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

Water Department

WATER COMMISSION

Regular Meeting

March 05, 2018

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

*Denotes written materials included in packet.

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

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

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

Call to Order

Roll Call

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

Oral Communications - No action shall be taken on this item.

Announcements - No action shall be taken on this item.

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

1. City Council Actions Affecting Water

   Accept the City Council items affecting the Water Department.

2. Water Commission Minutes from February 5, 2018

   Approve the February 5, 2018 Water Commission Minutes.

3. 2018 Water Supply Outlook – Update

   For information and discussion by the Water Commission.

Items Removed from the Consent Agenda

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

4. FY2019-2028 Capital Improvement Plan Summary

   Receive the draft ten-year Capital Improvement Plan and summary of highlights.

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

   Discuss and provide feedback on the draft Agenda for the April 10, 2018 Joint Meeting of the Santa Cruz City Council and the Santa Cruz Water Commission.

6. Water Supply Augmentation Strategy, Quarterly Work Plan Update

   Receive information regarding the status of the various components of the Water Supply Augmentation Strategy and provide feedback.

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

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

8. Santa Cruz Mid County Groundwater Agency

9. Santa Margarita Groundwater Agency

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

Informational Items from the Public

Adjournment

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WATER COMMISSION
INFORMATION REPORT

DATE: 2/28/2018

AGENDA OF: March 5, 2018

TO: Water Commission

FROM: Rosemary Menard, Water Director

SUBJECT: City Council Actions Affecting the Water Department

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

BACKGROUND/DISCUSSION:

On Agenda for February 13, 2018

Resolution to Apply for State Water Resources Control Board Funding for the Graham Hill Water Treatment Plant Concrete Tanks (WT)

Resolution No. NS-29,361 was adopted authorizing the Water Department to apply for State Water Resources Control Board (SWRCB) funding for the Graham Hill Water Treatment Plant Concrete Tanks.

FYI to Council

Loch Lomond Recreation Area – Closure on Wednesdays starting with 2018 season opening

Informational only; no action taken.

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

ATTACHMENTS: None.

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Water Commission
7:00 p.m. – February 6, 2018
Council Chambers
809 Center Street, Santa Cruz

Water Department

Summary of a Water Commission Meeting

Call to Order: 7:00 PM

Roll Call

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

Absent: None

Staff: H. Luckenbach, Deputy Director/Engineering Manager; N. Dennis, Principal Management Analyst; T. Goddard, Conservation Manager; K. Crossley, Sr. Professional Engineer; D. Kehn, Assistant Engineer; T. Ronne, Associate Professional Engineer; S. Perez, Planner; D. Valby, Associate Professional Engineer; M. Kaping, Management Analyst; P. Daniel, HDR; M. Zeman, Engineering Associate; K. Fitzgerald, Administrative Assistant III

Others: 7 members of the public.

Presentation: None.

Statement of Disqualification: None.

Oral Communications: Three public comments; Becky Steinbruner, Terry Maxwell, Peter Ventura

Announcements: Katy Fitzgerald was announced as the new staff to the Water Commission.

1. Election of Water Commission Officers

The floor was opened for nominations for the 2018 Water Commission Chair. Commissioner Baskin nominated Commissioner Wilshusen to remain Chair for 2018.

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

The floor was opened for nominations for the 2018 Water Commission Vice Chair. Commissioner Baskin nominated Commissioner Engfer to remain Vice Chair for 2018.

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

Consent Agenda

2. City Council Items Affecting Water
3. Approve December 4, 2017 Water Commission Minutes
4. 2nd Quarter FY 2018 Financial Report
5. Water Commission Workplan for 2018

Commissioner Schiffrin moved the consent agenda. Commissioner Baskin seconded
VOICE VOTE: MOTION CARRIED
AYES: All
NOES: None
ABSTAIN: Commissioners Wilshusen and Commissioner Schwarm abstained from the December 4, 2017 Water Commission Minutes due to excused absences.

General Business

6. Award from the Alliance for Water Efficiency

A presentation of the Award from the Alliance for Water Efficiency was given by T. Goddard, Conservation Manager.

How many cities in the United States have received the Platinum level award?

- None. The City of Santa Cruz is the first utility in the nation to be recognized with Platinum status with this organization. Although the AWWA G480 is fairly new, the Alliance for Water Efficiency aims to encourage other cities to achieve the same goals of water conservation and water efficiency.

Is there a plan to publicize this award with the community?

- Yes. We plan to announce our award on the City and Department social media platforms. In addition we plan to use the logo in our publication. We also plan to make a similar presentation to the City Council at an upcoming meeting.

Commissioners remarked that the award recognizes the City's values and reflects the City's customers' work and commitment.

7. Presentation of the Capital Improvement Projects

A presentation and staff report on the Capital Improvements Projects were introduced by H. Luckenbach, Deputy Director/Engineering Manager.

There were no comments or questions following this portion of the presentation.

Presentations on the North Coast System Rehabilitation and Tait Wells Replacement projects were provided by K. Crossley, Senior Professional Engineer.

Please comment on the source water quality that is coming from the Tait Wells.

- It is consistently meeting drinking water standards with the exception of dissolved iron which is removed during treatment at the Graham Hill Water Treatment Plant.

Where does the responsibility lie within the Department for the multi-year maintenance and monitoring regulatory requirement for revegetation, as stated in the staff report for the North Coast Pipeline project?

- The Department maintains a spreadsheet that captures all of the regulatory requirements including those for this project. The Department has entered into a long term agreement with an outside contractor for the management of weed growth in the revegetation zones.

This was included in the mitigation program due to the work being done in red-legged frog and red herring habitats which have specific revegetation requirements.

A presentation on the Graham Hill Water Treatment Plant Filter Rehabilitation project was provided by M. Zeman, Engineering Associate.

Does this improvement increase the ability to treat turbid water from the river?

- That was not the goal of this project. One of the limiting factors with higher turbidity water is the solids that are coming out of it during the initial phases of the treatment process. Solids removal is being considered for the tanks project and other process improvements at the plant. The filters are robust and capable of handling intense conditions,-on a short term basis, like those witnessed during the past winter storm events.

A presentation on the Bay Street Reservoir Replacement project was provided by D. Valby, Associate Professional Engineer.

There were no comments or questions following this portion of the presentation.

A presentation of the Emergency projects was provided by D. Valby, Associate Professional Engineer.

Were the curtailment objectives requested and not met during these events evaluated?

- There are different theories as to why demand did not change after calls for curtailment. One of them being that in the peak of winter, no one is watering or other non-essential water uses so there is not a lot of room to conserve. It is difficult for the public to understand the need to conserve water when there is substantial flooding.

Is there a plan to improve communication with the community on the importance of water conservation/curtailment during extreme water emergencies?

- Yes, improved methods are being considered for future incidents. If this situation had continued, restrictions on water usage would have had to be implemented. The Department kept a close eye on water use and storage and would have increased active engagement in the community via sign, press release, TV, radio, and even bullhorns if needed.

A presentation of the Newell Creek Dam Inlet/Outlet was provided by H. Luckenbach, Deputy Director/Engineering Manager.

Please elaborate on the operational flexibility of the replacement. What is the hydraulic capacity of the pipeline feeding the reservoir, the Newell Creek Pipeline?

- This pipeline is being designed for 13MGD, which is consistent with the water rights of the Felton Diversion. That said, the hydrology of the river is being examined to further understand the water quality and quantity to determine if a 13 MGD pipeline is the best design parameter for the capacity of the reservoir or if it should be upsized.

What is the current capacity of the pipeline?

- It is 13MGD, but there are concerns about the pressure rating of the pipe depending on the varying levels of water in the reservoir.

A presentation of the U5 Reservoir Tank Replacement project was provided by T. Ronne, Associate Professional Engineer.

What is a jurisdictional wetland?

- Jurisdictional wetlands are regulated by the CA Department of Fish and Wildlife and U.S. Army Corp of Engineers. Areas receive this designation due to the nature of the soil and wildlife habitability. The wetland was unintentionally created during the grading of a large flat area where the tank was originally built. This caused the exposure of the groundwater and thus created a wetland in that area. It now provides habitats to the surrounding vegetation and wildlife.

Where is the tank being shipped from?

- It is being shipped from Oklahoma.

A presentation on the Loch Lomond ADA improvements was provided by M. Zeman, Engineering Associate.

There were no comments or questions following this portion of the presentation.

A presentation on the annual water main replacements was provided by D. Kehn, Assistant Engineer II.

Can an update on the Union Locust Building Expansion Project from the Capital Improvement Projects list be provided at this time?

- This is a remodel to the existing department's downtown offices to accommodate existing staff that we do not have space for, as well as the Program Management group, HDR. Approval of the plans and specs is scheduled for the March 13 City Council meeting.

How is the bladder replacement at Felton Diversion being scheduled; is there consideration being taken regarding for the potential dryness that may occur the in fall of 2018?

- The schedule is being driven by the amount of time it will take to acquire the materials and time required to meet permit requirements. It is being planned for a time when the river will presumably be at its lowest. The construction schedule should be short enough so as not to impact raising the dam as needed next winter.

Why was it necessary to expand the Graham Hill Water Treatment Plant tank replacement project to include UV Treatment and sludge dewatering?

- A condition assessment was conducted several years ago that resulted in a recommendation for replacement of these tanks. UV treatment and solids handling were added during the design phase of the project in response to the likelihood that there will be increased amounts of solids to manage in the future and to the potential opportunity for controlling disinfection byproduct formation by reducing chlorine use through the treatment process and replacing some of that disinfection with inactivation using ultraviolet light. And permit limitations for discharge to our waste-water treatment plant also need to be taken into account. As design proceeds, these two possible treatment process changes will continue to be evaluated.

Becky Steinbruner and Peter Ventura spoke as members of the public and relevant points have been included in the summary above.

8. <u>Update on the HDR Contract for Program Management Services</u>

A presentation on the HDR Contract for Program Management Services was provided by K. Crossley, Senior Professional Engineer and P. Daniel, HDR.

Is the accumulated spending for this project going to literally reach $10 billion dollars as indicated in the presentation?

- No, that is for illustrative purposes only and does not represent actual figures or costs.

