment, design, and construction. The needs assessment portion of the project has been completed; FY 2016/17 will focus on site selection and design; FY 2017/18 will be construction. Project is on hold until condition assessment and facilities plan is completed in FY2019.

**Work planned for FY2019 request:** Project on hold.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 28,007 | 1,071,993 | 178,578 | 893,415 | - | - | - | - | 1,100,000 |
| **Project Total** | **28,007** | **1,071,993** | **178,578** | **893,415** | **-** | **-** | **-** | **-** | **1,100,000** |

# Water Supply Reliability & Studies Projects

## Aquifer Storage and Recovery (Primary Driver: Water Supply Reliability & Studies)

**Project Duration:** 2016 - 2020 **Project Status:** PD/Feasibility **Project #:** c701609 & c701610 **Project Manager:** Isidro Rivera

**Project Description:** Evaluate the feasibility of Aquifer Storage and Recovery as per the recommendations of the Water Supply Advisory Committee. Funds in FY 2019 (Phase 2) will include pilot work. Project would potentially provide additional potable water to City and other agency customers, addressing part or all of water supply deficiencies.

**Work planned for FY2019 request:**

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| c701609, Fund 711 | 184,571 | 2,304,929 | 414,004 | 1,890,925 | 420,000 | - | - | - | 2,909,500 |
| c701610, Fund 715 | 79,102 | 816,398 | 172,272 | 644,126 | 180,000 | - | - | - | 1,075,500 |
| **Project Total** | **263,673** | **3,121,327** | **586,276** | **2,535,051** | **600,000** | **-** | **-** | **-** | **3,985,000** |

## Recycled Water (Primary Driver: Water Supply Reliability & Studies)

**Project Duration:** 2016 - 2018 **Project Status:** PD/Feasibility **Project #:** c701611 & c701612 **Project Manager:** Heidi Luckenbach

**Project Description:** Evaluate the feasibility of using advanced treated wastewater for beneficial uses as per the recommendations of the Water Supply Advisory Committee. The project will be collaboration amongst the Water and Public Works Departments. The project would potentially provide additional water to City and other agency customers, addressing all or part of water supply deficiencies.

**Work planned for FY2019 request:** Possibly new (different) study to further refine recommended projects in FY19.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| c701611, Fund 711 | 265,374 | 137,126 | 132,240 | 4,886 | 70,000 | - | - | - | 472,500 |
| c701612, Fund 715 | 126,120 | 46,380 | 50,072 | (3,692) | 30,000 | - | - | - | 202,500 |
| **Project Total** | **391,494** | **183,506** | **182,312** | **1,194** | **100,000** | **-** | **-** | **-** | **675,000** |

## River Bank Filtration (Primary Driver: Water Supply Reliability & Studies)

**Project Duration:** 2018 - 2019 **Project Status:** PD/Feasibility **Project #:** c701806 **Project Manager:** Ryan Ernst

**Project Description:** This project will assess the feasibility of locating new riverbank filtration wells along the San Lorenzo River near two different existing surface water diversions: Tait Street and Felton Diversion. If found feasible, locations and design parameters for installation of vertical or horizontal wells would be recommended. Construction would be scheduled and budgeted in future years.

**Work planned for FY2019 request:** Finalize contract with PES Inc, and conduct background analysis, define and implement field studies (stream gauging, pump testing, monitoring wells, and geophysical surveys).

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | - | 1,200,000 | - | 1,200,000 | 100,000 | - | - | - | 1,300,000 |
| **Project Total** | **-** | **1,200,000** | **-** | **1,200,000** | **100,000** | **-** | **-** | **-** | **1,300,000** |

## Source Water Evaluation (Primary Driver: Water Supply Reliability & Studies)

**Project Duration:** 2016 - 2020 **Project Status:** Planning **Project #:** c701608 **Project Manager:** Sarah Easley Perez

**Project Description:** Evaluate source water quality, operational and infrastructure alternatives to maximize use of surface water. This project was prompted in part by the recommendations of the Water Supply Advisory Committee, accepted by Council in Nov 2015, to evaluate use of additional winter flows in the San Lorenzo River for various purposes to solve the regional water supply issues.

**Work planned for FY2019 request:** Complete Water Year 2019 Data collection and technical memo.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 181,451 | 668,549 | 243,078 | 425,471 | 350,000 | - | - | - | 1,200,000 |
| **Project Total** | **181,451** | **668,549** | **243,078** | **425,471** | **350,000** | **-** | **-** | **-** | **1,200,000** |

## Water Supply Augmentation Strategy Implementation (Primary Driver: Water Supply Reliability & Studies)

**Project Duration:** 2020 - 2025 **Project Status:** Planning **Project #:** c701705 **Project Manager:** Heidi Luckenbach

**Project Description:** This CIP replaces projects c701402 & c701403 to capture various studies and analyses to further the WSAC recommendations. The work conducted in other CIP projects relate to this one; e.g., ASR, Recycled Water.

**Work planned for FY2019 request:** Develop the alternatives to an equal level of detail using metrics defined by the WSAC. Begin to analyze components as independent projects as well as portfolios.

| | Prior Years' Spend | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 13,166 | 665,186 | 142,683 | 522,504 | 980,000 | 1,670,000 | 7,320,000 | 96,000,000 | 106,648,352 |
| **Project Total** | **13,166** | **665,186** | **142,683** | **522,504** | **980,000** | **1,670,000** | **7,320,000** | **96,000,000** | **106,648,352** |

# Water Main Replacement Projects

## Main Replacements -Customer Initiated (Primary Driver: Water Main Replacements)

**Project Duration & Status:** On-going annual work **Project #:** c700004 **Project Manager:** Matt Zeman

**Project Description:** Recurring program similar to the other Main Replacement Projects; however, these projects are initiated on an as-needed basis to accommodate customer-requested service connections to non-existent or inadequate mains. Funds, to the extent of the appropriation, are disbursed to customers on a first-come, first-served basis.

**Work planned for FY2019 request:** None currently identified.

| | Prior Years' Spend [2] | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 715 | 301,259 | 50,000 | - | 50,000 | 50,000 | 50,000 | 50,000 | 450,000 | 951,259 |
| **Project Total** | **301,259** | **50,000** | **-** | **50,000** | **50,000** | **50,000** | **50,000** | **450,000** | **951,259** |

[2] Prior year spent includes work from FY2000 through FY2017.

## Main Replacements - Distribution Section (Primary Driver: Water Main Replacements)

**Project Duration & Status:** On-going annual work **Project #:** c701507 **Project Manager:** Miguel Valencia

**Project Description:** Recurring program to replace deteriorated or undersized water mains, as identified and prioritized by the Department and implemented by the Distribution Section. Projects are typically based on leak history, but also address water quality and fire flow issues.

**Work planned for FY2019 request:** Manor Dr main replacement, Linden St main replacement, Brooknoll main reconfiguration, Prospect St and 13th Ave main replacement.

| | Prior Years' Spend [3] | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 661,729 | 613,271 | 178,293 | 434,978 | 325,000 | 325,000 | 325,000 | 2,925,000 | 5,175,000 |
| **Project Total** | **661,729** | **613,271** | **178,293** | **434,978** | **325,000** | **325,000** | **325,000** | **2,925,000** | **5,175,000** |

[3] Prior year spent includes all expenses from FY2015 through FY2017.

