Water Commission Agenda
Regular Meeting
7:00 p.m. – June 5, 2017
Council Chambers
809 Center Street, Santa Cruz

Agenda

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 (Pages 1-14)

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

1. Accept the City Council actions affecting the Water Department ☆ (Pages 1-8)
2. Approve the May 1, 2017, Water Commission Minutes ☆ (Pages 9-14)

Items Removed from the Consent Agenda

General Business (Pages 15-85)

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

3. FY 2018 Proposed Capital Improvement Program (CIP) and Operating Budget ☆(Pages 15-62)

Recommendation: That the Water Commission recommend that the City Council approve the Water Department's FY 2018 Proposed CIP Budget and Operating Budget.

4. Water Supply Augmentation Strategy, Quarterly Work Plan Update (WSAS)☆(Pages 63-80)

Recommendation: That the Water Commission receive information regarding the status of the various components of the Water Supply Augmentation Strategy and provide feedback.

5. Update on the Implementation of the Sustainable Groundwater Management Act in Mid and Northern Santa Cruz County ☆(Pages 81-85)

Recommendation: That the Water Commission receive information on the implementation of the Sustainable Groundwater Management Act in Mid and Northern Santa Cruz County.

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

6. Santa Cruz Mid-County Groundwater Agency

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

Adjournment The next meeting of the Water Commission is tentatively scheduled for August 7, 2017, at 7:00 p.m. in Council Chambers.

☆Denotes written materials included in packet

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 the care of the City Clerk.

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

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 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.

WATER COMMISSION
INFORMATION REPORT

DATE: 5/26/2017

AGENDA OF: June 5, 2017

TO: Water Commission

FROM: Rosemary Menard, Water Director

SUBJECT: City Council items affecting the Water Department

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

May 9, 2017

Revision of Water Department Miscellaneous Fees (WT)
Resolution No. NS-29,239 was adopted revising the Water Department's miscellaneous fees for services and rescinding Resolution No. NS-28,166.

Bay Reservoir Tank Site Landscaping and Site Improvements – Approval of Plans and Specifications and Authorization to Advertise for Bids and Award Contract (WT)
Motion **carried** to approve the drawings, specifications, and contract documents for the Bay Reservoir Tank Site Landscaping and Site Improvements as proposed and authorize staff to advertise for bids and award the contract. The City Manager was authorized and directed to execute the contract as authorized by Resolution No. NS-27,563 in a form approved by the City Attorney.

Corporation Yard Material Storage Facility Roof Project – Ratification of Contract Amendment No 1 (WT)
Motion **carried** to ratify Contract Change Order No 1 with APCO-Ettner, Inc. (Fresno, CA) in the amount of $42,133 for additional roofing materials for the Corporation Yard Material Storage Facility Roof Project.

Fisheries Biology Support from Hagar Environmental Science for the Anadromous Salmonid Habitat Conservation Plan (WT)
Motion **carried** authorizing the Water Department to issue annual purchase orders exceeding the formal bid limit, for a period not exceeding five years, to Hagar Environmental Science for ongoing fisheries biology support of the City of Santa Cruz's habitat conservation plan development and incidental take permitting.

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

ATTACHMENTS: Water Use Efficiency at the University of California.

CITY OF SANTA CRUZ

INFORMATION REPORT

COUNCIL MEETING
MAY 23, 2017

DATE: May 2, 2017

TO: City Manager

DEPARTMENT: Water

SUBJECT: Water Use Efficiency at the University of California

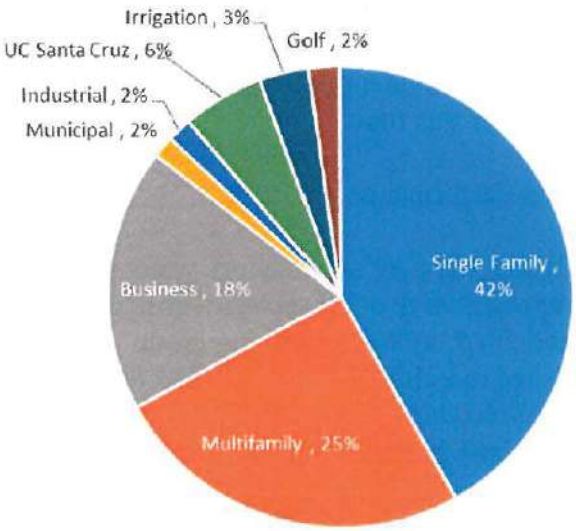
APPROVED: [signature] DATE: 5/8/17

On April 25, 2017, City Council addressed the subject of the next University Long Range Development Plan (LRDP). A few weeks before, Chancellor Blumenthal had announced that the planning process was just beginning and was inviting the community to provide its input. The next LRDP will serve as a blueprint for the future of UC Santa Cruz.

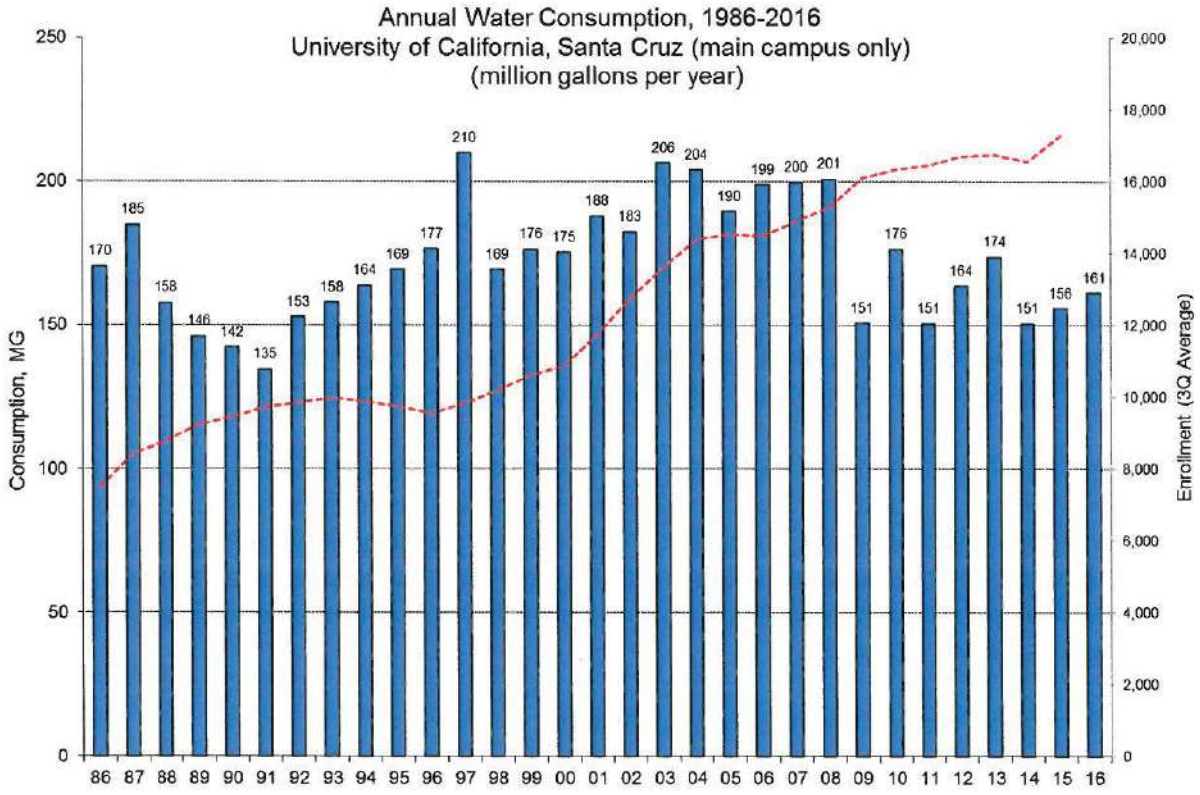
Water use has often been one of the concerns raised in connection with the University campus. Therefore, staff felt it would be useful to review the progress made through the collaborative efforts between University and City as this process gets under way. This information report provides background on four topics: 1) Annual University water consumption and trends, 2) University drought reduction performance, 3) University water action planning, and 4) Water Department projected water use.

Annual University Water Consumption and Trends

The chart below shows University water use in proportion to other City customer categories. It accounts for approximately six percent of the total annual consumption in any given year. This figure represents both the main campus as well as the Coastal Science Campus site on the west side of the City.



Annual water consumption on the main campus extending back to 1986 is illustrated in the chart below. Also shown is the change in student enrollment over this period. Note that despite a doubling in enrollment, annual water use remains relatively steady in the 30 years between 1986 and 2016. Stated another way, the amount of water use per enrolled student has declined during this period from about 60 gallons per student per day back in 1986 to about 25 gallons per student per day today.



One of the provisions of the 2008 Comprehensive Settlement Agreement was that the University would pay a fee equivalent to the City's system development charge for water used over 206 million gallons per year (mgy). This requirement to contribute funding has never been triggered since campus consumption has remained continuously below that threshold. A campus-wide efficiency survey, extensive plumbing fixtures retrofits, completion of all "high priority" conservation projects, and extensive student outreach and engagement have all helped in controlling campus water use over this time.

University Drought Reduction Performance

The campus has successfully met the City's mandatory water reduction goals because of close collaboration between the representative of all sectors across campus as well as with the Water Department. In both 2014 and 2015, a "water working group" led by the campus planning and sustainability offices established monthly budgets and directed efforts to reduce water use by 20 percent or about 20 million gallons during the peak dry season. Key to the success of this effort was an investment in new cellular-based meter reading technology that allowed individual building or facility managers to view their consumption on an hourly basis and quickly detect leaks. This technology will continue to help the University manage the campus' water use well

into the future. A water conservation student intern team also helped communicate the conservation message to students and staff and helped identify and report leaks. For its efforts, the Santa Cruz campus established itself as a leader in water conservation and water efficiency among the University of California and other college campuses around the state.

University Water Action Planning

Consistent with state law that set a goal to reduce per capita water use by 20 percent in 2020, the UC Board of Regents in 2011 set a similar policy directing each campus to strive to reduce potable water consumption adjusted for campus population growth by 20 percent in 2020. To this end, the University in 2013 prepared a Water Action Plan that recognizes the limited nature of water resources in our region and the campus' role as a responsible steward in the community. The plan uses a "weighted campus user" baseline that normalizes for differences in water use between the number of on- and off-campus students, and full time vs part time students, faculty, and staff.

In 2016, the UC Office of the President adopted a more ambitious goal mirroring a 2015 Executive Order covering federal facilities. It calls for campuses to demonstrate leadership in the area of sustainable water systems by reducing potable water use 35 percent by 2025, as compared to a 2005 - 2008 baseline period, using the same weighted campus user approach. Some of the actions called out in the policy include:

- Converting potable water used for irrigation to recycled water,
- Implementing efficient irrigationsystems ,
- Drought tolerant plant selections,
- Phasing out unused turf, and
- Replacing single pass cooling systems or constant flow laboratory equipment

The campus is currently in the process of preparing this updated Water Action Plan that will address how it intends to meet this goal, and the actions included in that plan will extend through at least part of the time frame for the next LRDP.

Santa Cruz Water System 2015 – 2035 Projected Water Use

One of the first very requests made by the Water Supply Advisory Committee (WSAC) in 2014 was for the Water Department to update the system's demand forecast to reflect current information on water usage and to account for effects of conservation, water rates, and other factors expected to impact the future demand for water. Accordingly, the Water Department contracted with M.Cubed to develop two products: 1) an interim forecast to assist the early stages of the WSAC process, and 2) a separate, newly developed econometric demand forecast for the service area extending to the year 2035.

At the time of the University's last LRDP, its projected demand was estimated to be 349 million gallons per year (mgy). The 349 mgy figure was based in part on the 2005 LRDP, along with the Coastal Science Campus and Delaware Street facilities.

In developing the new long term demand forecast for the water system, an independent estimate of UCSC future demand was not made. Rather, after consulting with University staff, a decision

was made to extend the University's previous forecast of 349 mgy in 2030 further out into the future to reflect a lower, more realistic rate of growth. Two endpoints were considered: a higher forecast ending with the full 349 mgy build out demand being achieved by 2035 and a lower forecast with the 349 mgy being achieved by 2050. The University demand forecast that was ultimately used for the econometric demand forecast, and later incorporated and adopted as part of the City's 2015 Urban Water Management Plan (UWMP), represents the mid-point between these two bounds.

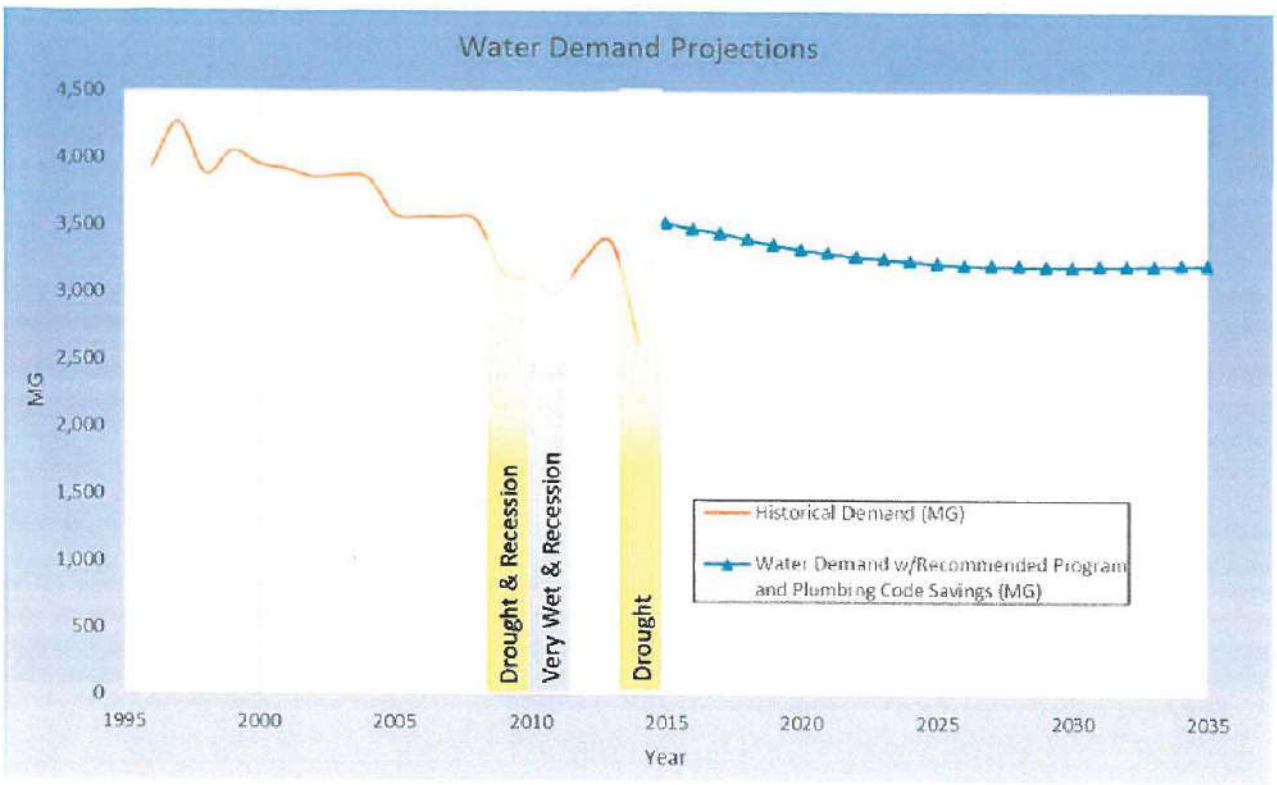
As seen in the table below taken from the 2015 UWMP, and accompanying chart, the Water Department is planning for a future in which the University water use is projected to reach 308 mgy in 2035. Even still, the overall trend in system-wide water use according to this forecast is one in which total water use is expected to decline between 2020 and 2025 and then stabilize at a level of about 3.2 billion gallons per year.

Table 4-3. Demands for Potable Water - Projected

Use Type	Additional Description	Projected Water Use (mgy)				
		2020	2025	2030	2035	2040-opt
Single Family	Individually metered dwellings	1,277	1,223	1,191	1,170	n/a
Multi-Family	2 or more dwelling units	772	714	690	678	n/a
Commercial		574	541	525	519	n/a
Industrial		56	59	60	61	n/a
Institutional/ Governmental	Municipal (city) accounts	46	42	40	40	n/a
Landscape	Dedicated Irrigation	112	119	134	144	n/a
Landscape	Golf Irrigation	58	52	47	47	n/a
Other	UC Santa Cruz	196	234	271	308	n/a
Water Losses		236	241	247	253	n/a
	TOTAL	3,327	3,225	3,205	3,220	n/a

NOTES: David Mitchell, M Cubed, October 2015, and by Maddaus Water Management, February 2016

While the next LRDP will raise legitimate concerns about the role the University plays in the community and how its plans for growth in enrollment may impact the community, it is clear that the University has a successful track record when it comes to keeping its share of the City's overall water use in check. One reason for the University's success is that many of the people that wrestle with this vital subject on a daily basis are also City residents or live within the water service area; they care about the surrounding community and share in its values for environmental stewardship and protection of our natural resources.



Staff will continue to work collaboratively with the University, in the spirit of the comprehensive settlement agreement, as the next LRPD process unfolds.

Submitted by:

Rosemary Menard
Water Director

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Water Commission
7:00 p.m. – May 1, 2017
Council Chambers
809 Center Street, Santa Cruz

Water Department

Minutes of a Water Commission Meeting

Call to Order Chair Wilshusen called the meeting to order at 7:02 p.m. in the City Council Chambers.

Roll Call
Present: L. Wilshusen (Chair), D. Engfer (Vice-Chair), J. Mekis, A. Schiffrin, W. Wadlow
Absent: D. Baskin, D. Schwarm (with notification)

Staff Present: R. Menard, Water Director; H. Luckenbach, Deputy Director/Engineer Manager; K. Crossley, Senior Professional Engineer; N. Dennis, Principal Management Analyst; A. Poncato, Administrative Assistant III.

Others: 3 members of the public.

Statements of Disqualification: There were no statements of disqualification.

Oral Communications: There were no oral communications.

Announcements: Commissioner Wilshusen attended a tour of the Lower Colorado River sponsored by the Water Education Foundation.

Consent Agenda
1. Accept the City Council actions affecting the Water Department
2. Approve the April 3, 2017, Water Commission Minutes

Commissioner Schiffrin moved the Consent Agenda as amended. Commissioner Wadlow seconded.
VOICE VOTE: MOTION CARRIED
AYES: All.
NOES: None.
ABSENT: D. Baskin, D. Schwarm

Items Removed from the Consent Agenda

3. Receive the 3rd Quarter FY 2017 Financial Report

Will we be making the anticipated revenue we projected?