The upsides of integrating expanding numbers of consultants have been presented. What other factors are worth mentioning that affect the outcomes of projects and any downsides of this approach?

- Historically, project delays have been caused by issues such as disproportionate project load and staffing, and unforeseen permitting and right of way issues. Program management and the staff and tools they bring will improve this. Examples of tools include the development and use of risk registers, more sophisticated forms of scheduling and resource analysis, and use of other forms of project delivery, such as design build. These are intended to deliver projects on schedule and budget.

Is there a parallel project decision-making model for alternative project delivery approaches?

- Yes, there will be separate project delivery models for projects that may be suitable for delivery through approaches such as Construction Manager (CM) at Risk or design-build. The Department is working through the City Attorney's office to obtain and approve different contract documents for CM at risk and design-build projects.

Which projects are being considered for alternative project delivery?

- The treatment plant is at the top of list for the Alternate Project delivery model due to the complexity of the project.

What does it mean to have a blended staff consisting of HDR and City personnel per the reference to Program Management Office page 8.18 for "Program Mobilization"?

- Thus far, there are four engineering staff members working nearly full time on projects within the program that will be designated as Project managers or technical leads. The idea is to have HDR and existing staff work closely on projects to share skills and learn new tools as described above.

Does HDR have previous experience in providing direct day to day training support and seminars to city staff, as referenced under section 8.22 Task 3.9 from the master service agreement?

- Yes, HDR has worked with multiple agencies where blended sets of staff were utilized and where they were tasked with provided similar training, seminars and support.

What is the potential size of the group that is being developed per the reference under section 8.56 under task 3.9? What area within the Department is being considered for PMP certifications through Project Management Institute?

- The size of the group is not finalized and a final workforce development plan has not been developed. The PMP certification is an example of a specific goal set to achieve a certain training objective.

Is there a plan for the information that is compiled using these methods to be transferred to the methods currently used by the City?

- Yes. The IT systems assessment does not singularly focus on documentation management. It examines the varieties of software being used by the entire organization from financial management to record keeping. The objective is to build on what is already in use instead of updating or replacing software. The Department is avoiding costly customization and specialization. The goal is to establish better practices that can be utilized to benefit the Department for future project delivery.

Will the ability to use HDR's internal project control software, referenced under section 8.35 of the master service agreement, remain after the life of the contract without future subscriber or user fees?

- HDR is not recommending the use of additional of proprietary software. Yes, any software will be available to the City without long-term expenses payable to HDR after the end of the project. However, if the City installs non-HDR software, it may incur associated costs.

Is an assessment of the feasibility of drawing down Loch Lomond during the Newell Creek Inlet/Outlet work necessary, as referenced in section 8.45 of the master service agreement?

- Yes. Assessments have already been conducted in order to manage water levels during the Newell Creek Inlet/Outlet project to allow for construction of the new tunnel and outlet systems.

What are the goals of the "value engineering" exercise in section 8.51?

- The goals of Value Engineering are to develop cost savings, schedule savings and/or other efficiencies for a project. A value engineering study is conducted at key milestones and decision points in a project's development, following 50% design for example. It is a focused opportunity to adjust course to realize savings and efficiencies.

If two projects currently comprise a third of the CIP, how does that percentage change when supplemental supply projects are presented?

- The percentage will not shift much for a large portion of the funds that are currently in the water supply augmentation project are allocated for projects that fall in the yet-to-be-defined supplemental supply project category.

What is the SRF?

- SRF stands for "State Revolving Fund" and is an infrastructure financing source administered by states through a combination of federal and State funds. The Department is currently pursuing a Drinking Water State Revolving Fund (DWSRF) for the GHWTP Concrete Tanks Project.

Becky Steinbruner and Peter Ventura spoke as members of the public and relevant points have been included in the summary above.

9. <u>2018 Water Supply Outlook – First Look</u>

A presentation on the 2018 Water Supply Outlook – First Look was provided by T. Goddard, Conservation Manager.

Is a break from rainfall going to affect the analysis on the cumulative total of the difference between a dry and critically dry year?

- After these long periods without rain, the cumulative runoff is a reflection of all the variables of rain and evaporation that affects the water system.

Will that be tempered by measuring actual water levels in the river?

- Yes. It is based on the flow measurement of the San Lorenzo River at the USGS stream gauge in Felton.

Is it a million gallons per day measurement?

- The average daily flow, in cubic feet per second, is converted to discharge, measured in acre feet.

How does that measurement tie into the habitat conservation standards we have to meet?

- That has to do with flowing sources; a minimum amount of water must be left in the stream for the surrounding habitats. These minimums are in effect all year long, especially during fish rearing seasons.

What is the useful range of flows that can be made into water for customers?

- The useful range depends on the levels of demand and average rainfall.

Can water not be taken from the river when it becomes overly turbid?

- It depends on the turbidity of the water that is flowing at the time of the high flow. Now that the Tait Wells are functional, the water that is drawn from the river via these wells has low turbidity, which is very helpful when the river is turbid.

Is there a realistic risk of water shortage due to the high flow (which can equate to high turbidity) of the river?

- Yes. During the winter of last year, the river water was unusable due to turbidity for about 60 days and other sources such as the coast, wells, and the lake had to be utilized. Low customer demand and the reliability of the other water sources do lower but do not entirely eliminate the risk of a shortage.

Becky Steinbruner spoke as a member of the public and relevant points have been included in the summary above.

Subcommittee/Advisory Body Oral Reports

10. WSAS Ad Hoc Committee – Project Evaluation Framework
Commissioner Engfer announced the Ad Hoc Committee is meeting and is in the informational gathering stage.

11. Santa Cruz Mid-County Groundwater Agency
Commissioner Baskin reported the MGA Board Members are in the information gathering stage and learning the regulatory framework under which all groundwater agencies will operate. Commissioner Baskin also announced that Commissioner Engfer will be his alternate, in case of absence, to the MGA.

12. Santa Margarita Groundwater Agency
Commissioner Engfer reported the SMGWA Board is in the start-up stage, following the path of the MGA, and that the next meeting will be held on February 28, 2018. Commissioner Engfer also announced that Commissioner Baskin will be his alternate, in case of absence, to the SMGWA.

Directors Oral Report: None.

Final Comments and Requests for Follow up.

1. Provide an update on the Water Supply Outlook in March 2018.
2. Provide an update on the HDR Contract in May 2018.

Adjournment Meeting adjourned at 10:08 PM.

Respectfully submitted,

Katy Fitzgerald
Staff

WATER COMMISSION
INFORMATION REPORT

DATE: 2/28/2018

AGENDA OF: March 5, 2018

TO: Water Commission

FROM: Toby Goddard, Water Conservation Manager

SUBJECT: 2018 Water Supply Outlook – Update

RECOMMENDATION: For information and discussion by the Water Commission.

BACKGROUND: This report is the second in a series of three monthly statements summarizing current water conditions and evaluating the City's water supply outlook for 2018. It covers the water year beginning October 1, 2017 through almost the end of February 2018. A final water supply outlook will be prepared at the end of March or the beginning of April toward the end of the wet season when the water supply situation for the year ahead is firmly established.

Rainfall After near-normal rainfall in the month of January, atmospheric conditions once again turned stubbornly dry over California in February, dashing hopes for a normal water year. Measureable rainfall over the last four weeks has been scarce, totaling only 0.04 inches in the City of Santa Cruz and 0.07 inches in the watershed since January 26, 2018. Monthly and cumulative rainfall amounts are shown in Figures 1 and 2. Total rainfall in the City is now 8.32 inches, or **36 percent of average** for the year to date.

The short term forecast has a chance of showers early in the week and then a period of active weather returning later in the week with one to two inches of rain likely in early March. Long-term, the National Weather Service Climate Prediction Center is showing the probability of below- normal rainfall across California in its 3-month outlook for the period March through May.

Stream Flow Figure 3 shows the mean monthly stream flow in the San Lorenzo River for the season to date, along with the long-term average monthly values for comparison. With virtually no rainfall in February, the mean monthly flow in the San Lorenzo River declined to just under 30 cubic feet per second (cfs), just 7.5 percent of the long-term average monthly flow of 396 cfs and comparable to the average flow in the river seen during the month of July.

Reservoir Storage As reported last month, Loch Lomond Reservoir is holding about 93 percent of its 2.83 billion gallon capacity, with the lake level about three feet below the spillway elevation. There has been little change over the last month. However, operators have begun

needing to draw water from the lake from time to time as availability of water from the San Lorenzo River declines.

Water Year Classification The Water Year remains provisionally classified as **Critically Dry** (Figure 4). Since October 1, 2017, the river has generated a total of only 11,000 acre-feet, less than 20 percent of the long-term average of about 55,000 acre-feet for this time of year. Figure 5 shows the total annual discharge from the river over the last ten years and Water Year 2018 for the year to date. The chart highlights the extreme contrast in water conditions between this year and the situation experienced just one year ago.

U.S. Drought Monitor As of February 22, 2018, over 91 percent of California, including all of Santa Cruz County, is classified by National Drought Mitigation Center as being in some condition of drought (Figure 6). The intensity ranges from abnormally dry – the lowest intensity – in northern California to severe drought in southern California.

Revised Outlook for 2018 For a water system that depends largely on annual rainfall, this past month represents a serious deterioration and worsening in the water supply outlook. February is historically one of the three wettest months of the year. December is another, and it was nearly as dry as February. While the months of March and April can bring unsettled and stormy weather to the central coast, the time to make up for the deficit and recharge local streams before the onset of the summer dry season grows shorter every day.

Two positives: 1) healthy surface water storage in Loch Lomond reservoir, and 2) continuing low system demand. The problem is limited storage. In dry years, the system relies more heavily on water stored in Loch Lomond to satisfy demand, which draws the reservoir level lower than usual and depletes available storage. The concern is not whether there is enough water to meet demand this year, there is. The question is: What shape will storage be at the end of this year in case of another, subsequent dry year in 2019? No one can tell how next year will play out, but the risk of two or more back-to back dry years is something that needs to be considered and planned for. Not only did the City recently experience just such an event from 2012 to 2015, it is happening elsewhere around the world with dire consequences.

In last month's report, staff remarked that it was hard to envision the need then for water restrictions this year. Now, it is hard to imagine being in a position that does not require temporary restrictions on water use. The only question is to what degree.