## Main Replacements - Engineering Section (Primary Driver: Water Main Replacements)

**Project Duration & Status:** On-going annual work **Project #s:** c700002, c709833, & c700017 **Project Manager:** Doug Valby

**Project Description:** Recurring program to replace deteriorated or undersized mains as identified and prioritized by the Department. Priorities are based on the need to maintain water system reliability, deliver adequate fire flows, improve circulation and water quality, and reduce maintenance costs. These projects are typically large in terms of linear feet and are installed by contractors according to bid plans and specifications.

**Work planned for FY2019 request:** Finish River Street and Potrero Street Water main replacements, replace water main in Water street between the San Lorenzo River and Reed Way, and update water main replacement prioritization plan.

| | Prior Years' Spend [4] | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| c700002, Fund 711 | 4,261,499 | 2,111,628 | 1,634,219 | 477,409 | 2,250,000 | 2,250,000 | 2,250,000 | 20,250,000 | 33,373,128 |
| c709833, Fund 711 | 2,366,445 | 2,168,992 | 1,892,151 | 276,841 | - | - | - | - | 4,535,437 |
| c700017, Fund 715 | 509,361 | 484,169 | 473,038 | 11,131 | - | - | - | - | 993,531 |
| **Project Total** | **7,137,305** | **4,764,790** | **3,999,408** | **765,382** | **2,250,000** | **2,250,000** | **2,250,000** | **20,250,000** | **38,902,095** |

[4] Prior year spent for project c700002 and c700017 includes work from FY2000 through FY2017. The prior year spent for project c709833 includes work from FY1998 through FY2017.



## Main Replacements- Outside Agency Initiated (Primary Driver: Water Main Replacements)

**Project Duration & Status:** On-going annual work **Project #:** c700003 **Project Manager:** Doug Valby

**Project Description:** Water main, service line, valve, or water meter relocation necessitated by County or other Agency road improvement, storm drain improvement projects, and/or other projects that conflict with existing water infrastructure.

**Work planned for FY2019 request:** Coordinate valve box adjustments for County and City overlay projects. Riverside Ave streetscape, undergrounding, and water main replacement project is pending. Murray Street Bridge seismic retrofit and water main replacement is also pending.

| | Prior Years' Spend [5] | FY2018 Amended Budget | FY2018 Enc & Spent (Thru 3/31/18) | FY2018 Balance | FY2019 Request | FY2020 Projected | FY2021 Projected | FY2022- FY2030 Projected | Total Life of Project (Projected) |
|---|---|---|---|---|---|---|---|---|---|
| Fund 711 | 1,130,709 | 701,083 | 123,625 | 577,458 | 250,000 | 250,000 | 250,000 | 2,250,000 | 4,831,792 |
| **Project Total** | **1,130,709** | **701,083** | **123,625** | **577,458** | **250,000** | **250,000** | **250,000** | **2,250,000** | **4,831,792** |

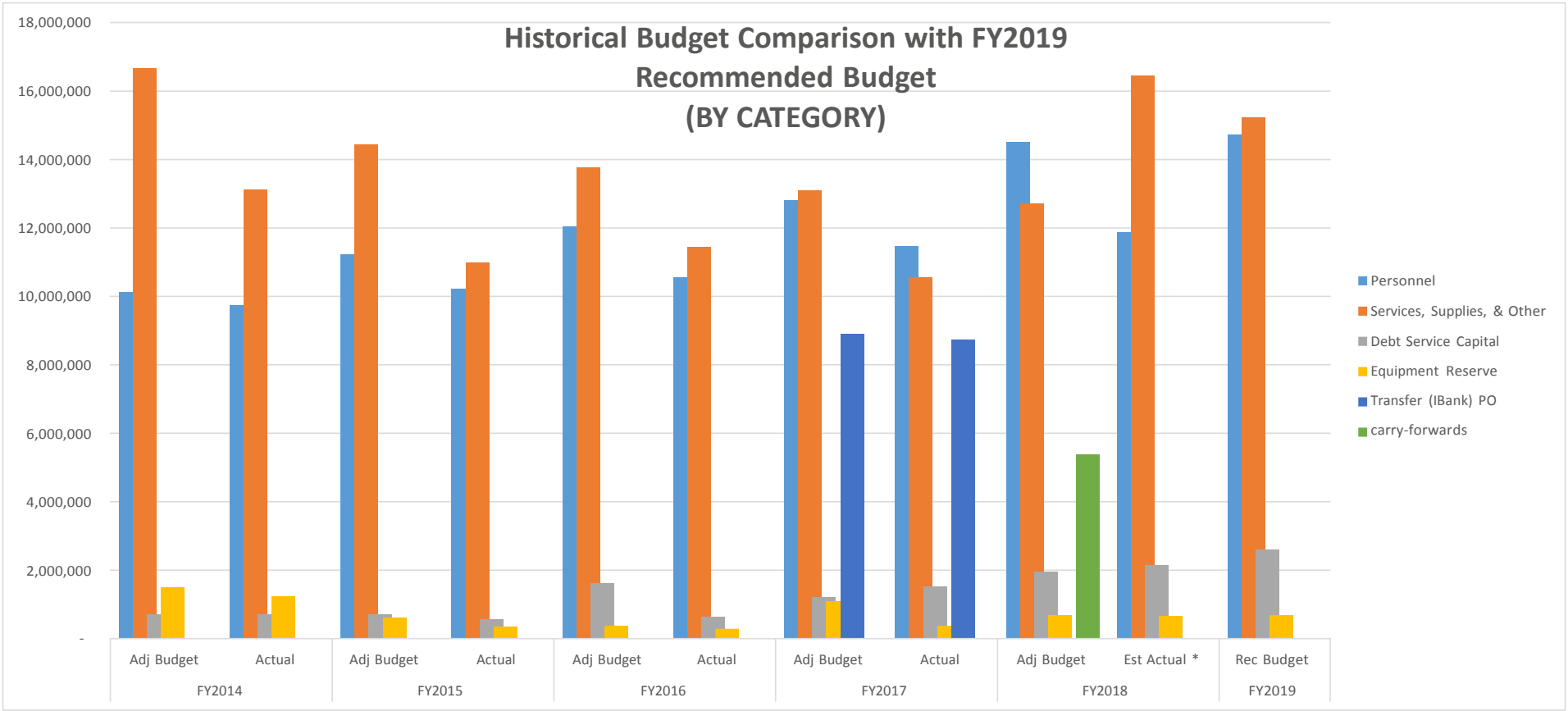
[5] Prior year spent includes work from FY2000 through FY2017.