- Although Water sales are at 60% of budget with 75% of the year elapsed, sales are generally higher in the 1st and last quarters which will impact total water sales collected. With respect to the impacts on fund balances and rates, when we developed the rates, we used the full annual budgeted amount as the annual revenue requirement. In reality, actual operating expenses are lower than the budget, meaning that there won't be a significant negative impact on our fund balances, rates or ability to proceed with planned projects from having revenues that are lower than projected.

How do we know when we need to draw out of the rate stabilization fund or increase that special charge?

- Council Policy 34.4 Water Department Financial Reserve specifies the criteria (uncontrollable factors, wet weather events, economic downturns, etc.) when these funds might be accessed. Council approval would be required to move these funds from the reserve fund to the operating budget.

What is the schedule for completing the water resources building and in general, what is Project Duration intended to reflect?

- Due to some delays in siting and sizing the building, it will not be completed in FY 2017 but it may be completed in FY 2018. Project duration is intended to reflect the entire project duration from feasibility to completion of construction. The duration shown for the Water Resources Building is incorrect as reflected in the Project Description.

<u>Final Comments and Requests for Follow Up</u>

- Update "Project Duration" dates for the Water Resources Building project.
- If we need to use funds from the Water Revenue Stabilization Fund, we will expect that staff comes back to the Commission for discussion.

Commissioner Schiffrin moved the staff recommendation of this Consent Agenda. Commissioner Engfer seconded.

VOICE VOTE: MOTION CARRIED
AYES: All.
NOES: None.
ABSENT: D. Baskin, D. Schwarm

General Business

4. FY 2018 Recommended Operating Budget

Ms. Dennis provided an overview of the recommended FY 2018 Operating Budget.

- We are still working with the Finance Department to make a minor correction to the FY 2018 Proposed budget.

While cleaning and inspecting potable water storage reservoirs, is there a lot of water loss as part of the process?

- Attempts are made to reduce loss by using as much as possible in the distribution system and off hauling for other uses such as trucking to and filling the DeLaveaga golf course pond.

Have we reached an agreement with California Department of Fish and Wildlife on the salmonid habitat conservation plan (HCP)? If not, why are we budgeting for the California Environmental Quality Act (CEQA) process for the HCP?

- No, we are working on it and including funds for the CEQA and National Environmental Policy Act (NEPA) effort sends a signal to the regulatory agencies we are ready to proceed.

We anticipated adding positions in our rate planning work, correct?

- Yes. Although the 5.0 FTEs being recommended is more than the 3.0 FTE included in the financial plan, we are planning to have Department staff whose assignments have them working on major capital projects charge their time to those projects. This is a common practice in other jurisdictions and provides for additional resources to support necessary staff.

There appears to be an 85% increase in staffing expenses and this seems like a lot of money when we don't have significant revenue coming in. Please explain.

- Several factors influence this increase. First, in the financial model we created with Public Financial Management (PFM), we estimated that benefits would increase at 9% a year but now we know that benefits are growing faster than the rate of inflation and salary expenses. Second, the City renegotiated labor agreements that have increased salary costs that were not included in the PFM model. Third, we have filled many vacant positions and have more staff than we have in the past. Fourth, there have been salary adjustments related to a compensation study completed in 2015. We are using subcontractors on several projects, utilizing consulting services for the planning of projects, but we do not think this trend will continue.

Why was there a 50% increase in staffing in the Recreation section?

- Loch Lomond was closed the summers of 2015 and 2016 due to the drought and was reopened to the public last year (summer of 2017). The increase is reflective of those closed years.

Please explain why there is a large increase in the Conservation Program's budget for FY 18 when compared to projected FY 2017 actuals.

- The Conservation Manager position has been vacant for a number of years but we intend to fill it this year. In addition, more funds have been allocated to the Conservation rebate program.

Meter Shop was transferred from being a component of Distribution to being a part of Customer Service. Historical data is in budget activity 7118 and is now 7113.

- Difficult area to recruit and retain staff.
- AMI pilot feasibility program has generated new costs.

The concern expressed about having enough staff in critical areas such as the Water Quality Lab and Meter Shop. Additional discussion about recruitment difficulties given existing salaries.

Final Comments and Requests for Follow Up

- Correction to the presentation: Conducting an "awareness poll" as opposed to a public opinion poll to determine the community's awareness of our water supply issues as well as the WSAC recommendations.
- Determine total dollar amount of new positions and provide to Commission (Nicole).
- Concerns expressed regarding salary growth from FY 2015 to FY 2018.
- Staff will review amount as they work with Finance to finalize the FY 2018 proposed budget.
- Add a footnote explaining that the Net General Fund Cost does not apply to the Water Enterprise Funds, does not include the Capital Improvement Program nor pay as you go capital.
- Staff will return with an updated Pro Forma which provides the Commission with a better understanding of the entire enterprise.
- Both the operating and capital budgets will be presented together at the June Water Commission meeting.
- Consolidate and present both the operating and capital budgets in future years.
- Provide the number of budgeted staff positions for each section which was included in the PowerPoint presentation.

5. Update on the Winter Water Projects

Ms. Menard provided an overview of potential water transfer scenarios.

Would the capacity at the water treatment plant have to be increased to provide the in-lieu water supply to other districts?

- The hydraulic capacity of the plant, also known as flow through, is adequate for any option we choose. On the other hand, the treatment capacity of the plant is probably not adequate. We have the volumetric capacity to treat the water at the treatment plant but we don't have the treatment process capacity to treat the water in a way that it is responsive to the water quality issues we would likely be dealing with.

Could we deliver treated water to the Soquel Creek Water District (SqCWD) now?

- Yes and that is why we signed the agreement to supply up to 300 million gallons over the season with them.

Please explain the difference between hydraulic capacity and treatment capacity.

- Hydraulic capacity is the amount of water you can move through the plant due to the size of the pumps, pipes, etc. Treatment capacity is what we can do to the

water coming in the plant, which is heavily dependent on the quality of water coming in.

Have the new surface water treatment regulations reduced our treatment capacity?

- It is more challenging for us to meet the new regulatory requirements with our existing treatment process.

Mr. Crossley provided an overview of the Pipe Loop Study

Does this study determine the solution to addressing any issues that may arise?

- The study will be designed to attempt to identify all potential issues associated with water transfers. However, there may be some issues that are not discovered during the study and become apparent during actual implementation of water transfers.

Mr. Crossley provided an overview of the Riverbank Filtration (RBF)

Would a Ranney collector help with our high turbidity issues?

- Ranney collectors and all subsurface intakes require the appropriate geology to function appropriately in terms of improving water quality and yield. And while this technology can remove turbidity, it is less successful at removing dissolved solids, which have their own water quality issues.

Commissioner Schiffrin left the meeting.

Mr. Marks provided an update on the Aquifer Storage and Recovery (ASR) Study.

Why would you recommend moving to the Phase 2 pilot testing prior to the all the modeling being completed?

- There are no fatal flaws identified associated with the geochemical testing. The additional data that we recommend collecting will refine those geochemical predictions. The new data will come from drilling a bore hole in the vicinity of Beltz 12 and collecting the cuttings of any new pilot well to confirm the findings of the geochemical analyses done to date. The modeling results should align well with the implementation of the pilot study. i.e., the modeling work and design of the pilot program will be occurring simultaneously.

What are some highlights about material changes to infrastructure related assumptions used during the evaluation of ASR during the WSAC process?

- During the WSAC process, it was assumed that we would need 8mgd of capacity for injection, but it turns out it is more like 6mgd. This change was achieved by changing the operating rules for how Loch Lomond is dispatched once stored groundwater became available as part of the City's water system.

Is the 6mgd capacity driven by injection capacity or extraction capacity?

- As it turns out, both. We need mgd of injection capacity in order to achieve the target storage volume and we need 6mgd of recovery capacity in order to meet your demands during those worst year shortfall periods.

How do we avoid the errors made in the Las Posas Basin Aquifer Storage and Recovery project?

- Part of the apparent problem with the Las Posas Basin Aquifer Storage and Recovery project was expectation management. During the WSAC process, it was determined that the project would be implemented incrementally. We would drill a few wells, begin adding water to the ground, perform recovery testing system performance, and then incrementally increase the size of the project. This approach would help avoid similar problems in meeting project expectations.

The incremental way we put this project into place will prevent running into major issues?

- It will certainly mitigate the potential for issues.

Final Comments and Requests for Follow Up

Subcommittee/Advisory Body Oral Report.

- Next meeting scheduled for the Santa Cruz Mid-County Groundwater Agency will be held at 7:00 p.m. on Thursday, May 17, 2017, at the Simpkins Family Swim Center.

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

- Water supply situation is good.
- We will be submitting reimbursement paperwork to the Federal Emergency Management Agency (FEMA) for the emergency work that was completed over the winter season.

Adjournment Meeting adjourned at 10:23 p.m. The next meeting of the Water Commission is scheduled for June 5, 2017, at 7:00 p.m. in Council Chambers.

Respectfully submitted,

Staff

WATER COMMISSION
INFORMATION REPORT

DATE: 5/30/2017

AGENDA OF: June 5, 2017

TO: Water Commission

FROM: Nicole B. Dennis,
Principal Management Analyst

SUBJECT: FY 2018 Proposed Capital Improvement Program (CIP) and Operating Budget

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RECOMMENDATION: That the Water Commission recommend that the City Council approve the Water Department's FY 2018 Proposed CIP Budget and Operating Budget.

BACKGROUND: At the Water Commission's March 6, 2017, meeting, the FY 2018 CIP was presented and discussed. A discussion of the operating and maintenance budget followed at the May 1, 2017, meeting.

The City of Santa Cruz held its official budget hearings for the Proposed CIP and Operating Budgets, May 23 through May 25, 2017, and the Water Department's Operating Budget and CIP are attached for your review. These are the same documents presented to the City Council and are scheduled for adoption on June 13, 2017.

DISCUSSION: At the May 1, 2017, meeting, Water Commissioners had a number of questions regarding the proposed budget, particularly related to how the Operating budget related to the Department's overall financial performance during the current and upcoming fiscal years. The Water Department Enterprise's Pro Forma is the document that does the best job of responding to these questions because it is the one place where expenditures, revenues, debt service, debt planning and reserves and their targets, come together in one financial statement.

During the last month, Department staff has worked to update the Pro Forma and the updated version is attached for discussion with the Commissioners at the June 5th meeting.

Pro Forma
The calculations in the FY 2018 Pro Forma are based on the FY 2018 Proposed CIP and Operating Budgets. There are a number of assumptions incorporated in the FY 2018 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%.

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 $41,414,877 and total expenditures for the operating and maintenance budget of $28,966,454 (plus debt service of $1,949,325.90) as well as $23,660,000 in capital expenditures.

In order to maintain the twin goals of a debt service coverage of 1.5 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 additional debt in FY 2018. Staff will continue to work closely with Public Financial Management (PFM) to determine how and when to issue 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, $785,000, also has been scheduled to be funded Fund 715 – System Development Fund. Those projects include the Bay Street Reservoir, Water Treatment Upgrades, Aquifer Storage and Recovery, Recycled Water, Water Supply Reliability - WSAC and Main Replacements – Engineering Section.

Operating Budget

The Commission asked a couple of additional questions about staffing costs and expenditure patterns over time. From a general perspective, growth over time is due to salary and benefit cost increases as well as additions to prepare the Department to meet future needs. In addition, Drought expenses in FY 2014 and FY 2015 make historical comparisons difficult without speaking to specifics. The staffing costs of two, new positions were omitted from the Operating Budget. Total costs for the Microbiologist II (Lab) and Administrative Assistant II (Distribution) are $212,157 and will be added to the final budget. The cost of position additions net deletions for FY 2018 is approximately $535,000.

CIP

Questions about the CIP were focused on the Water Resources building and charging staff time to projects. Project funding for the Water Resources building is being rolled over to FY 2018. While the design has begun, staff, is at the same time, evaluating the best use of all the remaining open space at the Graham Hill Water Treatment Plant and want to plan appropriately as we move toward constructing this project.

The Finance Department has finalized the work needed to allow Water Department Engineering staff to charge the capital projects they are working on thus reducing the draw on resources budgeted for general personnel costs and taking those costs from pay as you go capital resources

or from the proceeds of debt issuances used to finance capital investments. City staff costs of implementing capital projects are a legitimate expense associated with capital investments and it is a common utility practice to include such costs in projects that are financed either through pay as you go capital dollars or the proceeds of debt issuances. Even so, the Department has identified only a small set of the larger projects for implementing this initial effort which include: Newell Creek Dam Inlet/Outlet Pipeline, Newell Creek Pipeline Rehab/Replacement, Tube Settler Replacement, University Tank #5 Replacement, and WTP Concrete Tank Replacement. Because the Aquifer Storage and Recovery and Main Replacements – Engineering projects have a small portion funded by System Development Charges (Fund 715staff time will be charged to the Water Operations Fund (Fund 711) portion of the project.

FISCAL IMPACT: Funds are available from a number of sources including water sales revenues, general revenues and planned debt financing to support the FY 2017-18 Proposed Operating Budget and Capital Budget.

PROPOSED MOTION: That the Water Commission recommend that the City Council approve the Water Department's FY 2018 Proposed CIP Budget and Operating Budget.

ATTACHMENTS: FY 2018 Working Pro-Forma
FY 2018 Proposed Operating Budget
FY 2018-20 Proposed CIP

City of Santa Cruz Water Department Pro-Forma Projections											
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Revenues											
Rate Revenue											
Rate Increase (Model Calculated on Top of Inputted Rates)	0.00%	0.00%	0.00%	0.00%	5.30%	4.26%	11.74%	9.43%	9.20%	3.83%	8.76%
Fixed Fee Revenue	$ 3,018,835	$ 3,018,835	$ 3,225,420	$ 3,392,403	$ 3,566,822	$ 3,718,599	$ 4,155,144	$ 4,547,048	$ 4,965,247	$ 5,155,336	$ 5,607,008
Volumetric Revenue	$ 33,525,003	$ 35,681,669	$ 38,055,205	$ 40,572,015	$ 42,720,934	$ 44,538,813	$ 49,767,459	$ 54,461,409	$ 59,470,307	$ 61,747,066	$ 67,156,885
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	$ 40,221,696	$ 42,401,000	$ 44,997,375	$ 47,701,370	$ 49,974,469	$ 51,944,124	$ 57,609,317	$ 62,695,170	$ 68,122,267	$ 70,589,115	$ 73,108,363
Effective Revenue Increase	19.20%	5.42%	6.12%	6.01%	4.77%	3.94%	10.91%	8.83%	8.66%	3.62%	3.57%
Non-Rate Revenue											
Other Income	$ 1,193,181	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Investment Income	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Non-Rate Revenue	$ 1,193,181	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Revenues	$ 41,414,877	$ 43,401,000	$ 45,997,375	$ 48,701,370	$ 49,974,469	$ 51,944,124	$ 57,609,317	$ 62,695,170	$ 68,122,267	$ 70,589,115	$ 73,108,363
Operating Expenses											
Personnel	$ 14,128,200	$ 15,305,068	$ 16,576,285	$ 17,428,248	$ 18,337,690	$ 19,309,209	$ 20,347,799	$ 21,458,885	$ 22,648,362	$ 23,922,637	$ 25,288,675
Services, Supplies & Other	$ 14,663,254	$ 15,396,417	$ 16,166,238	$ 16,974,549	$ 17,823,277	$ 18,714,441	$ 19,650,163	$ 20,632,671	$ 21,664,304	$ 22,747,520	$ 23,884,896
Capital Outlay	$ 175,000	$ 183,750	$ 192,938	$ 202,584	$ 212,714	$ 223,349	$ 234,517	$ 246,243	$ 258,555	$ 271,482	$ 285,057
Other Operating Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Expenses	$ 28,966,454	$ 30,885,235	$ 32,935,460	$ 34,605,381	$ 36,373,681	$ 38,246,999	$ 40,232,479	$ 42,337,799	$ 44,571,221	$ 46,941,640	$ 49,458,627
Net Operating Revenues	$ 12,448,423	$ 12,515,765	$ 13,061,915	$ 14,095,988	$ 13,600,788	$ 13,697,125	$ 17,376,838	$ 20,357,371	$ 23,551,045	$ 23,647,476	$ 23,649,735
Capital Expenditures	$ 23,660,000	$ 25,660,000	$ 43,715,000	$ 23,845,000	$ 19,375,000	$ 41,875,000	$ 34,375,000	$ 37,875,000	$ 2,875,000	$ 2,875,000	$ 11,068,033
Grant Funded	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SRF Funded	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Currently Funded	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pay-Go Funded	$ 8,880,471	$ 4,410,701	$ 7,339,073	$ 6,811,095	$ 3,661,558	$ 3,643,671	$ 4,813,139	$ 5,747,550	$ 2,875,000	$ 2,875,000	$ 11,068,033
Debt Funded	$ 14,779,529	$ 21,249,299	$ 36,375,927	$ 17,033,905	$ 15,713,442	$ 38,231,329	$ 29,561,861	$ 32,127,450	$ -	$ -	$ -
Debt Service	$ 1,949,326	$ 3,820,513	$ 3,884,386	$ 6,474,885	$ 9,067,282	$ 9,129,376	$ 11,560,327	$ 13,519,245	$ 15,615,841	$ 15,680,234	$ 15,677,740
Net Income	$ 1,618,626	$ 4,284,552	$ 1,838,456	$ 810,008	$ 871,948	$ 924,078	$ 1,003,372	$ 1,090,576	$ 5,060,204	$ 5,092,242	$ (3,096,038)
Total Cash Balances											
Beginning Total Cash Balance	$ 21,587,470	$ 23,206,096	$ 27,490,648	$ 29,329,104	$ 30,139,112	$ 31,011,059	$ 31,935,138	$ 32,938,510	$ 34,029,086	$ 39,089,290	$ 44,181,532
I-Bank Reimbursements		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Calculated Change to Cash Balances	$ 1,618,626	$ 4,284,552	$ 1,838,456	$ 810,008	$ 871,948	$ 924,078	$ 1,003,372	$ 1,090,576	$ 5,060,204	$ 5,092,242	$ (3,096,038)
Ending Total Cash Balance	$ 23,206,096	$ 27,490,648	$ 29,329,104	$ 30,139,112	$ 31,011,059	$ 31,935,138	$ 32,938,510	$ 34,029,086	$ 39,089,290	$ 44,181,532	$ 41,085,494
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	$ 7,142,413	$ 7,615,537	$ 8,121,072	$ 8,532,834	$ 8,968,853	$ 9,430,767	$ 9,920,337	$ 10,439,457	$ 10,990,164	$ 11,574,651
Fund 711 (Water Operations)	$ 9,575,029	$ 7,142,413	$ 7,611,597	$ 8,108,032	$ 8,506,278	$ 8,942,207	$ 9,404,371	$ 9,918,173	$ 10,489,629	$ 14,999,126	$ 19,506,881
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)	$ 651,713	$ 473,124	$ 505,535	$ 411,762	$ 436,019	$ 461,914	$ 489,570	$ 519,120	$ 550,707	$ 584,487	$ 620,627
Fund 711 (Water Operations)	$ (2,432,616)	$ 469,184	$ 496,435	$ 398,246	$ 435,929	$ 462,164	$ 513,802	$ 571,456	$ 4,509,497	$ 4,507,755	$ (3,716,665)
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 716 (90 Day Operating Reserve)	$ 7,142,413	$ 7,615,537	$ 8,121,072	$ 8,532,834	$ 8,968,853	$ 9,430,767	$ 9,920,337	$ 10,439,457	$ 10,990,164	$ 11,574,651	$ 12,195,278
Fund 711 (Water Operations)	$ 7,142,413	$ 7,611,597	$ 8,108,032	$ 8,506,278	$ 8,942,207	$ 9,404,371	$ 9,918,173	$ 10,489,629	$ 14,999,126	$ 19,506,881	$ 15,790,216
Coverage and Targets											
Debt Service Coverage (W/Out Reserves)	4.67x	2.40x	3.15x	2.18x	1.50x	1.50x	1.50x	1.51x	1.51x	1.51x	1.51x
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)	18.29x	10.47x	10.91x	6.83x	4.92x	5.00x	4.35x	4.02x	4.01x	4.33x	4.13x
Days' Cash (Includes only Funds 711 & 716)	180	180	180	180	180	180	180	180	213	242	207
Days' Cash Target	180	180	180	180	180	180	180	180	180	180	180

Water department

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 thediverse 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. In FY2017, the Meter Shop was transferred from the Distribution section to Customer Service to better coordinate services to customers.