The Water Department will continue to monitor water supply conditions, and will reevaluate the water supply outlook in late March. During this time, staff will make projections of the City's water supply availability and evaluate the adequacy of this supply to meet expected water demands within the City's water service area for the rest of 2018 and beyond. The plan is to present the final water supply outlook and any recommendations for water use restrictions at the April 10, 2018 joint City Council/Water Commission meeting.

FISCAL IMPACT: None.

ATTACHMENTS:

Figure 1: Monthly Rainfall, City of Santa Cruz
Figure 2: Cumulative Rainfall, Santa Cruz
Figure 3: Monthly Streamflow, San Lorenzo River at Big Trees
Figure 4: Cumulative Runoff and Water Year Classification
Figure 5: Total Annual Discharge, San Lorenzo River, 2009-2018
Figure 6: U.S. Drought Monitor, California

Figure 1. Monthly Rainfall, City of Santa Cruz, 02/26/2018

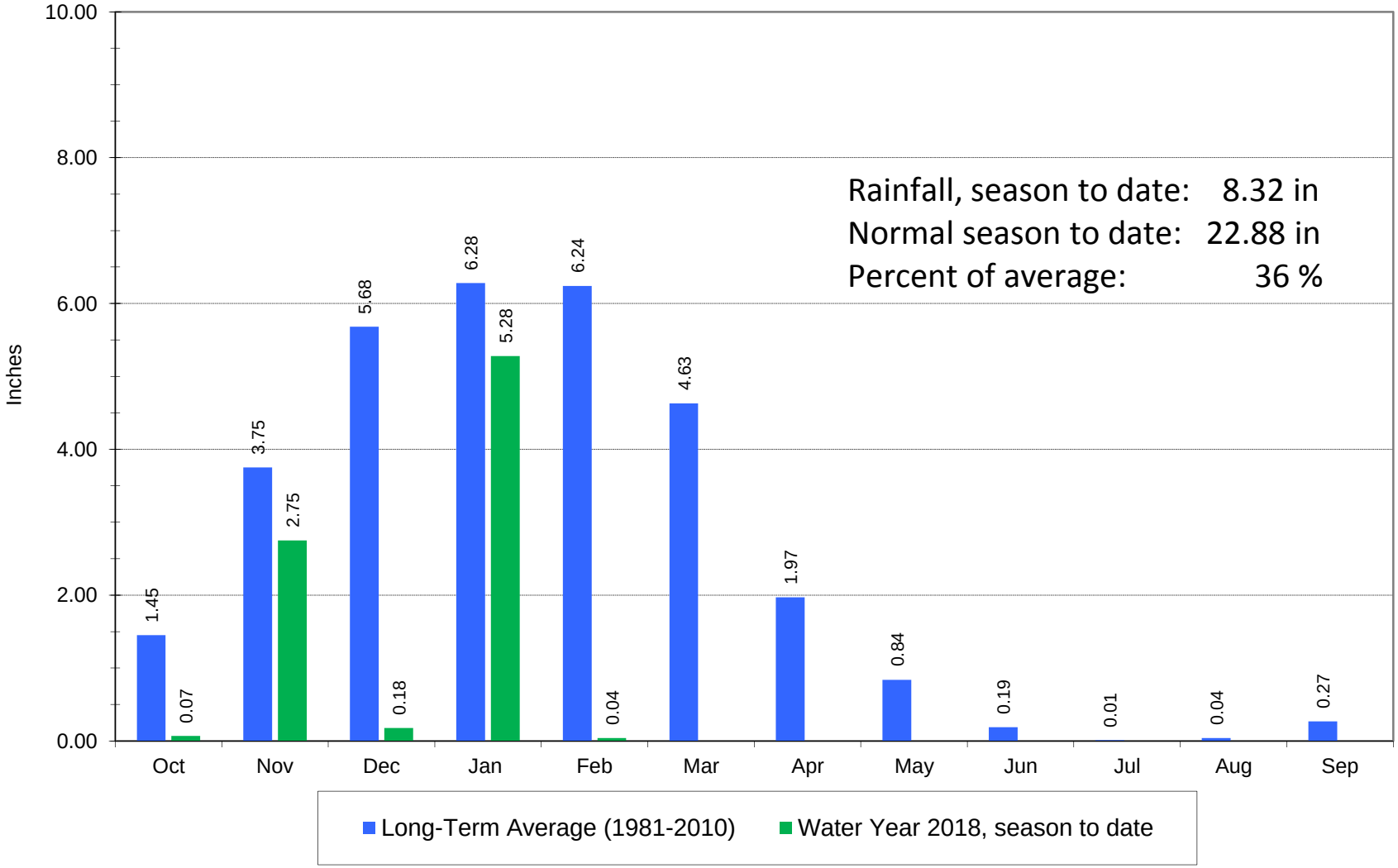


Figure 2.

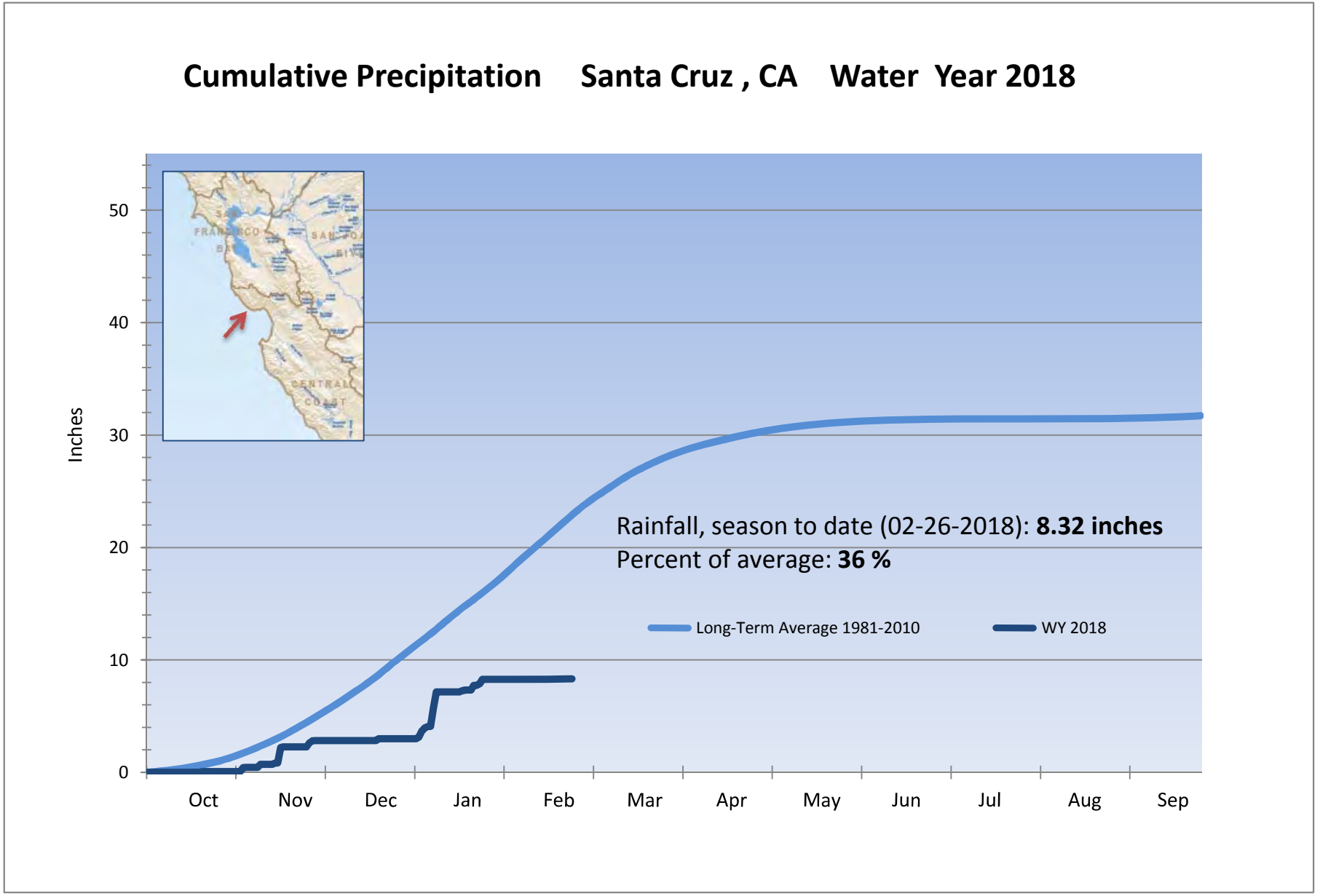

Cumulative Precipitation Santa Cruz , CA Water Year 2018
Inches
50
40
30
20
10
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Rainfall, season to date (02-26-2018): 8.32 inches
Percent of average: 36 %
Long-Term Average 1981-2010
WY 2018

Figure 3.