| City of Santa Cruz Water Department Pro-Forma Projections | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Revenues | | | | | | | | | | | |
| Rate Revenue | | | | | | | | | | | |
| *Fixed Fee Revenue* | $ 3,018,835 | $ 3,225,420 | $ 3,392,403 | $ 3,566,822 | $ 3,566,822 | $ 3,817,321 | $ 4,317,279 | $ 4,732,198 | $ 5,176,654 | $ 5,374,207 | $ 5,854,237 |
| *Volumetric Revenue* | $ 32,490,296 | $ 34,581,447 | $ 36,872,003 | $ 39,297,579 | $ 39,297,579 | $ 42,057,466 | $ 47,565,767 | $ 52,137,156 | $ 57,033,966 | $ 59,210,506 | $ 64,499,252 |
| *Elevation Surcharges* | $ 291,881 | $ 312,079 | $ 326,180 | $ 344,469 | $ 344,469 | $ 344,469 | $ 344,469 | $ 344,469 | $ 344,469 | $ 344,469 | $ 344,469 |
| *Rate Stabilizer Surcharge* | $ 3,342,244 | $ 3,342,244 | $ 3,342,244 | $ 3,342,244 | $ 3,342,244 | $ 3,342,244 | $ 3,342,244 | $ 3,342,244 | $ 3,342,244 | $ 3,342,244 | $ - |
| *Manual Revenue Adjustment (Fire Service)* | $ 43,733 | $ 46,174 | $ 48,325 | $ 50,239 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Total Rate Revenue | $ 39,186,989 | $ 41,507,363 | $ 43,981,155 | $ 46,601,353 | $ 46,551,114 | $ 49,561,500 | $ 55,569,759 | $ 60,556,067 | $ 65,897,334 | $ 68,271,426 | $ 70,697,958 |
| Non-Rate Revenue | | | | | | | | | | | |
| *Other Income* | $ 1,193,181 | $ 1,440,529 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 |
| *Investment Income* | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Total Non-Rate Revenue | $ 1,193,181 | $ 1,440,529 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 | $ 1,200,000 |
| Total Revenues | $ 39,403,792 | $ 42,947,892 | $ 45,181,155 | $ 47,801,353 | $ 47,751,114 | $ 50,761,500 | $ 56,769,759 | $ 61,756,067 | $ 67,097,334 | $ 69,471,426 | $ 71,897,958 |
| Operating Expenses | | | | | | | | | | | |
| Personnel | $ 11,864,151 | $ 14,713,747 | $ 15,699,572 | $ 16,402,773 | $ 17,294,815 | $ 17,956,826 | $ 18,901,434 | $ 19,917,269 | $ 21,003,969 | $ 22,167,297 | $ 23,413,514 |
| Services, Supplies & Other | $ 16,458,955 | $ 15,216,255 | $ 15,977,068 | $ 16,775,921 | $ 17,614,717 | $ 18,495,453 | $ 19,420,226 | $ 20,391,237 | $ 21,410,799 | $ 22,481,339 | $ 23,605,406 |
| Capital Outlay | $ 666,042 | $ 675,000 | $ 708,750 | $ 744,188 | $ 781,397 | $ 820,467 | $ 861,490 | $ 904,565 | $ 949,793 | $ 997,282 | $ 1,047,147 |
| Other Operating Expenses | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Total Operating Expenses | $ 28,989,148 | $ 30,605,002 | $ 32,385,390 | $ 33,922,881 | $ 35,690,929 | $ 37,272,746 | $ 39,183,150 | $ 41,213,070 | $ 43,364,561 | $ 45,645,919 | $ 48,066,066 |
| Net Operating Revenues | $ 10,414,644 | $ 12,342,890 | $ 12,795,765 | $ 13,878,471 | $ 12,060,185 | $ 13,488,754 | $ 17,586,609 | $ 20,542,997 | $ 23,732,773 | $ 23,825,507 | $ 23,831,892 |
| Capital Expenditures | $ 10,950,264 | $ 20,559,220 | $ 27,155,000 | $ 37,995,000 | $ 47,075,000 | $ 47,375,000 | $ 34,375,000 | $ 37,875,000 | $ 2,875,000 | $ 2,875,000 | $ 2,875,000 |
| Revolving Line of Principal Repayment | | | $ 20,000,000 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Grant Funded | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| SRF Funded | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Currently Funded | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Pay-Go Funded | $ 10,950,264 | $ 20,559,220 | $ 9,231,002 | $ 8,834,234 | $ 5,095,488 | $ 3,524,119 | $ 5,038,347 | $ 5,841,108 | $ 2,875,000 | $ 2,875,000 | $ 2,875,000 |
| Debt Funded | $ - | $ - | $ 37,923,998 | $ 29,160,766 | $ 41,979,512 | $ 43,850,881 | $ 29,336,653 | $ 32,033,892 | $ - | $ - | $ - |
| Debt Service | $ 2,152,826 | $ 2,593,985 | $ 2,593,586 | $ 4,175,976 | $ 6,109,344 | $ 8,844,359 | $ 11,716,545 | $ 13,676,974 | $ 15,775,058 | $ 15,831,671 | $ 15,836,678 |
| Net Income | $ 1,811,554 | $ 4,689,685 | $ 971,177 | $ 868,262 | $ 855,353 | $ 1,120,276 | $ 831,717 | $ 1,024,915 | $ 5,082,715 | $ 5,118,836 | $ 5,120,214 |
| Total Cash Balances | | | | | | | | | | | |
| Beginning Total Cash Balance | $ 21,587,470 | $ 23,399,024 | $ 28,088,708 | $ 29,059,886 | $ 29,928,147 | $ 30,783,500 | $ 31,903,776 | $ 32,735,493 | $ 33,760,408 | $ 38,843,123 | $ 43,961,958 |
| Revolving Line of Credit Draw | $ 4,500,000 | $ 15,500,000 | | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| *I-Bank Reimbursements* | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| *Calculated Change to Cash Balances* | $ 1,811,554 | $ 4,689,685 | $ 971,177 | $ 868,262 | $ 855,353 | $ 1,120,276 | $ 831,717 | $ 1,024,915 | $ 5,082,715 | $ 5,118,836 | $ 5,120,214 |
| Ending Total Cash Balance | $ 23,399,024 | $ 28,088,708 | $ 29,059,886 | $ 29,928,147 | $ 30,783,500 | $ 31,903,776 | $ 32,735,493 | $ 33,760,408 | $ 38,843,123 | $ 43,961,958 | $ 49,082,172 |
| Beginning Cash Balances by Fund | | | | | | | | | | | |
| Fund 717 (Emergency Reserve) | $ 3,042,715 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 |
| Fund 713 (Rate Stabilization) | $ 2,479,026 | $ 5,821,270 | $ 9,163,514 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 |
| Fund 716 (90 Day Operating Reserve) | $ 6,490,700 | $ 7,148,009 | $ 7,546,439 | $ 7,985,439 | $ 8,364,546 | $ 8,800,503 | $ 9,190,540 | $ 9,661,599 | $ 10,162,127 | $ 10,692,631 | $ 11,255,158 |
| Fund 711 (Water Operations) | $ 9,575,029 | $ 7,329,745 | $ 8,278,756 | $ 7,974,447 | $ 8,463,601 | $ 8,882,997 | $ 9,613,236 | $ 9,973,895 | $ 10,498,281 | $ 15,050,491 | $ 19,606,800 |
| Changes to Cash Balances by Fund | | | | | | | | | | | |
| Fund 717 (Emergency Reserve) | $ 57,285 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Fund 713 (Rate Stabilization) | $ 3,342,244 | $ 3,342,244 | $ 836,486 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Fund 716 (90 Day Operating Reserve) | $ 657,309 | $ 398,430 | $ 439,000 | $ 379,107 | $ 435,957 | $ 390,037 | $ 471,058 | $ 500,528 | $ 530,505 | $ 562,527 | $ 596,749 |
| Fund 711 (Water Operations) | $ (2,245,284) | $ 949,011 | $ (304,309) | $ 489,154 | $ 419,396 | $ 730,239 | $ 360,659 | $ 524,387 | $ 4,552,210 | $ 4,556,309 | $ 4,523,465 |
| Ending Cash Balances by Fund | | | | | | | | | | | |
| Fund 717 (Emergency Reserve) | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 | $ 3,100,000 |
| Fund 713 (Rate Stabilization) | $ 5,821,270 | $ 9,163,514 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 | $ 10,000,000 |
| Fund 713 (Rate Stabilization Excess) | $ 5,821,270 | $ 9,163,514 | $ 12,505,758 | $ 13,342,244 | $ 13,342,244 | $ 13,342,244 | $ 13,342,244 | $ 13,342,244 | $ 13,342,244 | $ 13,342,244 | $ 10,000,000 |
| Fund 716 (90 Day Operating Reserve) | $ 7,148,009 | $ 7,546,439 | $ 7,985,439 | $ 8,364,546 | $ 8,800,503 | $ 9,190,540 | $ 9,661,599 | $ 10,162,127 | $ 10,692,631 | $ 11,255,158 | $ 11,851,907 |
| Fund 711 (Water Operations) | $ 7,329,745 | $ 8,278,756 | $ 7,974,447 | $ 8,463,601 | $ 8,882,997 | $ 9,613,236 | $ 9,973,895 | $ 10,498,281 | $ 15,050,491 | $ 19,606,800 | $ 24,130,266 |
| Coverage and Targets | | | | | | | | | | | |
| Debt Service Coverage (W/Out Reserves) | 3.26x | 3.47x | 4.61x | 3.32x | 1.97x | 1.53x | 1.50x | 1.50x | 1.50x | 1.50x | 1.50x |
| Debt Service Coverage Target | 1.50x | 1.50x | 1.50x | 1.50x | 1.50x | 1.50x | 1.50x | 1.50x | 1.50x | 1.50x | 1.50x |
| Debt Service Coverage (W/Reserves) | 15.71x | 15.59x | 16.14x | 10.49x | 7.01x | 5.13x | 4.29x | 3.97x | 3.97x | 4.28x | 4.60x |
| Days' Cash (Includes only Funds 711 & 716) | 182 | 189 | 180 | 181 | 181 | 184 | 183 | 183 | 217 | 247 | 273 |
| Days' Cash Target | 180 | 180 | 180 | 180 | 180 | 180 | 180 | 180 | 180 | 180 | 180 |