Goals & Accomplishments

A significant focus in FY2017 was transitioning from a period of planning to implementation in several critical areas.

Rehabilitation & Replacement of Backbone Infrastructure

The department completed a number of significant infrastructure improvements projects:

- Rehabilitation of six dual media filters at the Graham Hill Water Treatment Plant.
- Construction of new Tait Wells 1B and 3B.
- Replacement of 3,110 linear feet of water main.
- Inspection of the Ocean Street Trunk Main which provided information to determine whether rehabilitation of this "main artery" water system is needed.

In addition, plans were finalized for the landscaping and completion of the Bay Street Reservoir, additional main replacement work, installation of solar at the Bay Street Reservoir, and the University Reservoir #5 replacement project.

Financial Planning

With a five-year rate structure and a Long Range Financial Plan approved by the City Council, the department was able to finalize its financial planning work. The first of several planned debt issuances was completed with the $25 million California Infrastructure and Economic Development Bank (IBank) loan that covered capital expenditures for projects completed since April 2014. Finalizing this loan allowed for the reimbursement to the department's Operating Fund of over $20 million for work already completed and financed from the Operating Fund, thus making resources available to begin the funding of reserves identified in the Long Range Financial Plan.

WSAC Recommendations

The department turned toward the implementation of the Water Supply Advisory Committee (WSAC) recommendations by initiating and making significant progress on the Aquifer Storage and Recovery Project and the recycled Water Facilities Planning Study. Staff continues to regularly report on the progress to the Water Commission at their monthly meetings, and held a joint meeting with the Water Commission and the City Council in March 2017 to review the WSAC's recommendations and provide a status report on implementation activities.

Strategic Planning & Organization Development

The department continued working on its strategic planning and organization development initiative focusing on strategy development and preparation for a strategy workshop in early June 2017; it will engage a large cross section of the department's workforce in reviewing and providing feedback on the proposed strategies. Additional areas of focus include skill development in a range of communication, process management, and problem solving and decision making tools.

Succession Planning & Workforce Development

During 2017, a key focus was in working to create a trainee program for key positions that have been difficult to fill in past recruitments. Examples include utility mechanical, electrical, instrumentation maintenance positions. During 2017, the Department worked with Human Resources to create a new Utility Maintenance Trainee position and organized a two year training program that combines training classes, training modules, and on-the-job training that will provide the trainee with the skills needed to effectively fill one of the Department's Utility Maintenance Technician and eventually be qualified for a Senior Mechanic or Senior Electrician role.

Throughout the year, the department worked toward improving its service delivery system through investments in infrastructure, providing excellent customer service, protecting natural resources, and providing a safe, high quality product. In addition to those already mentioned, the utility made substantial gains in a number of important areas as described below:

Drought to Deluge

After years of managing a historic drought, Santa Cruz received more than twice the normal amount of rainfall and was subjected to multiple severe storms during January and February of 2017. The storms, resulting landslides, and shifts of saturated soils, caused multiple breaks on key raw water transmission pipelines, which had a significant adverse effect on the department's ability to produce treated water; the storms also made the San Lorenzo River too turbid to treat. Record flows on the San Lorenzo River during the February 7th storm inundated the department's key Coast Pump Station facility, which effectively shut down all flows from the North Coast Sources, the San Lorenzo River, and the Tait Wells, to the Graham Hill Water Treatment Plant. Pump and electrical repairs at the Coast Pump Station were completed within three days, allowing the facility to return to service in record time. The department spent more than $1 million in immediate emergency repair of facilities damaged by the multiple storms of the winter of 2017 with additional mitigation repairs under review.

Watershed Management

Protecting and managing our watersheds is an important responsibility of the department. Water rights and regulatory compliance issues and managing and protecting the diverse ecosystem, as well as providing recreation services and managing Loch Lomand Reservoir are all part of this role. Some achievements in these areas are below.

Continued work toward the completion of three Habitat Conservation Plans (HCP) for threatened and endangered species that are or could be affected by the operation of the water system, including reaching an interim instream flow agreement for the protection and restoration of coho salmon and steelhead trout with the California Department of Fish and Wildlife.

Identified resolution alternative for long-standing Laguna watershed lands encroachment issue.

Initiated Watershed Sanitary Survey update in partnership with the Engineering section.

Completed ADA improvements to Loch Lomond recreation area including a compliant restroom, parking spots, walkways, a picnic area, and a deck overlooking the reservoir.

Provided support to operational regulatory compliance by implementing the Drinking Water National Pollutant Discharge Elimination System (NPDES) permit tracking and reporting system.

Completed updates to the Environmental Compliance Standard Operating Procedure manual, map application development, and training for operating staff.

The utility's largest raw water source is the San Lorenzo River (SLR) and preserving and managing this resource was the focus of many accomplishments in FY2017. The Department partnered with the City Manager's Office and Public Works to align City-related SLR issues and projects. The department supported a permanent solution to the SLR lagoon water level control dilemma by helping to secure grant funding from the Wildlife Conservation Board to install large woody debris and navigate water rights issues on behalf of the project. Lastly, we partnered with other stakeholders on SLR 2025 to develop and fund restoration projects on the river.

Water Quality & Treatment

The Water Department's core is goal to ensure public heath 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 2017 are included below.

Completed 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 or of better quality than required by state and federal regulation.

Added Dissolved Organic Carbon and UV254 analyses to the list of approved analytical methods as recognized by the State of Water Resources Control Board's Environmental Laboratory Accreditation Program.

Expanded the profile of organics and microbial organisms in source waters to characterize winter water flows for the planning of future treatment needs.

Supported the Department's ongoing outreach to customers concerned about Lead and Copper in their home.

Performed the required testing as directed by the Aquatic Pesticide Application Permit following the application of four algae treatments at Loch Lomond Reservoir.

Continued the two-year monitoring project required under the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) to evaluate source waters for the presence of two key microbial pathogens, Cryptosporidium and Giardia.

Supported a variety of emergency and planned infrastructure repair projects by collecting and processing water quality samples to ensure proper disinfection to avoid bacterial contamination prior to being returned to service.

Compiled Trihalomethanes (THM) data to better inform analytical work exploring the formation and control of disinfection by products in our distribution system.

Collected first flush samples of the San Lorenzo River as part of the new Source Water Assessment/Winter Water Monitoring program.

Completed quarterly water quality sampling and a analysis of monitoring wells in the Live Oak area to determine the presence of saltwater intrusion in the groundwater basin.

Customer Services

The department provides billing and customer services on behalf of the City's three utilities: water, refuse, and sewer. With rate increases beginning on July 1, 2016 for all three utilities, followed by a change in the structure of water rates on October 1, 2016, the Customer Service work load grew considerably, as staff worked with customers to understand the changes. On the Water side, the new rates ushered in a new rate structure with a focus on sending a conservation price signal to customers by placing more emphasis on the volume portion of the bill rather than the fixed service fees. To improve transparency for customers, the portion of the water bill that supports the rehabilitation and replacement of water system facilities was pulled out as a separate fee called the infrastructure reinvestment fee. The goal is to help people better understand the portion of their water bill being invested into replacing aging infrastructure. All dedicated irrigation accounts were moved to water based budgets and the large landscape water budget program was expanded. Workshops were provided to irrigation customers to help navigate the change. Conservation rebates for turf removal and high efficiency clothes washers were increased.

Work to improve the meter reading process was a greater focus of attention in FY 2017. A number of analyses were completed to better understand the existing system and prepare for a future migration to new meter reading technology. A Water Loss Audit was completed in FY2017, and while the Water Loss Audit found relatively little loss in the water system, enhanced meter testing was recommended to improve overall confidence in our vast system of meters and provide consistently accurate meter reads.

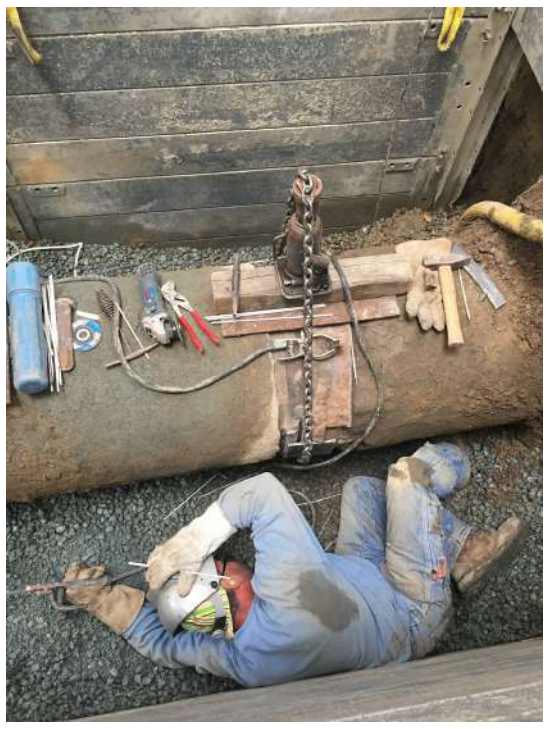
Engineering, Planning for Infrastructure Improvements & Supplemental Water Supply

An expanding capital program has created significant new workload for the department's Engineering group. The size, scale, and complexity of the projects in the department's Capital Improvement Program are much different than they have been historically, and this fact contributes to the challenges the staff face in implementing them. Still, great progress on several key projects and studies has been made during FY2017 as listed below.

Made significant progress on the Newell Creek Dam Inlet/Outlet Pipeline. Completed 10 percent design documents for the replacement of the pipeline and outlet structure.

Initiated improvements to the Graham Hill Water Treatment Plan sedimentation basins with the preparation of draft design documents for the replacement of the tube settlers, troughs, and the sludge collection system in each sedimentation basin.

Made significant progress on a Recycled Water Facilities Planning Study including determining a short-list of alternatives, conducting four webinars to present alternative information and obtain stakeholder input, and outreach efforts by means of presenting at a televised Water Commission Meeting.



Made significant progress on the Feasibility Investigation (Phase 1) of the Aquifer Storage and Recovery project. Work completed included preparing and finalizing Technical Memos that: identified existing wells as potential candidates for Phase 2 pilot testing; provided anticipated injection rates of the identified pilot test wells; evaluated the potential for adverse geochemical interactions due to mixing of injected surface waters and groundwater; and determined the rates of injection and extraction into the basins that are to be simulated in the groundwater models.

Distribution

The Water Department utilized a combination of contractor and distribution staff to complete or make substantial progress on a number of significant infrastructure improvements projects during FY2017 including:

- Completed design and contract documents for the installation of 3,710 linear feet of water main on River and Potrero Streets.
- Completed the emergency replacement of 1,400 feet of 14-inch raw water main on the Liddell Pipeline.
- Completed emergency repairs of the 12-inch 1926 cast iron water main that serves Potrero Street.
- Completed emergency repairs of the 10-inch asbestos concrete water main that serves Laurel Street.
- Completed emergency repairs of the 6-inch cast iron water main on Highway 9 that serves Paradise Park living community.

Production & 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 diverse set of systems and facilities that range from sources of supply to pump stations, to treatment facilities, and distribution storage tanks.

- Completed cleaning the GHWTP Sludge Tank which included dewatering and removal of 200,000 pounds of waste sludge.
- Replaced the Pasatiempo to Carbonera pressure reducing valve and identified four critical pressure regulating stations that need to be replaced.
- Replaced the Sodium Hypochlorite (bleach) tank at the GHWTP.
- Installed a new booster pump at the Delaveaga Pump Station which will assist the Treatment Plant Operators in more effectively managing water age in the Delaveaga Tanks thereby helping to lower Trihalomethanes (THMs) in the distribution system.

- Completed cleaning the water storage tanks at Loch Lomond which are part of the park's water distribution system.
- Replaced a faulty breaker on the main PG&E power in support of the Tait Well replacement project.

State & Regional Partnerships

To successfully solve water supply issues and as a recommended by WSAC, the department is pursuing a number of partnerships with neighboring water districts. Continued effective working relationships with the various regulatory and state agencies are also required.

Executed a Cooperative Water Transfer Agreement with Soquel Creek Water District which is a pilot project to explore the potential for providing treated water to the district during the winter to allow the wells to rest, and improve the condition of the groundwater basin that is currently the sole source water supply.

Developed a draft Memorandum of Agreement with Scotts Valley and San Lorenzo Valley Water Districts to explore opportunities for conjunctive use of surface and groundwater resources.

Actively engaged in implementation of the 2014 Sustainable Groundwater Management Act in Santa Cruz Mid-County Groundwater Basin by providing Groundwater Sustainability Agency board members and technical and executive level staff support to the new agency's efforts that will result in development of a Groundwater Sustainability Plan by 2020.

Participated in environmental review of projects which could pose impacts to our water source watersheds including the County's proposed commercial cannabis cultivation ordinance.

Updated the Urban Water Management Plan.

FY 2018 GOALS

In FY 2018, the Department will continue to focus on project implementation, with key initiatives being reinvestment in the water system’s backbone infrastructure and funding to support the capital investments required to develop water supply security. A second focus is organizational performance and the selection and implementation of tools and approaches which will help us efficiently and effectively meet the challenges ahead. A third focus will be on continued succession planning, particularly related to some of the department’s operational staffing requirements for employees working in maintenance of electrical, mechanical, instrumentation systems, and in the treatment and distribution of drinking water. The department will make progress on a range of strategies for workforce development initiatives with other City departments as well as with other regional utilities.

Additional Goals for FY 2018

Continuing 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.

Secure grant and low-interest funding to support implementation of the Capital Improvement Program.

Complete the department's Strategic Planning Process.

Conduct a public opinion poll to establish a baseline of the community's awareness of the water supply gap and the WSAC recommendations.

Continue to implement the WSAC recommended work plan by:

- Continuing to work collaboratively with Soquel Creek Water district on water quality studies needed to assess the feasibility of in-lieu recharge.
- Completing Phase 1 of the Aquifer Storage and Recovery(ASR) feasibility assessment and initiate Phase 2 work, including pilot testing.
- Completing the preliminary alternatives analysis recycled water and seawater desalination as "back up" supply augmentation options.
- Continuing to develop additional source water quality data to support evaluations of the feasibility, required treatment and cost of using winter water as part of a long term water supply for the City.

Beginning the NEPA/CEQA process for the draft aquatic-species Habitat Conservation Plan/Section 2081 Permit with NOAA and California DFW.

Completing construction on several significant infrastructure rehabilitation and replacement projects including:

- Installing the landscaping and irrigation systems at the Bay Reservoir Tank site
- Replacing 3,710 linear feet of 100 year old cast iron water main with a new water main on River and Potrero Streets
- Initiating the replacement of the University Reservoir No. 5 including a new maintenance tank, main, and the construction of a new 2 million gallon storage tank.

Complete preliminary engineering, environmental review, and design for capital improvement projects including:

Replacing three 60-year-old concrete tanks at the Graham Hill Water Treatment Plant.

Designing and purchasing a replacement inflatable dam for the Felton Diversion Dam.

Continuing to work on Newell Creek Dam Inlet/Outlet Pipeline to replace the existing outlet under a timeline and project approval process overseen by DSOD.

Completing a condition assessment of the Newell Creek Pipeline from Loch Lomond to Graham Hill Water Treatment Plant to determine whether to rehabilitate or replace all or portions of the line.

Assessing Laguna and Majors diversions to determine if modifications will improve the efficiency and reduce environmental impacts.

Designing and preparing contract documents for the annual water main replacement to occur on Water Street.

Assessing options to make improvements to the Graham Hill Water Treatment Plant sedimentation basins.

Loch Lomond Reservoir Lake Management including development of a lake hydrodynamic model and feasibility design for rehabilitation or replacement of the existing aeration equipment to improve water quality and inform future management decisions.

Maintaining water service reliability and water quality by cleaning and inspecting all potable water storage reservoirs.

Launching the new Utility Maintenance Technician Trainee program at Graham Hill Water Treatment Plant.