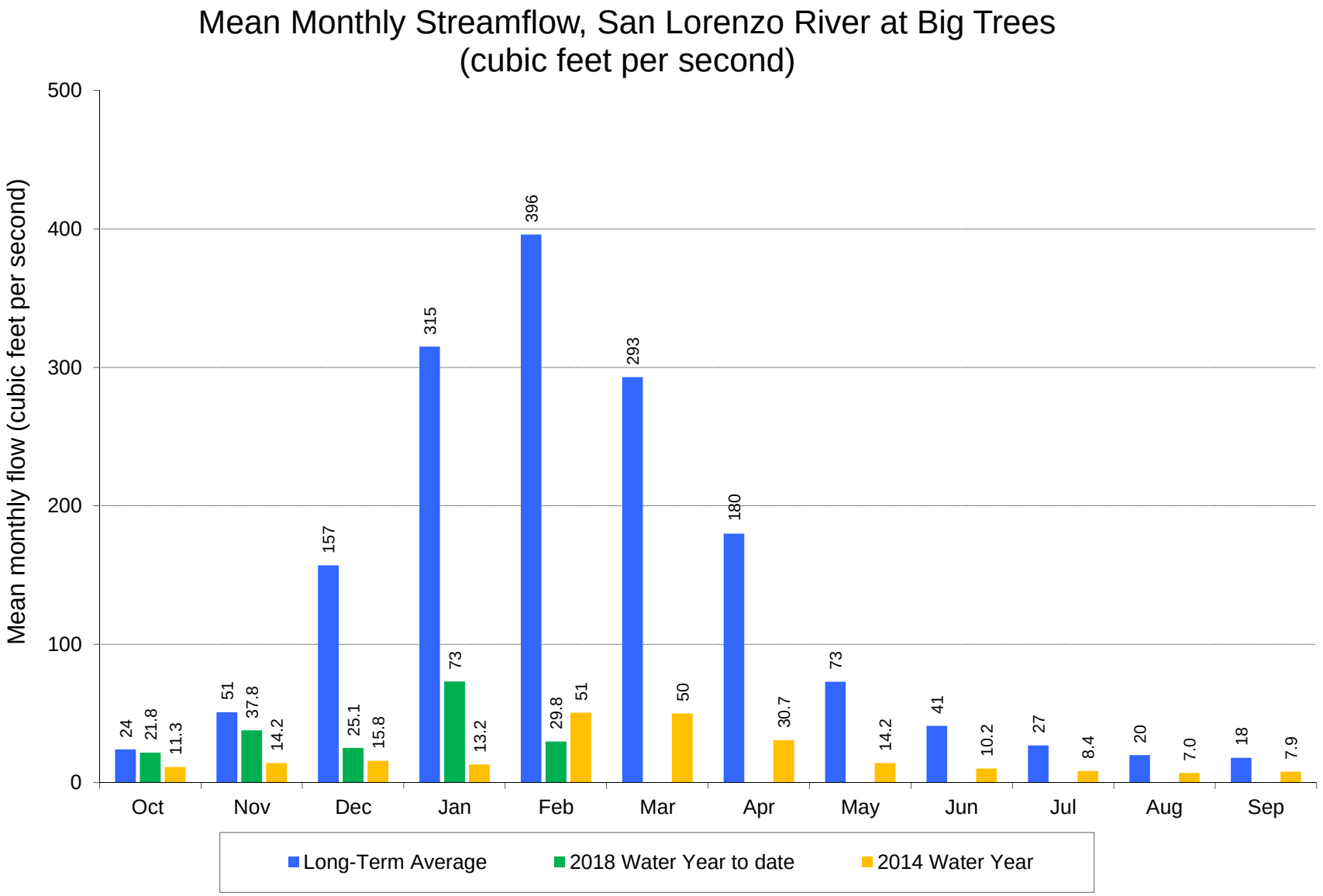
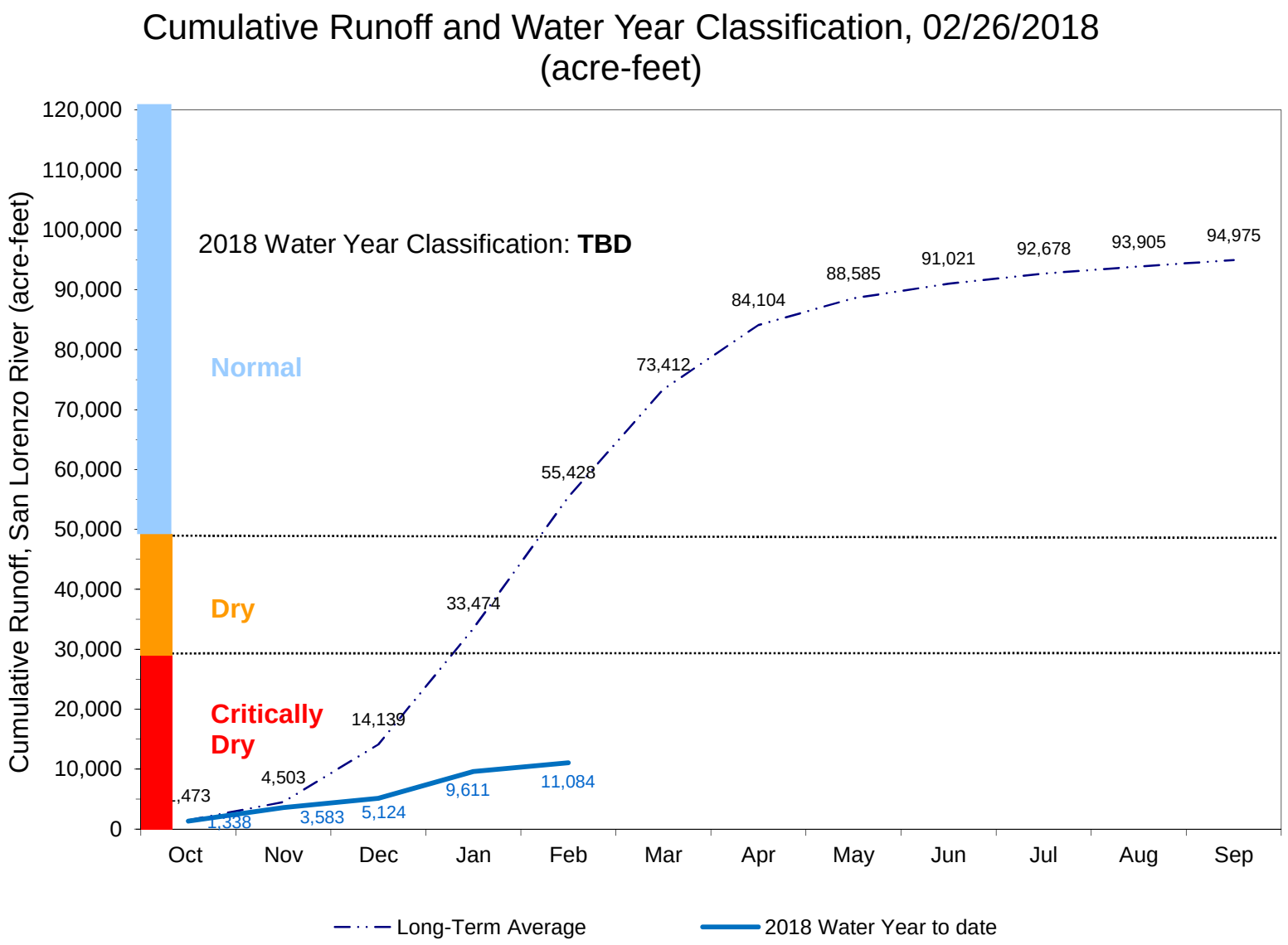
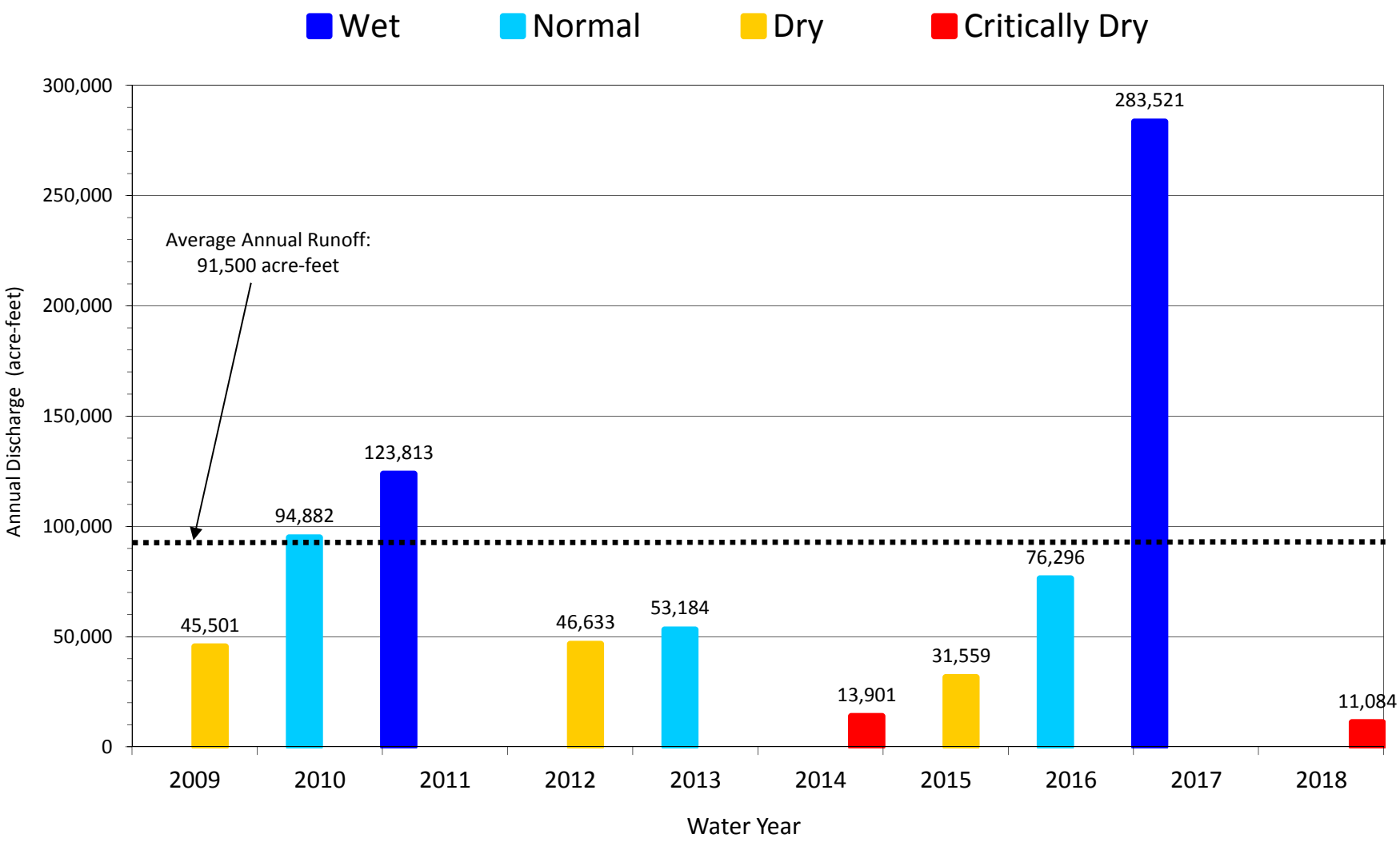

Mean Monthly Streamflow, San Lorenzo River at Big Trees
(cubic feet per second)
Mean monthly flow (cubic feet per second)
500
400
300
200
100
0
24
21.8
11.3
51
37.8
14.2
157
25.1
15.8
315
73
13.2
396
29.8
51
293
50
180
30.7
73
14.2
41
10.2
27
8.4
20
7.0
18
7.9
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Long-Term Average
2018 Water Year to date
2014 Water Year

Figure 4.