## Recommended FY2019 Operating Budget: Fund 711

**BY CATEGORY**

| | FY2014 | | FY2015 | | FY2016 | | FY2017 | | FY2018 | | FY2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Adj Budget | Actual | Adj Budget | Actual | Adj Budget | Actual | Adj Budget | Actual | Adj Budget | Est Actual * | Rec Budget |
| Personnel | 10,123,934 | 9,737,978 | 11,229,313 | 10,225,879 | 12,045,806 | 10,552,312 | 12,802,461 | 11,465,387 | 14,501,384 | 11,864,152 | 14,713,747 |
| Services, Supplies, & Other | 16,655,255 | 13,127,905 | 14,439,537 | 10,988,214 | 13,761,627 | 11,431,083 | 13,091,074 | 10,563,256 | 12,717,698 | 16,458,957 | 15,216,255 |
| Debt Service | 700,404 | 699,734 | 699,110 | 557,249 | 1,623,943 | 629,061 | 1,220,550 | 1,515,413 | 1,949,327 | 2,152,826 | 2,593,985 |
| Capital Equipment | 1,493,132 | 1,244,269 | 608,134 | 349,146 | 367,484 | 286,108 | 1,083,050 | 369,864 | 692,680 | 666,042 | 675,000 |
| Reserve Transfer (IBank) | - | - | - | - | - | - | 8,909,823 | 8,743,468 | - | - | - |
| PO carry-forwards | | - | | - | | - | | - | 5,372,805 | - | - |
| **TOTAL Adjusted Budget** | **28,972,725** | **24,809,886** | **26,976,094** | **22,120,487** | **27,798,861** | **22,898,563** | **37,106,958** | **32,657,388** | **35,233,893** | **31,141,977** | **33,198,987** |

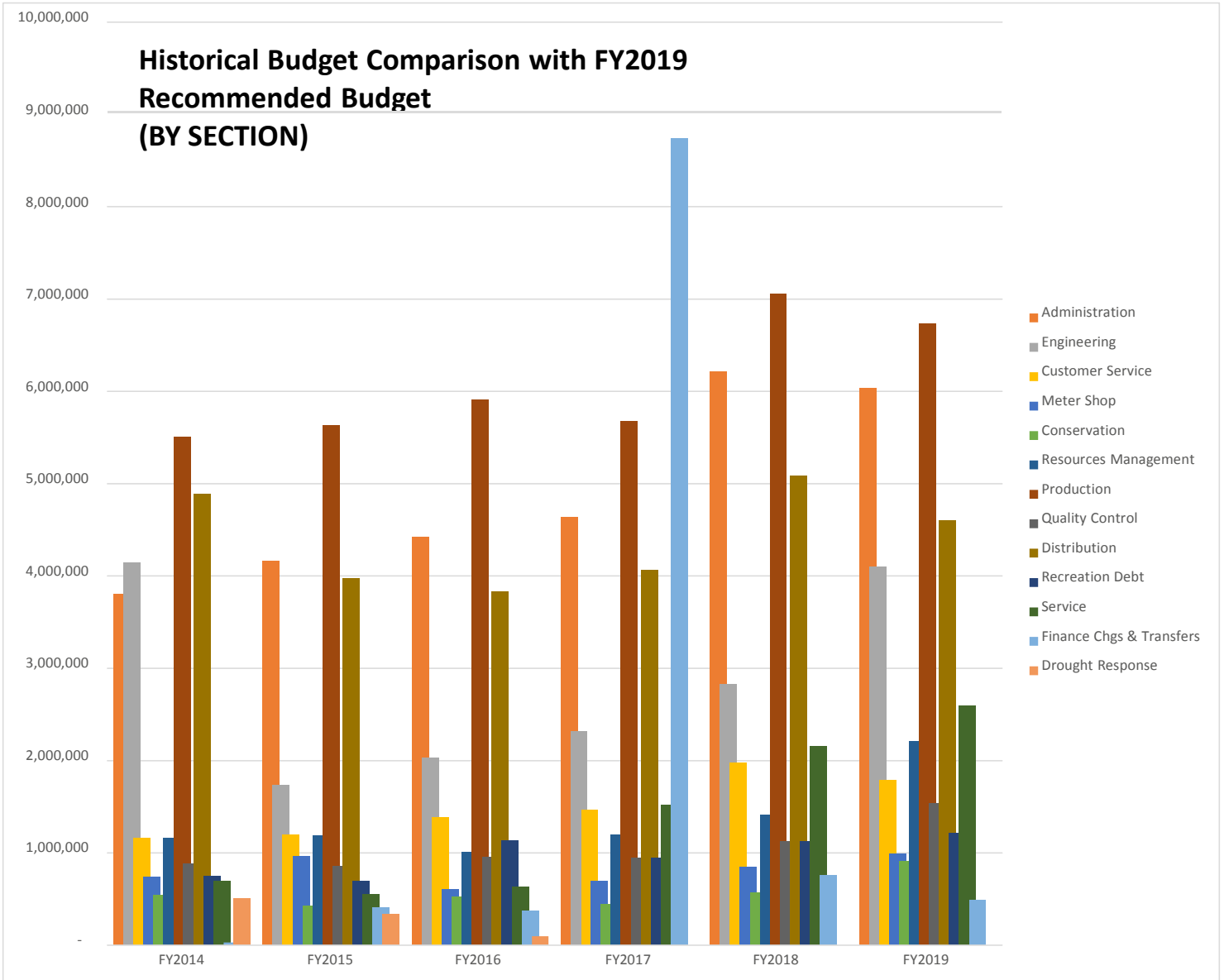



* FY2018 estimated actuals includes encumbrances to be carried-forward into FY2019.