DEPARTMENT SUMMARY

		Fiscal Year* 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended* Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY CHARACTER:						
Personnel Services		10,552,312	12,741,984	12,802,461	11,465,958	14,128,200
Services, Supplies, and Other Charges		11,404,679	12,616,410	13,468,377	12,396,488	14,663,254
Capital Outlay		280,224	965,000	1,018,050	1,018,050	175,000
Debt Service		786,326	1,111,938	1,361,938	1,321,433	1,694,301
Total Expenditures		23,023,541	27,435,332	28,650,826	26,201,929	30,660,755
EXPENDITURES BY ACTIVITY:						
Water Administration	7101	4,478,178	5,166,074	5,416,135	4,992,065	5,510,616
Water Engineering	7102	2,033,528	3,028,647	3,268,931	2,930,031	3,157,517
Water Customer Services	7103	1,379,905	1,480,547	1,520,443	1,455,295	1,803,922
Water Conservation	7104	803,045	1,032,724	1,078,548	763,300	1,233,608
Water Resources	7105	1,010,381	1,486,943	1,639,357	1,161,779	2,546,078
Water Production	7106	5,908,516	6,100,712	6,211,014	6,066,078	6,682,228
Water Quality	7107	955,162	1,021,798	1,082,379	911,889	1,207,518
Water Distribution	7108	3,832,777	5,108,627	5,108,627	4,736,030	4,744,134
Water Recreation	7109	1,131,212	1,150,497	1,169,217	1,078,103	1,186,858
Water Meter Shop	7113	221	746,825	791,125	768,129	893,037
Meter Shop	7118	608,549	-	-	17,797	938
Water Debt Service	7140	786,326	1,111,938	1,361,938	1,321,433	1,694,301
Drought Response 2014	7199	95,741	-	3,113	-	-
Subtotal Other Funds		23,023,541	27,435,332	28,650,826	26,201,929	30,660,755
Total Expenditures		23,023,541	27,435,332	28,650,826	26,201,929	30,660,755
RESOURCES BY FUND						
Water	711	26,844,383	53,294,778	53,294,778	53,728,229	41,340,450
Water System Development Fees Fund	715	518,350	330,000	330,000	655,000	825,000
Water - Emergency Reserve Fund	717	435,984	-	-	-	-
Total Resources		27,798,717	53,624,778	53,624,778	54,383,229	42,165,450
		FY 2016			**FY 2017**	**FY 2018**
TOTAL AUTHORIZED PERSONNEL:		102.25			106.50	111.50

*Sums may have discrepancies due to rounding

Activity Number: 7101
Fund(s): Water & Water System Development Fees (711 & 715)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Water Administration section coordinates and manages department business by focusing on the following operational areas: human resources, finances, public relations, safety, and regulatory compliance. Administration is responsible for maintaining a rate structure that reflects cost of service, funds the department's capital improvement program, and provides adequate reserves. This section also facilitates the communication and interaction with the Water Commission, City Council, City Manager's Office and regulatory agencies.

	Fiscal Year 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	1,242,604	1,408,213	1,408,213	1,144,362	1,398,271
Services, Supplies, and Other Charges	3,235,574	3,657,861	3,907,922	3,747,703	4,102,345
Capital Outlay	-	100,000	100,000	100,000	10,000
Total Expenditures	4,478,178	5,166,074	5,416,135	4,992,065	5,510,616

*Sums may have discrepancies due to rounding

Activity Number: 7102
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Water Engineering section provides engineering, planning, project design and construction management necessary for water facilities, as well as evaluation and installation of water saving technologies. The section keeps current with new technologies and water quality issues, remaining sensitive to mitigation of environmental impacts; reviews all requests for water services; maintains records of facilities, installations and maps; and oversees the Backflow Prevention Program.

	Fiscal Year 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	1,549,443	2,228,946	2,218,946	1,879,106	2,486,697
Services, Supplies, and Other Charges	415,005	734,701	971,935	972,875	670,820
Capital Outlay	69,080	65,000	78,050	78,050	-
Total Expenditures	2,033,528	3,028,647	3,268,931	2,930,031	3,157,517
ACTIVITY RESOURCES:					
Rents, & Misc Revenues	1,231	-	-	20,514	-
Total Resources	1,231	-	-	20,514	-

*Sums may have discrepancies due to rounding

Activity Number: 7103
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Customer Services section (Santa Cruz Municipal Utilities -SCMU) provides customer service for water, sewer, refuse, and recycling services to the residents and businesses of the City of Santa Cruz, and only water services to the unincorporated surrounding areas. This section manages utility accounts and billing, processes opening and closing of accounts; and provides service in response to requests from the customers.

	Fiscal Year 2016 Actuals	Fiscal Year 2017			Fiscal Year 2018 Request
		Adopted Budget	Amended Budget	Estimated Actual	
EXPENDITURES BY ACTIVITY:					
Personnel Services	910,416	1,022,433	1,062,329	981,006	1,277,009
Services, Supplies, and Other Charges	440,332	458,114	458,114	474,289	526,913
Capital Outlay	29,157	-	-	-	-
Total Expenditures	1,379,905	1,480,547	1,520,443	1,455,295	1,803,922
ACTIVITY RESOURCES:					
Charges for Services	691,062	725,615	725,615	725,615	761,896
Total Resources	691,062	725,615	725,615	725,615	761,896

*Sums may have discrepancies due to rounding

Activity Number: 7104
Fund(s): Water & Water System Development Fees (711 & 715)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Water Conservation section is responsible for promoting efficient water use and for implementing management practices that reduce customer demand for water, including public information and education activities, water budgets for large landscape customers, plumbing fixture replacement and appliance rebate programs, technical assistance, administration of landscape, and water waste regulations.

	Fiscal Year 2016 Actuals	Fiscal Year 2017			Fiscal Year 2018 Request
		Adopted Budget	Amended Budget	Estimated Actual	
EXPENDITURES BY ACTIVITY:					
Personnel Services	151,789	387,103	387,103	275,335	489,466
Services, Supplies, and Other Charges	651,256	645,621	691,445	487,965	744,142
Total Expenditures	803,045	1,032,724	1,078,548	763,300	1,233,608

ACTIVITY RESOURCES:

*Sums may have discrepancies due to rounding

Activity Number: 7105
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Water Resources Management section is responsible for the drinking water source protection, environmental regulatory compliance, and general natural resource management. The section coordinates environmental projects related to water rights, water supply, habitat conservation, and environmental resource protection.

	Fiscal Year 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	506,214	569,579	569,579	541,460	618,537
Services, Supplies, and Other Charges	504,166	917,364	1,069,778	620,319	1,927,541
Total Expenditures	1,010,381	1,486,943	1,639,357	1,161,779	2,546,078
ACTIVITY RESOURCES:					
Rents, & Misc Revenues	12,400	-	-	-	-
Total Resources	12,400	-	-	-	-

*Sums may have discrepancies due to rounding

Activity Number: 7106
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Water Production section is responsible for production, operation, and maintenance of water storage, diversion, collection, pumping, and treatment facilities from all sources throughout the system.

	Fiscal Year 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	2,300,259	2,610,428	2,610,428	2,451,694	2,867,078
Services, Supplies, and Other Charges	3,486,674	3,415,284	3,485,586	3,499,384	3,695,150
Capital Outlay	121,583	75,000	115,000	115,000	120,000
Total Expenditures	5,908,516	6,100,712	6,211,014	6,066,078	6,682,228
ACTIVITY RESOURCES:					
Rents, & Misc Revenues	44	-	-	-	-
Total Resources	44	-	-	-	-

*Sums may have discrepancies due to rounding

Activity Number: 7107
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Water Quality Control section performs all water quality testing, and oversees matters pertaining to water quality control to maintain compliance with State and Federal standards and for planning for future treatment needs.

	Fiscal Year 2016 Actuals	Fiscal Year 2017			Fiscal Year 2018 Request
		Adopted Budget	Amended Budget	Estimated Actual	
EXPENDITURES BY ACTIVITY:					
Personnel Services	659,076	718,944	739,525	625,762	748,749
Services, Supplies, and Other Charges	268,490	267,854	307,854	251,127	413,769
Capital Outlay	27,595	35,000	35,000	35,000	45,000
Total Expenditures	955,162	1,021,798	1,082,379	911,889	1,207,518

*Sums may have discrepancies due to rounding

Activity Number: 7108
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Water Distribution section is responsible for the maintenance and operation of all transmission mains, distribution mains, service lines, and hydrants in the service area.

	Fiscal Year 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	2,198,180	2,598,943	2,598,943	2,398,071	2,901,536
Services, Supplies, and Other Charges	1,634,597	1,879,684	1,879,684	1,707,959	1,842,598
Capital Outlay	-	630,000	630,000	630,000	-
Total Expenditures	3,832,777	5,108,627	5,108,627	4,736,030	4,744,134

*Sums may have discrepancies due to rounding

Activity Number: 7109
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Water Recreation Facility section operates and maintains Loch Lomond Recreation Area. The section is also responsible for patrolling watershed property and protecting source water quality.

	Fiscal Year 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	650,665	790,205	790,205	760,736	832,982
Services, Supplies, and Other Charges	447,739	300,292	319,012	257,367	353,876
Capital Outlay	32,808	60,000	60,000	60,000	-
Total Expenditures	1,131,212	1,150,497	1,169,217	1,078,103	1,186,858
ACTIVITY RESOURCES:					
Licenses and Permits	2,843	600	600	1,900	1,425
Rents, & Misc Revenues	215,361	130,000	130,000	319,100	238,500
Total Resources	218,204	130,600	130,600	321,000	239,925

*Sums may have discrepancies due to rounding

Activity Number: 7113
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

Activity Description:

Effective as of Fiscal Year 2017, the Meter Shop will move from under the management of the Water Distribution section (division 97) to Water Customer Service (division 92). this move will also transfer the Meter Shop operating budget from division 97, activity 7118 to division 92, activity 7113. The Meter shop will continue to be responsibel for reading, inspectiving, installing, maintaining, and replacing water meters in the service area that covers the City of Santa Cruz and the unincorporated surrounding areas.

	Fiscal Year 2016 Actuals	Fiscal Year 2017			Fiscal Year 2018 Request
		Adopted Budget	Amended Budget	Estimated Actual	
EXPENDITURES BY ACTIVITY:					
Personnel Services	-	407,190	417,190	391,567	507,875
Services, Supplies, and Other Charges	221	339,635	373,935	376,562	385,162
Total Expenditures	221	746,825	791,125	768,129	893,037

*Sums may have discrepancies due to rounding

Activity Number: 7118
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

Activity Description:

The Meter Shop section is responsible for reading, inspecting, installing, maintaining, and replacing water meters in the service area that covers the City of Santa Cruz and the unincorporated surrounding areas.

	Fiscal Year 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	293,717	-	-	16,859	-
Services, Supplies, and Other Charges	314,832	-	-	938	938
Total Expenditures	608,549	-	-	17,797	938

*Sums may have discrepancies due to rounding

Activity Number: 7140
Fund(s): Water & Water System Development Fees (711 & 715)
Department: Water

ACTIVITY SUMMARY

Activity Description:

Funds principal and interest payments on issued debt.

	Fiscal Year 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY ACTIVITY:					
Debt Service	786,326	1,111,938	1,361,938	1,321,433	1,694,301
Total Expenditures	786,326	1,111,938	1,361,938	1,321,433	1,694,301

*Sums may have discrepancies due to rounding

Activity Number: 7199
Fund(s): Water (711)
Department: Water

ACTIVITY SUMMARY

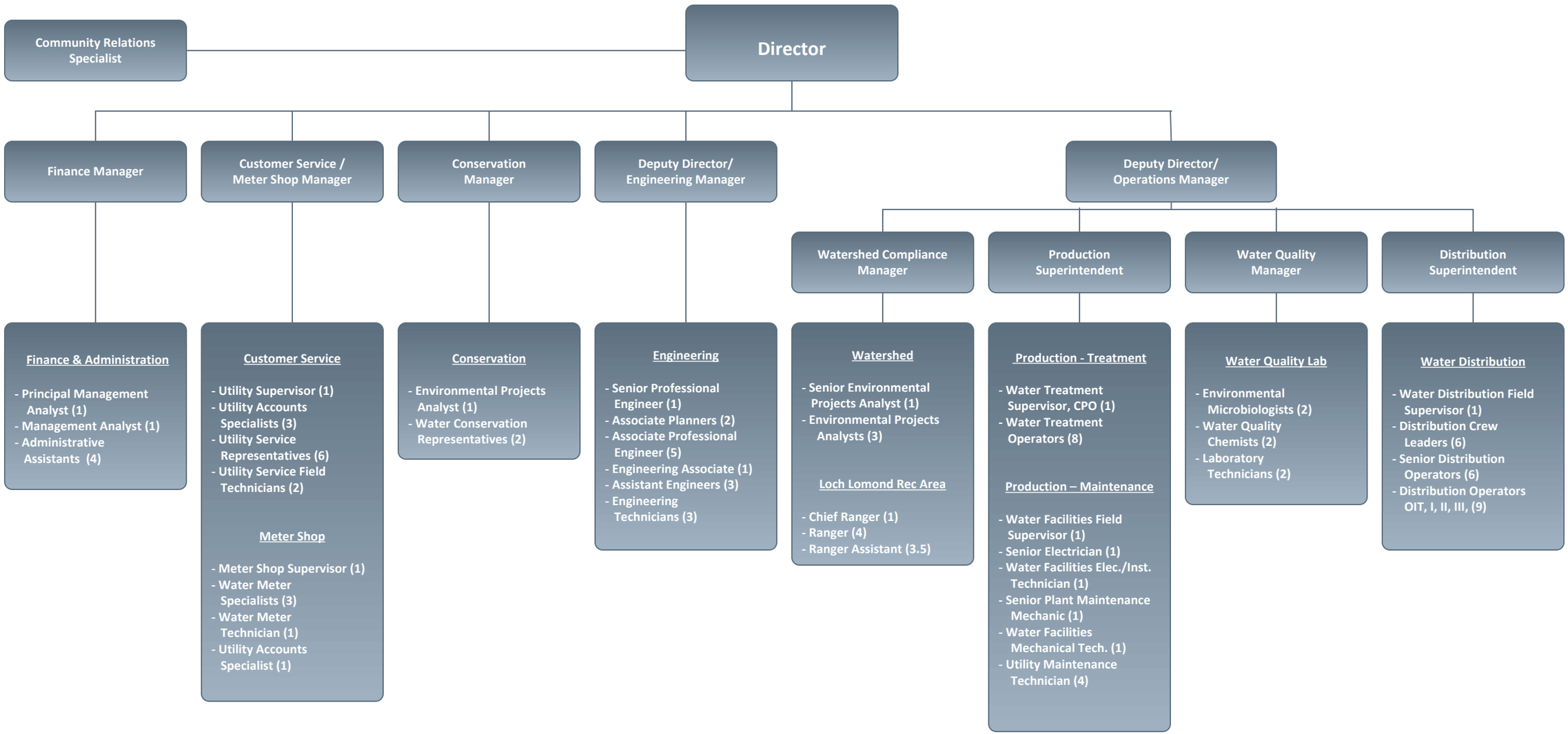
Activity Description:

This activity accounts for expenses and revenues beyond the department's base operating budget related to Stage 3 (or higher) Water Shortage Emergency incurred in calendar year 2014. Tracking of such expenses and revenues will begin with the Stage 3 Water Shortage Emergency declared by City Council on February 25, 2014 and continuing until such emergency is reduced to Stage 2 or lower.

	Fiscal Year 2016 Actuals	Fiscal Year 2017 Adopted Budget	Fiscal Year 2017 Amended Budget	Fiscal Year 2017 Estimated Actual	Fiscal Year 2018 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	89,948	-	-	-	-
Services, Supplies, and Other Charges	5,793	-	3,113	-	-
Total Expenditures	95,741	-	3,113	-	-
ACTIVITY RESOURCES:					
Fines and Forfeitures	27,408	-	-	-	-
Total Resources	27,408	-	-	-	-

*Sums may have discrepancies due to rounding

Water Department

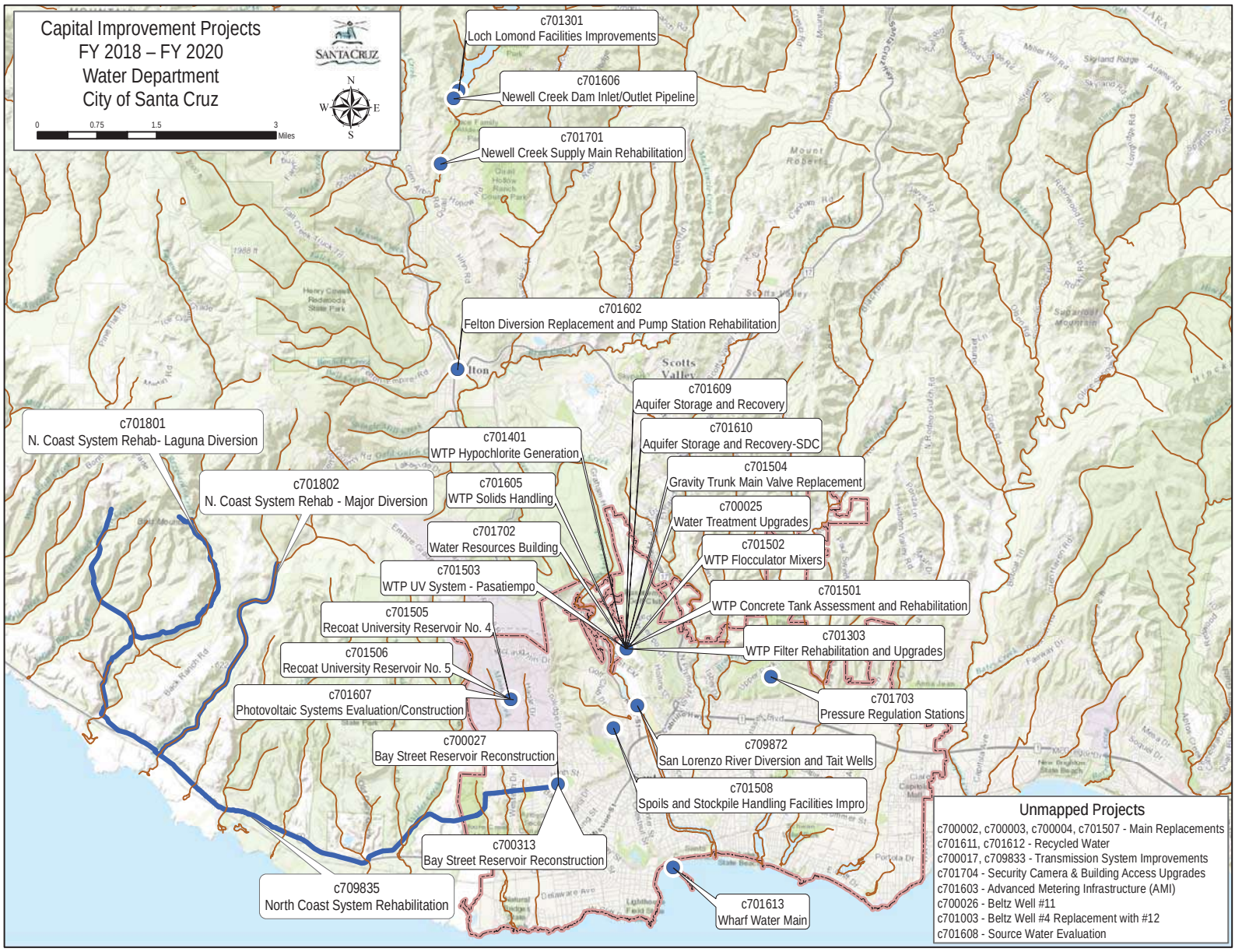


Water Department

Capital Improvement Projects

Cedar Street Main Replacement

North Coast System Rehab


Capital Improvement Projects
FY 2018 – FY 2020
Water Department
City of Santa Cruz
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Miles
c701301
Loch Lomond Facilities Improvements
c701606
Newell Creek Dam Inlet/Outlet Pipeline
c701701
Newell Creek Supply Main Rehabilitation
c701602
Felton Diversion Replacement and Pump Station Rehabilitation
c701609
Aquifer Storage and Recovery
c701610
Aquifer Storage and Recovery-SDC
c701504
Gravity Trunk Main Valve Replacement
c700025
Water Treatment Upgrades
c701502
WTP Flocculator Mixers
c701501
WTP Concrete Tank Assessment and Rehabilitation
c701303
WTP Filter Rehabilitation and Upgrades
c701703
Pressure Regulation Stations
c709872
San Lorenzo River Diversion and Tait Wells
c701508
Spoils and Stockpile Handling Facilities Impro
c701613
Wharf Water Main
c701801
N. Coast System Rehab- Laguna Diversion
c701802
N. Coast System Rehab - Major Diversion
c701401
WTP Hypochlorite Generation
c701605
WTP Solids Handling
c701702
Water Resources Building
c701503
WTP UV System - Pasatiempo
c701505
Recoat University Reservoir No. 4
c701506
Recoat University Reservoir No. 5
c701607
Photovoltaic Systems Evaluation/Construction
c700027
Bay Street Reservoir Reconstruction
c700313
Bay Street Reservoir Reconstruction
c709835
North Coast System Rehabilitation
Unmapped Projects
c700002, c700003, c700004, c701507 - Main Replacements
c701611, c701612 - Recycled Water
c700017, c709833 - Transmission System Improvements
c701704 - Security Camera & Building Access Upgrades
c701603 - Advanced Metering Infrastructure (AMI)
c700026 - Beltz Well #11
c701003 - Beltz Well #4 Replacement with #12
c701608 - Source Water Evaluation