Cumulative Runoff and Water Year Classification, 02/26/2018
(acre-feet)
Cumulative Runoff, San Lorenzo River (acre-feet)
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
2018 Water Year Classification: TBD
Normal
Dry
Critically Dry
,473
4,503
14,139
33,474
55,428
73,412
84,104
88,585
91,021
92,678
93,905
94,975
1,338
3,583
5,124
9,611
11,084
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Long-Term Average
2018 Water Year to date

Total Annual Discharge San Lorenzo River, 2009-2018



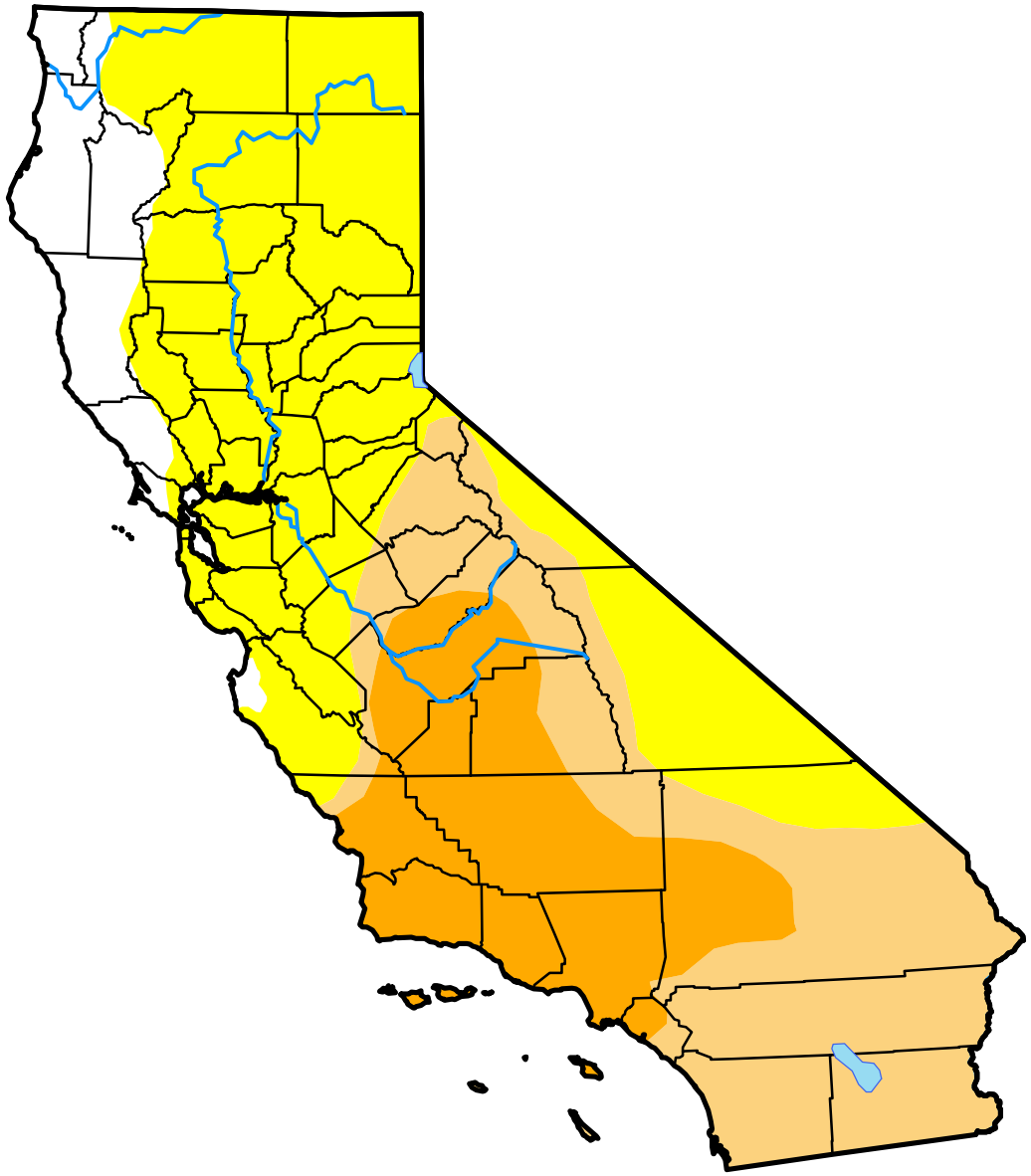
U.S. Drought Monitor

California

February 20, 2018

(Released Thursday, Feb. 22, 2018)

Valid 7 a.m. EST



3.9

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Deborah Bathke
National Drought Mitigation Center

http://droughtmonitor.unl.edu/

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WATER COMMISSION
INFORMATION REPORT

DATE: 02/26/18

AGENDA OF: 3/5/18

TO: Water Commission

FROM: Heidi Luckenbach, Deputy Director/Engineering Manager

SUBJECT: FY2019-2028 Capital Improvement Plan Summary

RECOMMENDATION: That the Water Commission receive the draft ten-year Capital Improvement Plan and summary of highlights.

BACKGROUND: At their February 2018 meeting the Water Commission received information on projects that have been completed (or very nearly completed) during the current fiscal year (FY2018) as well as several ongoing capital projects. As stated in the February staff memo, the purpose of that presentation was to revisit projects supported by the Commission and provide context for future meetings on the capital and operating budgets. This item shows the ten-year Capital Improvement Plan (CIP), FY2019-2028, and highlights new information and/or modifications to scope, schedule or budget.

DISCUSSION: The attached table is formatted to display each project in the CIP by category and then alphabetically for ease of reference to other project and budgeting documents. Each project is broken into its phases as follows:

- Complete: These projects are expected to be complete this fiscal year (FY2018).
- Validate: These projects are going through the validation process outlined in the HDR mobilization task. In general, the purpose of validation is to define a project in terms of purpose and need, develop a resource plan, and schedule and budget a number of projects based on a prioritization scheme. A large number of projects in the CIP are going through this process even though they are at various stages of development. (Ideally, validation would be done before a project started.) The validation process should be complete in spring 2018.
- Condition Assessment: Several projects are undergoing an assessment of existing conditions to help inform the rehab/design phase.
- Design: Many of the existing CIP projects are in some form of design, most between 50-100% complete. Because this is a high-level schedule, planning and preliminary engineering tasks such as right of way, permitting, environmental review, are included in this timeframe.

- Construct: All design, permitting, regulatory and financing issues are resolved; the project is funded to proceed in this fiscal year.
- Ongoing: This term is used for Water Treatment Upgrades and Main Replacement. The former is a CIP that is used during project definition and smaller projects at the GHWTP. Larger projects become their own CIP. And, the department has a variety of main replacement projects that are recurring for the foreseeable future.
- Float: This is to indicate a timeframe with the project(s) has flexibility in terms of timing and could be advanced or delayed for a variety of reasons.
- Projects highlighted in shades of orange are scheduled according to a regulatory driver (e.g., Newell Creek Dam Inlet-Outlet Project) or following the WSAC recommended schedule (Water Supply Augmentation Strategy).

Below is a summary of noteworthy projects and their status.

Newell Creek Reservoir Inlet-Outlet

- A significant amount of geotechnical analysis was conducted which included borings both on land and in the reservoir. Preliminary findings are defining the location of the tunnel (both vertically and horizontally), the type of tunneling equipment, and the type of intake structure.
- Analysis of two existing bridges revealed that they were not designed/constructed to carry the anticipated loads of the tunnel construction. To mitigate this, the spillway bridge will likely be replaced and the road bridge reduced to one-way.
- A lake model was developed to help locate the intake gates, both vertically as well as horizontally.
- The project remains on schedule.

Raw Water Pipelines

HDR is working with staff to develop a work plan for raw water main replacements. This will include the completion of the North Coast Phases 4-6, and the Newell Creek Pipeline. (Note that the North Coast System Repair and Replacement Project recommended work be completed in six defined phases between the Coast Pump Station on River Street/Highway 9 and the origin of the North Coast sources. Three of the six phases have been completed.) The attached shows the work on the North Coast preceding that of the Newell Creek Pipeline due to potential conflicts with the Newell Creek Dam Inlet-Outlet project; however, a schedule has not been finalized.

Diversions

Evaluation of the Laguna and Majors diversion structures was done as part of the North Coast System Rehab project (c 2002) to determine if they were sound and if modifications could be made to improve the efficiency and reduce the potential for environmental impacts associated with the City's operations. The Department is in the process of hiring Black & Veatch for a facilities assessment and conceptual design for both of these structures. Funds are budgeted in future years for design and construction; design was extended by a year following discussions with staff and the consultant.

SLR Diversion & Tait Wells

This project includes a condition assessment of the entire pump station as well as the existing diversion structure(s). A future project may include reconfiguration of the pump station, replacing the dam, and/or alternative diversions. This project is tied in part to a potential grant-funded project, Coast Pump Station Flood Reduction, and the Riverbank Filtration study. No funding has been allocated for future projects.

Tube Settler Replacement

This is a large maintenance project to replace these aging treatment process components more or less in kind. The settling basins will be part of the condition assessment and facilities plan being conducted by HDR as well as any process improvements as part of the upgrades to the Graham Hill Water Treatment Plant for improved treatment and ability to treat higher-turbidity/TOC(total organic carbon) water. Maintenance could not be deferred to address the current state of the basins.

U4

No work has been done on this project and the attached shows it being delayed a number of years. There is no regulatory driver for this project although it is part of an improvement package covering the pumps and tanks that serve the west side of Santa Cruz and University system. Staff will work with HDR during the validation process to prioritize this project.

U5

The scope and schedule for this project had been modified recently to accommodate the schedule for applying for State Revolving Funds. However, it turns out the project is not eligible to receive this type of funding so the schedule may be expedited.