## Recommended FY2019 Operating Budget: Fund 711

**BY SECTION**

| | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 | FY2019 |
|---|---|---|---|---|---|---|
| | Actual | Actual | Actual | Actual | Est Actual | Rec Budget |
| Administration | 3,803,441 | 4,159,581 | 4,423,118 | 4,638,890 | 6,211,076 | 6,032,785 |
| Engineering | 4,147,378 | 1,732,543 | 2,033,528 | 2,318,507 | 2,823,216 | 4,102,547 |
| Customer Service | 1,156,201 | 1,193,137 | 1,379,905 | 1,467,008 | 1,976,251 | 1,790,583 |
| Meter Shop | 739,258 | 966,975 | 608,770 | 693,555 | 846,965 | 986,508 |
| Conservation | 544,960 | 422,637 | 521,443 | 446,381 | 564,643 | 911,534 |
| Resources Management | 1,158,906 | 1,190,178 | 1,009,331 | 1,194,622 | 1,411,608 | 2,204,523 |
| Production | 5,505,854 | 5,630,763 | 5,908,516 | 5,678,113 | 7,058,041 | 6,735,886 |
| Quality Control | 879,300 | 856,347 | 955,162 | 948,151 | 1,129,287 | 1,535,372 |
| Distribution | 4,886,432 | 3,978,580 | 3,832,777 | 4,066,836 | 5,081,789 | 4,599,237 |
| Recreation | 750,497 | 697,216 | 1,131,212 | 946,444 | 1,129,287 | 1,213,129 |
| Debt Service | 699,734 | 557,249 | 629,061 | 1,515,413 | 2,152,826 | 2,593,985 |
| Finance Chgs & Transfers | 28,169 | 404,348 | 370,000 | 8,743,468 | 756,988 | 492,898 |
| Drought Response | 509,756 | 330,933 | 95,741 | - | - | - |
| **TOTAL** | **24,809,886** | **22,120,487** | **22,898,563** | **32,657,388** | **31,141,977** | **33,198,987** |



## Budget Trends by Percent

| | % of Change: Actuals | | | | | |
|---|---|---|---|---|---|---|
| | FY2014-15 | FY2015-16 | FY2016-17 | FY2017-18 | Average | FY2014-18 |
| Personnel | 5.0% | 3.2% | 8.7% | 3.5% | 5.1% | 21.8% |
| Services, Supplies, & Other | -16.3% | 4.0% | -7.6% | 55.8% | 9.0% | 25.4% |
| Debt Service | -20.4% | 12.9% | 140.9% | 28.6% | 40.5% | 178.6% |
| Capital Equipment | -71.9% | -18.1% | 29.3% | 80.1% | 4.8% | -46.5% |
| **TOTAL (w/o transfers)** | **-10.8%** | **3.5%** | **4.4%** | **29.4%** | **6.6%** | **24.7%** |

| | % of Change: Budget | | | | | | |
|---|---|---|---|---|---|---|---|
| | FY2014-15 | FY2015-16 | FY2016-17 | FY2017-18 | FY2018-19 | Average | FY2014-19 |
| Personnel | 10.9% | 7.3% | 6.3% | 13.3% | 1.5% | 7.8% | 45.3% |
| Services, Supplies, & Other | -13.3% | -4.7% | -4.9% | -2.9% | 19.6% | -1.2% | -8.6% |
| Debt Service | -0.2% | 132.3% | -24.8% | 59.7% | -0.3% | 33.3% | 177.4% |
| Capital Equipment | -59.3% | -39.6% | 194.7% | -36.0% | -2.6% | 11.5% | -54.8% |
| **TOTAL (w/o transfers)** | **-6.9%** | **3.0%** | **1.4%** | **5.9%** | **9.0%** | **2.5%** | **12.3%** |

| | Budget vs Actuals | | | | |
|---|---|---|---|---|---|
| | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 |
| Personnel | -3.8% | -8.9% | -12.4% | -11.7% | -18.2% |
| Services, Supplies, & Other | -21.2% | -23.9% | -16.9% | -23.9% | 29.4% |
| Debt Service | -0.1% | -20.3% | -61.3% | 19.5% | 0.0% |
| Capital Equipment | -16.7% | -42.6% | -22.1% | -192.8% | -3.8% |
| **TOTAL (w/o transfers)** | **-14.4%** | **-18.0%** | **-17.6%** | **-12.0%** | **-12.2%** |

| | Percent of Total Budget | | | | | |
|---|---|---|---|---|---|---|
| | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 | FY2019 |
| Administration | 15.3% | 18.8% | 19.3% | 14.2% | 20.1% | 18.5% |
| Engineering | 16.7% | 7.8% | 8.9% | 7.1% | 9.1% | 12.6% |
| Customer Service | 4.7% | 5.4% | 6.0% | 4.5% | 6.4% | 5.5% |
| Meter Shop | 3.0% | 4.4% | 2.7% | 2.1% | 2.7% | 3.0% |
| Conservation | 2.2% | 1.9% | 2.3% | 1.4% | 1.8% | 2.8% |
| Resources Management | 4.7% | 5.4% | 4.4% | 3.7% | 4.6% | 6.8% |
| Production | 22.2% | 25.5% | 25.8% | 17.4% | 22.8% | 20.7% |
| Quality Control | 3.5% | 3.9% | 4.2% | 2.9% | 3.7% | 4.7% |
| Distribution | 19.7% | 18.0% | 16.7% | 12.5% | 16.4% | 14.1% |
| Recreation | 3.0% | 3.2% | 4.9% | 2.9% | 3.7% | 3.7% |
| Debt Service | 2.8% | 2.5% | 2.7% | 4.6% | 6.3% | 6.0% |
| Finance Chgs & Transfers | 0.1% | 1.8% | 1.6% | 26.8% | 2.4% | 1.5% |
| Drought Response | 2.1% | 1.5% | 0.4% | 0.0% | 0.0% | 0.0% |
| **TOTAL** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

WATER COMMISSION
INFORMATION REPORT

DATE: 05/01/2018

AGENDA OF: 5/7/18

TO: Water Commission

FROM: Heidi Luckenbach, Engineering Manager/Deputy Director

SUBJECT: Water Main Replacement Program Update

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RECOMMENDATION: That the Water Commission receive information and provide feedback on the Department's history and approach to assessing the condition of the water system and prioritizing the replacement of water mains.

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BACKGROUND: The purpose of this report is to summarize the history of the Water Department's main replacement program, the challenges facing the Department and the efficient implementation of the program, and to describe several approaches the Department is taking to continue efforts to replace this crucial asset.

The Water Department has a long history of planned main replacement work that has been and continues to be performed in house and through outside contracts. Work is scheduled and implemented based on a prioritization framework of condition, risks and consequences. The framework has matured over the past 30-plus years, adapting to advances in technology, increasing information about the system, and other drivers frequently beyond the control of the Department.

The following briefly summarizes the evolution of the framework.

- Prior to the mid-1980s it appears the Department's replacement efforts were driven almost entirely by leaks. Following repair, leaks were tracked on a paper "pin" map located in the engineering section. The more pins appearing in a location, the higher priority that main took. A track record of leaks was indicative of the poor condition of the pipe that warranted replacement.
- In 1986, the Water Commission requested that staff develop a broader set of criteria; Attachment A is the first record of prioritization criteria. It is unclear how the 1986 version was used to track data and develop projects. These criteria have, more or less, continued to be used.
- In 2002, the prioritization criteria was updated and a category called "other" was included to, in part, attempt to prioritize mains that coincided with other-agency work. A

spreadsheet was used to track each segment of main and how it faired against each metric. Staff maintained this spreadsheet; a very time-consuming and imprecise effort with a fair amount of subjectivity involved in applying scores. Nonetheless, segments of main with the highest ranking were combined into discrete projects based on ease of construction and reduction of community disruption and took other agency work into consideration. The Department adopted the practice of creating 5-years of main replacement projects that were packaged and vetted through the Water Commission.