Water (NEW)

711- Water & Water System Development Enterprise Fund

N. Coast System Rehab - Majors Diversion

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701802								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	-	-	-	250,000	500,000	1,000,000	1,750,000
Net Project Cost Estimates:	-	-	-	-	250,000	500,000	1,000,000	1,750,000

N. Coast System Rehab- Laguna Diversion

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701801								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	-	-	-	250,000	500,000	1,000,000	1,750,000
Net Project Cost Estimates:	-	-	-	-	250,000	500,000	1,000,000	1,750,000

New Capital Projects for Water & Water System Development Enterprise Fund (711 & 715) Totals

		Fiscal Year 2017						
	Prior Year Totals	Budget	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Total Project Cost Estimate:	-	-	-	-	500,000	1,000,000	2,000,000	3,500,000
Total Project Funding Estimate:	-	-	-	-	-	-	-	-
Total Net Project Cost Estimate:	-	-	-	-	500,000	1,000,000	2,000,000	3,500,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

Advanced Metering infrastructure (AMI)

Project Description:

Evaluate the use of AMI as replacement to the current AMR metering (Automatic Meter Reading). 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. Implementation to occur in future years.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701603								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	50,000	5,600	50,000	-	-	-	-
Net Project Cost Estimates:	-	50,000	5,600	50,000	-	-	-	-

Aerators at Loch Lomond

Project Description:

Condition assessment followed by rehabilitation or replacement of the aerators for Loch Lomond Reservoir.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701706								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	350,000	-	350,000	-	-	-	-
Net Project Cost Estimates:	-	350,000	-	350,000	-	-	-	-

Aquifer Storage and Recovery

Project Description:

Evaluate the feasibility of Aquifer Storage and Recovery as per the recommendations of the Water Supply Advisory Committee. Funds in FY 2016 and 2017 will be used for Phase 1 of the proposed study. Phase 2 will include pilot work and be funded in FY 2018. Project would potentially provide additional potable water to City and other agency customers, addressing part or all of water supply deficiencies.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701609								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	17,570	356,930	304,639	356,930	1,715,000	175,000	-	1,890,000
Net Project Cost Estimates:	17,570	356,930	304,639	356,930	1,715,000	175,000	-	1,890,000
Project # c701610								**Account # 715-70-91-7153-57302**
Project Cost Estimate:	7,530	152,970	130,560	152,970	735,000	75,000	-	810,000
Net Project Cost Estimates:	7,530	152,970	130,560	152,970	735,000	75,000	-	810,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

Bay Street Reservoir Reconstruction

Project Description:

The Bay Street Reservoir reached the end of its useful life and was replaced with two 6 MG tanks. Construction of Tank 1 was completed in FY 2014; construction of Tank 2 was completed in FY 2016. Final project elements include site clean-up, security, and landscaping. A portion of the project is funded by System Development Charges (20% SDC-Fund 715).

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c700313								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	19,442,010	1,058,666	54,495	1,058,666	200,000	-	-	200,000
Net Project Cost Estimates:	19,442,010	1,058,666	54,495	1,058,666	200,000	-	-	200,000
Project # c700027								**Account # 715-70-91-7153-57302**
Project Cost Estimate:	4,934,451	349,045	13,714	349,045	-	-	-	-
Net Project Cost Estimates:	4,934,451	349,045	13,714	349,045	-	-	-	-

Beltz 10 and 11 Rehab & Development

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c700026								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	64,243	145,000	-	145,000	300,000	-	-	300,000
Net Project Cost Estimates:	64,243	145,000	-	145,000	300,000	-	-	300,000

Coast Pump Station Line Repairs

Project Description:

Condition assessment followed by rehabilitation or replacement of the Coast Pump Station discharge pipeline.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701707								**Account # 711-70-91-7151-57302**
Project Cost Estimate:	-	50,000	-	50,000	500,000	-	-	500,000
Net Project Cost Estimates:	-	50,000	-	50,000	500,000	-	-	500,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

Felton Diversion Replacement and Pump Station Rehabilitation

Project Description:

This project consists of evaluation of the existing dam and pump station with recommendations to rehabilitate or replace existing facilities. Alternate diversions to be considered will include horizontal collector wells (e.g., Ranney Collector) and other subsurface intake(s). This project will replace aging facilities and evaluate potentially more efficient ways to divert water from the San Lorenzo River at Felton. Additional funding for construction in FY2019.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701602								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	73,636	226,364	18,400	226,364	400,000	500,000	-	900,000
Net Project Cost Estimates:	73,636	226,364	18,400	226,364	400,000	500,000	-	900,000

Loch Lomond Facilities Improvements

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 over the next 5 years.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701301								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	49,676	235,324	24,700	235,324	100,000	-	-	100,000
Net Project Cost Estimates:	49,676	235,324	24,700	235,324	100,000	-	-	100,000

Main Replacements- Distribution Section

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

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701507								**Account # 711-70-97-7151-57302**
Project Cost Estimate:	468,136	481,864	604,219	481,864	325,000	325,000	325,000	975,000
Net Project Cost Estimates:	468,136	481,864	604,219	481,864	325,000	325,000	325,000	975,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

Main Replacements- Eng Section- Transmission

Project Description:

Project was originally established for water main replacement for pipes 10" or larger. Beginning FY2018, such projects will be budgeted in project c700002, Main Replacements - Engineering Section, and project c700017, Water Transmission System Improvements.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c709833								**Account # 711-70-91-7151-57302**
Project Cost Estimate:	2,348,760	736,677	17,685	736,677	-	-	-	-
Net Project Cost Estimates:	2,348,760	736,677	17,685	736,677	-	-	-	-

Main Replacements- Engineering Section

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c700002								**Account # 711-70-91-7151-57302**
Project Cost Estimate:	3,182,963	1,140,164	1,078,832	1,140,164	4,050,000	2,250,000	2,250,000	8,550,000
Net Project Cost Estimates:	3,182,963	1,140,164	1,078,832	1,140,164	4,050,000	2,250,000	2,250,000	8,550,000

Newell Creek Dam Inlet/Outlet Pipeline

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 issues.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701606								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	300,951	1,589,793	885,564	1,589,793	2,975,000	475,000	32,380,000	35,830,000
Net Project Cost Estimates:	300,951	1,589,793	885,564	1,589,793	2,975,000	475,000	32,380,000	35,830,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

Newell Creek Pipeline Rehab/Replacement

Project Description:

This pipeline was constructed in the 1960s and extends from the toe of the Newell Creek Dam and 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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701701								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	420,000	9,999	420,000	1,500,000	6,500,000	5,000,000	13,000,000
Net Project Cost Estimates:	-	420,000	9,999	420,000	1,500,000	6,500,000	5,000,000	13,000,000

North Coast System Rehabilitation

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 multiple projects over the next 15 to 20 years to evaluate, rehabilitate, and replace portions of the existing infrastructure to ensure continued reliability. Engineering, environmental review, and permitting for the coast segment (Phase 3) began in FY 2013 and continues through FY 2017.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c709835								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	7,698,905	6,487,854	5,798,253	6,487,854	1,500,000	-	-	1,500,000
Net Project Cost Estimates:	7,698,905	6,487,854	5,798,253	6,487,854	1,500,000	-	-	1,500,000

Photovoltaic Systems Evaluations/Construction

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701607								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	910,000	826,318	910,000	-	-	-	-
Net Project Cost Estimates:	-	910,000	826,318	910,000	-	-	-	-

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

Pressure Regulating Stations

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 from 66 years old to 8 years old. This project will evaluate the condition of each PRS and prioritize rehabilitation or replacement.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701703								**Account # 711-70-92-7151-57302**
Project Cost Estimate:	-	310,000	11,929	310,000	60,000	60,000	60,000	180,000
Net Project Cost Estimates:	-	310,000	11,929	310,000	60,000	60,000	60,000	180,000

Recycled Water

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701611								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	36,234	366,266	337,480	366,266	-	-	-	-
Net Project Cost Estimates:	36,234	366,266	337,480	366,266	-	-	-	-
Project # c701612								**Account # 715-70-91-7153-57302**
Project Cost Estimate:	17,405	155,095	158,787	158,787	-	-	-	-
Net Project Cost Estimates:	17,405	155,095	158,787	158,787	-	-	-	-

Security Camera & Building Access Upgrades

Project Description:

Evaluation and implementation of security camera and building access upgrades at various Water 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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701704								**Account # 711-70-92-7151-57302**
Project Cost Estimate:	-	95,000	-	95,000	150,000	200,000	200,000	550,000
Net Project Cost Estimates:	-	95,000	-	95,000	150,000	200,000	200,000	550,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

Source Water Evaluation

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701608								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	33,079	566,921	242,390	566,921	250,000	250,000	-	500,000
Net Project Cost Estimates:	33,079	566,921	242,390	566,921	250,000	250,000	-	500,000

Spoils and Stockpile Handling Facilities Impro

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. (Project title modified from Bunker Roof Project.)

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701508								**Account # 711-70-97-7151-57302**
Project Cost Estimate:	51,000	344,900	205,768	344,900	-	-	-	-
Net Project Cost Estimates:	51,000	344,900	205,768	344,900	-	-	-	-

Tube Settler Replacement

Project Description:

Design and replacement of tube settlers and related appurtenances.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701708								**Account # 711-70-91-7152-57302**
Project Cost Estimate:	-	200,000	-	200,000	2,000,000	-	-	2,000,000
Net Project Cost Estimates:	-	200,000	-	200,000	2,000,000	-	-	2,000,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

University Tank No. 4 Rehab/Replace

Project Description:

Perform engineering analysis and condition assessment of the aging University 4 tank to ensure continued reliable service. Establish scope of work for recoating/rehabilitation project. Acquire construction easements from UCSC and perform environmental analysis to install temporary tank for use during construction. Create plans and specifications for recoating/rehabilitation project.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701505								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	270,000	-	270,000	100,000	3,550,000	-	3,650,000
Net Project Cost Estimates:	-	270,000	-	270,000	100,000	3,550,000	-	3,650,000

University Tank No. 5 Replacement

Project Description:

Perform engineering analysis and condition assessment of the aging University 5 tank to ensure continued reliable service. Establish scope of work for recoating/rehabilitation project. Create plans and specifications for recoating/rehabilitation project. Install temporary tank and variable speed pumps for use during construction. Construct recoating/rehabilitation project.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701506								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	91,747	386,253	239,300	389,253	3,500,000	-	-	3,500,000
Net Project Cost Estimates:	91,747	386,253	239,300	389,253	3,500,000	-	-	3,500,000

Water Main Replacements -Customer Initiated

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 undersized or inadequate mains. Funds, to the extent of the appropriation, are disbursed to customers on a first-come, first-served basis. This project is funded by System Development Charges (100% SDC – Fund 715).

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c700004								**Account # 715-70-91-7151-57302**
Project Cost Estimate:	301,259	50,000	-	50,000	50,000	50,000	50,000	150,000
Net Project Cost Estimates:	301,259	50,000	-	50,000	50,000	50,000	50,000	150,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

Water Main Replacements -Outside Agency

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c700003								**Account # 711-70-91-7151-57302**
Project Cost Estimate:	1,103,581	478,211	27,128	478,211	250,000	250,000	250,000	750,000
Net Project Cost Estimates:	1,103,581	478,211	27,128	478,211	250,000	250,000	250,000	750,000

Water Resources Building

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701702								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	1,100,000	206,585	1,100,000	-	-	-	-
Net Project Cost Estimates:	-	1,100,000	206,585	1,100,000	-	-	-	-

Water Supply Augmentation Strategy Implementation

Project Description:

This CIP replaces the Water Supply Advisory Committee (WSAC) 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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701705								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	78,352	6,096	78,352	300,000	-	1,200,000	1,500,000
Net Project Cost Estimates:	-	78,352	6,096	78,352	300,000	-	1,200,000	1,500,000

Water (EXISTING)

715- Water & Water System Development Enterprise Fund

Water Transmission System Improvements

Project Description:

To be used in combination with project c700002, Main Replacements - Engineering Section to provide partial funding for water main replacements for pipes 10" or larger.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c700017								**Account # 715-70-91-7151-57302**
Project Cost Estimate:	509,361	184,169	-	184,169	-	-	-	-
Net Project Cost Estimates:	509,361	184,169	-	184,169	-	-	-	-

Water Treatment Plant Hypochlorite Generation

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 consider the replacement of the existing chlorine gas system with a new hypochlorite generation system.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701401								**Account # 711-70-91-7152-57302**
Project Cost Estimate:	43,834	31,166	18,787	31,166	-	-	-	-
Net Project Cost Estimates:	43,834	31,166	18,787	31,166	-	-	-	-

Water Treatment Upgrades

Project Description:

Upgrades to the Graham Hill Water Treatment Plant 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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c700025								**Account # 711-70-91-7152-57302**
Project Cost Estimate:	313,986	126,561	67,014	126,561	300,000	-	-	300,000
Net Project Cost Estimates:	313,986	126,561	67,014	126,561	300,000	-	-	300,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

WTP Concrete Tanks Replace.- Solids

Project Description:

As of FY2018, replacement of the disposal tank for solids produced at the Graham Hill Water Treatment is included in project c701501, WTP Concrete Tanks Replacement.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701605								**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	225,000	-	225,000	-	-	-	-
Net Project Cost Estimates:	-	225,000	-	225,000	-	-	-	-

WTP Concrete Tanks Replace.- UV System

Project Description:

As of FY2018, ultra violet disinfection is now included in project c701501, WTP Concrete Tanks Replacement.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701503								**Account # 711-70-91-7152-57302**
Project Cost Estimate:	-	40,000	-	40,000	-	-	-	-
Net Project Cost Estimates:	-	40,000	-	40,000	-	-	-	-

WTP Concrete Tanks Replacement

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.

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701501								**Account # 711-70-91-7152-57302**
Project Cost Estimate:	201,732	761,588	719,913	761,588	1,900,000	7,700,000	-	9,600,000
Net Project Cost Estimates:	201,732	761,588	719,913	761,588	1,900,000	7,700,000	-	9,600,000

Water (EXISTING)

711- Water & Water System Development Enterprise Fund

WTP Flocculator Improvements

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. Project includes seismic evaluation as well as consideration for covering all basins (project c701601).

		Fiscal Year 2017						
	Prior Year	Budgeted	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Project # c701502								**Account # 711-70-91-7152-57302**
Project Cost Estimate:	-	60,000	-	60,000	-	2,300,000	-	2,300,000
Net Project Cost Estimates:	-	60,000	-	60,000	-	2,300,000	-	2,300,000

Existing Capital Projects for Water & Water System Development Enterprise Fund (711 & 715) Totals

		Fiscal Year 2017						
	Prior Year Totals	Budget	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Total Project Cost Estimate:	41,292,049	20,570,133	12,014,155	20,576,825	23,160,000	24,660,000	41,715,000	89,535,000
Total Project Funding Estimate:	-	-	-	-	-	-	-	-
Total Net Project Cost Estimate:	41,292,049	20,570,133	12,014,155	20,576,825	23,160,000	24,660,000	41,715,000	89,535,000

Water Totals for Water & Water System Development Enterprise Fund (711 & 715)

		Fiscal Year 2017						
	Prior Year Totals	Budget	Year-to-date Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Total Project Cost Estimate:	41,292,049	20,570,133	12,014,155	20,576,825	23,660,000	25,660,000	43,715,000	93,035,000
Total Project Funding Estimate:	-	-	-	-	-	-	-	-
Total Net Project Cost Estimate:	41,292,049	20,570,133	12,014,155	20,576,825	23,660,000	25,660,000	43,715,000	93,035,000

Water Totals

		Fiscal Year 2017						
	Prior Year Totals	Budget	Encumb. + Actuals	Estimated Actuals	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate	Total 2018 - 2020
Total Project Cost Estimate:	41,292,049	20,570,133	12,014,155	20,576,825	23,660,000	25,660,000	43,715,000	93,035,000
Total Project Funding Estimate:	-	-	-	-	-	-	-	-
Total Net Project Cost Estimate:	41,292,049	20,570,133	12,014,155	20,576,825	23,660,000	25,660,000	43,715,000	93,035,000

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WATER COMMISSION
INFORMATION REPORT

DATE: 5/26/17

AGENDA OF June 5, 2017

TO: Water Commission

FROM: Heidi Luckenbach, Deputy Director/Engineering Manager

SUBJECT: Water Supply Augmentation Strategy, Quarterly Work Plan Update

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RECOMMENDATION: That the Water Commission receive information regarding the status of the various components of the Water Supply Augmentation Strategy and provide feedback.