Concrete Tanks

The scope and schedule for this project is being adjusted slightly to accommodate the schedule for applying for State Revolving Funds.

Flocculator Improvements

As with the sedimentation basins (Tube Settler project), the flocculators are in need of maintenance to replace aging equipment. HDR will assist staff with a condition assessment and make recommendations for what will likely be a rehabilitation of existing features. Also like the tube settler project, this will be followed by a larger project identified in the condition assessment/facilities plan.

Advanced Metering Infrastructure (AMI)

A cross section of the department's staff is working on this project. Currently a pilot study is being conducted using landscape accounts to help staff understand the potential benefits of full scale install of AMI in Santa Cruz. Interviews are being held to hire a firm to develop the business case for AMI as well as help identify any potential funding opportunities. While the implementation of AMI is scheduled for FY2022, this could be advanced.

Loch Lomond Facilities and Photovoltaic

With the completion of the solar project at Bay Street Reservoir Tank Site, and the current ADA project at Loch Lomond, there are no additional projects identified at this time. However, the CIP projects will remain open as placeholders; staff meets quarterly on both of these topics.

Riverbank Filtration

This project consists of two phases. Phase 1 includes the document review, work plan development and hydrogeologic condition assessment for potentially feasible sites in the vicinity of the Coast Pump Station and Felton Diversion. Phase 2 would include developing plans and specifications for the implementation of a feasible project. Staff is reviewing proposals for Phase 1 and is scheduled to have work completed by the end of this calendar year.

Main Replacement

The Department currently replaces, either through contracted work or in house crews, 3-5 miles of distribution main each year. The age of our system indicates that this rate of replacement should be much higher. However, given the current cost of contracted work and the magnitude of other priority projects, increasing this program is not feasible at the moment. Staff is working with HDR to develop a long term strategy for increasing the amount of main replaced as well as the method of doing so. E.g., design-build may have a role in this project delivery.

Currently on the Commission's upcoming meeting agenda are 1) a presentation of the FY2019-2028 CIP with focus on project validation if the HDR validation as described above is complete (April 2, 2018), and 2) the Recommendations on the FY2019 Operations and Maintenance Budget, CIP and the updated financial Pro Forma (May 7, 2018).

FISCAL IMPACT: None.

PROPOSED MOTION: Accept the information.

ATTACHMENTS: Ten year Capital Improvement Plan Overview

Ten Year Capital Improvement Plan FY2019-FY2028
Draft, revised 02/26/18

PROJECT CATEGORY/NAME	Fiscal Year / PROJECT NUMBER	FY2018 Jan-Jun 2018	FY2019 Jul-Dec 2018	FY2019 Jan-Jun 2019	FY2020 Jul-Dec 2019	FY2020 Jan-Jun 2020	FY2021 Jul-Dec 2020	FY2021 Jan-Jun 2021	FY2022 Jul-Dec 2021	FY2022 Jan-Jun 2022	FY2023 Jul-Dec 2022	FY2023 Jan-Jun 2023	FY2024 Jul-Dec 2023	FY2024 Jan-Jun 2024	FY2025 Jul-Dec 2024	FY2025 Jan-Jun 2025	FY2026 Jul-Dec 2025	FY2026 Jan-Jun 2026	FY2027 Jul-Dec 2026	FY2027 Jan-Jun 2027	FY2028 Jul-Dec 2027	FY2028 Jan-Jun 2028
Rehabilitation or Replacement Projects																						
Aerators at Loch Lomond	c701706	Complete																				
Bay Street Reservoir Reconstruction	c700313 & -027	Complete																				
Beltz 10 & 11 Rehab & Development	c700026	Complete																				
Coast Pump Station Line Repairs	c701707	Validate	Design		Construct																	
Felton Diversion Replac. & Pump Station	c701602	Validate	Condition Assess.		Design		Construct															
Newell Creek Dam Inlet/Outlet Pipeline	c701606	Design			Construct																	
Newell Creek Pipeline Rehab/Replacement	c701701	Validate	Conceptual Design			Design/Permit/CEQA				Float						Construct						
N. Coast System Rehab- Laguna Diversion	c701801	Condition Assess.	Design/Permit/CEQA				Construct															
N. Coast System Rehab- Majors Diversion	c701802	Condition Assess.	Design/Permit/CEQA				Construct															
North Coast System Rehab - Phases 4-6	c709835	Validate	Conceptual Design			Design/Permit/CEQA				Construct												
Pressure Regulating Stations	c701703	Ongoing																				
San Lorenzo River Diversion & Tait Wells	c709872	Condition Assess.			Design		Construct															
Tube Settler Replacement	c701708	Design	Construct																			
University Tank No. 4 Rehab/Replace[1]	c701505	Float									Design		Construct									
University Tank No. 5 Replacement	c701506	Design		Construct																		
Water Treatment Upgrades	c700025 & -1401	Ongoing																				
WTP Concrete Tanks Replacement	c701501	Design			Construct																	
WTP Filter Rehabilitation and Upgrades	c701303	Complete																				
WTP Flocculator Improvements	c701502	Validate	Condition Assess.		Construct																	
rades or Improvement Projects																						
anced Metering Infrastructure (AMI)	c701603	Pilot/Bus. Case	Bus. Case		Design		Float		Construct													
Brackney Landslide Risk Reduction	c701803	Dependent on grant funding. And/or, tied to Newell Creek Pipeline Project																				
Coast Pump Station Flood Reduction	c701804	Dependent on grant funding. And/or could be tied to SLR Diversion/Tait Wells Project.																				
Loch Lomond Facilities Improvements	c701301	Construct	Design	Construct																		
Photovoltaic System Evaluation/Construc	c701607	Complete																				
Security Camera & Building Access Upgrades	c701704	Construct																				
Spoils and Stockpile Handling Facilities	c701508	Complete																				
Union/Locust Building Expansion	c701805	Construct																				
Water Resources Building	c701702	On Hold - Tied to Condition Assessment/Facilities Plan of GHWTP																				
Water Supply Reliability & Studies																						
Aquifer Storage and Recovery	c701609 & -10	Feasibility																				
Recycled Water	c701611 & -12	Feasibility																				
River Bank Filtration	TBD	Feasibility	Design																			
Source Water Evaluation	c701608	Evaluation																				
Water Supply Augmentation Strategy	c701402 & -03	Pre-Design					Design				Construct											
Water Main Replacements																						
Main Replacements - Engineering Section[2]	c700002 +	Construct	Design	Construct	Design	Construct	Design	Construct	Design	Construct	Design	Construct	Design	Construct	Design	Construct	Design	Construct	Design	Construct	Design	Construct
Main Replacements - Customer Initiated	c700004	Ongoing																				
Main Replacements - Distribution Section	c701507	Ongoing																				
Main Replace.- Outside Agency Initiated	c700003	Ongoing																				

1 This schedule shows the consideration of deferring U4.
2 Consider increasing rate of replacement; perhaps after 2024

WATER COMMISSION
INFORMATION REPORT

DATE: 2/28/2018

AGENDA OF: March 5, 2018

TO: Water Commission

FROM: Rosemary Menard

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

RECOMMENDATION: That the Water Commission discuss and provide feedback on the draft Agenda for the April 10, 2018 Joint Meeting of the Santa Cruz City Council and the Santa Cruz Water Commission.

BACKGROUND: Over the last several years the Water Commission has routinely met at least annually in a joint meeting with the City Council to discuss issues of mutual interest and provide an opportunity for Commissioners to have direct interactions with Councilmember on water related issues. In March of 2016 the joint meeting covered issues related to priority policy objectives to be used in the rate-making process. In March of 2017, the joint meeting focused on an update on the first year of work implementing the recommendations of the Santa Cruz Water Supply Advisory Committee.

The joint meetings are typically designed to achieve several key outcomes including:

- Provide informational briefings to Councilmembers on ongoing work that is not yet ripe for Council action but with which the Commission is more actively engaged;
- Create opportunities for Water Commissioners to provide comments to and hear from Councilmembers about their perspectives on the issues that the Commission is dealing with in its work; and
- Provide updates on important water related topics to the public participants typically in attendance at Council meetings and hear from these community interests about their perspectives on the issues.

DISCUSSION: The draft agenda for the planned April 10, 2018 joint meeting between the Water Commission and the City Council is similar to the meeting held last year to discuss the status of the WSAC work and has the same objectives as listed above. Two presentations are planned:

1. An update on the implementation of the WSAC's recommendations; and

2. An overview of the WSAC's change management strategy and decision making framework.

In addition, the timing of this year's meeting makes is a good forum in which to present and ask for action on the water management action plan for the upcoming 2018 peak demand season.

Should water supply conditions continue in the trend we've seen so far this winter, a joint action by the Council and the Commission on a water management action plan for the summer is a fitting beginning for a discussion of the progress of work to select a supplemental water supply project or portfolio of supplemental water supply projects that will improve the reliability of the Santa Cruz water supply and make the system more resilient in the face of dry winters such as those that have been experienced in half of the years over the last decade.

Finally, the last agenda item provides a great opportunity to bring the Commission, the Council and the public up to date on the significant and ongoing work Water Department staff is engaged in with other regional water providers and water management agencies on regional water supply issues. These very important initiatives are addressing critical local water issues such as the overdraft of groundwater basins and building relationships needed to look for synergy and increased conjunctive use of local surface and groundwater resources, which could result in increased reliability and resiliency for water customers throughout the area.

FISCAL IMPACT: None

PROPOSED MOTION: Motion to provide feedback on the draft Agenda for the April 10, 2018 Joint Meeting of the Santa Cruz City Council and the Santa Cruz Water Commission.

ATTACHMENTS:

Draft Agenda for 4-10-18 Joint Meeting

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

Water Department

JOINT MEETING BETWEEN THE SANTA CRUZ CITY COUNCIL AND THE SANTA CRUZ WATER COMMISSION

April 10, 2018

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

*Denotes written materials included in packet.

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

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

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

Call to Order

Roll Call

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

Oral Communications - No action shall be taken on this item.

Announcements - No action shall be taken on this item.

General Business (Pages x-x)
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.

1. Presentation and Water Commission and City Council action on the water management action plan for the 2018 peak water demand season.

   Recommendation to approve the water management action plan for the 2018 peak water demand season.