- Another update occurred in 2007, at the request of the Water Commission, to add criteria to account for consequences of pipe failure on private property and archaeological resources. These criteria were removed in 2008 due to an inability to accurately and objectively apply it. For similar reasons the "other" criteria was removed in 2007; instead, the agencies agreed to coordinate annual work as often as possible and continue to meet at least annually to do so.
- Since 2007, the development of the GIS (Geographic Information System) has had a profound impact on the main replacement program by speeding up the process of applying criteria to mains, removing some subjectivity, allowing for a greater number of criteria to be included in the analysis, and adding a visual, map-based, component to the analysis of water mains.

This process has led the Department to a more thorough understanding of the distribution system in terms of age, pipe material, diameter, water quality, and leaks. Decades of main replacement projects have been implemented to tackle areas of leaks and poor fire protection and have addressed circulation, water quality and transmission issues.

Despite our ever-growing data set and ability to analyze the data much more quickly, and with less subjectivity, there are a variety of issues that are impacting our ability to maintain a priority based program that efficiently implements projects. These include but are not limited to: What is the annual rate of replacement needed to stay ahead of damaging consequences and how are those mains identified? How do we coordinate with other agencies whose priority systems are different than ours? How do we bid projects to achieve good pricing? How do we prioritize main replacement work with other capital improvements? And, frankly, we are challenged by the volume of data available to make sound decisions.

DISCUSSION: In response to these issues, staff continues to evaluate different approaches to develop and efficiently implement projects at a rate that is aligned with our replacement needs. Below are some of the issues under consideration and how each is being considered.

**Issue - Establishing replacement rate and prioritizing mains:** There is no lack of good research documenting the state of the nation's infrastructure and data suggests that agencies should replace between 1% - 1.6% of water mains each year (based on a 100 to 60 year life expectancy). We have confidence in our data set for material type, age, diameter, and failure rates of our mains. Our water loss study indicates that, unlike the national average, our leak rate is considered very low, and our average age is ~50years. However, we also know that, like the national average, we have a significant amount of leak-prone main to be replaced: ~60miles of pre-1960 CI (cast iron) main and ~35 miles of pre-1960 AC (asbestos cement) main. And we

don't have an up to date data set to complete the analysis nor a mechanism for discerning the differences amongst these 100 miles of similar main.

**Possible Solution**: The Department continues to maintain and improve the GIS system capable of incorporating many criteria. We are also transitioning to a different set of criteria, developed to be objective, data driven, and emphasizing risk of failure and consequence of failure. It is possible that the current software can be used to analyze our system and allow staff to plan future work similar to historic efforts. And there is also a lot of work being done on software development. Fracta™, as an example, is a tool under development which optimizes replacement decisions based on machine learning. In theory, this will do a better job at predicting a water main's likelihood of failure. To be done well, this task needs to become a higher priority with a high investment of staff time, at least for a period of time, to modernize the data and evaluation criteria.

**Issue: Cost in competitive bidding climate**. No bids were received when the current main replacement project, River Street, was initially bid. We learned that contractors are extremely busy (and will be for the foreseeable future) and not interested in relatively small-value projects particularly with the high cost risk for contractors to perform underground work in dense, historical, high-traffic areas. The cost of the River Street project is nearly $1,000/ft, nearly double that of recent projects.

**Possible Solution 1**: The Department currently replaces mains through contract work as well as internal staff in the Distribution section. One possible solution to dealing with difficult bidding climates is to increase the size and expand the capabilities of the Distribution section. This section of the water department is currently well staffed to do smaller projects (in terms of pipe size, length and project duration). Additional equipment, staff, training and possible yard space would be required to pursue this as a solution.

**Possible Solution 2:** Staff has been evaluating the idea of developing multi-year contracts where mains are identified either in advance or on an annual basis and a contractor is hired to construct the projects over several years. Other agencies are contracting in this way with relative success. While this does get at the issue of bidding climate by guaranteeing the contractor solid long term work, it may be difficult to re-direct their work to be coordinated with other-agencies.

**Issue**: Coordination with other-agency work. This is an ongoing issue for which a solution is challenging. The Department has always worked closely with both the City's and County's Public Works Departments. Despite efforts to align work to minimize community impact, several issues come in to play: pavement and water mains have different life spans and different criteria for replacement; the programs are funded differently (recently City PW received a significant amount of grant funding that has driven up their paving program from ~1mile/year to 5-7 and their cape seal from 5 to nearly 20miles/year at least on a temporary basis; and, developer projects are often delayed due to private-funding issues.

**Possible solution:** This issue is proving difficult to resolve primarily because the priority projects are inherently different. However, we continue to communicate to align our work. An example is again the River Street Main Replacement project, which was advanced in priority

because of a paving project through City PW. And we are evaluating the feasibility of contracting under a general contractor to install water main and pavement under the same contract. And, we are looking at different construction techniques, i.e., trenchless construction, to minimize impacts of misaligned projects.

Next Steps:
The Water Street Main Replacement Project is the latest project the department has identified for replacement and it too is driven by a City PW paving project. While the Department has projects marked for replacement based on known conditions of leaks, fire flows, etc., we are continuing to evaluate new ways to assess and prioritize work, developing a new criteria system based on Risk and Consequences, (see attached). The Department is considering different construction means and methods such as trenchless technology, multi-year contracts, design/build, etc. We are also working with HDR and several other outside resources to complete an evaluation of asset management tools within the next 12 months, the outcome of which will be an updated tool for main replacement prioritization. Questions we seek to address: How to measure effectiveness of our selected projects? Are we selecting the right mains to replace? What other technology is out there to select main replacements? Do we venture into new types of contracting (e.g., design-build, multi-year, etc.)?

FISCAL IMPACT: None.

PROPOSED MOTION: Accept the information.

ATTACHMENTS:
Attachment 1 – Prioritization Criteria - 1986
Attachment 2 – Draft Criteria - 2018

ATTACHMENT NO. 1

MAIN REPLACEMENT PROGRAM

PRIORITIZATION CRITERIA - 1986

| Category | Criteria | Points |
|---|---|---|
| I. Fire Protection: | - Provides fire protection where none exists | 3 |
| | - Upgrades to current fire standards | 2 |
| | - General improvement | 1 |
| | - No effect | 0 |
| II. Leak History: | - Replaces pipes with significant leak history; or pipes in areas where leaks cause significant inconvenience | 3 |
| | - Replaces pipes with moderate leak history | 2 |
| | - Replaces pipes with potential leaks (age and material) | 1 |
| | - No significant leak history or potential | 0 |
| II. Distribution Improvement: | - Provides grid system reinforcement to distribution system | 3 |
| | - Replaces existing undersized main | 2 |
| | - General improvement to flow pattern | 1 |
| | - Does not improve water supply | 0 |
| IV. Water Quality Improvements: | - Addresses existing water quality problems: complaints, bacteriological contamination, discoloration | 3 |
| | - Avoids potential water quality problems | 2 |
| | - Improves circulation in area | 1 |
| | - No impact on water quality | 0 |

| | | |
|---|---|---|
| V. Impacts: | - Affects transmission main, pump line, or major service area; or because of location, failure of pipe could cause significant incidental damage or inconvenience | 5 |
| | - Affects a very large service area, or an area of significant commercial or industrial development | 4 |
| | - Affects a large service area, or an area of localized commercial or industrial development | 3 |
| | - Affects a sub-area only, moderate number of customers | 2 |
| | - Project involves only localized mains serving an isolated area. | 1 |
| | - Project involves a dead-end main, or serves only a few customers | 0 |