BACKGROUND: As per the Final Agreements and Recommendations of the Water Supply Advisory Committee (WSAC), the Water Commission shall receive quarterly updates on the status of the various elements of the recommended plan. This is the sixth quarterly update. Elements of the Water Supply Augmentation Strategy (WSAS) include In Lieu water transfers with neighboring agencies, Aquifer Storage and Recovery, Recycled Water, and Seawater Desalination. Demand management, via implementation of the Long Term Water Conservation Master Plan, is foundational to the WSAS. The following report provides an update on the various efforts recommended by the Water Supply Advisory Committee (WSAC), accepted by the City Council in late 2015 and recently incorporated into the approved 2015 Urban Water Management Plan as directed by the Council.

DISCUSSION: Progress and status of the various WSAS-related work is described in detail below as well as that of other projects related to but not specifically articulated in the WSAS.

Demand Management

With the implementation of new water rates complete, the Water Conservation section turned its attention to Advanced Metering Infrastructure (also known as AMI – No. 2 of 35 measures in the Water Conservation Plan). As reported in December 2016, the Water Department last year formed an internal work group to address reliability issues with the existing, mostly radio-read system and to decide on how to move forward with metering technology. Conservation staff, working with Customer Service and the meter shop, recently prepared a detailed work plan for expanding a small pilot program using Badger cellular technology and rolling it out to large irrigation accounts, City parks, and school sites this summer. In total, 359 accounts will be retrofitted with Beacon "endpoints" that transmit hourly meter reads. Many of these accounts will also be refitted with new meters. Overall, the pilot project will teach staff about the use and benefits of AMI, with particular attention being paid to AMI's ability to provide reliable and

accurate meter reads for billing purposes. The irrigation accounts were selected due to their relative high seasonal use, large utility bills, and the strong desire voiced by this customer group to get real-time information about their usage and any potential leaks before bills are generated. A summary of this work plan is attached.

Staff continues to promote and facilitate professional water audits through the Large Landscape Water Budget program (No 25 of 35 measures). Six City parks were recently surveyed – Mission Plaza, Harvey West, Derby, DeLaveaga, Garfield, and San Lorenzo – and provided field survey reports and recommendations. Staff will be meeting with Parks staff to discuss the findings. In May, the Water Department and Soquel Creek Water District jointly sponsored an irrigation workshop for property managers, HOA board members, and landscapers, who shared their successes and challenges with keeping their landscapes healthy while saving water. A copy of the 2016 annual report for this program is attached. We will be working with Waterfluence to incorporate AMI data from the above pilot program available to participating accounts.

In addition to the workshop mentioned above, Conservation staff continues to conduct and support various public outreach and education activities around the community.

Finally, with the announcement by Chancellor Blumenthal in April of the process for preparing the 2020 Long Range Development Plan getting underway, staff prepared an information report for the City Council on various topics related to University water use. (Included in the agenda packet under City Council Items Affecting Water.)

In Lieu Water Transfers

The Water Department, in coordination with the Soquel Creek Water District and the Scotts Valley Water District, has issued a Request for Qualifications (RFQ) for the development and implementation of a pipe loop study for the purpose of evaluating the compatibility of the City's surface water with distribution system pipes from neighboring groundwater systems and to provide recommendations to mitigate the potential for corrosion or other adverse water quality changes resulting from water transfers. As stated in the RFQ, the scope of work may include the following tasks.

- Identify and select site to conduct pipe loop study
- Define and confirm study testing objectives which may include:
    - Potential for release of accumulated metals in mains, service lines, and valves
    - Corrosion potential for AC mains
    - Corrosion potential for galvanized mains, service lines, and customer piping
    - Potential for release of lead and copper
    - Impacts of seasonal cycling between groundwater and surface water
- Evaluate the need for and recommend necessary corrosion control strategies such as:
    - Conditioning requirements at point of delivery of surface water
    - Strategies to prime or prepare groundwater system distribution piping
- Estimate capital and operating expense to implement potential corrosion control systems
- Prepare a written report of findings and recommendations which will be provided to the City, as well as to the Soquel Creek Water District (SqCWD) and the Scotts Valley

Water District (SVWD), who are interested and vested parties in the outcome of these investigations.

Statements of Qualifications are due June 2, 2017.

Aquifer Storage and Recovery (ASR) – Phase I Work

Status

- Consultant: Pueblo Water Resources
- Contract Signed: February 2016
- Project Partners: NA
- Engaged Stakeholders: SqCWD, County of Santa Cruz, Scotts Valley Water District
- Amount Spent: $166,944
- Amount Remaining: $657,040
- Contract Amendment No. 1: $377,615
- Status: On schedule.

Key meetings (Meetings of note in the reporting quarter include the following.)

- March and April 2017: Series of meetings with Pueblo Water Resources to discuss and finalize groundwater modeling scope of work, modeling scenarios and model runs.
- May 1: Water Commission received a status update on Winter Water Projects, including ASR.

Pueblo is currently under contract for Phase 1 of a potentially three phase evaluation process.

- Phase 1 – Paper study/modeling/siting study
- Phase 2 – Pilot study
- Phase 3 – Full Scale Implementation

Task 1.1 Existing Well Screening
The City and Pueblo continue to evaluate the piloting of wells identified in the existing well screening memo. As previously mentioned, the final selection of ASR pilot test wells is an iterative process that will use information from other Phase 1 tasks.

Task 1.2 Site Specific Injection Capacity Analyses
Pueblo has submitted the final draft of this memo. The findings articulated in this memo confirm that the initial planning-level well injection capacity rates of 350 gallons per minute (gpm) developed in the WSAC Recon-Study for the existing Purisima Aquifer wells are technically feasible; however, the injection rates for existing wells in the Santa Margarita Groundwater Basin are limited to approximately 200 gpm.

Task 1.3 Geochemical Interaction Analysis
Pueblo Water Resources has submitted draft findings of the analysis of samples collected between December 2016 and January 2017. Initial findings and results of the geochemical interaction analysis were presented by Pueblo to the Commission on May 1, 2017. Although no fatal flaws were identified in the initial findings, there were some discrepancies noted. Due to

the noted discrepancies between field and lab data, the second round of sampling is scheduled to take place in June 2017.

Task 1.5 Well Siting Study
Work on this task is ongoing. Pueblo has submitted a very rough list of potential well sites in the Santa Margarita Groundwater Basin. No additional information is available for potential well sites in the Purisima Aquifer.

Groundwater Modeling
A key component of the ASR study continues to be the completion and use of the groundwater models for the Purisima and the Santa Margarita groundwater basins. Staff has worked with Pueblo Water Resources and their sub-consultant, Hydrometrics WRI, on developing and finalizing the groundwater modeling scope of work. A Contract Amendment to include the groundwater modeling scope of work was approved by City Council on April 25, 2017. The final scope of work includes running up to 20 different model simulations per basin.

The groundwater model for the Santa Margarita Basin is complete and ready to be used by Hydromterics in Quarter 3 of 2017. The Purisima model continues to be developed by Hydrometrics. It is expected that the Purisima model will be calibrated and ready for use in Quarter 3 of 2017.

Issue(s)
No issues of note at this time.

Advanced Treated Recycled Water

Recycled Water Feasibility Planning Study Status

- Consultant: Kennedy/Jenks Consultants
- Contract Signed: February 2016
- Project Partners: Water and Public Works Departments, State Water Resources Control Board (SWRCB)
- Engaged Stakeholders: County of Santa Cruz – Water Resources Division, Santa Cruz County Sanitation District, Scotts Valley Water District, Soquel Creek Water District, University of California Santa Cruz
- Contract Amount: $587,308
- Funding: State of California $75,000*; City Public Works, $35,000; Water, remainder
- Amount Spent: $352,538
- Amount Remaining: $234,770
- Contract Amendment No. 1: $26,357
- Contract Amendment No. 2: $74,951
- Schedule: On schedule, Final Report in Winter 2017
- Report: Draft Sections 1-7 have been submitted for review. Section 8 Recommended Project and Section 9 Construction Financing Plan and Revenue Plan remain to be submitted.

*Pending award of State Water Resources Control Board grant

Key meetings; in addition to monthly project status meetings, meetings of note include the following.

- March 2017 Alternatives Webinar Part III focused on Ground Water Reuse Recharge (GWRR) in the Santa Cruz service area (Purisima Basin) through a Santa Cruz led GWRR project and participation in a SqCWD led GWRR project.
- April 2017 Alternatives Webinar Part IV focused on a regional GWRR project in the Santa Margarita Groundwater Basin for eventual extraction by the City and potential project partners Soquel Creek Water District and Scotts Valley Water District.
- Scheduled for June 2017, Scoring and Ranking of Multi-Criteria Decision Analysis Workshop, Kennedy/Jenks Consultants will meet in person with staff and stakeholders to review developed information and related scoring and ranking. The goal is to receive input on scoring and ranking, modify as needed, and discuss how to include and utilize this tool in the development of the recommended project (or portfolio of projects).

Status of Decision Nodes and Related Milestones (Table 6 WSAC Final Report on Agreements and Recommendations)

Milestone Node 3.1: In an effort to continue increasing staff understanding (regulatory framework, technical advances, funding opportunities, public outreach, and education) of recycled water the following events were attended. These events provide additional benefit beyond education through networking with agencies that have pursued recycled water projects that can provide insights on the lessons learned, operational considerations and other reflections gained through their experience.

- March 2017, WateReuse CA Conference, San Diego, CA
- May 2017, CA/NV AWWA WateReuse and Desalination Workshop, Fremont, CA
- May 2017, Pure Water Monterey Pilot Facility Tour, Marina, CA

Issue(s)
Staff is focusing on the development of the multi-criteria decision analysis and public acceptance of an Element 3 project. Multi-criteria decision analysis is a tool which takes into consideration many variables and compares them based on a scoring and ranking system. This tool takes a substantial amount of complex information and presents it succinctly in a table for easy comparison. The benefit of this tool is it allows for identification of projects that consistently meet predetermined goals and allows for the performance of a sensitivity analysis. The challenge with this type of tool is the results are easy to misinterpret unless the nuances of establishing criteria, scoring and weighting are clearly understood.

Professional engineering judgement is used for some subjective criteria such as operational complexity, ease of implementation and permitting requirements. Subjective criteria can be more difficult to score. In the case of public acceptance, for example, the challenge with scoring and weighting is very difficult because many opinions must be considered and even individual opinions can change depending on conditions; e.g., drought, relative cost, knowledge level, etc.

Although numerous public acceptance studies have been conducted for similar communities, understanding the local community is equally if not more important.

While the RWFPS conducts a multi-criteria decision analysis, it intentionally excludes the more subjective criteria having to do with public acceptance. The current approach is to explicitly state the paramount importance of public acceptance in multiple sections of the report including the Recommend Project(s), but not attempt to state what is and is not accepted by our community. Instead, staff is developing on the "Next Steps" work plan that will include a series of surveys and public engagement activities that shed more light on this specific issue while the RWFPS remains focused on criteria related to technical feasibility.

Desalinated Water

- Consultant: DUDEK
- Contract Signed: May 2017
- Project Partners: NA
- Engaged Stakeholders: None at this time
- Contract Amount: $139,669
- Amount Spent: $0
- Amount Remaining: $139,669
- Schedule: Project initiation has been delayed by approximately 1-month. The project timeline is 5-months; a 1-month delay will likely have no impact on meeting the timing requirements of Strategy 2 as described in the WSAC final report.

The recommendations of the Water Supply Advisory Committee included desalination as a backup supply. Some conditions have changed since the City decided to suspend its pursuit of the **scwd2** Regional Desalination Project in 2013, which may have an impact on the previous Draft Environmental Impact Report analysis and findings. For example, the Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) Addressing Desalination Facility Intakes, Brine Discharges, and the Incorporation of Other Non-Substantive Changes (Desalination Amendment) has been in effect since 2016. The Desalination Amendment sets forth a very specific approach, in addition to priorities related to technology and design, for the regional water quality control boards to analyze and ensure that all proposed new or expanded seawater desalination facilities utilize the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life, including plankton and larvae, as required by Water Code section 13142.5(b).

Other changed conditions include updated water demand and supply information, worst year gap information, and planning objectives from the WSAC Final Report, which may influence the size and/or viability of a potential desalination facility. This pending feasibility review will review these and other changed conditions, define a viable desalination project given changed conditions, and provide updated cost estimates, a high-level review of CEQA and NEPA compliance and permitting approaches, and an assessment of the timeliness of implementation of such a project.

The scope of work was provided to the Commission at their April meeting. The Commission requested that the evaluation of the intertie with Soquel Creek Water District be included in the study; this has been added.

A kick off meeting for this study is being scheduled.

Other (Source Water Monitoring, Newell Creek Pipeline, Felton Diversion, Etc.)
Source Water Monitoring: Trussell Tech will be presenting preliminary results of the 6-months of source water quality data collected through April 2017.

Felton Diversion: Nothing new to report.

Newell Creek Pipeline: Staff is in the process of developing a Request for Qualifications (RFQ) for professional services for Program Management. In the case of the Water Department, Program Management services will provide the breadth and depth of resources needed to complement existing City resources to manage the upcoming increase in capital project work. Such resources may include Administrative, Technical (design, water quality, permitting, etc), and Construction Management. Staff is currently considering several projects to fall under the Program Management scope including the Newell Creek Pipeline, the remainder of the North Coast Pipeline Replacement Project, and water treatment improvements. The RFQ is scheduled for release by the end of June.

Riverbank Filtration: Hydrometric's Water Resources Consultants Inc. (HMWRI) has been hired to do a literature review of hydrogeological information about the Felton area alluvial aquifer system and, based on those findings, develop future project objectives. Mike Cloud who works for HMWRI and conducted this work is a retired county geologist with a unique understanding of local geology.

Outreach and Communication
In addition to the monthly email newsletters, the Department held the following tours.

- The City's Wastewater Treatment Facility, in collaboration with Public Work's Staff, in support of World Water Day. The 2017 theme of this March 22 event was wastewater and the campaign, "Why waste water?" was about reducing and reusing wastewater. About 20 people were in attendance for a staff presentation and facility tour.
- The Graham Hill Water Treatment Plant, April 18.
- Beltz 12 well and treatment facility, May 17.

FISCAL IMPACT: None.

PROPOSED MOTION: That the Water Commission receive information regarding the status of the various components of the Water Supply Augmentation Strategy and provide feedback.

ATTACHMENTS: AMI Work Plan
2016 Waterfluence Annual Report

W A T E R D E P A R T M E N T
M E M O R A N D U M

DATE: May 31, 2017

TO: Water Commission

FROM: Benjamin Pink, Environmental Projects Analyst - Water Conservation

SUBJECT: Badger AMI Work Plan Summary

Summary Statement: Expand the current small pilot with Badger to a larger pilot in order to further evaluate the Badger cellular Advanced Metering Infrastructure (AMI) technology and its compatibility with current systems. The purpose of the AMI pilot project is to install a particular AMI technology on a small scale in order to learn and prepare for a full roll out. The AMI project was identified in the water conservation master plan as a high priority project, in terms of potential water savings and overall importance. The plan timeline indicated that the AMI project would not be implemented until 2021. However, this pilot project will evaluate whether the capital improvement budget line item for AMI can and should be accelerated.

Overview: The current small pilot with Badger meter cellular AMI is limited to 20 meters. This new pilot will expand the effort with 359 new endpoints. This number comes from the count of accounts at the following target groups:

1. Group 1 Irrigation meters associated with the sites enrolled in the Waterfluence Program: **201 total meters**
2. Group 2 Irrigation meters at "map only" sites (sites that we have mapped for water budget rates but not enrolled in Waterfluence): **127 total meters**
3. Group 3 Irrigation meters at City Parks sites: **26 total meters**
4. Group 4 Irrigation meters at Santa Cruz City Schools: **5 total meters**

The idea behind targeting these irrigation meter accounts is that utility bills for irrigation accounts are increasing more significantly than general residential bills; these customers can use all available tools to monitor their usage and potentially fix leaks and avoid high usage and bill spikes.

Goals and Objectives: The pilot will be used to evaluate the Badger AMI system in terms of the following areas:

- Cellular coverage throughout the service area
- Reliability and accuracy of reads obtained
- Ease of installation (endpoints, endpoint activation, etc.)

- IT integration with city customer and billing systems
- Ease of use of the utility side AMI software
- Ease of use of the customer portal software
- Overall effectiveness in terms of water savings and leak detection capabilities

Phases of installation work: The equipment installation for the pilot will be divided into Phase 1 and Phase 2. The reason for two phases is that some meters in the overall target group are older than 10 years and eligible for replacement. The meters that are 10 years old or more will be replaced. If a meter is less than 10 years old, only the endpoint will be changed. The breakout is that a total of 252 out of 359 will need replacing.

Phase 1, endpoint change only, will include 107 locations. Phase 2, endpoint change and meter change, will include 252 locations.

Due to the process being divided into Phase 1 and Phase 2, there will be two IT integration phases as well. After the endpoints in Phase 1 are installed, there will be an IT integration process -- Beacon Data Exchange--- that will just apply to the locations/endpoints in Phase 1. After the first IT integration is complete and it is clear that all reads are coming in correctly, we can proceed to Phase 2. Phase 2 IT integration will take place after the meters and endpoints for Phase 2 locations are installed.

Labor/staffing requirements: This is not a full detailed list of steps, but generally the pilot will have the following steps of work: 1) research & inventory of target customer sites and meter boxes, 2) procurement, 3) equipment installation, 4) data integration and 5) monitoring and evaluation. The meter shop will be primarily involved with steps 1, 2, & 3. The meter shop staff will be relied upon to perform the equipment installation for both Phase 1 and Phase 2 of work. However, Ben from Conservation will contribute significantly to the Phase 2 installation process by pairing meters and endpoints together in the office, activating and verifying endpoints in the office, and then later ensuring the endpoints are correctly provisioned through the file exchange process. These steps in the office should reduce the time required for the equipment installation, leaving the meter shop staff to only need to install the meter and endpoint in the field. In Phase 1 of work, meter shop staff will install endpoints spliced to existing meters. During this phase, endpoints will need to be activated in the field with a magnet after each splice installation is completed. During Phase 2 of work, Ben will have already activated the endpoint in the office so that when the meter and endpoint are installed together, the activation step can be skipped.