2. Presentation and discussion of status of second year of work implementing the recommendations of the Santa Cruz Water Supply Advisory Committee (WSAC).

   Receive information and provide feedback to staff on implementation of the WSAC recommendations.

3. Presentation and discussion of the WSAC recommended change management strategy and decision making framework for selecting a preferred supplemental supply project or portfolio of supplemental supply projects in 2020, including recent work to develop an specific implementation approach for the decision-making framework.

   Receive information and provide feedback to staff on the change management strategy and decision-making framework.

4. Presentation and discussion of ongoing regional collaboration and coordination activities relate to water supply issues.

   Receive information and provide feedback to staff on ongoing regional collaboration and coordination activities related to water supply issues.

Adjournment

WATER COMMISSION
INFORMATION REPORT

DATE: 2/27/18

AGENDA OF March 5, 2018

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 ninth 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.

Also included in this quarterly report are updates on other studies and projects that have or may have a nexus with the WSAS work. These are included in the section at the end of this report under "Other."

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

Status of Measures in the Water Conservation Plan

No.1 System Water Loss Reduction. In the last quarter of 2017, the Water Department submitted a validated distribution system water audit (for 2016) to the California Department of Water Resources, as required under a new state law. Staff is in the process of gathering the information to prepare the 2017 water audit. Other activities in the last three months include:

- additional testing of both large (2 inches and larger) and small sales meters
- planning for testing of the production meters at the Beltz wells, and

- planning another round of acoustic leak detection of the distribution system in spring 2018 using contract services. This information will be used to better understand the magnitude of losses that is potentially recoverable through active leak detection.

No. 2 Advanced Metering Infrastructure (AMI). The Water Conservation Section has been working closely with Customer Service and Meter Shop personnel on AMI. There are two primary tasks currently underway:

- Pilot project on large landscape accounts. As of February 1, 2018, all the meters and endpoints for the Badger Pilot have been installed and are functioning properly. There are a total of 355 meters/endpoints in the pilot project. The plan is to operate and market the AMI system between March and November, followed by a formal evaluation, scheduled in early 2019. Accordingly, the pilot customers have been divided into a control and treatment group. Customers in the treatment group will receive access to the daily and hourly water use information on the Badger customer portal, known as "Eye On Water." Those in the control group will not. Letters to the treatment group about how to create an account go out March 1. There will be a series of communications urging them to participate in viewing and monitoring their own water usage using AMI.
- The Water Department is interviewing consultants to develop a business case for a full AMI rollout. There is currently money earmarked in the Capital Improvement Plan for a full AMI deployment in FY 2022 and 2023. The business case will look at the costs and benefits of an AMI deployment. This document could be part of the justification to move up the CIP budget and timeline.

No 5. Home Water Use Report. Water Conservation staff has completed interviews with various firms that offer a home water use report and are in the process of preparing a Request for Proposals for this type of engagement program to be issued this spring.

No 28. Residential Rain Barrels The last of three rain barrel distribution events for this winter was held February 24, 2018. Customer interest and participation in this program has waned over time.

No 31. Residential Dishwasher Rebate. The Water Conservation Master Plan calls for development of a residential dishwater rebate program in FY 2018. This program is now active and is being advertised through an insert with the February utility bills.

Other recent activities in the Water Conservation Office include the following:

- Participating in a statewide regulatory process that aims to permanently prohibit water waste
- Planning outreach materials and activities for the tenth annual Fix a Leak Week campaign March 19-25
- Working with IT on a five-year update to map properties participating in various water conservation programs (see example attached)
- Review of water consumption and revenue by tier in calendar year 2017 for the single family, multifamily, and irrigation categories of customers.

In Lieu Water Transfers (Winter Water Strategy)

- Consultant: Black and Veatch
- Contract Signed: August 2017
- Project Partners: Soquel Creek Water District (SqCWD)
- Engaged Stakeholders: None at this time.
- Contract Amount: $668,000 (While Council approved the entire contract scope and budget, a purchase order was opened in the amount to cover Phase 1 only, $180,220.)
- Amount Spent: $92,235
- Amount Remaining: $575,765
- Status: On schedule

This study is examining the compatibility of the City's surface water with SqCWD's distribution system and customer plumbing. As reported previously, the study is organized in two phases: Phase 1, Bench Top Analysis and Phase 2 Pipe Loop Study. Bench testing is still expected to be complete by May 2018. Until then, recommendations on proceeding with Phase 2 are on hold.

The City will start invoicing SqCWD in March for their share of this study.

Aquifer Storage and Recovery (ASR) (Winter Water Strategy) - Phase I Work

- Consultant: Pueblo Water Resources
- Contract Signed: February 2016
- Project Partners: None at this time.
- Engaged Stakeholders: SqCWD, County of Santa Cruz, Scotts Valley Water District, San Lorenzo Valley Water District
- Amount Spent: $379,484
- Amount Remaining: $444,501
- Contract Amendment No. 1: $377,615
- Status: Delayed approximately 4 months.

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

An important and complicated topic related to the ASR study is the ongoing discussion around projections for future climate conditions, and how those may impact the local hydrology and therefore a water supply project. During the WSAC discussions a future climate condition was generated based on the best information available at the time, the CMIP3 general circulation model ensemble. Today, CalAdapt has adopted CMIP5, the more contemporary ensemble of models compiled by the Intergovernmental Panel on Climate Change (IPCC), the organization that gathers and reviews global climate models. And yes, CMIP6 is in the wings. Part of the task staff is grappling with is how to bookend potential future conditions so that work on the supply project is best informed by the extensive scientific work being done on climate change, without being continuously sidetracked by new information.

Our consultant team is summarizing our agreed-upon approach in a memo due shortly.

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
This task is ongoing with no new report.

Task 1.2 Site Specific Injection Capacity Analyses
No new report.

Task 1.3 Geochemical Interaction Analysis
No new report.

Task 1.4 Pilot ASR Testing Program Development
As previously mentioned, this is an iterative task that relies on the groundwater models for the Mid-County and Santa Margarita Groundwater Basins to finalize recommendations of pilot ASR sites. Because work on the modeling of the Mid-County Basin has been delayed a deliverable to the city for this task is not expected now until April/May of 2018.

Task 1.5.1 Well Siting Study
Nothing new to report; as previously mentioned this work is ongoing and on a schedule similar to that of Tasks 1.4 (above), and 1.5.2 - Groundwater Model Coordination.

Task 1.5.2 Groundwater Modeling Coordination
A second set of scenarios of the Santa Margarita Groundwater Basin has been simulated to include the hydrology for the time period of 1973-1984 because the previous modeling scenarios only included the time period from 1985-2015 and did not include the city's worst year planning drought years of 1976-1977. Results from the most recent modeling runs in the Santa Margarita Groundwater Basin are generally consistent with the WSAC assumptions: i.e., there is roughly 1.5 billion gallons of storage in the Lompico formation, losses in the basis are roughly in the 10 to 20 percent range, and injection capacities for wells in the basin average about 0.3 million gallons per day (mgd).

Work on the modeling scenarios for the Mid-County Groundwater Basin (Purisima) has been delayed due to the calibration issues associated with that model. A deliverable to the city with results of the initial modeling scenarios in the Mid-County basin is expected in early March.

This effort is ongoing and delayed by approximately 4 months.

Issue(s)
The issue being dealt with at this time is related to climate change dataset selection as described above and how the use of different datasets in the various models may impact modeling results and observations about the feasibility of the projects. In addition are the continued delays with the calibration and runs of the Mid-County Groundwater Model.

Advanced Treated Recycled Water
Regional Recycled Water Facilities Planning Study (RWFPS) Status

- Consultant: Kennedy/Jenks Consultants
- Contract Signed: February 2016
- Project Partners: Water and Public Works Departments, State Water Resources Control Board (SWRCB)
- Engaged Stakeholders: City Parks and Recreation Department, 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: $525,793
- Amount Remaining: $61,515
- Contract Amendment No. 1: $26,357
- Contract Amendment No. 2: $74,951
- Schedule: On Schedule, Final Report by June 2018
- Report: Draft Final Report approved by SWRCB, comments currently being incorporated into Final version

*Pending award of State Water Resources Control Board grant

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

- January 2018, SWRCB Midcourse Meeting; presented Draft RWFPS to SWRCB through a webinar to discuss draft comments received, study findings, and review progress of the report. City staff and consultants presented together and received positive feedback indicating we will likely receive grant funding upon submission of the final report.

Issue(s) and Next Steps
Per the Water Supply Advisory Committee (WSAC) Implementation Plan and Timeline, Decision Node 3.2 indicates that by December 2017 a decision should be made to either pursue advanced treated recycled water or desalinated water as the drought-resistant supply of choice.

The RWFPS has recommended two relatively small non-potable reuse projects in the near term which do not provide adequate water supply when compared to desalinated water. However, the RWFPS also identified the potential for groundwater replenishment reuse (GRR) to provide significant water supply if further study is conducted on groundwater modeling, public acceptance and regional collaboration opportunities.

Like aquifer storage and recovery, a GRR project is dependent upon completion of groundwater modeling. Therefore, the current issue with developing a GRR project is that a detailed project description (cost, yield, and schedule) cannot be fully developed and understood until results from a groundwater model are available.

Groundwater modeling results are currently being developed with ASR being the priority; i.e., initial model runs will incorporate aquifer storage and recovery utilizing excess winter water scenarios. While the results from an ASR project will provide some insight into GRR, the primary difference is the required detention time for GRR and the need for separate injection and extraction wells.

Staff is working with HDR, our Program Management group, on a scope of work that will vet the GRR project, along with additional groundwater model scenarios, to develop a detailed project description that will allow comparison with the other water supply projects.

Desalinated Water

- Consultant: DUDEK
- Contract Signed: May 2017
- Project Partners: NA
- Engaged Stakeholders: None at this time.
- Contract Amount: $139,669
- Amount Spent: $98,609
- Amount Remaining: $41,060
- Schedule: Currently on schedule.

DUDEK was hired in May 2017 to complete a "Desalination Feasibility Update Review." A draft report was submitted to the City for review and comment in October 2017 and DUDEK reported out on the study at the Water Commission's November meeting.