# DISTRIBUTION SYSTEM MAIN REPLACEMENT PRIORITIZATION CRITERIA
## 2018 -PROPOSED

| Category | | Criteria | Score | Weight |
|---|---|---|---|---|
| Likelihood of Failure | Leak History | → Break Repair History on particular main segment | # Breaks | |
| | | → Break Repair Rate (Main has potential for breaks based on all mains of same Age, Material, and Size | #breaks/ 1000 lf | |
| | Material | → Unlined Cast Iron, RS | | |
| | | → Cement Mortar Lined Cast Iron | | |
| | | → Galvanized Steel | | |
| | | → Welded Steel | | |
| | | → AC | | |
| | | → Ductile Iron | | |
| | | → PVC, HDPE | | |
| | Diameter | → The smaller the diameter, the more likely to break | 1-42 (inches) | |
| | Velocity | → The higher the max velocity, the more likely hydraulic transients and significantly undersized pipe | 0-XX fps | |
| | Age | → The older the main, the higher the score | Current year – Install year | |
| Consequence of Failure | Isolation Impact | → The greater the impact to customers (by volume of water flow not including fire or irrigation demand) affected when subject pipe is isolated for repair, the higher the consequence | | |
| | Critical Customer | → When isolated for repair, pipes that would cause pressure to fall below 40 psi at critical facilities such as hospitals, surgery centers, *dialysis centers, and jails.* | | |
| | Pressure | → The higher the psi, the more potential for damage | | |
| | Diameter | → The bigger the diameter, the more potential for damage | | |
| | Traffic Impact | → The higher the traffic volume of the street in which a main resides, the more potential to disrupt traffic | | |

| *Extenuating Considerations | |
|---|---|
| Water Quality | Addresses existing, non-emergency water quality concerns such as complaints, loss of chlorine residual, or discoloration that requires routine flushing activities. |
| Fire Flow | Provide fire protection where minimum standards are not met. |
| Project Synergy | Opportunity to coordinate a main replacement as part of or ahead of another project in order to save costs and minimize disruption to public |

* Extenuating Considerations may be applied to mains that are already within the 5 to 10 year horizon main replacement plan, depending upon the .

LoF x CoF = Risk Rating

Risk Rating gets normalized and then classified as Negligible, Low, Medium, High, and Extreme

**Katy Fitzgerald**

**From:** Rosemary Menard
**Sent:** Friday, March 09, 2018 11:56 AM
**To:** Katy Fitzgerald
**Subject:** FW: Monitoring of the San Lorenzo

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

**From:** [redacted]
**Sent:** Friday, March 09, 2018 10:29 AM
**To:** Rosemary Menard
**Cc:** Chris Berry
**Subject:** Monitoring of the San Lorenzo

Attention: Rosemary Menard, Linda Wilshusen, D. Engfer, D. Baskin, J. Mekis, A. Schiffrin, W. Wadlow

My name is Barry Burt and as the conservation Committee chairman of the Santa Cruz Fly Fishermen and former board member of the Monterey Bay Salmon & Trout Project, I would like to weigh in on your proposal to discontinue the monitoring of the steelhead population in the San Lorenzo River for the 2018 season. It is my understanding that consistent monitoring of the steelhead population in the San Lorenzo has been successfully conducted for as long as the last 20 years, providing valuable data concerning the status of these federally protected species. Why, at this point in time in particular, you would decide to curtail these efforts , is almost incomprehensible.

With the San Lorenzo reaching historic low flows this last winter season on top of the previous year's deluge, I would think that it would be paramount to continue your monitoring efforts, if for no other reason, than to compare and contrast two polar opposite seasonal conditions and their effect on the population of salmonids. The juvenile production on an extremely low water year and the number of returning adults following years of drought conditions would be invaluable information.

The fact that you already have consistent monitoring protocols in place conducted by reliable, independent professionals who have delivered consistent results for decades assures you the continuity essential for valid data. To disrupt that now would be a monumental mistake.

The Monterey Bay Salmon & Trout Project has just submitted their HGMP( Hatchery Genetic Management Plan) for review in hopes of reestablishing the take of steelhead brood stock, not only to supplement the dwindling runs in the river, but also to provide eggs for classroom incubation for the Salmon & Trout Education Program. One of the requirements of the HGMP is that a consistent monitoring strategy be put in place in order for the plan to be approved. We were hoping to rely heavily on the work being done by the city, the Water Dist. and DF&W. to contribute to our monitoring efforts. Without this invaluable data there is a good possibility that our plan will be denied.

If your decision to eliminate your monitoring efforts in 2018 is financially driven, I would urge you to consider the revenue that the sport fishing for our local steelhead brings into our county. Even considering the short duration of the season, it is estimated, using a formula provided by DF&W, that Steelhead fishing brings in over a million dollars in revenue into the county. Know that if you ever needed volunteers to help with this effort, just from The Santa Cruz Fly Fishermen and The Monterey Bay Salmon & Trout Project membership alone, we would be able to supply all of the assistance you would need.

Whatever rationale you've used to make your decision to stop the monitoring, I would highly urge you to reconsider. These fish are federally protected for a very good reason. Their numbers have dropped drastically over the coarse of my life time and I can only hope that with the combined efforts of all involved that there will still remain a viable run of fish for my grandkids to enjoy. Thanks for your consideration.

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**Katy Fitzgerald**

**From:**
**Sent:** Monday, March 12, 2018 9:30 AM
**To:** Rosemary Menard
**Subject:** To Commissioner Wadlow

Dear Commissioner Wadlow,

The City of Santa Cruz Water Commission and the San Lorenzo Valley Water District have an opportunity to serve the public trust by funding the Survey and Analysis of the San Lorenzo River Steelhead in 2018. After the County of Santa Cruz Environmental Health Department has encouraged the "Funders Group" to discontinue their support, there have been presentations from the County, comments from concerned citizens and input from the contract fish biologists, D. W. Alley and Associates, who have been doing this work for 20 years. As someone who enjoyed catching Steelhead in the San Lorenzo Lagoon on flies in the 1970s and witnessed their precipitous decline since, I have a stake in recovery efforts. I've listened to some of the discussion and personally talked about this issue with some of the folks involved. I would like to pose a question to you: why not fund this work in 2018? I honestly don't understand the rationale behind the defunding.

The idea that we don't have the resources to manage or fund the work seems like a weak excuse concealing, maybe concealing unspoken political issues. It seems to me that the amount of work required by the funders is not overwhelming, especially if the same parties that have been doing the work are contracted for 2018. And it's hard to imagine that something as important as the status of a locally endangered fish species isn't a priority for our water resource managers. The costs are a couple of orders of magnitude less than many other programs undertaken by the County and the Water Agencies. For example, the expenditures are really "peanuts" compared to the costs of consultants and planners that are working on the similarly important "new" water supply infrastructure and recreational marijuana regulation projects, for example.