Training: John Wolfson from the Badger Meter Los Gatos office will provide a refresher training to the meter shop staff –if desired—to review steps of endpoint installation and activation.

Other equipment: Based on the results of the initial inventory of meter boxes, meter shop will place an order for new meter box lids. Customer service staff are performing an inventory of meter boxes using GIS and Google Maps in order to reduce the number of trips in the field

needed by the meter shop. Based on the results of the inventory, a trip to the field will only be required if the office staff are unable to determine the condition of the box or the type of lid. All equipment should be ordered and received, including lids, endpoints, and meters prior to the start of Phase 1 equipment installation.

Schedule: As of May 2017, the pilot project is in the planning and procurement phase of work. All necessary equipment has been identified and an order for new equipment necessary to complete the project has been prepared. New equipment including meters and endpoints is expected to arrive approximately the first or second week of July. Phase 1 equipment installation will commence shortly after receipt of the new equipment. Phase 1 installation may take several weeks. Phase 2 installation will begin once it has been determined that all the Phase 1 endpoints are functioning properly and IT integration has been completed successfully. Phase 2 installation may take several weeks. Following Phase 2 installation there will be another IT integration. Once all the installation work and the IT integration is completed and all endpoints are functioning properly, letters will be sent out to customers inviting them to go online to sign up for the customer web portal access. It is anticipated that the pilot will run for approximately one year in order to give time for evaluation of customer engagement.

Budget: Funds are available in the fiscal 2017 operating budget for the meter shop to complete the necessary purchases for this pilot project. The overall budget amount has been decreased significantly due to the fact that the meter shop already had a significant stock of new meters that can be used as part of the pilot avoiding the cost of purchasing new meters. The overall budget for the purchase of endpoints, new meters, meter box lids, and all services related to the pilot amounts to approximately $76,000.

Evaluation: It is anticipated that there will be both formal and informal evaluation. Informal evaluation will include such items as how easy was the installation process for the meter shop staff. There will be an evaluation of the IT integration process. More formal analysis and evaluation will be done on the water savings results and leak detection results. Also, there will be a formal evaluation of the customer engagement results. This may take the form of a formal customer survey. A third-party consultant may be hired to perform the customer survey and customer engagement evaluation.

City of Santa Cruz
Large Landscape Program
2016 Annual Report

April 19, 2017

Waterfluence LLC
PO Box 561 Menlo Park CA 94026
www.waterfluence.com
(800) 800-9519

Waterfluence

Summary

The City of Santa Cruz (City) in California contracts with Waterfluence to provide program services for improving irrigation efficiency at large commercial and public landscape sites. This report summarizes the program features, site characteristics, water savings, and customer engagement. It also dissects irrigation efficiency to identify areas for future improvement.

- **Site Characteristics**. The City enrolled 231 sites with 422 acres of irrigated landscape, averaging 1.8 acres per site. In 2016, the average depth of water applied over all landscape area was 1.1 feet totaling 478 acre feet.
- **Water Savings**. Comparing water use during the 12-months prior to joining the program to calendar year 2016, sites decreased overwatering by 61 percent or 0.18 feet. This totals 75 acre feet.
- **Customer Engagement**. 92 percent of sites actively viewed information online via the Waterfluence website. 83 percent of online contacts reported to be satisfied or very satisfied with the program.
- **Looking Forward.** Additional reductions in overwatering can still be made with commercial sites, sites with less than 1 acre of landscaping, sites planted predominately with shrubs, and sites not viewing their reports online. Overwatering by more than 1 foot occurred at 15 percent of sites in 2016. Eliminating 2016 overwatering over all sites would save an additional 49 acre feet.

Program Description

Waterfluence partners with urban water agencies to improve irrigation efficiency at large commercial and public landscape sites. Using our online platform, site stakeholders (e.g., bill payers, site managers, board members, landscapers) interact and improve irrigation efficiency with our:

- **Monitoring.** For each site, we calculate and compare actual water use to a budget benchmark based on site-specific characteristics and real-time weather. Our irrigation-centric metrics make it easy to monitor and refine irrigation performance. Information is updated monthly and stakeholders associated with multiple sites view a portfolio of all their sites across all agencies in the program.
- **Recommendations.** Internal algorithms analyze water use patterns and provide customized recommendations for improvements, leveraging City financial incentives as relevant. For targeted sites needing additional help, we also conduct on-site landscape field surveys where an irrigation expert provides in-depth diagnostics and recommendations to improve efficiency.
- **Encouragement.** Most importantly, we get people to act toward the non-controversial goal of improving irrigation efficiency via engagement tactics including peer comparisons, progression, teamwork, and published leaderboards.

The Waterfluence platform is currently used by landscape sites throughout California covering about 10 percent of its population.

Site Characteristics

In 2016 the City had 231 sites irrigating 422 acres of landscape in the program; most sites entered the program in 2010 and 2011, but 43 smaller sites joined April 2016. Although the average depth of water applied over all irrigated landscape in 2016 was 1.1 feet, application rates varied widely with site type and size, among other factors. Because of fundamental differences in how irrigation is managed, we segment sites into commercial and public categories. Commercial sites, such as HOAs and offices, account for 78 percent of sites and 36 percent of water use and are often managed by landscape contractors. Public customers, primarily parks, schools, and two golf courses, account for the rest and are often managed by in-house staff. Across all sites, 75 percent of irrigated area is planted in turf grass and the remainder is in shrubs, trees, groundcovers, and pools/fountains. Public sites tend to have a large percentage of irrigated area in turf from large playfields and parks.

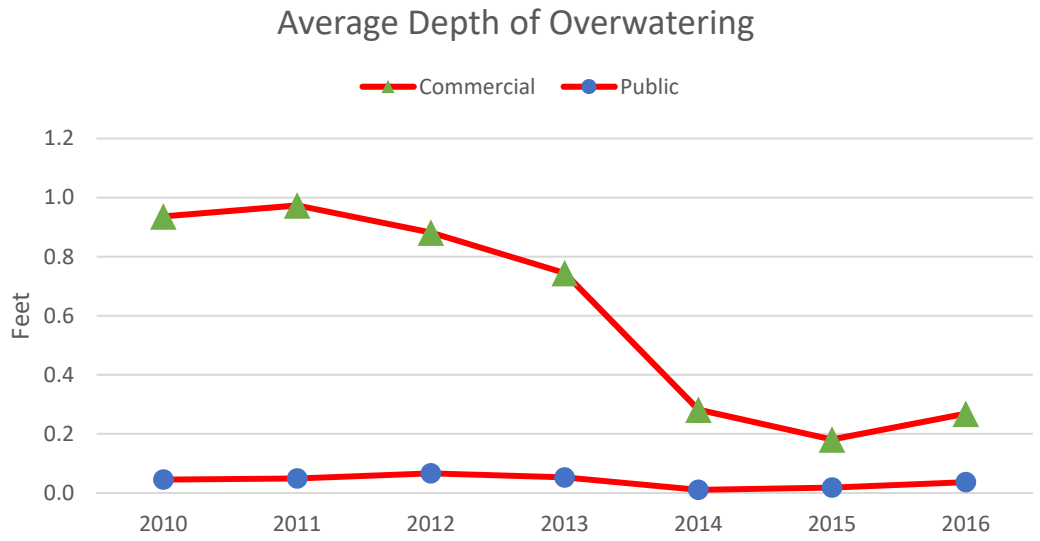
Description	Commercial	Public	Total
Number of Sites	181	50	231
< 1 Acre	61%	6%	67%
1-3 Acres	14%	8%	22%
>3 Acres	3%	7%	11%
Irrigated Acres	143	279	422
Acres Average Site	0.8	5.6	1.8
Acres Turf	68	249	317
Acres Turf %	47%	89%	75%
Annual Water Use CCF	74,542	133,622	208,164
Annual Water Use Acre Feet	171	307	478
Annual Depth Applied FT	1.2	1.1	1.1

Water Savings

The program's key performance metric is minimizing the depth of overwatering—defined as the volume of water used above our calculated water budget divided by irrigated area. This metric is weather-normalized enabling year-to-year comparisons.

For program sites, overwatering dropped from 0.29 feet for the 12 months prior to joining the program to 0.12 feet in 2016, a 61 percent reduction. Given 422 irrigated acres in the program, this equals 75 acre feet of savings per year. Although the commercial sites overwater more than public sites, both site types have made improvements. Heighted awareness because of drought and other agency programs have contributed to this downtrend.

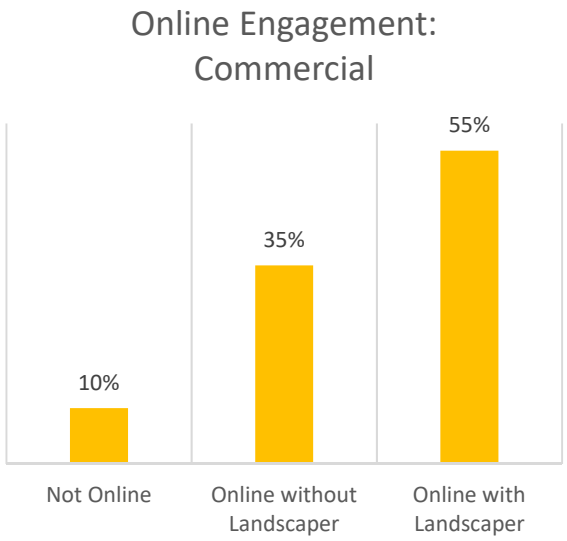
	Average Depth of Overwatering		
Description	**Commercial**	**Public**	**Total**
12 Months Prior to Program (Feet)	0.79	0.04	0.29
2016 (Feet)	0.27	0.03	0.12
Change (Feet)	-0.52	-0.01	-0.18
Change %	-65%	-16%	-61%
Change (Acre Feet)	-74	-2	-75

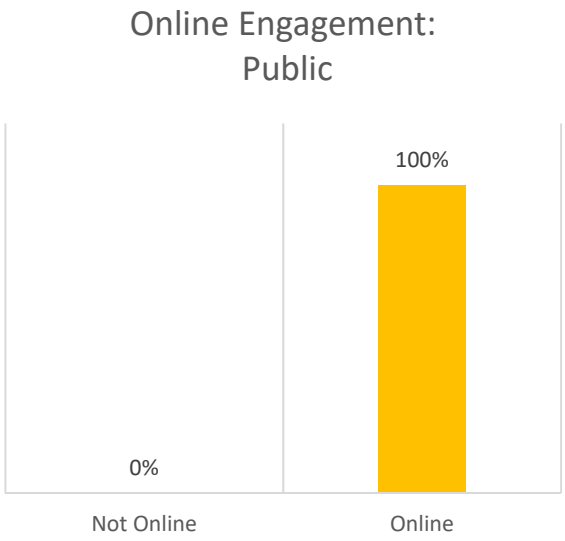


Customer Engagement

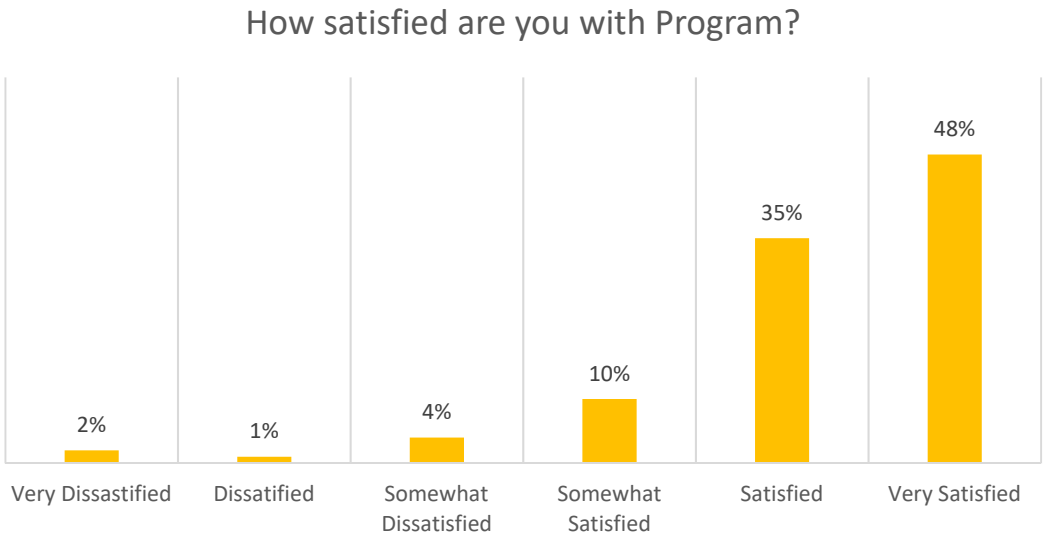
Waterfluence distributes monthly landscape reports to customers by mail or by online access. The online content has more depth and allows multiple people, such as HOA board members, park staff, and landscape contractors, to view site information. In 2016, 92 percent of sites were viewed online by at least one contact.

Public sites were highly engaged with 100 percent of their sites being viewed online. Commercial sites, in contrast, had 90 percent online. A big distinction with commercial sites is that they frequently have their irrigation managed by independent landscape contractors. We find our program works best when landscapers view our information so that they can better monitor their sites' irrigation performance. In 2016, 55 percent of commercial sites were actively being viewed by a landscaper online.





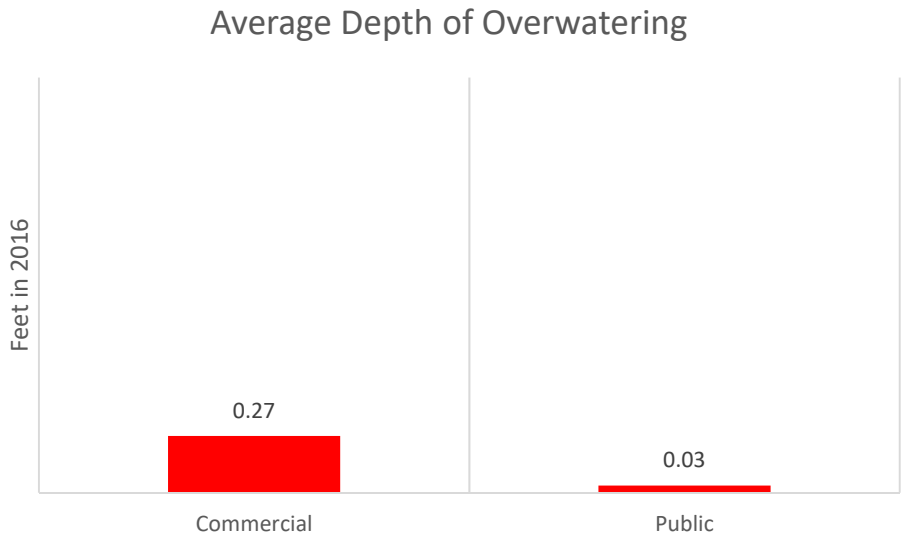
In December 2016, we surveyed all of our online viewers and 83 percent reported to be satisfied or very satisfied with the program. Satisfied contacts typically described the reports as an easy tool for tracking water use and potential problems. Dissatisfied contacts usually desired more timely reporting, clarification of report information, or adjustments to their water budgets.



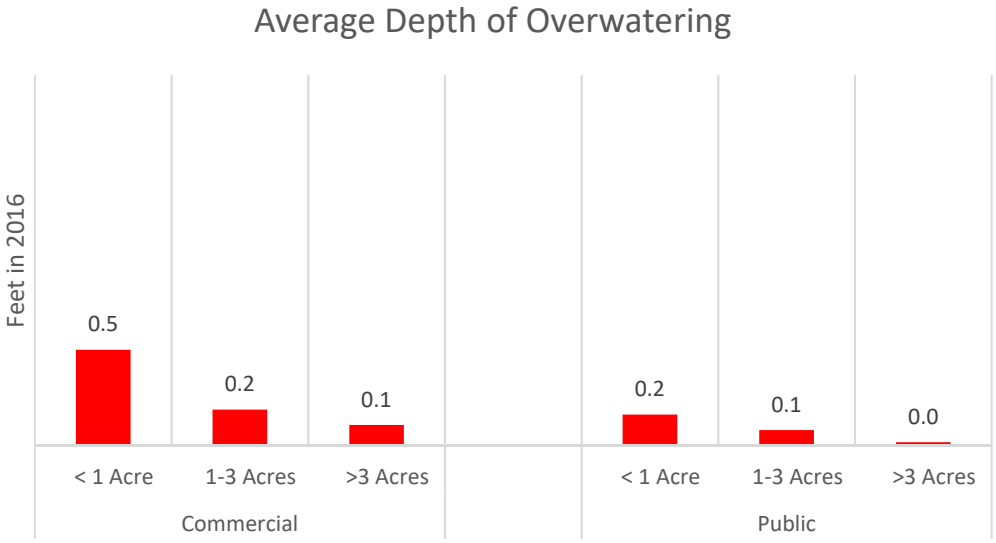
Looking Forward

To guide future efforts to improve the program, we analyzed 2016 overwatering with respect to five elements: customer type, site size, plant type, engagement mode, and frequency of site overwatering.

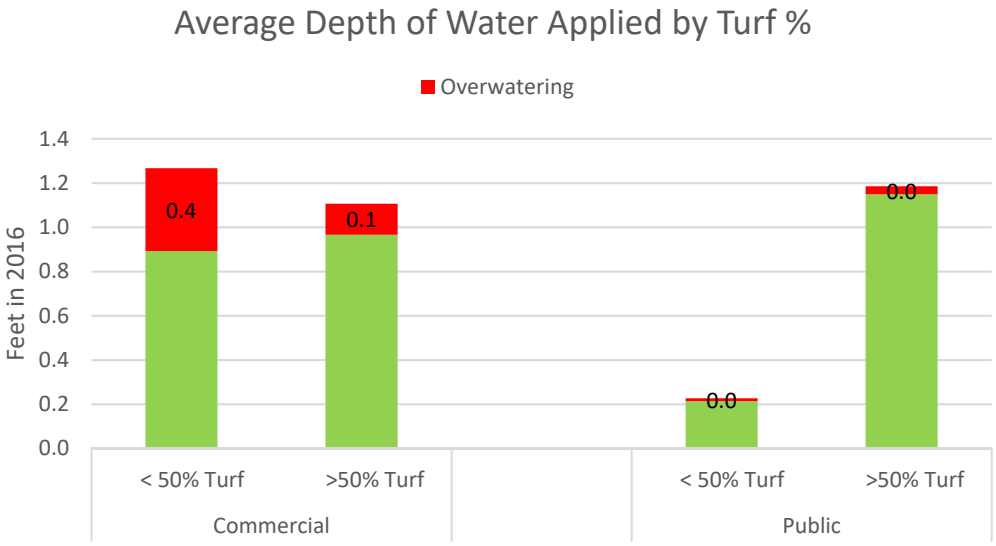
Customer Type. Commercial sites have made great progress but still have significant potential for improvement. Public sites are closer to optimal levels. Additional engagement efforts targeted toward commercial site managers can help close this gap.