As stated previously, the report provides a review of feasibility, cost, timeliness, and approach for pursuing a seawater desalination facility for use by the City with the purpose of supporting the City's selection of a preferred Element 3. Of particular interest is the assessment of changed conditions that may affect the design, environmental review and permitting of a seawater desalination project. The significant changed conditions are repeated below with additional information provided for the first and third items.

Project Objectives: Filling the water supply gap with a project sized at 3.3mgd instead of 2.5mgd as analyzed in the scwd2 draft EIR. Why 3.3mgd? The WSAC reached a number of agreements including demand forecasts, fish flow releases and climate change. The result of those inputs to supply forecasting was a "projected worst-year gap between peak-season available supply and demand during an extended drought is about 1.2 billion gallons." Or about 3.3mgd spread over an entire year. This number has been used in all the analyses to date as a basis for project comparison.

Intake Pump Station Locations: Three intake alternatives evaluated instead of 8.

2016 Ocean Plan Amendment (OPA): OPA is the basis for Regional Water Quality Control Board (RWQCB) Water Code Section 13142.5(b) determinations. The OPA requires subsurface intake unless they are deemed infeasible. The study recommended pursuing early consultation with the RWQCB to confirm and clarify additional study needed to determine

feasibility of subsurface intakes. To achieve this, staff has scheduled a meeting to discuss this issue in mid-March in Santa Cruz with State Water Resources Control Board staff responsible for assisting the RWQCBs in implementing the OPA and staff from California Coastal Commission.

Other *(may include: Source Water Monitoring, North Coast Diversions and Pipelines, Newell Creek Pipeline, Newell Creek Dam Inlet-Outlet Pipeline, Felton Diversion, Outreach and Education, etc.)*

Source Water Monitoring

- Consultant: Trussell Technologies
- Contract Signed: November 2016
- Project Partners: NA
- Engaged Stakeholders: None at this time
- 2017 Contract Amount: $98,924. Amount remaining: $0
- 2018 Contract Amount: $80,002. Amount remaining: $76,742.
- Schedule: Currently on schedule.

Through the Source Water Monitoring project, the City strives to learn more about water quality in the San Lorenzo River, especially during high-flow, winter months. This understanding could facilitate the treatment of more water during the winter, increasing the feasibility of an in-lieu water transfer project.

Trussell Technologies is under contract to conduct source water monitoring, data management and analysis for water year 2017 and 2018. Water year 2017 monitoring and analysis is complete, and the final report was delivered in February 2018. Monitoring for water year 2018 has commenced with an anticipated report delivery date in November 2018.

Lake Management Services

- Consultant: McCord Environmental Inc.
- Contract Signed: October 2016
- Project Partners: NA
- Engaged Stakeholders: None at this time.
- Contract Amount: $250,300. Amount remaining: $49,300.
- Schedule: Currently on schedule.

McCord Environmental was contracted to evaluate the source water quality of Newell Creek Reservoir (a.k.a. Loch Lomond) under current and future conditions. This work includes the following tasks:

- Development of a Hydrodynamic and Water Quality Simulation Model;
- Sizing, selection and cost-estimation of a new Hypolimnetic Oxygenation System; and
- Generate a Lake Management Plan.

Newell Creek Reservoir is a critical source of supply during the winter months when the San Lorenzo River is too turbid to treat and fills supply gaps during the summer and/or periods of

drought. With this project the City hopes to gain an understanding of the efficacy of current management strategies (algae treatments, aeration, etc.) and prepare for future conditions including extended droughts, harmful algal blooms, project-related changes (e.g. Aquifer Storage and Recovery, Newell Creek Dam Inlet-Outlet Project, etc.) and new water quality regulations (e.g. mercury limits).

Outreach and Communication
Our Water, Our Future progress reports were distributed by email in December, January and February following Water Commission meetings.

The second Annual Report (covering activities and progress in calendar year 2017) is nearing completion and will be mailed to customers in the next few weeks.

FISCAL IMPACT: None.

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

ATTACHMENT(S): Example map of properties participating in Water Conservation Program: Plumbing Fixture Retrofit Program

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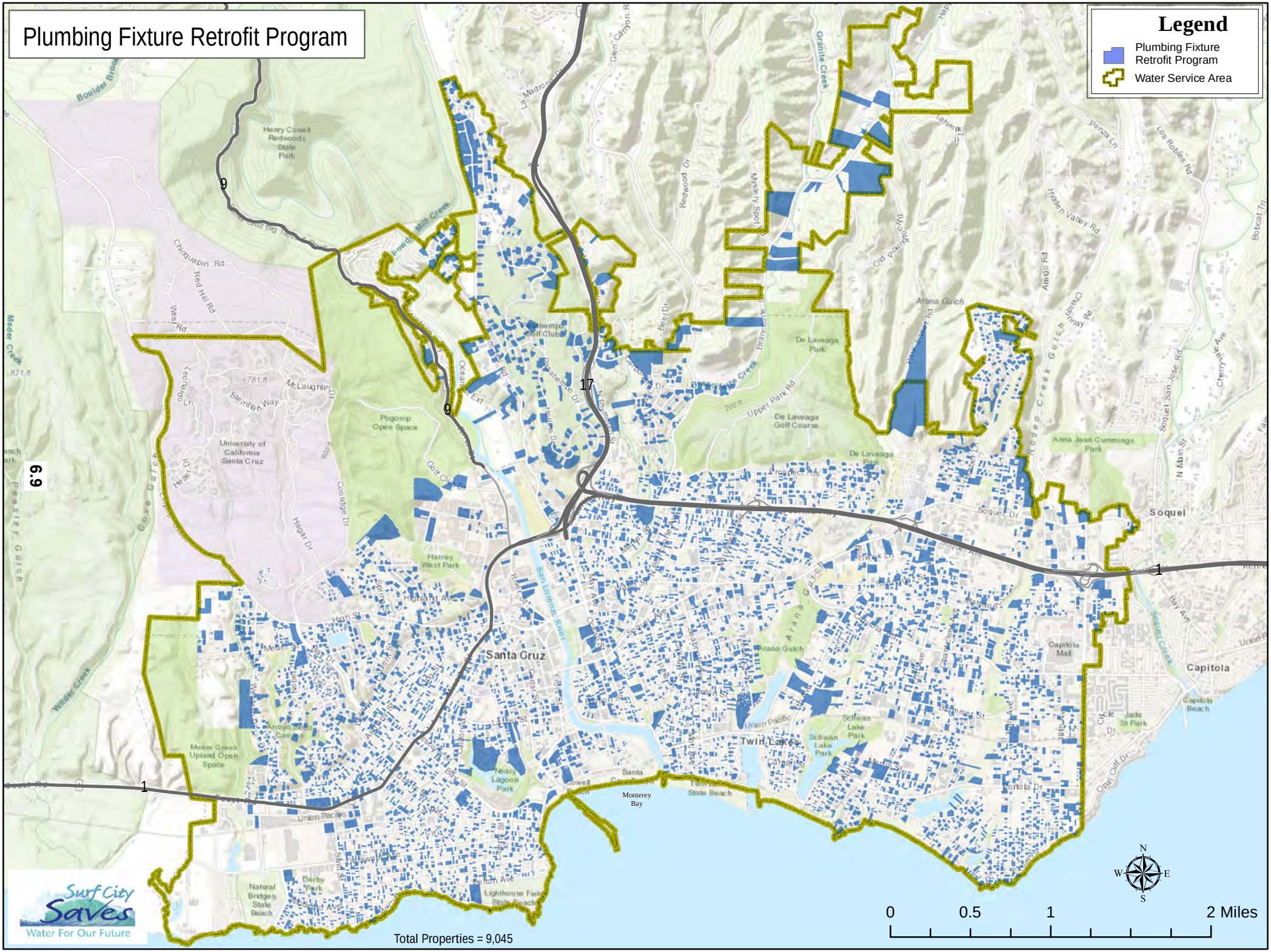
Plumbing Fixture Retrofit Program
Legend
Plumbing Fixture Retrofit Program
Water Service Area
Santa Cruz
Soquel
Capitola
Twin Lakes
Monterey Bay
Total Properties = 9,045
0
0.5
1
2 Miles
N
S
E
W
Surf City Saves
Water For Our Future

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WATER FOR SANTA CRUZ COUNTY

Rosemary Menard
Water Director
City of Santa Cruz

October 24, 2017
Resubmitted: 2/28/2018

Re: Inlet/Outlet structure at Loch Lomond Dam, Newell Creek Pipeline rehab/replacement

Dear Rosemary,

I noticed the city council gave consent on September 26, 2017 to the design contract for the Inlet/ Outlet repairs at the dam. When I read some of the supporting documents, the language said "the preliminary design is to replace the existing 22" pipeline with a 24" pipe." That brings up questions of sizing since this upgrade of the inlet/outlet and the pipeline is expensive and will be expected to last for many years.

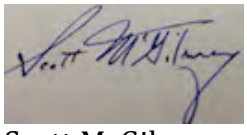
I have spent time reviewing daily stream flow records in the San Lorenzo river. As a result of this review and analysis, 4 points are coming into focus.

1. Most years the need for substantial pumping from the Felton Diversion to Loch Lomond is minimal. In years of average or above average rainfall, the Loch is largely filled by natural rainfall into the Newell Creek/Loch Lomond watershed.
2. It is in years of below average rainfall that pumping from the Felton Diversion to refill Loch Lomond is critical to filling the Loch before the end of the rainy season.
3. If Santa Cruz is to be able to implement water transfers or passive ASR we need to be able to fill Loch Lomond to capacity in order to have water available for water transfers or ASR. The Loch needs be near full on April 1 almost every year.
4. Pipeline Capacity, permitted daily take and available water are the major determinants in the time needed to refill Loch Lomond in below average rainfall years.

Table of days to pump 900 million gallons to Loch Lomond

Options	Daily take	Days to pump 900 million gallons
Present	3 mg/day	300 days
22" Pipe	8.5 mg/day	106 days
24" Pipe	10 mg/day	90 days
30" Pipe	15 mg/day	60 days
36" Pipe	22 mg/day	41 days

I would appreciate the opportunity to discuss this with you. I would also like to learn the cost difference various pipe sizes have on project cost.



Scott McGilvrav