The most compelling reason to continue the Survey and Analysis work on the San Lorenzo fishery is one of continuity. It's really a unique and scientifically powerful record that has been compiled by our local fish biologists over the last 20 years. Maybe we don't want to know what shape the fishery is in? But, I'd like to think that we want to continue to take advantage of the techniques and observations that have been telling us about the plight of Salmon and Steelhead in the San Lorenzo. I know that scientific method requires that research methods need to be reproducible, but this requires consistent training and calibration that is lost if replacement scientists have inconsistent training or no training at all. Over time there will be an evolution in the fish survey technique, personnel and analysis of the data, but that doesn't mean we shouldn't survey in 2018.

Another strong reason to continue the work, is the current climatic conditions. With the probability of Critically Dry conditions in 2017-18 following a wetter than average year, we need to know the affect on the comparatively low numbers of fish we have. With likely less than optimum conditions in the San Lorenzo Lagoon this Summer, knowing how the spawn and rearing conditions went in the main stem and tributaries this Winter and Spring will be important information. And affect our discussion with the State and Federal Officials on the Habitat Conservation Plan. We continue to learn about the natural history of these animals in our watershed and need a continuous and consistent data set to guide our understanding.

Why can't the City of Santa Cruz and the San Lorenzo Valley Water District undertake to fund, without the help of the County, the Survey work on the San Lorenzo river in 2018? If, like me, you don't understand why we wouldn't want to do this, then please give my idea some serious consideration. My message is pretty simple: this work is important, wouldn't cost much and there's no good reason not to do it.

Sincerely,

**Katy Fitzgerald**

**From:**
**Sent:** Monday, March 12, 2018 9:24 AM
**To:** Rosemary Menard
**Subject:** For Commission Chairman Wilshusen

Dear Chairman Wilshusen,

The City of Santa Cruz Water Commission and the San Lorenzo Valley Water District have an opportunity to serve the public trust by funding the Survey and Analysis of the San Lorenzo River Steelhead in 2018. After the County of Santa Cruz Environmental Health Department has encouraged the "Funders Group" to discontinue their support, there have been presentations from the County, comments from concerned citizens and input from the contract fish biologists, D. W. Alley and Associates, who have been doing this work for 20 years. As someone who enjoyed catching Steelhead in the San Lorenzo Lagoon on flies in the 1970s and witnessed their precipitous decline since, I have a stake in recovery efforts. I've listened to some of the discussion and personally talked about this issue with some of the folks involved. I would like to pose a question to you: why not fund this work in 2018? I honestly don't understand the rationale behind the defunding.

The idea that we don't have the resources to manage or fund the work seems like a weak excuse concealing, maybe concealing unspoken political issues. It seems to me that the amount of work required by the funders is not overwhelming, especially if the same parties that have been doing the work are contracted for 2018. And it's hard to imagine that something as important as the status of a locally endangered fish species isn't a priority for our water resource managers. The costs are a couple of orders of magnitude less than many other programs undertaken by the County and the Water Agencies. For example, the expenditures are really "peanuts" compared to the costs of consultants and planners that are working on the similarly important "new" water supply infrastructure and recreational marijuana regulation projects, for example.

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Sincerely,

**Katy Fitzgerald**

**From:**
**Sent:** Monday, March 12, 2018 9:25 AM
**To:** Rosemary Menard
**Subject:** For Commissioner Engfer

Dear Commissioner Engfer,

The City of Santa Cruz Water Commission and the San Lorenzo Valley Water District have an opportunity to serve the public trust by funding the Survey and Analysis of the San Lorenzo River Steelhead in 2018. After the County of Santa Cruz Environmental Health Department has encouraged the "Funders Group" to discontinue their support, there have been presentations from the County, comments from concerned citizens and input from the contract fish biologists, D. W. Alley and Associates, who have been doing this work for 20 years. As someone who enjoyed catching Steelhead in the San Lorenzo Lagoon on flies in the 1970s and witnessed their precipitous decline since, I have a stake in recovery efforts. I've listened to some of the discussion and personally talked about this issue with some of the folks involved. I would like to pose a question to you: why not fund this work in 2018? I honestly don't understand the rationale behind the defunding.

The idea that we don't have the resources to manage or fund the work seems like a weak excuse concealing, maybe concealing unspoken political issues. It seems to me that the amount of work required by the funders is not overwhelming, especially if the same parties that have been doing the work are contracted for 2018. And it's hard to imagine that something as important as the status of a locally endangered fish species isn't a priority for our water resource managers. The costs are a couple of orders of magnitude less than many other programs undertaken by the County and the Water Agencies. For example, the expenditures are really "peanuts" compared to the costs of consultants and planners that are working on the similarly important "new" water supply infrastructure and recreational marijuana regulation projects, for example.

The most compelling reason to continue the Survey and Analysis work on the San Lorenzo fishery is one of continuity. It's really a unique and scientifically powerful record that has been compiled by our local fish biologists over the last 20 years. Maybe we don't want to know what shape the fishery is in? But, I'd like to think that we want to continue to take advantage of the techniques and observations that have been telling us about the plight of Salmon and Steelhead in the San Lorenzo. I know that scientific method requires that research methods need to be reproducible, but this requires consistent training and calibration that is lost if replacement scientists have inconsistent training or no training at all. Over time there will be an evolution in the fish survey technique, personnel and analysis of the data, but that doesn't mean we shouldn't survey in 2018.

Another strong reason to continue the work, is the current climatic conditions. With the probability of Critically Dry conditions in 2017-18 following a wetter than average year, we need to know the affect on the comparatively low numbers of fish we have. With likely less than optimum conditions in the San Lorenzo Lagoon this Summer, knowing how the spawn and rearing conditions went in the main stem and tributaries this Winter and Spring will be important information. And affect our discussion with the State and Federal Officials on the Habitat Conservation Plan. We continue to learn about the natural history of these animals in our watershed and need a continuous and consistent data set to guide our understanding.

Why can't the City of Santa Cruz and the San Lorenzo Valley Water District undertake to fund, without the help of the County, the Survey work on the San Lorenzo river in 2018? If, like me, you don't understand why we wouldn't want to do this, then please give my idea some serious consideration. My message is pretty simple: this work is important, wouldn't cost much and there's no good reason not to do it.

Sincerely,

**Katy Fitzgerald**

**From:**
**Sent:** Monday, March 12, 2018 9:26 AM
**To:** Rosemary Menard
**Subject:** For Commissioner Baskin

Dear Commissioner Baskin,

The City of Santa Cruz Water Commission and the San Lorenzo Valley Water District have an opportunity to serve the public trust by funding the Survey and Analysis of the San Lorenzo River Steelhead in 2018. After the County of Santa Cruz Environmental Health Department has encouraged the "Funders Group" to discontinue their support, there have been presentations from the County, comments from concerned citizens and input from the contract fish biologists, D. W. Alley and Associates, who have been doing this work for 20 years. As someone who enjoyed catching Steelhead in the San Lorenzo Lagoon on flies in the 1970s and witnessed their precipitous decline since, I have a stake in recovery efforts. I've listened to some of the discussion and personally talked about this issue with some of the folks involved. I would like to pose a question to you: why not fund this work in 2018? I honestly don't understand the rationale behind the defunding.

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**From:**
**Sent:** Monday, March 12, 2018 9:26 AM
**To:** Rosemary Menard
**Subject:** To Commissioner Mekis

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**Katy Fitzgerald**

**From:**
**Sent:** Monday, March 12, 2018 9:27 AM
**To:** Rosemary Menard
**Subject:** To Commissioner Schiffrin

Dear Commissioner Schiffren,

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**Katy Fitzgerald**

**From:**
**Sent:** Monday, March 12, 2018 9:28 AM
**To:** Rosemary Menard
**Subject:** To Commissioner Schwarm

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