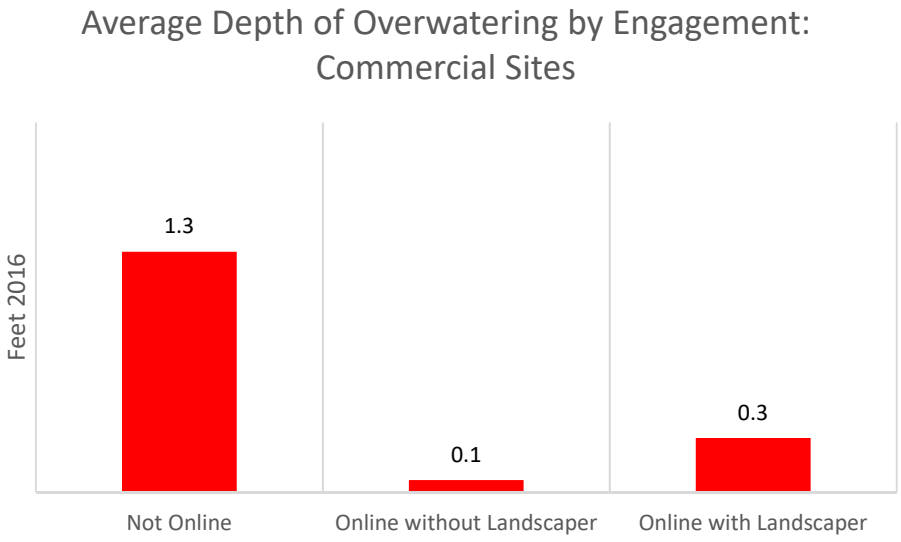
Site Size. Larger landscapes tend to be more efficiently irrigated. Although smaller sites use less water by volume, their potential to reduce overwatering on a percentage basis is greater. Small sites with less than one acre of landscape also make up two-thirds of total sites in the program.



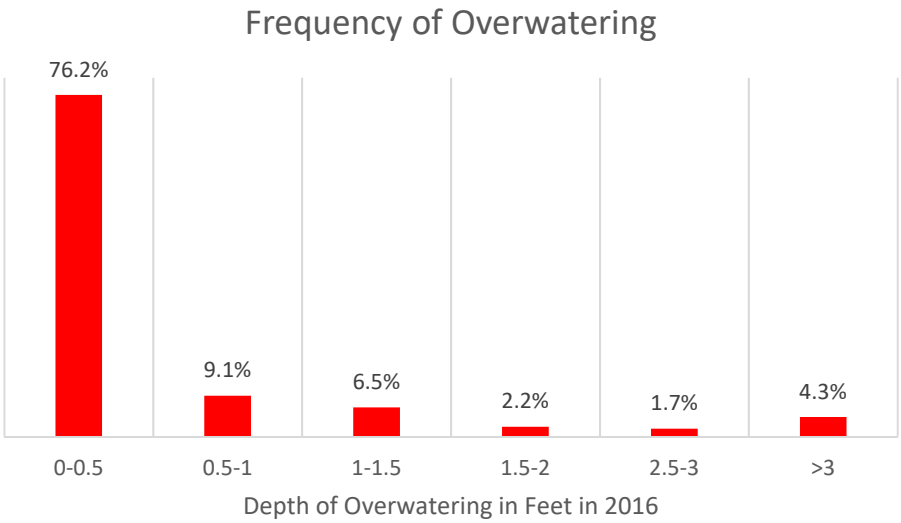
Plant Type. With commercial sites, we find depth of water applied is slightly higher with sites predominantly planted with shrubs, trees and groundcovers. Theoretically turf's water requirements are significantly higher. Shrubs have different irrigation system and scheduling considerations, and our data suggest they have greater potential for future efficiency improvements. This finding is not shown by public sites.



Engagement Mode. For commercial sites, we find a significant increase in overwatering among sites getting our reports by mail. These sites (10 percent of all commercial sites) are less involved in our program and with irrigation efficiency and could be targeted with additional outreach efforts to engage in the program.



Frequency of Site Overwatering. A benefit of this program is that problem sites can be readily identified with respect to irrigation efficiency within the Waterfluence platform. Overwatering by more than 1 foot in 2016 occurred at 15 percent of sites. These sites could be targeted for verification of water budget assumptions, landscape field surveys, program engagement, and financial incentives, among other tactics to improve performance.



WATER COMMISSION
INFORMATION REPORT

DATE: 5/31/2017

AGENDA OF: June 5, 2017

TO: Water Commission

FROM: Rosemary Menard

SUBJECT: Update on the Implementation of the Sustainable Groundwater Management Act in Mid and Northern Santa Cruz County

RECOMMENDATION: That the Water Commission receive information on the implementation of the Sustainable Groundwater Management Act in Mid and Northern Santa Cruz County.

BACKGROUND: In September 2014, the California Legislature passed and the Governor signed the Sustainable Groundwater Management Act (SGMA). The provisions of this legislation became law on January 1, 2015.

SGMA required the State Department of Water Resources (DWR) to categorize groundwater basins into High, Medium, Low and Very Low priority classifications. DWR's Basin classifications are based on a variety of criteria, including the local population's dependence on groundwater and local groundwater levels. All basins classified as medium and high priority must prepare a Groundwater Sustainability Plan (GSP) by 2022. High priority basins that are also classified in being in critical overdraft must complete their GSPs by January 31, 2020.

The legislation lays out a process and a timeline for local authorities to achieve sustainable management of groundwater basins. It also provides tools, authorities, and deadlines to take the necessary steps to achieve the goal. For local agencies involved in implementation, the requirements are significant and can be expected to take years to accomplish.

- Step one: Local agencies must form local groundwater sustainability agencies (GSAs) within two years.
- Step two: Agencies in basins deemed high- or medium-priority must adopt groundwater sustainability plans (GSPs) within five to seven years (of the effective date of the legislation, which was January 1, 2015), depending on whether a basin is in critical overdraft.
- Step three: Once plans are in place, local agencies have 20 years to fully implement them and achieve the sustainability goal.

The State Water Resources Control Board may intervene if local agencies do not form a GSA and/or fail to adopt and implement a GSP.

The legislation also gives local agencies new tools and authority to manage groundwater sustainably.
For example, groundwater sustainability agencies may:

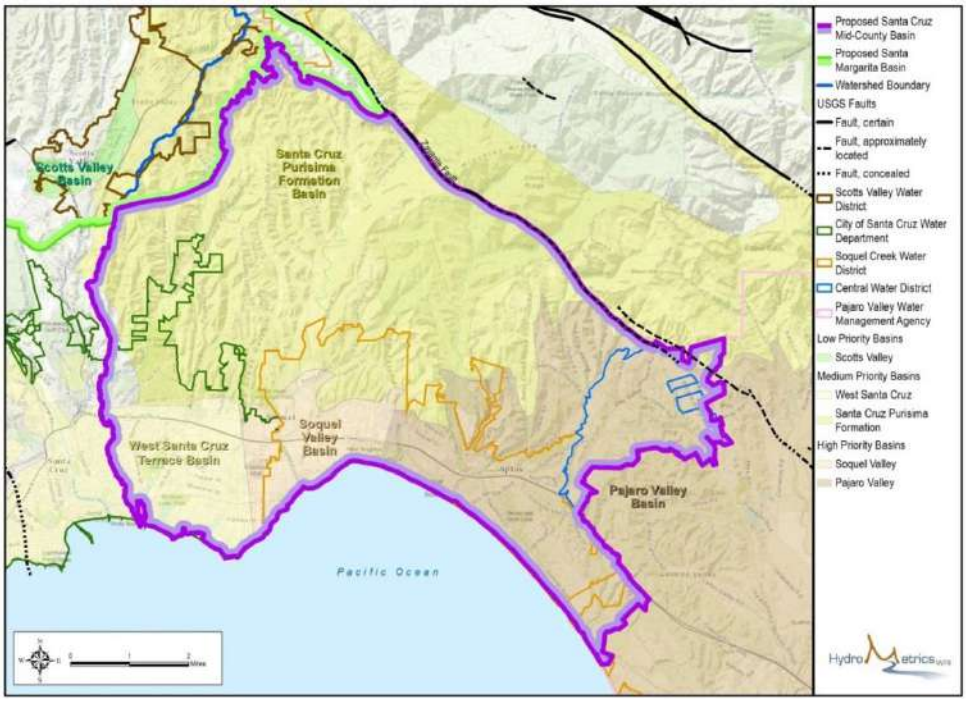
- Require registration of wells and measurement of extractions
- Require annual extraction reports
- Impose limits on extractions from individual groundwater wells
- Assess fees to implement local groundwater management plans
- Request a revision of basin boundaries, including establishing new sub-basins

DISCUSSION: Two regionally important groundwater basins in mid and northern Santa Cruz County have been identified as medium or high priority. Both of these basins are the key sources of drinking water for county residents either through organized water districts such as the Scotts Valley, San Lorenzo Valley, and Soquel Creek water districts, through small private and mutual water systems such as Pure Source Water Inc., or through individual private wells.

Santa Cruz Mid-County Groundwater Basin

Figure 1 below shows the area included in the Santa Cruz Mid-County Groundwater Basin (Mid-County basin). The state has designated this basin as both high priority and as being in a state of critical overdraft. These designations mean that a groundwater sustainability plan must be submitted by the end of January 2020.

Figure 1 – Santa Cruz Mid-County Groundwater Basin



Groundwater planning in this basin has a long history. Under previous legislation known as AB 3030, local jurisdictions could create groundwater management plans but did not have all the tools offered by SGMA to implement them. The Soquel Creek and Central water districts signed a joint powers agreement (JPA) in 1995 forming the Basin Implementation Group (BIG). This entity produced an AB 3030 groundwater management plan in 1997 and completed an updated to plan in 2007. With the passage of SGMA, the Basin Implementation Group JPA was amended to include the County of Santa Cruz and the City of Santa Cruz to the group, which then became known as the Soquel-Aptos Groundwater Management Committee (SAGMC). At the time of this transition, representation of private well owners was expanded from one person to three.

The role of the SAGMC was to support the transition of basin management from the original BIG to an entity that would meet the requirements for forming a Groundwater Sustainability Agency (GSA) that would comply with SGMA. In March of 2016, the Soquel Creek and Central water districts, the County of Santa Cruz, and the City of Santa Cruz formed a joint powers agency to serve as the Santa Cruz Mid-County Groundwater Sustainability Agency (MGA) for the Mid-County basin. The eleven member MGA Board is comprised of two representatives of each of the member agencies and three representatives of private well owners.

During the past year, the MGA has worked to get itself organized to initiate the groundwater sustainability planning process. At its May 18, 2017, meeting the MGA Board took the following actions related to the groundwater sustainability planning process:

A. Accepted a preliminary process and schedule for the development of a Groundwater Sustainability Plan;
B. Form a Groundwater Sustainability Plan Advisory Committee (Committee) including establishing the interests to be represented on the Committee;
C. Agreed to conduct an application process for appointing non-MGA Board representatives to the Committee, including adopted an application form and time frame for submittal and appointment to the Committee; and gave the MGA Board chair to appoint a Board Nomination Committee to oversee the screening, interviewing and recommendations of appointees to recommend to the full MGA Board for appointment at the Board's September 15th meeting; and
D. Provided feedback to the MGA Working Group on the Draft GSP Development Committee charge and initial problem statement.

Full details of the MGA Board's discussion is available at in Board item 5.1 located at the following link:
http://www.midcountygroundwater.org/sites/default/files/uploads/meetings/board-packet/Final%20Packet%202017-0518.pdf

The preliminary process and schedule presented anticipates initiating the GSP planning process in the fall of 2017 and completed in summer of 2019, which would provide adequate time to meet the requirement for submittal of this plan by the end of January 2020.

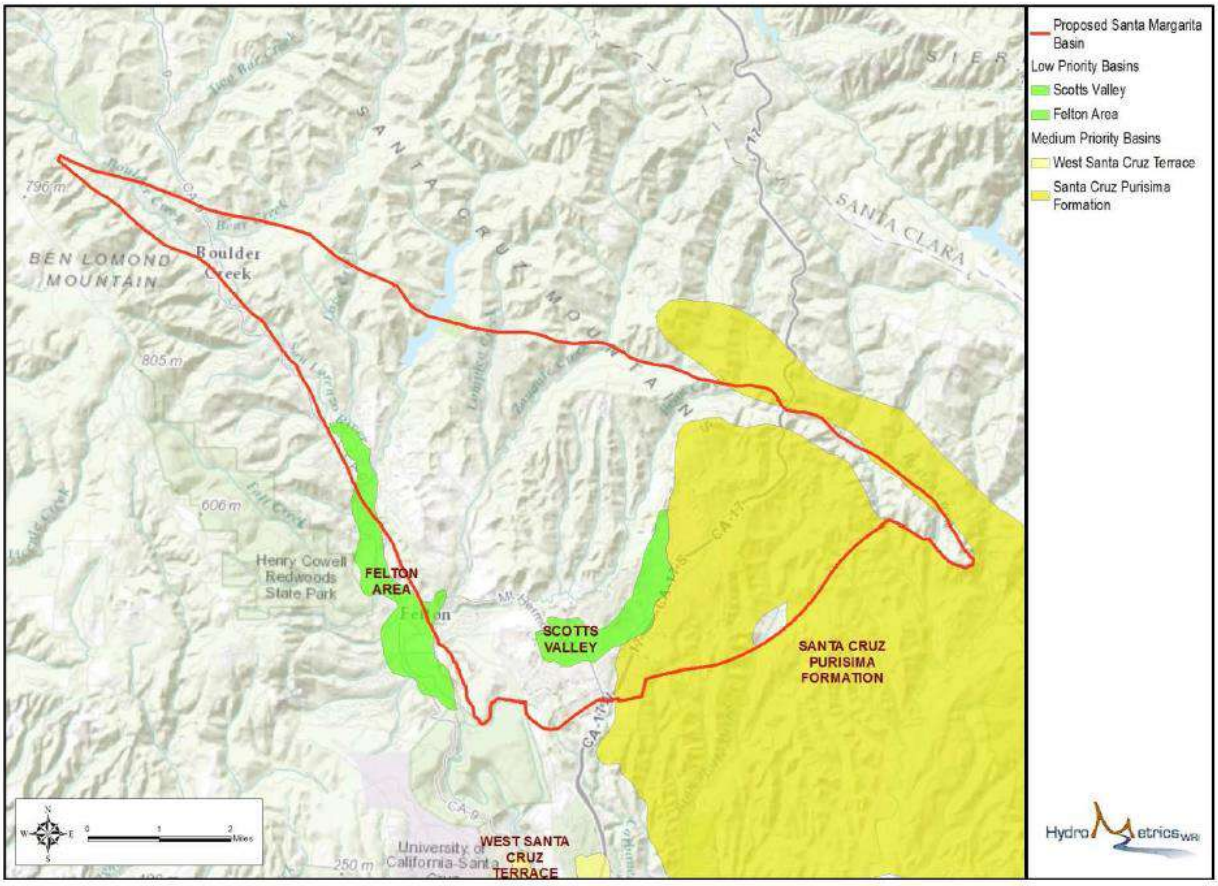
As of January 2017, Water Commissioner David Green Baskin is one of the City's two appointees to the MGA Board. City Councilmember Cynthia Mathews is the second City

appointee. Water Director Menard is the designated Board alternate. The Water Commission will receive regular updates on MGA through both Mr. Baskins and Ms. Menard.

Santa Margarita Groundwater Basin

Figure 2 below shows the area included in the Santa Margarita Groundwater Basin (SM basin). The state has designated this basin as medium priority, which means that a GSP must be completed by 2022.

Figure 2 – Santa Margarita Groundwater Basin



The Santa Margarita Groundwater Basin has been managed by Scotts Valley Water District under an AB 3030 Groundwater Management Plan since 1994. In 1995, a group of local agencies established the Santa Margarita Groundwater Basin Advisory Committee and became signatories to a Memorandum of Understanding that outlined the objectives for cooperative groundwater management of the Basin.

As was the case for the Mid-County basin, the Santa Margarita basin group has been working to form itself into a GSA for this basin. A JPA has been developed and, as of May 25, 2017, has been approved by the governing bodies of the member agencies, including the San Lorenzo Valley and the Scotts Valley water districts, and the County of Santa Cruz. In this case, the City of Santa Cruz has not been asked to be a member agency of the JPA, but it has been invited to

participate as a board member of this group. The rational for this decision at this point is that the City has interests in the Santa Margarita basin but is not at this time actively involved in groundwater management in this basin. Asking the City to participate in the Board, however, creates an opportunity for the City to be engaged in the planning work as it explores the potential for future water facilities that may contribute to basin restoration to be located in this basin. No City appointment to this board has yet been made.

As noted earlier, this timeframe for this group to create its GSP is two years longer than that applicable to the Mid-County basin. This longer timeframe provides a good opportunity for the City to engage with the water utilities operating in exploring mutually beneficial opportunities for groundwater replenishment in the Santa Margarita basin, and the proposed Memorandum of Agreement among the City, County, and Scotts Valley and San Lorenzo Valley water districts (a draft of which was reviewed by the Water Commission at their February meeting) is intended to facilitate those efforts.

As the work of this group moves forward, Water Department staff will keep the Water Commission informed of their progress.

FISCAL IMPACT: The City is participating financially in the work of the Santa Cruz Mid-County Groundwater Agency and likely will also make a financial contribution or provide in-kind services, such as its commitment to the work plan described as part of the Memorandum of Agreement with the Scotts Valley and San Lorenzo Valley water districts for work in the Santa Margarita Basin. These financial contributions have been anticipated and included in the Department's annual budget.

PROPOSED MOTION: That the Water Commission receive information on the implementation of the Sustainable Groundwater Management Act in Mid and Northern Santa Cruz County.

ATTACHMENTS: None.